

**Draft Program Environmental Impact
Report No. 620
El Toro, 100-Acre Parcel Development Plan**

**IP#16-365
State Clearinghouse Number 2014111019**

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

November 4, 2016

**Draft Program Environmental Impact Report No. 620
El Toro, 100-Acre Parcel Development Plan**

**IP#16-365
State Clearinghouse Number 2014111019**

Prepared for:
COUNTY OF ORANGE
OC Real Estate/Land Development Division
333 W. Santa Ana Blvd
Santa Ana, California 92701
Contact: Eric Hull

Prepared by:
Psomas
3 Hutton Centre Drive, Suite 200
Santa Ana, California 92707

November 4, 2016

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1.0 Executive Summary	1-1
1.1 Introduction.....	1-1
1.2 Project Location.....	1-1
1.3 Project Background.....	1-1
1.4 Project Description Summary.....	1-2
1.5 Project Objectives	1-3
1.6 Project Alternatives.....	1-4
1.6.2 <i>Alternative 1b – No Project/ institutional Entitlements Alternative ...</i>	<i>1-5</i>
1.6.3 <i>Alternative 2 – Intensified Institutional Uses.....</i>	<i>1-6</i>
1.6.4 <i>Alternative 3 – Reduced Intensity and Reduced Density Alternative ...</i>	<i>1-7</i>
1.7 Environmental Impact Report Focus and Effects Found Not to be Significant.....	1-8
1.8 Areas of Controversy/Issues to be Resolved	1-9
1.9 Summary of Significant Effects and Mitigation Program.....	1-13
1.10 References.....	1-51
2.0 Introduction, Project History, and Setting	2-1
2.1 Purpose of this Environmental Impact Report	2-1
2.2 Type of Environmental Impact Report and Standards of Adequacy under the California Environmental Quality Act.....	2-1
2.3 Environmental Review Process	2-3
2.3.1 <i>Review of an EIR.....</i>	<i>2-3</i>
2.3.2 <i>Issues to Be Addressed in the EIR.....</i>	<i>2-3</i>
2.3.3 <i>EIR Review and Approval Process</i>	<i>2-8</i>
2.4 Project History.....	2-9
2.4.1 <i>Base History.....</i>	<i>2-9</i>
2.4.2 <i>Property Tax Transfer and Pre-Annexation Agreement.....</i>	<i>2-10</i>
2.4.3 <i>Great Park Improvement Area Master Plan.....</i>	<i>2-11</i>
2.5 Environmental Setting	2-13
2.6 Organization of the Draft EIR.....	2-16
2.7 References.....	2-17
3.0 Project Description.....	3-1
3.1 Purpose of the Proposed Project.....	3-1

<u>Section</u>	<u>Page</u>
3.2 Project Location	3-1
3.3 Project Objectives	3-2
3.4 Project Processing	3-3
3.4.1 <i>Role of Development Plan</i>	3-5
3.4.2 <i>Implementation of the Development Plan</i>	3-5
3.5 Development Proposal.....	3-6
3.5.1 <i>Proposed Land Use</i>	3-6
3.5.2 <i>Infrastructure</i>	3-10
3.5.3 <i>Regulatory Framework</i>	3-14
3.5.4 <i>Conceptual Grading Plan</i>	3-17
3.5.5 <i>Master Landscape Plan</i>	3-17
3.5.6 <i>Other Project Elements</i>	3-18
3.5.7 <i>City General Plan Amendment and Zone Change</i>	3-19
3.5.8 <i>Phasing</i>	3-30
3.6 Intended Uses of the Environmental Impact Report.....	3-30
3.6.1 <i>County of Orange</i>	3-31
3.6.2 <i>Responsible and Trustee Agencies</i>	3-32
3.7 References	3-33
4.0 Impact Analysis Introduction	4-1
4.0.1 <i>Cumulative Impact Assumptions</i>	4-3
4.0.2 <i>References</i>	4-10
4.1 Aesthetics	4.1-1
4.1.1 <i>Methodology</i>	4.1-1
4.1.2 <i>Existing Conditions</i>	4.1-2
4.1.3 <i>Thresholds of Significance</i>	4.1-4
4.1.4 <i>Impact Analysis</i>	4.1-4
4.1.5 <i>Cumulative Impacts</i>	4.1-17
4.1.6 <i>Mitigation Program</i>	4.1-18
4.1.7 <i>Level of Significance After Mitigation</i>	4.1-19
4.1.8 <i>References</i>	4.1-19
4.2 Air Quality	4.2-1
4.2.1 <i>Background</i>	4.2-1
4.2.2 <i>Regulatory Setting</i>	4.2-4

<u>Section</u>	<u>Page</u>
4.2.3	<i>Methodology</i> 4.2-11
4.2.4	<i>Existing Conditions</i> 4.2-14
4.2.5	<i>Thresholds of Significance</i> 4.2-17
4.2.6	<i>Impact Analysis</i> 4.2-18
4.2.7	<i>Cumulative Impacts</i> 4.2-34
4.2.8	<i>Mitigation Program</i> 4.2-35
4.2.9	<i>Level of Significance After Mitigation</i> 4.2-38
4.2.10	<i>References</i> 4.2-39
4.3	<i>Biological Resources</i> 4.3-1
4.3.1	<i>Regulatory Setting</i> 4.3-1
4.3.2	<i>Methodology</i> 4.3-5
4.3.3	<i>Existing Conditions</i> 4.3-7
4.3.4	<i>Thresholds of Significance</i> 4.3-16
4.3.5	<i>Impact Analysis</i> 4.3-17
4.3.6	<i>Cumulative impacts</i> 4.3-29
4.3.7	<i>Mitigation Program</i> 4.3-30
4.3.8	<i>Level of Significance After Mitigation</i> 4.3-33
4.3.9	<i>References</i> 4.3-33
4.4	<i>Cultural and Scientific Resources</i> 4.4-1
4.4.1	<i>Regulatory Setting</i> 4.4-1
4.4.2	<i>Methodology</i> 4.4-3
4.4.3	<i>Existing Conditions</i> 4.4-5
4.4.4	<i>Thresholds of Significance</i> 4.4-10
4.4.5	<i>Impact Analysis</i> 4.4-10
4.4.6	<i>Cumulative Impacts</i> 4.4-12
4.4.7	<i>Mitigation Program</i> 4.4-13
4.4.8	<i>Level of Significance After Mitigation</i> 4.4-14
4.4.9	<i>References</i> 4.4-15
4.5	<i>Geology and Soils</i> 4.5-1
4.5.1	<i>Regulatory Setting</i> 4.5-1
4.5.2	<i>Methodology</i> 4.5-3
4.5.3	<i>Existing Conditions</i> 4.5-3
4.5.4	<i>Thresholds of Significance</i> 4.5-5

<u>Section</u>	<u>Page</u>
4.5.5	<i>Impact Analysis</i> 4.5-5
4.5.6	<i>Cumulative Impacts</i> 4.5-10
4.5.7	<i>Mitigation Program</i> 4.5-10
4.5.8	<i>Level of Significance After Mitigation</i> 4.5-11
4.5.9	<i>References</i> 4.5-11
4.6	Greenhouse Gas Emissions 4.6-1
4.6.1	<i>Background Information</i> 4.6-1
4.6.2	<i>Regulatory Setting</i> 4.6-4
4.6.3	<i>Methodology</i> 4.6-15
4.6.4	<i>Existing Conditions</i> 4.6-16
4.6.5	<i>Thresholds of Significance</i> 4.6-16
4.6.6	<i>Impact Analysis</i> 4.6-20
4.6.7	<i>Cumulative Impacts</i> 4.6-35
4.6.8	<i>Mitigation Program</i> 4.6-36
4.6.9	<i>Level of Significance After Mitigation</i> 4.6-37
4.6.10	<i>References</i> 4.6-37
4.7	Hazards and Hazardous Materials..... 4.7-1
4.7.1	<i>Background Information</i> 4.7-1
4.7.2	<i>Regulatory Setting</i> 4.7-4
4.7.3	<i>Methodology</i> 4.7-8
4.7.4	<i>Existing Conditions</i> 4.7-9
4.7.5	<i>Thresholds of Significance</i> 4.7-32
4.7.6	<i>Impact Analysis</i> 4.7-33
4.7.7	<i>Cumulative Impacts</i> 4.7-45
4.7.8	<i>Mitigation Program</i> 4.7-45
4.7.9	<i>Level of Significance After Mitigation</i> 4.7-49
4.7.10	<i>References</i> 4.7-49
4.8	Hydrology and Water Quality 4.8-1
4.8.1	<i>Regulatory Setting</i> 4.8-1
4.8.2	<i>Methodology</i> 4.8-7
4.8.3	<i>Existing Conditions</i> 4.8-9
4.8.4	<i>Thresholds of Significance</i> 4.8-13
4.8.5	<i>Impact Analysis</i> 4.8-14

<u>Section</u>	<u>Page</u>
4.8.6	<i>Cumulative Impacts</i> 4.8-26
4.8.7	<i>Mitigation Program</i> 4.8-27
4.8.8	<i>Level of Significance After Mitigation</i> 4.8-30
4.8.9	<i>References</i> 4.8-31
4.9	Land Use and Planning 4.9-1
4.9.1	<i>Regulatory Setting</i> 4.9-1
4.9.2	<i>Methodology</i> 4.9-6
4.9.3	<i>Existing Conditions</i> 4.9-6
4.9.4	<i>Thresholds of Significance</i> 4.9-9
4.9.5	<i>Impact Analysis</i> 4.9-9
4.9.6	<i>Cumulative Impacts</i> 4.9-37
4.9.7	<i>Mitigation Program</i> 4.9-38
4.9.8	<i>Level of Significance After Mitigation</i> 4.9-39
4.9.9	<i>References</i> 4.9-39
4.10	Noise 4.10-1
4.10.1	<i>Regulatory Setting</i> 4.10-1
4.10.2	<i>Methodology</i> 4.10-10
4.10.3	<i>Existing Conditions</i> 4.10-15
4.10.4	<i>Thresholds of Significance</i> 4.10-17
4.10.5	<i>Impact Analysis</i> 4.10-17
4.10.6	<i>Cumulative Impacts</i> 4.10-31
4.10.7	<i>Mitigation Program</i> 4.10-33
4.10.8	<i>Level of Significance After Mitigation</i> 4.10-35
4.10.9	<i>References</i> 4.10-35
4.11	Population and Housing 4.11-1
4.11.1	<i>Regulatory Setting</i> 4.11-1
4.11.2	<i>Methodology</i> 4.11-2
4.11.3	<i>Existing Conditions</i> 4.11-3
4.11.4	<i>Thresholds of Significance</i> 4.11-6
4.11.5	<i>Impact Analysis</i> 4.11-7
4.11.6	<i>Cumulative Impacts</i> 4.11-10
4.11.7	<i>Mitigation Program</i> 4.11-11
4.11.8	<i>References</i> 4.11-12

<u>Section</u>	<u>Page</u>
4.12 Public Services.....	4.12-1
4.12.1 Regulatory Setting.....	4.12-1
4.12.2 Methodology.....	4.12-3
4.12.3 Existing Conditions.....	4.12-4
4.12.4 Thresholds of Significance	4.12-9
4.12.5 Impact Analysis.....	4.12-9
4.12.6 Cumulative Impacts	4.12-15
4.12.7 Mitigation Program.....	4.12-17
4.12.8 Level of Significance After Mitigation.....	4.12-18
4.12.9 References	4.12-19
4.13 Recreation	4.13-1
4.13.1 Regulatory Setting.....	4.13-1
4.13.2 Methodology.....	4.13-2
4.13.3 Existing Conditions.....	4.13-2
4.13.4 Thresholds of Significance	4.13-6
4.13.5 Impact Analysis.....	4.13-6
4.13.6 Cumulative impacts	4.13-11
4.13.7 Mitigation Program.....	4.13-11
4.13.8 Level of Significance After Mitigation.....	4.13-12
4.13.9 References	4.13-12
4.14 Transportation/Traffic.....	4.14-1
4.14.1 Regulatory Setting.....	4.14-1
4.14.2 Methodology.....	4.14-2
4.14.3 Existing Conditions.....	4.14-9
4.14.4 Thresholds of Significance	4.14-26
4.14.5 Impact Analysis.....	4.14-27
4.14.6 Cumulative Impacts	4.14-94
4.14.7 Mitigation Program.....	4.14-118
4.14.8 Level of Significance After Mitigation.....	4.14-130
4.14.9 References	4.14-131
4.15 Utilities and Service Systems	4.15-1
4.15.1 Regulatory Setting.....	4.15-1
4.15.2 Methodology.....	4.15-8

<u>Section</u>	<u>Page</u>
4.15.3 Existing Conditions.....	4.15-8
4.15.4 Thresholds of Significance	4.15-14
4.15.5 Impact Analysis.....	4.15-14
4.15.6 Cumulative Impacts.....	4.15-29
4.15.7 Mitigation Program.....	4.15-31
4.15.8 Level of Significance After Mitigation.....	4.15-32
4.15.9 References.....	4.15-32
5.0 Alternatives.....	5-1
5.1 Introduction.....	5-1
5.2 Criteria for Selecting Alternatives.....	5-2
5.2.1 Ability to Achieve Project Objectives	5-2
5.2.2 Feasibility.....	5-3
5.2.3 Elimination/Reduction of Significant Impacts	5-3
5.3 Alternative(s) Considered But Not Carried Forward	5-4
5.3.1 Development of the Second Harvest Food Bank Warehouse and 21-Acre Parcels.....	5-4
5.3.2 Alternative Site	5-5
5.4 Alternatives for Analysis.....	5-6
5.4.1 Alternative 1a No Project/No Development Alternative	5-11
5.4.2 Alternative 1b – No Project/ Institutional Entitlements Alternative	5-16
5.4.3 Alternative 2 – Intensified Institutional Uses Alternative.....	5-31
5.4.4 Alternative 3 – Reduced Intensity and Reduced Density Alternative	5-47
5.5 Environmentally Superior Alternative	5-70
5.6 References.....	5-116
6.0 Long-Term Implications of the Project	6-1
6.1 Significant Environmental Effects That Cannot be Mitigated.....	6-1
6.2 Significant Irreversible Environmental Changes That Would be Caused by the Project.....	6-1
6.3 Growth-Inducing Impacts of the Proposed Action	6-1
6.4 Energy Analysis.....	6-5
6.4.1 Short-Term Construction.....	6-6
6.4.2 Transportation.....	6-8
6.4.3 Energy Demand	6-9
6.5 References.....	6-11

<u>Section</u>	<u>Page</u>
7.0 Persons and Organizations Consulted.....	7-1
7.1 Community Outreach	7-1
7.2 Agency Coordination	7-6
7.2.1 Department of the Navy.....	7-6
7.2.2 Federal Bureau of Investigation.....	7-6
7.2.3 California Department of Transportation	7-6
7.2.4 County of Orange	7-6
7.2.5 Orange County Transportation Authority	7-6
7.2.6 City of Aliso Viejo.....	7-6
7.2.7 City of Irvine	7-6
7.2.8 City of Laguna Beach.....	7-7
7.2.9 City of Lake Forest.....	7-7
7.2.10 Irvine Unified School District.....	7-7
7.2.11 Orange County Public Library.....	7-8
7.2.12 Orange County Waste and Recycling	7-8
7.3 Organizations Consulted.....	7-8
7.3.1 Center for Demographic Research.....	7-8
7.3.2 Concordia University, Irvine Library.....	7-8
7.3.3 Five Point Communities.....	7-8
7.3.4 Irvine Company.....	7-8
7.3.5 Irvine Ranch Water District	7-8
7.3.6 In8 Specialists.....	7-9
7.3.7 LSA Associates.....	7-9
7.3.8 Second Harvest Food Bank	7-9
7.3.9 Southern California Edison.....	7-9
7.3.10 Stantec.....	7-9
7.3.11 University of California, Davis.....	7-9
8.0 List of Preparers	8-1
8.1 County of Orange.....	8-1
8.1.1 CEO Real Estate/Land Development	8-1
8.1.2 Orange County Public Works.....	8-1
8.2 Lowe Enterprises	8-1
8.3 Consultants	8-1

<u>Section</u>	<u>Page</u>
8.3.1 <i>BonTerra Psomas</i>	8-1
8.3.2 <i>EPT Design</i>	8-2
8.3.3 <i>Fehr & Peers</i>	8-2
8.3.4 <i>Geosyntec</i>	8-2
8.3.5 <i>Jeanette C. Justus Associates</i>	8-3
8.3.6 <i>KTGY Group, Inc</i>	8-3
8.3.7 <i>Schweitzer + Associates, Inc.</i>	8-3
8.3.8 <i>Tait & Associates, Inc.</i>	8-3

TABLES

<u>Table</u>	<u>Page</u>
1-1	El Toro, 100-Acre Parcel Development Plan Proposed Uses 1-3
1-2	Summary of Potential Impacts, Mitigation Measures and Level of Significance..... 1-15
2-1	Summary Matrix of Notice of Preparation Comments..... 2-4
3-1	Development Review Process 3-4
3-2	El Toro, 100-Acre Parcel Development Plan Proposed Uses 3-7
3-3	Equivalency Table..... 3-15
3-4	Development Standards..... 3-16
4-1	Approved and Pending Projects in the City of Irvine 4-7
4.2-1	California and National Ambient Air Quality Standards..... 4.2-5
4.2-2	Attainment Status if Criteria Pollutants in the South Coast Air Basin 4.2-6
4.2-3	Air Pollutant Levels Measured at the Mission Viejo Monitoring Station 4.2-15
4.2-4	SCAQMD Air Quality Significance Thresholds 4.2-18
4.2-5	Unmitigated Maximum Daily Construction Emissions (Lbs/Day) 4.2-22
4.2-6	Mitigated Maximum Daily Construction Emissions (Lbs/Day) 4.2-22
4.2-7	Maximum Localized Daily Construction Emissions (Lbs/Day) 4.2-23
4.2-8	Estimated Maximum Daily Operational Emissions (Lbs/Day) 4.2-24
4.2-9	Estimated 2021-2022 Maximum Daily Emissions (Lbs/Day)..... 4.2-26
4.3-1	Special Status Plant Species Reported From the Study Area Vicinity..... 4.3-11
4.3-2	Special Status Wildlife Species Reported from the Study Area Vicinity..... 4.3-14
4.3-3	Vegetation Types and Other Areas Impacted By The Project..... 4.3-18
4.3-4	Jurisdictional Resources Impacted By The Project 4.3-24
4.6-1	Meeting the 2020 Emissions Target 4.6-11
4.6-2	Comparison of Worldwide GreenHouse Gas Emissions 4.6-16
4.6-3	Estimated Construction Annual Greenhouse Gas Emissions..... 4.6-21
4.6-4	Estimated Project Buildout (2026) Operational Annual Greenhouse Gas Emissions..... 4.6-22
4.6-5	Estimated Total Project Buildout (2026) Annual Greenhouse Gas Emissions Without Mitigation..... 4.6-23
4.6-6	Estimated Project Buildout (2026) Operational Annual Greenhouse Gas Emissions With Mitigation..... 4.6-24
4.6-7	Estimated Total Project Buildout (2026) Annual Greenhouse Gas Emissions With Mitigation..... 4.6-24
4.6-8	Estimated 2030 Operational Annual Greenhouse Gas Emissions With Mitigation 4.6-25
4.6-9	Estimated Total 2030 Annual Greenhouse Gas Emissions With Mitigation 4.6-26
4.7-1	Installation Restoration Program Sites and Other Locations of Concern on the Project Site..... 4.7-11
4.7-2	Buildings/Structures and Facilities 4.7-31
4.8-1	Summary of 303(D) List for the Project Receiving Water Bodies 4.8-2
4.8-2	Performance Standard for Assessing Project Hydrologic Conditions of Concern 4.8-19

<u>Table</u>	<u>Page</u>
4.8-3	Summary of Results 4.8-25
4.9-1	Project Comparison to City of Irvine General Plan Elements 4.9-13
4.9-2	Consistency with Regional Transportation Plan/Sustainable Communities Strategy Goals 4.9-27
4.9-3	Consistency With Regional Transportation Plan/Sustainable Communities Strategies 4.9-30
4.10-1	Orange County Compatibility Matrix for Land Use and Community Noise Equivalent Levels 4.10-2
4.10-2	Orange County Exterior Noise Standards 4.10-3
4.10-3	Orange County Interior Noise Standards 4.10-4
4.10-4	City of Irvine Interior and Exterior Noise Standards 4.10-6
4.10-5	City Of Irvine Land Use Noise Compatibility 4.10-7
4.10-6	City of Irvine Noise Ordinance Standards 4.10-9
4.10-7	Noise Levels for Common Activities 4.10-11
4.10-8	Existing Measured Noise Levels 4.10-16
4.10-9	Vibration Damage Threshold Criteria 4.10-21
4.10-10	Vibration Annoyance Criteria 4.10-21
4.10-11	Vibration Levels for Construction Equipment 4.10-22
4.10-12	Recommended Groundborne Vibration Impact Criterion 4.10-23
4.10-13	Existing Plus Project Conditions Off-Site Traffic Noise Increases Greater Than 1 A-Weighted Decibel 4.10-26
4.10-14	2017 Off-Site Traffic Noise Increases Greater Than One dBA 4.10-26
4.10-15	2035 Off-Site Traffic Noise Increases Greater Than One A-Weighted Decibel 4.10-26
4.10-16	Post-2035 Off-Site Traffic Noise Increases Greater Than One A-Weighted Decibel 4.10-27
4.10-17	Typical Maximum Construction Noise Levels 4.10-29
4.10-18	Post-2035 Plus Pending Projects Cumulative Off-Site Traffic Noise Increases Greater Than Three A-Weighted Decibels 4.10-32
4.11-1	Orange County Projections: 2012–2040 4.11-4
4.11-2	City of Irvine 2012 Housing Units by Type 4.11-5
4.11-3	Comparison of Proposed Project Growth with Current Projections, 2012–2040 4.11-7
4.11-4	Comparison of Proposed Project Jobs/Housing Ratios 2012–2040 4.11-9
4.12-1	Student Generation Rates 4.12-4
4.12-2	OCFA Fire Stations in Proximity to the Project Site 4.12-5
4.12-3	Saddleback Valley Unified School District Districtwide School Capacity and Enrollment (2015–2016) 4.12-7
4.12-4	Enrollment and Capacity of Schools Serving the Project Site 4.12-7
4.12-5	Orange County Public Library Facilities (City of Irvine) 4.12-8
4.12-6	Students Generated By the Proposed Project 4.12-13
4.13-1	City of Irvine Public Parks 4.13-2
4.14-1	LOS Criteria for Basic Mainline Freeway Segments 4.14-4
4.14-2	LOS Criteria for Freeway Weaving Segments 4.14-4

<u>Section</u>	<u>Page</u>
4.14-3	LOS Criteria For Merge and Diverge Segments..... 4.14-4
4.14-4	Volume-to-Capacity Ratio LOS Ranges for Freeway Ramp Segments 4.14-5
4.14-5	LOS Definitions for Intersections (HCM Methodology)..... 4.14-6
4.14-6	Volume/Capacity Ratio LOS Ranges for Arterial Roadways 4.14-8
4.14-7	Project Trip Generation Estimates 4.14-9
4.14-8	Existing Intersection LOS Summary (ICU Methodology)4.14-12
4.14-9	Existing Caltrans Ramp Intersection LOS Summary (HCM Methodology)4.14-18
4.14-10	Existing Freeway/Toll Road Ramp LOS Summary4.14-19
4.14-11	Existing Freeway Mainline LOS Summary4.14-21
4.14-12	Construction Phases and One-Way Trips/Day (Passenger Car Equivalent [PCE])..... 4.14-28
4.14-13	July 2022 – December 2026 Construction Phases and One-Way Trips/Day (PCE)4.14-28
4.14-14	2013–2017 Committed Roadway Improvements4.14-29
4.14-15	2017–2035 Committed Roadway Improvements4.14-31
4.14-16	Post-2035 Roadway Improvements4.14-32
4.14-17	Existing Plus Proposed Project Arterial Roadway Peak Hour Analysis4.14-33
4.14-18	Existing Plus Proposed Project Intersection LOS Summary (ICU Methodology).....4.14-34
4.14-19	Existing Plus Proposed Project Caltrans Ramp Intersection Los Summary (HCM Methodology)4.14-35
4.14-20	Existing Plus Proposed Project Freeway/Toll Road Ramp LOS Summary4.14-36
4.14-21	Existing Plus Project Freeway Mainline LOS Summary4.14-37
4.14-22	Year 2017 Plus Project Intersection LOS Summary (ICU Methodology)4.14-39
4.14-23	Year 2017 Plus Project Caltrans Ramp Intersection LOS Summary (HCM Methodology).....4.14-40
4.14-24	Year 2017 Plus Project Freeway/Toll Road Ramp LOS Summary4.14-41
4.14-25	Year 2017 Plus Proposed Project Freeway Mainline LOS Summary.....4.14-42
4.14-26	Year 2035 Plus Proposed Project Intersection LOS Summary (ICU Methodology)4.14-44
4.14-27	Year 2035 Plus Proposed Project Caltrans Ramp Intersection LOS Summary (HCM Methodology)4.14-47
4.14-28	Year 2035 Plus Proposed Project Freeway/Toll Road Ramp LOS Summary.....4.14-48
4.14-29	Year 2035 Plus Proposed Project Freeway Mainline LOS Summary.....4.14-49
4.14-30	Post-2035 Plus Proposed Project Intersection LOS Summary (ICU Methodology)4.14-52
4.14-31	Post-2035 Plus Proposed Project Caltrans Ramp Intersection LOS Summary (HCM Methodology)4.14-55
4.14-32	Post-2035 Plus Proposed Project Freeway/Toll Road Ramp LOS Summary.....4.14-57
4.14-33	Post-2035 Plus Proposed Project Freeway Mainline LOS Summary.....4.14-58
4.14-34	Impact Summary4.14-62
4.14-35	Mitigation Measures and Post-Mitigation LOS.....4.14-65

<u>Table</u>	<u>Page</u>
4.14-36 Year 2017 Congestion Management Plan Intersection LOS.....	4.14-90
4.14-37 Pending Year 2035 Plus Proposed Project Average Daily Traffic (Thousands) and V/C Ratios.....	4.14-95
4.14-38 Pending Post-2035 Plus Proposed Project Average Daily Traffic (Thousands) and V/C Ratios.....	4.14-96
4.14-39 Pending Year 2035 Plus Proposed Project Intersection LOS Summary (ICU Methodology).....	4.14-100
4.14-40 Pending Post-2035 Plus Proposed Project Intersection LOS Summary (ICU Methodology).....	4.14-101
4.14-41 Pending Year 2035 Plus Proposed Project California Department of Transportation Ramp Intersection LOS Summary (HCM Methodology).....	4.14-103
4.14-42 Pending Post-2035 Plus Proposed Project California Department of Transportation Ramp Intersection LOS Summary (Highway Capacity Manual Methodology).....	4.14-104
4.14-43 Pending Post-2035 Plus Proposed Project Freeway/Toll Road Ramp LOS Summary.....	4.14-106
4.14-44 Pending Post-2035 Plus Proposed Project Freeway/Toll Road Ramp LOS Summary.....	4.14-107
4.14-45 Pending Year 2035 Plus Proposed Project Freeway Mainline LOS Summary.....	4.14-108
4.14-46 Pending Post-2035 Plus Proposed Project Freeway Mainline LOS Summary.....	4.14-111
4.15-1 IRWD Water Supply Sources (2015).....	4.15-10
4.15-2 OC Waste & Recycling Landfills.....	4.15-13
4.15-3 Estimated Project Average Day Potable Water Demand.....	4.15-16
4.15-4 Estimated Project Average Day Recycled Water Demand.....	4.15-17
4.15-5 Estimated Wastewater Generation.....	4.15-18
4.15-6 Irvine Ranch Water District Buildout Supply and Demand for Potable Water (acre-feet per year).....	4.15-22
4.15-7 Irvine Ranch Water District Buildout Supply and Demand for Nonpotable Water (acre-feet per year).....	4.15-23
4.15-8 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).....	4.15-24
4.15-9 Estimated Solid Waste Generation.....	4.15-28
5-1 Compatibility Comparison of Alternatives With Project Objectives.....	5-9
5-2 Alternative 1B Land Use Summary.....	5-17
5-3 Comparison of Traffic Impact Locations for the Proposed Project and Alternative 1b.....	5-24
5-4 Alternative 2 Land Use Summary.....	5-32
5-5 Comparison of Traffic Impact Locations for the Proposed Project and Alternative 2.....	5-39
5-6 Alternative 3 Land Use Summary.....	5-47

<u>Section</u>	<u>Page</u>
5-7	Proposed Project and Alternative 3 Estimated Maximum Daily Operational Emissions (Lbs/Day) 5-49
5-8	Proposed Project and Alternative 3 Buildout (2026) Estimated Operational Annual GreenHouse Gas Emissions..... 5-53
5-9	Proposed Project and Alternative 3 Buildout (2026) Estimated Total Annual Greenhouse Gas Emissions 5-53
5-10	Proposed Project and Alternative 3 2017 Off-Site Traffic Noise Increases Greater Than One dBA 5-57
5-11	Proposed Project and Alternative 3 2035 Off-Site Traffic Noise Increases Greater Than One dBA 5-57
5-12	Proposed Project and Alternative 3 Post-2035 Off-Site Traffic Noise Increases Greater Than One dBA 5-58
5-13	Proposed Project and Alternative 3 Post-2035 Plus Pending Projects Cumulative Off-Site Traffic Noise Increases Greater Than Three A-Weighted Decibels 5-58
5-14	Students Generated By Alternative 3 5-61
5-15	Comparison of Traffic Impact Locations for the Proposed Project and Alternative 3..... 5-63
5-16	Comparison of Project Alternatives Impacts to Proposed Project Impacts 5-72
6-1	Energy Use During Construction..... 6-7
7-1	Community Outreach Summary 7-1

EXHIBITS

<u>Exhibit</u>	<u>Follows Page</u>
2-1	Aerial Photograph of Site..... 2-13
2-2	Buildings/Structures, Facilities, and Railroad Spurs within Project Site 2-14
2-3	Lease In Furtherance of Conveyance Area..... 2-16
3-1	Regional Location 3-1
3-2	Local Vicinity..... 3-1
3-3	Conceptual Framework Plan..... 3-6
3-4	Land Use Plan 3-6
3-5	Conceptual Site Plan 3-7
3-6	Recreation and Open Space Plan..... 3-9
3-7	Circulation Plan..... 3-10
3-8	Conceptual Drainage Infrastructure..... 3-12
3-9	Off-Site Infrastructure Improvements..... 3-13
3-10	Minimum Setbacks 3-17
3-11	Conceptual Grading Plan 3-17
3-12	Landscape Framework Plan..... 3-17
3-13	Street Tree Hierarchy..... 3-17
3-14	Optional Iconic Pedestrian Bridge Feature..... 3-18
3-15	Existing Zoning Districts in PA 51 3-23
3-16	Proposed Zoning Districts in PA 51 3-23
3-17	Great Park Neighborhood Development Districts..... 3-23
4-1	Cumulative Projects – City of Irvine 4-6
4.1-1	Site Photographs 4.1-3
4.1-2	Site Photographs 4.1-3
4.1-3	Site Photographs 4.1-3
4.1-4	Site Photographs 4.1-3
4.1-5	Landscape Zone Diagram 4.1-9
4.1-6	Promenade at Residential Condition..... 4.1-9
4.1-7	Promenade at Park Spaces..... 4.1-9
4.1-8	Promenade at Commercial Condition..... 4.1-9
4.3-1	Vegetation Map 4.3-7
4.3-2	Jurisdictional Resources 4.3-10
4.5-1	Regional Geology Map..... 4.5-4
4.5-2	Regional Fault Map..... 4.5-4
4.5-3	Seismic Hazard Map..... 4.5-6
4.7-1	Locations of IRP Sites within Project Site..... 4.7-10
4.7-2	Other Locations of Concern within Project Site..... 4.7-10
4.10-1	Noise Monitoring Locations 4.10-15
4.12-1	SVUSD Schools Serving the Project Site 4.12-7
4.13-1	Existing Community and Neighborhood Parks..... 4.13-4
4.13-2	Trails Network 4.13-5
4.13-3	Multi-Use Trails 4.13-5
4.13-4	Bikeways..... 4.13-6
4.13-5	Marine Way Cross Section..... 4.13-7

<u>Exhibit</u>	<u>Follows Page</u>
4.13-6	Typical Active Park Concept Plan 4.13-8
4.13-7	Typical Passive Park Concept Plan..... 4.13-8
4.13-8	Entertainment Core Concept Plan 4.13-8
4.13-9	Promenade Concept Plan 4.13-8
4.14-1	Traffic Analysis Study Area..... 4.14-3
4.14-2	Great Park Neighborhoods Street Network 4.14-3
4.14-3	City of Irvine Master Plan of Arterial Highway Map..... 4.14-3
4.15-1	Conceptual Water and Sewer Infrastructure.....4.15-16
5-1	Alternative 1 Conceptual Site Plan 5-16
5-2	Alternative 2 Conceptual Site Plan 5-31
5-3	Alternative 3 Conceptual Site Plan 5-47

Appendices

Appendix

- A El Toro, 100-Acre Parcel Development Plan
- B NOP/IS and NOP Comment Letters and Scoping Materials
- C Air Quality Model Runs
- D Biological Resource Letter Reports
 - D-1 Special Status Plant Survey Report
 - D-2 Burrowing Owl Survey Report
 - D-3 Bat Survey Report
 - D-4 Jurisdictional Delineation Report
 - D-5 Site Photos
 - D-6 Plant Compendium
 - D-7 Wildlife Compendium
- E Cultural Resources Report
- F Preliminary Geotechnical Investigation, 100-Acre Parcel Former El Toro Marine Corps Air Station, Irvine, California
- G Greenhouse Gas Model Runs
- H Hazards and Hazardous Materials Supporting Documentation
 - H-1 100-Acre Parcel Soil Gas Assessment Report, Former Marine Corps Air Station El Toro, Irvine, California
 - H-2 Radiological Survey Report, Warehouse Building #317, Former MCAS El Toro, Irvine, California
 - H-3 Summary Report: Pre-Renovation Hazardous Building Materials Survey, Warehouse Building #317, Former MCAS El Toro, Irvine, California
- I Water Quality Management Plan and Drainage Analysis
 - I-1 Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)
 - I-2 Conceptual Drainage Analysis Existing vs. Proposed
- J Noise Analysis Model Runs
- K School Impacts and Mitigation Report
- L Transportation Impact Analysis
- M Water and Sewer Supporting Documentation
 - M-1 Irvine Ranch Water District Assessment of Water Supply for the El Toro Development Plan

Table of Contents

M-2 Conditional Water and Sewer Will Serve Letter
M-3 Water Supply Verification

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

Acronym	Acronym and Abbreviation Description
CAL FIRE	California Department of Forestry and Fire Protection
CALGreen	California Green Building Standards Code
CalOSHA	California Occupational Safety and Health Administration
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	<u>California Natural Diversity Database</u>
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CNRA	California Natural Resources Agency
CO	carbon monoxide
CO ₂	Carbon dioxide
CO ₂ e	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

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
CRAM	California Rapid Assessment Method
CRHR	California Register of Historic Resources
CRPR	California Rare Plant Rank
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)

Acronym	Acronym and Abbreviation Description
FEIR	Final Environmental Impact Report (CEQA)
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
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 ₂ SO ₃	sulfurous acid
H ₂ SO 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

Acronym	Acronym and Abbreviation Description
I	
I	Interstate
IA	Implementation Agreement
IAS	Initial Assessment Study
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

Acronym	Acronym and Abbreviation Description
LFTAM	Lake Forest Traffic Analysis Model
LID	Low Impact Development
LIFOC	Lease in Furtherance of Conveyance
LIP	Local implementation plan
LLD	Lifelong Learning District
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	<u>Master Plan of Arterial Highways</u> (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

Acronym	Acronym and Abbreviation Description
MWDOC	Municipal Water District of Orange County
MWRP	Michelson Water Recycling Plant
N	
N ₂ O	Nitrous oxide
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
NO _x	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

Acronym	Acronym and Abbreviation Description
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
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

Acronym	Acronym and Abbreviation Description
RHNA	Regional Housing Needs Assessment
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision (NEPA)
RPS	Renewables Portfolio Standard
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 hexafluoride
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 Joaquin Valley Air Pollution Control District
SMAQMD	Sacramento Metropolitan Air Quality Management District
s/o	South of
SO ₂	sulfur dioxide
SO ₃	sulfur trioxide
SO _x	sulfur oxides
SoCAB	South Coast Air Basin
SoCalGas	Southern California Gas Company
SP	Service Population
SR	State Route

Acronym	Acronym and Abbreviation Description
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
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	<i>United States Code</i>
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

Acronym Acronym and Abbreviation Description

UST underground storage tank
UWMP Urban Water Management Plan
UWR Universal Waste Rule

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

µg/m³ micrograms per cubic meter

This page intentionally left blank

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 15168 of the State CEQA Guidelines (California Code of Regulations (CCR), Title 14, Chapter 3, Sections 15000, et seq.), this Program EIR addresses the potential environmental impacts associated with the proposed project, as described herein (Project), through the adoption and implementation of the El Toro, 100-Acre 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 at the southern edge of the former Marine Corps Air Station (MCAS) El Toro, east of the interchange of the Interstate (I) 5 and State Route (SR) 133 in Orange County. The site is bound by the proposed realignment of Marine Way on the northeast; the Southern California Regional Rail Authority (SCRRA) rail lines and an approximately 21.3 acre Orange County Transportation Authority (OCTA) property on the southwest; a City of Irvine-owned parcel of approximately 1.6 acres on the northwest; and District 6 of the Great Park Neighborhoods project to the southeast. The Project would encompass approximately 108 acres. (The exhibits depicting regional location and local vicinity are provided in Section 3.0, Project Description.) The Project site surrounds the 6.6-acre Second Harvest Food Bank warehouse on three sides.

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 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.

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 that agreement, the City agreed to provide fee ownership to certain lands to the County, including approximately 100 acres of 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 Project site, which is approximately 108 acres, is encumbered by several public easements for drainage and utilities. The DoN has released fee title to approximately 60 acres of the Property, to Heritage Fields, which subsequently turned it over to the City via the Great Park Agreement executed between Heritage Fields and the City of Irvine. That agreement provided for transfer of some lands to the City as outlined in an earlier three-party agreement (DoN, City, and Heritage Fields). The City (with some use restrictions), in turn, has conveyed that property to the County, as required by the Pre-Annexation Agreement. The remaining portions (approximately 41.64 acres) of the Property are covered under a “Lease in Furtherance of Conveyance” or “LIFO” pending completion of environmental remediation by DoN (further discussion of the LIFO is provided in Section 4.7, Hazards and Hazardous Materials). 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.

Additionally, pursuant to the Base Closure Community Redevelopment and Homeless Assistance Act of 1994 (BRAC Law), the Local Redevelopment Authority (LRA) for each closing military base must make a reasonable effort in its community reuse plan to meet the needs of the local homeless population. The County has been assigned as the official and federally-recognized LRA for the reuse planning at MCAS El Toro. In 2003, DoN and the El Toro Homeless Service Providers Collaborative coordinated and identified properties on MCAS El Toro for use by the homeless service providers. The 125,000-square-foot Warehouse 360 on a 5.2-acre, surrounded on all sides by the 100-acre County-owned parcel, was awarded to the Community Action Partnership of Orange County (CAPOC) and Families Forward (FF). In 2012, the DoN conveyed Warehouse 360 to the County via Quitclaim Deed and entered into Legally Binding Agreements (LBAs) with CAPOC and FF. In accordance with the LBAs, the County conveyed Warehouse 360 via Quitclaim Deed to CAPOC and FF with a requirement that it be used for homeless services within the allocated timeframe. Should CAPOC and FF determine that Warehouse 360 cannot reasonably meet the needs of their Program, the property will be conveyed to the County under Section 13 of the Base Closure Agreement. Subsequent to the Board approval of Supplemental Agreements, CAPOC and FF notified the County that Warehouse 360 is not a suitable option to provide homeless services, and therefore the property was reconveyed to the County under Section 13 of the Base Closure Agreement, and CAPOC and FF were provided with alternate conveyances to meet their homeless services, which met the purpose of the McKinney Act.

1.4 PROJECT DESCRIPTION SUMMARY

The following discussion provides an overview of the proposed Project. A more detailed discussion of the proposed Project and processing requirements is provided in Section 3.4 of this EIR.

The Project proposes a mixed-used, low-impact development (LID) that maximizes the benefit derived from proximity to the Irvine train station (Irvine Station) located less than a half mile from Property and the Orange County Great Park (OCGP).

The Development Plan would be used to guide future development on the Project site. The anticipated mix of uses is summarized in Table 1-1. Recognizing the Project would be implemented over a period of years, the land use regulations contained in the Development Plan allow for flexibility in the location, mix, and intensity of uses. As market demands change and as businesses expand or contract over time, the Development Plan provides for a range of residential, office, and commercial uses to accommodate potential changes in the residential market and business environment. The Development Plan is provided in Appendix A.

**TABLE 1-1
EL TORO, 100-ACRE PARCEL DEVELOPMENT PLAN
PROPOSED USES**

Land Use	Development Size
Residential	2,103 dwelling units ^a
Retail	220,000 square feet
Office	1,876,000 square feet
Hotel ^b	242 rooms
^a Live/Work or Shopkeeper units are considered 1 dwelling unit. The work area within these units do not count toward retail or office square footage. ^b Includes up to 20,000 square feet of meeting space. Meeting space does not count towards the maximum allowable development identified in this table. Source: <i>El Toro, 100-Acre Parcel Development Plan, 2016</i>	

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 facilities for domestic water, recycled water, sewer, electrical, gas, telephone, cable television, and other data communication systems. 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

The following objectives have been identified for the proposed Project:

1. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City.
2. Enhance the condition of the Project site so it is compatible with and enhances the viewshed from the Orange County Great Park (OCGP) and the adjacent land uses.
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas

emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.

6. Develop infill improvements that facilitate mixed- use opportunities that can consume less land and energy per housing unit and square footage of development, compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).
8. Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will meet the regional demand for employment, service and residential uses.
9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent feasible.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.
11. Provide public space within the Project to support community activities.

1.6 PROJECT ALTERNATIVES

Section 15126.6(a) of the State CEQA Guidelines state that “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.” Five alternatives have been evaluated. These alternatives are summarized below and discussed and depicted graphically in Section 5.0, Alternatives, 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 even the No Project Alternative. The summaries of each alternative provided below, identify the significant unavoidable 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, Summary of Potential Impacts, Mitigation Measures, and Level of Significance, provides a summary of alternative impacts compared to the proposed Project.

Additionally, there is one alternative identified in the Notice of Preparation (NOP) that was considered but not carried forward. The NOP identified an alternative that proposed the development on the Second Harvest Food Bank warehouse parcel and the approximately 21-acre, Orange County Transportation Authority (OCTA)-owned parcel located south of the Project site. This alternative was deemed to be infeasible due to the fact that the Second Harvest Food Bank as well as the OCTA were not willing to sell their parcels of land to the County of Orange.

1.6.1 ALTERNATIVE 1A – NO PROJECT/NO DEVELOPMENT ALTERNATIVE

This alternative assumes the site would continue to remain in its current state without demolition or active uses on-site. The undeveloped portion of the site would stay undeveloped, and the abandoned and dilapidated structures would remain vacant.

This alternative would avoid potentially significant Air Quality, Greenhouse Gas (GHG) Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic impacts. However, given the existing condition of the site, without any improvements the site would have a significant Aesthetics and Hydrology and Water Quality impacts. This alternative would not meet any of the Project objectives. This alternative is more fully discussed in Section 5.4.1.

1.6.2 ALTERNATIVE 1B – NO PROJECT/ INSTITUTIONAL ENTITLEMENTS ALTERNATIVE

Alternative 1b, which is a variation of the No Project Alternative, would provide development for institutional uses on the site, with buildings not exceeding the 436,000 square feet of institutional uses provided for in the City of Irvine General Plan (Irvine 2015a, 2015b). This level of development would be consistent with the assumptions in the original 2003 Orange County Great Park Final Program EIR¹. Institutional uses proposed under this alternative include government office, law enforcement, emergency shelter, maintenance and storage, recreational vehicle (RV)/boat/vehicle storage, and warehouse uses for homeless providers. This Alternative would maximize the use of existing structures. This Alternative is discussed in greater detail in Section 5.4.2.

Compared to the Project, this Alternative would have fewer impacts, and would avoid significant impacts to Air Quality, Land Use and Planning (interim), Population and Housing, and Recreation (short-term). The significant and unavoidable impacts for Transportation/Traffic would not be avoided, but would be less when compared to those under the proposed Project. For GHG Emissions, Alternative 1b would also have significant and unavoidable impacts and those impacts would be greater than the Project's as Alternative 1b has higher estimated emissions on a service population basis.

This Alternative would meet three of the Project Objectives outlined above (Objectives 3, 7, and 9). This Alternative has been deemed environmentally sustainable due to its linkage to transportation and transit networks (i.e., development in proximity to the Irvine Station). Additionally, it proposes to adaptively reusing and upgrading most of the existing structures on-site. This Alternative was able to partially meet the objectives associated with enhancing the degraded physical condition of the Project site and the objective associated with provide employment-generating uses with amenities and services that will support the work force. This Alternative would not meet the remaining seven objectives. Therefore, this Alternative was not

¹ In May 2003, the City of Irvine certified the Final Program EIR for the Orange County Great Park (OCGP), SCH No. 2002101020, which analyzed the environmental impacts of the development of 3,625 residential units and 6,585,594 million square feet of non-residential development, including Great Park and other non-Great Park Neighborhood uses, on a portion of the former MCAS El Toro site. Refer to Section 2.4.4 for more detail.

identified as the environmentally superior alternative (see Section 1.6.5 for a summary of the Environmentally Superior Alternative or Section 5.5 for the full discussion.)

1.6.3 ALTERNATIVE 2 – INTENSIFIED INSTITUTIONAL USES

Alternative 2 would provide development of institutional uses on the site; however, the intensity of the proposed uses would exceed the 436,000 sf of Institutional uses assumed in the 2003 OCGP Program EIR for the site. This alternative assumes approximately 2,085,000 square feet of institutional uses would be developed. Uses would include government offices, emergency shelters, equipment storage areas, law enforcement facilities, and maintenance areas. This Alternative is more fully discussed in Section 5.4.3.

Compared to the Project, this Alternative would result in an incremental reduction of impacts and would avoid significant Population and Housing impacts; however, significant and unavoidable impacts of the proposed Project related to Air Quality, GHG Emissions, Land Use and Planning (interim), and Transportation/Traffic would not be avoided. Though this Alternative would result in incrementally less GHG Emissions, the GHG Emissions impacts for Alternative 2 would remain significant and unavoidable and greater than the Project's due to the lower GHG Emissions efficiency in the absence of mixed-use, high density land uses.

Of the 11 Project objectives, this alternative is able to fully meet 3 of the Project objectives and partially meet 5 objectives. This Alternative would enhance the degraded physical condition of the Project site by providing new development (Objective 2). It would also use sustainable principals through measures that promote linkage to transportation and transit networks (i.e., development in proximity to the Irvine Station) (Objective 3); and it would promote re-purposing and adaptive reuse of existing materials (Objective 9). There are four objectives that would be partially met: (1) utilize this County real estate asset to generate new sources of revenue (Objective 1); (2) promote brown field development opportunities as a means of decreasing the region's dependency on the automobile by locating the mixed-use development on a previously developed site (Objective 5); (3) it would provide employment-generating uses near amenities (Objective 7); (4) revitalize the underutilized Project site through the implementation of an innovative development, near transit and compatible uses that will meet the regional demand (Objective 8); and (5) Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas (Objective 10). This Alternative would not meet the remaining three objectives. Though this alternative would eliminate one of the significant impacts identified for the proposed Project and meet or partially meet the majority of the Project Objectives, it did not meet the Project Objectives as effectively as either the Proposed Project or Alternative 3. Therefore, this Alternative was not identified as the environmentally superior alternative.

1.6.4 ALTERNATIVE 3 – REDUCED INTENSITY AND REDUCED DENSITY ALTERNATIVE

Alternative 3 assumes that the County would reduce the number of residential units and the overall square footage of commercial and mixed-uses that would be built on the site, while still meeting most of the Project objectives. This alternative would provide 1,998 dwelling units, 1,000,000 square feet of corporate office uses, 200,000 square feet of retail uses, and a 242-room hotel. This Alternative is discussed in greater detail in Section 5.4.4.

Compared to the Project, although this Alternative would substantially lessen impacts, it would not avoid any of the significant unavoidable impacts to Air Quality, Land Use and Planning (interim), Population and Housing, Recreation (interim), and Transportation/Traffic for the proposed Project. Impacts would be incrementally reduced because the level of development is reduced. This Alternative would result in 35,179 Average Daily Trips (ADT) compared to 46,746 ADT under the proposed Project. Additionally, due to reduced population and building square footage, there would be reduced consumer project volatile organic compound (VOC) and long-term criteria pollutant emissions, though the impact would remain significant and unavoidable. This alternative would generate less total GHG Emissions than the Project. However, because it would have a lower GHG Emissions service population metric compared to the Project, this alternative would have greater impacts under the applicable SCAQMD efficiency metric based significance thresholds.

This Alternative would fully meet 10 out of the 11 Project objectives, and is partially consistent with Objective 1. Under this alternative, employment would increase compared to existing conditions as a total of 4,576 jobs would be created. However, compared to the proposed Project, this alternative results in fewer jobs, and therefore, this objective of fully utilizing the County real estate asset is only partially met. As discussed below, this Alternative has been identified as the environmentally superior alternative.

1.6.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

The No Project/No Development Alternative (Alternative 1a) and the No Project/Institutional Entitlements Alternative (Alternative 1b) would have the least impacts to the environment. Alternative 1a would have no significant and unavoidable impacts associated with Air Quality, GHG Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic. However, 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 not occur, and none of the Project objectives would be met. Similarly, Alternative 1b would reduce impacts compared to the proposed Project and avoid significant impacts to Air Quality, Land Use and Planning (interim), Population and Housing, and Recreation (short-term); the significant and unavoidable impacts for Transportation/Traffic and GHG Emissions would not be avoided and only two of the Project objectives would be met. Further, 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.

When evaluating the proposed Project compared to Alternative 2, Intensified Institutional Use and Alternative 3, Reduced Intensity and Reduced Density, both would result in less environmental impacts than 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, they are 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 topical areas. Alternative 2 would reduce the overall trip generation by 1,608 ADT but the number of intersections and freeway ramps with direct impacts would be fairly comparable to the proposed Project. Comparatively, Alternative 3 would further reduce the trip generation to a total of 35,179 ADT compared to the proposed Project's 46,746 ADT (a reduction of 11,567 ADT or about a 25 percent reduction in trips generated with Alternative 3 when compared to the proposed Project).

In addition to the greater reduction in environmental impacts, Alternative 3 would better meet the objectives compared to Alternative 2. Therefore, when considering the environmental impacts and the ability to meet the objectives, Alternative 3 is the environmentally superior alternative.

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 (the IS) for the proposed Project and distributed it, along with the Notice of Preparation (NOP), to responsible and interested agencies, and key interest groups. The IS/NOP was distributed to 40 agencies and individuals for a 30-day review period beginning on November 7, 2014. In addition, notices regarding the availability of the IS/NOP were distributed to all property owners and occupants of businesses within 500 feet of the Project site. The IS/NOP was also posted on the County website.

A scoping meeting was held on November 21, 2014, from 1:00 to 3:00 PM at Building 317 on the Project site. County staff were available to answer any questions about the proposed Project. A hand-out, providing 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 mail to County staff. Approximately 20 people attended the scoping meeting (13 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 similar noticing process occurred for this meeting. During these additional scoping periods, seven additional comments were received. A summary of the issues raised in the IS/NOP comment letters is provided in Section 2.3 of this EIR. Copies of the IS/NOP, its distribution list, comments received on the IS/NOP, and the hand-outs made available at the Scoping Meetings are included in Appendix B of this EIR. A total of 13 comment letters were received during the 30-day IS/NOP review period. Two additional comment letters were received after the end of the IS/NOP review period. During the additional scoping periods, seven additional 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
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Greenhouse Gas (GHG) 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

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 major issues to be resolved by the County, as the Lead Agency, include the following:

- A pedestrian bridge is considered as a potential element of the proposed Project, connecting the Project site to the OCGP across Marine Way (Pedestrian Bridge). However, the County does not have land use authority over the bridge landing on the north side of the Marine Way, which is City property. This issue would need to be resolved in close coordination with the City and OCGP and additional CEQA documentation would be required, should the concept become a component of the Project. However, there would be no additional significant effects if the Project is implemented without the Pedestrian Bridge.
- The phased improvements of the Marine Way extension would influence the implementation of the Project. At this time, a construction schedule for the Marine Way extension east of Great Park Boulevard West is not available. It should be noted that Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents. The timing of Marine Way improvements would be contingent on issues such as construction phasing of the adjacent Great Park Neighborhoods and funding availability. As discussed in Section 4.13, Recreation, delays in the construction of Marine Way would also potentially delay the construction of the "Park within the Park" concept presented in the Development Plan. Potential impacts associated with Marine Way have been addressed in the Orange County Great Park EIR and subsequent Addenda.
- During the preparation of this EIR, the City of Irvine has been conducting studies for Marine Way and the future development of OCGP. As of November 2015, an alignment for Great Park Boulevard was completed by the City that modifies the location of the intersection of Great Park Boulevard West and Marine Way. The modified alignment results in a different location than the one depicted on the exhibits provided in this EIR;

however, the alignment for the entire Great Park Boulevard West is yet to be completed and finalized. The alignment of the said roadway shown on the exhibits in this EIR reflects the expected intersection location at the time the NOP was issued. At the time of Project development, minor modifications to the Project would be required to reflect the final roadway alignment, including, but not limited to, minor modifications to Planning Areas 1 through 13 to reflect the final location of Marine Way. Also, it is anticipated that the change to the Great Park Boulevard West/Marine Way intersection (if the proposed November 2015 alignment is implemented) might require the other changes to the proposed Project access points from Marine Way. It is not anticipated that this should result in a substantial modification to the findings in this EIR; however, this would be determined as part of the Level I, II or III review when development is proposed. It should be noted, that Development Requirement (DR) TRAN-8 (in Section 4.14.7) requires individual development projects under the Development Plan that connect with external roadways be evaluated for consistency with applicable design requirements outlined in the City of Irvine Transportation Design Procedures or County of Orange equivalency. This measure would ensure there would be adequate intersection spacing even with the relocation of the Great Park Boulevard West/Marine Way intersection.

- The Project site is located on the former MCAS El Toro, which had been known to use and store chemicals and jet fuels. The base is included on the Cortese List compiled pursuant to Section 65962.5 of the *California Government Code*. Due to the potential site and groundwater contamination, approximately 41.64 acres of the Project site has not yet been found suitable for transfer. Therefore, this portion of the site remains under fee ownership by the DoN and is subject to a LIFO between the DoN and Heritage Fields, with a sublease to the County. Once remediated, the DoN will make a FOST, allowing the transfer of the remainder of the Property in fee to Heritage Fields LLC. Subsequently, that portion of the Property would be transferred to the City, and then to the County, as required by the Pre-Annexation Agreement. The precise timing of the transfer is not known at this time. Should there be unforeseen delays in the transfer of the property, the phasing of the Project development may be influenced because the County would not have fee title to the property. As shown in Exhibit 2-3, the LIFO area is generally located southeast of the Bee Canyon Channel and in the southern portion of the Project site. This delay should not influence the CEQA document.
- The Pre-Annexation Agreement provides for the transfer of a contiguous 100-Acre parcel to the County for development. The location of the parcel was identified in the Pre-Annexation Agreement but the precise boundaries of the parcel had not been established. The final alignment of Marine Way is required before this can occur because minor variants in the roadway alignment would result in changes to the size and configuration of the County property west and southwest of Marine Way. This process, known as the “true-up” is memorialized in Implementation Agreement #2 between the County and the City and will be completed once the final Marine Way alignment is established. Minor changes to the Property boundary are anticipated as part of the true-up process. Although the alignment west of the Great Park Boulevard West was finalized in November 2015, as indicated above, the alignment east of the Great Park Boulevard West is yet to be completed and finalized. It is not anticipated that the true-up process would result in a substantial modification to the findings in this EIR because the anticipated property line adjustments would be very minor; however, this would be determined at the time the final true-up is completed.

- In conjunction with the preparation of the EIR, additional testing for hazardous materials was conducted. However, the LIFO area of the Project site contains portions of Installation Restoration Program (IRP) Sites 8, 12, and 24 (the Volatile Organic Compound [VOC] Source Area/Vadose Zone) and is currently inaccessible to the County for environmental testing/investigation for hazardous materials assessment. Therefore, no additional testing in the LIFO area was conducted. As a result, there are some data gaps regarding environmental conditions in IRP Sites and locations of concern located within the LIFO area. The DoN is required to sufficiently remediate those areas prior to release under a FOST so significant hazardous material impacts are not anticipated. However, Section 4.7, Hazards and Hazardous Materials, includes a mitigation measures requiring an independent radiological survey for soil, further evaluation of previously collected data, calculation of cumulative human health risks, and further soil vapor testing at various locations within the LIFO area. If warranted by these additional investigations/evaluations, additional sampling, targeted excavation, confirmation sampling, and off-site disposal may be performed or remedial actions may be developed in consultation with appropriate regulatory agencies to confirm concentrations of hazardous materials are below appropriate regulatory screening levels prior to construction.
- Section 4.7, Hazards and Hazardous Materials identifies and discusses areas within the Project site where risks are below the threshold levels established for commercial/industrial uses but may exceed the risk thresholds established for residential uses. Specifically, these areas include:
 - Units 1 and 4 of IRP Site 8 (Planning Areas 12, 13, and 14), which are currently planned for non-residential land uses;
 - Units 1 and 2 of IRP Site 12 (Planning Areas 6, 7, 8, and 19), which include both residential and non-residential uses; and
 - Unit 1 of IRP Site 21 (Planning Area 9); which is currently planned for non-residential land uses.

The Development Plan allows for future transfer of land use between the various planning areas. Therefore, even the planning areas that are currently shown for mixed-use or commercial uses may have a residential component. Should the land use at these locations include residential uses, potential risks may need to be re-evaluated. Mitigation measures requiring additional testing and potential remediation have been incorporated into the EIR.

- As discussed in Section 4.14, 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.

- IRWD is obligated to deliver an offsite capital improvement sewer system that would address sewer discharge from upstream development including, but not limited to, the proposed Project development area. However, if the capital improvement system downstream of the County's property has not been constructed to accommodate existing and approved sewer flows from upstream development, as initially planned and programmed by IRWD, then IRWD would be responsible for providing an alternative solution that would serve the proposed Project, as well as any other upstream sewer flows from tributary developments.

Regarding conveyance of Project storm flows off-site on to other properties within the Marshburn Watershed, the County would be responsible for finding a solution, which could include, but not be limited to, the following:

- Modifying site grading and drainage west of Bee Canyon Channel to drain a portion of the site towards Marine Way and install storm water detention ponds to discharge into the existing storm drain line in Marine Way
- Modifying site grading and drainage west of Bee Canyon Channel to expand the area that currently drains into the Bee Canyon Watershed. The Bee Canyon Watershed and Agua Chinon Watershed have on-site storm drain lines that the Project area can be connected to.

The potential of any off-site environmental impacts associated with these improvements would be evaluated when development concept plans are prepared and the engineering elements are known.

Section 3.4.1 of the Development Plan, Development Equivalency, provides for a transfer in the type of uses to allow flexibility in the future in response to changing community and regional needs, and the market conditions over the buildout of the Project. To accommodate this flexibility while maintaining balance of land uses, proposed land uses may be transferred to other permitted uses as part of the Level I Review process. Table 3-2 of the Development Plan identifies how additional intensity in one use may be increased with the corresponding decrease in another use. The formula is based on the number of trips generated per land use, which is derived from the 2014 Irvine Transportation Analysis Model (ITAM), version 12.4. This will be evaluated on a project-by-project basis and when a transfer of use is proposed. Potential impacts would be assessed as part of the CEQA review.

- On September 8, 2016, Senate Bill (SB) 32, which amends Section 38566 to the Health and Safety Code pertaining to the reduction of GHG Emissions, was signed by Governor Brown. SB 32 implements a goal of Executive Order (EO) B-30-15 by requiring the California Air Resources Board (CARB) to ensure that statewide greenhouse gas emissions are reduced to 40 percent below the 1990 level by 2030. At this time, CARB has not developed the plan to ensure compliance with the GHG Emissions reductions contemplated by SB 32. Based on available information, this DEIR analyzes the Project's

consistency with SB 32 and concludes Project impacts are significant and unavoidable. However, once CARB adopts a plan identifying the responsibilities for achieving SB 32 compliance, additional requirements may apply to the Project.

1.9 SUMMARY OF SIGNIFICANT EFFECTS AND MITIGATION PROGRAM

Table 1-2 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 4.15. 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.

This page intentionally left blank

**TABLE 1-2
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			
<p>Threshold 4.1-1 Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?</p>	<p>The proposed development would be an improvement over the existing visual character and quality of the Project site. Construction activities, including infrastructure improvements, would be short term in nature and have less than significant impacts as these activities will not substantially degrade the existing visual character or quality of the Project site or its surroundings. 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 prevent the substantial degradation of the visual character and quality of the Project site and the surrounding areas. Impacts on visual quality pursuant to Threshold 4.1-1 would be less than significant and no mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>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?</p>	<p>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 trees, and compliance with the design guidelines, development standards, and development requirements on lighting, as contained in the Development Plan, would prevent substantial light and glare spillover and change in the lighting levels that would have a significant and adverse effect on views in the area. Though no substantial spill-over lighting on adjacent development areas within the Project site are anticipated, DR AES-1 and DR AES-2 are provided regarding disclosure of potential spill over lighting. Pursuant to Threshold 4.1-2, impacts related to new sources of light and glare would be less than significant and no mitigation is required.</p>	<p>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. For the development in and adjacent to the Mixed-Use District, a disclosure to the developers and end users of the potential for spill over lighting shall be incorporated into all lease agreements.</p> <p>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 1-foot-candle over ambient conditions at the Project property line, excluding the Second Harvest Food Bank warehouse. The letter shall be submitted to the Manager of Inspection for review and approval. (Note: High voltage lighting requires a licensed electrical engineer stamp.)</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.2 - Air Quality			
<p>Threshold 4.2-1 Conflict with or obstruct implementation of the applicable air quality plan.</p>	<p>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, which is a significant impact. Mitigation measure MM LU-1 would allow for the anticipated growth to be included in future long-range planning documents, which would eliminate the conflict. However, incorporation of the updated growth projections into the AQMP is not within the County's control. Therefore, the impact would be significant and unavoidable, pursuant to Threshold 4.2-1. Approval of the Project and commencement of construction would not obstruct implementation of the AQMP because the gradual completion of the Project and increase in operational emissions would be paralleled by AQMP revisions that would include the Project.</p>	<p>Refer to MM LU-1 in Section 4.9, Land Use and Planning, below.</p>	<p>Significant and Unavoidable</p>
<p>Threshold 4.2-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.</p>	<p>Pursuant to Threshold 4.2-2, construction mass (regional) emissions and local construction emissions would exceed SCAQMD CEQA significance thresholds. The unmitigated emissions include the implementation of DR AQ-1 through DR AQ-4. Implementation of MM AQ-1 would reduce the impacts to less than significant. Operational mass (regional) emissions of VOC, NOX, CO, PM10, and PM2.5 would exceed the SCAQMD CEQA significance thresholds, primarily due to mobile sources (i.e., vehicle travel). Implementation of DR AQ-6 would avoid emissions from indoor residential fireplaces. Mitigation measures MM AQ-2 through MM AQ-6 would reduce vehicle travel, but the impact would still be significant and unavoidable. It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's exceedances of the SCAQMD significance thresholds. Local CO emissions would not have the potential to exceed applicable standards and would be less than significant.</p>	<p>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 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.</p> <p>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.</p> <p>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.</p> <p>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.</p>	<p>Significant and Unavoidable (Mass Operational Emissions) Less Than Significant (Local CO Emissions)</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>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:</p> <ul style="list-style-type: none"> 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. <p>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.</p> <p>DR AQ-5 Provided for Threshold 4.2-4, below.</p> <p>DR AQ-6 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.</p> <p>MM AQ-1 Prior to the issuance of each grading permit, the County or its designee shall provide construction plans and specifications demonstrating that, after January 1, 2020, scrapers used for construction of the Project shall be required to meet Tier 4 Interim or equivalent off-road engine emissions standards. A copy of each unit's certified Tier specification shall be kept on site and available for inspection and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction.</p> <p>MM AQ-2 Prior to the issuance of each non-residential building permit, the County or its designee shall provide plans and specifications demonstrating that the features listed below have been incorporated into the building designs. Proof of compliance shall be provided to the County prior to the issuance of occupancy permits.</p>	

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • For buildings with over ten tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3, Nonresidential Voluntary Measures, of the California Green Building Standards (CALGreen) Code.² • Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided, as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code. • Facilities shall be installed to support future electric vehicle charging at each non-residential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3, Nonresidential Voluntary Measures (Tier 1), of the CALGreen Code. <p>MM AQ-3 Prior to the issuance of each residential building permit, the County or its designee shall provide plans and specifications to the County demonstrating that the features listed below have been incorporated into the building designs or specifications. Proof of compliance shall be provided to the Manager of Building & Safety, or designee, prior to the issuance of occupancy permits.</p> <ul style="list-style-type: none"> • Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles. • Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code. <p>MM AQ-4 Prior to issuance of each building permit for parking structures and parking lots with 20 or more parking spaces, 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 to the Manager of Building & Safety, or designee prior to the issuance of occupancy permits.</p> <ul style="list-style-type: none"> • 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. • For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code. <p>MM AQ-5 Once constructed, tenants/operators of non-residential uses shall include the features and procedures listed below. Proof of compliance shall be provided to the Manager, CEO Real Estate/Land Development (or Building & Safety) within one month following the issuance of each occupancy permit.</p> <ul style="list-style-type: none"> • Post signs stating that trucks shall not be left idling for prolonged periods (i.e., in excess of five minutes, as required by State law). 	

² Bicycle parking requirements are included in the CALGreen Code mandatory measures.

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Affiliate with Spectrumotion or a similar employee program or develop an in-house transportation management program that promotes alternatives to solo commuting with fossil-fueled vehicles. • Post bus, Metrolink, and Amtrak schedules in conspicuous areas. • Configure employee work schedules around the Metrolink schedule to the extent reasonably feasible. <p>MM AQ-6 Once constructed, the operators of residential uses shall include the following features and procedures. Proof of compliance shall be provided to the Manager, CEO Real Estate/Land Development (or Building & Safety) within one month following the issuance of each occupancy permit.</p> <ul style="list-style-type: none"> • Affiliate with Spectrumotion or a similar program or develop an in-house transportation management program that promotes alternatives to solo commuting with fossil-fueled vehicles. • Post bus, Metrolink, and Amtrak schedules in conspicuous areas. 	
<p>Threshold 4.2-3 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).</p>	<p>Pursuant to Threshold 4.2-3, mass operational emissions of nonattainment pollutants and their precursors would be cumulatively considerable and a significant and unavoidable impact. Implementation of DR AQ-6 would avoid emissions from indoor residential fireplaces. Mitigation measures MM AQ-2 through MM AQ-6 would reduce vehicle travel, but the cumulative impact would still be significant and unavoidable. It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's cumulatively considerable contribution to exceedances of the SCAQMD significance thresholds.</p> <p>Mass construction emissions of nonattainment pollutants and their precursors would be less than the SCAQMD CEQA significance thresholds and would be less than significant. The unmitigated emissions take into consideration the Project's implementation of DR AQ-1 through DR AQ-4. Implementation of MM AQ-1 would reduce the impacts to less than significant.</p>	<p>Refer to DRs AQ-1 through AQ-4 and AQ-6 above. Refer to MMs AQ-1 through AQ-6 above.</p>	<p>Significant and Unavoidable (Mass Operational Emissions)</p> <p>Less Than Significant (Mass Construction Emissions)</p>
<p>Threshold 4.2-4 Expose sensitive receptors to substantial pollutant concentrations.</p>	<p>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 4.2-4. DR AQ-5 would ensure that future sources of criteria or toxic air pollutants would comply with emissions limitation established by SCAWMD. No mitigation is required.</p>	<p>DR AQ-5 Commercial, medical office, or similar uses developed in the Development Plan area shall comply with SCAQMD Rule 201 and Regulation II (requiring a Permit to Construct prior to the installation of any equipment that may cause air contaminants) as well as Rule 203 (requiring a Permit to Operate prior to the use of any equipment that may cause air contaminants). These rules and regulation are required unless the equipment or aspects of the Project are exempt under Rule 219, which identifies those equipment, processes, or operations that do not require permits. Prior to issuance of the occupancy permit, the developer of each building or group of buildings shall provide the Manager of Building & Safety, or designee with the SCAQMD-approved Permit to Construct and Permit to Operate or other sufficient proof of compliance with Rules 201 and 203.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.3 - Biological Resources			
<p>Threshold 4.3-1 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?</p>	<p>The Project would impact suitable habitat for special status species. These impacts would be considered adverse, but less than significant. The Project has the potential to impact active burrowing owl burrows and/or nests of migratory birds and/or raptors. However, with implementation of DRs BIO-1 and BIO-2, these impacts would be avoided by limiting construction activities to the non-nesting season or by performance of 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 potential impact on special status species would be less than significant, pursuant to Threshold 4.3-1. In addition, DR BIO-3 would minimize impacts on roosting bats through the performance of pre-construction bat surveys and installation of bat exclusionary devices such that potential Project impacts are less than significant.</p>	<p>DR BIO-1 Per the <i>Staff Report on Burrowing Owl Mitigation</i> (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 study area. 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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>DR BIO-2 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</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>area to determine the presence or absence of active raptor nests. If no active nests are found, no further mitigation would be required.</p> <p>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.</p> <p>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.</p> <p>DR BIO-3 Trimming or removal of mature trees should be conducted outside the bat maternity season (i.e., between March 1 and August 31). One month prior to building demolition, the County, or its designee, shall ensure that a pre-construction survey for roosting bats shall be conducted by a qualified Bat Specialist. The survey shall consist of one diurnal (i.e., daytime) survey followed by an evening emergence survey to determine if any bats are day roosting in the buildings proposed for removal. If day-roosting bats are observed, bat-exclusionary devices shall be installed prior to construction or demolition activities. The bat exclusionary devices shall be designed to allow for bats to exit the roost areas but not re-enter. All designs shall be approved by a qualified Bat Specialist and installation shall be monitored by a qualified Bat Specialist.</p> <p>Upon completion of the pre-construction roosting bat 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 any active roosts are observed, the Letter Report shall include a description of exclusionary measures recommended.</p>	
<p>Threshold 4.3-2 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?</p>	<p>The Project would impact approximately 0.911 acre of riparian habitat (i.e., mulefat scrub vegetation under the jurisdiction of the RWQCB and the CDFW). However, processing of permits/agreements/certifications from the RWQCB and the CDFW, and implementation of the permit requirements would mitigate any potentially significant impact on this resource. In addition, DR BIO-4 would ensure compliance with Section 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code. Therefore, through compliance with existing laws and implementation of DR BIO-4 the potential impact on riparian habitat would be less than significant pursuant to Threshold 4.3-2.</p>	<p>DR BIO-4 Prior to any impacts on jurisdictional areas, the County, or its designee, shall obtain permits/agreements/certifications from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the CDFW for impacts on areas within these agencies' jurisdictions. A pre-application meeting with these agencies shall be scheduled prior to submittal of permit applications to discuss existing conditions; jurisdictional resources; impacts to these resources that would result from the Project; proposed avoidance, minimization, and mitigation measures to offset these impacts; and the regulatory permitting process. Following the pre-application meeting, the County or its designee, shall prepare and process a USACE Section 404 Permit; a RWQCB Section 401 Water Quality Certification; and a CDFW Section 1602 Streambed Alteration Agreement.</p> <p>The County, or its designee, shall implement/comply with the mitigation measures required by the resource agencies regarding impacts to areas under their respective jurisdictions. Compensatory mitigation may include restoration (i.e., re-establishment or rehabilitation); establishment (i.e., creation); enhancement; and/or preservation of jurisdictional resources. Compensatory mitigation may occur through permittee-responsible mitigation; payment to an in-lieu fee program; or purchase of compensatory mitigation credits from an approved</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>mitigation bank. Mitigation ratios for impacts to USACE jurisdictional resources would be based on the USACE's <i>Standard Operating Procedure for Determination of Mitigation Ratios</i>. For permittee-responsible mitigation, the County, or its designee, shall consider mitigating jurisdictional impacts resulting from Project implementation through the preparation of a Habitat Mitigation Monitoring Plan (HMMP) prepared by a qualified Biologist. The preparation of an HMMP early in the process can help to accelerate and shorten the regulatory permitting process. If required by the resource agencies, the detailed HMMP shall contain the following items:</p> <ol style="list-style-type: none"> 1. Responsibilities and Qualifications of the Personnel to Implement and Supervise the Plan. The responsibilities of the County, or its designee, specialists, and maintenance personnel, as well as the qualifications of specialists and maintenance personnel, that will supervise and implement the plan will be specified. 2. Site Selection. Site selection for restoration, establishment, enhancement, and/or preservation mitigation shall be determined in coordination with the County, or its designee, and resource agencies. The mitigation site(s) shall be located in a dedicated open space area or on land that shall be dedicated and/or purchased off site. 3. Site Preparation and Planting Implementation. Site preparation shall include the following, as determined by specific site conditions and permit requirements: protection of existing native species; trash and weed removal; native species salvage and reuse (i.e., duff); soil treatments (i.e., imprinting, decompacting); temporary irrigation installation; erosion-control measures (i.e., rice or willow wattles); seed mix application; and container species. 4. Schedule. A schedule, which includes planting to occur in late fall and early winter (between October 1 and March 1) shall be developed. 5. Maintenance Plan/Guidelines. The maintenance plan shall include the following, as determined by specific site conditions and permit requirements: weed control; herbivory control; trash removal; irrigation system maintenance; maintenance training; and replacement planting. 6. Monitoring Plan. The site shall be monitored and maintained for a minimum of five years to ensure successful establishment of riparian habitat within the restored and created areas. The monitoring plan shall include qualitative monitoring (i.e., photographs and general observations); quantitative monitoring (e.g., randomly placed transects and/or California Rapid Assessment Method [CRAM] analysis); performance criteria, as approved by the resource agencies; and monthly reports for the first year, quarterly reports thereafter, and annual reports for all five years. 7. Long-Term Preservation. Long-term preservation of the site shall also be outlined in the restoration and enhancement plan to ensure the mitigation site is not impacted by future development. <p>Although the monitoring plan is scheduled to last five years, if there is successful coverage prior to five years, the County, or its designee, may request to be released from monitoring requirements by the USACE and the CDFW.</p>	

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		Once the USACE, CDFW, and RWQCB permits have been obtained, they shall be submitted to the Manager of Land Development, or designee, for review and approval prior to any ground disturbing activities.	
<p>Threshold 4.3-3 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.</p>	<p>The Project would not directly impact any federally protected wetlands; however, it would impact approximately 0.004 acre, 0.721 acre, and 1.801 acres of waters under the jurisdiction of the USACE, the RWQCB, and the CDFW, respectively. Processing of and compliance with permits/agreements/certifications required by applicable law would reduce any potentially significant indirect impacts to federally and State protected jurisdictional waters to a less than significant level. Therefore, through compliance with existing laws, the potential impact on federally and State protected jurisdictional waters would be less than significant, pursuant to Threshold 4.4-3.</p>	<p>Refer to DR BIO-4 above and DR HWQ-9 in Section 4.8, Hydrology and Water Quality, below.</p>	<p>Less Than Significant</p>
<p>Threshold 4.3-4 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.</p>	<p>The study area is not located within a regional wildlife movement corridor and occurs in a largely developed landscape matrix. Therefore, implementation of the Project would not impact the planned regional wildlife movement corridor or result in fragmentation of habitat. Impacts on wildlife movement would be considered less than significant, and no mitigation would be required. As disclosed in the Existing Conditions discussion of this Section 4.3, no native resident or migratory fish exist within the study area and thus the Project will have no adverse impacts. The Project may impact active nests of migratory birds and/or raptors. However, impacts would be avoided by complying with DR BIO-2, a measure limiting construction activities to the non-nesting season or performance of 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 potential impact to nesting birds and raptors would be less than significant, pursuant to Threshold 4.4-4.</p>	<p>Refer to DR BIO-2 above.</p>	<p>Less Than Significant</p>
<p>Threshold 4.3-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.</p>	<p>The Project would not conflict with applicable local ordinances protecting biological resources. Therefore, there would be no impact, pursuant to Threshold 4.4-5.</p>	<p>No mitigation is required.</p>	<p>No Impact</p>
<p>Threshold 4.3-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.</p>	<p>The Project would not conflict with provisions of the NCCP/HCP. Therefore, there would be no impact, pursuant to Threshold 4.4-6.</p>	<p>No mitigation is required.</p>	<p>No Impact</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.4 - Cultural Resources			
<p>Threshold 4.4-1 Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.</p>	<p>Pursuant to Threshold 4.4-1, the Project has a low potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. However, implementation of MM CULT-1 would reduce potential impacts to less than significant levels should buried resources of that nature be discovered as part of grading activities.</p>	<p>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.</p> <p>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 or its designee, all in a manner meeting the approval of the Manager of Building & Safety, or designee.</p>	<p>Less Than Significant</p>
<p>Threshold 4.4-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.</p>	<p>Pursuant to Threshold 4.4-2, the Project has a moderate 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 should unknown buried resources be discovered as part of grading activities. Additionally, due to lack of unique geologic features on the site, no impacts to such features would occur and no mitigation is required.</p>	<p>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.</p> <p>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</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>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.</p> <p>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.</p> <p>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.</p>	
<p>Threshold 4.4-3 Disturb any human remains, including those interred outside of formal cemeteries.</p>	<p>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.</p>	<p>MM CULT-3 Human Remains. If human remains are encountered during ground-disturbing activities, Section 7050.5 of the <i>California Health and Safety Code</i> 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 <i>California Public Resources Code</i>. 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.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.5 – Geology and Soils			
<p>Threshold 4.5-1 Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</p> <ul style="list-style-type: none"> 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? 	<p>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 4.5-1. 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 (2013 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.</p>	<p>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.</p>	<p>Less Than Significant</p>
<p>Threshold 4.5-2 Result in substantial soil erosion or the loss of topsoil.</p>	<p>Grading activities would increase the potential for soil erosion and loss of top soil. With the incorporation of construction BMPs as described in Section 4.8, Hydrology and Water Quality, implementation of DR HWQ-7 through DR HWQ-10 in Section 4.8, 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 4.5-2.</p>	<p>Refer to DR HWQ-7 through DR HWQ-10 in Section 4.8, Hydrology and Water Quality, below.</p>	<p>Less Than Significant</p>
<p>Threshold 4.5-3 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.</p>	<p>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 (2013 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 4.5.1) would be reduced to a less than significant level with conformance with existing regulations (2013 CBC) and DR-GEO-1.</p>	<p>Refer to DR GEO-1 above.</p>	<p>Less Than Significant</p>
<p>Threshold 4.5-4 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.</p>	<p>Based on the Preliminary Geotechnical Investigation (Leighton and Associates, Inc. 2014), the Project site soil has 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 4.5-4.</p>	<p>Refer to DR GEO-1 above.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.6 – Greenhouse Gas Emissions			
<p>Threshold 4.6-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.</p>	<p>Pursuant to Threshold 4.6-1, the Project’s GHG Emissions would be less than the SCAQMD-recommended plan-level efficiency threshold but would exceed the SCAQMD-recommended project-level efficiency threshold. Implementation of DR GHG-1 and DR GHG-2 and MM GHG-1 through MM GHG-3 would reduce the emissions though not to a level of less than significant.</p>	<p>DR GHG-1 Projects shall be designed in accordance with the applicable Title 24 Energy Efficiency Standards for Residential and Nonresidential Buildings (<i>California Code of Regulations</i> [CCR], Title 24, Part 6). These standards are updated, nominally every three years, to incorporate improved energy efficiency technologies and methods.</p> <p>DR GHG-2 Projects shall be designed in accordance with the applicable California Green Building Standards (CALGreen) Code (24 CCR 11).</p> <p>MM GHG-1 The Project shall incorporate renewable energy generation with the capacity to generate at least 6,168,000 kilowatt hours (kWh) of electricity per year at buildout.</p> <p>MM GHG-2 Low-energy Energy Star®-compliant or equivalent residential appliances shall be exclusively offered by residential 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. Low-energy Energy Star®-compliant or equivalent commercial appliances shall be installed in the hotel.</p> <p>MM GHG-3 High efficiency lighting (light-emitting diode [LED]) shall be used for all residential, office, retail, and outdoor (streets, pathways, parks, and parking structures) lighting applications.</p>	<p>Significant and unavoidable.</p>
<p>Threshold 4.6-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.</p>	<p>Pursuant to Threshold 4.6-2, because of the lack of regulatory guidance regarding the specific method the State will utilize to achieve SB 32 compliance and despite all the elements of the Project that are consistent with existing plans, policies and regulations adopted to reduce GHG emissions, the DEIR concludes that Project GHG Emissions impacts would be significant and unavoidable.</p>	<p>Refer to DR GHG-1 and DR GHG-2 and MM GHG-1 through MM GHG-3, above.</p>	<p>Significant and unavoidable.</p>
Section 4.7 – Hazards and Hazardous Materials			
<p>Threshold 4.7-1 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.</p>	<p><u>Hazardous Building Materials</u> Significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment due to hazardous building materials present or presumed to be present in existing on-site buildings/structures and facilities are potentially significant. Implementation of development requirements that would address hazardous building materials include DR HAZ-1, which includes testing and abatement of hazardous building materials, and DR HAZ-2, which addresses transportation and disposal of hazardous waste. With implementation of these DRs, impacts would be less than significant pursuant to Threshold 4.7-1.</p> <p><u>Railroad Ties</u> Significant hazard to the public or the environment through reasonably foreseeable upset and accident</p>	<p>DR HAZ-1 Hazardous Building Materials. Prior to demolition or renovation for reuse of buildings/structures or facilities, building materials shall be carefully assessed for the presence of lead-based paint (LBP), asbestos-containing materials (ACM), and other common hazardous building materials (e.g., polychlorinated biphenyl [PCB]-containing lighting ballasts and mercury-containing light tubes and switches). Their removal, where necessary, must comply with State and federal regulations, including Occupational Safety and Health Administration (OSHA) regulations in the <i>Code of Federal Regulations</i> (specifically Title 29, Part 1926) and South Coast Air Quality Management District (SCAQMD) Rule 1403. The OSHA rule establishes standards for occupational health and environmental controls for lead exposure and includes requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping, and observation of monitoring. Rule 1402 specifies work practices with the goal of minimizing asbestos emissions during building demolition and renovation activities, including the removal and associated disturbance of ACMs. During demolition, grading, and excavation, workers shall comply with the requirements of the <i>California Code of Regulations</i> (specifically, Title 8, Section 1532.1 and 1529), which provide for</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	<p>conditions involving the release of hazardous materials into the environment due to railroad ties present at the Project site are potentially significant without mitigation. Mitigation Measure (MM) HAZ-1 addresses removal and off-site disposal of railroad ties, thereby reducing the impacts to less than significant pursuant to Threshold 4.7-1.</p>	<p>exposure limits, exposure monitoring, respiratory protection, and good working practice by workers exposed to lead and asbestos, respectively. LBP and ACM-contaminated debris and other wastes shall be managed and disposed of in accordance with the applicable provision of the <i>California Health and Safety Code</i>. Specific requirements for LBP include (i.e., Title 17, Division 1, Chapter 8) procedures that must be followed for accreditation, certification, and work practices for lead-based paint and lead hazards. Section 36100 specifically sets forth requirements for lead-based paint abatement in public and residential buildings. The requirements for demolition and renovation activities related to ACM include asbestos surveying; notification; ACM removal procedures and time schedules; ACM handling and cleanup procedures; and storage, disposal, and landfill disposal requirements for asbestos-containing waste materials.</p> <p>DR HAZ-2 Management of Hazardous Waste. During site demolition, 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 <i>California Code of Regulations</i>, the U.S. Department of Transportation regulations in the <i>Code of Federal Regulations</i> (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 non-hazardous waste manifests as "Generator".</p> <p>MM HAZ-1 Prior to commencement of grading activities, railroad ties will be removed and recycled or properly disposed of offsite. If railroad ties split, disintegrate, or break during removal, fragments of railroad ties that can be visually identified and that are large enough to physically remove will be collected for disposal. Splintered or disintegrated railroad tie materials that have been mixed with soil or track ballast will be collected along with the minimum amount of soil or track ballast necessary to remove them based on visual identification. This requirement shall be included on the contractors' specifications and verified by the OC Development Services.</p>	
<p>Threshold 4.7-2 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.</p>	<p><u>Unknown Soil Impacts</u> Significant hazard to the public or the environment due to unknown soil impacts would be potentially significant. MM HAZ-2 requires development of a Soils Management Plan to address unknown hazardous-materials impacts and/or petroleum-hydrocarbon 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</p>	<p>Refer to DR HAZ-2 above.</p> <p>DR HAZ-3 Underground Storage Tanks. 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 <i>California Code of Regulations</i> (specifically, Title 23, Division 3, Chapter 16, Underground Tank Regulations). The process for UST removal is detailed in the Orange County Health Care Agency's (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</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	<p>grading. With implementation of MM HAZ-2, DR HAZ-2, and DR HAZ-3, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2.</p> <p><u>Potential Petroleum-Hydrocarbon-Impacted Soils at LOCs</u></p> <p>Significant hazard to the public or the environment due to petroleum-hydrocarbon impacts would be potentially significant at each of the described IRP Sites and LOCs. MM HAZ-2 requires development of a Soils Management Plan to address petroleum-hydrocarbon impacts. With implementation of this mitigation measure, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2.</p> <p><u>Installation Restoration Program Site 8 – Defense Realization and Marketing Office Storage Area</u></p> <p>Given commercial re-use for all the above referenced sites and residential, use for Planning Area 14, non-radiological impacts for all Units of IRP Site 8 are less than significant without mitigation. Radiological impacts in IRP Site 8 Units 1 and 4 would be potentially significant without mitigation. MM HAZ-3 will address potential radiological impacts at IRP Site 8 Units 1 and 4. With implementation of this mitigation measure and compliance with applicable laws, impacts would be less than significant pursuant to Threshold 4.7-2.</p> <p><u>Installation Restoration Program Site 12 – Sludge Drying Beds</u></p> <p>Impacts at IRP Site 12 Units 1 and 2 are potentially significant without mitigation. MM HAZ-4 would address impacts in Units 1 and 2 and reduce hazards to less than significant pursuant to Threshold 4.7-2. Based on the available information regarding existing cumulative human health risks in Unit 3 a mitigation measure would be required. MM HAZ-5 would address impacts in Unit 3 and reduce hazards to less than significant pursuant to Threshold 4.7-2. Hazards in Unit 4 would be less than significant without mitigation pursuant to Threshold 4.7-2.</p> <p><u>Installation Restoration Program Site 21 – Materials Management Group</u></p> <p>Impacts due to the catch basin would be potentially significant without mitigation. MM HAZ-6 would address impacts at the catch basin and reduce impacts to less than significant pursuant to Threshold 4.7-2.</p>	<p>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 <i>California Health and Safety Code</i>.</p> <p>MM HAZ-2 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. Field testing will consist of periodically screening soils with a photoionization detector (PID) in accordance with SCAQMD Rule 1166. Grading equipment operators and environmental professionals performing Rule 1166 monitoring will be trained in identifying evidence of contaminated soils. The Soils Management Plan will specifically identify LOCs where the main chemical of potential concern (COPC) is petroleum hydrocarbons and other locations of concern (LOCs)/installation restoration programs (IRPs) where petroleum hydrocarbons have been identified and may still be present. 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 on-site or off-site treatment and/or off-site disposal options in accordance with applicable law. This Soils Management Plan will be submitted to the Manager of Building & Safety for review and approval.</p> <p>MM HAZ-3 Prior to initial grading, an independent radiological survey will be performed at IRP Site 8, Units 1 and 4 using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance to assess the cumulative human health risks associated with remaining radiological impacts above site background levels. If cumulative human health risks are greater than acceptable levels for the proposed land use, targeted soil excavation and off-site disposal will be performed until cumulative human health risks (above background) are below acceptable levels.</p> <p>MM HAZ-4 Prior to initial grading, data collected during the Phase I and Phase II RIs (JEG 1993b; BNI, 1997) for IRP Site 12 Units 1 and 2 will be evaluated and, if warranted, additional sampling, targeted excavation, and/or confirmation sampling will be performed to assess conditions or to remove impacted soils in order to reduce cumulative human health risks to acceptable levels for the proposed land use (currently residential). Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Units 1 and 2 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied.</p>	

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	<p><u>Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Vadose Zone</u></p> <p>Given commercial re-use, impacts due to VOCs in soil gas within non-LIFOC areas would be less than significant without mitigation.</p> <p>Impacts due to VOCs in soil gas within the LIFOC area were not able to be tested. Therefore, MM HAZ-7 would address this data gap and potential impacts due to VOCs present in soil gas. With implementation of this mitigation measure and compliance with applicable laws impacts would be less than significant pursuant to Threshold 4.7-2.</p> <p><u>Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Shallow Groundwater Unit</u></p> <p>Impacts to the operation and maintenance of the groundwater treatment system and monitoring of the groundwater plume at IRP Site 24 would be potentially significant without mitigation. MM HAZ-8 would address protection of the system during grading and construction. With implementation of this measure, impacts would be reduced to less than significant pursuant to Threshold 4.7-2.</p> <p><u>Miscellaneous Location of Concern P1 Unit 2 – Past Pesticide Storage Area</u></p> <p>Given open space re-use, impacts to soil at MSC P1 Unit 2 would be less than significant without mitigation pursuant to Threshold 4.7-2.</p>	<p>MM HAZ-5 Prior to initial grading, confirmation sampling results for identified chemicals of concern (COCs) collected during remediation of IRP Site 12 Unit 3 if available, will be evaluated and cumulative human health risks will be calculated (utilizing risk-based concentrations [RBCs] that were developed and used as cleanup goals) and will be compared to acceptable levels for the proposed land use (currently residential). If necessary, additional sampling, targeted excavation, and/or confirmation sampling will be performed to remove impacted soils in order to reduce cumulative human health risks to acceptable levels for the proposed land use. Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Unit 3 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied.</p> <p>MM HAZ-6 Prior to initial grading, the sediment within the IRP Site 21 catch basin and/or the connected culvert will be removed, placed into 55-gallon drums, and profiled for disposal (note: depending on observations made during removal of the concrete catch basin, bedding material and underlying soils may also be removed and disposed of). If necessary to remove the sediment, the catch basin will be pressure washed and liquids will be collected, drummed, and profiled. Upon completion of sediment removal, the catch basin will be removed and properly disposed. Confirmation sampling will be performed to verify post-removal concentrations of the risk-driving chemicals of concern (COCs) (i.e., PAHs) are below the USEPA's industrial Regional Screening Levels (RSLs). Subsequent rounds of excavation and confirmation sampling will be performed until post-removal concentrations of PAHs are below the USEPA's industrial RSLs.</p> <p>MM HAZ-7 Prior to initial grading, soil vapor sampling will be performed within the Lease in Furtherance of Conveyance (LIFOC) area of the Project site. Sampling will be similar to the sampling that was completed during the recent soil gas investigation (Geosyntec 2015) in non-LIFOC areas. The probes will be sampled according to Advisory Active Soil Gas Investigations (DTSC et. al. 2015) and results will be compared to appropriate risk-based screening levels as in the 100-Acre Parcel Soil Gas Assessment Report (Geosyntec 2015). If concentrations are below screening levels, no further mitigation is required. If concentrations are above screening levels, other mitigation measures may be developed in consultation with appropriate regulatory agencies.</p> <p>MM HAZ-8 Prior to initial grading, the County will secure from the DoN an updated, complete listing, survey coordinates, and map showing locations of existing groundwater wells related to past and current remedial activities on the Project site. In addition, a field survey will be conducted within the area to be graded prior to grading of the area to confirm the location of existing groundwater wells on the portion of the Project site at issue and to identify whether other groundwater wells exist on that portion of the Project site. 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 assure 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, realigning conveyance piping if necessary (for the remediation system), 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 Department of the Navy (DoN) and the Regional Water Quality Control Board (RWQCB).</p>	

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.8 - Hydrology and Water Quality			
<p>Threshold 4.8-1 Violate any water quality standards or waste discharge requirements.</p> <p>Threshold 4.8-5 Otherwise substantially degrade water quality.</p>	<p>With the implementation of the recommended and applicable BMPs and the development requirements included in this section, the Project would not violate any water quality standards and waste discharge requirements nor would it otherwise substantially degrade water quality during construction and operation, pursuant to Thresholds 4.8-1 and 4.8-5. The water quality-related impacts would be less than significant. Additionally, implementation of DR HWQ-6 through DR HWQ-9, which include 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.</p>	<p>DR HWQ-6 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:</p> <ul style="list-style-type: none"> • 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. <p>The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check, and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit.</p> <p>DR HWQ-7 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:</p> <ul style="list-style-type: none"> • 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 	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>for the Project to verify compliance with the approved WQMP and O&M Plan; and</p> <ul style="list-style-type: none"> • Demonstrate that the County or its designee has recorded one of the following: <ol style="list-style-type: none"> 1. The 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. <p>DR HWQ-8 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.</p> <p>DR HWQ-9 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.</p>	
<p>Threshold 4.8-2 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.</p> <p>Threshold 4.8-3 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.</p> <p>Threshold 4.8-4 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.</p>	<p>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 were designed to best maintain existing drainage runoff flow patterns, when feasible. However, the Project site topography and the proposed redevelopment for the MCAS El Toro have resulted in two small drainage area diversions for a total of 9.3 acres, which would not have any significant effect on the downstream receiving water bodies (i.e., Marshburn, Bee Canyon, and Agua Chinon Channels). 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</p>	<p>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:</p> <ol style="list-style-type: none"> A. A drainage study of the Project including diversions, off-site areas that drain onto and/or through the Project, and justification of any 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 	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	<p>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 the development requirements (DR HWQ-1 through DR HWQ-5) and no mitigation is required, pursuant to Thresholds 4.8-2 through 4.8-4.</p>	<p>from rainfall runoff, which may be expected from all storms up to and including the theoretical 100-year flood.</p> <p>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:</p> <ol style="list-style-type: none"> 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. <p>DR HWQ-3 Drainage Improvements</p> <ol style="list-style-type: none"> 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: <ol style="list-style-type: none"> 1. Design provisions for surface drainage, and 2. Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff. 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. <p>DR HWQ-4 Easement Subordination. Prior to the final inspection approval, the County or its designee shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the Orange County Flood Control District (OCFCD), unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, the County or its designee shall furnish a copy of the proposed easement to the Manager of Building & Safety, or designee for review and approval. Further, a copy of the approved easement shall be furnished to the Manager of Building & Safety, or designee prior to the final inspection approval.</p> <p>DR HWQ-5 Diversion of Storm Water Flow. Prior to issuance of any grading permits, the County or its designee shall obtain approval from the OCFCD for any diversion of storm water flow between County watersheds.</p>	
Section 4.9 - Land Use and Planning			
<p>Threshold 4.9-1 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.</p>	<p><u>Comparison to 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</p>	<p>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).</p>	<p><u>Consistency with Applicable Planning Documents</u> Significant and Unavoidable <u>Compatibility with Existing and Planned Land Uses</u></p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	<p>purposes of informed decision making, the above compares the Project to City General Plan goals and policies and analyzes whether the Project conflicts.</p> <p>Pursuant to Threshold 4.9-1, 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.</p> <p><u>Compatibility with Existing and Planned Land Uses</u></p> <p>The Development Plan would introduce mixed-use, multi-family residential, office, retail, and recreation/open space uses that would be compatible with the existing and planned land uses around the site. Additionally, the Project would introduce features, such as the 50-foot "Park within the Park" along Marine Way that would create buffer(s) with adjacent uses. Hence, the impacts would be less than significant pursuant to Threshold 4.9-1 as it pertains to consistency with land use plans and no mitigation is required.</p>		Less Than Significant
Section 4.10 - Noise			
<p>Threshold 4.10-1 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.</p>	<p>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 4.10-1. 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 4.10-1, with the implementation of MM NOI-1 and MM NOI-2. Post 2035 traffic noise and train noise could create a potential noise incompatibility with surrounding land uses. MM NOI-3, MM NOI-4, and MM NOI-5 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-3, MM NOI-4, and MM NOI-5, the impact would be less than significant pursuant to Threshold 4.10-1.</p>	<p>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.</p> <p>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.</p> <p>MM NOI-2 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 loading docks, parking facilities, and other noise-generating activities associated with the proposed uses of the building would not exceed the</p>	Less Than Significant

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>exterior noise limits at the nearest buildings as specified in the City of Irvine Noise Ordinance.</p> <p>MM NOI-3 Prior to the issuance of each building permit for a residential building or hotel, 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 and rail noise conditions) in all habitable rooms of the proposed buildings facing Marine Way and the rail line. The County or designee shall also submit building plans and specifications showing that the following occur:</p> <ul style="list-style-type: none"> • 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 4.10-4, Irvine Interior and Exterior Noise Standards. <p>MM NOI-4 Prior to the issuance of each building permit for a non-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 architectural design would provide an interior average hourly noise level (Leq) during the normal hours of occupancy of 55 dBA or less for commercial, retail, bank, and restaurant uses, and 50 dBA Leq or less for office, professional, and research and development uses.</p> <p>MM NOI-5 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 will exceed 65 dBA CNEL.</p>	
<p>Threshold 4.10-2 Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.</p>	<p>Vibration-generating construction activities could occur within 25 feet of the Second Harvest Food Bank or future on-site buildings. The potential annoyance or structural damage impact would be less than significant through enforcement of MM NOI-6, pursuant to Threshold 4.10-2. Pile-driving operations have the potential to exceed vibration impact thresholds. Impacts would be less than significant, pursuant to Threshold 4.10-2, by implementation of MM NOI-7, 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. Vibration from railroad operations have the potential to exceed vibration annoyance criteria. Impacts would be less than significant, pursuant to Threshold 4.10-2, by implementation of MM NOI-8, which requires</p>	<p>MM NOI-6 Prior to the issuance of each grading permit, the County or designee shall produce evidence acceptable to the Manager of Building & Safety, or designee demonstrating that the equipment to be used for demolition and grading that would occur within 25 feet of an occupied structure shall not include vibratory rollers, large bulldozers, or similar heavy equipment. Vibratory rollers operated in the static mode would be allowed.</p> <p>MM NOI-7 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.</p> <p>MM NOI-8 Prior to the issuance of each building permit for buildings where people normally sleep within 200 feet of the railroad tracks south of the Project site, or buildings with primarily daytime use where vibration could interfere with normal activities within 120 feet of the railroad tracks, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, for a Vibration Analysis</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	building-specific design that rail operation-induced building vibrations would not exceed the vibration impact criteria recommended by the Federal Transit Administration or similar authority for Threshold 4.10-2.	Report and appropriate plans that demonstrate that anticipated building vibrations, based on the best available forecast of future rail operations, would not exceed the vibration impact criteria recommended by the Federal Transit Administration or similar authority acceptable to the Manager of Building & Safety, or designee. The FTA-recommended criterion for vibration annoyance, at buildings where people normally sleep is 72 VdB. The vibration criterion for buildings with primarily daytime use is 75 VdB. The vibration analysis shall describe whether an increased setback or vibration-reducing structural building elements are required to achieve the performance standard.	
<p>Threshold 4.10-3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.</p>	<p>Project-generated traffic noise increases at sensitive receptors would be significant on two roadway segments with the Existing Plus Project scenario. However, this scenario is a hypothetical condition that would not practically occur. Under the remaining scenarios (2017, 2035, and post-2035) traffic noise increases at sensitive receptors would be less than significant pursuant to Threshold 4.10-3. With the implementation of MM NOI-1 and MM NOI-2, 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 4.10-3.</p>	<p>Refer to MMs NOI-1 and NOI-2 above.</p>	<p>Less Than Significant</p>
<p>Threshold 4.10-4 Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.</p>	<p>There would be a temporary increase in ambient noise levels in the Project vicinity due to Project construction. With distance and intervening buildings and traffic noise, Project construction noise would not be heard at off-site sensitive receptors. New residents of the Project would hear some of the ongoing construction noise. However, the noise increase would be less than significant because of noise reduction that would occur over the distance between the source and receptor. Temporary increases in ambient noise levels due to Project construction would not be substantial and would be less than significant pursuant to Threshold 4.10-4.</p>	<p>Refer to DR NOI-1 above.</p> <p>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:</p> <ol style="list-style-type: none"> 1. 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. 2. Stockpiling and/or vehicle staging areas shall be located as far as practicable from dwellings. <p>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.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.11 – Population and Housing			
<p>Threshold 4.11-1 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).</p>	<p>The Project proposes new dwelling units and mixed-use development, which would generate approximately 3,954 new residents and approximately 7,779 new jobs in the City. Because this growth has not been incorporated into the long-range planning programs. The Project would have a direct growth-inducing impact. However, due to the infill nature of the Project a substantial indirect growth-inducing impact related to the Project is not anticipated. The direct growth-inducing effects would be considered a significant impact, pursuant to Threshold 4.11-1.</p>	<p>No mitigations would eliminate or reduce the direct population growth impact associated with the Project.</p>	<p>Significant and Unavoidable</p>
Section 4.12 – Public Services			
<p>Threshold 4.12-1(i) 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:</p> <p>(i) Fire protection.</p>	<p>The Project would create the typical range of service calls for residential, commercial, office, and hotel developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response. With the incorporation of DR FIRE-1 through DR FIRE-4, Project impacts on fire protection services would be less than significant pursuant to Threshold 4.12-1 (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.</p>	<p>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.</p> <p>DR FIRE-2</p> <p>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).</p> <p>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.</p> <p>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.</p> <p>DR FIRE-3 Automatic Fire Sprinkler Systems</p> <p>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.</p> <p>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.</p> <p>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</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<p>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.</p> <p>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.</p>	
<p>Threshold 4.12-1(ii) 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:</p> <p>(ii) Police protection.</p>	<p>The Project would increase the demand for police protection services, increasing demand by approximately 4 sworn officers, 1.4 non-sworn full-time professional staff and 1 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 4.12-1 (ii).</p>	<p>Refer to DR FIRE-4 above.</p>	<p>Less Than Significant</p>
<p>Threshold 4.12-1(iii) 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:</p> <p>(iii) Schools.</p>	<p>The Proposed Project would generate approximately 189 students in the SVUSD. The SVUSD has existing capacity in schools that would serve the Project. The Project would also be required to comply with the California Government Code (payment of State-mandated school fees). Additionally, the development would be required to pay the Measure B General Obligation bond taxes. Therefore, with these measures, impacts to schools would be less than significant pursuant to Threshold 4.12-1 (iii). The provision of new or physically altered school facilities would not be required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>Threshold 4.12-1(iv) 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:</p> <p>(iv) Other Public Facilities.</p>	<p>With an increase of approximately 3,954 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 no plans for the construction of new facilities. 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 4.12-1 (v).</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
Section 4.13 - Recreation			
<p>Threshold 4.13-1 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.</p>	<p>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 a minimum of 2.5 acres of parkland per 1,000 residents (DR REC-1). This would be accomplished through the provision of active and passive parks and recreational facilities. Though the residents of the Project would reasonably avail themselves of larger recreational facilities in 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 4.13-1. However, there is the potential for a temporary shortage of parkland should the full allocation of residential development occur prior to completion of Marine Way because this would delay the full development of the "Park within the Park". Since the County has no control on the phasing of Marine Way, this would be considered a potential short-term significant impact pursuant to Threshold 4.13-1.</p>	<p>DR REC-1 As identified in the <i>El Toro, 100-Acre Parcel Development Plan</i> the County or designee shall provide 2.5 acres of parkland per 1,000 residents through provision of an open space system on site.</p>	<p>Less Than Significant</p>
<p>Threshold 4.13-2 Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.</p>	<p>The proposed Project would include recreational facilities and amenities through a system of parks 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 on-site recreational facilities, the Project would not require the construction or expansion of other recreational facilities that might have any adverse physical effects on the environment. No additional recreation 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 4.13-2.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
Section 4.14 - Transportation/Traffic			
<p><i>City of Irvine</i> Threshold 4.14-1 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</p>	<p>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 4.14-1 through 4.14-10) in the Existing Plus Project and 2017 Plus Project scenarios.</p>	<p>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 and Marine Way in a manner meeting the approval of the Manager of Building & Safety, or designee.</p>	<p><u>Existing Plus Project Scenarios</u> Less Than Significant <u>2017 Plus Project Scenarios</u> Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>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.</p> <p>Threshold 4.14-2 In the City of Irvine not addressed by Threshold 4.14-1, 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.</p> <p>Threshold 4.14-3 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.</p> <p>Threshold 4.14-4 In the City of Irvine outside of those identified by Threshold 4.14-3, 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.</p> <p>Threshold 4.14-5 In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-6 In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-7 In the City of Irvine outside of PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-8 In the City of Irvine in PA33 (Irvine Spectrum Area) and PA36 (IBC), the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS F.</p> <p>Threshold 4.14-9 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.</p> <p>Threshold 4.14-10 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.</p>	<p>Significant impacts would occur in Year 2035 Plus Project and Post-2035 Plus Project scenarios pursuant to Thresholds 4.14-1 through 4.14-3 and 4.14-9, and 4.14-10. While potential mitigation has been recommended and imposed that would reduce impacts to less than significant for the impacts pursuant to Thresholds 4.14-1 through 4.14-3, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable. Impacts associated with the freeway mainline and ramps (Thresholds 4.14-9 and 4.14-10) would be significant and unavoidable (see Section 4.14.8, Mitigation Program for a discussion of the mitigation approach.).</p>	<p>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.</p> <p>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.</p> <p>The County would contribute to these improvements on a fair share basis.</p> <ul style="list-style-type: none"> • I-5 Southbound On-Ramp at Jeffrey Road: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane. • I-5 Southbound Off-Ramp at Alton Parkway: Impacts to this ramp can be mitigated by adding a second auxiliary lane from the I-5 to the Off-Ramp. • I-405 Southbound Off-Ramp at Sand Canyon Avenue: Impacts to this ramp can be mitigated by adding a second drop lane. • SR-133 Southbound On-Ramp at Barranca Parkway: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane. • Sand Canyon Avenue and Oak Canyon/Laguna Canyon: Impacts to this intersection can be mitigated by a signal upgrade that provides a westbound right turn overlap phase. This would allow the intersection to operate at an adequate LOS for all scenarios. No environmental impacts would be associated with this measure. • Sand Canyon Avenue and Burt Road: Impacts to this intersection can be mitigated by adding an additional northbound and southbound through lane. To the north of the intersection, lane additions would be within existing right-of-way. Sufficient right-of-way exists to the south of the intersection to accommodate the northbound lane, with the relocation of the sidewalk and some loss of landscape area. The southbound improvement would necessitate that three southbound lanes (through the intersection) be merged back to two lanes prior to the new railroad undercrossing. This would require a design exception from the City of Irvine for a substandard merge section to avoid the need to move the abutment to the recently constructed (2015) railroad bridge. Modification of the railroad bridge was deemed to be not reasonable as mitigation for an individual project. 	<p><u>2035 Plus Project Scenarios</u> Significant and Unavoidable</p> <p><u>Post-2035</u> Significant and Unavoidable</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Jeffrey Road and Walnut Avenue: Impacts to this intersection can be mitigated with signal upgrade and a westbound right turn overlap phase of the signal. • Sand Canyon Avenue and Alton Parkway: Impacts to this intersection can be mitigated with signal upgrade and a right turn overlap phases for all movements. 	
<p>City of Tustin</p> <p>Threshold 4.14-11 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.</p> <p>Threshold 4.14-12 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.</p> <p>Threshold 4.14-13 In the City of Tustin, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-14 In the City of Tustin, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-15 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.</p> <p>Threshold 4.14-16 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.</p>	<p>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 4.14-11 through 4.14-16) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>City of Laguna Beach</p> <p>Threshold 4.14-17 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.</p> <p>Threshold 4.14-18 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.</p> <p>Threshold 4.14-19 In the City of Laguna Beach, the addition of Project-generated trips increases the 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.</p>	<p>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 4.14-17 through 4.14-22) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.14-20 In the City of Laguna Beach, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-21 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.</p> <p>Threshold 4.14-22 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.</p>			
<p>City of Lake Forest</p> <p>Threshold 4.14-23 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.</p> <p>Threshold 4.14-24 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.</p> <p>Threshold 4.14-25 In the City of Lake Forest, the addition of Project generated trips increases the 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.</p> <p>Threshold 4.14-26 In the City of Lake Forest, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-27 In the City of Lake Forest, 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.</p> <p>Threshold 4.14-28 In the City of Lake Forest, 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.</p>	<p>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 4.14-23 through 4.14-28) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>City of Laguna Hills</p> <p>Threshold 4.14-29 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.</p>	<p>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 4.14-29 through 4.14-34) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.14-30 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.</p> <p>Threshold 4.14-31 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 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.</p> <p>Threshold 4.14-32 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 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-33 In the City of Laguna Hills, 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.</p> <p>Threshold 4.14-34 In the City of Laguna Hills, 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.</p>			
<p>City of Laguna Woods</p> <p>Threshold 4.14-35 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.</p> <p>Threshold 4.14-36 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.</p> <p>Threshold 4.14-37 In the City of Laguna Woods, the addition of Project generated trips increases the 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.</p> <p>Threshold 4.14-38 In the City of Laguna Woods, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-39 In the City of Laguna Woods, 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.</p> <p>Threshold 4.14-40 In the City of Laguna Woods, 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.</p>	<p>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 4.14-35 through 4.14-40) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>City of Aliso Viejo</p> <p>Threshold 4.14-41 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.</p> <p>Threshold 4.14-42 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.</p> <p>Threshold 4.14-43 In the City of Aliso Viejo, the addition of Project generated trips increases the 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.</p> <p>Threshold 4.14-44 In the City of Aliso Viejo, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-45 In the City of Aliso Viejo, 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.</p> <p>Threshold 4.14-46 In the City of Aliso Viejo, 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.</p>	<p>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 4.14-41 through 4.14-46) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>City of Mission Viejo</p> <p>Threshold 4.14-47 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.</p> <p>Threshold 4.14-48 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.</p> <p>Threshold 4.14-49 In the City of Mission Viejo, the addition of Project generated trips increases the 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.</p> <p>Threshold 4.14-50 In the City of Mission Viejo, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p>	<p>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 4.14-47 through 4.14 52) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.14-51 In the City of Mission Viejo, 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.</p> <p>Threshold 4.14-52 In the City of Mission Viejo, 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.</p>			
<p>City of Orange</p> <p>Threshold 4.14-53 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.</p> <p>Threshold 4.14-54 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.</p> <p>Threshold 4.14-55 In the City of Orange, the addition of Project generated trips increases the 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.</p> <p>Threshold 4.14-56 In the City of Orange, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-57 In the City of Orange, 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.</p> <p>Threshold 4.14-58 In the City of Orange, 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.</p>	<p>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 4.14-53 through 4.14-58) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>County of Orange</p> <p>Threshold 4.14-59 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.</p> <p>Threshold 4.14-60 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.</p>	<p>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 4.14-59 through 4.14-64) in the Existing Plus Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios. No mitigation is required.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.14-61 In the County of Orange, the addition of Project generated trips increases the V/C ratio on a roadway segment 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.</p> <p>Threshold 4.14-62 In the County of Orange, the addition of Project generated trips increases the V/C ratio on a roadway segment by more than 0.01 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-63 In the County of Orange, the addition of Project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.01, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.</p> <p>Threshold 4.14-64 In the County of Orange, the addition of Project generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.01, on a freeway ramp segment operating at LOS F.</p>			
<p>Caltrans (Intersections)</p> <p>Threshold 4.14-65 The addition of Project-generated trips causes the LOS at a study intersection to degrade from LOS A, B, C to D, E, or F (as measured by the application of the HCM methodologies).</p> <p>Threshold 4.14-66 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 LOS F prior to the addition of project traffic.</p> <p>Caltrans (Mainline Freeway Facilities)</p> <p>Threshold 4.14-67 The addition of Project-generated trips increases the traffic on a freeway mainline by more than 0.03, and causes the LOS to degrade from LOS A, B, C, D, E, to F.</p> <p>Threshold 4.14-68 The addition of Project-generated trips increases the traffic on a freeway mainline by more than 0.03, on a facility operating at LOS F prior to the addition of project traffic.</p>	<p>Based on the traffic data analysis and the threshold evaluations above, the proposed Project would result in significant impacts pursuant to Caltrans of significance (Thresholds 4.14-66 through 4.14-68) in the Existing Plus Project scenario. For this scenario six intersections (Threshold 4.14-66) and seven mainline freeway segments (Thresholds 4.14-67 and 4.14-68) would have significant impacts. Two of the impacted intersections are associated with SR-241. DR TRAN-1 identifies the requirement to pay applicable fees to the Major Thoroughfare and Bridge Fee Program, specifically for the Foothill/Eastern Transportation Corridor (i.e., SR-241).</p> <p>For the Year 2017 Plus Project scenario, there would be significant impacts at three intersections under Thresholds 4.14-65 and 4.14-66. There would be no impacts to mainline freeway segments (Thresholds 4.14-67 and 4.14-68).</p> <p>For the Year 2035 Plus Project and Post-2035 Plus Project scenarios, there would be impacts to 10 and 11 intersections, respectively, pursuant to Thresholds 4.14-65 and 4.14-66. There would be no impacts to mainline freeway segments (Thresholds 4.14-67 and 4.14-68).</p> <p>While potential mitigation has 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 (see Section 4.14.8, Mitigation Program for a discussion of the mitigation approach).</p>	<p>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.</p> <p>Also, refer to DR TRAN-3, above.</p> <p>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:</p> <ul style="list-style-type: none"> • Jeffery Road and I-5 Northbound • Sand Canyon Avenue and I-5 Northbound • Jeffrey Road and I-405 Northbound • Sand Canyon Avenue and I-5 Southbound • Trabuco Road and SR-133 Southbound • Trabuco Road and SR-133 Southbound • Sand Canyon Avenue and I-405 Southbound • Alton Parkway and I-5 Northbound • Trabuco Road and SR-133 Southbound • Trabuco Road and SR-133 Northbound <p>The NITM Program also provides for improvements on some Caltrans facilities. Therefore, MM TRAN-3, identified above, will also be applicable at the appropriate locations.</p>	<p>Significant and Unavoidable</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Orange County Transportation Authority Congestion Management Program</p> <p>Threshold 4.14-69 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.</p> <p>Threshold 4.14-70 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.</p> <p>Threshold 4.14-71 Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?</p>	<p>Pursuant to Thresholds 4.14-69 through 4.14-71, 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.</p>	<p>No mitigation is required.</p>	<p>No Impact</p>
<p>General CEQA thresholds</p> <p>Threshold 4.14-72 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).</p>	<p>With implementation of DR TRAN-4 and DR TRAN-5, 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 4.14-72 and no mitigation is required.</p>	<p>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.</p> <p>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.</p> <p>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, haul 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.</p>	<p>Less Than Significant</p>
<p>Threshold 4.14-73 Would the Project result in inadequate emergency access?</p>	<p>The proposed Project would not result in inadequate emergency access. The Project has been planned to be consistent with applicable emergency access requirements. In addition, DR FIRE-2 in Section 4.12, Public Services ensures adequate emergency fire access. Pursuant to Threshold 4.14-73, impacts would be less than significant and no mitigation is required.</p>	<p>Refer to DR FIRE-2 in Section 4.12, Public Services.</p>	<p>Less Than Significant</p>
<p>Threshold 4.14-74 Would the Project conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</p>	<p>Pursuant to Threshold 4.14-74, the Project would 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 will create a multi-modal 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</p>	<p>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</p>	<p>No Impact</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
	improvements. Additionally, MM AQ-2 through MM AQ-6 (identified in Section 4.2) are measures to encourage use of multi-modal transportation. Impacts would be less than significant and no mitigation is required.	specifications meeting the approval of the Manager of Building & Safety, or designee. Also, refer to MM AQ-2 through MM AQ-6 in Section 4.2, Air Quality.	
Section 4.15 - Utilities and Service Systems			
Threshold 4.15-1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	The Project 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 4.15-1.	No mitigation required.	Less Than Significant
Threshold 4.15-2 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 (December 17, 2015) indicating IRWD has sufficient capacity and will provide required water and wastewater services based on the identified Project. Existing deficiencies identified by IRWD with or without the Project exist in Reaches A and B. The Project would use improvements identified by IRWD for Reaches A and B and IRWD has committed to providing the necessary improvements required to provide service to the Project. These improvements 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 impact associated with those improvements would be addressed by IRWD pursuant to CEQA prior to these improvements being constructed. Based on the IRWD demands for nonpotable water in the year 2035, estimated to vary from approximately 25.9 MGD for a normal year supply and demand condition up to 29.7 MGD for an estimated a 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 in order 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. With implementation of DR UTIL-2, wastewater flows from the proposed Project would be accommodated and impacts would be less than significant pursuant to Threshold 4.15-2.	DR UTIL-1 Prior to issuance of a grading permit, the County or its designee shall provide evidence acceptable to the Manager of OC Building Services that the SCAQMD-approved Dust Control Plan utilizes recycled water and not potable water for dust abatement.	Less Than Significant

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.15-3 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.</p>	<p>As discussed in Section 4.8, 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 4.15-3. DRs HWQ-1 through HWQ-9 identified in Section 4.8, Hydrology and Water Quality, would be applicable to the proposed Project.</p>	<p>Refer to DRs HWQ-1 through HWQ-9 in Section 4.8, Hydrology and Water Quality, above.</p>	<p>Less Than Significant</p>
<p>Threshold 4.15-4 Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.</p>	<p>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 non-potable) would be adequate to serve the Project. Therefore, impacts would be less than significant and no mitigation is required, pursuant to Threshold 4.15-4.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>Threshold 4.15-5 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.</p>	<p>IRWD would provide wastewater treatment service to the Project. Based on IRWD demands for nonpotable water in the year 2035, estimated to vary from approximately 25.9 MGD for a normal year supply and demand condition up to 29.7 MGD for an estimated a maximum dry supply and demand condition (as identified in the Project's Water Supply Assessment), 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 in order 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 (as may be identified in the SAMP update) and necessary in-tract sewer mains. In addition, the Project would use future improvements identified by IRWD as part of their Capital Improvement Program. IRWD is updating the draft SAMP for PA 51, which includes the Project site. 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 4.15-5.</p>	<p>Refer to DR UTIL-1, above.</p>	<p>Less Than Significant</p>

**TABLE 1-2
SUMMARY OF POTENTIAL IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE**

Threshold of Significance	Project Impacts	Mitigation Program	Level of Significance After Mitigation
<p>Threshold 4.15-6 Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?</p>	<p>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 4.15-6.</p>	<p>No mitigation is required.</p>	<p>Less Than Significant</p>
<p>Threshold 4.15-7 Comply with federal, state, and local statutes and regulations related to solid waste?</p>	<p>The proposed Project would comply with applicable solid waste statutes and regulations including waste diversion programs. DR UTIL-3 would be implemented with the proposed Project. Impacts to solid waste statutes and regulations would be less than significant, pursuant to Threshold 4.15-7.</p>	<p>DR UTIL-2 The County or its designee shall comply with the minimum solid waste diversion requirements of AB 939, 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 and 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.</p>	<p>Less Than Significant</p>

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 and County of Orange. 2010. Sublease between City of Irvine and County of Orange for Institutional Parcel within El Toro LIFOC Parcel 3.
- Irvine, City of and County of Orange. 2010. Implementation Agreement No. 2 between City of Irvine, Irvine Redevelopment Agency, and County of Orange.
- 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 (September). *El Toro, 100-Acre 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 (November). *Notice of Preparation of a Program Environmental Impact Report and Notice of Scoping Meeting, El Toro Development Plan, County of Orange*. Santa Ana, CA: the County (Appendix B).

This page intentionally left blank

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) 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 decisionmakers 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.

This Draft EIR is intended to serve as a Program EIR under CEQA. Section 15165 of the State CEQA Guidelines states, “where individual projects are, or a phased project is, to be undertaken and where the total undertaking comprises a project with significant environmental effect, the Lead Agency shall prepare a single program EIR for the ultimate project as described in

Section 15168.” Relevant portions of Section 15168 of the State CEQA Guidelines describe a program EIR as follows:

- (a) General. A program EIR is an EIR which may be prepared on a series of actions that can be characterized as one large project and are related either:
 - (1) Geographically,
 - (2) As logical parts in the chain of contemplated actions,
 - (3) In connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program, or
 - (4) As individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects which can be mitigated in similar ways.

- (b) Advantages. Use of a program EIR can provide the following advantages. The program EIR can:
 - (1) Provide an occasion for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action,
 - (2) Ensure consideration of cumulative impacts that might be slighted in a case-by-case analysis,
 - (3) Avoid duplicative reconsideration of basic policy considerations,
 - (4) Allow the Lead Agency to consider broad policy alternatives and program-wide mitigation measures at an early time when the agency has greater flexibility to deal with basic problems or cumulative impacts, and
 - (5) Allow reduction in paperwork.

- (c) Use with Later Activities. Subsequent activities in the program must be examined in the light of the program EIR to determine whether an additional environmental document must be prepared.
 - (1) If a later activity would have effects that were not examined in the program EIR, a new Initial Study would need to be prepared leading to either an EIR or a Negative Declaration.
 - (2) If the agency finds that pursuant to Section 15162, no new effects could occur or no new mitigation measures would be required, the agency can approve the activity as being within the scope of the project covered by the program EIR, and no new environmental document would be required
 - (3) An agency shall incorporate feasible mitigation measures and alternatives developed in the program EIR into subsequent actions in the program.
 - (4) Where the subsequent activities involve site specific operations, the agency should use a written checklist or similar device to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the program EIR.
 - (5) A program EIR will be most helpful in dealing with subsequent activities if it deals with the effects of the program as specifically and comprehensively as possible. With a good and detailed analysis of the program, many subsequent activities could be found to be within the scope of the project described in the program EIR, and no further environmental documents would be required.

2.3 ENVIRONMENTAL REVIEW PROCESS

2.3.1 REVIEW OF AN EIR

The County, as the Lead Agency (and project proponent), which 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 (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 November 7, 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 November 21, 2014, to facilitate agency and public review and comment on the Project. County staff 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 Program 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. During these additional scoping periods, seven additional comments were received. A total of 13 comment letters were received during the 30-day NOP review period. Two additional comment letters were received after the end of the NOP review period. During the additional scoping periods (starting in June 2015 and October 2015), seven 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	Hydrology/Water Quality	Land Use/Planning	Noise	Public Services	Recreation	Transportation/Traffic	Utilities
State Agencies														
Governor's Office of Planning and Research, State Clearinghouse and Planning Unit (November 7, 2014)*														
Department of Fish and Wildlife (December 4, 2014)	X				X			X	X					
Caltrans, District 12 (December 8, 2014)	X								X				X	X
Regional Agencies														
South Coast Air Quality Management District (November 19, 2014)				X			X							
Transportation Corridor Agencies (December 3, 2014)									X					
Southern California Association of Governments (December 8, 2014)									X					
Local Agencies														
Airport Land Use Commission for Orange County (November 6, 2015)	X													
City of Irvine (December 5, 2014)	X													
City of Lake Forest (December 8, 2014)													X	

**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	Hydrology/Water Quality	Land Use/Planning	Noise	Public Services	Recreation	Transportation/Traffic	Utilities
Irvine Ranch Water District (December 8, 2014)	X		X											X
Orange County Transportation Authority (December 8, 2014)	X	X								X			X	
City of Irvine (January 6, 2015)	X	X	X	X					X	X		X	X	
City of Laguna Beach (May 8, 2015)	X				X				X			X	X	
City of Laguna Beach (July 10, 2015)					X				X		X	X	X	
City of Tustin (October 13, 2015)	X													
City of Tustin (October 26, 2015)													X	
Organizations														
Native American Heritage Commission (November 24, 2014)						X								
Native American Heritage Commission (amended) (December 5, 2014)						X								
Second Harvest Food Bank of Orange County (December 5, 2014)		X										X	X	
Second Harvest Food Bank of Orange County (July 2, 2015)		X										X	X	
Second Harvest Food Bank of Orange County (November 5, 2015)		X										X	X	
Irvine Residents Opposed to County Misuse of Public Land (November 6, 2015)	X								X		X	X	X	
* The letter from the Governor's Office of Planning and Research, State Clearinghouse and Planning Unit verified receipt of the NOP and provided a listing of the agencies that the document was forwarded to.														

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 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 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
- 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

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 Vista; Scenic Resources):** There are no designated or eligible scenic highways in the vicinity of the Project site. The site is located in an urbanized area with no scenic resources on or immediately adjacent to the site. The Project site is not part of scenic vista and would not alter views from scenic highways or of scenic vistas.
- **Agricultural and Forestry Resources:** The Project would not result in any impacts to farmlands 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). 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 major odor sources (such as wastewater treatment plants, agricultural operations, landfills, composting facilities, food processing plants, chemical plants, or refineries).
- **Biological Resources (Habitat Conservation Plan, Natural Community Conservation Plan):** The Project site is not located on or near the Reserve Areas of the Orange County Central-Coast Natural Community Conservation Plan (NCCP) and Habitat Conservation Plan (HCP).
- **Cultural/Scientific Resources (Historical Resource):** All structures that were a part of the former Marine Corps Air Station (MCAS) El Toro were evaluated as part of the environmental documentation prepared by the County of Orange as the MCAS El Toro Local Redevelopment Authority for the development of the former MCAS El Toro as a commercial airport. As part of those studies, pursuant to the State CEQA Guidelines Section 15064.5, the buildings onsite were found not to be eligible for the National Register of Historic Places, the California Register of Historical Resources, and local

register of historical resources, and not eligible for Cold War Legacy status. This determination was made pursuant to State CEQA Guidelines Section 15064.5, and the California State Historic Preservation Officer (SHPO) concurred with this finding. Therefore, Project-related demolition, rehabilitation and construction activities would not adversely impact a historical resource (LRA 2001).

- **Geology and Soils (Landslides; Septic Tanks):** The Project site and its immediately surrounding areas are relatively flat and not prone to landslides. There would be no impacts associated with landslides.

The Project would be served by the public sewer system and would not require alternative wastewater disposal systems.

- **Hazards and Hazardous Materials (Transport, Use, or Disposal; Schools; Private Airstrips; Emergency Evacuation Plan; Wildlands):** Proposed land uses on the site would utilize hazardous materials for construction, operation, and maintenance. Some of these materials would be routine construction or household items identified as hazardous materials pursuant to Proposition 65.¹ However, existing federal and state regulations on the handling and transport of these materials provides sufficient safeguards to protect against a significant hazard to the community associated with an accidental release of hazardous materials.² Additionally, those involved in transportation of hazardous materials must apply for and obtain a hazardous materials transportation license from the California Highway Patrol (CHP). Existing constraints associated with contamination on the Project site is discussed in Section 4.7, Hazards and Hazardous Materials.

There are no schools located within ¼ mile of the Project site, and the Project does not propose the development of schools on site. Therefore, hazardous materials impacts to schools from the proposed Project are not anticipated.

There are no airports or private airstrips near the site that may pose safety hazards at the Project site.

There are no designated emergency evacuation routes on or immediately adjacent to the site, and no unique characteristics about the uses proposed that would impair emergency response or evacuation from the Project site or surrounding areas.

The Project site is not in or adjacent to wildlands; therefore, the proposed Project would not alter the urban/wildlands interface.

- **Hydrology (Groundwater; 100-Year Flood Hazard; Inundation):** The proposed Project would not involve direct or indirect withdrawals of groundwater and would not

¹ In compliance with the requirements of Proposition 65 (1986) the Office of Environmental Health Hazards Assessment (OEHHA) compiles a list of chemicals that may pose health risks. The list contains a wide range of naturally occurring and synthetic chemicals that are known to cause cancer or birth defects or other reproductive harm. These chemicals include additives or ingredients in medications, pesticides, common household products, food, drugs, dyes, or solvents. Proper handling of these substances reduces the potential for exposure of the public. The full listing of chemicals controlled by OEHHA under Proposition 65 can be found at http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.

² There are extensive regulations pertaining to the transportation of hazardous materials. This includes standards established by the California Department of Toxic Substance Control, U.S. Occupational Safety and Health Administration, and both the U.S. and California Departments of Transportation. The U.S. Environmental Protection Agency's regulations on the designation of hazardous substances can be found in the Code of Federal Regulations (CFR) 40 CFR 116. A source for identifying federal regulations pertaining to the transport of hazardous materials can be 49 CFR 171.

substantially interfere with groundwater recharge. The Project site is not within a designated recharge area and is not located within the 100-year floodplain.

The Project site is not located near the coast, a dam, or large open body of water, nor is it located on or near a hillside. The Project would not be exposed to inundation by dam failure, seiche, tsunami, or mudflow. Water supply utilities are further discussed in 4.15, Utilities and Service Systems.

- **Land Use and Planning (Divide an Established Community; Habitat Conservation Plan, Natural Community Conservation Plan):** The site is not part of an established community and the Project would not divide any community. The Project does not conflict with any applicable habitat conservation plan or natural community conservation plan.
- **Mineral Resources:** The California Department of Conservation, Division of Mines and Geology (CDMG) has designated the site and surrounding area as Mineral Resource Zone (MRZ) 1—areas where adequate information indicates that no significant mineral deposits are present. Additionally, the Department of Conservation Division of Oil, Gas and Geothermal Resources (DOGGR) has not identified oil, gas, or geothermal fields on or near the site.
- **Noise (Airport; Private Airstrips):** There are no airports or private airstrips near the site that may expose future residents, visitors, or employees to excessive noise levels.
- **Population and Housing (Existing Housing; People):** There are no housing units on the Project site; therefore, the Project would not result in the displacement of residents or housing units. Evaluation of Project consistency with local and regional growth projections is provided in Section 4.11, Population and Housing.
- **Transportation/Traffic (Air Traffic):** The Project would not introduce any features that would require a change in air traffic patterns; directly increase in air traffic levels; or results in substantial air safety risks. The Project would not impact operations at John Wayne Airport, the nearest airport.

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 Eric.Hull@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 Program 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 Program 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 Program 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 Program 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, LLC³ (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) leases⁴, Heritage Fields and the City entered into a development agreement.

³ 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.

⁴ 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 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.

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.

As discussed in Section 2.5, Environmental Setting, and Section 4.7, Hazards and Hazardous Materials, portions of MCAS EL Toro are being held by the DoN while the property undergoes remediation.

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.⁵ To "establish and demonstrate their 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 to certain lands to the County. Approximately 100 acres of the Project site was included in the parcels to be conveyed to the County as part of the Pre-Annexation Agreement. In addition, the County also received 5.2 acres through a Public Benefit Conveyance from the DoN (see discussion of the Community Action Partnership of Orange County and Families Forward in Section 1.3 of this EIR). The Pre-Annexation Agreement provides that other lands which the County receives under the Pre-Annexation Agreement or through a Public Benefit Conveyance from a federal agency would be annexed to the City but that such 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." The Pre-Annexation Agreement further states that adequate vehicular access to Marine Way would be provided.

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

⁵ 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.

payment to Irvine of any permit fees or other mitigation/impact fees, other than in Section 2.2.5...⁶

The Project site, which is approximately 108 acres, is encumbered by several public easements for drainage and utilities. The DoN has released fee title to approximately 60 acres of the Property to Heritage Fields, which subsequently turned it over to the City via the Great Park Development Agreement executed between Heritage Fields and the City of Irvine. The City (with some use restrictions), in turn, has conveyed that property to the County, as required by the Pre-Annexation Agreement. The remaining portions (approximately 41.64 acres) of the Property are covered under a LIFO pending completion of environmental remediation by DoN (further discussion of the LIFO is provided Section 4.7, Hazards and Hazardous Materials). 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.

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 LLC 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 preparation

⁶ 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).

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 relocation of the intersection of Bake Parkway/Marine Way and reconfiguration of Rockfield Boulevard in the southern portion of 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 located in PA 51 in the City, which encompasses the former MCAS El Toro. The ground surface at the Project site slopes gently from the east to west and north to south with elevations ranging from approximately 280 feet above mean sea level (msl) near its southeastern end (Marine Way and Great Park Neighborhoods, District 6) to approximately 224 feet above msl on its northwestern end (southern portion of Ridge Valley extension). An aerial photograph of the site and surrounding area is provided in Exhibit 2-1.

The entire Project site was previously disturbed during its use as part of MCAS El Toro. The majority of the northwestern half of the Project site includes no improvements other than the existing Perimeter Road/South Marine Way, which traverses the property twice in the northwestern half. This area was part of the runway protection zones of the former MCAS El Toro.

The central and southeastern portions have inactive rail spurs that extend from adjacent Southern California Regional Rail Authority (SCRRA) rail lines and served the warehouse structures at the southeastern portion of the site. The majority of the southeastern half of the

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.

D:\templates\1_MXD_Templates\Ex_Aerial_20151215.mxd



Aerial Source: ESRI

Aerial Photograph of Site

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 2-1



Project site is paved with roads, parking lots, and foundations of demolished buildings. There are also numerous existing structures in this area related to the former MCAS El Toro, but these facilities are no longer in use. Based on an assessment completed in July 2009, most of the existing buildings were found to be dilapidated and beyond repair. The largest of the existing structures are three approximately equal-sized large warehouse buildings that are oriented in a straight line from northwest to southeast (see Exhibit 2-2, Buildings/Structures, Facilities, and Railroad Spurs within Project Site). Only Building 317 has potential for reuse.

The Second Harvest Food Bank warehouse (*i.e.*, Building 319) is also located in this general vicinity. The Second Harvest Food Bank warehouse was redeveloped and is still in use. While Building 319 (Second Harvest Food Bank) is not part of the Project site, it is surrounded by the Project site on three sides.

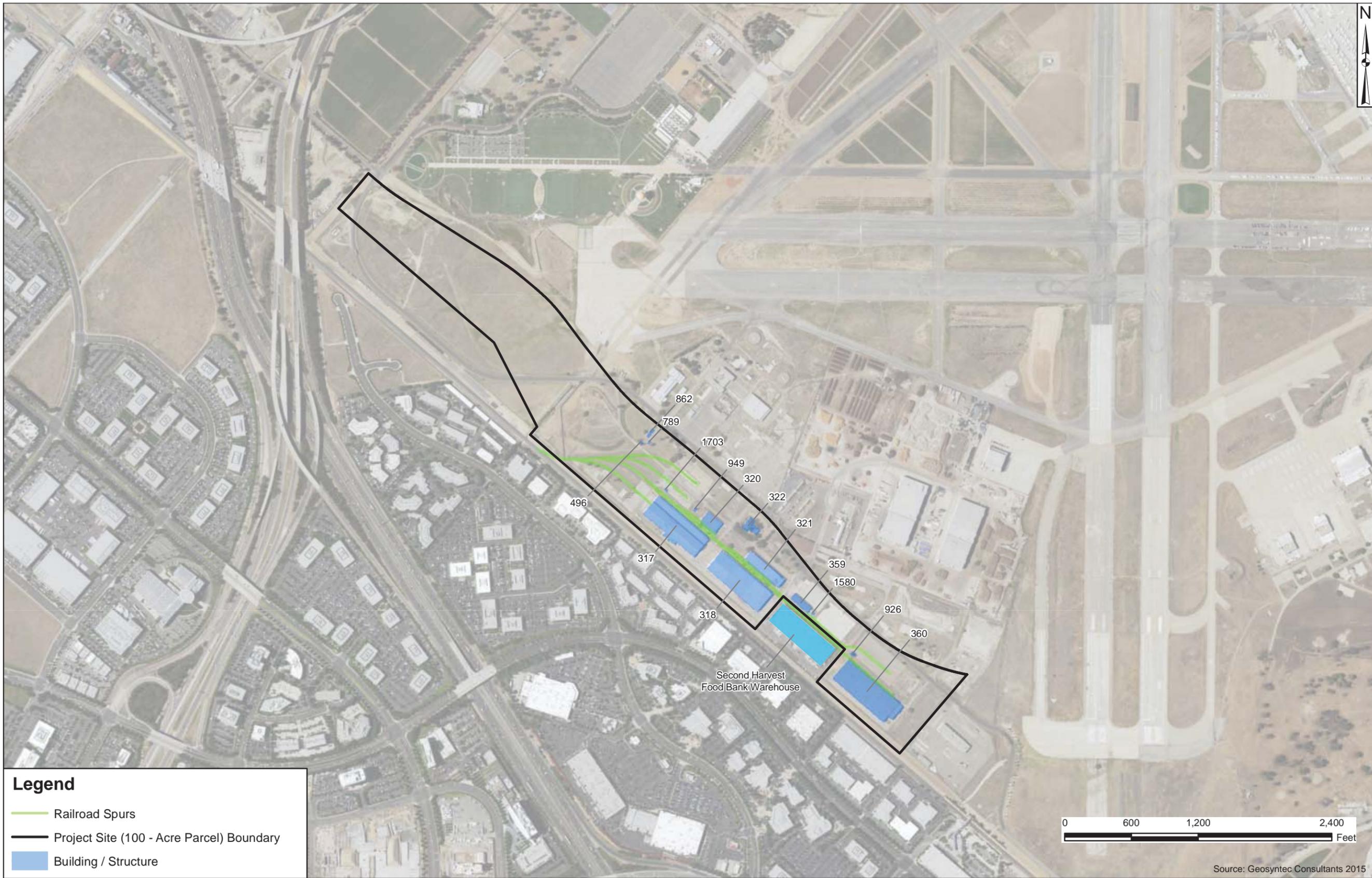
The Project site is designated in the *City of Irvine General Plan* as Orange County Great Park (PA 51) (Irvine 2015a, 2015b). The General Plan, Land Use Element Table A-1 identifies a variety of uses within this designation, including Multi-Use, Institutional, Industrial, and Commercial. Table A-1 further identifies 300,000 square feet of Institutional/Public Facilities designated for the Project site as being for the County facilities and an additional 136,000 square feet of warehousing for homeless providers. The City's Zoning Map designates the Project site as 6.1, Institutional. The General Plan Land Use Element identifies the following Zoning District designations for the OCGP: 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).

The 1,300-acre OCGP, adjacent and to the north and northeast of the Project site, is planned to include a 175-acre sports park with soccer and multi-use fields, tennis courts, baseball/softball fields, and sand volleyball courts. Additional planned 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 2014a).

Adjacent to the OCGP and privately owned by Five Point Communities is the Great Park Neighborhoods development on portions of PA 51, approved by the City of Irvine since 2003. The development would consist of residential and non-residential uses, including but not limited to community commercial and multi-use. The 2012 Modified Project, approved by the City in 2012 as a modification of the Great Park Neighborhoods development project, added dwelling units for an approved maximum total of 10,700 units. Additional uses such as community commercial and multi-use are also planned as part of the 2012 Modified Project (Irvine 2013).

Located in the southeastern portion of the OCGP, adjacent to the Sports Park, and east of the proposed Project is the 260-acre planned Cultural Terrace. The proposed Cultural Terrace, 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 2014a).

Access to the site is provided by existing Marine Way and existing Perimeter Road, as shown on Exhibit 2-1. Future access will be via the realigned and extended Marine Way, which will replace Perimeter Road. The first phase of Marine Way extension, located between Ridge Valley and



Buildings/Structures, Facilities, and Railroad Spurs within Project Site

El Toro, 100-Acre Parcel Development Plan EIR



future Great Park Boulevard West⁸, is scheduled to be completed in 2016. The Marine Way realignment, between Sand Canyon Avenue and Ridge Valley, is not yet scheduled, but is anticipated to be completed in mid-2018. The remainder of Marine Way extension does not have an anticipated time frame, although the portion between Alton and Barranca Parkways would likely be constructed in conjunction with the Broadcom Campus, which was approved by the Irvine City Council on August 11, 2014. The Broadcom Campus is expected to be completed in 2017.

Irvine Station, which includes a Metrolink Station and bus facilities, is located less than ½ mile southeast of the site (south of the SCRRA rail line). Access to the Irvine Station is currently via a passenger drop-off point on Marine Way. Enhanced access to and from the Project site to the Irvine Station will be provided through future infrastructure improvements. Regional access is provided by Interstate (I) 5 to the south and State Route (SR) 133 to the west. Sand Canyon Avenue provides the closest arterial access.

Adjacent land uses include sports fields in the OCGP and agricultural land to the northwest; former MCAS El Toro base buildings and vacant land to the north and east; the SCRRA rail lines and business park uses to the south; and vacant land and SR-133 to the west. The proposed Great Park Neighborhoods District 6 is planned to the east and southeast of the Project site.

West of SR-133 on Sand Canyon Avenue, the Orange County Transportation Authority (OCTA) maintains a bus maintenance facility. Additionally, Irvine Community Church is located on Sand Canyon Avenue just north of the I-5. These uses are within the City's PA 40, which is planned for predominately residential development and some multi-use east of Sand Canyon Avenue. The City of Irvine PA 32 is south of the Project site and is separated from the Project by the rail line. PA 32 has been developed with office uses. A small portion of PA 31 extends north of the railroad tracks and is designated for commercial use.

The City has an arid climate with an average annual rainfall of 14.42 inches per year and an average temperature of 63.5 degrees Fahrenheit (U.S. Climate Data, 2015). Precipitation occurs seasonally, as the region experiences intermittent winter storms generally from the months of November through March. Rainwater runoff at the Project site collects in catch basins and flows into the flood-control drainage system. The Project site is located within the Santa Ana Region Hydrologic Unit as defined by the California Regional Water Quality Control Board (RWQCB), Region 8, and is tributary to the Newport Bay. The existing topography is separated into three main drainage areas, each discharging into existing underground drainage systems that ultimately drain into three separate Orange County Flood Control District (OCFCD) facilities: Marshburn Channel (F16), Bee Canyon Channel (F17), and Agua Chinon Channel (F18).

As previously mentioned, a portion of the Project site is undergoing site remediation for contamination. The DoN has indicated that the only issue preventing transfer of the LIFOC area of the Project site is the pending DoN report documenting the results of a radiological investigation of an off-site (i.e., not within the Project site) former paint room located in Hangar 296, where radium-226 (Ra-226) paints were used. As a result, a portion of the Project site (approximately 41.64 acres, including 40 acres of the 100-acre parcel and 1.64 acres of parcels acquired by the County separate from the 100-acre conveyance) is held under a LIFOC pending completion of environmental remediation by DoN. The area contained in the LIFOC is generally located southeast of the Bee Canyon Channel and in the southern portion of

⁸ Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents.

the Project site. The LIFO area is depicted in Exhibit 2-3. The DoN has indicated that ongoing remediation in the southern portion of the Project site for Volatile Organic Compound (VOC) will not prevent transfer of the LIFO area to the County. Upon completion of remediation for the Ra-226, the DoN will issue a FOST that will include the LIFO area of the Project site, and will specify conditions of the transfer with respect to any ongoing remediation. Once the FOST is approved by the U.S. Environmental Protection Agency (USEPA), California Department of Toxic Substance Control (DTSC), and RWQCB (i.e., the Federal Facility Agreement regulatory signatories), the transfer can be completed.

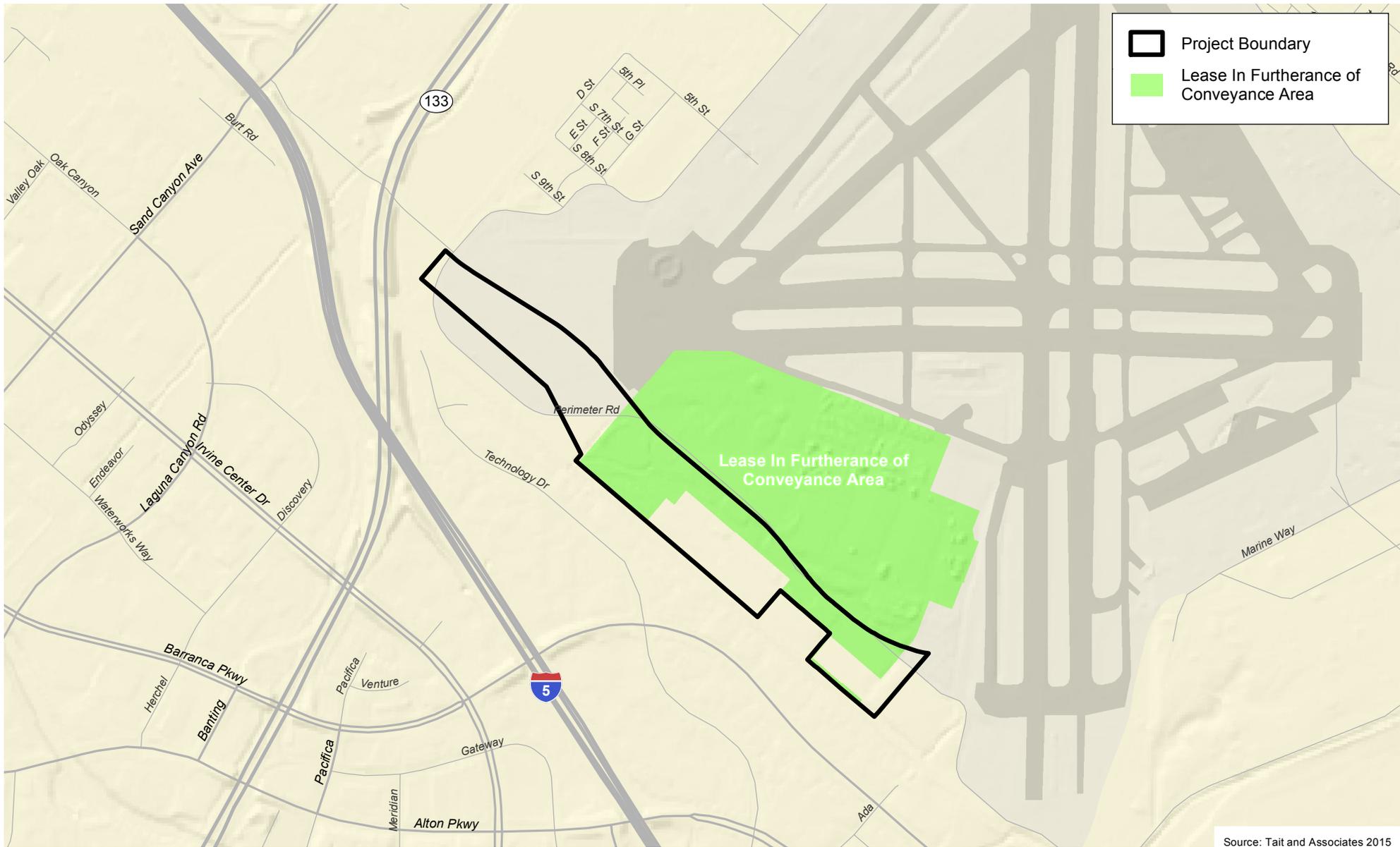
2.6 ORGANIZATION OF THE DRAFT EIR

This Draft EIR is organized into eight sections, with each containing its own references section. A list of the Draft 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 Program 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, Air Quality, through 4.15, Utilities and Service Systems. Within this section, the proposed Project is discussed. 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 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.

D:\Projects\LowE\rit\000\1\MXDs\EIR\EIT\Torro\Ex_LIFOC_area_20151015.mxd



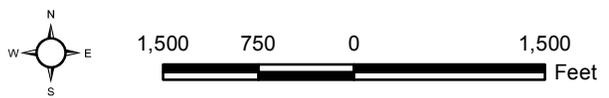
 Project Boundary
 Lease In Furtherance of Conveyance Area

Source: Tait and Associates 2015

Lease In Furtherance of Conveyance Area

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 2-3



2.7 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.
- Center for Demographic Research (CDR). 2014 (September, final approval). OCP-2014 Report Data (City and RSA tabs) (an excel spreadsheet). Fullerton, CA: CDR.
- 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>.
- . 2014a (July). *Addendum No. 9 – Modifications to the OCGP Improvement Area*. Irvine, CA: the City.
- . 2014b (March). *City of Irvine Zoning Map*. Irvine, CA: the City.
- . 2013 (November). *Final Heritage Fields Project 2012 GPA/ZC Second Supplemental Environmental Impact Report*. Irvine, CA: the City.
- . 2011a (October). *Addendum No. 8 – Minor Modifications to the Master Plan and Park Design Review for the Western Sector Park Development Plan*. Irvine, CA: the City.
- . 2011b (August). *Final Great Park Neighborhoods Supplemental Environmental Impact Report*. Irvine, CA: the City.
- . 2010 (June). *Addendum No. 7 – North Irvine Transportation Mitigation (“NITM”) Five Year Review*. Irvine, CA: the City.
- . 2008a (June). *Addendum No. 6 – Amended VTTM 17008 and Related Approvals*. Irvine, CA: the City.
- . 2008b (July). *Addendum No. 5 - 2008 General Plan Amendment and Zone Change*. Irvine, CA: the City.
- . 2007a (August). *Addendum No. 4 – OCGP Master Plan*, CA: the City.
- . 2007b (May). *Addendum No. 3 – VTTM 17008*, CA: the City.
- . 2006a (October). *Addendum No. 2 – 2006 General Plan Amendment and Zone Change*, CA: the City.
- . 2006b (May). *Addendum No. 1 – Orange County Great Park Redevelopment Plan*, CA: the City.

- . 2003 (May, certified). *Final Environmental Impact Report, Orange County Great Park, Volume I* (Section 5.11, Cultural Resources). Irvine, CA: the City.
- 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 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Orange, County of. 2014 (November). *Notice of Preparation of a Program Environmental Impact Report and Notice of Scoping Meeting, El Toro Development Plan, County of Orange*. Santa Ana, CA: the County (Appendix B).
- . 2005 (as amended through July 2014). General Plan. Santa Ana, CA: the County. <http://ocplanning.net/planning/generalplan2005>.
- . 2001 (October). MCAS El Toro Local Redevelopment Authority (LRA). *Final Environmental Impact Report No. 573 for the Civilian Reuse of MCAS El Toro and the Airport System Master Plan for John Wayne Airport and the Proposed Orange County International Airport* (SCH No. 98101053; Prepared by LSA Associates and P&D Consultants, Inc.).
- Sierra Club v. West Side Irrigation Dist. (2005) 128 Cal.App.4th 690, 700

3.0 PROJECT DESCRIPTION

3.1 PURPOSE OF THE PROPOSED PROJECT

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.

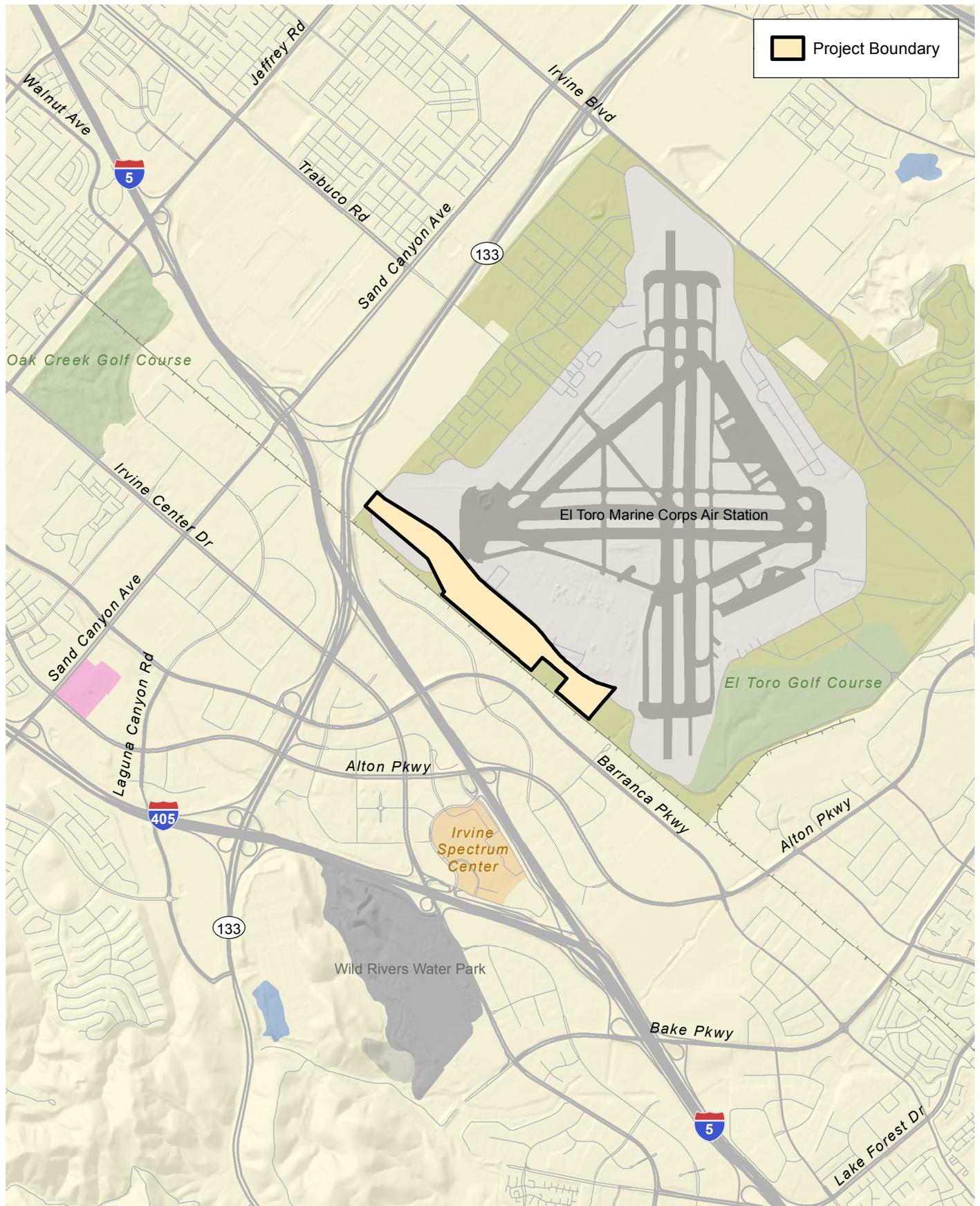
3.2 PROJECT LOCATION

The Project site is located on property that is or will be owned by the County of Orange (County) in the City of Irvine (City) at the southern edge of the former Marine Corps Air Station (MCAS) El Toro, east of the Interstate (I) 5 and State Route (SR) 133 interchange in Orange County. The site is bound by the proposed realignment of Marine Way to the northeast; the Southern California Regional Rail Authority (SCRRA) rail lines to the southwest; City-owned property to the southwest and northwest; and the Great Park Neighborhoods District 6 to the southeast. The Project would encompass approximately 108 acres. The regional location and local vicinity are shown on Exhibits 3-1 and 3-2, respectively.¹

The Project site surrounds the existing Second Harvest Food Bank warehouse on three sides. In addition, the Orange County Transportation Authority (OCTA) owns an approximately 21-acre parcel on the southwestern boundary of the Project site, which is conceptually planned for a future OCTA rail maintenance facility.

¹ As discussed in Section 1.8 of this EIR, the location of the Project site was identified in the Pre-Annexation Agreement but the precise boundaries of the parcel had not been established. The final alignment of Marine Way is required before this can occur because minor variants in the roadway alignment would result in changes to the size and configuration of the County property west and southwest of Marine Way. Minor changes to the Property boundary are anticipated as part of the true-up process. However, the technical studies prepared for this EIR evaluated the full 108 acres depicted in the exhibits in the document. Recognizing there was potential for the boundary to shift, some studies, such as cultural resources and biological resources provided a buffer area as part of their site surveys.

Project Boundary



D:\Projects\LowEnt\100011MXDs\EIR\ElToro\Ex_LV_20151215.mxd

Local Vicinity

Exhibit 3-2

El Toro, 100-Acre Parcel Development Plan EIR



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. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City.
2. Enhance the condition of the Project site so it is compatible with and enhances the quality of the viewshed from the Orange County Great Park (OCGP) and the adjacent land uses.
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
5. Promote brownfield development opportunities as a means of decreasing the region’s dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.
6. Develop infill improvements that facilitate mixed use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).
8. Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service and residential uses.
9. Promote sustainability by re-purposing and adaptively reusing existing materials on the site to the extent practical.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.
11. Provide public space within the Project to support community activities.

The Project proposes to achieve these objectives through the implementation of a mixed-used, low-impact design (LID) consisting of multi-use (office), residential, community commercial and hotel uses. The Project is intended to maximize the benefit derived from proximity to the Irvine train station (Irvine Station) located less than a half mile from the Property and the OCGP. The Development Plan would be used to guide future development on the Project site.

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 Program 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 in the Project area 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 area 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
Abbreviation: CEO: County 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: <i>El Toro, 100-Acre Parcel Development Plan, 2016</i>			

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 DEVELOPMENT PLAN

The Project proposes approval of a Development Plan for the El Toro, 100-Acre Parcel. The Development Plan would be used to guide future development on the Project site. This Development Plan contains details 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 that would occur over an extended period of time.

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 Program EIR. The Development Plan would be implemented through Level I, II, and III Reviews, processed by 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.²

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.

² 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.

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.

3.5 DEVELOPMENT PROPOSAL

The overall land use concept for the Development Plan provides for a mix of uses that takes advantage of the site's proximity to the OCGP and the Irvine Station. The character of the Project would be generally similar to other development within the City. The land uses considered in the Development Plan and the design guidelines and development standards contained therein are generally consistent with zoning designation 8.1 TTOD of the City's Zoning Code.

3.5.1 PROPOSED LAND USE

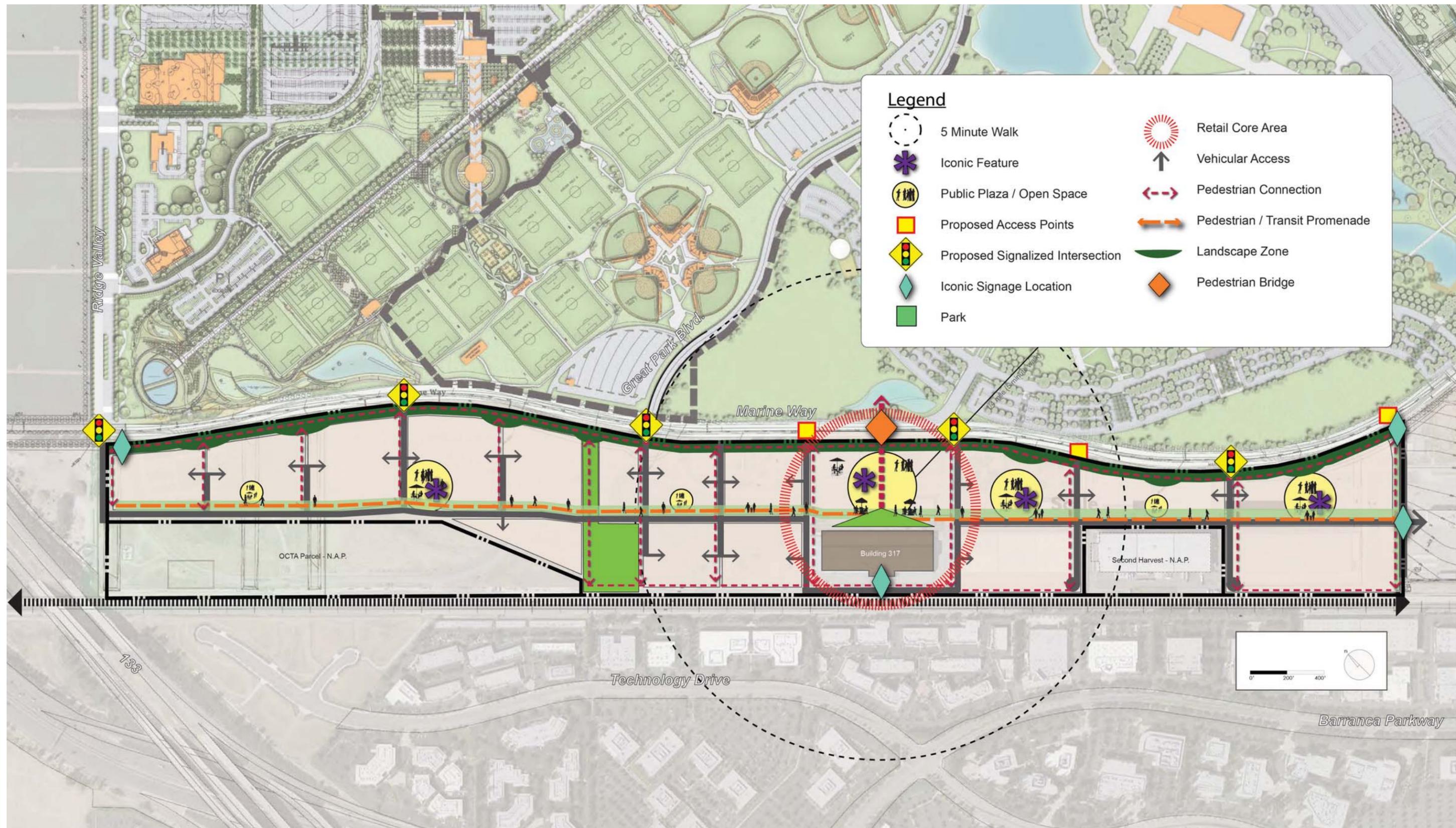
The Development Plan proposes to divide the Project site into three primary use districts: Residential District; Mixed-Use District; and Commercial District. This EIR uses the Conceptual Illustrative Site Plan depicted in the Development Plan. This concept plan shows one of the many possible development scenarios that would be compatible with this Development Plan. However, the Development Plan includes flexibility as to the types and amounts of different uses allowed within each district.

The Conceptual Illustrative Site Plan further divides these districts into 30 planning areas (20 numbered planning areas and 10 lettered planning areas³). Open space is provided throughout the Project site. Each of these use Districts and the open space component of the Project are further discussed below. Exhibit 3-3, Conceptual Framework Plan, and Exhibit 3-4, Land Use Plan, depict the Project components and the location of the districts, planning areas, and the open space system throughout the Project site. It should be noted that the exhibits, which are taken from the Development Plan, reflect the approved uses located north of Marine Way in the OCGP, even though these adjacent uses are not currently developed.

The Development Plan establishes a maximum amount of development allowed on the Project site, which is shown in Table 3-2. Recognizing the Project would be implemented over a period of years, the land use regulations contained in the Development Plan allow for flexibility in the location, mix, and intensity of uses. As market demands change and as businesses expand or contract over time, and subject to those maximum intensities and identified equivalency calculations, the Development Plan provides for a range of residential, office, and commercial uses to accommodate potential changes in the residential market and business environment. The proposed land use regulations and development standards are discussed in greater detail in Section 3, Development Standards, of the Development Plan and key points are summarized below.

³ Letter Planning Areas are associated with open space and do not permit development other uses permitted in the Open Space zone in the Development Plan.

D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_framework_20151014.ai



Source: El Toro, 100-Acre Parcel Development Plan, 2016

Conceptual Framework Plan

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-3



MAXIMUM DEVELOPMENT INTENSITY

Residential: 2,103 Dwelling Units
 Retail: 220,000 Square Feet
 Office: 1,876,000 Square Feet
 Hotel: 242 Rooms plus Meeting Space

LEGEND

- Residential
- Mixed-Use
- Commercial
- Open Space
- Project Boundary
- Planning Area Boundary



D:\Projects\LowE\0001\Graphics\EIR\ElToro\LandUsePlan_20151210.ai

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Land Use Plan

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-4



**TABLE 3-2
EL TORO, 100-ACRE PARCEL DEVELOPMENT PLAN
PROPOSED USES**

Land Use	Development Size
Residential	2,103 dwelling units ^a
Retail	220,000 square feet
Office	1,876,000 square feet
Hotel ^b	242 rooms
^a Live/Work or Shopkeeper units are considered 1 dwelling unit. The work area within these units do not count toward retail or office square footage. ^b Includes up to 20,000 square feet of meeting space. Meeting space does not count towards the maximum allowable development identified in this table. Source: <i>El Toro, 100-Acre Parcel Development Plan, 2016</i>	

Exhibit 3-5 provides a Conceptual Site Plan, which is compatible with the Development Plan. The Development Plan (Section 3.5, Table 3-3) defines uses for each of the land use districts by the following categories:

- **Permitted Uses.** Uses that do not require any type of discretionary action.
- **Level I Review Required.** Uses that require an administrative review of detailed plans.
- **Level II Review Required.** Uses that require a more thorough administrative review of detailed plans.

As previously indicated, Level III Review is required for deviations in excess of 20 percent from applicable development standards and would require a hearing before the El Toro Review Board with a public meeting. In addition to the uses permitted, the Development Plan also identifies the prohibited land uses.

Residential District

The Residential District is located on the northwestern portion of the Project site. In addition to residential uses, this district may also include office, hotel, and retail uses compatible with the urban, residential vision of this district. The Residential Design Guidelines within the Development Plan provide for a range of residential rental products, which are discussed below. The Project proposes a residential density of up to 80.0 dwelling units/acre (du/ac) in individual planning areas within the Project site, which is higher than other developments within the City's PA 51. However, even if an individual project may have a density of up to 80.0 du/ac, the overall density of the Project's Residential District would not exceed 50 du/ac, which is consistent with the maximum density within the PA 51.

Live/Work and Shopkeeper Units are allowed in any of the various housing types and would be considered one dwelling unit. The work areas within these units that meet standards specified in the Development Plan do not count toward retail or office square footage. The Development Plan provides images of examples of each of the housing types.

MAXIMUM DEVELOPMENT INTENSITY

Residential: 2,103 Dwelling Units

Retail: 220,000 Square Feet

Office: 1,876,000 Square Feet

Hotel: 242 Rooms plus Meeting Space



D:\Projects\LowE\0001\Graphics\EIR\EITorolex_ConceptSitePlan_20151210.ai

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Conceptual Site Plan

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-5



Map not to scale



Low-Rise Attached Housing Type

The Low-Rise Attached Housing Type is an attached housing type that generally has a density of up to 30 du/ac and can be typically up to 4 stories tall. The housing in this category may include various architectural styles and external building materials. This housing type include, but would not be limited to, the following products:

- **Townhomes.** In-line, attached single-family residences facing a drive or a street.
- **Attached Motor Court Cluster.** Attached single-family residences clustered around a common tub alley.
- **Attached Green Court Cluster.** Attached single-family residences clustered around a green court.
- **Stacked Flats or Lofts (or Combination Thereof).** An apartment or condominium building consisting of flats, lofts, and/or townhomes

The defining characteristics of each of these styles is discussed in Section 2, Design Guidelines, of the Development Plan.

Mid-Rise Attached Housing Type

This housing type features attached residences that are generally up to 5 stories and have a density of up to 80.0 du/ac. The housing in this category may include various architectural styles and external building materials. This housing type includes, but would not be limited to, the following products:

- **Wrap Buildings.** Attached flats, lofts and/or townhomes oriented around a parking structure.
- **Podium Buildings.** Attached flats, lofts, and/or townhomes located above a parking structure and that may be oriented around a common open space.

The residences within this housing type may include Live/Work units, which would be considered one dwelling unit. The work areas within these units that meet standards specified in the Development Plan do not count toward retail or office square footage. The defining characteristics of Wrap and Podium Buildings are discussed in Section 2, Design Guidelines, of the Development Plan.

Mixed-Use Housing Type

Mixed-use buildings feature retail, commercial, or office uses on all or a portion of the first one or two stories with housing on the upper levels. This housing type generally has a maximum of 5 stories and a density of up to 80.0 du/ac. The residences within this housing type may include wrap buildings, podium buildings, or mixed-use buildings. The residences within this housing type may include Live/Work or Shopkeeper units, which would be considered one dwelling unit. The work areas within these units that meet standards specified in the Development Plan do not count toward retail or office square footage. The defining characteristics of wrap buildings and podium buildings are discussed in Section 2, Design Guidelines, of the Development Plan.

Mixed-Use District

The Mixed-Use District would have a central location within the Project, and the potential adaptive re-use of Building 317 may be a major component of the Mixed Use District. This district may include commercial, retail and hotel uses, as well as residential and office uses compatible with the urban, mixed-use vision of the Mixed Use District. Residential uses in this district may include the types of residential products discussed above. This district may also include iconic features, such as the potentially-repurposed Building 317, as the centerpiece of the Project, an optional pedestrian bridge that would connect the Project to OCGP, and private parks and public plazas.

Commercial District

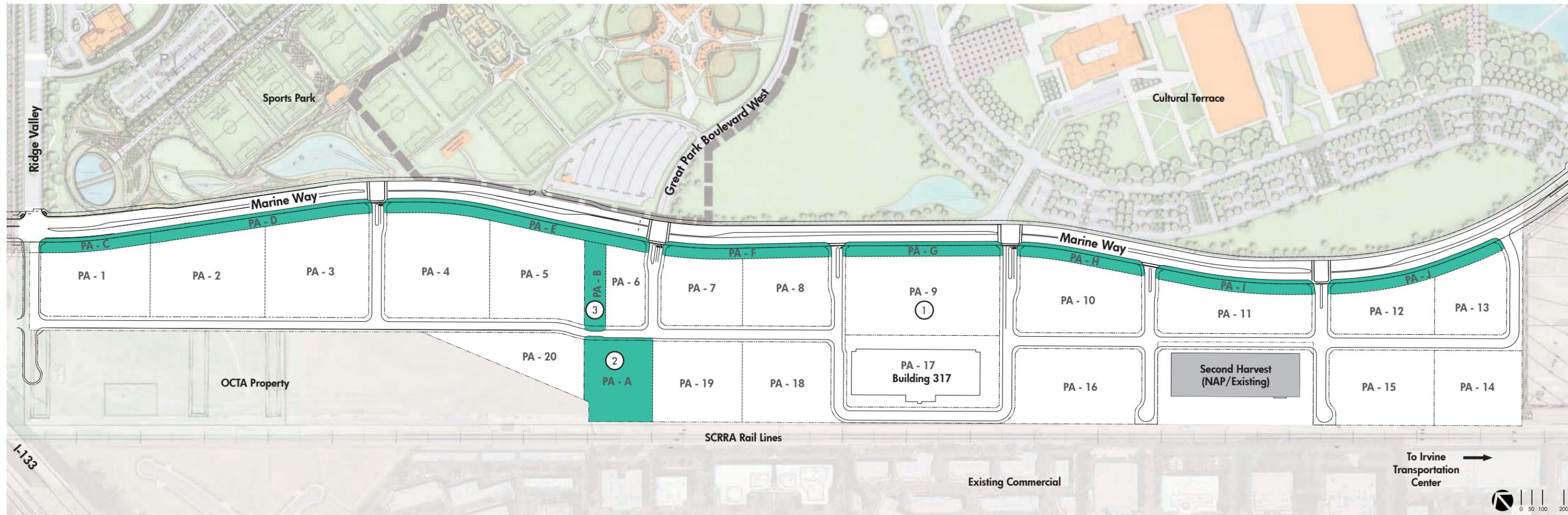
The Commercial District consists of business and medical office uses and is located in close proximity to the Irvine Station to accommodate commuters. The Commercial District may include residential, hotel, and retail uses compatible with the urban, commercial vision of this district. Residential uses in this district may include the types of residential products allowed within the Residential District. The Commercial District would also include iconic features, public plazas/open space, and landscape zones, discussed below.

Open Space

Open Space would be provided in multiple locations throughout the Project site and would include components such as the 2.5-acre park with active and/or passive recreational uses located on Planning Area A, in the Residential District; the 0.9 acre passive park located on Planning Area B, within the Residential District; and the 7.3 acre “Park within the Park” (Linear Park) in Planning Areas C through J, fronting Marine Way along the Residential, Mixed-Use, and Commercial Districts. The Project provides approximately 11 acres of parkland. In addition to this amount, there would be community gathering areas and urban plazas. The Development Plan identifies common open space, which would serve users of the community and is intended to complement the adjacent OCGP. The location of the open space is shown on Exhibit 3-6, Recreation and Open Space Plan. The design guidelines (provided in Section 2 of the Development Plan) discuss the defining characteristics of the open space components. The following three components would contribute toward required common open spaces.

- **Planning Area A.** Located between Planning Areas 19 and 20, this 2.5-acre area is devoted to open space uses and is proposed as the primary active park space in the Residential District. Programmed spaces could include a community gathering place, shade pavilions, picnic areas, and a community garden. Recreational amenities consist of outdoor exercise equipment or game tables. A children’s play area can be incorporated into this space.
- **Planning Area B.** This 0.9-acre area would function as the Residential District’s primary passive park space or other compatible open space use. This area would serve as a key corridor connecting the Project’s central promenade to the OCGP. Programmed spaces may include barbecue areas and less intense activity spaces such as bocce courts. Walkways, benches, and tables would be some of the components of this feature.

D:\Projects\LowEri\0001\Graphics\EIR\EITorolex_RecreationAndOpenSpacePlan_20151210.ai



LEGEND

 Neighborhood Park

① Centralized Gathering Hub

② Active Park Space

③ Passive Park Space

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Recreation and Open Space Plan

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-6



- **“Park within the Park.** An average 50-foot Linear Park along the north boundary of the Project site (totaling 7.3 acres) along Marine Way would be provided adjacent to Planning Areas 1 through 13 implementing the “Park within the Park” concept. This area is defined as Planning Areas C through J on Exhibit 3-4, Land Use Plan. This feature seeks to complement the adjacent OCGP (located across Marine Way from the Project site), which fronts the Project for approximately 1.5 miles. The programmed elements would include an eight-foot wide multi-use trail, which would connect to the planned transit-oriented district southeast of the Project site; rest areas; exercise equipment; or informal gardens. This area would also allow for potential storm water treatment opportunities.

The following two components provide common open space but do not contribute toward the required common open spaces defined in the Development Plan.

- **Planning Areas 9 and 17.** This area is proposed to be the community’s central gathering place and may be connected to other districts through the promenade along the central spine street. Building 317 may potentially be the central feature in this area. Some components may include water features, outdoor lounge areas, and kiosks.
- **Central Pedestrian Promenade.** Located only on the northeast side of the central spine street and within the right-of-way, this central feature would extend through the entire length of the Project site, connecting all planning areas. Some of the programmed elements may include pedestrian paths and bikeways, art features, a converted railway feature with a railway history educational experience, kiosks, signage, and converted periodic railcars.

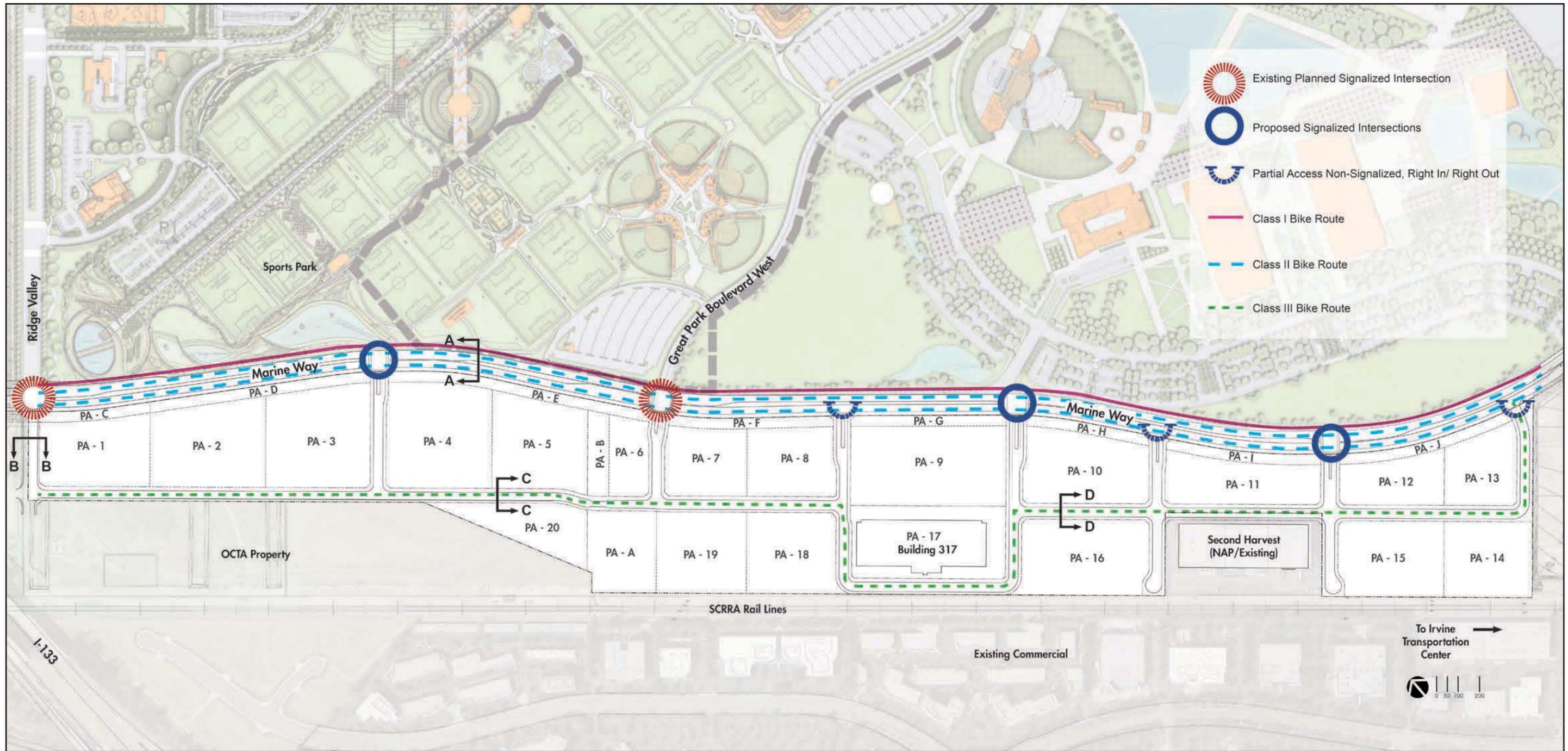
3.5.2 INFRASTRUCTURE

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 necessary infrastructure improvements would be determined as part of the final design process and coordination with the service providers. All infrastructure improvements are expected to be within the development areas of the Project, properties that were previously developed and/or disturbed, or within existing public rights-of-way.

Roadways

There are no roadways within the Project site designated on the Orange County Master Plan of Arterial Highways (MPAH). Marine Way, an offsite roadway, which is designated on the MPAH, serves as the Project site’s northeastern boundary. The circulation network internal to the Project site is based on a grid network of local collector roads. The Circulation Plan (Exhibit 3-7) includes a backbone roadway system to provide internal access and circulation within the Project site and connects to the existing off-site roadway system. The circulation system has been designed to accommodate estimated traffic volumes associated with the Project.

The design of the backbone street and developer access roads would consist of two-lane private streets with on-street parking, where feasible. The Project also includes the extension of Ridge



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\ElToro_CirculationPlan_20151210.ai

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Circulation Plan

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-7



Valley south of Marine Way, which is consistent with the City of Irvine General Plan, Master Plan of Arterial Highways (Figure B-1).

Exhibit 3-7, Circulation Plan, depicts the five locations where it is anticipated that signals would be located along Marine Way to provide access to the Project site: Ridge Valley, Great Park Boulevard West⁴, the Residential District entry, the access for the mixed-use core, and the Second Harvest Food Bank warehouse road. Signals at Ridge Valley and Great Park Boulevard West are already planned by the City of Irvine to accommodate adjacent development. The three additional signal locations have been identified based on preliminary traffic demand for purposes of the DEIR analysis, but the need for signals (known as ‘signal warrants’) would be demonstrated at the time precise land uses are proposed.

Parking is assumed to be available on both sides of the internal, backbone streets, unless restricted due to intersection turning movements and/or sight distance requirements that would result in the elimination of the on-street parking.

Street lights would be provided along the backbone streets in accordance with the Development Plan for placement along the roadway based on a Project-specific streetlight pole height and mast arm.

Drainage

The proposed site drainage patterns have been designed to closely match the existing drainage patterns, wherever possible. The Project site currently drains into three separate San Diego Creek Watershed tributaries (Marshburn, Bee Canyon, and Agua Chinon). Approvals from the Orange County Flood Control District (OCFCD) would be required for any direct storm drain connection to an existing flood-control facility (Bee Canyon Channel Double Box Culvert) or any watershed diversion between Marshburn Channel Watershed and Bee Canyon Channel Watershed or between the Bee Canyon Channel Watershed and the Agua Chinon Channel Watershed.

The Project’s storm drain systems would be designed to comply with the County’s Drainage Area Management Plan (DAMP) for South Orange County. It is anticipated that the Project will include three major private storm drain systems that would serve as the backbone storm drain improvements. The backbone storm drain systems would be designed to accept the 25-year storm water runoff volume and would accommodate a 100-year storm event per the County’s Local Drainage Manual guidelines. The backbone storm drain systems would be designed based on an “allowed” maximum discharge rate into the backbone system from each planning area on the Project site. Each planning area will be responsible for addressing the planning area storm water runoff and an equivalent volume of storm water runoff for the adjacent backbone street improvements. In addition, planning areas would be responsible for providing treatment of the 2-year, 24-hour storm event storm water runoff volume for the planning area before the storm water enters the backbone storm drain system. The approximate location of the proposed backbone storm drain facilities is depicted on Exhibit 3-8, Conceptual Drainage Infrastructure, and described below. However, as part of the final design for each planning area, the individual

⁴ Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents.

developers will work with the County to select the preferred storm water treatment features for the planning areas.

A backbone storm drain system would serve the development area west of Bee Canyon Channel; it would be located in the central spine roadway and would extend off site into the City and OCTA property located west of the Project site. Storm water runoff in this private backbone storm drain would eventually discharge into Marshburn Channel after connecting to an existing off-site 60-inch storm drain culvert that crosses through California Department of Transportation (Caltrans') right-of-way under State Route (SR) 133. This offsite backbone system may also be designed to accept storm water runoff from the approximately 21-acre OCTA parcel and/or the City's 1.6-acre parcel located west and southwest of the Project site before connecting to the existing Caltrans storm drain line.

Storm water runoff from a portion of the Project site east of the Bee Canyon Channel double box culvert will be diverted from the Marshburn Channel drainage system to the Bee Canyon Channel drainage system due to proposed topography constraints.

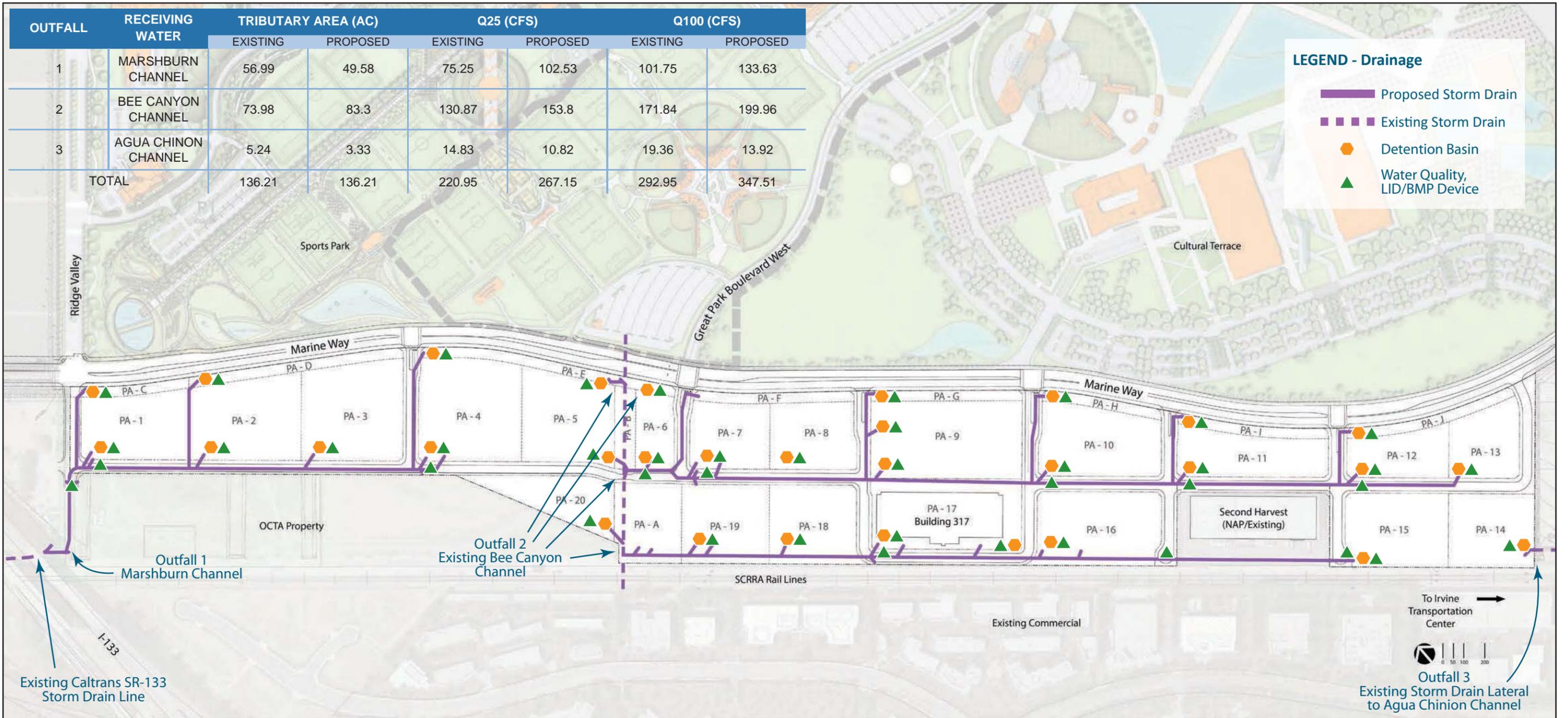
Two backbone private storm drain lines are currently planned to serve the Project site located east of the Bee Canyon Channel double box culvert. One system would be located in the central spine private street right-of-way and the second would be located along the southern boundary of the site.

Planning Area 14 located at the southeasterly corner of the Project area has several existing storm drain inlets that connect to an existing storm drain line that conveys both on-site and off-site storm water runoff to an Agua Chinon Channel storm drain line located along the north side of the SCRRA rail lines. Refer to Section 4.8, Hydrology and Water Quality, for a description of the two storm water diversions.

As each planning area is developed, the private storm drain lines would be connected to the backbone private storm drain systems. The storm water runoff drainage design developed for each planning area would require 100-year flood protection for all occupied structures (residential, office, hotel, retail and mixed use) and the developer of each planning area would be responsible to provide the storm drain improvements within each planning area. In addition, the design for each individual planning area's storm water detention system will address the storm water detention requirement for each respective area and for any half-width improvements for Project streets along the planning area boundary excluding Marine Way right-of-way.

Water Quality Features

Since the Project site is located over the Regional Water Quality Control Board's (RWQCB's) designed El Toro Marine Base Groundwater Plume Protection Boundary area, infiltration of the storm water runoff from the Project site will not be allowed. Alternative methods to address County DAMP requirements for Low Impact Design (LID) have been developed as part of the Best Management Practice (BMP) solutions for storm water runoff management and treatment. The BMPs are discussed in Section 4.8, Hydrology and Water Quality, and are listed in Appendix I-1.



- Notes:
1. Existing Marshburn Channel and Agua Chinon Channel are not shown, but are located within a 1000' of the project limits.
 2. Each Planning Area (PA) will be responsible for providing both storm water detention and water quality treatment measures in compliance with the County of Orange's Drainage Area Management Plan (DAMP) and the project's Preliminary drainage Study and Conceptual Water Quality Management Plan (WQMP).
 3. Water Quality treatment measures shall be installed in the project's private streets for compliance with the County DAMP and the project's Conceptual WQMP.

Source: El Toro, 100-Acre Parcel Development Plan, 2016, Tait and Associates 2015

Conceptual Drainage Infrastructure

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-8



As part of the County's DAMP requirements, the proposed storm drain improvements will address any increase in the post development storm water runoff volume as compared to the 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 will address pollutants of concern (suspended-solid/sediment, nutrients, heavy metals, pathogens such as bacteria/viruses, pesticides, oil and grease, toxic organic compounds, trash and debris) from entering downstream receiving drainage systems and water bodies. For backbone private streets, storm water bio-filtration units will be installed upstream of proposed street catch basins to address storm water runoff water quality requirements for the 2-year 24-hour storm event.

For each development planning area, the drainage system will address both storm water detention and treatment. The planning area will have the flexibility to design their private drainage system to satisfy then-current code requirements, and to blend into their project's design.

Storm water detention and treatment measures for the proposed public parks in Planning Areas "A" and "B" and the proposed "Park-within-the-Park" greenbelt along Marine Way through Planning Areas "C" through "J" will be required. This will be done as each of these open space areas are phased into the development of the Project site. Additional detail is provided in Section 4.8, Hydrology and Water Quality.

Utilities

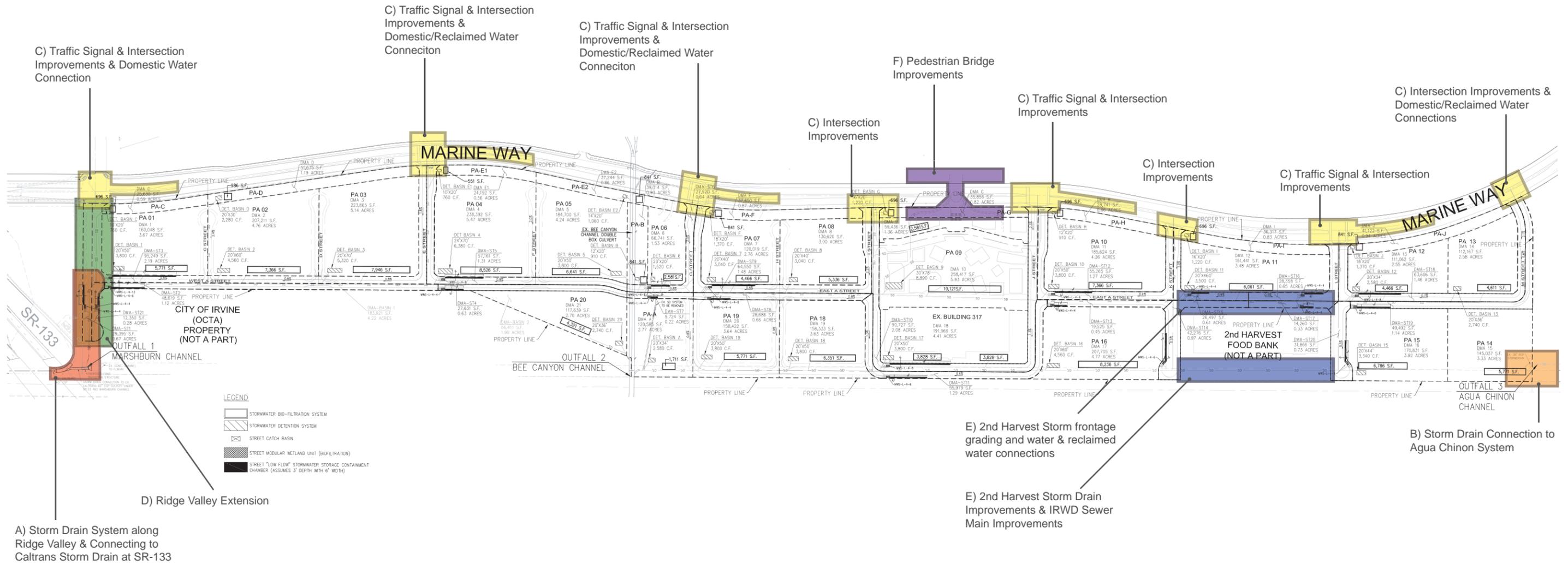
Public infrastructure utility facilities including, but not limited to, domestic water, recycled water, sewer, electrical, gas, telephone, cable television, and other data communication systems would have to be extended to the Project site from various off-site locations as described in Section 4.15, Utilities and Service Systems. All new public utilities would be placed underground, unless otherwise mandated to be installed above ground by the public utility provider. On-site utilities would be principally located in the private street rights-of-way and in recorded easements.

The only major off-site public utility improvement projects required to support development of the Project site are the Irvine Ranch Water District's (IRWD's) proposed sewer line extension along the southern property line; the Project's proposed public utilities that run along the northern boundary of the Second Harvest Food Bank warehouse property; and the connection to public utilities within Marine Way.

Off-Site Infrastructure Improvements

A number of off-site infrastructure improvements are required to serve some or all of the Project and would be provided as part of future backbone improvements. The locations of the proposed improvements are depicted on Exhibit 3-9. The following off-site improvements would be implemented as part of the Project:

- The on-site backbone private storm drainage system west of Bee Canyon would connect to an existing Caltrans SR-133 60-inch drainage culvert at the southwest corner of the former MCAS El Toro. This connection would require access through the adjacent City or OCTA property. The connection will also run parallel the OCTA railroad right-of-way and may require obtaining a permit from SCRRRA due the proximity of the proposed storm



KEY

- A.** The on-site backbone private storm drainage system west of Bee Canyon would connect to an existing Caltrans SR-133 60-inch drainage culvert at the southwest corner of the former MCAS El Toro. This connection would require access through the adjacent City and OCTA properties. The connection will also run parallel the OCTA railroad right-of-way and may require obtaining a permit from SCRRA due the proximity of the proposed storm drain improvements to the existing railroad lines. The proposed storm drain construction will not impact the adjacent Irvine Company property immediately west of the former marine base or the existing Caltrans storm drain line.
- B.** A connection to an existing Agua Chion Channel storm drain lateral drainage pipe, located near the southeast corner of the site and north of the OCTA railroad right-of-way property line would be required and may result in minor off-site improvements to the existing storm drain lateral. Construction of the connection may require obtaining a permit from SCRRA due the proximity of the existing railroad lines to the proposed construction area and a drainage encumbrance from Five Point Communities.
- C.** Improvements to the future Marine Way would be required for the connection to existing public utilities within the future roadway, for the connection of backbone streets to Marine Way; for the installation of traffic signal improvements for new signalized intersections; and for median improvements at intersection access locations to the Project site.
- D.** The Ridge Valley extension would be constructed south of Marine Way to the central spine street, which would be provided as part of the Project. This would require City right-of-way. This work would also include median improvements on Marine Way to accommodate a left turn traffic movement into the Project site and traffic signal modification improvements to add a fourth leg to the planned three-leg signalized intersection, currently under construction.
- E.** Backbone roadway, storm drain, and public utility improvements within the existing Second Harvest Food Bank parcel would be required to accommodate the Project's central spine roadway and backbone storm drain improvements. This work would include the connection of Second Harvest Food Bank access, utility services, and on-site storm drain improvements for the County-constructed backbone infrastructure improvements. The IRWD Capital Improvement sewer line extension project may be a separate IRWD project, but its installation may commence at the same time the County is constructing its infrastructure improvements across the Second Harvest Food Bank parcel.
- F.** If the Pedestrian Bridge is proposed and implemented as a component of the proposed Project connecting the Project site to the OCGP across Marine Way, bridge abutment on the north and south sides within the City street right-of-way as well as within the OCGP property would be required.

Source: TAIT 2015

Off-Site Infrastructure Improvements

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-9



drain improvements to the existing railroad lines. The proposed storm drain construction will not impact the adjacent Irvine Company property immediately west of the former marine base or the existing Caltrans storm drain line.

- A connection to an existing Agua Chinon Channel storm drain lateral drainage pipe, located near the southeast corner of the site and north of the SCRRA rail line right-of-way would be required and may result in minor off-site improvements to the existing storm drain lateral. Construction of the connection may require obtaining a permit from SCRRA due the proximity of the existing railroad lines to the proposed construction area and a drainage encumbrance from Five Point Communities.
- Improvements to the future Marine Way would be required for the connection to existing public utilities within the future roadway, for the connection of backbone streets to Marine Way; for the installation of traffic signal improvements for new signalized intersections; and for median improvements at intersection access locations to the Project site.
- The Ridge Valley extension would be constructed south of Marine Way, as indicated in the City's Master Plan of Arterial Highways, to the central spine street, which would be provided as part of the Project. This would require City right-of-way for a portion of the improvements. This work would also include median improvements on Marine Way to accommodate a left-turn traffic movement onto the Ridge Valley extension and traffic signal modification improvements to add a fourth leg to the planned three-leg signalized intersection, currently under construction.
- Backbone roadway, storm drain, and public utility improvements within the existing Second Harvest Food Bank warehouse parcel would be required to accommodate the Project's central spine roadway and backbone storm drain improvements. This work would include the connection of Second Harvest Food Bank warehouse access, utility services, and on-site storm drain improvements for the County-constructed backbone infrastructure improvements. The IRWD Capital Improvement sewer line extension project may be a separate IRWD project, but its installation may commence at the same time the County is constructing its infrastructure improvements across the Second Harvest Food Bank warehouse parcel.
- If the Pedestrian Bridge is proposed and implemented as a component of the proposed Project connecting the Project site to the OCGP across Marine Way, bridge abutment on the north and south sides within the City street right-of-way as well as within the OCGP property would be required.

The construction of a realigned Marine Way east of Sand Canyon Avenue would likely need to be completed prior to full Project buildout; however, this improvement is the responsibility of Five Point Communities and would be constructed in accordance with any existing agreements and environmental clearances and permits.

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 Project, 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

Off-street parking for vehicles and bicycles would be provided throughout the Project site. Off-street parking requirements are outlined in Section 3.9, Parking Standards, of the Development Plan. Additionally, on-street parking within the Project boundaries would generally be allowed on both sides of the internal roadways. Parking would be restricted at the approaches to intersections due to intersection turning movements and sight distance requirements for safety reasons. As outlined in section 3.9, on street parking may count towards the required non-residential and residential visitor parking. When parking facilities serve two or more uses with differing peak demands, reductions to the parking standards may be permitted.

Development Equivalency

The Project would be implemented over a period of years; therefore, the land use regulations contained in the Development Plan allow for flexibility in the location, mix, and intensity of uses to respond to changing community, the regional needs, and the market conditions over the buildout of the Project. To accommodate this flexibility while maintaining balance of land uses, proposed land uses may be transferred to other permitted uses as part of the development review process. Table 3-3 identifies how additional intensity in one use may be increased with the corresponding decrease in another use. The formula is based on the number of trips generated per land use, which is derived from the 2014 Irvine Transportation Analysis Model (ITAM), version 12.4.

**TABLE 3-3
EQUIVALENCY TABLE**

		Equivalency Ratio (i.e., to Convert to These Land Use Types)			
		Residential (du)	Retail (1,000 sf)	Office (1,000 sf)	Hotel (rooms)
From These Land Use Types:	Residential (du)	-	0.252	0.701	0.572
	Retail (1,000 sf)	3.965	-	2.268	2.781
	Office (1,000 sf)	1.749	0.441	-	1.226
	Hotel (rooms)	1.426	0.360	0.816	-
Maximum Increase Allowed Per Use		375 du	44,000 sf	335,000 sf	40 rooms
sf: square feet; du: dwelling unit					
Example: 100 hotel rooms could convert to approximately 36,000 square feet of retail floor area (100 x 0.36 x 1,000 = 36,000), or could convert to approximately 142 residential dwelling units (100 x 1.426 = 142) or could convert to approximately 81,600 square feet of office (100 x 0.816 x 1,000 = 81,600).					
Source: <i>El Toro, 100-Acre Development Plan, 2016</i>					

Table 3.3 limits the amount of intensity that may be transferred from one use to another. Each use category may exceed the maximum development allowed as indicated in Table 3.1 of the Development Plan by the “Maximum Increase Allowed Per Use,” subject to a corresponding reduction in intensity of another use category.

Development Standards and Setback Requirements

The Project’s development standards establish the minimum criteria for the development of individual lots within the development area. Specific standards are described on Table 3-4, Development Standards, below.

**TABLE 3-4
DEVELOPMENT STANDARDS**

Standard	Residential Developments ^a	Hotel and Retail Developments ^b	Commercial Office Developments ^c
Maximum net density	80.0 du/ac per development; 50.0 du/ac average	N/A	N/A
Maximum net FAR ^d	N/A	2.0	4.0 per development; 2.0 average
Minimum site size	1 acre	1 acre	1 acre
Maximum site coverage	85%	50%	50%
Maximum building height	90 feet	125 feet	220 feet
Minimum site landscaping	15%	15%	15%
Minimum residential open space ^e	A minimum of 100 sf of open space per unit (either private or common)	N/A	N/A
Building separation	6 feet	0	20 feet
du/ac: dwelling units per acre; N/A: not applicable; FAR: floor area ratio; sf: square feet ^a Includes mixed-use developments with at least one story of retail or office uses and residential units above the retail or office uses. ^b Includes mixed-use developments with hotel and residential units. ^c Includes mixed-use developments with at least one story of retail uses and office uses above the retail uses. ^d Parking structures are not included in FAR and site coverage calculations. ^e 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 requirements. Common open space areas shall have a minimum dimension of 20 feet to count towards this requirement. These are in addition to the required common open space identified in Section 3.3.1, Common Open Space, of the Development Plan. Source: <i>El Toro, 100-Acre Parcel Development Plan, 2016</i>			

The required minimum setbacks for the development area are shown in Exhibit 3-10, Minimum Setbacks. The intent of the setback requirements is to reinforce and protect the character of the public streets and to create a pedestrian-scaled street scene. The setback standards range from no setback requirement in front of Building 317 and along the “Park within the Park” (Linear Park) parcels abutting Marine Way to 15 feet along the northwestern boundary of the site. 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, all encroachments shall comply with the California Building Code (CBC) as well as applicable codes and standards.

3.5.4 CONCEPTUAL GRADING PLAN

The existing foundations for the warehouse buildings or other existing structures and improvements on the Project site that are not to be repurposed would be removed as necessary. The foundation footprints would then be excavated to competent native material and backfilled under the observation of and after testing by the Geotechnical Engineer.

Highly compressible/collapsible materials on site would be removed from fill areas or where exposed at final grade and replaced with engineered fill. The exact extent of removals will be determined during grading when direct observation and evaluation of materials are possible.

An estimated 925,000 cubic yards of cut and fill, including subterranean parking for some lots, may be associated with site preparation, development of building pads, preparation of roadway subgrades, and bridge abutments. The Conceptual Grading Plan provides for the cut and fill to be balanced on site. However, to ensure a worse case analysis, an import or export of 25,000 cubic yards (cy) of soil in each of the two grading phases was evaluated to address the potential impacts should it be determined during grading that some of the material is not suitable as engineering fill. It is estimated the depth of removals would range between 5 and 24 feet below ground surface (bgs), dependent on the type of improvement. The Conceptual Grading Plan is depicted on Exhibit 3-11.

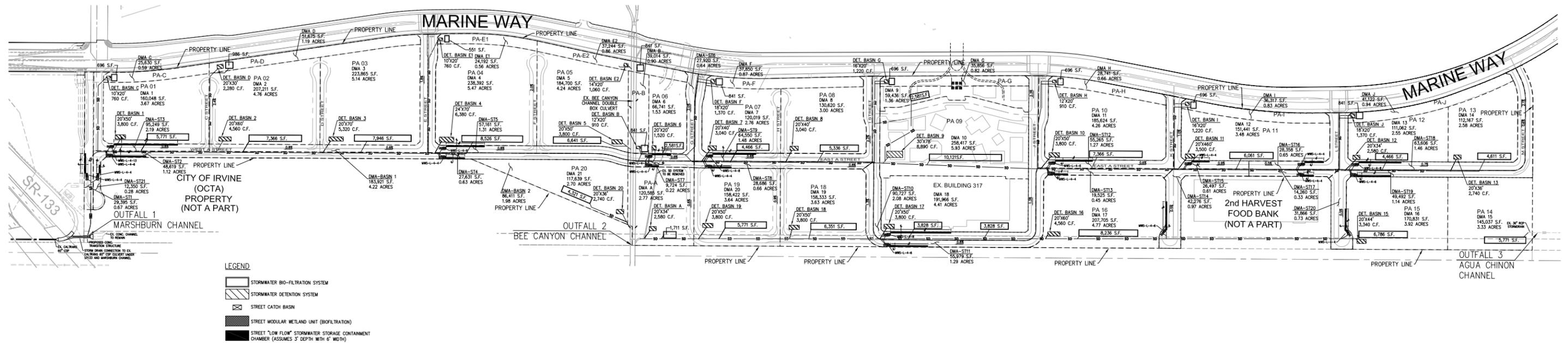
It is anticipated that the planning areas would initially be mass graded to create one percent sloping pads to accommodate storm water runoff with one-foot berms along the perimeter of the pads to prevent runoff flow into the adjacent planning areas or private streets right-of-ways. Each building pad would also include a storm water desilting basin to prevent transport of silt to downstream waterways. As part of the phased development of the proposed Project, developers would complete the precise grading for each planning area.

3.5.5 MASTER LANDSCAPE PLAN

The proposed landscape concept would cater to the character of each District and community in the Project site. The landscape and hardscape materials and the planting design would reflect the theme of each District. The Project is intended to achieve a visual balance between the built form and the landscape through the introduction of street trees, open space areas, parks, and plazas. This concept is depicted on Exhibit 3-12, Landscape Framework Diagram and Exhibit 3-13, Street Tree Hierarchy Plan.

The streetscape would also establish a sense of the District, the location, and the built environment. Streetscape concepts would also reinforce community character and blend with various land uses.

A diverse palette of plant materials to be used throughout the Project is included in the Development Plan (Table 2.1, Community Plant Palette). The plant palette is identified in Section 3.14, Landscape and Irrigation, of the Development Plan. The palette is created with sensitivity to the Southern California climate, use of non-invasive species, and water-efficient landscape practices.



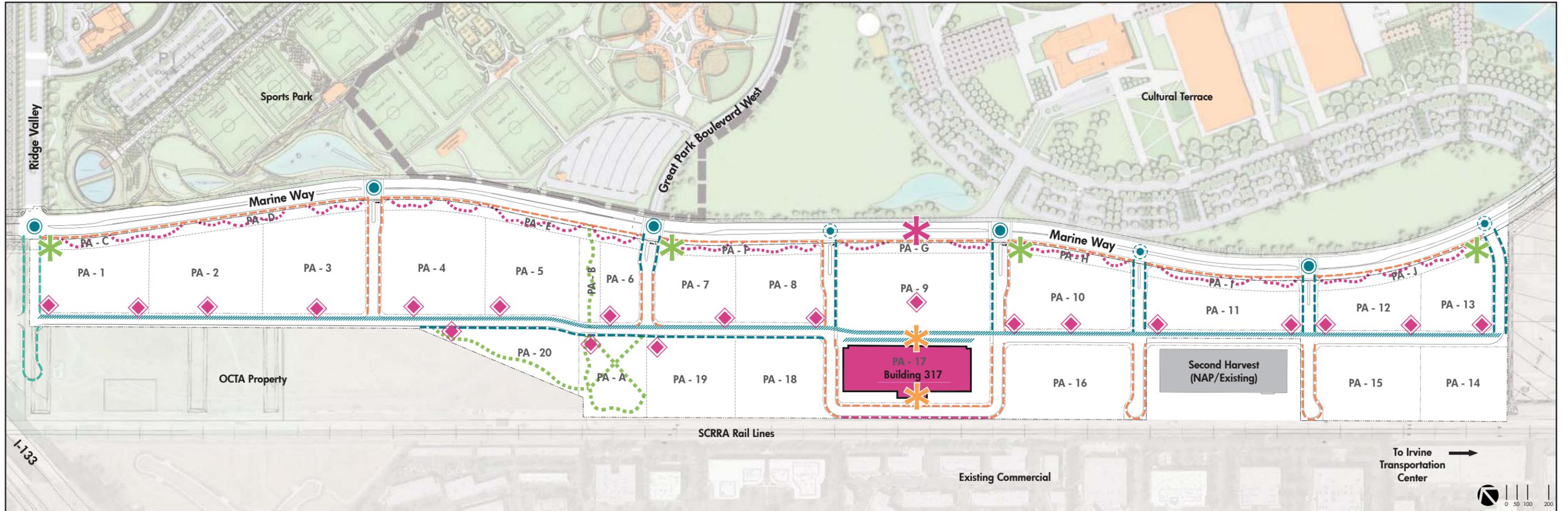
Conceptual Grading Plan

El Toro, 100-Acre Parcel Development Plan EIR

Source: TAIT 2015

Exhibit 3-11





LEGEND

- Converted Railway Feature at Promenade
 - Enhanced Pedestrian Path
 - Varied Widths (5' Minimum, North side of street)
 - Separated Bikeway
 - Separated Vehicular Traffic

- 6' Stabilized D.G. Pedestrian Walk
- 5' Min. Parkway-Separated Pedestrian Concrete Walk
- 5' Parkway-Separated Pedestrian Concrete Walk
- 5' Minimum Park Pedestrian Concrete Walk
- 4.5' Curb-Adjacent Pedestrian Concrete Walk
- 4' Parkway-Separated Pedestrian Concrete Walk

- Potential Focal Landmark
- Iconic Project Connector
- Project Identity Marker
- Project Gateway Monument
- Neighborhood Focal Feature/Art

- Access Point (With Signal)
- Access Point (Without Signal)

Source: EPTDESIGN, KTGy, City of Irvine 2016

Landscape Framework Plan

EI Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-12



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_street_trees_20151214.ai



LEGEND

Promenade

- Central Neighborhood Spine
- Double row along northern street edge
 - Formal characteristics
 - Deciduous/Evergreen flowering trees to provide iconic ambience
 - Opportunities for periodic changes in tree groupings/patterns to activate spaces and connections
- Single row along southern street edge
 - Informal evergreen screen trees
- Accent lighting for nighttime ambience

Gateway Street

- Primary Gateway Circulation
- Single row along street edge
 - Formal evergreen canopy street trees
 - Seasonal colors to provide vivid ambience
- Accent lighting for nighttime ambience

Secondary Street

- Secondary Project Circulation
- Single row along street edge
 - Formal evergreen canopy street trees

Community Edge

- Linear Park / Northern Project Boundary
- Mixture of evergreen & deciduous trees
- Informally arranged groupings
- Meandering pedestrian walks with periodic seating areas
- Accent lighting for nighttime ambience

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Street Tree Hierarchy

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-13



3.5.6 OTHER PROJECT ELEMENTS

Identity Markers

The Development Plan identifies Project elements such as gateways and monuments to provide locational cues and identification for visitors. Gateways and monuments would be completely located in Planning Areas C, D, E, F, G, H, I, J, 9, and 17 (Exhibit 3-4, Land Use Plan), or within the right-of-way, except for Marine Way and Ridge Valley, unless an encroachment permit or other approval is obtained. The design and location of the gateway 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 2.5.2.4, Project Gateway Monuments, of the Development Plan.

Signage

Signage on the Project site would also be used to create an identity for the Development Plan. Provisions for the size, nature, and overall regulation for signage is presented in the Development Plan (specifically, Section 3.12, Signage; Table 3.7, Permitted Sign Matrix; and Section 2.10, Signage Guidelines).

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. The development standards comply with the Communications Act of 1934, as amended by the Telecommunications Act of 1996; applicable regulations of the Federal Communications Commission; and State law.

Optional Iconic Pedestrian Bridge Feature

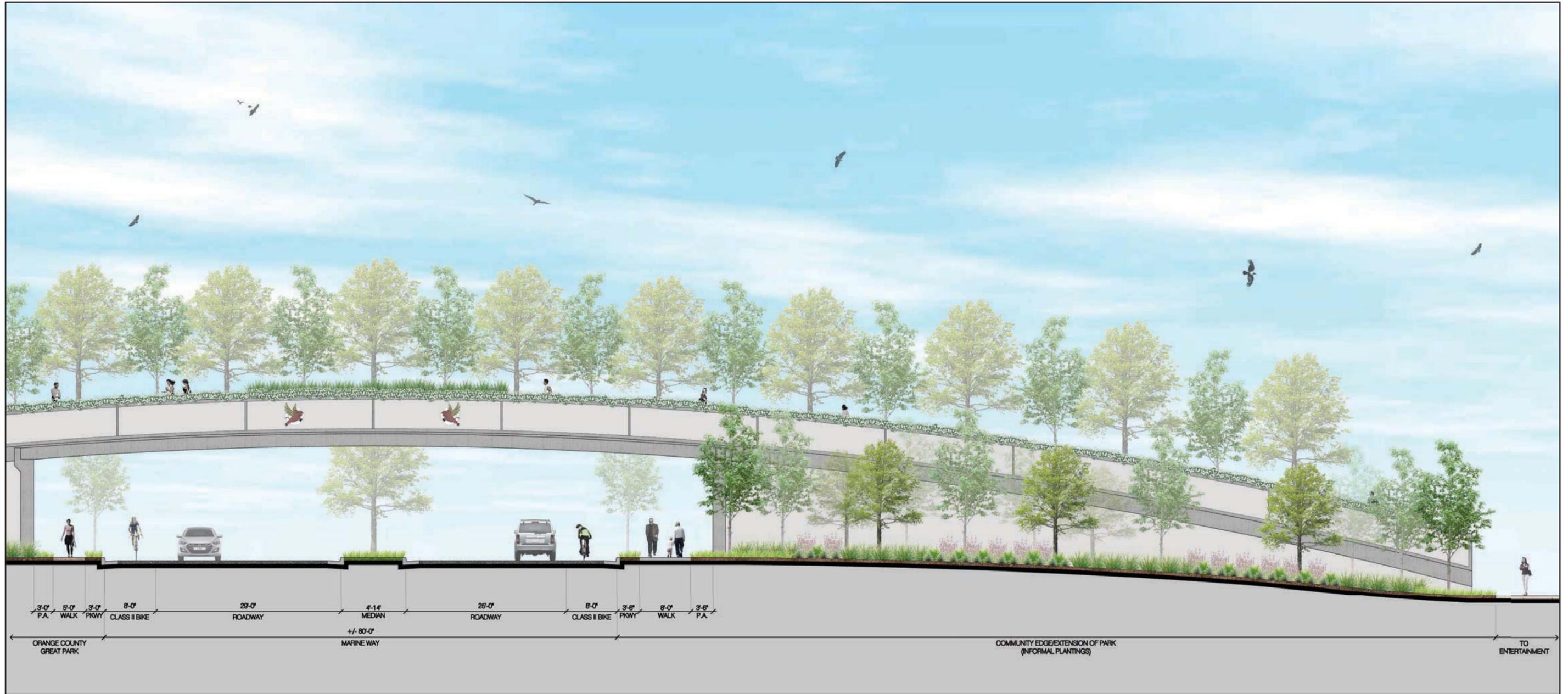
The Project may include a centrally located pedestrian bridge that provides direct connection to the OCGP without vehicular interruptions. This connection would serve as a unique pedestrian gateway into and out of the Project’s mixed-use core. The vision is a land bridge which incorporates hardscape and landscape elements. Exhibit 3-14, Iconic Pedestrian Bridge Feature, is a section graphic that depicts an example of this type of iconic Project connector.

Interim and Temporary Land Uses

Recognizing that the site would not be developed all at once, the Development Plan provides for interim uses for those portions of the site where no construction has occurred (except for repair of existing facilities). Interim uses may include:

- Above-grade agriculture
- Parking of vehicles and/or recreational vehicles
- Green power generation
- Any accessory or related uses to support or complement the uses listed above

D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_Iconic_Bridge_20151214.ai



Source: El Toro, 100-Acre Parcel Development Plan, 2016

Optional Iconic Pedestrian Bridge Feature

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 3-14



- Temporary commercial coaches or modular trailers
- Any other interim use approved by the Manager, CEO Real Estate/Land Development

Temporary uses may include installation of interim agricultural water services, buildings, structures, and uses permitted during construction and initial residential unit sales and/or leasing with the location of such use (i.e., subject to the approval of the Manager, CEO Real Estate/Land Development) and the facilities to accommodate holiday sales (e.g., Christmas tree and pumpkin sales) and open air festivals (e.g., farmer’s market). 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 would 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 to reflect the Project and the land use conversions within the proposed 8.1C zone.⁵ Minor revisions are also incorporated into the footnotes of Table A-2, Non-Regulatory Maximum Intensity Standards: Land Use Acreage by Planning Area, of the *City of Irvine General Plan* Land Use Element (Irvine 2015a 2015b).

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).

Table A-1, Maximum Intensity Standards by Planning Area – General Plan Footnotes

16. Maximum Square Footages for Multi-Use

Non-Residential Conversions: The Heritage Fields Project 2012 General Plan Amendment and Zone Change Traffic Analysis, approved November 26, 2013, subsequent traffic analysis amending those assumptions, analyzed 1,318,200 square feet of Multi-Use (Office) in Planning Area 51. If any other non-residential land uses within 8.1 TTOD zoning district are proposed in-lieu of Multi-Use (Office), the square footage may be adjusted accordingly within the General Plan Table A-1 without the need for a General

⁵ The City Zoning Code’s 8.1 TTOD land use category distinguishes an 8.1A and 8.1B TTOD designation for specific areas within the City of Irvine. A new land use category, 8.1C TTOD, is proposed to clearly distinguish the Project site from other areas within the City of Irvine and to identify trips, permitted uses, and processing procedures unique to the Project.

- Plan Amendment. Furthermore, the 1,876,000 square feet of Multi-Use (Office) within Planning Area 51 for the County of Orange may be adjusted or modified, pursuant to the El Toro, 100-Arce Parcel Development Plan, as approved and implemented by the County of Orange, without the need for a General Plan Amendment.
17. The ~~1,233,000~~ 797,000 square feet in Institutional/Public Facilities in Planning Area 51 includes 122,500 square feet for Orange County Transit Authority facilities; ~~300,000~~ square feet for County of Orange facilities; ~~263,000~~ 127,000 square feet for warehousing for homeless providers; 468,000 square feet of institutional uses; 26,000 square feet of sports park; and 53,500 square feet of remote airport terminal.
 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.
 30. The development intensity for the Multi-Use category includes 242 hotel rooms in Planning Area 51. These 242 hotel rooms do not count towards the maximum Multi-Use square footage designated for Planning Area 51.

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

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 ⁽⁹⁾			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⁾		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.				
												30 D.U./acre min.	Square Feet														
51 ⁽¹⁶⁾⁽¹⁷⁾⁽¹⁸⁾⁽²⁶⁾⁽²⁷⁾	0	0	0	0	0	0	7,037	1,318,200	0	1,233,000	0	0	0	3,364,000	220,000	0	0	0	0	0	7,037	6,135,200	2,463	0	9,500	6,135,200	51 ⁽¹⁶⁾⁽¹⁷⁾⁽¹⁸⁾⁽²⁶⁾⁽²⁷⁾
TOTAL	400	10,528	44,512	33,298	3,074	5,382	8,851	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	141,771,273		

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

Planning Area Number	RESIDENTIAL						MULTI-USE ⁽²⁾⁽¹⁵⁾		INSTITUTIONAL ⁽⁹⁾			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⁾		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.				
												30 D.U./acre min.	Square Feet														
51 ⁽¹⁶⁾⁽¹⁷⁾⁽¹⁸⁾⁽²⁶⁾⁽²⁷⁾	0	0	0	0	0	0	9,140	3,194,200 ⁽³⁰⁾	0	797,000	0	0	0	3,364,000	440,000	0	0	0	0	0	9,140	7,795,200 ⁽³⁰⁾	2,463	0	11,603	7,795,200 ⁽³⁰⁾	51 ⁽¹⁶⁾⁽¹⁷⁾⁽¹⁸⁾⁽²⁶⁾⁽²⁷⁾
TOTAL	400	10,528	44,512	33,298	3,074	5,382	10,954	7,616,123⁽³⁰⁾	10,305	4,066,708	13,012,758	10,875	48,787,662	47,728,616	9,433,550	1,307,370	8,820,682	4,477	225,980	133,805	141,969,449⁽³⁰⁾	4,912	1,461,824	138,716	143,431,273⁽³⁰⁾		

This page intentionally left blank

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

8. In order to develop at the maximum intensities for the Heritage Fields project within Planning Area 51, the property owner for Heritage Fields 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.

Irvine Zoning Code Amendment

Although not required to implement the Project, the Project proposes changes to the City Zoning Code to reflect the densities, intensities, and character of the Project ultimately approved by the County Board of Supervisors. Exhibit 3-15 depicts the Existing Zoning Districts in PA 51. This would be replaced with Exhibit 3-16, which shows the Proposed Zoning Districts in PA 51. Though no changes are proposed, Exhibit 3-17 depicts the Great Park Neighborhood Development Districts. Changes to Section 3-37-39, 8.1, TTOD, of the City Zoning Code would include, but would not be limited to:

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

A. *Intent.*

8.1 C TTOD County of Orange 100-Acre Parcel (Planning Area 51)

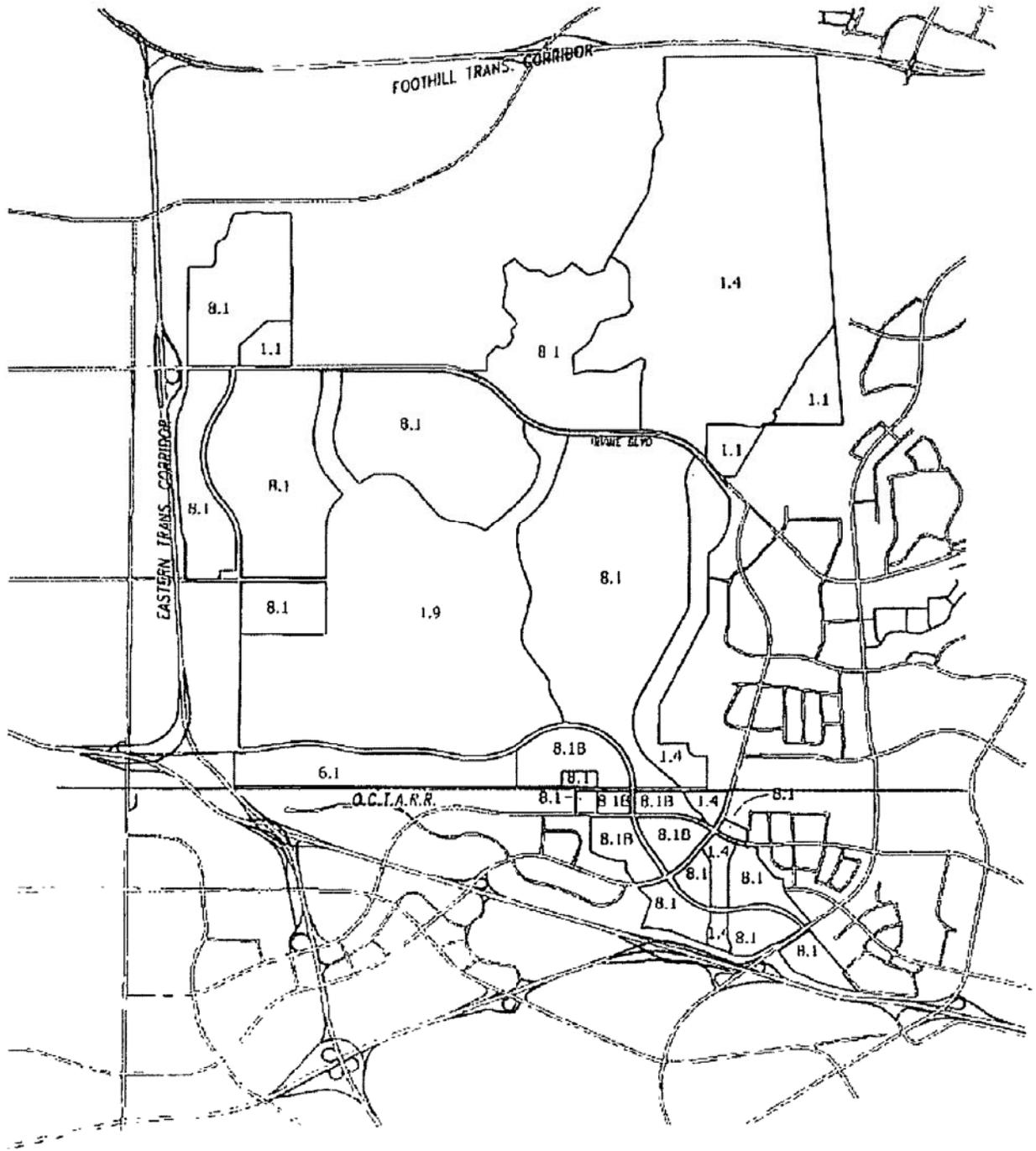
B. *Intensity standard.*

1. 5.0 to 50.0 dwelling units per net acre. Within the 8.1C zoning district, individual sites may have a density of up to 80.0 dwelling units per net acre, as long as the total density for residential uses within the 8.1C zoning district does not exceed 50.0 dwelling units per net acre.
2. Excluding the 8.1C zoning district, 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 8.1C shall not exceed the building intensities described in Section 9-51-6(C) and shall not cause the total maximum Average Daily Trips (ADT) generated by development within the 8.1C zoning district to exceed 46,746 ADT, based on the socio-economic-based trip generation (ADT) rates used to analyze the 100-Acre Parcel traffic impacts.

G. Maximum site coverage

65% for non-residential and mixed-use, (8.1B and 8.1C – unlimited)

D:\Projects\LowEnt\0001\Graphics\EIR\ElToro\Ex_eisting_zoning_dists_20151016.ai



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

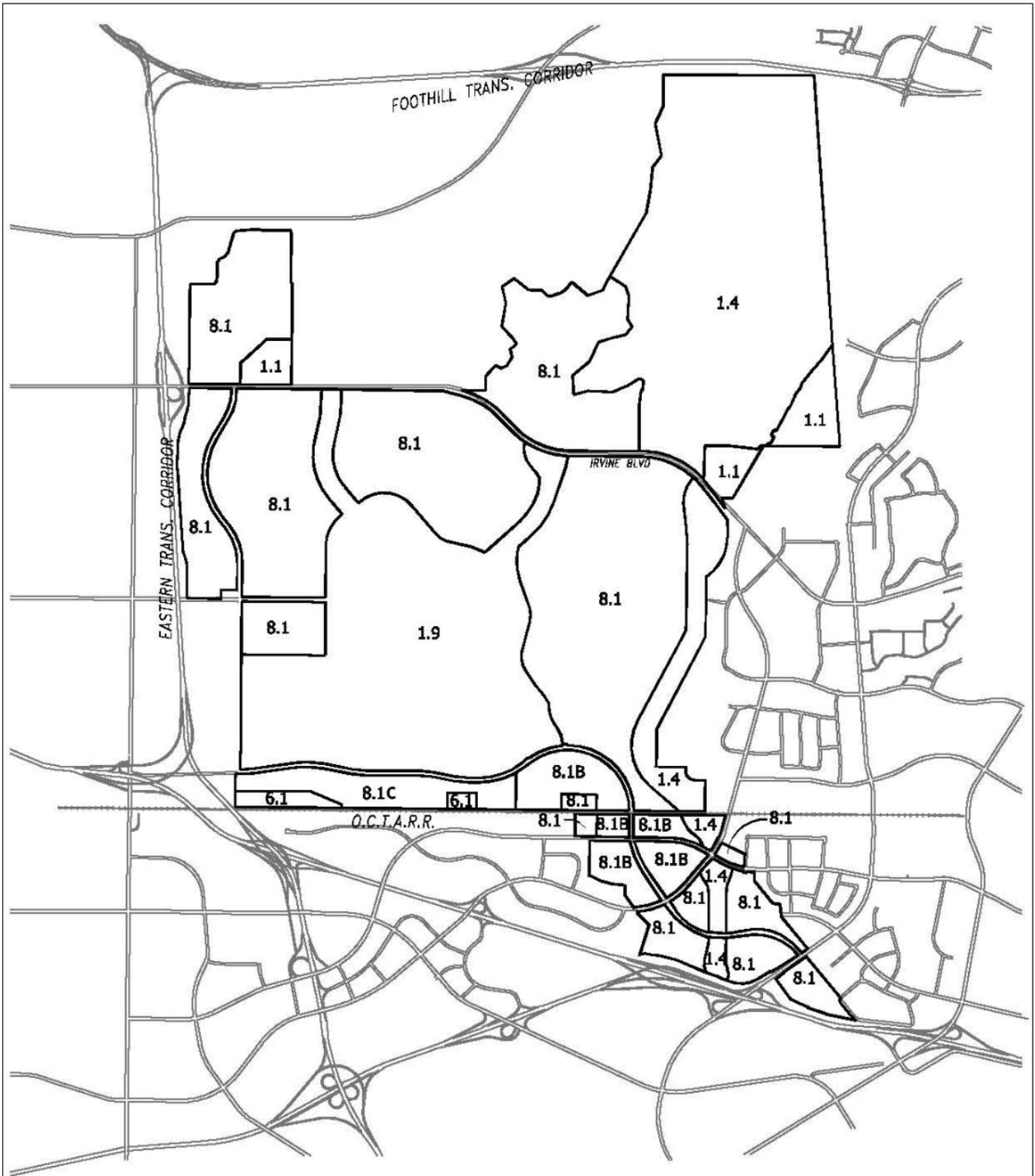
Existing Zoning Districts in PA 51

Exhibit 3-15

El Toro, 100-Acre Parcel Development Plan EIR



D:\Projects\LowE\Ent\0001\Graphics\EIR\ElToro\Ex_proposed_zoning_dist_20160216.ai



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	8.1C	

Source: City of Irvine

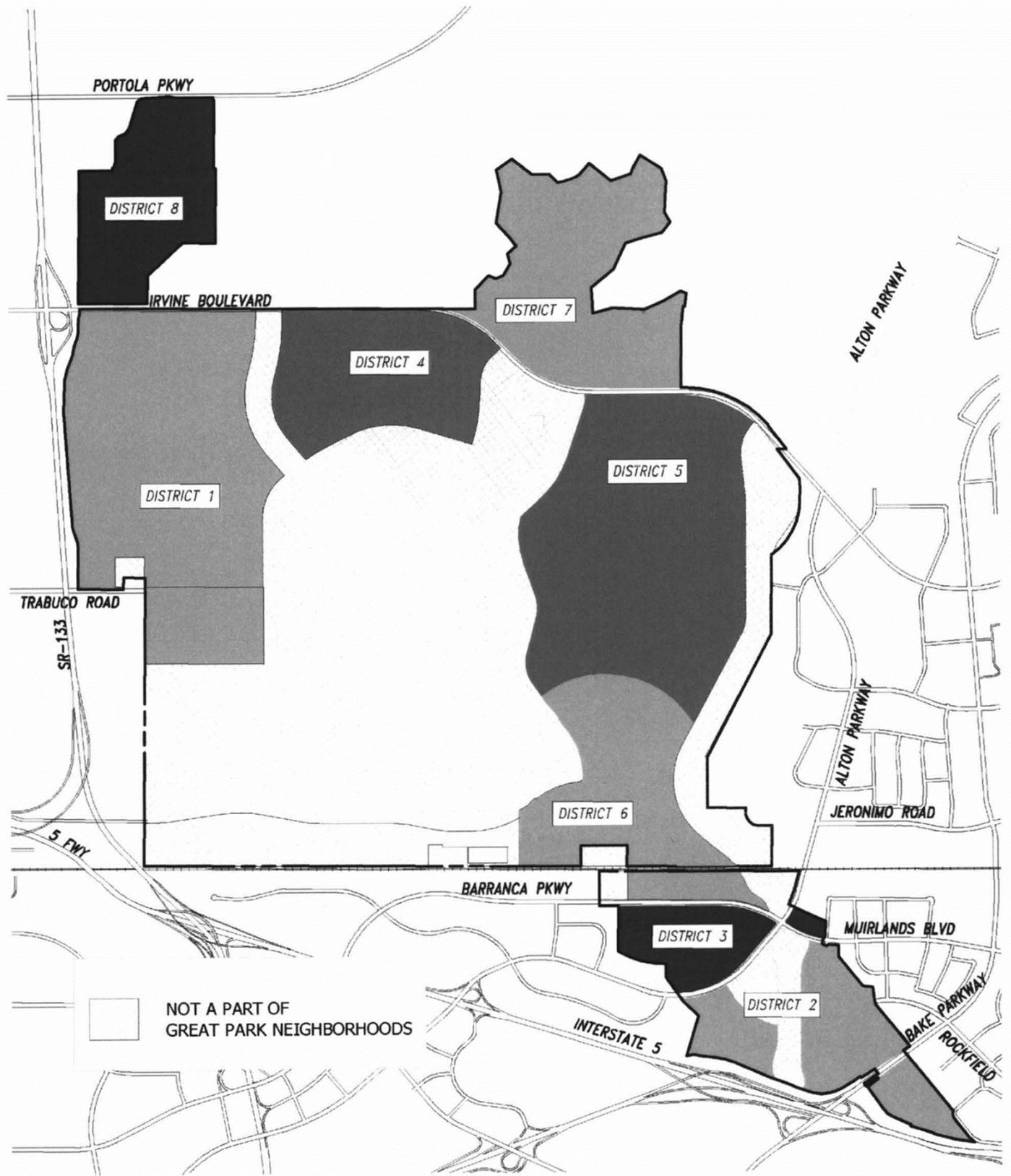
Proposed Zoning Districts in PA 51

Exhibit 3-16

El Toro, 100-Acre Parcel Development Plan EIR



D:\Projects\LoweEnt\0001\Graphics\IR\IE\Toro\Ex_grat_park_dev_distis_20151016.ai



Source: City of Irvine

Great Park Neighborhoods Development Districts

Exhibit 3-17

El Toro, 100-Acre Parcel Development Plan EIR



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 Master Developer 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.

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 Corrido	179		
1.9	OC Great Park	Open Space/Park	367		
		Spots Park	170	26,000	
		Drainage Corrido	229		
		Exposition Center	156	468,000	
Great Park Neighborhoods					
8.1/8.1B	Trails and Transit Oriented Development	Community Commercial	(1)	220,000	
		Residential	(1)		9,500(2)
		Medical and Science	(1)	3,364,000	
		Multi-Use	(1)	1,319,200(5)	
Miscellaneous					
1.1	Exclusive Agriculture	Agriculture	117(3)		
1.4	Preservation	Habitat Preservation	974		
6.1	Institutional	Institutional	135 27	685,500 249,500 (4)	
8.1	Trails and Transit Oriented Development	Transit Oriented Development	35	53,500	
8.2	Trails and Transit Oriented Development	ARDA Transfer	131(6)		
8.1C(9)	Trails and Transit Oriented Development	<u>Community Commercial (Retail)</u>	<u>(7)</u>	<u>220,000</u>	<u>0</u>
		<u>Residential</u>	<u>(7)</u>	<u>0</u>	<u>2,103</u>
		<u>Hotel</u>	<u>(7)</u>	<u>(8)</u>	<u>(8)</u>
		<u>Multi-Use (Office)</u>	<u>(7)</u>	<u>1,876,000</u>	<u>0</u>
-	-	Major Roadways	185		
Totals			4,704	6,135,200 <u>7,795,200</u> (5)	9,500 <u>11,845</u> (2) (8)

(4) Includes 122,500 square feet for institutional facilities, ~~300,000 square foot for County Facilities~~, and ~~263,000~~ 127,000 square feet of "McKinney Act" warehousing.

(7) 108 acres of property in PA 51 is zoned 8.1C TTOD

(8) Includes 242 hotel rooms

(9) Maximum intensities in one or more of the use categories within the 8.1C Zone may be adjusted by a corresponding decrease in one or more use categories, as defined in the El Toro, 100-Acre Parcel Development Plan.

Notes on Maximum Intensities: In order to develop the permitted uses and intensities for Planning Area 51, the Master Developer 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 8.1C zoning district. See Chapter 2-3 Affordable Housing Implementation Procedures.

8.1 *Trails and Transit Oriented Development Zoning District Intensity.*

With the exception of the 8.1C zoning district, 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 8.1C zoning district shall not exceed 2,103 dwelling units. The maximum non-residential intensity within the 8.1C zoning district shall not exceed: 220,000 square feet of Community Commercial (retail), 1,876,000square feet of Multi Use (office), and 242 hotel rooms. These maximum intensities within the 8.1C Zone may be adjusted by a corresponding decrease in one or more use categories, as defined in the El Toro, 100-Acre Parcel Development Plan.

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 8.1C zoning district, 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 8.1C zoning district, 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 8.1C zoning district shall be provided in accordance with the El Toro, 100-Acre Parcel Development Plan.
11. With the exception of the 8.1C zoning district, 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 8.1C zoning district and interpretation of these uses shall be governed by the El Toro, 100-Acre Parcel Development Plan.

12. With the exception of the 8.1C zoning district, 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:
3. Maximum daily vehicle trips – For all properties outside of the 8.1C 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 8.1C zoning district shall have a maximum of 46,746 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 Master Developer 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 8.1C 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 8.1C 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 8.1C 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 Developer 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 8.1C 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 Master Developer of Great Park Neighborhoods shall identify strategic shuttle stop locations based upon developer's approved Master Plans. The Master Developer 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 Master Developer 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 Neighborhood within Planning Area 51 has a distinct character:
- R. *Alternative setback standards.* Except for projects within the 8.1C 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 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 8.1C Zoning District.* All properties within the 8.1C zoning district shall be subject to the guidelines, development standards and requirements found within the El Toro, 100-Acre 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 8.1C zoning district shall be issued by the County of Orange through processing procedures described within the El Toro, 100-Acre Parcel Development Plan and/or County of Orange established procedures (Portions of developments that occur outside of the 8.1C 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 8.1C zoning district not owned, possessed or otherwise controlled by the County of Orange.

3.5.8 PHASING

Implementation of the proposed Development Plan is anticipated to occur in phases. The sequence of work would involve demolition of existing structures (except, potentially, for the former West Coast Commissary Complex, *i.e.*, Building 317), mass grading, and crushing concrete and asphalt from the demolition of the existing roads and sidewalks to use and stockpile for later phases. Roads, parks, and infill service mains would be constructed in phases as development proceeds and as required by the applicable agency or service provider to support individual phases of development.

Initial development would begin in the area generally west of Great Park Boulevard West. Based on current concepts, this area has been identified as the Residential District. Development would then move to the east. However, development of the Mixed-Use District (potentially around Building 317) and the Commercial District may be initiated prior to the completion of the Residential District development. Factors that would influence the phasing of development would include availability of the property (*i.e.*, timing of the Finding of Suitability to Transfer [FOST] and ultimate transfer by the DoN), market forces, and implementation of infrastructure improvements. Future development would be phased according to the construction/realignment of Marine Way to enhance circulation and to prevent conflicts with the ultimate alignment of the roadway.

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 (State CEQA Guidelines, Section 15096). Permits and other approvals required to implement the Project are identified in Section 3.6.1, below. As noted above, it is the intent that this EIR will be used by agencies in their consideration of approval of required subsequent permits and approvals. The following provides an overview of the anticipated approvals associated with the Project.

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. As a Program EIR, it is recognized that the Project would be implemented over a period of years. As such, subsequent activities would be examined in light of the Final EIR to determine whether additional CEQA documentation would be required pursuant to the requirements of Section 21166 of CEQA (i.e., *California Public Resources Code*, Section 21166) and Sections 15162 and 15168 of the State CEQA Guidelines for subsequent site development approvals.

- 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 III Reviews)
- Subsequent development construction plans
- Grading Permits
- Permits for temporary leasing office
- Street Improvement and, potentially, the Pedestrian and Bicycle Bridge Plans
- 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 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*.
- **California Department of Transportation.** Approval of a storm drain connection for directing flows to the Caltrans drainage culvert that currently receives the runoff from the former military base.
- **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 3.4.7, above).
- **City of Irvine.** Issuance of Encroachment Permits and possible easements for connections within the public right-of-way and issuance of business licenses for future uses associated with the Project. Additionally, if the optional pedestrian bridge is implemented connecting the Project site to the OCGP across Marine Way, bridge abutment on the north and south sides within the City street right-of-way as well as within the OCGP property would be required and permits would need to be obtained.
- **Irvine Ranch Water District.** Approval of future water and sewer line connections.
- **Orange County Fire Authority.** Fire Master Plan.
- **Orange County Flood Control District.** Approval of discharges and connections into Bee Canyon Channel, Marshburn Channel, and Agua Chinon 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.
- **U.S. Army Corps of Engineers.** Evaluation and permitting pursuant to Section 404 of the Clean Water Act (issuance of a Nationwide Permit), if determined to be necessary.
- **Orange County Transportation Authority.** A potential easement for storm drain utilities.
- **Southern California Regional Rail Authority.** Potential permits/easements for utilities.

3.7 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 (January 26, current through). *Irvine, California – Zoning*. Tallahassee, FL: Municode Corporation for the City.
- . 2015c (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 (September). *El Toro, 100-Acre 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?noId=11378.
- Orange County Transportation Authority (OCTA). 2014 (October 1, publication date). 2014 Master Plan of Arterial Highways, Orange County, California. Orange, CA: OCTA. http://www.octa.net/pdf/MPAH_2014-0904.pdf.

This page intentionally left blank

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
- 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 environmental resource areas concerning agriculture and forestry resources, and mineral resources, and thus, these areas do not require, and the EIR will not set forth, any further analysis as to these areas.

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, the EIR, in addition to the Mitigation Program in the EIR, identifies a number of 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 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. Recognizing this is a Program EIR, certain details of the Project design are unknown at this time. During subsequent levels of approval, the County, will have the discretion to substitute a different, environmentally equivalent, measure that would result in the same or superior effect on the environment as those described in this Program EIR. Any development requirement or mitigation measure, and timing thereof, is subject to the approval of the County. Additional mitigation measures and development requirements may also be required in association with approval of subsequent levels of planning in accordance with the law. 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 through 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. The MMRP will be incorporated into the Master Lease.

4.0.1 CUMULATIVE IMPACT ASSUMPTIONS

Discussion of the cumulative impacts of the proposed Project is provided in Sections 4.1 through 4.15, 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 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 are 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 provide 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 City of 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 to ITAM has been identified. The last version of ITAM (Version 12.4), which was the most recent version at the time of the proposed Project's Notice of Preparation (NOP), was released in February 2015.

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 the 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

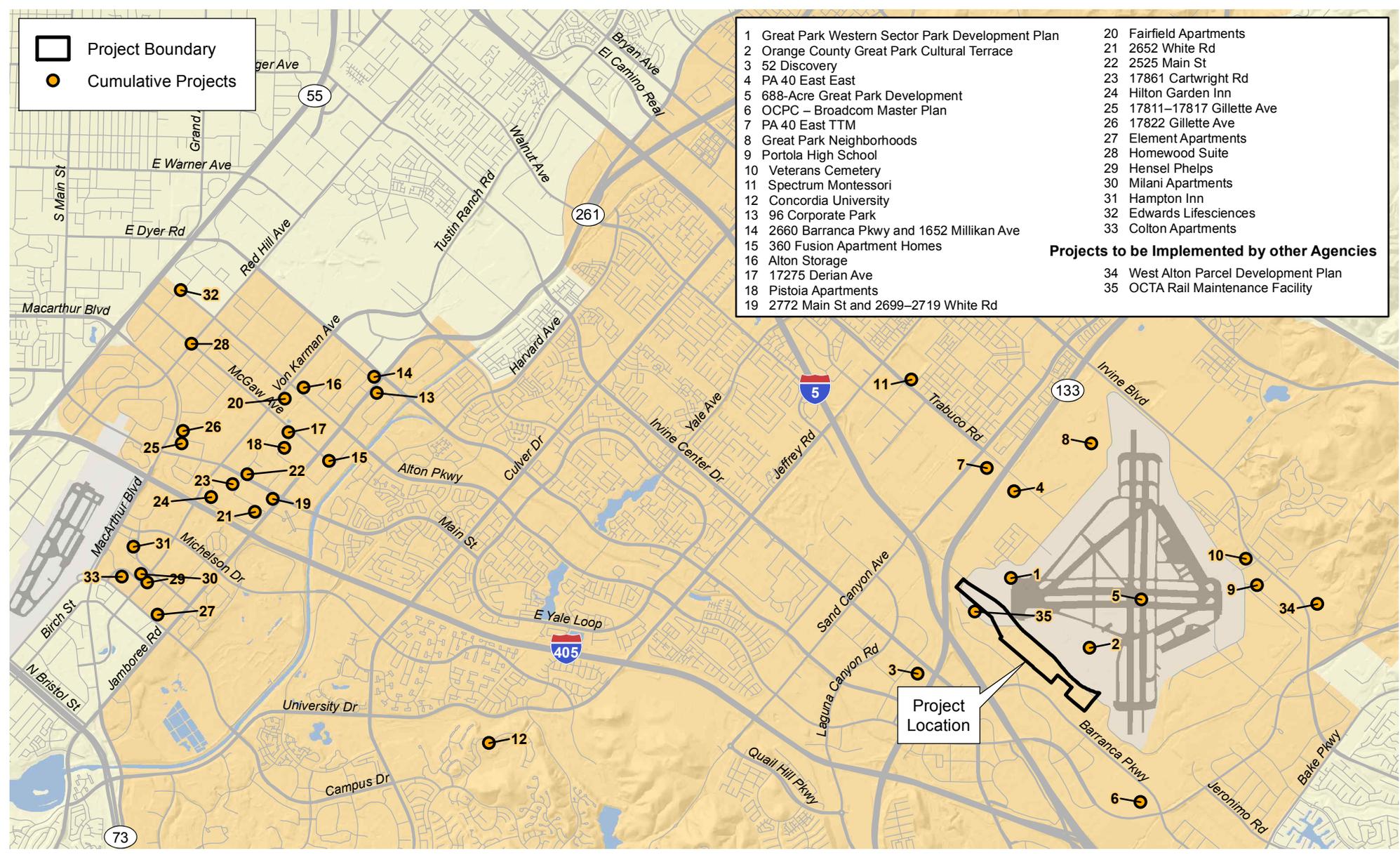
To ensure that the cumulative impact analysis is as comprehensive as possible, pending projects in surrounding cities were researched using the jurisdictions' websites, the State Clearinghouse's ceqanet site (a website that posts notices associated with CEQA documents), and discussion with staff, particularly 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 Project²—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 West Alton Parcel Development Plan located in the City (approximately 1.7 miles east of the Project, near the intersection of Irvine Boulevard and Alton Parkway) 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 approved and pending 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 these 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.

 Project Boundary
 Cumulative Projects

- | | |
|---|-----------------------------|
| 1 Great Park Western Sector Park Development Plan | 20 Fairfield Apartments |
| 2 Orange County Great Park Cultural Terrace | 21 2652 White Rd |
| 3 52 Discovery | 22 2525 Main St |
| 4 PA 40 East East | 23 17861 Cartwright Rd |
| 5 688-Acre Great Park Development | 24 Hilton Garden Inn |
| 6 OCP - Broadcom Master Plan | 25 17811-17817 Gillette Ave |
| 7 PA 40 East TTM | 26 17822 Gillette Ave |
| 8 Great Park Neighborhoods | 27 Element Apartments |
| 9 Portola High School | 28 Homewood Suite |
| 10 Veterans Cemetery | 29 Hensel Phelps |
| 11 Spectrum Montessori | 30 Milani Apartments |
| 12 Concordia University | 31 Hampton Inn |
| 13 96 Corporate Park | 32 Edwards Lifesciences |
| 14 2660 Barranca Pkwy and 1652 Millikan Ave | 33 Colton Apartments |
| 15 360 Fusion Apartment Homes | |
| 16 Alton Storage | |
| 17 17275 Derian Ave | |
| 18 Pistoia Apartments | |
| 19 2772 Main St and 2699-2719 White Rd | |
- Projects to be Implemented by other Agencies**
- | |
|---------------------------------------|
| 34 West Alton Parcel Development Plan |
| 35 OCTA Rail Maintenance Facility |



Approved and Pending Projects in the City of Irvine

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4-1



D:\Projects\LowE\ElToro\100Acre\ElToro\Ex_Proj\Irvine_20160504.mxd

**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
<i>City of Irvine</i>			
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 "O" Street; approximately 0.20 acre northeast of the site	Project developed, with the exception of the Community Ice Facility.
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 Irvine Station	Located in the southeastern portion of the OCGP; approximately 0.25 acre southeast of the site	No activity.
52 Discovery	Conversion of a 213.8-sf Warehouse to Research and Development	52 Discovery; approximately 0.67 mile south of the site	Project was approved on January 12, 2016.
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 0.76 mile northwest of the site	Project was approved on November 5, 2015.
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 0.76 mile east of the site across from Marine Way	Project approved; a number of grading permits have been approved; project has commenced grading.
OCPC - 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 0.80 mile south of the site	Project approved and is under construction.
PA 40 East TTM	Development of 485 apartments and 54,987 square feet of office use.	Sand Canyon Avenue and Trabuco Road; approximately 0.85 mile northwest of the site.	Project complete.

**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 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.
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 1.43 miles to the east of the site	Under construction.
Veterans Cemetery	Development of a 125-acre cemetery	South of Irvine Blvd, across from Great Park Neighborhoods; approximately 1.48 miles to the east of the site	Project approved.
Spectrum Montessori	Development of a 10,500-sf childcare facility	5725 Trabuco Rd; approximately 1.54 miles to the north 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 3.68 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 4.56 miles west 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 4.62 miles west of the site	Currently on hold.
360 Fusion Apartment Homes	Development of 280 multi-family residential units	2852 McGaw Ave; approximately 4.78 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 5.01 miles west of the site	Project approved.
17275 Derian	Development of 80 affordable, multi-family residential units	17275 Derian Ave; approximately 5.12 miles west 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 5.12 miles west 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 5.14 miles west of the site	Project approved.
Fairfield Apartments	Development of 469 multi-family residential units	17150 Von Karman Ave; approximately 5.20 miles west of the site	Project approved.
2652 White Rd	Development of 63 residential units	2652 White Rd; approximately 5.27 miles west 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 5.36 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 5.46 miles west of the site	Currently on hold.
Hilton Garden Inn	Development of a 170-room extended stay hotel	2381 Morse; approximately 5.60 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 5.88 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 5.89 miles west of the site	Environmental documentation is being prepared.
Element Apartments	Development of 1,600 residential units on 23 acres	2525-2747 Campus, 18872-18902 Bardeen, 18842-18900, 18871 Teller; approximately 5.97 miles west 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
Homewood Suites	Development of a 162-room extended stay hotel and 2,500 sf of fast-foot restaurant	17330 Red Hill; approximately 5.99 miles northwest of the site	Project approved.
Hensel Phelps	Development of 3,500 sf of office space	18850 Von Karman Ave; approximately 6.04 miles west of the site	Project approved.
Milani Apartments	Development of 287 multi-family residential units	18831 Von Karman Ave; approximately 6.09 miles west of the site	Project approved.
Hampton Inn	Development of a 164-room Extended Stay Hotel	2182 and 2192 Dupont Dr; approximately 6.15 miles west of the site	Project approved. Not under construction yet.
Edwards Lifesciences	Development of 20,256 sf of office space	Alton Pkwy/Daimler St; approximately 6.20 miles northwest of the site	Project approved.
Colton Apartments	Development of a 876-unit apartment project, including a Park Plan, a development agreement, a VTTM, and a CUP	Campus Drive/Martin Court/Von Karman Avenue; approximately 6.23 miles west of the site	This project is included in the City traffic model as a pending project; however, the current status is unknown.
West Alton Parcel Development Plan	Development of 803 multi-family units	Irvine Blvd and Alton Pkwy; approximately 1.76 miles east 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	Adjacent to the site; 0.05 mile southwest 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 Emissions 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

KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

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

4.1 AESTHETICS

This section describes the existing aesthetic character of the El Toro, 100-Acre Parcel Development Plan (Development Plan) 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 photographs and 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. Because of the flat topography and intervening development, 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 Orange County Great Park (OCGP), motorists on Perimeter Road, and passengers on the Southern California Regional Rail Authority (SCRRA) rail line. The users at the OCGP would have near-range views of the northwestern portion of the Project site and mid-range views of the developed portion of the Project site. Perimeter Road has very low traffic volumes because it does not provide through direct movement to locations off the former Marine Corps Air Station (MCAS) El Toro. The motorists would have near-range views of the entire site as they drive along the roadway. Passengers on the SCRRA rail line would have short duration views as the train passes the site. Additionally, there may be more distant views of the Project site from high-rise office buildings in the Irvine Spectrum and from the Great Park Balloon ride (also known as the Orange Balloon) located within the OCGP.¹

The Project site was defined into visual units, which are often called landscape units. A landscape unit is defined as an area having a visually homogeneous character. The Project site is characterized by two units—the northwestern portion of the Project site that is largely devoid of physical improvements and the built environment to the southeast of Bee Canyon Channel. The northwestern visual unit is mostly lacking in vegetation or other visual features. This visual unit is degraded and not in a natural state having been subject to recent construction activities. The southeast portion of the Project site has been characterized as degraded because the MCAS El Toro buildings have not been maintained.

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

¹ The Great Park Balloon is an attraction at the Great Park that provides aerial views of the area surrounding park. The balloon, which has 25- to 30-passenger open air gondola, rises 400 feet in the air for view of the surrounding landscape.

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, can be 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 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 the Project site is located in a larger urban context of a mix of residential, light industrial, and commercial development. The Project site is located within an area that is undergoing substantial visual changes as the OCGP and adjoining Great Park Neighborhoods 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 proposed Project site is relatively flat. Ground elevations range from approximately 224 feet above mean sea level (msl) at the southwestern corner to approximately 276 feet above msl at the eastern area of the Project site. The length of the Project site is approximately 1.5 miles. Views from different vantage points are generally limited to elements that are directly in front of the viewer.

Visual Character of the Project Site and Surrounding Areas

The Project site consists of land at the western portion without existing improvements; a drainage channel and rail spurs at the central portion (with the rail spurs extending from the rail lines to the south to the on-site warehouse structures); and abandoned warehouse structures at the eastern portion. A warehouse currently used by Second Harvest Food Bank warehouse is not part of the Project site, but it is surrounded by the Project site's abandoned warehouse structures on three sides.

There are 3 large warehouse structures (each over 200 feet wide by 600 feet long) on the central and southeastern portions of the Project site and 3 smaller structures located closer to Perimeter Road than the warehouses, along with remnants of various building foundations, small utility structures, and paved areas. Several driveways extend south from Perimeter Road to the parking and loading areas of individual warehouse buildings, including the Second Harvest Food Bank warehouse. The buildings which were part of the MCAS El Toro operations, have had minimal maintenance since the closure of MCAS El Toro in 1999. A more detailed discussion is provided below and photographs are included as Exhibits 4.1-1 through 4.1-3. Trees are present at scattered locations throughout the Project site, consisting of juniper, pine, pepper, jacaranda, acacia, coast live oak, elm, palm, and gum trees, along with shrubs, grasses, and weeds at a few locations. Northeast and east of the Project site are the sports fields of the OCGP, undeveloped land, and former MCAS El Toro base buildings. The Southern California Regional Rail Authority (SCRRA) rail lines, business parks and office uses are southwest and west of the Project site, with undeveloped land and State Route (SR) 133 to the west and agricultural land to the northwest. East of the Project site is an abandoned warehouse and undeveloped land. Perimeter Road is a paved roadway that enters into the Project site at the northwestern edge, proceeds into the OCTA

property to the southwest, and meanders in and out of the central and eastern portions of the Project site before terminating just east of the Project site. Future Marine Way will define the northeasterly boundary of the Project site.

Portions of the Project site are visible from various points on Perimeter Road and from adjacent developments, such as game fields, water quality features, parking areas, the Second Harvest Food Bank warehouse, and industrial uses southwest of the Project site. The entire site is visible from the balloon ride at the OCGP.

People on the pedestrian bridge at the Metrolink Irvine Station have views of the eastern portion of the Project site. Travelers on Metrolink and Amtrak trains on the SCRRA rail lines also see the Project site as they pass along the southwestern boundary. In addition, travelers on Interstate (I) 5 and SR-133 have partial views of the Project site, depending on their location in relation to the Project site and the absence of intervening structures, trees, and landforms. However, the views of train passengers and freeway travelers are only transitory and most are also partial.

While trees, shrubs, the raised berm for the railroad tracks, and fences separate the Project site from the business parks and office uses south of the SCRRA rail lines, individuals at windows and doors at the rear facades of the one-story and two-story office buildings, and from the drive aisles and parking areas can also see portions of the Project site.

Site photographs taken from various vantage points show the existing visual quality and character of the Project site, as viewed from surrounding areas. Exhibit 4.1-1 through 4.1-4 consist of the Project site photographs.

View 1. This photograph shows the eastern end of the Project site, where one of the existing warehouses is located. The foreground is dominated by Perimeter Road and open areas supporting weeds and grasses. The warehouse structure is set back over 300 feet from the road and is visible as a long, low, off-white structure with air vents on the roof. Utility lines on wooden poles, foundation remnants, scattered trees, streetlights, and a small blue and white guard house are present in front of the warehouse.

View 2. This photograph shows the existing warehouse structures on the Project site, as seen from Perimeter Road. Beyond the pavement of Perimeter Way, utility lines on wooden poles and street lights are present, with open areas with weeds and scattered trees in the foreground. Cream- and gray-colored structures, with rows of windows and flat gable roofs are present on the Project site. Partial views of distant trees, structures, and the San Joaquin Hills are visible between the warehouses.

View 3. People at the Second Harvest Food Bank warehouse have views of the warehouses on the Project site. This photograph shows the view of the Project site as seen from their rear parking lot. Across the wrought iron fence, a drive aisle extends into the distance, with overgrown weeds on both sides and the cream- and gray-colored rear facades of the warehouses on the right (north) side and a fence and the rail line on the left (south) side. Trees, vehicles and buildings at the adjacent business parks are also visible past the fences.

View 4. This photograph shows the view of the central section of the Project site, as viewed from the current alignment of Perimeter Road as it runs through the Project site. A north-south gravel



View 1 - Looking west from northeastern site boundary.



View 2 - Looking southwest from northern site boundary.

D:\Projects\LowEnt\J0001\Graphics\EIR\ElToro\Ex_SP1_20160325.ai

Site Photographs

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-1





View 3 - Looking northwest from Second Harvest parking lot



View 4 - Looking south at central portion of the site

Site Photographs

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-2





View 5 - Looking northwest at western portion of the site.



View 6 - Looking east from the southern site boundary.

D:\Projects\LoweEnt\J0001\Graphics\EIR\EITorolex_SP3.ai

Site Photographs

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-3

Bonterra
PSOMAS

(08/28/2015 JAZ) R:\Projects\LoweEnt (LOW)\J0001\Graphics\1 El Toro\EIR\lex4.1-3.pdf



View 7 - Looking south from the OCGP.



D:\Projects\LoweEnt\J0001\Graphics\EIR\EITorolex_SP4.ai

Site Photographs

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-4

Bonterra
PSOMAS

(08/28/2015 JAZ) R:\Projects\LoweEnt (LOW)\J0001\Graphics\1 El Toro\EIR\lex4.1-4.pdf

path exists on the Project site, with dirt areas on the right (west) side and a paved path on the left (east) side. Utility lines on wooden poles, trees, and a warehouse are visible in the distance.

View 5. This photograph shows the western section of the Project site as lacking in improvements and flat, featuring bare soils, a few trees, and weeds. Distant views of construction equipment located in the approximate vicinity of the new alignment of Marine Way east of the future Ridge Valley, the game field floodlights at the OCGP, and elevated sections of SR-133 are visible in the background.

View 6. This photograph shows the existing warehouse structures on the Project site, as viewed from the business park across the SCRAA rail lines. The warehouses have a light cream and grey facade, with flat brown roofs. At the westernmost warehouse (Building 317), loading docks are present at the west and south facades, with blue awnings over the docks on the west facade. Lower story windows at the south facade have two rows of clearstory windows in groups of three lining the building. The second warehouse has a loading dock on its west facade, a building protrusion on the south facade, and several rooftop vents. The south side of the Second Harvest Food Bank warehouse (Building 319) is also visible from this location, but the easternmost warehouse is not visible.

View 7. This photograph shows the Project site as viewed from the southern end of the OCGP. The western section is just part of the foreground views, behind the extension of Marine Way, currently under construction, with the warehouse structures visible in the distance and trees and other tall structures in the background. The Project site and existing warehouses on the Project site are visible from the central and northern portions of the OCGP, which consist mainly of grassy areas or game fields where no intervening structures, trees, or berms are present. The Project site would also be visible to riders of 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 Project 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 4.1.7, 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 Project site and its surroundings?

Future development under the Development Plan would result in visual changes on the Project site, including changes to the visual character of each district and planning area. Previously disturbed land and existing warehouse structures would be replaced with new residential, office, retail and hotel structures, park/open space, landscaping, and mixed use developments that would be built under the Development Plan. 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 factors such as the viewer groups of the 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.

The following analysis includes 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

Implementation of the proposed Development Plan is anticipated to occur in phases starting from the western portion of the Project site to the east. The sequence of work would involve demolition of existing structures, with the possible exception of the former West Coast Commissary Complex (Building 317), mass grading, and crushing concrete and asphalt from the demolition of the existing roads and sidewalks to use and stockpile for later phases. Roads, parks, and infill service mains would be constructed in phases as development proceeds and as required to support individual phases of development. The cut and fill volumes for the overall Project are projected to be balanced onsite (i.e., no import or export of soil is anticipated); however, there is the potential that the grading for specific planning areas or developments may not balance. In this event, there would be the need to borrow or stockpile soil onsite as part of the phased construction of the Project. This element (borrow or stockpile sites) would be consistent with the visual quality of a construction site and would not be considered a significant impact, especially given the degraded visual quality of the existing site and the ongoing development on the Project site and in the surrounding area.²

Demolition and construction activities during each phase 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 demolition 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, the surrounding use, with potential exception of the developed portion of the OCGP, would not be

² Currently, there are stockpiles of soil elsewhere on the former MCAS El Toro site, especially north of Marine Way and west of the old runways. It is anticipated that stockpiling would continue and potentially increase as the OCGP is developed and the old runways are removed.

considered a highly sensitive use. As discussed under Existing Conditions, the surrounding uses are predominately the OCGP, office uses or undeveloped area.

Currently there are no residential uses with direct views of the Project site (residential uses are considered a sensitive viewer group). However, there are approved mixed-use land uses to the east of the Project site in the Great Park Neighborhoods District 6 that are expected to be constructed in a similar timeframe as the Project. These uses, including a minimum of 150,000 square feet of non-residential uses (*i.e.*, office, research and development, medical, and cultural/institutional/entertainment) and 1,200 high-density multi-story residential would reasonably have views of the construction activities. However, even though at this time, the precise layout of these developments is not known, the February 12, 2015 updated Master Landscape and Trails Plan for the Great Park Neighborhoods depicts a proposed community block wall at the boundary between the Project and the Great Park Neighborhoods District 6. The wall would help screen the ground level views of the Project during construction. Additionally, the orientation of at least some of the development may be focused away from the Project site (*i.e.*, the off-site development would face inward to its own development). Future residential uses that may have views of the Project site would have moved in knowing the entire former MCAS El Toro is being redeveloped and construction will be occurring over a multiple year duration. Though views of construction may be less than optimal by some viewers, the visual impact would be considered less than significant because (1) construction activities are generally recognized as a necessary element associated with improving the visual character of the Project from its currently degraded state of buildings in disrepair to the cohesive visual quality envisioned by the Development Plan; (2) though the overall Project is proposed to be phased over a multiple year duration, the construction activities in each specific planning area are relatively short in duration; and (3) 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 have views of the Project site, especially the western edge of the Project site. This portion of the OCGP has been developed with soccer fields and the Great Park Balloon. Users of the OCGP would see ongoing construction. For the soccer fields, the primary view would be inward to the sports fields. The western portion of the Project site would be the first phase of development; therefore, the visual disruption of the construction activities would be completed early, minimizing the duration of the exposure to construction-related views. Users of the Great Park Balloon would have aerial views of construction activities; therefore, they would see all phases of construction. However, this would be a less than significant impact because it would only be a portion of their view panoramic views experienced in the gondola, and the short duration of the views. It should be noted that the Project site would be developed in a similar timeframe as 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 (see Development Plan, Appendix B, Section B-121 Construction Site and Vacant Property Security, B.3). Future multi-level development may still have views of construction activities. These construction-related views would also be temporary and would change at each phase of construction as the different planning areas 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 there are none on site. Furthermore, any construction-related impacts on existing visual character of the Project site would be temporary, and, as indicated above, the construction activities would be in a similar timeframe as the development activities for the Great Park Neighborhoods. Thus the Project would not be out of character with the development activities that are anticipated in the immediate surrounding areas. Given their temporary nature, construction activities resulting from the Project would not significantly degrade the existing visual character or quality of the Project site and its surroundings. Therefore, potential adverse visual impacts associated with the Project's construction activities are considered less than significant and no mitigation is required.

On-Site Visual Character

As development occurs throughout the Project site, the visual character of the Project site would change from previously disturbed areas and visually degraded with abandoned structures to that of a core urban setting.

A mix of land uses would be developed on site, including up to 2,103 dwelling units; over 1.8 million square feet of retail, office, commercial, and neighborhood-serving uses; 220,000 square feet of retail commercial uses; 242 hotel rooms, with up to 20,000 square feet of meeting space on the Project site. The Residential District in the western portion of the Project site would accommodate primarily residential uses, but would allow office and retail uses that are compatible with the residential uses. The Commercial District in the eastern portion would accommodate primarily office uses, but would allow residential and retail uses that are compatible with the office uses. The Mixed Use District in the central portion of the Project site would include the potential reuse of Building 317 and retail and hotel uses but would allow residential and office uses that are compatible with the vision for this district. This flexibility would allow for a variety of land uses and buildings to be constructed in each planning area, subject to the trip equivalency adjustments outlined in the Development Plan.

As discussed in 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.

As discussed in Section 1.3 of the Development Plan, the "vision for the Project is a mixed-use, walkable, transit-oriented destination incorporating residential, retail, hospitality and commercial business uses in a dynamic urban setting with authentic physical and emotional connections to the site's history and adjacent influences." This would be accomplished through the development of districts that would enhance the cohesive element of linking the "Live" and "Work" environments of the mixed use development. As discussed in the Project Description

(Section 3.0 of this EIR) and the Development Plan, development standards have been established for each of the development districts. The following are the key standards for each of the development districts that would reduce any potentially significant aesthetic impacts to a less than significant level (this information is also presented in Table 3-4 of both this EIR and the Development Plan):

- **Residential District.** The Project would provide for development of residential products with a maximum height of 90 feet and an average density of 50 dwelling units to an acre. The overall maximum site coverage would be 85 percent of the parcel, with a minimum of 15 percent landscaping. The Project would provide a minimum of 100 square feet of open space (either private or common) per unit. There would be a minimum six feet of building separation.
- **Hotel and Retail Developments.** This district would provide for development of buildings with a maximum height of 125 feet and an overall maximum site coverage of 50 percent of the parcel and a minimum of 15 percent landscaping. The maximum floor area ratio (FAR)³ would be 2.0.
- **Commercial Office Developments.** This district would provide for development of buildings with a maximum height of 220 feet and an overall maximum site coverage of 50 percent of the parcel and a minimum of 15 percent landscaping. The maximum FAR would be 4.0 per development, with an average overall FAR of 2.0. There would be a minimum 20 feet of building separation.

Based on these development characteristics, coupled with the design guidelines, the Project would have a core urban visual appearance. These development characteristics are similar to the adjacent 8.1B Zone (Great Park Neighborhoods District 6), which has no height limitations on properties south of Marine Way, no site coverage limitations for attached residential developments (non-residential developments are limited to a 65 percent coverage) and a minimum 15 percent landscape requirement (unless if a lesser amount is approved at the time of Master Plan approval).

The design guidelines of the Development Plan provide for a consistent landscape character within the Project through the use of integrated planting schemes, hardscape materials, colors and character that embrace both planning principles and community architecture. In addition to enhancing the environment, landscaping would screen some views of the Project site from properties and streets outside of the Project boundary. (See Development Plan, Community Framework; Section 2.5). Key components of the Development Plan that would serve to enhance the visual characteristics of the Project site include:

- Potential adaptive reuse of Building 317 could incorporate the history of the Project site and serve as a focal point on the Project site, with adjacent land uses and structures complementing the architecture and potential use of Building 317.
- Siting of buildings to create a pedestrian-activated promenade to scale the street scene. The location of the promenade/central spine is depicted on Exhibit 4.1-5, Landscape

³ Floor Area Ratio or FAR is calculated by dividing the total square feet of the lot the building is located on by the square footage of the building. The FAR is a way of measuring the building intensity. The higher the FAR, the more dense the development.

Zone Diagram, and Exhibits 4.1-6 through 4-1-8 present the promenade cross sections at residential condition, park spaces, and commercial condition, respectively.

- Open space areas throughout the Project site to reduce the visual intensity of development, including a 50-foot average open space area along Marine Way to complement the uses at the OCGP, pocket parks/plazas, a neighborhood park, and a passive park.
- Eight-foot setbacks along the internal streets and five-foot setbacks between planning areas to reduce the scale and mass of development.
- Incorporation of public art to enhance the physical environment.
- Re-use of historic and/or vintage items to help celebrate the rich heritage of MCAS El Toro.
- Gateway monuments that demarcate the main entrances into the Project site from Marine Way.
- Sign standards that would prevent visual clutter.
- Site furnishings to help add to the individuality and quality of each District.
- Use of architectural features, colors, and textures to generate pedestrian scaling and visual interest along the streetscape.

Given the current degraded 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. The design elements will be used to establish a sense of place when viewed from on-site. Therefore, the potential adverse environmental impacts of the Project's development and operation 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 individual planning areas. Existing views of abandoned structures, building foundations, and overgrown weeds would be replaced by development characterized by new structures and new landscaping. The Project site would take on an urban character similar to the urban character that exists in or is proposed for the surrounding area and elsewhere in the City.

The discussion below provides an assessment of the visual changes from locations in the vicinity of the Project site. One location, the Second Harvest Food Bank warehouse, is unique. Though not part of the Project site, it is surrounded by the Project on three sides (north, east, and west). Therefore, a separate discussion of views from this location is provided.

Views from Second Harvest Food Bank Warehouse

Views from the Second Harvest Food Bank warehouse would change as existing abandoned buildings surrounding the warehouse on three sides are demolished and new facilities are constructed. Warehouse uses are generally considered to have a low view sensitivity because the focus of their activities is not oriented to the visual character of the surrounding area, and

D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_landscape_zone_diagram_20151214.ai



LEGEND

Zones

Socialize

- Centralized Gathering Hub
- Community Events
- Outdoor Vendors
- Outdoor Dining
- Art Galleries
- Recycled Materials from Site
- Farmers Market
- Music Venues
- Interactive Water Feature
- Outdoor Lounge w/ Fire Elements
- Themed Rail Feature

Potential Landmark: "Grand Station"

- Centralized Focal Point
- Iconic Landmark
- Retail Shopping
- Restaurants & Bars
- Lounge Space
- Dynamic Indoor to Outdoor Transitions

Promenade

- Central Neighborhood Spine
- Ped & Bikeway
- Tree Allee
- Trolley System
- Enhanced Pedestrian Paving w/Planting
- Focal Art Features
- Converted Railway Feature w/Educational Experience of Railway History
- Street Vendors/Kiosks
- Vibrant Signage/Banners
- Converted Periodic Railcars

Stroll

- Pedestrian Walks
- Park Extension & Connectivity
- Expansive Landscape Setback
- Interpretive Signage
- Meandering Informal D.G. Pedestrian Walks
- Activity Spaces
- Planned Surprises
- Focal Art Features

Gather

- Active Park Space
- Community Green
- Amphitheater
- Concerts in the Park
- Picnic Shelters
- Game Tables
- Outdoor Exercise
- Dog Play
- Focal Feature/Art

Relax

- Passive Park Space
- Strolling Garden
- Connection to OC Great Park Edge
- Less Intense Game Activities
- Rest Areas

Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Landscape Zone Diagram

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-5



D:\Projects\LowE\Ent\0001\Graphics\EIR\ElToro\Ex_prom_residential_20151027.ai



Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Promenade at Residential Condition

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-6



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_prom_park_20151027.ai



Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Promenade at Park Spaces

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-7



D:\Projects\LowE\0001\Graphics\EIR\ElToro\Ex_prom_commercial_20151027.ai



Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Promenade at Commercial Condition

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.1-8



the structure has limited views toward the surrounding areas. However, consideration is given to the overall site conditions, especially as workers and volunteers access the Project site. As a result of the Project, the change in view from the Second Harvest Food Bank warehouse, would be an improvement over the existing views of the abandoned structures and remnants of building foundations. Uses developed pursuant to the design guidelines and development standards would provide a visually cohesive development. Potentially significant adverse aesthetic impacts of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from Future Marine Way

Currently views of the Project site are limited due to the status of redevelopment of this portion of the former MCAS El Toro. The existing Perimeter Way traverses the Project site. Surrounding uses include the developed portion of the OCGP, located at the future Marine Way and Ridge Valley, and uses that continue to use buildings on the former base. The future Marine Way would be aligned along the northern edge of the Project site, providing views of on-site developments. Approved uses along the northeastern boundary of the Project site include the Cultural Terrace, which is located generally northeast of Marine Way and east of Great Park Boulevard West⁴. The Cultural Terrace would provide for museum, amphitheater, cultural centers, and other civic and office uses.

Views from these existing uses, as well as the approved uses, would change as a result of Project construction. From the vantage point along the future Marine Way a prominent near-range view would be the adjacent 50-foot "Park within the Park." This feature, which is identified in the Development Plan as one of the Project Design Goals (see Section 2.2 of the Development Plan for the discussion of Project Design Goals and Section 2.5.3.2, Community Elements and Criteria), would enhance the future Marine Way frontage to complement the adjacent OCGP. This area would include landscaping, trails, signage, and iconic features that would serve as a transition from the OCGP and uses to the north. Views of the Project site from the future Marine Way and land uses adjacent to the Project site would be enhanced compared to existing conditions. The views of new on-site buildings and site improvements would improve as old structures, building foundations and unmaintained outdoor areas are replaced by new developments and as an urban area is created at the Project site, similar to areas surrounding the Project site. The overall visual character of the former MCAS El Toro site is in transition to urban and suburban uses.

As discussed above under construction impacts, a portion of the OCGP has been developed with soccer fields and the Great Park Balloon. The primary view orientation for the soccer fields would be inward toward the sports fields. 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 would be developed in a similar timeframe as the adjacent Great Park Neighborhoods development; 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 that would not degrade the visual character or quality of the surrounding area. Thus, any potentially

⁴ Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents.

significant adverse impacts of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Future Great Park Neighborhoods District 6

The area east of the Project site is also located on the former MCAS El Toro property. The existing use includes an abandoned warehouse. Further to the east is open space area that contain the former runways for the MCAS El Toro. There are no existing sensitive viewsheds east of the Project site. Future uses would include the Great Park Neighborhoods District 6. These uses would be generally consistent in character as the proposed Project. The orientation of the Great Park Neighborhoods District 6 development in relationship to the Project site is not currently known. However, given the overall consistency in the types of use, and similar urban nature of the proposed improvements of the Project site, the Project would not degrade the visual character or quality of the surrounding area. Thus, any potentially significant adverse impacts of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Vicinity of the Southern California Regional Rail Authority Rail Line

The area south of the Project site is built out with low-rise (two-story) office buildings as part of the Irvine Technology Center, a site owned by the Orange County Transportation Authority (OCTA), and Interstate 5 (I-5). The Irvine Technology Center is separated from the Project site by the SCRRA rail line. Landscaping in the Irvine Technology Center obscures ground level views of the Project site in many locations. The orientation of these uses is generally facing away from the Project site. Office uses are generally considered moderately view sensitive because the focus of their activities is not oriented to the visual character of the surrounding area. The views from these locations would change from a degraded area with minimal landscaping and former Marine Corps buildings to views of new urban development, with heights ranging from 1 to 15 stories. As discussed above, given the degraded visual character of most of the former Marine Corps buildings, development of the Project site would be an enhancement. The Project would not change the character of the Irvine Technology Center and would be consistent with surrounding uses since the overall visual character of the former MCAS El Toro site is transitioning to urban and suburban uses. Therefore, though the character of the Project site would be changing, the character and quality of the improvements would not substantially contrast with the surrounding area.

In May 2015, the OCTA acquired a 21-acre parcel south of the Project site adjacent to the planned extension of Ridge Valley, as shown on the City Master Plan of Arterial Highways. The OCTA site is designated for institutional uses and has been planned as a potential future rail maintenance facility. Currently, there are no specific uses planned for this parcel; therefore, there would be no impacts due to changes in the visual character of the Project site. Once constructed, the rail maintenance facility would be considered to have a low visual sensitivity because the OCTA site is at a lower grade compared to the Project site, and the focus of their activities is not oriented to the visual character of the surrounding area. Additionally, based on current phasing concepts, the adjacent portion of the Project site would be constructed prior to the development of the rail maintenance facility. Though design plans for the rail maintenance facility are not available at this time, for reasons disclosed previously, the proposed Project site would improve the aesthetics of the area. Further, the proposed Project site's layout and landscaping would provide a buffer from and some screening of the OCTA property from views from Marine Way and the

Orange County Great Park. As shown in Exhibit 3-3, Conceptual Framework Plan, the Project design identifies the central spine street and pedestrian/transit promenade along the southern edge of the Project adjacent to the OCTA property (Exhibit 4.1-6 through 4.1-9, above). This circulation plan would provide a setback from the development and would provide a landscape edge such that the Project site would not degrade the existing visual character or quality of the surrounding area. Thus, any potentially significant adverse impacts of the Project site's development and operation would be considered less than significant and no mitigation is required.

Views from the Vicinity of State Route 133

There are limited views from the west of the Project site. The berms supporting the elevated ramps for SR-133 block direct views of the Project site, except from the immediately adjacent parcels, which are predominantly owned by the Irvine Company (part of the City's PA 40) and are currently in open space and agricultural productions. The future use for these parcels is multi-use, according to the City of Irvine Zoning Code. At this time, there are no specific plans for these parcels; however, the multi-use designation would be consistent with the uses proposed for the Project. Views from this location are of the previously disturbed or developed portion of the Project site. With Project implementation, the visual character from these parcels would change from previously developed/disturbed views to an urban setting. Based on the Conceptual Framework Plan (Exhibit 3.3), the Project's Residential District is adjacent to these parcels. Though a change in visual character would result from Project implementation, the Project would not result in degraded views from this location. As discussed above, the design guidelines of the Development Plan provide for a cohesive character within the Project through the use of integrated planting schemes, hardscape materials, colors and community architecture. Additionally, given the lack of development on these parcels, there are no sensitive receptors with current views from the parcels in the vicinity of SR-133. The viewer groups from these parcels would be agricultural workers. As discussed under Methodology, employment uses are generally considered less sensitive to changes in the visual quality than residential uses, because residents have a greater connection with the visual character of their neighborhood than people who are passing through or employed in an area. Thus, the Project would not degrade existing visual character of these surrounding parcels and impacts would be less than significant.

Further to the northeast, there are existing and planned residential uses in City of Irvine Planning Area (PA) 40. Residential uses are considered to be a highly view-sensitive use. The nearest existing residential use is in the vicinity of Sand Canyon Avenue and Trabuco Road. It is approximately a mile from the closest home to the northwest corner of the Project site. There would be limited views of the Project from these locations due to distance, an intervening freeway, and landscaping. Similarly, the Cypress Village residential uses west of Sand Canyon Avenue, which are predominantly built, would not have direct views of the Project site due to intervening freeway and landscaping. An apartment/office development has been approved by the City of Irvine at "O" Street and Trabuco Road, which is less than a mile from the Project site. Upon buildout, this development may have indirect views of the Project; however, given the intervening sports fields at OCGP and landscaping around the agriculture area to the southwest, views would be limited and not impactful. Thus, the Project site will not degrade the existing visual character or quality of the surrounding area. Thus, any potentially significant adverse impacts of the Project site's development and operation would be considered less than significant and no mitigation is required.

Impact Conclusion: *The proposed development would be an improvement over the existing visual character and quality of the Project site. Construction activities, including infrastructure improvements, would be short term in nature and have less than significant impacts as these activities would not substantially degrade the existing visual character or quality of the Project site or its surroundings. 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 prevent the substantial degradation of the visual character and quality of the Project site and the 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?

The Development Plan provides design requirements and standards as it applies to lighting throughout the Project site. The Development Plan, Section 2.5.5, Community Site Lighting, discusses the use of lighting to “contribute to the unique character for each of the Project’s three Districts, yet be compatible with the theme for the overall Project... Choice of lighting temperature and intensity shall be consistent within each District to promote aesthetic continuity.” Site lighting shall include but not be limited to:

- Street light fixtures.
- Pedestrian-scaled fixtures (12 feet to 14 feet height).
- Lower-scale pedestrian fixtures (i.e. bollards).
- Social gathering hubs.
- Focal elements/features.
- Signage.
- Handrails.
- Pavement.
- Overhead strings to create ambience.
- Miscellaneous decorative lights.

Lighting is further described in the Development Plan in Section 2.7.2.3, Lighting. Lighting is used for general illumination, safety, and to create a sense of place. Among other standards, the provisions of the Development Plan require that:

- Lighting sources shall be shielded, diffused, or indirect in order to avoid glare to pedestrians and motorists.
- All exterior lighting should minimize glare and light spill onto adjacent properties and streets.

- Except for the Mixed-Use Core (Planning Areas 9 and 17), exterior lighting elements should preserve nighttime sky by minimizing the amount of light pollution.

As a Program EIR, there is not a specific project with building layouts and lighting plans that can be analyzed, and the evaluation of the potential for light and glare impacts must recognize the Development Plan design guidelines and development standards would be implemented. In addition, there are specific development requirements that serve to avoid or minimize potential aesthetic impacts, specifically to lighting, that are provided in the Development Plan, Appendix C. As part of the subsequent review of each development proposal, consistency with these provisions would be evaluated.

Future development under the Development Plan would lead to the introduction of new light sources in the form of streetlights, exterior security lighting, parking lot lighting, lighted signs, decorative and accent 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, lighting would be indirect, diffused, shielded, and low intensity to avoid glare and spilling over onto adjacent uses from the majority of the Project site. The lighting characteristics and the potential for light and glare are different for the Mixed-Use and Commercial Districts than it would be for the Residential District. Therefore, the evaluation addresses these uses separately.

Mixed-Use and Commercial Districts

The Mixed-Use and Commercial Districts would have the greatest amount of night lighting, including neon lights, festive lighting, spot lighting, and illuminated mural graphics. The purpose of the lighting would be to contribute to the ambience of the area. Monument or lighting of iconic features and buildings may result in some lighting spill over onto adjacent properties that are within the Project limits. However, these features would be site-appropriate and create the vibrant environment that would attract potential users to the area.

Located within the Mixed-Use District, the area in front of the existing Building 317 is envisioned as the community's central, urban gathering place. Higher levels of lighting would be expected in such an environment as a means of establishing a sense of place. This central gathering area would be surrounded by mixed-uses within the Project site, existing commercial uses to the southwest, across from SCRRRA rail line, and the future Cultural Terrace to the northeast across Marine Way. The Development Plan includes specific design guidelines addressing the Mixed-Use and Commercial District (see Development Plan Section 2.7.3, Mixed-Use and Commercial District Guidelines). As discussed in the Development Plan, large expanses of reflective, opaque, or highly tinted glass are discouraged. Further, as part of the façade treatment, details that modulate the light are encouraged. These design guidelines would serve to minimize the potential for glare. Though no substantial spill-over lighting on adjacent development areas within the Project site are anticipated because exterior lighting would be diffused, shielded, and low intensity to confine direct rays to the Project site, in an abundance of caution, the Development Requirement (DR) AES-1 has provisions for disclosure to the developers and end users (including future residents) of the Mixed-Use District and Project planning areas adjacent to the Mixed-Use District that there is the potential for spill over lighting due to the urban nature of the Mixed-Use District. Though expected to be minimal, the spill over lighting could affect the Second Harvest Food Bank warehouse; however, due to the nature and hours of use, this would

not be considered a significant impact. The potential impact on uses beyond the Project site would be limited. DR AES-2 incorporates a requirement for future developers of the Mixed-Use District to submit a photometric study that demonstrates that lighting levels will not increase over 1-foot-candle over ambient conditions at the property line.

Project gateway monuments, especially at the entry of the Mixed-Use and Commercial Districts, are envisioned. These features would reasonably include lighting so they can be seen at night. The gateway monuments would be located along major entry points along Marine Way and potentially at key intersections internal to the Project. Spotlight devices would be focused on the building or monuments and would not shine directly upon any right-of-way or upon neighboring property. The Development Plan does provide for mural graphics, including electronic LED boards, within the Mixed-Use and Commercial Districts. However, the signage guidelines require the mural graphics to be oriented internally and the light/glare to not spill over to adjacent properties. Additionally, there are limits on the size, percentage of building coverage, and number of permitted mural graphics within the Project. The signage requirements, including those for mural graphics, are summarized in the Development Plan (Table 3.7, Permitted Sign Matrix).

Consideration should also be given to the surrounding existing and planned land uses in the vicinity of the Project site (i.e., adjacent existing sports park, the SCRRA rail line, the Great Park Neighborhoods District 6). The Project context would be an urban environment with other light-emitting uses already in existence or planned that would contribute to lighting in the area, including OCGP lighted sports fields across from Marine Way. The Project's new light sources would be visible from internal and adjacent off-site roadways and surrounding areas. There are no light-sensitive uses immediately adjacent to the Project site. The nearest land use is the Second Harvest Food Bank warehouse. Activities at this warehouse are conducted largely indoors and during the day, such that increases in lighting levels on the Project site and near the warehouse would not adversely affect their operations. The business parks and office buildings to the south are not considered light-sensitive uses and have limited activities at night.

The SCRRA line, which serves as the southern boundary of the Project site, would not be adversely affected by light generated by the Project site. There would be no light source directed toward the rail line, nor would there be lighting of the magnitude that the conductor's vision would be impaired. Additionally, the undeveloped parcel to the southwest that is anticipated to become an OCTA rail yard is not expected to include light-sensitive uses. Moreover, the lighting standards of the Development Plan provide for shielded, diffused, or indirect lighting to minimize glare and light spill onto adjacent properties and streets.

The proposed Project is adjacent to the OCGP sports fields, located to the northwest, across Marine Way. The sports fields feature floodlights that would be more intensive than the lower lighting levels within the proposed Project site. 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 on the balloon for short periods of time during the daytime and nighttime. The proposed Cultural Terrace to the northeast is currently envisioned to include a lake, gardens, a library, a museum, an amphitheater, cultural centers, and other civic uses that would not be considered light-sensitive uses. Users of the Cultural Terrace facilities would also be focused on their activities and would not be affected by lighting levels at the Project site. Thus, the visibility of on-site light sources from adjacent land uses would not adversely affect the activities at these adjacent areas.

The nearest existing residential areas, which may be considered sensitive to nighttime lighting levels, are located northwest of the Project site, on the other side of the I-5 and SR-133 freeways. These residences may see light sources on the upper stories of on-site buildings during the evening and nighttime periods, where they have direct lines of sight (in the absence of intervening structures such as freeway structures, existing buildings, and trees). Planned residential uses in the Great Park Neighborhoods District 6 would be located adjacent to the Project site and may see changes in on-site lighting levels. However, these uses would be similar and compatible to the proposed uses of the Development Plan.

In summary, the overall lighting on the Project site with Project implementation would increase compared to existing conditions. Compliance with the Development Plan design guidelines by individual developments on the Project site would prevent most of the light and glare spillover into nearby uses and lighting levels that may adversely affect daytime and nighttime views in the area. DR AES-1 and DR-AES-2 would also minimize the potential for light spill over to adjacent properties. In addition, the Development Plan design guidelines and development standards for lighting address the type and intensity of lighting based on the specific use in order to avoid light pollution and adverse impacts in the development (see Sections 2.5.5, 2.7.2.3, and 2.9.2 of the Development Plan for discussion of lighting). Further, the Development Plan requires disclosures of the character of the Mixed Use and Commercial Districts to ensure that developers and end users are aware of the urbanized nature of the lighting the Project will include. As a result, Project impacts would be less than significant and no mitigation is required.

Residential District

The Community Site Lighting standards and Site Planning Guidelines provided in the Development Plan (see discussion at the beginning of this threshold evaluation) would also apply to the Residential District. Exterior building lighting would be provided for general illumination, safety and security of entries, patios and outdoor spaces and landscape features. Lighting would be consistent with residential developments with exterior lighting being shielded, diffused, or indirect in order to avoid glare spill over to adjacent properties. Exterior lighting elements would preserve nighttime sky by minimizing the amount of light pollution.

Based on the Conceptual Framework Plan (Exhibit 3.3), the Residential District would be in the northwestern sector of the Project site. Existing adjacent uses are the sports field in the OCGP and undeveloped/agricultural areas (i.e., the OCTA parcel and agricultural fields, predominately owned by Irvine Company). If these undeveloped parcels are developed consistent with the *City of Irvine General Plan*, the planned uses would include a rail maintenance yard on the OCTA parcel and mixed-use on the agricultural fields (part of City PA 40). Neither of these uses would be considered highly sensitive to increased illumination. Further, for the reasons noted above, lighting within the Residential District will not result in spill over to adjacent properties. Based on the design guidelines and development standards for lighting in the Development Plan, DR AES-1 and DR AES-2 and the existing and planned land uses, impacts associated with the development of the Residential District would be less than significant because it would not create a new source of substantial light or glare or adversely affect day or nighttime views in the area.

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 trees, and compliance with the design guidelines, development standards,*

and development requirements on lighting, as contained in the Development Plan, would prevent substantial light and glare spillover and change in the lighting levels that would have a significant and adverse effect on views in the area. Though no substantial spill-over lighting on adjacent development areas within the Project site are anticipated, DR AES-1 and DR AES-2 are provided regarding disclosure of potential spill over lighting. Pursuant to Threshold 4.1-2, impacts related to new sources of 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 less since it would not stand out in contrast as much. The key cumulative projects as it pertains to aesthetic impacts would be the OCGP (inclusive of the Cultural Terrace, the Western Sector Park Development Plan, and the 688-Acre Great Park Development), the Great Park Neighborhoods, the Broadcom Master Plan, the OCTA site and the City's PA 40. These cumulative projects are all in close proximity to the Project site, will be implemented over the same general timeframe (though some require a shorter duration to complete), and all contribute to the transition of visual character to suburban/urban core. 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 adjacent to the Project site. The redevelopment of developed land and development of vacant land, largely to more intense and urban 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 and other cumulative projects described in Section 4.0.1). The existing and future cumulative projects 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 4.1, while the Project proposes to develop the Project site with residential, mixed-use, and commercial uses, it would result in an improvement over the existing condition of the Project site, which includes abandoned structures and foundation remains. 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 have 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 light and glare spill over to adjacent uses by confining direct rays to the 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 would be the lighting for the existing sports fields located in the OCGP. 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. It should be noted, the impacts associated with the sports fields were evaluated as part of the OCGP Program EIR and Addendum #4 and the sports fields are not lit with high intensity lighting seven days a week but only when games are scheduled. Therefore, with implementation of the Development Plan, including proposed DR AES-1 and DR AES-2, the Project's contribution to cumulative impacts related to 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. For the development in and adjacent to the Mixed-Use District, a disclosure to the developers and end users of the potential for spill over lighting shall be incorporated into all lease agreements.

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 1-foot-candle over ambient conditions at the Project property line, excluding the Second Harvest Food Bank warehouse. 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 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

This page intentionally left blank

4.2 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 *El Toro 100 Acre Project Transportation Impact Analysis* ("Transportation Impact Analysis" or "TIA") prepared by Fehr & Peers in December 2015 which is included in Appendix L of this 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 4.6 of this EIR.

4.2.1 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 (NO₂); ozone (O₃); 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 (PM_{2.5}); carbon monoxide (CO); sulfur dioxide (SO₂); 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 (NO_x). Nitric oxide (NO), NO₂, and nitrous oxide (N₂O) are important constituents of NO_x. NO is converted to NO₂ in the atmosphere. Motor vehicle emissions are the main source of NO_x in urban areas.

NO₂ 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 NO_x 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 NO₂ can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO₂ 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 NO₂, NO and NO₂ are both precursors in the formation of O₃ and PM_{2.5}, as discussed below. Because of this and the fact that NO emissions largely convert to NO₂, NO_x 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 NO_x 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. NO_x 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 O₃ to form; as a result, ozone is known as a summertime air pollutant. (Ground-level O₃ is not to be confused with atmospheric O₃ or the “ozone layer”, which occurs very high in the atmosphere and shields the planet from some ultraviolet rays.) Ground-level O₃ is the primary constituent of smog. Because O₃ formation occurs over extended periods of time, both O₃ and its precursors are transported by wind, and high O₃ 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 PM_{2.5}. 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 NO_x, sulfur oxides (SO_x), 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. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience 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

Carbon monoxide 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

Sulfur oxides (SO_x) constitute a class of compounds of which SO₂ and sulfur trioxide (SO₃) are of greatest importance. Ninety-five percent of pollution-related SO_x emissions are in the form of SO₂. SO_x emissions are typically examined when assessing potential air quality impacts of SO₂. The primary contributor of SO_x emissions is fossil fuel combustion for generating electric power. Industrial processes, such as nonferrous metal smelting, also contribute to SO_x emissions. SO_x is also formed during combustion of motor fuels; however, most of the sulfur has been removed from fuels, greatly reducing SO_x emissions from vehicles.

SO₂ combines easily with water vapor, forming aerosols of sulfurous acid (H₂SO₃), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H₂SO₄). Peak levels of SO₂ 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 SO₂ gas and particles cause respiratory illness and aggravate existing heart disease. SO₂ reacts with other chemicals in the air to form tiny sulfate particles which are measured as PM2.5.

Lead

Lead is a stable compound, which 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 (i.e., lead smelters) and are not applied to mixed-use 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" (HAP) 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.

4.2.2 REGULATORY SETTING

The Project site is located in the South Coast Air Basin (SoCAB). The SoCAB is comprised 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.

Federal

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 SO₂, CO, NO₂, O₃, PM₁₀, PM_{2.5}, and lead. NAAQS are shown in Table 4.2-1.

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 4.2-1 and 4.2-2 below, respectively.

**TABLE 4.2-1
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/m ³)	-	-
	8 Hour	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³)	Same as Primary
PM ₁₀	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	AAM	20 µg/m ³	-	-
PM _{2.5}	24 Hour	-	35 µg/m ³	Same as Primary
	AAM	12 µg/m ³	12.0 µg/m ³	15.0 µg/m ³
CO	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	-
	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	-
NO ₂	AAM	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m ³)	0.100 ppm (188 µg/m ³)	-
SO ₂	24 Hour	0.04 ppm (105 µg/m ³)	-	-
	3 Hour	-	-	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	0.075 ppm (196 µg/m ³)	-
Lead	30-day Avg.	1.5 µg/m ³	-	-
	Calendar Quarter	-	1.5 µg/m ³	Same as Primary
	Rolling 3-month Avg.	-	0.15 µg/m ³	

**TABLE 4.2-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California ^a Standards	Federal Standards	
			Primary ^b	Secondary ^c
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility \geq 10 miles	No Federal Standards	
Sulfates	24 Hour	25 $\mu\text{g}/\text{m}^3$		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu\text{g}/\text{m}^3$)		
Vinyl Chloride	24 Hour	0.01 ppm (26 $\mu\text{g}/\text{m}^3$)		
<p>O₃: ozone, ppm: parts per million, $\mu\text{g}/\text{m}^3$: 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/m³: milligrams per cubic meter, NO₂: nitrogen dioxide, SO₂: sulfur dioxide, km: kilometer.</p> <p>^a <i>California Air Quality Standards</i>: 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.</p> <p>^b <i>National Primary Standards</i>: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.</p> <p>^c <i>National Secondary Standards</i>: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p>Note: More detailed information in the data presented in this table can be found at the CARB website (www.arb.ca.gov).</p> <p>Source: CARB 2015a.</p>				

**TABLE 4.2-2
ATTAINMENT STATUS IF 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 ^a
All others	Attainment/Unclassified	No Standards
<p>O₃: ozone; PM10: particulate matter 10 microns or less in diameter; PM2.5: particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; NO₂: nitrogen dioxide; SO₂: sulfur dioxide.</p> <p>^a The Los Angeles County portion of the SoCAB is designated nonattainment for lead; the remainder of the SoCAB is designated attainment.</p> <p>Source: CARB 2015d, 2014; USEPA 2015.</p>		

State

CARB also has established the California Ambient Air Quality Standards (CAAQS) shown in Table 4.2-1, 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 of model year 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 customers, employees of, and deliveries 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 GHG emissions 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. The 2016 Code will be published on or before 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 4.6, Greenhouse Gas Emissions.

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 2013 California Green Building Standards Code (24 CCR, Part 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) 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 CALGreen 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 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 4.6, Greenhouse Gas Emissions.

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, the 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 non-attainment areas to come into attainment, and the AQMP is prepared by the SCAQMD, in part, to satisfy the requirement for a 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 the 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 O₃ standards; the State PM₁₀ standards; and the federal and State PM_{2.5} standards.² The current status of the SIPs for these non-attainment pollutants are shown below:

- The 2007 AQMP provides attainment demonstrations for the annual PM_{2.5} standard by April 5, 2015, and the 8-hour O₃ standard by December 31, 2023. In 2009 and 2011, respectively, at the request of the USEPA, CARB provided clarifying revisions to the annual PM_{2.5} and 8-hour O₃ SIP amendments. In 2011, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual PM_{2.5} standard by April 5, 2015. In 2012, the USEPA approved the control strategy, emission reduction commitment, and attainment demonstration for the annual 8-hour O₃ standard by June 15, 2024.
- The 2012 AQMP provides attainment demonstrations for the 24-hour PM_{2.5} standard by 2019 and the 1-hour O₃ standard by 2023. In addition, it provides supplemental information for the approved 8-hour O₃ 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 O₃ (75 parts per billion [ppb]) by 2031³
 - Annual PM_{2.5} (12 micrograms per cubic meter [µg/m³]) 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 O₃ standard to 0.070 ppm (70 ppb). The SIP (or AQMP) for the 70 ppb standard will be due 4 years after the attainment/non-attainment 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 O₃ (80 ppb) by 2023
- 1-hour O₃ (120 ppb) by 2022
- 24-hour PM_{2.5} (35 µg/m³) 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.

SCAQMD Rule 1403, Asbestos Emissions from Demolition/Renovation Activities, specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials (ACMs). All operators are required to maintain records, including waste shipment records, and are required to use appropriate warning labels, signs, and markings.

Local

Based on the Pre-Annexation Agreement and as described in Section 2.4.3 of this EIR, the Project is not subject to the 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 the 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 (County of Orange 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 4.6, Greenhouse Gas Emissions.

Growth Management Element

Objective M-4 of the Growth Management Element of the City's General Plan, Transportation Demand Management, of the Growth Management Element, 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.

4.2.3 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, SO₂, PM₁₀, PM_{2.5}, and the O₃ precursors VOC and NO_x. 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 4.2.5 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 4.2.6 below and are shown in notes on the CalEEMod data in Appendix C. The CalEEMod model 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 employees, visitors, and vendors at the Project site. The CalEEMod model 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 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 NO₂, CO, PM₁₀, and PM_{2.5} emissions. SO₂ 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 NO₂ and CO, the one-hour standards are used and receptors that could be exposed for one hour are considered. For PM₁₀ and PM_{2.5}, 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 (CO) 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 hot-spot 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.

4.2.4 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 U.S. The combination of poor dispersion and abundant sunshine, which drives the photochemical reactions that form pollutants (such as O₃) 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 U.S.

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, 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 (*i.e.*, residences, schools, playgrounds, child-care centers, convalescent centers, retirement homes, and athletic fields) as "sensitive receptors."

The western portion of the Project site consists of vacant land that was part of the runway protection zones of the former Marine Corps Air Station (MCAS) El Toro. The central portion has rail spurs that extend from adjacent rail lines and served the warehouse structures at the eastern portion of the site. There are several existing structures remaining on the site, but these facilities are no longer in use. Therefore, there are no existing sensitive receptors on the Project site.

The area surrounding the Project site consists primarily of industrial, commercial, and transportation uses, and undeveloped land. The nearest sensitive receptor to the proposed Project site are the sports fields associated with the Orange County Great Park (OCGP), located approximately 130 feet north of the Project site. There are no other sensitive receptors within ½ mile of the Project site. Irvine Community Church is approximately 0.5 mile northwest of the Project site. There are apartment complex residences located 0.75 mile south of the Project site, and other residential uses located 0.9 mile northwest of the Project site.

Existing Air Quality

Regional Attainment Status

As previously discussed, based on monitored air pollutant concentrations, the USEPA and the CARB designate an area's status in attaining the NAAQS and CAAQS, respectively, for the criteria pollutants. Table 4.2-2, 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 four miles southeast of the Project site. The pollutants measured at the Mission Viejo Station include O₃, CO, PM_{2.5}, 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 4.2-3. As shown, the national and State standards were exceeded in all three years for O₃ (eight hour), and State standards were exceeded in all three years for O₃ (one hour).

**TABLE 4.2-3
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
	PM ₁₀ (24 hour)	50 µg/m ³	150 µg/m ³	2013	50.0	0	0
				2014	40.0	0	0
				2015	45.0	0	0
	PM ₁₀ (AAM)	20 µg/m ³	None	2013	19.0	No	-
				2014	19.8	No	-
				2015	*	*	-
	PM _{2.5} (24 hour)	None	35 µg/m ³	2013	28.0	-	0
				2014	25.5	-	0
				2015	31.5	-	0
PM _{2.5} (AAM)	12 µg/m ³	12 µg/m ³	2013	8.1	No	No	
			2014	8.0	No	No	
			2015	7.0	No	No	

O₃: ozone; ppm: parts per million; Max.: maximum; PM₁₀: respirable particulate matter with a diameter of 10 microns or less; µg/m³: micrograms per cubic meter; AAM: Annual Arithmetic Mean; *: Data Not Reported or insufficient data available to determine the value; -: No standard; NO₂: nitrogen dioxide; CO: carbon monoxide; PM_{2.5}: 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.*, 10 in a 1 million). A risk level of 1 in a 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 2015b). 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. The MATES IV study 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 western end of the Project site at the location where Marine Way starts to turn northward. The modeled carcinogenic risk for this area is 626 per million. The second square covers the remainder of the Project site; the modeled carcinogenic risk for this area is 589 per million (SCAQMD 2016b). These risk data may be compared to the calculated SoCAB population-weighted risk of 367 per 1 million persons (SCAQMD 2015b). 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 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 western portion of the site consists of vacant land that was part of the former MCAS El Toro's runway protection zones. The central portion has rail spurs that extend from adjacent rail lines and served the warehouse structures at the eastern portion of the site. There are several existing

structures remaining on the site, but these facilities are no longer in use. Therefore, there are no current sources of emissions on the Project site.

4.2.5 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 *Environmental Analysis Checklist* and Appendix G of the California Environmental Quality Act (CEQA) Guidelines, a project will normally have a significant adverse environmental impact on air quality if it will:

- Threshold 4.2-1** Conflict with or obstruct implementation of the applicable air quality plan.
- Threshold 4.2-2** Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Threshold 4.2-3** 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 4.2-4** 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 4.2-4 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 4.2-4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

Mass Daily Thresholds (lbs/day)		
Pollutant	Construction	Operation
VOC	75	55
NO _x	100	55
CO	550	550
PM ₁₀	150	150
PM _{2.5}	55	55
SO _x	150	150
Lead	3	3
Toxic Air Contaminants		
TACs ^a	Maximum Incremental Cancer Risk \geq 10 in 1 million Cancer Burden $>$ 0.5 excess cancer cases (in areas \geq 1 in 1 million) Chronic & Acute Hazard Index \geq 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MT/yr CO ₂ eq for industrial facilities	
Ambient Air Quality For Criteria Pollutants^b		
NO ₂	1-hour average \geq 0.18 ppm Annual average \geq 0.03 ppm	
CO	1-hour average \geq 20.0 ppm (State) 8-hour average \geq 9.0 ppm (State/federal)	
PM ₁₀	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation) Annual average \geq 1.0 $\mu\text{g}/\text{m}^3$	
PM _{2.5}	24-hour average \geq 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average \geq 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
Sulfate	24-hour average \geq 1.0 $\mu\text{g}/\text{m}^3$	
Lead 30-day average Rolling 3-month average	1.5 $\mu\text{g}/\text{m}^3$ (state) 0.15 $\mu\text{g}/\text{m}^3$ (federal)	
lbs/day: pounds per day; VOC: volatile organic compound; NO _x : nitrogen oxides; CO: carbon monoxide; SO _x : sulfur oxides; PM ₁₀ : respirable particulate matter with a diameter of 10 microns or less; PM _{2.5} : fine particulate matter with a diameter of 2.5 microns or less; NO ₂ : nitrogen dioxide		
^a TACs (carcinogenic and noncarcinogenic)		
^b Ambient air quality threshold based on SCAQMD Rule 403.		
Source: SCAQMD 2015d		

4.2.6 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 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 4.2.8, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.2-1

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 (Irvine 2012). As discussed in Section 3.0, Project Description, the Project proposes a range, character and intensity of uses different than those assumed in the City of Irvine 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 4.11, Population and Housing, demonstrates that the Project is not included in the growth projections used as part of the long-range planning programs for the region. The RSA level projections in the OCP-2014 dataset and the OCP-2014 did not include the Project (CDR 2014).⁴ Because the Project would not have been considered when 2014 Orange County Projections (OCP-2014) was developed, the Project was not considered in the development of the SCAG RTP/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 4.9, Land use) 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

⁴ 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 before later phases of the Project.

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 impact 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, which is a significant impact. MM LU-1 would allow for the anticipated growth to be included in future long-range planning documents, which would eliminate the conflict. However, incorporation of the updated growth projections into the AQMP is not within the County's control. Therefore, the impact would be significant and unavoidable, pursuant to Threshold 4.2-1. Approval of the Project and commencement of construction would not obstruct implementation of the AQMP because the gradual completion of the Project and increase in operational emissions would be paralleled by AQMP revisions that would include the Project.*

Threshold 4.2-2

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 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 purposes of evaluating air quality emissions. Construction of the proposed Project would occur in two phases beginning in July 2017 with initial site-preparation activities and mass site grading of the western portion of the Project site. Building construction of the western portion of the Project would begin in May 2018, and construction of the eastern portion of the Project would begin in May 2021. During grading, approximately 925,000 cubic yards (cy) of soil would be moved with cut and fill balanced on site. However, for a conservative emissions analysis, it was assumed that 25,000 cy of soil would be imported or exported during each grading phase. The first phase of physical building construction (i.e., western portion of the Project site) was assumed to occur from September 2018 through June 2022. The second phase of physical building construction (eastern portion of Project site) was assumed to occur from July 2022 through December 2026. It was also assumed that paving would occur continuously from September 2018 through the December 2026. Total paving would cover an estimated 19 acres. Architectural coating was assumed to occur continuously from June 2019 through December 2026. Project construction emissions were estimated using the CalEEMod model described in Section 4.2.3. Project-specific input was based on general information provided in Section 3.0, Project Description; 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 the Development Requirements (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 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 NO_x 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 PM_{2.5} 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 4.2-5, Unmitigated Maximum Daily Construction Emissions. Maximum daily construction emissions would occur during concurrent building, paving, and painting in the northwestern Project site areas along with grading in the southeastern Project site areas, which would occur in the year 2021 (see Table 4.2-5).

As shown in Table 4.2-5, emissions of all pollutants would be less than the SCAQMD CEQA thresholds, except for NO_x emissions during construction in 2021. For NO_x, the Project emissions would exceed the SCAQMD CEQA threshold and the impact would be significant. Implementation of MM AQ-1, which would require scrapers used after January 1, 2020, to meet Tier 4 Interim off-road emissions standards, would reduce the impacts to a less than significant level. Project emissions calculated after implementation of MM AQ-1 are shown in Table 4.2-6. DR AQ-4 would also be implemented to minimize pollutant emissions.

**TABLE 4.2-5
UNMITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)**

Year	VOC	NOx	CO	SOx	PM10	PM2.5
2017	1	17	28	<0.5	3	1
2018	4	51	70	<0.5	8	5
2019	39	48	77	<0.5	8	4
2020	39	46	76	<0.5	8	4
2021	42	102	144	<0.5	17	9
2022	40	60	98	<0.5	10	5
2023	40	59	96	<0.5	10	5
2024	40	58	95	<0.5	10	5
2025	40	58	94	<0.5	10	5
2026	40	58	93	<0.5	10	5
SCAQMD CEQA Thresholds (Table 4.2-4)	75	100	550	150	150	55
Exceed Thresholds?	No	Yes	No	No	No	No

**TABLE 4.2-6
MITIGATED MAXIMUM DAILY CONSTRUCTION EMISSIONS
(LBS/DAY)**

Year	VOC	NOx	CO	SOx	PM10	PM2.5
2017	1	17	28	<0.5	3	1
2018	4	41	70	<0.5	8	5
2019	39	44	77	<0.5	8	3
2020	39	43	76	<0.5	8	3
2021	41	86	144	<0.5	16	8
2022	40	57	98	<0.5	10	5
2023	40	55	96	<0.5	10	5
2024	40	55	95	<0.5	10	5
2025	40	55	94	<0.5	10	5
2026	39	55	93	<0.5	10	5
SCAQMD CEQA Thresholds (Table 4.2-4)	75	100	550	150	150	55
Exceed Thresholds?	No	No	No	No	No	No
<p>lbs/day: pounds per day; 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; EIR: Environmental Impact Report; CEQA: California Environmental Quality Act.</p> <p>Source: SCAQMD 2015d (thresholds). Emissions calculations can be found in Appendix C.</p>						

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 site and local area.

For the CO and NO₂ LST exposure analysis, receptors who could be exposed for one hour or more are considered. For the PM₁₀ and PM_{2.5} LST exposure analysis, receptors who could be exposed for 24 hours are considered. LST impacts are analyzed for a receptor up to 500 meters from the Project site.⁵ There are no off-site receptors (e.g., residences) within ½ mile (800 meters) of the Project site who would potentially be exposed for 24 hours. Receptors at the Second Harvest Food Bank warehouse would be exposed to NO₂ and CO emissions. Because there would be residential receptors on the Project site during construction of the later phases of the Project, PM₁₀ and PM_{2.5} impacts to these receptors are also analyzed. For the LST analysis, a distance of 25 meters is used, which is used for all receptors within a distance of 25 meters. The highest maximum localized daily construction emissions for NO_x and CO would occur during concurrent building, paving, painting, and grading in 2021.⁶ The highest maximum localized daily construction emissions for PM₁₀ and PM_{2.5} following probable occupancy of on-site residences would occur during site preparation of the later Project site phases.

As shown in Table 4.2-7 below, localized emissions for NO_x, CO, PM₁₀, and PM_{2.5} would remain 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.

**TABLE 4.2-7
MAXIMUM LOCALIZED DAILY CONSTRUCTION EMISSIONS (LBS/DAY)**

Year	NO _x	CO	PM ₁₀	PM _{2.5}
Maximum Daily Emissions (2021)	27	36	8	5
SCAQMD LST^a	197	1,711	14	9
lbs/day: pounds per day; NO _x : nitrogen oxides; CO: carbon monoxide; SCAQMD: South Coast Air Quality Management District; LST: Localized Significance Threshold.				
^a Thresholds for Source Receptor Area 20, Central Orange County Coastal, 5-acre site, 25-meter receptor distance.				
Sources: SCAQMD 2009 (for LST). Emissions calculations can be found in Appendix C.				

Operational Emissions

Mass Emissions

Operational emissions are calculated with CalEEMod for 2025, which is the proposed Project's estimated completion of building and the occupancy year. Operational emissions are comprised

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

⁶ In the lookup table method, NO_x emissions are used to evaluate NO₂ concentrations.

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, visitors, customers, and vendors. There would be no fireplaces within residential units (see DR AQ-6); 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 2017 codes would apply, and that the 2017 Code would be at least 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 TIA (refer to Section 4.14, Transportation/Traffic); the proposed Project would generate an estimated 46,746 average daily trips (ADT). The CalEEMod results include VMT reductions and corresponding emissions reductions for Project accessibility to transit (i.e., Irvine Station) and for the mixed-use character of the proposed Project.

Estimated peak daily operational emissions are shown in Table 4.2-8 and are compared with SCAQMD CEQA thresholds for operations.

**TABLE 4.2-8
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS
(LBS/DAY)**

Source	VOC	NOx	CO	SOx	PM10	PM2.5
Area Sources ^a	191	2	174	<0.5	1	1
Energy Sources ^a	1	7	4	<0.5	1	1
Mobile Sources ^a	117	194	1,038	4	290	80
<i>Total Gross Operational Emissions^b</i>	<i>308</i>	<i>203</i>	<i>1,217</i>	<i>4</i>	<i>291</i>	<i>82</i>
SCAQMD Thresholds (Table 4.2-4)	55	55	550	150	150	55
Exceeds SCAQMD Thresholds?	Yes	Yes	Yes	No	Yes	Yes
lbs/day: pounds per day; 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 of either summer or winter emissions. ^b Totals may not add due to rounding. Sources: SCAQMD 2015d (thresholds). Emissions calculations can be found in Appendix C.						

As shown in Table 4.2-8, the estimated maximum daily operational emissions of SOx would be less than the SCAQMD thresholds and less than significant. Estimated operational emissions of VOCs, NOx, CO, PM10, and PM2.5 would exceed the SCAQMD CEQA significance thresholds. The primary sources of VOC would be consumer products, an area source, at 160 pounds per day (lbs/day) and vehicle emissions at 117 lbs/day. The primary source of NOx, CO, PM10, and PM2.5 emissions would be vehicle emissions. Because VOCs and NOx are O₃ precursors, the emissions could contribute to existing violations of State and federal O₃ standards. Similarly, exceedance of the PM10 and PM2.5 thresholds could contribute to existing nonattainment of the State PM10 and PM2.5 standards. Therefore, the impact would be significant. It should be noted that the SCAQMD project-level emissions thresholds are not appropriate for program-level analysis. The SCAQMD thresholds are specific emission rates that are independent of project size or composition. This type of threshold does not consider the efficiencies of scale or mix for larger

or mixed-use projects. Thus, these thresholds are disincentives to larger projects. A more appropriate threshold would be based on emissions per population as suggested for evaluating greenhouse gas emissions, or emissions per residence or commercial area. However, efficiency thresholds or similar significance criteria for program-level criteria pollutant emissions have not been established or recommended.

There are no feasible project-level mitigation measures for consumer product VOC emission reductions as a land use plan cannot effectively impose enforceable restrictions on the VOC emissions of consumer products purchased by the ultimate users of the Project. However, it should be noted that State consumer products regulations were updated in January 2015, requiring reduced VOC emissions. Therefore, the CalEEMod forecasts of consumer products VOC emissions may be assumed to be higher than would occur.

For vehicle emission reductions, MM AQ-2 through MM AQ-6, presented below, would be incorporated into the proposed Project. MM AQ-2 through MM AQ-4 require preferential parking for alternative fueled vehicles and electric vehicle charging facilities for non-residential buildings, residential buildings, parking garages, and parking lots to encourage greater use of lower emission generating vehicles. MM AQ-2 also requires preferential parking for carpool vehicles and charging facilities for some nonresidential buildings. MM AQ-3 and MM AQ-4 also require bicycle parking for residential buildings and parking facilities to encourage transportation by means other than a car. MM AQ-5 includes operational measures that would limit truck idling and would provide incentives for employees of commercial, office, and retail businesses to commute by means other than solo fossil-fueled vehicles. MM AQ-6 includes operational measures that would provide incentives for Project residents to commute by means other than solo fossil-fueled vehicles. Although implementation of MM AQ-2 through MM AQ-6 would reduce Project-related VMT and long-term emissions of mobile source pollutants, reasonable estimates of the amount of emissions reductions are not feasible. These measures provide mechanisms to reduce the number of vehicle trips with fossil-fuel-only vehicles, but do not guarantee any reductions. Therefore, operational emissions for VOC, NO_x, CO, PM₁₀, and PM_{2.5} would be significant and unmitigable.

Combined Construction and Operational Emissions During Development

During Project development, the initial phases of the Project would be occupied while construction continues on future phases. In accordance with recent SCAQMD recommendations, a calculation of mid-Project development's combined construction and operational emissions is provided for information. As a reasonable worst-case scenario, based on the preliminary Project phasing scenario, it is assumed that in the 2021-2022 period, the Project would have completed and occupied 1,611 residential units and 625,000 square feet of office space. Operational emissions based on that occupancy are combined with construction emissions for 2021, which is the year of maximum construction emissions, as described above. The estimated combined maximum daily emissions are depicted in Table 4.2-9, and as shown, the combined construction and operations annual emissions would not exceed the estimated buildout operational emissions.

**TABLE 4.2-9
ESTIMATED 2021-2022 MAXIMUM DAILY EMISSIONS
(LBS/DAY)**

Source	VOC	NOx	CO	SOx	PM10	PM2.5
Year 2021 Construction (Table 4.2-6)	47	86	144	<0.5	16	8
Year 2021-2022 Operational ^a	187	95	550	2	109	31
Combined Mid-Project Emissions	234	181	694	2	125	39
<i>Project Buildout Operational Emissions (Table 4.2-8)</i>	<i>302</i>	<i>202</i>	<i>1,217</i>	<i>4</i>	<i>291</i>	<i>82</i>

lbs/day: pounds per day; 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 of either summer or winter emissions.

Sources: SCAQMD 2015d (thresholds). Emissions calculations can be found in Appendix C.

Regional operational exceedance of the VOC and NOx thresholds would potentially contribute to existing violations of the national and California ozone standards. As shown in Tables 4.2-2 and 4.2-3, ozone is a federal and State nonattainment pollutant and the 1-hour State and 8-hour State and national standards have been exceeded at the nearest monitoring station for a few days in each of the years 2012 to 2014. Similar exceedances were recorded at monitoring stations in nearby locations. The proposed Project's VOC and NOx mobile emissions each represent less than 0.3 percent of the Orange County VOC and NOx mobile emissions. Nonetheless, there is a potential, albeit small, that the Project's VOC and NOx emissions could contribute to ozone concentrations in some part of the region exceeding an applicable standard and thereby also contribute to the adverse health effects associated with elevated ozone concentrations.

Regional operational exceedance of the PM10 and PM2.5 thresholds would potentially contribute to existing violations of the national and California particulate standards. As shown in Table 4.2-2, PM10 is a State and PM2.5 is a federal and State nonattainment pollutant. As shown in Table 4.2-3 the State and national PM10 and PM2.5 standards have not been exceeded at the nearest monitoring station in each of the years 2012 to 2014. The proposed Project's PM10 and PM2.5 mobile emissions represent less than 3 percent and 1.7 percent of the Orange County PM10 and PM2.5 mobile emissions, respectively. Nonetheless, there is a potential that the Project's PM10 and PM2.5 emissions could contribute to PM10 and PM2.5 concentrations in some part of the region exceeding an applicable standard and thereby also contribute to the adverse health effects associated with elevated inhalable and fine particulate concentrations.

As shown in Table 4.2-2, CO is a federal and State attainment pollutant. The Project would not contribute to regional operational exceedance of the CO threshold because, as discussed below, there is no potential for CO hotspots; the background CO levels are sufficiently below the CAAQS; and the region is in attainment for the national and California CO standards. Therefore, the Project impacts associated with CO emissions would be less than significant.

Though development requirements and mitigation measures would be incorporated to reduce long-term operational emissions of VOC, NOx, CO, PM10, and PM2.5, the emissions would exceed applicable SCAQMD thresholds and would be a significant and unavoidable impact.

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 purposes of providing a conservative worst-case impact analysis, CO concentrations typically are analyzed at congested intersection locations. If impacts are less than significant close to congested intersections, impacts also would be less than significant at more distant sensitive-receptors and other locations.

The 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 Interstate (I) 5 northbound (PM)
 - Sand Canyon Avenue and I-5 northbound/Marine Way (PM)
 - Sand Canyon Avenue and I-405 southbound (AM)
- 2017 With Project
 - Jeffrey Road and Interstate (I) 5 northbound (PM)
 - Jeffrey Road and Walnut Avenue (AM and PM)
- 2035 With Project
 - Jeffrey Road and Walnut Avenue (AM and PM)
 - Sand Canyon Avenue and I-5 northbound/Marine Way (AM and PM)
 - Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road (PM)
 - Sand Canyon Avenue and I-405 southbound (AM)
 - Fortune Drive/I-5 southbound and Enterprise Drive (PM)
 - Bake Parkway and I-5 southbound (PM)
 - State Route (SR) 133 southbound and Trabuco Road (AM)
 - SR-133 northbound and Trabuco Road (PM)
- Post-2035 With Project
 - Jeffrey Road and Walnut Avenue (PM)
 - Sand Canyon Avenue and Oak Canyon/Laguna Canyon (PM)
 - Sand Canyon Avenue and Alton Parkway (PM)
 - Sand Canyon Avenue and I-405 southbound (AM)

- SR-133 northbound/Gateway and Pacifica (PM)
- Fortune Drive/I-5 southbound and Enterprise Drive (PM)
- Sand Canyon Avenue and Burt Road (AM and PM)
- Trabuco Road and SR-133 northbound (PM)

Consistent with the CO Protocol, these findings indicate that quantitative screening is required. As described in Section 4.2.3, 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 2009a).

The highest traffic volumes of the intersections affected in the four scenarios listed above are 9,367 vehicles in the PM peak hour at the intersection of Bake Parkway and I-5 Southbound in the 2035 With Project scenario and 9,369 vehicles in the PM peak hour at the intersection of Sand Canyon Avenue and I-5 Northbound Ramps/Marine Way in the Post-2035 With Project scenario. Neither intersection is located in a tunnel, urban canyon, nor 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 State or federal CO ambient air quality standard because the maximum traffic volume would be substantially less than the 31,600 vehicles per hour screening level. The impact related to CO hotspots 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 etc.) 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 which 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 from increased emissions from individual developments like the Project. The Project's 2025

operational emissions, shown in Table 4.2-7, are estimated to increase the regional (Orange County) emissions of PM₁₀, PM_{2.5}, VOC, and NO_x inventories by 0.44 percent, 0.28 percent, 0.17 percent, and 0.17 percent, respectively, when compared to the 2025 Orange County emissions forecast data (CARB 2013). 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 contribution to the County emissions inventory.

For this health effects discussion, the County relies on the NAAQS and CAAQS set by the USEPA and California Air Resources Board (CARB), respectively, as described in Section 4.2.2, 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 Clean Air Act requires a thorough review of each standard every 5 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 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 infants, 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 on an increased association between exposure to PM and total mortality, cardiorespiratory mortality, and possibly lung cancer; other studies did 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 (BMI), with young adults (teens to thirties) and those with high BMI being much more responsive than older adults (fifties to eighties) and those with low BMI. 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 non-carcinogens 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 PM-10 and mortality associated with long term exposure to PM-2.5. Furthermore, USEPA recognizes the uncertainties that underlie those studies, particularly as ambient PM-2.5 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, are behind 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 effect, if any, attributable to an individual project’s relatively small ozone emission contributions.

In addition, considerable uncertainties surrounds 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 how much outdoor pollution 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 such 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 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 4.2-2, construction mass (regional) emissions and local construction emissions would exceed SCAQMD CEQA significance thresholds. The unmitigated emissions include the implementation of DR AQ-1 through DR AQ-4. Implementation of MM AQ-1 would reduce the impacts to less than significant. Operational mass (regional) emissions of VOC, NO_x, CO, PM₁₀, and PM_{2.5} would exceed the SCAQMD CEQA significance thresholds, primarily due to mobile sources (i.e., vehicle travel). Implementation of DR AQ-6 would avoid emissions from indoor residential fireplaces. MM AQ-2 through MM AQ-6 would reduce vehicle travel, but the impact would still be significant and unavoidable. It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's exceedances of the SCAQMD significance thresholds. Local CO emissions would not have the potential to exceed applicable standards and would be less than significant.

Threshold 4.2-3

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, PM_{2.5}, and O₃ (see Table 4.2-2). As discussed under Threshold 4.2-2 and shown in Table 4.2-7, Project mass operational emissions of PM₁₀, PM_{2.5}, and the O₃ precursors VOC and NO_x would be significant and unavoidable. Therefore, the proposed Project's long-term emissions of the nonattainment pollutants would be cumulatively considerable. Although MM AQ-2 through MM AQ-6 would reduce vehicle travel, they would not reduce the emissions to a less than significant level. The impact would be significant and unavoidable.

As shown in Table 4.2-6, with implementation of MM AQ-1, mass construction emissions would be less than SCAQMD significance thresholds. The relative short period of duration of grading during each phase and the overall magnitude of mitigated construction emissions would not be cumulatively considerable. The cumulative construction impact of nonattainment pollutants would be less than significant.

Impact Conclusion: Pursuant to Threshold 4.2-3, mass operational emissions of nonattainment pollutants and their precursors would be cumulatively considerable and a significant and unavoidable impact. Implementation of DR AQ-6 would avoid emissions from indoor residential fireplaces. MM AQ-2 through MM AQ-6 would reduce vehicle travel, but the cumulative impact would still be significant and unavoidable. It would be speculative to attribute specific numerical increases in adverse health impacts to the Project's cumulatively considerable contribution to exceedances of the SCAQMD significance thresholds.

Mass construction emissions of nonattainment pollutants and their precursors would be less than the SCAQMD CEQA significance thresholds and would be less than significant. The unmitigated emissions take into consideration the Project's implementation of DR AQ-1 through DR AQ-4. Implementation of MM AQ-1 would reduce the impacts to less than significant.

Threshold 4.2-4

Would the Project expose sensitive receptors to substantial pollutant concentrations?

Local concentrations and emissions of criteria pollutants generated during construction is addressed in Threshold 4.2-2. 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 4.2-2. Because emissions would be less than applicable standards, the exposure of sensitive receptors would be less than significant.

Future commercial, medical office, or similar uses that have the potential for emitting pollutants that could affect local air quality would be required to obtain permits from the SCAQMD as required by law and identified in DR AQ-5. Compliance with applicable laws and the permitting process would ensure that pollutant concentrations would not be substantial and impacts 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 hazard index limits shown in Table 4.2-4. Health risks are evaluated at the nearest off-site receptor and the nearest off-site worker (SCAQMD 2015e). 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 demolition and grading, would be approximately two separate one-

year periods, 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 the initial demolition and grading period. During the second grading period, in the eastern part of the Project site, there would be residents in the western part of the site and potentially to the southeast in the proposed Trails and Transit Oriented Development proposed as part of the OCGP Neighborhoods. 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, and major service and maintenance rail yards. The recommended minimum distance from a freeway to sensitive receptors is 500 feet. The Project site is more than 500 feet from SR-133. The minimum recommended distance is 1,000 feet for distribution centers that would accommodate more than 100 trucks per day or more than 40 trucks per day with transport refrigeration units. The Second Harvest Food Bank warehouse services 11 to 16 trucks per day (Schoeningh 2015). No distribution centers were identified within 1,000 feet of the Project site. Similarly, the Project would not include a distribution center, nor would the on-site truck traffic performing routine deliveries to residential and commercial uses result in substantial volumes of idling trucks. The CARB handbook considers railroad emissions a source of concern only when there is a major rail yard. Neither the Irvine Station nor the passing trains are the equivalent of a major rail yard. As stated in Section 4.9, Land Use, of this DEIR, the Orange County Transportation Authority (OCTA) owns a 21-acre parcel south of the Project site that is designated for a future rail maintenance facility. Currently, there are no uses on this parcel and a site development plan for the rail maintenance facility has not been prepared. At this time, without a design concept for the rail maintenance facility or any information on the operational characteristics, it would be speculative to attempt to assess the potential criteria pollutant and TAC emissions. It is noted that the site is substantially smaller than what would be considered a major rail yard and a potential source of health risks. Other sources identified in the CARB guidelines (e.g., chrome platers and gasoline dispensing facilities) have not been identified near the Project site. 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 4.2-4. DR AQ-5 would ensure that future sources of criteria or toxic air pollutants would comply with emissions limitation established by SCAWMD. No mitigation is required.*

4.2.7 CUMULATIVE IMPACTS

As discussed under Threshold 4.2-3, the long-term emissions of VOC, NO_x, PM₁₀, and PM_{2.5} would be a significant and unavoidable cumulative impact. Additionally, because the long-term emissions of CO would be a direct significant and unavoidable impact, there would also be a significant and unavoidable cumulative impact.

As discussed under Threshold 4.2-4, the potential for exposure to substantial TAC concentrations from construction and operations does not rise to a level where a quantitative analysis is required. The SCAQMD considers impacts that are directly less than significant on a Project level to be also cumulatively less than significant. That is, as Lead Agency, the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR (SCAQMD 2003).⁷ Therefore, the Project-generated 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.⁸ For purposes of the discussion in the EIR, this is simply referenced as the cumulative scenario.

The TIA forecasts that the following signalized intersections would have a significant traffic impact for the Post-2035 with Pending Projects scenario and would operate at LOS E or F with conditions that would be worsened (Fehr & Peers 2015):

- Browning Avenue and Irvine Boulevard (AM)
- Jeffrey Road and Walnut Avenue (AM)
- Jeffrey Road and Alton Parkway (PM)
- Sand Canyon Avenue and I-5 northbound Ramps/Marine Way (PM)
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road (PM)
- Sand Canyon Avenue and I-405 southbound (AM)
- Fortune Drive/I-5 southbound and Enterprise Drive (PM)
- Bake Parkway and I-5 southbound (PM)
- SR-133 southbound and Trabuco Road (AM)
- SR-133 northbound and Trabuco Road (PM)

⁷ The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions.

⁸ 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.

The highest traffic volume of the intersections listed above is 9,576 vehicles in the PM peak hour at the intersection of Sand Canyon Avenue and I-5 Northbound Ramps/Marine Way. There would be no potential for a CO hotspot or exceedance of State or federal 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 4.2-2. The cumulative impact would be less than significant.

4.2.8 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 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 Commercial, medical office, or similar uses developed in the Development Plan area shall comply with SCAQMD Rule 201 and Regulation II (requiring a Permit to Construct prior to the installation of any equipment that may cause air contaminants) as well as Rule 203 (requiring a Permit to Operate prior to the use of any equipment that may cause air contaminants). These rules and regulation are required unless the equipment or aspects of the Project are exempt under Rule 219, which identifies those equipment, processes, or operations that do not require permits. Prior to issuance of the occupancy permit, the developer of each building or group of buildings shall provide the Manager of Building & Safety, or designee with the SCAQMD-approved Permit to Construct and Permit to Operate or other sufficient proof of compliance with Rules 201 and 203.

DR AQ-6 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 4.9, Land Use and Planning 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 a revision to those programs is not within the jurisdiction or control of the County.

MM AQ-1 Prior to the issuance of each grading permit, the County or its designee shall provide construction plans and specifications demonstrating that, after January 1, 2020, scrapers used for construction of the Project shall be required to meet Tier 4 Interim or equivalent off-road engine emissions standards. A copy of each unit's certified Tier specification shall be kept on site and available for inspection and verification that the contractor has complied shall be confirmed by the Manager of Building & Safety, or designee, during construction.

MM AQ-2 Prior to the issuance of each non-residential building permit, the County or its designee shall provide plans and specifications demonstrating that the features listed below have been incorporated into the building designs. Proof of compliance shall be provided to the County prior to the issuance of occupancy permits.

- For buildings with over ten tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3, Nonresidential Voluntary Measures, of the California Green Building Standards (CALGreen) Code.⁹
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided, as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code.
- Facilities shall be installed to support future electric vehicle charging at each non-residential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3, Nonresidential Voluntary Measures (Tier 1), of the CALGreen Code.

MM AQ-3 Prior to the issuance of each residential building permit, the County or its designee shall provide plans and specifications to the County demonstrating that the features listed below have been incorporated into the building designs or specifications. Proof of compliance shall be provided to the Manager of Building & Safety, or designee, prior to the issuance of occupancy permits.

⁹ Bicycle parking requirements are included in the CALGreen Code mandatory measures.

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code.

MM AQ-4 Prior to issuance of each building permit for parking structures and parking lots with 20 or more parking spaces, 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 to the Manager of Building & Safety, or designee 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.
- For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code.

MM AQ-5 Once constructed, tenants/operators of non-residential uses shall include the features and procedures listed below. Proof of compliance shall be provided to the Manager, CEO Real Estate/Land Development (or Building & Safety) within one month following the issuance of each occupancy permit.

- Post signs stating that trucks shall not be left idling for prolonged periods (i.e., in excess of five minutes, as required by State law).
- Affiliate with Spectrumotion or a similar employee program or develop an in-house transportation management program that promotes alternatives to solo commuting with fossil-fueled vehicles.
- Post bus, Metrolink, and Amtrak schedules in conspicuous areas.
- Configure employee work schedules around the Metrolink schedule to the extent reasonably feasible.

MM AQ-6 Once constructed, the operators of residential uses shall include the following features and procedures. Proof of compliance shall be provided to the Manager, CEO Real Estate/Land Development (or Building & Safety) within one month following the issuance of each occupancy permit.

- Affiliate with Spectrumotion or a similar program or develop an in-house transportation management program that promotes alternatives to solo commuting with fossil-fueled vehicles.

- Post bus, Metrolink, and Amtrak schedules in conspicuous areas.

4.2.9 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 get the Project incorporated 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 4.9, Land Use and Planning). 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.

Mitigation measures would be incorporated to reduce long-term operational emissions of VOC, NO_x, CO, PM₁₀, and PM_{2.5}, which would be primarily due to vehicle travel. However, the emissions would exceed applicable thresholds and would be direct and cumulative significant and unavoidable impacts.

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

4.2.10 REFERENCES

California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emissions Reductions from Greenhouse Gas Mitigation Measures*. Sacramento, CA: CAPCOA. <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.

California Air Resources Board (CARB). 2016 (April 18, access date). Top 4 Summary. Sacramento, CA: CARB. <http://www.arb.ca.gov/adam/topfour/topfour1.php>.

———. 2015a (October 1). Ambient Air Quality Standards. Sacramento, CA: CARB. <http://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.

———. 2015b (November 18). iADAM: Air Quality Data Statistics. Sacramento, CA: CARB. <http://www.arb.ca.gov/adam/>.

———. 2015c (September, access date). California's Advanced Clean Cars Program. Sacramento, CA: CARB. http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm.

———. 2015d (January, last reviewed). Air Quality Standards and Area Designations. Sacramento, CA: CARB. <http://www.arb.ca.gov/desig/desig.htm>.

- . 2014. Final Regulation Order: Area Designations for State Ambient Air Quality Standards. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2013/area13/area13fro.pdf>.
- . 2013. Almanac Emission Projection Data (published in 2013), 2025 Estimated Annual Average Emissions, Orange County. http://www.arb.ca.gov/app/emsinv/2013/emseic1_query.php (Accessed March 7, 2016)
- . 2005 (April). *Air Quality and Land Use Handbook: A Community Health Perspective*. Sacramento, CA: CARB. <http://www.arb.ca.gov/ch/handbook.pdf>.
- California Building Standards Commission (CBSC). 2015 (accessed October 2). Adopted 2013 Code, Triennial California Building Standards Commission (CBSC). Adopted 2013 Code, Triennial Edition. Sacramento, CA: CBSC. <http://www.bsc.ca.gov/>.
- . 2014 (January, effective date). CALGreen Code. Sacramento, CA; CBSC. <http://www.bsc.ca.gov/Home/CALGreen.aspx>. California Energy Commission (CEC) 2015 (Accessed October 27). 2016 Building Energy Efficiency Standards, Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf
- California Office of Environmental Health Hazards Assessment (OEHHA). 2015 (February). *Air Toxics Hot Spots Program, Risk Assessment Guidelines, Guidance Manual for Preparation of Health Risk Assessments*. Oakland, CA: OEHHA.
- Fehr & Peers. 2015 (September). El Toro 100 Acre Project Draft Transportation Impact Analysis. Anaheim, CA: Fehr & Peers.
- 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>.
- . 2012 (May). City of Irvine CEQA Manual. Irvine, CA: the City.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Orange, County of. 2014 (November). *Notice of Preparation and Notice of Scoping Meeting, El Toro Development Plan*. Santa Ana, CA: the County.
- . 2005 (as amended through July 2014). General Plan. Santa Ana, CA: the County. <http://ocplanning.net/planning/generalplan2005>.
- Sacramento Metropolitan Air Quality Management District (SMAQMD). 2009a (December, as revised through June 2014). *Carbon Monoxide Dispersion Modeling Guidance*. Sacramento,

-
- CA: SMAQMD.
<http://www.airquality.org/ceqa/cequguideupdate/Ch4COModelingGuidance.pdf>.
- . 2009b (December, as revised through June 2015). *Guide to Air Quality Assessment in Sacramento County*. Sacramento, CA: SMAQMD.
<http://www.airquality.org/ceqa/ceqaguideupdate.shtml>.
- Schoeningh, J. 2015 (April 8). Personal communication. Email from J. Schoeningh, Director of Public Affairs (Second Harvest Food Bank) to J. Kurtz, Director, Air Quality & Acoustical Programs (BonTerra Psomas)
- South Coast Air Quality Management District (SCAQMD). 2016a (June 30). 2016 Air Quality Management Plan. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/factsheet-2016-aqmp.pdf?sfvrsn=2>.
- . 2016b (May). *Mates IV Carcinogenic Risk Interactive Map*. Diamond Bar, CA: SCAQMD. <http://www3.aqmd.gov/webappl/OI.Web/OI.aspx?jurisdictionID=AQMD.gov&shareID=73f55d6b-82cc-4c41-b779-4c48c9a8b15b>.
- . 2015b. (May). *Final Report, Multiple Air Toxics Exposure Study in the South Coast Air Basin, MATES-IV*. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/library/air-quality-data-studies/health-studies/mates-iv>.
- . 2015d (March). SCAQMD Air Quality Significance Thresholds. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>.
- . 2015e (June 5). Risk Assessment Procedures for Rules 1401, 1401.1 & 212. <http://www.aqmd.gov/home/permits/risk-assessment/risk-assessment-procedures-for-rules-1401-and-212>
- . 2013a (updated February). Final 2012 AQMP (February 2013). Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>.
- . 2013b. California Emission Estimator Model (CalEEMod)TM Version 2013.2 Developed by Environ International Corporation in Collaboration with SCAQMD and other California Air Districts. Diamond Bar, CA: SCAQMD.
- . 2009 (revised October 21). *Mass Rate Localized Significance Thresholds Look-up Tables*. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/appendix-c-mass-rate-1st-look-up-tables.pdf?sfvrsn=2>.
- . 2008 (March, as amended through May 2013). Rule 445: Wood-Burning Devices. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-445.pdf?sfvrsn=4>.

- . 2007 (June 1, adopted). 2007 Air Quality Management Plan. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/2007-air-quality-management-plan>.
 - . 2003 (September 5). Attachment to BOARD MEETING DATE: September 5, 2003, AGENDA NO. 29. White Paper on Regulatory Options for Addressing Cumulative Impacts from Air Pollution Emissions. <http://www.aqmd.gov/home/governing-board/agendas-minutes>
 - . 1993. *CEQA Air Quality Handbook*. Diamond Bar, CA: SCAQMD.
 - . 1978 (June, as amended through April 1998). List and Criteria Identifying Information Required of Applicants Seeking a Permit to Construct from the South Coast Air Quality Management District (Regulation II). Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/reg-ii-list-and-criteria.pdf?sfvrsn=0>.
 - . 1977 (September, as amended through September 2013). Rule 1113: Architectural Coatings. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf>.
 - . 1976a (January, as amended through December 2004). Rule 201: Permit to Construct. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/rule-201.pdf?sfvrsn=4>.
 - . 1976b (January, as amended through December 2004). Rule 203: Permit to Operate. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/rule-203.pdf?sfvrsn=4>.
 - . 1976c (January, as amended through May 2013). Rule 219: Equipment not Requiring a Written Permit Pursuant to Regulation II. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-ii/rule-219.pdf?sfvrsn=4>.
 - . 1976d (May 7, adopted). Rule 402: Nuisance. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf?sfvrsn=4>.
 - . 1976e (May, as amended through 2005). Rule 403: Fugitive Dust. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4>.
- University of California Davis (UCD), Institute of Traffic Studies (ITS) 1997 (December, as revised). *Transportation Project-Level Carbon Monoxide Protocol* (Prepared for Environmental Program California Department of Transportation by V.J. Garza, P. Graney, and D. Sperling with revisions by D. Niemeier, D. Eisinger, T. Kear, D. Chang, and Y. Meng). Davis, CA: ITS. http://www.dot.ca.gov/hq/env/air/documents/COProtocol_searchable.pdf.
- U.S. Environmental Protection Agency (USEPA). 2016a (Last updated February 22). Health Effects of Ozone in the General Population. <http://www3.epa.gov/apti/ozonehealth/population.html>

- . 2016b (May 12). Particulate Matter (PM). Health. Washington D.C.: USEPA. <https://www3.epa.gov/airquality/particlepollution/health.html>
- . 2015 (As of October 1). The Green Book Nonattainment Areas for Criteria Pollutants. Washington D.C.: USEPA. <http://www3.epa.gov/airquality/greenbook/>.
- . 2009 (December). Integrated Science Assessment for Particulate Matter. https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=216546&CFID=59095778&CF_TOKEN=20878879

This page intentionally left blank

4.3 BIOLOGICAL RESOURCES

The information in this section is based on the results of biological resources surveys and a jurisdictional delineation conducted for the Project. In addition, this Section summarizes the following technical reports: *Results of a Western Burrowing Owl Survey for the 100-Acre El Toro Parcel in Orange County, California* (BonTerra Psomas 2014b), *Results of Special Status Plant Surveys for the 100-Acre El Toro Parcel in Orange County, California* (BonTerra Psomas 2014a), and *Results of Roosting Bat Survey for the El Toro, 100-Acre Parcel Development Plan in Orange County, California* (BonTerra Psomas 2015b). These reports are included in Appendix D. A walk-over survey of the study area was conducted on September 15, 2016, to determine whether the existing biological condition of the Project site has changed since the last survey.

4.3.1 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 in the definition of “Rare” or “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.

4.3.2 METHODOLOGY

Vegetation Mapping and General Surveys

The study area for the Project (i.e., areas that have been mapped and where surveys have been conducted) is depicted in Exhibit 4.3-1. The study area includes the Project boundary and an additional area to the west to include potential off-site impacts. 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 2015) and the CDFW's California Natural Diversity Database (CNDDB, CDFW 2015) were reviewed to identify special status plants, wildlife, and habitats known to occur in the vicinity of the study area. 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 the study area on April 1, 2014. An additional survey visit was conducted by Ms. Rudalevige on March 25, 2016 to map a portion of the survey area outside the Project boundary and update the existing vegetation map, as necessary. Vegetation was mapped in the field on a 1 inch equals 500 feet (1" = 500') scale color aerial photograph. Additionally, a field review was conducted of the entire study area on September 15, 2016 to verify site conditions. The purpose of the surveys was to describe the vegetation present in the study area 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 floristic in nature and conducted following the *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (CDFG 2009). Reference populations were monitored for annual and difficult-to-detect target species to ensure that the surveys were comprehensive. This is especially relevant during periods of unusual rainfall patterns or below average rainfall. If conditions at a nearby reference population are suitable for germination and growth, then it can be inferred that

conditions may also be suitable in the study area. A reference population of southern tarplant (*Centromadia parryi* ssp. *australis*) was observed blooming on June 19, 2014, in Seal Beach.

Surveys were conducted by Ms. Rudalevige and BonTerra Psomas Senior Biologist Jennifer Pareti on May 13, 2014, and by Ms. Rudalevige and Consulting Botanist David Bramlet on June 10, 2014. The total number of person-hours spent was 8.5 hours. A systematic survey was conducted in all areas of suitable special status plant habitat in the study area. 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 conducted following the CDFW's *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). Mr. Aguayo conducted a burrow survey on April 15, 2014. Mr. Aguayo walked through all suitable habitat in the study area 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 signs.

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 in the study area was surveyed by walking in straight-line transects to allow 100 percent visual coverage of the study area. At the start of each transect and, at least, every approximately 300 feet, the study area 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.

Bat Surveys

A bat roost inspection survey was conducted by BonTerra Psomas Senior Biologist Steve Norton on February 23, April 21, and August 11, 2015 to identify potential bat roosting sites and to visually search for sign of current or past bat roosts. The survey included inspections of buildings and other potential roost features for signs of roosts, such as presence of guano or observation of social calls.

Following the roost inspection survey, bat roost evening emergence surveys were initiated. Visual exit counts and ultrasonic acoustic monitoring were conducted during appropriate weather and lunar conditions beginning 30 minutes before sunset and extending 3 hours after sunset. Four visits were conducted with one survey in April, one in June, one in August, and one in the winter months (between November and February). These surveys were conducted on February 25 and 26; April 21 and 22; June 23 and 24; and August 11 and 12, 2015. The bat survey report is included as Appendix D-3.

Jurisdictional Delineation

A jurisdictional delineation 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-4.

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.” in the study area 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.

4.3.3 EXISTING CONDITIONS

The study area is generally surrounded by commercial development, with some open space and agricultural land to the north and east. Topography in the study area is relatively flat with elevations ranging from approximately 220 to 280 feet above mean sea level (msl). The northwestern half of the study area is primarily ruderal, while the southeastern half contains abandoned buildings with surrounding landscaping; the Second Harvest Food Bank warehouse is located at the southeast end of the study area. Soil types in the study area consist of San Emigdio fine sandy loam (0 to 1 percent slopes) and Sorrento loam (0 to 2 percent slopes) (USDA NRCS 2014). Representative photos are included in Appendix D-5.

Vegetation Types and Other Areas

Vegetation types in the study area include ruderal and mulefat scrub; developed/ornamental and disturbed areas are also present (Exhibit 4.3-1). A complete list of plant species observed in the study area is included in Appendix D-6, Plant Compendium.

Ruderal

Ruderal vegetation occurs throughout the western half of the study area and in scattered patches in the eastern half of the study area. This vegetation type is dominated by a variety of non-native, weedy grasses and forbs such as Bermuda grass (*Cynodon dactylon*), slender wild oat (*Avena barbata*), ripgut grass (*Bromus diandrus*), Russian thistle (*Salsola tragus*), shortpod mustard (*Hirschfeldia incana*), Australian saltbush (*Atriplex semibaccata*), bindweed (*Convolvulus arvensis*), cheeseweed (*Malva parviflora*), and London rocket (*Sisymbrium irio*).

 Project Boundary
 Study Area
Vegetation Types and Other Areas
 Ruderal
 Mulefat Scrub
 Developed/Ornamental
 Disturbed

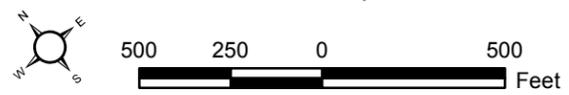


D:\Projects\LoweEnt\0001\MD\A\IR\ElToro\Ex_Veg_20160329.mxd

Aerial Source: ESRI

Vegetation Types and Other Areas
 El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.3-1



Sparse native species, such as annual bur-sage (*Ambrosia acanthicarpa*) and common fiddleneck (*Amsinckia intermedia*) are also present. This area is periodically mowed.

Mulefat Scrub

Mulefat scrub occurs in unlined drainages in the center of the study area. This vegetation type contains sparse mule fat (*Baccharis salicifolia* ssp. *salicifolia*) with a non-native, herbaceous understory including castor bean (*Ricinus communis*) and shortpod mustard.

Developed/Ornamental

Developed/ornamental areas occur over most of the eastern half of the study area and across the western half of the study area. These areas consist of paved roads and parking lots, derelict and actively used buildings, and associated ornamental vegetation. Landscaping includes mature trees (e.g., pine [*Pinus* sp.], Mexican fan palm [*Washingtonia robusta*], goldenrain tree [*Koelreuteria paniculata*], Brazilian pepper tree [*Schinus terebinthifolius*], and Canary Island palm [*Phoenix canariensis*]) and shrubs (e.g., rosemary [*Rosmarinus officinalis*], kangaroo paw [*Anigozanthos* sp.], and star jasmine [*Trachelospermum jasminoides*]). Ruderal species, such as crimson fountain grass (*Pennisetum setaceum*), sourclover (*Melilotus indicus*), and Italian thistle (*Carduus pycnocephalus* ssp. *pycnocephalus*) are growing along road edges and through cracks in concrete.

Disturbed

Disturbed areas consist of unvegetated, cleared ground along the southern and western edges of the study area.

Wildlife Observed or Expected to Occur

Common wildlife species observed or expected to occur in the study area are discussed below. A complete list of wildlife species observed in the study area is included in Appendix D-7, Wildlife Compendium.

No fish species are expected to occur in the study area because the drainages are expected to only carry ephemeral flow following storm events or nuisance runoff.

Given that water is expected to occur only following storm events or due to urban runoff, most amphibians are not expected to occur in the study area. However, Baja California treefrog (*Pseudacris hypochondriaca*) was observed in the study area.

Western fence lizard (*Sceloporus occidentalis*) and common side-blotched lizard (*Uta stansburiana*) were observed in the study area. Reptile species with potential to occur in the study area include southern alligator lizard (*Elgaria multicarinata*) and gopher snake (*Pituophis catenifer*).

The study area provides suitable habitat for primarily urban-adapted bird species. Resident bird species observed in the study area include killdeer (*Charadrius vociferus*), rock pigeon (*Columba livia*), mourning dove (*Zenaida macroura*), Say's phoebe (*Sayornis saya*), Cassin's kingbird (*Tyrannus vociferans*), western kingbird (*Tyrannus verticalis*), American crow (*Corvus brachyrhynchos*), northern rough-winged swallow (*Stelgidopteryx serripennis*), cliff swallow (*Petrochelidon pyrrhonota*), bushtit (*Psaltriparus minimus*), northern mockingbird (*Mimus polyglottos*), red-winged blackbird (*Agelaius phoeniceus*), western meadowlark (*Sturnella neglecta*), hooded oriole (*Icterus cucullatus*), house finch (*Carpodacus mexicanus*), lesser goldfinch (*Spinus psaltria*), and American goldfinch (*Spinus tristis*). The turkey vulture (*Cathartes aura*), Cooper's hawk (*Accipiter cooperii*), and red-tailed hawk (*Buteo jamaicensis*) were observed in the immediate vicinity of the study area. A red-tailed hawk pair was observed nesting in an ornamental tree and fledged young successfully in spring 2014.

Small, ground-dwelling mammals observed in the study area include California ground squirrels (*Otospermophilus beecheyi*). Medium- to large-sized mammals, or their sign, observed or expected to occur in the study area include Virginia opossum (*Didelphis virginiana*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), and northern raccoon (*Procyon lotor*). Bats occur throughout most of Southern California and may use any portion of the study area as foraging habitat. Suitable day roosting habitat for bats varies among the species. Common bat species observed foraging in the study area include Brazilian free-tailed bat (*Tadarida brasiliensis*), big brown bat (*Eptesicus fuscus*), hoary bat (*Lasiurus cinereus*), Yuma bat (*Myotis yumanensis*), and canyon bat (*Parastrellus hesperus*) (BonTerra Psomas 2015b).

Wildlife Movement

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because infusion of new individuals and genetic information is hindered and/or impossible (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators and human disturbances, thus reducing the risk that catastrophic events (e.g., fire or disease) will result in population or local species extinction; and (3) serving as travel routes for individual animals as they move in their home ranges in search of food, water, mates, and other necessary resources.

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water; defending territories; or searching for mates, breeding areas, or cover).

The study area is within a largely urbanized landscape. Wildlife movement is constrained to the northwest, southwest, and southeast by commercial and residential development and transportation corridors. Movement to the northeast is limited by former Marine Corps Air Station (MCAS) development, but urban-tolerant wildlife species may move across this area into the Santa Ana Mountains.

To provide increased connectivity, the OCGP includes the concept of a wildlife movement corridor that would facilitate the connection of two significant habitat reserves: Limestone-Whiting Wilderness Park to the north and Crystal Cove State Park to the south. As mitigation for the construction of Alton Parkway, a segment of the wildlife movement corridor was constructed northeast of Irvine Boulevard, approximately 1.7 miles east of the study area. This segment of the wildlife movement corridor will contribute to the connection (described above) between Orange County's Central and Coastal Habitat Reserves.

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 CNDDDB 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/ornamental, 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 primarily comprised of non-native and ornamental species that do not provide habitat that is as valuable as native vegetation. Mulefat scrub vegetation is considered "secure" at the global level and "apparently secure" at the State level (CDFG 2010); however, mulefat scrub overlaps with the wetlands and/or other waters, discussed below, that are protected.

Three drainage features are present in the study area (Exhibit 4.3-2). Bee Canyon Wash (Drainage 1) exhibits evidence of bed, bank, and ordinary high water marks and is a tributary to San Diego Creek. Therefore, it would be under the jurisdiction of the USACE, the RWQCB, and the CDFW. Drainage 2 is a ditch excavated in upland areas and not draining wetlands; therefore, it is not considered under the jurisdiction of the USACE. Drainage 3 does not exhibit connectivity to downstream waters and would also not be under the jurisdiction of the USACE. However, both Drainages 2 and 3 exhibit evidence of bed and bank and would carry storm water runoff from surrounding upland areas; therefore, these drainages would be under the jurisdiction of the RWQCB and the CDFW.

Special Status Plant Species

Table 4.3-1 provides a summary of special status plant species reported to occur in the vicinity of the study area and includes information on their status, potential for occurrence in the study area, and results of focused survey efforts.

D:\Projects\LowEnt\J0001\MXDs\EIR\ElToro\Ex_JD_20151215.mxd



Jurisdictional Resources

-  USACE Non-Wetland "Waters of the U.S."
-  Isolated Waters
-  CDFW Jurisdictional Waters
-  Sampling Point
-  Culvert
-  Culvert

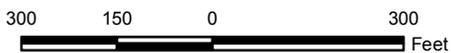
Note: Subsequent to the aerial being flown, there were modifications to Bee Canyon Wash; this delineation reflects those changes.

Aerial Source: ESRI

Jurisdictional Resources

Exhibit 4.3-2

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.3-1
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE STUDY AREA VICINITY**

Species	Status				Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	CRPR	NCCP/HCP	
<i>Aphanisma blitoides</i> aphanisma	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Atriplex coulteri</i> Coulter's saltbush	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Atriplex pacifica</i> south coast saltscale	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Atriplex parishii</i> Parish's brittle scale	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Atriplex serenana</i> var. <i> davidsonii</i> Davidson's saltscale	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Brodiaea filifolia</i> thread-leaved brodiaea	FT	SE	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Calochortus catalinae</i> Catalina mariposa lily	-	-	4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Calochortus weedii</i> var. <i> intermedius</i> intermediate mariposa lily	-	-	1B.2	Conditionally Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Camissoniopsis lewisii</i> Lewis' evening-primrose	-	-	3	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Centromadia parryi</i> ssp. <i> australis</i> southern tarplant	-	-	1B.1	Not covered	Marginally suitable habitat; not observed during focused surveys.
<i>Chaenactis glabriuscula</i> var. <i> orcuttiana</i> Orcutt's pincushion	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Comarostaphylis diversifolia</i> ssp. <i> diversifolia</i> summer holly	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Convolvulus simulans</i> small-flowered morning- glory	-	-	4.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Dodecahema leptoceras</i> slender-horned spineflower	FE	SE	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Dudleya multicaulis</i> many-stemmed dudleya	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.

**TABLE 4.3-1
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE STUDY AREA VICINITY**

Species	Status				Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	CRPR	NCCP/HCP	
<i>Dudleya stolonifera</i> Laguna Beach dudleya	FT	ST	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Euphorbia misera</i> cliff spurge	-	-	2B.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	-	-	4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Helianthus nuttallii</i> ssp. <i>parishii</i> Los Angeles sunflower	-	-	1A	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Hesperocyparis forbesii</i> Tecate cypress	-	-	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Hordeum intercedens</i> vernal barley	-	-	3.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Horkelia cuneata</i> var. <i>puberula</i> mesa horkelia	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Isocoma menziesii</i> var. <i>decumbens</i> decumbent goldenbush	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Lasthenia glabrata</i> ssp. <i>coulteri</i> Coulter's goldfields	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Lepidium virginicum</i> var. <i>robinsonii</i> * Robinson's pepper-grass	-	-	4.3	Not covered	Marginally suitable habitat; not observed during focused surveys.
<i>Monardella hypoleuca</i> ssp. <i>intermedia</i> intermediate monardella	-	-	1B.3	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Nama stenocarpum</i> mud nama	-	-	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Nolina cismontana</i> chaparral nolina	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Pentachaeta aurea</i> ssp. <i>allenii</i> Allen's pentachaeta	-	-	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.

**TABLE 4.3-1
SPECIAL STATUS PLANT SPECIES REPORTED
FROM THE STUDY AREA VICINITY**

Species	Status				Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	CRPR	NCCP/HCP	
<i>Phacelia ramosissima</i> var. <i>australitoralis</i> * south coast branching phacelia	-	-	3.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Pseudognaphalium leucocephalum</i> white rabbit-tobacco	-	-	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Quercus dumosa</i> Nuttall's scrub oak	-	-	1B.1	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Romneya coulteri</i> Coulter's matilija poppy			4.2	Covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Senecio aphanactis</i> chaparral ragwort	-	-	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Sidalcea neomexicana</i> salt spring checkerbloom	-	-	2B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Suaeda esteroa</i> estuary seablite	-	-	1B.2	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.
<i>Symphotrichum defoliatum</i> San Bernardino aster	-	-	1B.2	Not covered	Marginally suitable habitat; not observed during focused surveys.
<i>Verbesina dissita</i> big-leaved crownbeard	FT	ST	1B.1	Not covered	No suitable habitat; not expected to occur and not observed during focused surveys.

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:

<u>Federal (USFWS)</u>		<u>State (CDFW)</u>	
FE	Endangered	SE	Endangered
FT	Threatened	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 4.3-2 provides a summary of special status wildlife species reported to occur in the vicinity of the study area and includes information on their status, potential for occurrence in the study area, and results of focused survey efforts.

**TABLE 4.3-2
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE STUDY AREA VICINITY**

Species	Status			Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP	
Invertebrates				
<i>Streptocephalus woottoni</i> Riverside fairy shrimp	FE	-	Conditionally Covered	No suitable habitat; not expected to occur.
Fish				
<i>Gila orcuttii</i> arroyo chub	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Rhinichthys osculus</i> ssp. 3 Santa Ana speckled dace	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Eucyclogobius newberryi</i> tidewater goby	FE	SSC	Not covered	No suitable habitat; not expected to occur.
Amphibians				
<i>Spea hammondi</i> western spadefoot	-	SSC	Covered	No suitable habitat; not expected to occur.
<i>Anaxyrus californicus</i> arroyo toad	FE	SSC	Conditionally Covered	No suitable habitat; not expected to occur.
Reptiles				
<i>Emys marmorata</i> western pond turtle	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Phrynosoma blainvillii</i> coast horned lizard	-	SSC	Covered	No suitable habitat; not expected to occur.
<i>Aspidoscelis hyperythra beldingi</i> Belding's orange-throated whiptail	-	SSC	Covered	No suitable habitat; not expected to occur.
<i>Aspidoscelis tigris stejnegeri</i> San Diegan tiger whiptail	-	SA	Covered	No suitable habitat; not expected to occur.
<i>Salvadora hexalepis virgulata</i> coast patch-nosed snake	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Thamnophis hammondi</i> two-striped garter snake	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Crotalus ruber</i> red diamond rattlesnake	-	SSC	Covered	No suitable habitat; not expected to occur.
Birds				
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	-	WL	Not covered	Suitable foraging habitat; observed in the study area. Limited suitable nesting habitat; limited potential to occur for nesting.
<i>Buteo regalis</i> ferruginous hawk (wintering)	-	WL	Not covered	Suitable foraging habitat but outside known breeding range; may occur for foraging.
<i>Elanus leucurus</i> white-tailed kite (nesting)	-	FP	Not covered	Suitable foraging and nesting habitat; may occur for foraging and nesting.

**TABLE 4.3-2
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE STUDY AREA VICINITY**

Species	Status			Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP	
<i>Laterallus jamaicensis coturniculus</i> California black rail	-	ST, FP	Not covered	No suitable habitat; not expected to occur.
<i>Rallus longirostris levipes</i> light-footed clapper rail	FE	SE, FP	Not covered	No suitable habitat; not expected to occur.
<i>Sternula antillarum browni</i> California least tern (nesting colony)	FE ^a	SE, FP	Not covered	No suitable habitat; not expected to occur.
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo (nesting)	FT	SE	Not covered	No suitable habitat; not expected to occur.
<i>Athene cunicularia</i> burrowing owl	-	SSC ^a	Not covered	Suitable foraging and nesting habitat; not observed during focused surveys.
<i>Vireo bellii pusillus</i> least Bell's vireo (nesting)	FE	SE	Conditionally Covered	No suitable habitat; not expected to occur.
<i>Eremophila alpestris actia</i> California horned lark	-	WL	Not covered	Suitable habitat; observed foraging in the study area.
<i>Campylorhynchus brunneicapillus sandiegensis</i> coastal cactus wren	-	SSC ^b	Covered	No suitable habitat; not expected to occur.
<i>Poliophtila californica</i> coastal California gnatcatcher	FT	SSC	Covered	No suitable habitat; not expected to occur.
<i>Icteria virens</i> yellow-breasted chat (nesting)	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	-	WL	Covered	No suitable habitat; not expected to occur.
<i>Ammodramus savannarum</i> grasshopper sparrow (nesting)	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Passerculus sandwichensis beldingi</i> Belding's savannah sparrow	-	SE	Not covered	No suitable habitat; not expected to occur.
<i>Agelaius tricolor</i> tricolored blackbird (nesting colony)	-	SSC	Not covered	No suitable habitat; not expected to occur.
Mammals				
<i>Sorex ornatus salicornicus</i> Southern California saltmarsh shrew		SSC	Not covered	No suitable habitat; not expected to occur.
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	-	SSC	Not covered	No suitable habitat; not expected to occur.
<i>Lasiurus cinereus</i> hoary bat	-	SA	Not covered	Suitable foraging and roosting habitat; unconfirmed observation for foraging in the study area.^c
<i>Myotis yumanensis</i> Yuma myotis	-	SA	Not covered	Suitable foraging and roosting habitat; observed foraging and roosting in the study area.
<i>Eumops perotis californicus</i> western bonneted bat	-	SSC	Not covered	Suitable foraging and roosting habitat; observed foraging in the study area, but no permanent day roost observed.

**TABLE 4.3-2
SPECIAL STATUS WILDLIFE SPECIES REPORTED FROM THE STUDY AREA VICINITY**

Species	Status			Potential to Occur in the Study Area; Results of Focused Surveys
	USFWS	CDFW	NCCP/HCP	
<i>Nyctinomops macrotis</i> big free-tailed bat	-	SSC	Not covered	Outside current known range; not expected to occur.
<i>Perognathus longimembris pacificus</i> Pacific pocket mouse	FE	SSC	Conditionally Covered	No suitable habitat; not expected to occur.
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	-	SSC	Covered	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				
LEGEND:				
Federal (USFWS)		State (CDFW)		
FE	Endangered	SE	Endangered	
FT	Threatened	ST	Threatened	
		SSC	Species of Special Concern	
		WL	Watch List	
		FP	Fully Protected	
		SA	Special Animal	
<p>^a Designation refers to burrow sites; wintering observations not considered special status for Orange County.</p> <p>^b Designation refers to San Diego and Orange Counties only.</p> <p>^c The identification of this bat species could not be verified.</p>				

4.3.4 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 4.3-1 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 4.3-2 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 4.3-3 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 4.3-4 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 4.3-5 Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Threshold 4.3-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.5 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. 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 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, 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 4.3.7, Mitigation Program because these measures would be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.3-1

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 4.3-1 identifies the special status plants reported from the vicinity of the study area. Of the 39 species reported, 36 species are not expected to occur in the study area due to lack of suitable habitat. Marginally suitable habitat is present for three species; however, none of these species were observed during focused plant surveys. 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. For the purposes of this analysis, the entire study area is considered to be within the impact footprint (including both the Development Plan area and off-site improvement areas); the amount of off-site impacts is provided separately. This represents the maximum extent of Project impacts. Approximately 107.88 acres of native and non-native vegetation types and other areas would be impacted by the Project (Table 4.3-3; Exhibit 4.3-1).

**TABLE 4.3-3
VEGETATION TYPES AND OTHER AREAS
IMPACTED BY THE PROJECT**

Vegetation Type and Other Areas	Project Impact (acres)	Off-site Impact (acres)	Total Impact (acres)	Threat Ranking
ruderal	54.73	0.20	54.93	—
mulefat scrub	1.19	0.00	1.19	G5 S4
developed/ornamental	44.89	0.35	45.24	—
disturbed	6.35	0.17	6.52	—
Total	107.16	0.72	107.88	
G: Global rarity rank; S: State rarity rank. Threat Ranking 4 Apparently secure and uncommon, but not rare 5 Secure Source: CDFG 2010.				

Of the 38 special status wildlife species listed in Table 4.3-2, 30 are not expected to occur in the study area due to lack of suitable habitat or because the study area 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 foraging and nesting habitat is present for Cooper's hawk, white-tailed kite, burrowing owl, and California horned lark (*Eremophila alpestris actia*); in addition, wintering ferruginous hawks (*Buteo regalis*) may occur. These species are not covered by the NCCP/HCP.

Burrowing owls were not observed during focused surveys; therefore, impacts are not anticipated. Due to the presence of suitable habitat, CDFW guidelines require follow-up pre-construction surveys 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 and an associated buffer zone, would ensure that potential impacts are less than significant.

Cooper's hawk and California horned lark were observed in the study area; in addition, ferruginous hawk and white-tailed kite were not observed but have potential to occur in the study area and are assumed to occur in this analysis. The Project would impact approximately 62.64 acres of suitable foraging habitat (i.e., ruderal, mulefat scrub, and disturbed areas) for Cooper's hawk, ferruginous hawk, white-tailed kite, and California horned lark. The Project would also impact portions of the areas mapped as developed/ornamental that provide marginally suitable habitat for these species. Impacts to these species would be considered adverse, but 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]). Therefore, no mitigation would be required to mitigate for foraging impacts to these species.

Cooper's hawk, white-tailed kite, and California horned lark also have potential to nest in the study area. Active nests of these, and common migratory bird species, are protected by the MBTA. In addition, the loss of an active raptor nest, including common raptor species, would be considered a violation of Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code*. Compliance with DRs BIO-1 and BIO-2, which includes a requirement for pre-construction surveys and avoidance of active nests and an associated buffer zone, would ensure that impacts on active nests are less than significant.

Suitable foraging and roosting habitat for hoary bat (*Lasiurus cinereus*), Yuma myotis (*Myotis yumanensis*), and western bonneted bat (*Eumops perotis californicus*) is present in the study area. These species are not covered by the NCCP/HCP. Yuma myotis and western bonneted bat were observed foraging in the study area; a third bat species, tentatively identified as hoary bat, was also observed foraging, but the identification could not be verified. The Project would impact approximately 62.64 acres of potential foraging habitat (i.e., ruderal, mulefat scrub, 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 considered adverse, but less than significant and no mitigation would be required for impacts to bat foraging habitat.

The abandoned buildings and mature trees located in the study area provide potentially suitable roosting habitat for structure-roosting bat species (including Yuma myotis and western bonneted bat) and for tree-roosting bat species (including hoary bat). No maternity roosts were observed during focused surveys; therefore, none are expected to occur in the study area. No impact on bat maternity roosts is anticipated; therefore, no mitigation would be required. Two individual Yuma myotis, a special status species, were observed day-roosting in the study area. Yuma myotis is a colonial species that typically roosts in large numbers. Because only two individuals were observed roosting on site over the entirety of the focused

survey efforts, the study area does not constitute a substantial population. Demolition or removal of this day roost would be considered adverse, but less than significant given the limited number of individuals observed. Although mitigation would not be required, implementation of DR BIO-3 would minimize the impact on roosting bats of any species (common or special status) by providing for pre-construction surveys and bat exclusion prior to construction.

Common wildlife species that are not “special status” but covered by the NCCP/HCP, such as coyote and red-shouldered hawk (*Buteo lineatus*), have potential to occur in the study area. The Project would impact approximately 62.64 acres of potential habitat (i.e., ruderal, mulefat scrub, and disturbed) 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 would remain as open space in perpetuity in order to mitigate for the loss of habitat areas outside the designated Reserve areas. Therefore, 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.

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. As discussed in Section 4.1, Aesthetics, monument or lighting of iconic features and areas, such as the Mixed-Use District, may result in some lighting spill over onto adjacent properties. This spillage would be minimized through implementation of the Development Plan which requires the use of shielded, diffused, or indirect light sources. Given that the study area is surrounded by existing developed land uses, or lands that have already been entitled for development, the Project’s night lighting is not expected to reach adjacent natural open space areas. Therefore, lighting from the Project would have a less than significant adverse impact on special status species using adjacent areas and no mitigation would be required.

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) or wildlife movement that occurs at night. Diurnal species (i.e., species active during the day) would be deterred from the area by construction activities. Further, there is currently ambient noise due to the existing adjacent development uses, such as traffic noise, train noise, operations at the Second Harvest Food Bank warehouse, and industrial operations (refer to Section 4.10, Noise); therefore, wildlife species in the study area and vicinity are expected to be relatively urban-tolerant. Therefore, the additional impact of

construction noise on wildlife species occupying areas adjacent to the Project would be considered adverse, but less than significant and no mitigation would be required. Following Project construction, the ambient noise levels in the vicinity of the study area are expected to incrementally increase. Given that the study area is surrounded by existing or entitled development, the increase in ambient noise is not expected to be substantial. Therefore, the impact of construction and operational noise would be considered an adverse but less than significant impact on special status species occurring in adjacent areas and no mitigation would be required.

Nesting bird species could incur temporary short-term impacts from construction noise, if present in the vicinity of the study area. Active nests of raptor species are protected by the *California Fish and Game Code* from harassment that could cause them to abandon their nests (e.g., construction noise). Compliance with DR BIO-2, which includes a requirement for pre-construction surveys and avoidance of active nests and an associated buffer zone, would ensure that impacts on active nests are less than significant.

Human Activity

Following Project construction, human activity in the study area is expected to increase. However, given that the study area is located within a developed/disturbed area, wildlife species in the study area and vicinity are expected to be relatively tolerant of human activity. Therefore, this impact would be considered adverse, but less than significant impact on special status species occurring in adjacent areas and no mitigation would be required.

Impact Conclusion: *The Project would impact suitable habitat for special status species. These impacts would be considered adverse, but less than significant. The Project has the potential to impact active burrowing owl burrows and/or nests of migratory birds and/or raptors. However, with implementation of DRs BIO-1 and BIO-2, these impacts would be avoided by limiting construction activities to the non-nesting season or by performance of 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 potential impact on special status species would be less than significant, pursuant to Threshold 4.3-1. In addition, DR BIO-3 would minimize impacts on roosting bats through the performance of pre-construction bat surveys and installation of bat exclusionary devices such that potential Project impacts are less than significant.*

Threshold 4.3-2

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

Ruderal vegetation and developed/ornamental 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 primarily comprised of non-native and ornamental species that do not provide habitat that is as valuable as native vegetation. In addition, they are not considered “sensitive natural communities”, as identified in local or regional plans, policies, and regulations or by the CDFW or the USFWS. While these areas may provide marginal habitat for native plant and wildlife species, the loss of approximately 106.69 acres of this type of vegetation is not considered significant under the applicable thresholds of significance and no mitigation would be required.

Approximately 1.19 acres of mulefat scrub would be impacted by the Project. This vegetation type is not considered a special status vegetation type, except when it is in the form of riparian vegetation that occurs within the jurisdiction of the RWQCB and the CDFW (i.e., the mulefat scrub vegetation located within drainage 3). Approximately 0.611 acre of mulefat scrub is under the jurisdiction of both the RWQCB and the CDFW, and 0.300 acre is under the jurisdiction of the CDFW. These impacts require regulatory authorization from the RWQCB and the CDFW. Implementation of DR BIO-4 would ensure compliance with Section 401 of the Clean Water Act and Section 1602 of the *California Fish and Game Code*. Per this Project development requirement, regulatory permits would be obtained from each agency, as necessary and each permit would require measures to address impacts to jurisdictional resources. The measures imposed by the regulatory agencies to address these impacts may include, but would not be limited to, habitat creation/restoration, enhancement, or preservation. The remainder of the mulefat scrub vegetation is not associated with RWQCB or CDFW jurisdictional areas. Total impacts to jurisdictional resources (including mulefat scrub), are addressed by Threshold 4.3-3.

Habitats that are covered by the NCCP/HCP include coastal sage scrub, oak woodlands, Tecate cypress forest, and cliff and rock. These habitats do not occur in the study area; therefore, there would be no impact on these habitats 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 adjacent habitat addressed by Threshold 4.3-2.

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 vegetation, especially via drainages, and displace native species. Because there are no native vegetation types immediately adjacent to the study area, impacts of invasive exotic plant species would be considered less than significant and no mitigation would be required. Additionally, plant palette depicted in Table 2.1, Community Plant Palette, in the Development Plan has been reviewed by a qualified biologist to ensure highly invasive and exotic species will not be included in the Project’s landscaping plan. Thus, the Project would not provide seeds of invasive exotic plants to be washed downstream or carried by wildlife or wind to areas farther from the Project.

Impact Conclusion: *The Project would impact approximately 0.911 acre of riparian habitat (i.e., mulefat scrub vegetation under the jurisdiction of the RWQCB and the CDFW). However, processing of permits/agreements/certifications from the RWQCB and the CDFW, and implementation of the permit requirements would mitigate any potentially significant impact on this resource. In addition, DR BIO-4 would ensure compliance with Section 401 of the Clean Water Act and Section 1602 of the California Fish and Game Code. Therefore, through compliance with existing laws and implementation of DR BIO-4, the potential impact on riparian habitat would be less than significant pursuant to Threshold 4.3-2.*

Threshold 4.3-3

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

No federally protected wetlands, as defined by Section 404 of the Clean Water Act, are present in the study area; therefore there would be no impact on federally protected wetlands and no mitigation would be required.

All jurisdictional resources within the study area are assumed to be impacted by the Project. This consists of impacts to 0.004 acre of non-wetland “waters of the U.S.” under the jurisdiction of the USACE in Drainage 1; 0.721 acre of “waters of the State” under the jurisdiction of the RWQCB in Drainages 1, 2, and 3; and 1.801 acres of CDFW jurisdictional waters in Drainages 1, 2, and 3 (Exhibit 4.3-2). Any impact on these three drainages would require regulatory authorization from the RWQCB and/or the CDFW; regulatory authorization from the USACE would also be required for impacts on Drainage 1. Implementation of DR BIO-4 would ensure compliance with Sections 404 and 401 of the Clean Water Act and Section 1602 of the *California Fish and Game Code*, which gives the USACE, the RWQCB, and the CDFW jurisdictional authority over water resources. Per this development requirement, regulatory permits would be obtained from each agency and each permit may require measures to compensate for the impacts on jurisdictional resources. The measures imposed by the regulatory agencies to address potential impacts on jurisdictional resources may include, but would not be limited to, habitat creation/restoration, enhancement, or preservation.

**TABLE 4.3-4
JURISDICTIONAL RESOURCES IMPACTED BY THE PROJECT**

Jurisdictional Resources	Project Impact (acres)
USACE Jurisdictional non-wetland “waters of the U.S.”	0.004
RWQCB Jurisdictional “waters of the State”	0.721
Non-isolated waters	0.004
Isolated waters	0.717
CDFW Jurisdictional Waters	1.801
USACE: U.S. Army Corps of Engineers; RWQCB: Regional Water Quality Control Board; CDFW: California Department of Fish and Wildlife. Source: BonTerra Psomas 2015a.	

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 study area (i.e., Bee Canyon 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 the Bee Canyon Wash and downstream waters. As later discussed in Section 4.8, Hydrology and Water Quality, Project-related construction activities are 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 stated in the DR HWQ-9 in Section 4.8, Hydrology and Water Quality, a Storm Water Pollution Prevention Plan (SWPPP) is required for a project to be covered under the Construction General NPDES permit and must include Best Management Practices (BMPs) to reduce water quality impacts. 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.

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 and State protected jurisdictional waters associated with Project construction to a less than significant level.

Impact Conclusion: *The Project would not directly impact any federally protected wetlands; however, it would impact approximately 0.004 acre, 0.721 acre, and 1.801 acres of waters under the jurisdiction of the USACE, the RWQCB, and the CDFW, respectively. Processing of and compliance with permits/agreements/certifications required by applicable law would reduce any potentially significant indirect impacts to federally and State protected jurisdictional waters to a less than significant level. Therefore, through compliance with existing laws, the potential impact on federally and State protected jurisdictional waters would be less than significant, pursuant to Threshold 4.3-3.*

Threshold 4.3-4

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

Suitable habitat for native or migratory fish species is not present in the study area. Therefore, there would be no impact on native resident or migratory fish and no mitigation would be required.

Wildlife movement opportunities in this area are already constrained by the extensive urbanization in the study area vicinity. As discussed under Existing Conditions, to provide increased connectivity, the OCGP includes the concept of a wildlife movement corridor that would connect the Central and Coastal NCCP/HCP Reserves. The Project is approximately ½ mile northwest of the planned wildlife movement corridor at the closest point. Additionally, the Project would be separated from the wildlife corridor by development associated with the Great Park Neighborhoods. Therefore, implementation of the Project would not impact the planned regional wildlife movement corridor or result in fragmentation of habitat. Impacts on wildlife movement would be considered less than significant, and no mitigation would be required.

The study area 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.

Nesting Birds and Raptors

Several common native bird species have potential to nest in the vegetation throughout the study area. Raptor species have potential to nest in the large trees in the study area, and nesting red-tailed hawks were observed during the 2014 surveys. Active nests of common or

special status migratory bird species are protected by the MBTA. In addition, the loss of an active raptor nest, including common raptor species, would be considered a violation of Sections 3503, 3503.5, and 3513 of the *California Fish and Game Code*. Compliance with DR BIO-2 would ensure that impacts on active nests of species not covered by the NCCP/HCP are less than significant. Through compliance with existing laws and the applicable development requirement, the Project would have a less than significant impact on the movement of resident or migratory wildlife species.

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 4.3-4.

Lighting

Night lighting may indirectly impact the movement 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. As discussed above, the Project is not expected to impact areas used for wildlife movement because the nearest wildlife corridor is ½ mile away from the Project. Further, light spillage is minimized as the Development Plan includes a provision that would minimize the potential for direct light rays to extend beyond the Project site. Given that the study area is surrounded by existing developed land uses, or lands that have already been entitled for development, the Project's night lighting is not expected to reach adjacent natural open space areas that may be used by wildlife or for wildlife movement. Therefore, the Project's night lighting is not expected to significantly impact movement of wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites and no mitigation would be required.

The study area does not provide native or migratory fish habitat, nor any native fish nursery sites. Therefore, there would be no impact on movement of native or migratory fish, nor on native fish nurseries as a result of night lighting; therefore, no mitigation would be required.

Noise

During active construction, temporary noise impacts have the potential to disrupt wildlife movement. As discussed above, the Project is not expected to impact areas used for wildlife movement because the nearest wildlife corridor is ½ mile away from the Project. Additionally, there is currently ambient noise due to the existing adjacent development uses, such as traffic noise, train noise, operations at the Second Harvest Food Bank warehouse, and industrial operations (refer to Section 4.10, Noise). Given that the study area is in a largely developed or developing landscape matrix, the increase in ambient noise attributable to the Project is not expected to be substantial. Therefore, the Project's construction noise is not expected to significantly impact movement of wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites and no mitigation would be required.

Nesting bird species could incur temporary short-term impacts from Project construction noise, if present in the vicinity of the study area. Active nests of raptor species are protected

from harassment that could cause nest abandonment by the California Fish and Game Code. Compliance with DR BIO-2 would ensure that noise impacts on movement associated with active nests due to Project construction noise are less than significant.

The study area does not provide native or migratory fish habitat, nor any native fish nursery sites. Therefore, there would be no impact on movement of native or migratory fish, nor on native fish nurseries as a result of noise effects of the Project; therefore, no mitigation would be required.

Human Activity

Following Project construction, human activity in the study area is expected to increase. As discussed above, the Project is not expected to impact areas used for wildlife movement because the nearest wildlife corridor is ½ mile away from the Project. Further, the study area is surrounded by existing developed land uses, or lands that have already been entitled for development. Therefore, the Project's increase in human activity is not expected to significantly impact movement of wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites and no mitigation would be required.

Following Project construction, human activity in the study area is expected to increase and the nesting bird habitat within the Project would consist of developed/ornamental areas. Birds that would nest within developed/ornamental areas would be urban tolerant and would not be disturbed by human activity. Therefore, the Project's increased human activity is not expected to impact movement of nesting birds and no mitigation would be required.

The study area does not provide native or migratory fish habitat, nor any native fish nursery sites. Therefore, there would be no impact on movement of native or migratory fish, nor on native fish nurseries as a result of increased human activity; therefore, no mitigation would be required.

Impact Conclusion: *The study area is not located within a regional wildlife movement corridor and occurs in a largely developed landscape matrix. Therefore, implementation of the Project would not impact the planned regional wildlife movement corridor or result in fragmentation of habitat. Impacts on wildlife movement would be considered less than significant, and no mitigation would be required. As disclosed in the Existing Conditions discussion of this Section 4.3, no native resident or migratory fish exist within the study area and thus the Project would have no adverse impacts. The Project may impact active nests of migratory birds and/or raptors. However, impacts would be avoided by complying with DR BIO-2, a measure limiting construction activities to the non-nesting season or performance of 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 potential impact to nesting birds and raptors would be less than significant, pursuant to Threshold 4.3-4.*

Threshold 4.3-5

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 that City ordinance is provided for information disclosure 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. Because there are no trees on the Project site that are meet the definition of a protected tree provided in the ordinance, no impact would occur.

Impact Conclusion: *The Project would not conflict with applicable local ordinances protecting biological resources. Therefore, there would be no impact, pursuant to Threshold 4.3-5.*

Threshold 4.3-6

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 study area is within the boundaries of the Orange County Central-Coastal NCCP/HCP, the only potentially applicable HCP, NCCP, or other approved local, regional, or state HCP. The County was a participating agency in the development of the NCCP/HCP. The study area occurs entirely within areas identified in the NCCP/HCP as approved development areas and does not border the Reserve. As discussed previously with respect to Thresholds 4.3-1 through 4.3-4, the Project would not impact a Reserve area, special linkage area, non-reserve open space area, or transportation corridor wildlife crossing. Therefore, 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.

Impact Conclusion: *The Project would not conflict with provisions of the NCCP/HCP. Therefore, there would be no impact, pursuant to Threshold 4.3-6.*

4.3.6 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 would 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 project sites are designated “development areas” under the NCCP/HCP. As such, any impacts to Covered Habitats, Identified Species and wildlife connections for such species are fully mitigated by the NCCP/HCP. As a result, cumulative biological impacts are mitigated to a level considered less than significant and would not be cumulatively considerable. 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 would also provide habitat for species not covered by the NCCP/HCP. Further, the study area is a previously disturbed area and vegetation in the study area that would be developed currently provides only marginal habitat for non-covered species. Thus, the Project would not have cumulatively considerable, significant adverse impacts on sensitive species not covered by the NCCP/HCP.

4.3.7 MITIGATION PROGRAM

Though significant impacts to biological resources have not been identified, the Development Plan, Appendix C identifies the implementation of the following development requirements as being applicable to the Project to further avoid or minimize impacts on biological resources, as 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 study area. 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 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-3 Trimming or removal of mature trees should be conducted outside the bat maternity season (i.e., between March 1 and August 31). One month prior to building demolition, the County, or its designee, shall ensure that a pre-construction survey for roosting bats shall be conducted by a qualified Bat Specialist. The survey shall consist of one diurnal (i.e., daytime) survey followed by an evening emergence survey to determine if any bats are day roosting in the buildings proposed for removal. If day-roosting bats are observed, bat-exclusionary devices shall be installed prior to construction or demolition activities. The bat exclusionary devices shall be designed to allow for bats to exit the roost areas but not re-enter. All designs shall be approved by a qualified Bat Specialist and installation shall be monitored by a qualified Bat Specialist.

Upon completion of the pre-construction roosting bat 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 any active roosts are observed, the Letter Report shall include a description of exclusionary measures recommended.

DR BIO-4 Prior to any impacts on jurisdictional areas, the County, or its designee, shall obtain permits/agreements/certifications from the U.S. Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the CDFW for impacts on areas within these agencies' jurisdictions. A pre-application meeting with these agencies shall be scheduled prior to submittal of permit applications to discuss existing conditions; jurisdictional resources; impacts to these resources that would result from the Project; proposed avoidance, minimization, and mitigation measures to offset these impacts; and the regulatory permitting process. Following the pre-application meeting, the County or its designee, shall prepare and process a USACE Section 404 Permit; a RWQCB Section 401 Water Quality Certification; and a CDFW Section 1602 Streambed Alteration Agreement.

The County, or its designee, shall implement/comply with the mitigation measures required by the resource agencies regarding impacts to areas under their respective jurisdictions. Compensatory mitigation may include restoration (i.e., re-establishment or rehabilitation); establishment (i.e., creation); enhancement; and/or preservation of jurisdictional resources. Compensatory mitigation may occur through permittee-responsible mitigation; payment to an in-lieu fee program; or purchase of compensatory mitigation credits from an approved mitigation bank. Mitigation ratios for impacts to USACE jurisdictional resources would be based on the USACE's *Standard Operating Procedure for Determination of Mitigation Ratios*. For permittee-responsible mitigation, the County, or its designee, shall consider mitigating jurisdictional impacts resulting from Project implementation through the preparation of a Habitat Mitigation Monitoring Plan (HMMP) prepared by a qualified Biologist. The preparation of an HMMP early in the process can help to accelerate and shorten the regulatory permitting process. If required by the resource agencies, the detailed HMMP shall contain the following items:

1. **Responsibilities and Qualifications of the Personnel to Implement and Supervise the Plan.** The responsibilities of the County, or its designee, specialists, and maintenance personnel, as well as the qualifications of specialists and maintenance personnel, that will supervise and implement the plan will be specified.
2. **Site Selection.** Site selection for restoration, establishment, enhancement, and/or preservation mitigation shall be determined in coordination with the County, or its designee, and resource agencies. The mitigation site(s) shall be located in a dedicated open space area or on land that shall be dedicated and/or purchased off site.
3. **Site Preparation and Planting Implementation.** Site preparation shall include the following, as determined by specific site conditions and permit requirements: protection of existing native species; trash and weed removal; native species salvage and reuse (i.e., duff); soil treatments (i.e., imprinting, decompacting); temporary irrigation installation; erosion-control measures (i.e., rice or willow wattles); seed mix application; and container species.

4. **Schedule.** A schedule, which includes planting to occur in late fall and early winter (between October 1 and March 1) shall be developed.
5. **Maintenance Plan/Guidelines.** The maintenance plan shall include the following, as determined by specific site conditions and permit requirements: weed control; herbivory control; trash removal; irrigation system maintenance; maintenance training; and replacement planting.
6. **Monitoring Plan.** The site shall be monitored and maintained for a minimum of five years to ensure successful establishment of riparian habitat within the restored and created areas. The monitoring plan shall include qualitative monitoring (i.e., photographs and general observations); quantitative monitoring (e.g., randomly placed transects and/or California Rapid Assessment Method [CRAM] analysis); performance criteria, as approved by the resource agencies; and monthly reports for the first year, quarterly reports thereafter, and annual reports for all five years.
7. **Long-Term Preservation.** Long-term preservation of the site shall also be outlined in the restoration and enhancement plan to ensure the mitigation site is not impacted by future development.

Although the monitoring plan is scheduled to last five years, if there is successful coverage prior to five years, the County, or its designee, may request to be released from monitoring requirements by the USACE and the CDFW.

Once the USACE, CDFW, and RWQCB permits have been obtained, they shall be submitted to the Manager of Land Development, or designee, for review and approval prior to any ground disturbing activities.

Mitigation Measures

No mitigation measures are required.

4.3.8 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 development requirements. No significant unavoidable impacts to biological resources would result from implementation of the Project.

4.3.9 REFERENCES

American Ornithologists' Union (AOU). 2013 (September). *Check-list of North American Birds* (7th ed., as revised through 54th Supplement). Washington, D.C.: AOU. <http://www.aou.org/checklist/north/index.php>.

Baldwin, B.G., D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (Eds.). 2012. *The Jepson Manual: Vascular Plants of California* (Second ed.). Berkeley, CA: University of California Press.

- Bennett, A.F. 1990. Habitat Corridors and the Conservation of Small Mammals in the Fragmented Forest Environment. *Landscape Ecology* 4(2-3):109-122. New York, NY: International Association for Landscape Ecology.
- BonTerra Psomas. 2015a. *Jurisdictional Delineation Report for the El Toro, 100-Acre Development Plan in Orange County, California*. Santa Ana, CA: BonTerra Psomas.
- . 2015b (October 26). *Results of Roosting Bat Survey for the El Toro, 100-Acre Parcel Development Plan in Orange County, California*. Santa Ana, CA: BonTerra Psomas.
- . 2014a (October 20). *Results of Special Status Plant Surveys for the 100-acre El Toro Parcel in Orange County, California*. Irvine, CA: BonTerra Psomas.
- . 2014b (October 20). *Results of a Western Burrowing Owl Survey for the 100-acre El Toro Parcel in Orange County, California*. Irvine, CA: BonTerra Psomas.
- . 2016 (October 11). *Summary of Reconnaissance Surveys for the El Toro, 100-Acre Parcel Development Plan*. Santa Ana, CA: BonTerra Psomas.
- California Department of Fish and Game (CDFG). 2012 (March 7). *Staff Report on Burrowing Owl Mitigation*. Sacramento, CA: CDFG.
- . 2010 (September). *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program*. Sacramento, CA: CDFG.
- . 2009 (November 24). *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. Sacramento, CA: CDFG.
- California Department of Fish and Wildlife (CDFW). 2015. California Natural Diversity Database. Records of Occurrence for U.S. Geological Survey El Toro, Laguna Beach, San Juan Capistrano, and Tustin 7.5-minute Quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.
- . 2016. California Natural Diversity Database. Records of Occurrence for U.S. Geological Survey El Toro, Laguna Beach, San Juan Capistrano, and Tustin 7.5-minute Quadrangles. Sacramento, CA: CDFW, Natural Heritage Division.
- California Native Plant Society (CNPS). 2015. Locational Inventory of Rare and Endangered Vascular Plants of California (online edition, v8-02). Records of Occurrence for U.S. Geological Survey El Toro, Laguna Beach, San Juan Capistrano, and Tustin 7.5-minute Quadrangles. Sacramento, CA: CNPS. <http://www.rareplants.cnps.org/advanced.html>.
- . 2016. Locational Inventory of Rare and Endangered Vascular Plants of California (online edition, v8-02). Records of Occurrence for U.S. Geological Survey El Toro, Laguna Beach, San Juan Capistrano, and Tustin 7.5-minute Quadrangles. Sacramento, CA: CNPS. <http://www.rareplants.cnps.org/advanced.html>
- Crother, B.I. (Ed.). 2012. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, with Comments Regarding Confidence in our

- Understanding. SSAR Herpetological Circular 39:1–92. Shoreview, MN: SSAR. http://www.ssarherps.org/pages/comm_names/Index.php.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1). Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.
- Gray, J. and D. Bramlet. 1992. *Habitat Classification System Natural Resources Geographic Information System (GIS) Project* (Prepared for the County of Orange Environmental Management Agency). Santa Ana, CA: Gray and Bramlet.
- Harris, L.D. and P.B. Gallagher. 1989. New Initiatives for Wildlife Conservation: The Need for Movement Corridors (pp. 11–34). *Preserving Communities and Corridors* (G. Mackintosh, Ed.). Washington, D.C.: Defenders of Wildlife.
- Hickman, J.C., Ed. 1993. *The Jepson Manual of Higher Plants of California*. Berkeley, CA: University of California Press.
- Irvine, City of. 2015 (July, current through). *Irvine, California – Code of Ordinances*. Tallahassee, FL: Municode Corporation for the City. https://www.municode.com/library/ca/irvine/codes/code_of_ordinances.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- MacArthur, R.H. and E.O. Wilson. 1967. *The Theory of Island Biogeography*. Princeton, NJ: Princeton University Press.
- Orange, County of. 1996a (July). *Implementation Agreement Regarding the Natural Community Conservation Plan for the Central/coastal Orange County Subregion of the Coastal Sage Scrub Natural Community Conservation Program*. Santa Ana, CA: the County.
- . 1996b (July). *Natural Community Conservation Plan and Habitat Conservation Plan, County of Orange, Central and Coastal Subregion*. Santa Ana, CA: the County.
- Munz, P.A. 1974. *A Flora of Southern California*. Berkeley, CA: University of California Press.
- Soule, M.E. 1987. *Viable Populations for Conservation*. New York, NY: Cambridge University Press.
- Wilson, D.E. and D.A.M. Reeder (Eds). 2005. *Mammal Species of the World: A Taxonomic and Geographic Reference* (3rd ed). Baltimore, MD: Johns Hopkins University Press.
- U.S. Army Corps of Engineers (USACE). 2008. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)*. (J.S. Wakeley, R.W. Lichvar, and C.V. Noble, Eds.). Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- U.S. Department of Agriculture, Natural Resources Conservation Service (USDA NRCS). (Accessed 2014). Web Soil Survey [Information for the Study Area Data v. 8, September 19] Lincoln, NE: USDA NRCS. <http://websoilsurvey.nrcs.usda.gov/>.

This page intentionally left blank

4.4 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 El Toro, 100-Acre Parcel Development Plan* (Phase I CRA) prepared by BonTerra Psomas (BonTerra Psomas 2015, updated 2016). The BonTerra Psomas report is included as Appendix E to this EIR.

4.4.1 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 archaeological resources when feasible or mitigate any effects to less-than-significant levels per PRC 21083.2.

¹ As discussed in Section 2.3.2, all structures on the Project site were previously evaluated and determined not to be eligible for the National Register of Historic Properties (NRHP) or the California Registry of Historic Resources (CRHR); therefore, the evaluation of onsite structures as 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.

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 National Register of Historic Places (NRHP) (per the criteria listed at 36 CFR 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 *California Public Resources Code* 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 descendants 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.

4.4.2 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 September 14, 2016 to verify and confirm that no changes have occurred in the interim. Based on the updated search, while three additional cultural resources studies were undertaken within ½-mile of the Project site and one of the studies included a portion of the Projects site, none identified any cultural resources on the Project site. The updated record search is appended to the Phase I CRA, provided in Appendix E of this EIR. 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 quadrangles 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. 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 10, 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 March 23, 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 March 24, 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 Marine Way from Sand Canyon Avenue. Where possible, transects were walked at 15-meter (50-foot) intervals.

4.4.3 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 since 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 BCE² 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 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.

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.

- **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 sweatshops, 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.

The Acjachemen population during the Precontact Period 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 from 35 to 300 people, consisting of from 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 area is within the southern boundary of the former 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 site are related to military use of the facility. Construction of MCAS El Toro began in August 1942, after condemnation of 2,323 acres of the Irvine Ranch from the Irvine Company. 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 MCAS, 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 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. There are several existing structures on the Project site, but these facilities are no longer in use. Based on an assessment completed in July 2009, most of the existing buildings were found to be dilapidated and beyond repair. One building, known as Building 317, appears to maintain structural integrity and has potential for reuse. The Second Harvest Food Bank warehouse (known as Building 319), which is surrounded by the Project site on three sides, is still in use.

Resource Description

Archaeological Resources

According to the SCCIC literature review conducted on February 26, 2015, 40 cultural resources studies have been undertaken within ½ mile of the Project site. Four of these studies included at least a portion of the Project site; however, none of these studies resulted in the identification of any cultural resources on the Project site.

The SCCIC literature review revealed that two cultural resources sites have been recorded within ½ mile of the Project site. Of the two sites recorded within ½ mile of the Project area, one site (CA-ORA 1660) is no longer in existence. The other site (P30-176663) is the Burlington Northern Santa Fe (BNSF), formerly the Atchison, Topeka, and Santa Fe (AT&SF) Railway located just south of the Project site's southern boundary. That site consists of an approximately 14.7-mile segment of the BNSF. Most of the rail line dates originally to the 1880s. However, as a working railroad after more than 100 years of continuous operations, its current physical characteristics reflect very little of the historic origin. The existing tracks and other associated railroad features are mostly modern in origin, and show no particular historical characteristics today. The railroad line at this site is closely associated with an important event in 19th-century California history, namely the coming of a second transcontinental railroad, which marked the beginning of the end of the Southern Pacific Railway Company's transportation monopoly and contributed directly to the southern California land boom of the 1880s. It is also associated with the emergence of southern California as a favored tourist destination in the late 19th and early 20th centuries. However, the existing railroad line and its associated features that constitute the site, as working components of the modern transportation infrastructure, do not retain sufficient historic integrity to relate to the site's period of significance. The site appears to be ineligible for National Register, California Register or Local designation through survey evaluation.

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. In the very southeastern portion of the Project area there are older Quaternary terrace deposits at the surface, and older Quaternary deposits may underlie the younger Quaternary deposits in the remainder of the Project area.

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 (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.

4.4.4 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 4.4-1** Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5.
- Threshold 4.4-2** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.
- Threshold 4.4-3** Disturb any human remains, including those interred outside of dedicated cemeteries.

4.4.5 IMPACT ANALYSIS

Threshold 4.4-1

Would the Project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?

The results of the SCCIC records search indicate that two previously recorded cultural resources sites have been identified within ½ mile of the Project site; however, one site (CA-ORA 1660) is no longer in existence and the other site (P30-176663) appears to be ineligible for National Register, California Register, or Local designation through survey evaluation. An update to the record search was conducted by the SCCIC on September 14, 2016. Based on the updated record search, while three additional cultural resources studies were undertaken within ½-mile of the Project site and one of the studies included a portion of the Projects site, none identified any cultural resources within the ½-mile radius or on the Project site. The updated record search is appended to the Phase I CRA, provided in Appendix E of this EIR.

On February 27, 2015, a pedestrian survey of the Project site was conducted by a BonTerra Psomas Senior Archaeologist. The site was accessed via Marine Way from Sand Canyon Avenue. Most of the subject property was heavily overgrown with invasive species of grasses, scrub, and weeds. Visibility was estimated at less than ten percent overall with some areas completely obscured by vegetation.

Because of the substantial groundcover, an opportunistic approach was used for the survey. This involved moving from one open area to another and avoiding densely overgrown areas on the property. Although visibility was limited, most of the western half of the property had sparse scatters of building demolition debris, consisting of heavily fragmented concrete, asphalt, and milled lumber; some unidentifiable rusted metal objects; and imported roadbed materials. These materials were interpreted as sparse remnants of objects, structures, or buildings that had either been located on the subject property, or moved there from another location. No diagnostic artifacts were observed anywhere on the subject property. The intensive pedestrian survey of the disturbed and other portions of the Project site did not result in the discovery of any previously unrecorded archaeological resources as defined in

CEQA Guidelines § 15064.5. Thus, it is not expected that archaeological resources of that nature exist on the Project site. A potential exists that unknown archaeological resources would 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 4.4-1, the Project has a low potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5. However, implementation of MM CULT-1 would reduce potential impacts to less than significant levels should buried resources of that nature be discovered as part of grading activities.*

Threshold 4.4-2

Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

According to Figure E-2 of the City of Irvine (City) General Plan, the Project site is located within a “low” paleontological sensitivity zone (Irvine 2015a, 2015b). On May 5, 2015, a BonTerra Psomas Senior Paleontologist, undertook a combination of windshield and pedestrian survey of the property. The site was accessed via Marine Way from Sand Canyon Avenue. Most of the subject property was heavily vegetated and there were no areas to inspect the underlying geology. 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 paleontological resources of that nature. This would may 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 MM, 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 4.4-2, the Project has a moderate 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 should unknown buried resources be discovered as part of grading activities. Additionally, due to lack of unique geologic features on the site, no impacts to such features would occur and no mitigation is required.*

Threshold 4.4-3

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 and extensive evaluation by the Department of the Navy as a part of the decommissioning process, 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 site.

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.

4.4.6 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. As identified in Figure E-1 of the City's General Plan, there are 19 historical/archaeological landmarks identified within the City (Irvine, 2015a, 2015b); however none is located on the Project site. Further, the Project site is located within a "low" paleontological sensitivity zone.

The Project, in conjunction with cumulative development, could lead to accelerated degradation of previously unknown archaeological, 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 any 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.

4.4.7 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 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.

4.4.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative impacts to archaeological and paleontological resources associated with the Project would be less than significant with implementation of mitigation measures. No significant unavoidable impacts would occur.

4.4.9 REFERENCES

BonTerra Psomas. 2015 (June), updated 2016 (October). Phase I Cultural Resources Assessment for the El Toro, 100-Acre Development Plan. Santa Ana, California: 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>.

———. 2003 (May, certified). Final Environmental Impact Report, Orange County Great Park, Volume I (Section 5.11, Cultural Resources). Irvine, CA: the City.

KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

This page intentionally left blank

4.5 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 El Toro, 100-Acre Parcel Development Plan (Development Plan); and sets forth measures designed to mitigate identified significant adverse impacts. Information in this section is based upon the *Preliminary Geotechnical Investigation, 100-Acre Parcel Former El Toro Marine Corps Air Station, Irvine, California* (Preliminary Geotechnical Investigation) prepared by Leighton and Associates, Inc. (Leighton and Associates, Inc. 2014). The Leighton and Associates, Inc. report is included as Appendix F to this EIR.

Section 4.5.5, 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.

4.5.1 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.

4.5.2 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 13 locations to depths of 50 to 75 feet below existing ground surface (bgs). In addition, four test pits, excavated on June 24 and June 25, 2014, were excavated around Building 317 to evaluate the condition of existing foundations. The test pits were excavated with hand tools to a maximum depth of approximately six feet bgs. Hollow stem auger borings 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 4.5.4 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.

4.5.3 EXISTING CONDITIONS

Site Topography

The Project site is an irregular shaped area located west-southwest of the former MCAS El Toro existing main runway and southerly of Marine Way. The ground surface varies from approximately 224 feet above mean sea level (msl) at the southwestern corner to approximately 276 feet above msl at the eastern area 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 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 Completion of geotechnical reports in compliance with the County *Grading Manual* is identified as a Design Requirement (DR) in Section 4.5.8 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 specifying 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 4.5-1, Regional Geology Map.

The Preliminary Geotechnical Investigation identifies that artificial man-made fills (Afu) are present within portions of the parcel. The fill materials are expected to consist predominately of silty sand, sandy silt, and silty clay. Railroad ballast placed for support of rail lines on the Project site consist of crushed rock material predominately 2 to 3 inches in size. Building 317 is supported on shallow spread footings founded on engineered fill or alluvium. Where exposed, foundation soils were found to be competent.

Young alluvial fan deposits (Qyf) were encountered at or near the ground surface and underlying the fill material and consisted mostly of interbedded loose to medium dense sands, silty sands, and clayey sands and firm to very stiff sandy silts, silty clay, sandy clay, and clay.

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.

Faulting and Seismicity

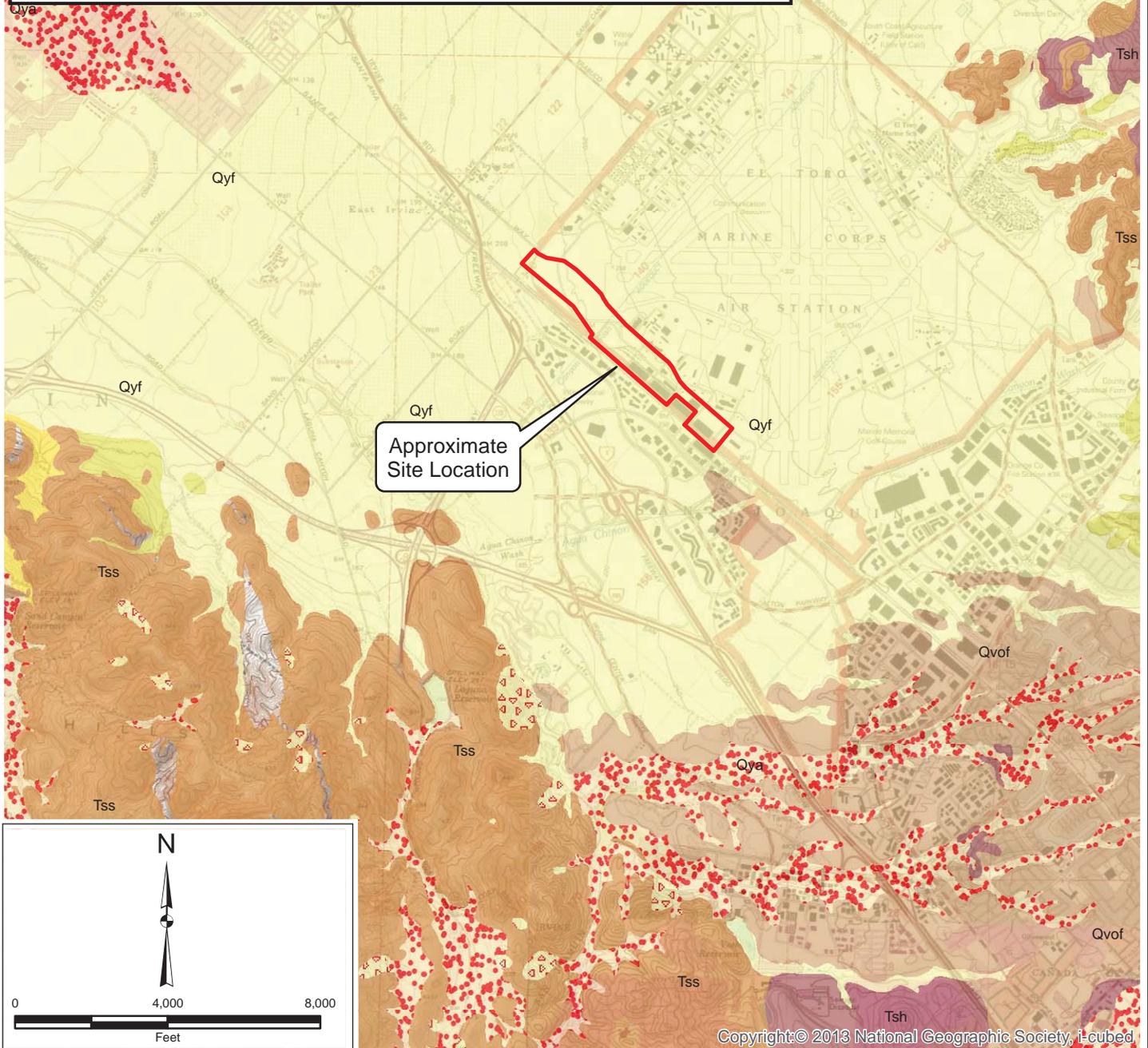
As with all of Southern California, the Project site lies in a seismically active region. The Preliminary Geotechnical Investigation determines that there are no known active or potentially active faults traversing the Project site, and the Project site is not included within an Alquist-Priolo Earthquake 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 site. The closest active faults to the site are the San Joaquin Hills Blind Thrust and the Newport-Inglewood Fault Zone located approximately 0.6 miles and 10.8 miles from the site, respectively. The San Andreas Fault, which is the largest active fault in California, is approximately 43.9 miles northeast of the site. Refer to Exhibit 4.5-2 for a regional fault map.

Groundwater

There are two distinct water-bearing zones (Principal Aquifer and Shallow Groundwater Unit) beneath the Project Site that are separated by an aquitard, which is a relatively impermeable soil layer. The Principal Aquifer is deeper than the Shallow Groundwater Unit. The Preliminary Geotechnical Investigation reports that the Orange County Water District June 2014 Groundwater Elevation Contours Map (Leighton and Associates, Inc. 2014) has estimated groundwater within the Project site from approximately elevation +115 feet msl at the northwest corner to elevation +180 feet msl at the southeast corner (Leighton and Associates, Inc. 2014). These groundwater levels correspond to depths on the order of 100 feet bgs or greater at the Project site. 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).

Legend

- af - Artificial Fill
- Qls - Landslide Deposits; may include debris flows and older landslides
- Qya - Young Alluvial Valley Deposits
- Qyf - Young Alluvial Fan Deposits
- Qoa - Old Alluvial Valley Deposits
- Qvoa - Very Old Alluvial Valley Deposits
- Qof - Old Alluvial Fan Deposits
- Qvof - Very Old Alluvial Fan Deposits
- Tsh - Fine-grained Tertiary age formations of sedimentary origin
- Tss - Coarse-grained Tertiary age formations of sedimentary origin
- Kss - Coarse-grained Cretaceous age formations of sedimentary origin
- Qsu - Undifferentiated Surficial Deposits; includes colluvium, slope wash, talus deposits, and other surface deposits of all ages



Copyright: © 2013 National Geographic Society, i-cubed

Source: Preliminary Geotechnical Investigation, Leighton and Associates, Inc.

Regional Geology

Exhibit 4.5-1

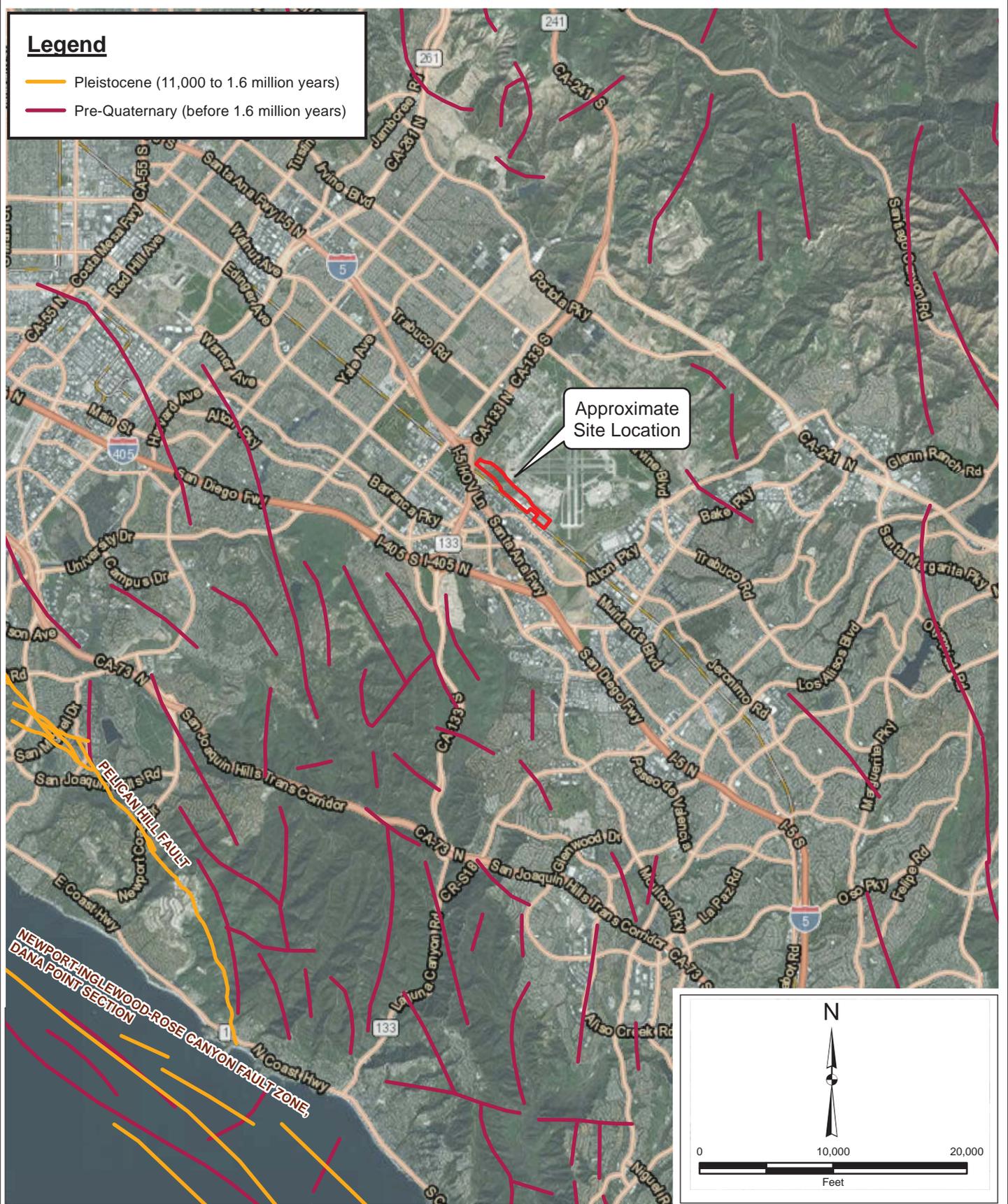
El Toro, 100-Acre Parcel Development Plan EIR



D:\Projects\LoweEnt\J0001\Graphics\EIR\ElToro\Ex_geo_regional_20151026.ai

Legend

-  Pleistocene (11,000 to 1.6 million years)
-  Pre-Quaternary (before 1.6 million years)



D:\Projects\LoweEnt\0001\Graphics\EIR\ElToro\Ex_geo_regional_faults_20151026.ai

Source: Preliminary Geotechnical Investigation, Leighton and Associates, Inc.

Regional Faults

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.5-2



4.5.4 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 4.5-1** 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 4.5-2** Result in substantial soil erosion or the loss of topsoil.
- Threshold 4.5-3** 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 4.5-4** 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.

4.5.5 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 4.5.7 and 4.8.7, 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 4.5-1

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 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 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 and Tustin 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 4.5-3, 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 concludes 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).

Legend

- Landslide Hazard Zone
- Liquefaction Susceptibility Zone



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, SRD

Source: Preliminary Geotechnical Investigation, Leighton and Associates, Inc.

Seismic Hazards

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.5-3



D:\Projects\LoweEnt\0001\Graphics\EIR\ElToro\Ex_geo_seismic_hazards_20151026.ai

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 site, the potential for lateral spreading is considered low (Leighton and Associates, Inc. 2014).

As noted above and previously mentioned in Section 2.3.1 of Chapter 2.0, the site is relatively flat. 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 4.5-3, 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 2013 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 4.5-1. 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 (2013 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 4.5-2

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, discussed further in Section 4.8, 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-7 through DR HWQ-10 presented in Section 4.8, 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-7 through DR HWQ-10 presented in Section 4.8, 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 4.8, Hydrology and Water Quality, implementation of DR HWQ-7 through DR HWQ-10 in Section 4.8, 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 4.5-2.*

Threshold 4.5-3

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 Threshold 4.5-1 above, and expansive soils are addressed under Threshold 4.5-4 below.

Slope Stability

As indicated above under Threshold 4.5-1, the Project site is relatively flat and there are no landslides located on or during field review conducted for the Preliminary Geotechnical Report. However, 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 (thin mantles of eroded material consisting primarily of sand and small gravels) were observed originating from canyons to the northeast; however, these localized flows were not observed on the Project site.

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 4.5-1, 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 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 (2013 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 4.5.1) would be reduced to a less than significant level with conformance with existing regulations (2013 CBC) and DR-GEO-1.*

Threshold 4.5-4

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 5-1 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 high potential for expansion depending on whether sandy or clayey soils are encountered. Previous representative composite samples from within and near the Project site show low to medium expansion potential when exposed to water. The Preliminary Geotechnical Investigation recommends that, due to the variance in expansion potential of on-site soils that is anticipated, a 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 2013 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 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 4.5-4.*

4.5.6 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.

4.5.7 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 requires preparation of a geotechnical report that includes the information required by the County *Grading Manual*. 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 and applicable building code impacts would be less than significant and no mitigation measures are required.

Development Requirements

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-6 through DR HWQ-9 presented in Section 4.8, 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 mitigation measures are required.

4.5.8 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.

4.5.9 REFERENCES

California Department of Conservation, California Geological Survey (CGS). 2011 (January 12, last updated). *Natural Hazards Disclosure: Alquist-Priolo Earthquake Fault Zones*. Sacramento, CA: CGS.
<http://www.conservation.ca.gov/cgs/rghm/ap/Pages/disclose.aspx>.

KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

Leighton and Associates, Inc. 2014 (September 19, as revised through April 2015). *Preliminary Geotechnical Investigation, 100-Acre Parcel, Former El Toro Marine Corps Air Station, Irvine, California*. Irvine, CA: Leighton and Associates, Inc. (Appendix F).

Orange, County of. 1993. *Grading Manual*. Santa Ana, CA: the County.

This page intentionally left blank

4.6 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.

4.6.1 BACKGROUND INFORMATION

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 10 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 degrees Celsius [°C]) since 1880 (NASA 2015).

The global atmospheric concentration of carbon dioxide (CO₂) has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to a peak of 403.94 ppm in May 2015; 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 CO₂ 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 (O₃), particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants (TACs), which are pollutants of regional and local concern (see Section 4.2, 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 CO₂, methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). 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 CO₂. For example, as CH₄ and N₂O are approximately 25 and 298 times (respectively) more powerful than CO₂ in their ability to trap heat in the atmosphere, they have GWPs of 25 and 298, respectively (CO₂ has a GWP of 1). Carbon dioxide equivalent (CO₂e) 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 CO₂e.

General Environmental Effects of Global Climate Change

Executive Order S-3-05 mandates the preparation of biennial science assessment reports on climate change impacts and adaptation options for California. Executive Order 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 O₃ 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 saltwater into California's estuaries, wetlands, and groundwater aquifers, threatening the water quality and reliability in the Sacramento/San Joaquin River Delta—a major California freshwater 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 CO₂ 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 O₃ 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 also alter the timing of plant flowering and insect emergence, damaging species' ability 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.

4.6.2 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 (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆)—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 CO₂ 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 Federal Clean Air Act 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 Executive Order 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, Executive Order 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 Executive Order 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 SF₆ 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 CO₂e. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% 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 CO₂ 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 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, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO₂e 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% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation 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

Senate Bill (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 also establish two new guidance questions regarding GHG emissions in the environmental checklist set forth in CEQA Guidelines Appendix G:

- 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 which 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 through increasing energy efficiency. It indicates that substantial savings of electricity and natural gas will be accomplished through “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 $\frac{1}{5}$ 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 Executive Order S-3-05 (CARB 2015d).

The First Update states that California is on track to meet the near-term 2020 greenhouse gas 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 greenhouse emissions and 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 approximately a 15.3 percent reduction (compared to a 28.5 percent reduction as set forth in the 2008 Scoping Plan). Table 4.6-1 shows the expected reductions to meet the 2020 emissions target.

¹ In 2013, CARB revised GHG calculations to use the global warming potential (GWP) values from the IPCC Fourth Assessment Report (AR4). Previous calculations used the GWPs from the second assessment report (SAR).

**TABLE 4.6-1
MEETING THE 2020 EMISSIONS TARGET**

Category	2020 (MMTCO₂e)
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 ^a
2020 Limit	431
^a Cap-and-Trade emission reductions depend on the emission forecast Source: CARB 2014a.	

As shown in Table 4.6-1, 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 Scoping Plan

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 2016 to solicit comments on modeling efforts and scenarios for achieving the 2030 target. Once the scenarios are fully developed, CARB will circulate 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, Senate Bill (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, including the Southern California Association of Governments (SCAG), to incorporate a Sustainable Communities Strategy (SCS) in their regional transportation plans 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 Metropolitan Planning Organizations, including the 2020 target for SCAG, the designated Metropolitan Planning Organization 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 and (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 2017-2025 through compliance with the EPA GHG requirements for those same model years (CARB 2012).

Executive Order B-30-15

On April 29, 2015, Governor Brown signed Executive Order (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 will be published on or before 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, Part 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 development of the CALGreen Code is intended to (1) cause a reduction in greenhouse gas 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 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 Metropolitan Planning Organizations (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 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 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 CO₂ 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 EIR-level analysis for relatively small impacts (SCAQMD 2008).

In September 2010, the Working Group proposed extending the 10,000 MTCO₂e/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 MTCO₂e/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 MTCO₂e per year per service population (SP) for project-level thresholds where SP is project residents plus employees and 6.6 MTCO₂e per year per SP for a plan-level threshold (SCAQMD 2010a). Targets for 2035 are 3.0 MTCO₂e per SP for project level thresholds and 4.1 MTCO₂e per year per SP for plan level threshold. 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.

4.6.3 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 greenhouse gas 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 CO₂, CH₄, and N₂O and combines these emissions to calculate CO₂e. For this analysis, the results are expressed in metric tons of carbon dioxide equivalent per year (MTCO₂e/year). Please see Section 4.2, 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.

4.6.4 EXISTING CONDITIONS

Existing Greenhouse Gas Emissions

The western portion of the site consists of vacant land that was part of the former Marine Corps Air Station (MCAS) El Toro's runway protection zones. The central portion has rail spurs that extend from adjacent rail lines and served the warehouse structures at the eastern portion of the site. There are several existing structures remaining on the site, but these facilities are no longer in use.

Global, National, State, and Regional Contributions to Greenhouse Gas Emissions

Table 4.6-2 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. CO₂e emissions are commonly expressed as metric tons of carbon dioxide equivalent (MTCO₂e). Larger quantities of emissions, such as on the State or world scale, are expressed in MMTCO₂e. Metric tons may also be stated as "tonnes". The CO₂e for a gas is derived by multiplying the tons of the gas by the associated GWP, such that MMTCO₂e = (million metric tons of a GHG) x (GWP of the GHG). For example, the GWP for CH₄ is 21. This means that emission of 1 million metric ton of CH₄ are equivalent to the emissions of 21 million metric tons of CO₂.

**TABLE 4.6-2
COMPARISON OF WORLDWIDE GREENHOUSE GAS EMISSIONS**

Area and Data Year	Annual GHG Emissions (MMTCO ₂ e)
World (2012)	46,049
United States (2014)	6,870
California (2014)	442
Orange County (2011)	21
GHG: greenhouse gas; MMTCO ₂ e: million metric tons of carbon dioxide equivalent Source: WRI 2016; USEPA 2016; CARB 2015c, SCAG 2011.	

The U.S. contributes approximately 14.5 percent of worldwide GHG emissions per year; California contributes approximately 1.0 percent; and the County contributes approximately 0.01 percent. The most common GHG is CO₂, which constitutes approximately 84 to 85 percent of all GHG emissions in the U.S. 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.

4.6.5 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, non-exclusive 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 4.6-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.

Threshold 4.6-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As described in Section 4.6.2, 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) 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 business-as-usual (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 to the goals established by Executive Order Nos. 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 EO S-3-05 and B-30-15 is included in the analysis under Threshold 4.6 2. In addition, in light of the September 2016 adoption of SB 32, the analysis under Threshold 4.6.1 includes a discussion of potentially significant Project impacts post-2020.

The analysis under Threshold 4.6-1 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 efficiency targets 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 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 a service population 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 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 MTCO₂e/SP/year for 2020 and 3.0 MTCO₂e/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 MTCO₂e 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. For a plan-level analysis, the SCAQMD efficiency targets are 6.6 metric tons of carbon dioxide equivalent per service population per year (MTCO₂e/SP/year) for 2020 and 4.1 MTCO₂e/SP/year for 2035.

The planned year for completion of the proposed Project is 2026; therefore, the following analysis uses a straight line interpolation between the 2020 project value of 4.8 MTCO₂e/SP/year and the 2035 project value of 3.0 identified by SCAQMD. With its anticipated 2026 completion date, the straight line interpolation discloses a 4.08 MTCO₂e/SP/year efficiency target for the Project. For comparison's sake, straight line interpolation was also used to identify a 2026 plan-level efficiency target of 5.60 MTCO₂e/SP/year. 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 MTCO₂e/year per service population and an efficiency threshold at the project level is 3.0 MTCO₂e/year per service population.

4.6.6 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 4.6.8, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.6-1

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 2017, with Project completion in 2026. The details of phasing, selection of construction equipment, and other input parameters are described in Section 4.2, Air Quality.

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 4.6-3. The construction of the Project would result in estimated GHG emissions of approximately 16,964 MTCO_{2e}, or annual GHG emissions of 565 MTCO_{2e} when amortized over 30 years.

**TABLE 4.6-3
ESTIMATED CONSTRUCTION ANNUAL
GREENHOUSE GAS EMISSIONS**

Year	Emissions (MTCO₂e)
2017	215
2018	1,121
2019	1,562
2020	1,606
2021	2,380
2022	1,829
2023	2,066
2024	2,074
2025	2,059
2026	2,053
Total	16,964
<i>Annual Construction Emissions Amortized over 30 Years</i>	565
MTCO ₂ e: 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 4.2, Air Quality, of this EIR. Mobile source input for trip generation was taken from the Project’s Transportation Impact Analysis (TIA) 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 4.15, Utilities regarding AB 939). The CalEEMod model includes data to calculate emissions reductions based on Project-specific characteristics and mitigation measures. The Project CalEEMod calculations include reductions in mobile emissions for accessibility to transit (i.e., the Irvine Station) and for the mixed-use character of the proposed Project. As described in Section 4.6.3, a manual reduction was taken for Advanced Clean Cars.

Project design would comply with California Building Code requirements for energy efficiency (Development Requirement [DR] GHG-1) and green building (DR GHG-2). The analysis incorporates the 2016 codes (effective January 1, 2017), which would be required at a minimum for the initial development. It is likely that greater energy efficiency would be required for later phases of the development, but the corresponding reductions in GHG are not assumed in the

Project analysis. 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 model accounts for the use of recycled water for irrigation.

The results of the calculations of operational annual GHG emissions at planned Project buildout (2026) are shown in Table 4.6-4; CalEEMod data sheets are included in Appendix G of this EIR. The total operational GHG emissions at Project buildout are estimated at 48,716 MTCO_{2e} per year. It should be noted that approximately 4,000 MTCO_{2e} per year of GHG emissions would be avoided due to reductions in VMT resulting from the Project accessibility to Irvine Station and the Project’s mixed-use composition.

**TABLE 4.6-4
ESTIMATED PROJECT BUILDOUT (2026) OPERATIONAL
ANNUAL GREENHOUSE GAS EMISSIONS**

Source	Emissions MTCO _{2e} /year	Percent of Total
Area	42	0.1
Energy	9,702	19.9
Mobile	37,150	76.3
Solid Waste	1,202	2.5
Water	620	1.3
Annual GHG Emissions	48,716	
MTCO _{2e} /year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas(es)		
Note: Totals may not balance due to rounding		

Table 4.6-5 shows that the total estimated annual GHG emissions for the Project would be 49,281 MTCO_{2e}/year at buildout, which is the sum of the amortized construction emissions and the operational emissions. The estimated Project population is 3,954 residents and 7,799 employees for a total SP of 11,753. Table 4.6-5 also shows the calculated GHG efficiency to be 4.19 MTCO_{2e}/SP/year.

**TABLE 4.6-5
ESTIMATED TOTAL PROJECT BUILDOUT (2026)
ANNUAL GREENHOUSE GAS EMISSIONS WITHOUT MITIGATION**

Source	Emissions MTCO₂e/year
Construction (amortized) (from Table 4.6-3)	565
Operations (from Table 4.6-4)	48,716
Total Annual GHG Emissions	49,281
Service population	11,753
GHG efficiency (MTCO₂e/SP/year)	4.19
Interpolated SCAQMD-recommended plan level efficiency threshold	5.60
<i>Exceed threshold?</i>	<i>No</i>
Interpolated SCAQMD-recommended project level efficiency threshold	4.08
<i>Exceed threshold?</i>	<i>Yes</i>
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SCAQMD: South Coast Air Quality Management District	

As shown in Table 4.6-5, the Project's estimated GHG emissions at buildout (2026) would be less than the plan-level threshold but would exceed the project-level threshold. Therefore, the impact would be potentially significant and mitigation to reduce GHG emissions is required. The following mitigation measures (MM) would be implemented: MM GHG-1 would provide on-site renewable energy generation with the capacity to generate at least 6,168,000 kilowatt hours (kWh) of electricity per year. MM GHG-2 would require Energy Star®-compliant or equivalent appliances in all residential units and the hotel. MM GHG-3 would require high-efficiency lighting (light-emitting diode [LED]) for all residential, office, retail, and outdoor (streets, pathways, parks, and parking structures) lighting applications.

Tables 4.6-6 and 4.6-7 show estimated operational and total Project buildout (2026) GHG emissions with implementation of MMs GHG-1, GHG-2, and GHG-3.

**TABLE 4.6-6
ESTIMATED PROJECT BUILDOUT (2026) OPERATIONAL ANNUAL
GREENHOUSE GAS EMISSIONS WITH MITIGATION**

Source	Emissions MTCO₂e/year	Percent of Total
Area	42	0.1
Energy	9,702	19.9
Mobile	37,150	76.3
Solid Waste	1,202	2.5
Water	620	1.3
<i>Annual GHG Emissions - Unmitigated</i>	48,716	
MM GHG-1 Renewable Energy Generation	-1,189	
MM GHG-2 Energy Star Appliances	-50	
MM GHG-3 High Efficiency Lighting	-391	
<i>Annual GHG Emissions - Mitigated</i>	47,086	
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas		

**TABLE 4.6-7
ESTIMATED TOTAL PROJECT BUILDOUT (2026)
ANNUAL GREENHOUSE GAS EMISSIONS WITH MITIGATION**

Source	Emissions MTCO₂e/year
Construction (amortized) (from Table 4.6-3)	565
Operations (from Table 4.6-6)	47,086
Total Annual GHG Emissions	47,651
Service population	11,753
GHG efficiency (MTCO₂e/SP/year)	4.05
Interpolated SCAQMD-recommended plan level efficiency threshold	5.60
<i>Exceed threshold?</i>	<i>No</i>
Interpolated SCAQMD-recommended project level efficiency threshold	4.08
<i>Exceed threshold?</i>	<i>No</i>
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SCAQMD: South Coast Air Quality Management District	

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 4.6-8 provides the estimated Project operational emissions and Table 4.6-9 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 MTCO₂e/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 4.6-8
ESTIMATED 2030 OPERATIONAL ANNUAL
GREENHOUSE GAS EMISSIONS WITH MITIGATION^a**

Source	Emissions MTCO ₂ e/year	Percent of Total
Area	42	0.1
Energy (prior to Project mitigation)	8,902	18.9
Mobile	36,449	77.3
Solid Waste	1,202	2.5
Water	569	1.2
<i>Annual GHG Emissions - Unmitigated</i>	47,164	
MM GHG-1 Renewable Energy Generation	-1,189	
MM GHG-2 Energy Star Appliances	-50	
MM GHG-3 High Efficiency Lighting	-391	
<i>Annual GHG Emissions - Mitigated</i>	45,534	
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas		
^a It should be noted, that the Project 2030 GHG emissions would be less than 2026 GHG emissions because there would be more renewable content in the SCE electric power in 2030 than in 2026 and the vehicles associated with Project trips would be "cleaner" i.e. have lower GHG emissions in 2030 than in 2026. The emissions associated with water delivery would also be slightly reduced compared to 2026 because of more efficient energy for water delivery.		

**TABLE 4.6-9
ESTIMATED TOTAL 2030 ANNUAL
GREENHOUSE GAS EMISSIONS WITH MITIGATION**

Source	Emissions MTCO ₂ e/year
Construction (amortized) (from Table 4.6-3)	565
Operations (from Table 4.6-8)	45,534
Total Annual GHG Emissions	46,099
Service population	11,753
GHG efficiency (MTCO₂e/SP/year)	3.92
SCAQMD-recommended plan level significance threshold	4.1
<i>Exceed threshold?</i>	<i>No</i>
SCAQMD-recommended project level significance threshold	3.0
<i>Exceed threshold?</i>	<i>Yes</i>
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SCAQMD: South Coast Air Quality Management District	

As Table 4.6-9 illustrates, when the estimated Project GHG emissions in 2030 are compared to the efficiency thresholds, the Project GHG efficiency is better than the plan level threshold but exceeds the project level 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, 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 4.6.2, the Project includes design and locational elements, such as proximity to transit, the density of the proposed residential uses, and the mixed use nature of the proposed Project and the surrounding area (existing and proposed) that includes employment, visitor serving, cultural, commercial, and open space uses, which would serve to minimize Project GHG emission impacts. 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 a solar electrical generation at a rate of 6,168,000 kWh of electricity per year, has requirements for Energy Star appliances, and requires the use of high efficiency lighting for all residential, office, retail, and outdoor (streets, pathways, parks, and parking structures) lighting applications (MM GHG 1 through MM GHG-3). However, even with these feasible GHG reduction strategies and mitigation measures, 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 4.6-1, the Project's GHG emissions would be less than the SCAQMD-recommended plan-level efficiency threshold but would exceed the SCAQMD-recommended project-level efficiency threshold. Implementation of DR GHG-1 and DR GHG-2 and MM GHG-1 through MM GHG-3 would reduce the emissions though not to a level of less than significant. Therefore, the Project will have significant and unavoidable GHG impacts.

Threshold 4.6-2

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, Advanced Clean Car standards, Low Carbon Fuel Standard, Renewable Portfolio Standards, 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 (2026) the Project emissions are less than the interpolated SCAQMD efficiency threshold. Therefore, the Project would not conflict with these 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 4.6.2, 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, California Energy Commission, California Public Utilities Commission, Caltrans, and many others. One action is shared by Caltrans and regional transportation agencies.

Although implementation of the Scoping Plan is assigned on 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 Transportation, Land Use, and Housing Planning Development discussion, the First Update states, “As residential development constitutes the largest share of urbanized and land uses, changes in housing development are particularly critical to influencing travel patterns, energy use, and emissions. Location-efficient, affordable transit-oriented development (TOD), for example, has been estimated to yield VMT reductions of 20 to 40 percent over households in non-TOD locations.” The proposed Project, located proximate to the Irvine Station, is consistent with this concept. When taking into consideration the location of the Project near transit, the density of the proposed residential uses, and the mixed use nature of the proposed Project and the surrounding area (existing and proposed) that includes employment, visitor serving, cultural, commercial, and open space uses, the CalEEMod GHG emissions calculation (Appendix G) shows that there would be an overall reduction in Project-generated VMT from approximately 119.8 million VMT/year to 107.8 million VMT/year compared to a project without these characteristics. This represents a reduction of approximately 12 million VMT/year or 10 percent.

The First Update states, “Metropolitan areas are beginning to change and trend toward more dense urban development designed to minimize energy consumption, waste output, air pollution, and water pollution. Business districts are encouraging more infill development that offers a mix of residential space, entertainment, restaurants, shopping, and other amenities within close proximity, which reduces dependence on private vehicles.” The proposed Project would offer this mix in an in-fill location and the potential reduction of dependence on private vehicles and therefore would be consistent with the First Update and AB 32.

- 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 biking distance to employment, commercial business, recreation, cultural uses, and transportation. The proposed Project would encourage bicycling and walking by providing showering and changing facilities at non-residential buildings (MM AQ-2), and bicycle parking facilities at residential buildings, parking lots, and parking structures (MM AQ-3 and MM AQ-4). The proposed Project would require operators of residential and non-residential facilities to post Metrolink and Amtrak schedules in conspicuous places and, where feasible, configure employee

work schedules around train schedules (MM AQ-5 and MM AQ-6). As documented in the Development Plan, the Project's design of the street and other pathways network 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, nonresidential buildings and at parking facilities (MM AQ-2, MM AQ-3 and MM AQ-4). The proposed Project would also encourage the use of electric vehicles by providing electric charging facilities at nonresidential buildings, parking structures, and parking lots (MM AQ-2 and MM AQ-4). Thus, the proposed Project would provide alternatives in fuel choices and would be consistent with the First Update and AB 32. 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.

- **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 (MM GHG-1), Energy Star or equivalent appliances (MM GHG-2), and use of high efficiency lighting (LED) (MM GHG-3). Thus, the proposed Project would be consistent with the energy efficiency goals included in the First Update and AB 32.

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 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 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 Codes 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 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 current 2013 Code (CEC 2015a).

The 2016 Energy Efficiency Codes improvements for nonresidential buildings include:

- Envelope: revision of outer building, or envelope, requirements for all nonresidential and high-rise residential buildings.
- Lighting: update power for lights to align with the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE) standards.
- Elevators: require lights and fans to shut off when an elevator is empty.
- Escalators and moving walkways: require escalators and moving walkways in transit areas to run at a lower, less energy-consuming speed when not in use.
- Windows and doors: require lockout sensors that turn off cooling and heating systems if a door or window is left open for more than five minutes.

Furthermore, the Project would include MMs AQ-2 through AQ-6, described in Section 4.2, Air Quality that would 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 MMs AQ-2 through AQ-6 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 4.6-1 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 4.6-1 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 2026, 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 is not a greenfield development. Located near public transit, the Project promotes an efficient use of previously developed and disturbed lands. The Project will also provide compact development patterns, 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 at 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 is in close proximity to transit; it would provide a compact residential community; the mixed use nature of the proposed Project would facilitate internal trip capture; the surrounding area (existing and proposed) includes employment, visitor serving, cultural, commercial, and open space uses which would serve to reduce VMT and GHG emissions; and the Project includes mitigation measures that are projected to avoid GHG

emissions of 1,630 MTCO₂e/year. However, even in light of these considerations, based on the information available at this time, the analysis completed for Threshold 4.6-1 indicates that the Project would not be able to achieve the SCAQMD efficiency threshold 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 4.6-2, 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.*

4.6.7 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 4.6.6 above shows that, even with many GHG reducing Project features 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 proposed on an in-fill location in proximity to transit with a mix of uses consistent with the goals and policies of the applicable RTP/SCS; would comply with State building codes and other regulatory programs adopted for the purpose of reducing GHG emissions; and would incorporate DRs GHG-1 and GHG-2, MMs GHG-1 through GHG-3, and MMs AQ-2 through AQ-6 to reduce potential Project GHG emissions consistent with the 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 the emissions of greenhouse gases.

4.6.8 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, 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. The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

DR GHG-2 Projects shall be designed in accordance with the applicable California Green Building Standards (CALGreen) Code (24 CCR 11). The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

Mitigation Measures

MM GHG-1 The Project shall incorporate renewable energy generation with the capacity to generate at least 6,168,000 kilowatt hours (kWh) of electricity per year at buildout. Prior to the issuance of each building permit, the Manager of Building & Safety, or designee shall review the total amount of installed and planned renewable energy to ensure the Project is on trajectory to meet the buildout requirement.

MM GHG-2 Low-energy Energy Star®-compliant or equivalent residential appliances shall be exclusively offered by residential 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. Low-energy Energy Star®-compliant or equivalent commercial appliances shall be installed in the hotel. The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

MM GHG-3 High efficiency lighting (light-emitting diode [LED]) shall be used for all residential, office, retail, and outdoor (streets, pathways, parks, and parking structures) lighting applications. The Manager of Building & Safety, or designee shall ensure compliance prior to the issuance of each building permit.

4.6.9 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.

4.6.10 REFERENCES

Bay Area Air Quality Management District (BAAQMD). 2010 (June). *California Environmental Quality Act: Air Quality Guidelines*. San Francisco, CA: BAAQMD.

California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*. Sacramento, CA: CAPCOA. <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.

———. 2008 (January). *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. Sacramento, CA: CAPCOA. <http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA-White-Paper.pdf>.

California Air Resources Board (CARB). 2016 (last reviewed September 6). AB 32 Scoping Plan. Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.

———. 2015a (October, access date). Glossary of Air Pollution Terms. Sacramento, CA: CARB. <http://www.arb.ca.gov/html/gloss.htm>.

———. 2015b (September, access date). California's Advanced Clean Cars Program. Sacramento, CA: CARB. http://www.arb.ca.gov/msprog/consumer_info/advanced_clean_cars/consumer_acc.htm.

———. 2015c (April 24, last updated). California Greenhouse Gas Inventory: 2000–2013 (2015 Edition). Sacramento, CA: CARB. https://www.arb.ca.gov/cc/inventory/pubs/reports/2000_2013/ghg_inventory_scopingplan_2000-13_20150831.pdf.

———. 2015d (last reviewed October 5). AB 32 Scoping Plan. Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.

———. 2014a. *First Update to the Climate Change Scoping Plan: Building on the Framework*. Sacramento, CA: CARB. https://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf.

- . 2014b. (last reviewed July 17). LEV III GHG and ZEV Regulation Amendments for Federal Compliance Option. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2012/leviiidtc12/leviiidtc12.htm>
- . 2013 (October). *First Update to the Climate Change Scoping Plan: Discussion Draft for Public Review and Comment*. Sacramento, CA: CARB. http://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdf.
- . 2012 (January 27). California Air Resources Board Approves Advanced Clean Car Rules. Sacramento, CA: CARB. <http://arb.ca.gov/newsrel/newsrelease.php?id=282>.
- . 2009 (August 7). *Staff Report: Initial Statement of Reasons for Rulemaking, Notice of Public Hearing to Consider Proposed Amendments to New Passenger Motor Vehicle Greenhouse Gas Emission Standards*. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2009/ghgpv09/ghgpvisor.pdf>.
- . 2008 (December). *Climate Change Scoping Plan: a Framework for Change*. Sacramento, CA: CARB. http://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf.
- California Building Standards Commission (CBSC). 2015 (October, access date). Adopted 2013 Code, Triennial California Building Standards Commission (CBSC). Adopted 2013 Code, Triennial Edition. Sacramento, CA: CBSC. <http://www.bsc.ca.gov/>.
- California Council on Science and Technology (CCST). 2012 (September). *California's Energy Future: Portraits of Energy Systems for Meeting Greenhouse Gas Reduction Targets* (by J. Greenblatt and J. Long). Sacramento, CA: CCST.
- California Energy Commission (CEC) 2015a (October, access date). 2016 Building Energy Efficiency Standards, Frequently Asked Questions. Sacramento, CA: CEC. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.
- . 2015b (June 10). News Release. Energy Commission Continues March Towards Zero Net Energy with 2016 Building Energy Efficiency Standards. http://www.energy.ca.gov/releases/2015_releases/2015-06-10_building_standards_nr.html
- California Environmental Protection Agency (CalEPA). 2010 (December). *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*. Sacramento, CA: CalEPA. <http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF>.
- California Legislative Information. 2016a (accessed September 11). Senate Bill No. 32. Sacramento, CA: California Legislature. https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB32.
- . 2016b (accessed September 11). Assembly Bill No. 197. Sacramento, CA: CARB. https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB197.

- . 2015 (October, access date). SB-350: Clean Energy and Pollution Reduction Act of 2015. Sacramento, CA: CARB. https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=201520160SB350.
- California Office of Governor Edmund G. Brown Jr. (COOG). 2015 (April 29). Top Story – Governor Brown Establishes Most Ambitious Greenhouse Gas Reduction Target in North America. Sacramento CA: COOG. <https://www.gov.ca.gov/news.php?id=18938>.
- California Natural Resources Agency (CNRA). 2009. *2009 California Climate Adaptation Strategy*. Sacramento CA: CNRA. http://resources.ca.gov/docs/climate/Statewide_Adaptation_Strategy.pdf.
- Center for Biological Diversity v. Department of Fish and Wildlife*, 62 Cal. 4th 204 (2015).
- Energy+Environmental Economics (E3). 2016 (July, access date). Projects | Other Selected Projects: E3 Energy Planning Tools. San Francisco, CA: E3. https://ethree.com/public_projects/energy_principals_study.php.
- . 2015 (May 13, presentation date). Pathways to Deep Decarbonization in the United States (a presentation by J. Williams, B. Haley, J. Moore, F. Kahrl, A. Mahone, E. Hart, S. Price, and S. Borgeson from E3, M. Torn and A. Jones from LBNL, and H. McJeon from PNNL to the California Air Resources Board). Sacramento, CA: CARB. <https://www.arb.ca.gov/research/lectures/speakers/williams/williams.pdf>.
- International Panel on Climate Change (IPCC). 2007. *IPCC Fourth Assessment Report: Climate Change 2007*. Geneva, Switzerland: IPCC. <https://www.ipcc.ch/report/ar4/>.
- . 1995. *IPCC Second Assessment, Climate Change 1995*. Geneva, Switzerland: IPCC. <https://www.ipcc.ch/pdf/climate-changes-1995/ipcc-2nd-assessment/2nd-assessment-en.pdf>.
- Irvine, City of. 2015a (July 9, 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>.
- . 2012 (May). City of Irvine CEQA Manual. Irvine, CA: the City.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- National Aeronautics and Space Administration (NASA). 2015 (January 16, Posted). NASA, NOAA Find 2014 Warmest Year in Modern Record. New York, NY: NASA, the Goddard Institute for Space Studies. <http://www.giss.nasa.gov/research/news/20150116/>.

South Coast Air Quality Management District (SCAQMD). 2015 (October, access date). About South Coast AQMD: Mission. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/about>.

———. 2013. California Emission Estimator Model (CalEEMod)TM Version 2013.2 (Developed by Environ International Corporation in Collaboration with SCAQMD and other California Air Districts). Diamond Bar, CA: SCAQMD.

———. 2010a (September 28). Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15 (slide presentation). Diamond Bar, CA: SCAQMD. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-main-presentation.pdf?sfvrsn=2).

———. 2010b (September 28). Greenhouse Gas CEQA Significance Threshold Stakeholder Working Group Meeting #15 Meeting Notes. Diamond Bar, CA: SCAQMD. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-15/ghg-meeting-15-minutes.pdf).

———. 2008 (October). Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds. Diamond Bar, CA: SCAQMD. [http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/year-2008-2009/ghg-meeting-6/ghg-meeting-6-guidance-document-discussion.pdf?sfvrsn=2).

Southern California Association of Governments (SCAG). 2016 (April). *The 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy. A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.

———. 2012 (April). *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy*. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>.

———. 2011 (December). *Draft Program Environmental Impact Report [for the] 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (Section 3.6, Greenhouse Gas Emissions). Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/Draft-2012-PEIR.aspx>.

U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Earth System Research Laboratory, Global Monitoring Division (ESRL) 2016 (June, last updated). Trends in Atmospheric Carbon Dioxide. Boulder, CO: ESRL. <http://www.esrl.noaa.gov/gmd/ccgg/trends/>.

U.S. Environmental Protection Agency (USEPA). 2016 (May 9, last updated). U.S. Greenhouse Gas Inventory Report: 1990–2014. Washington, D.C.: USEPA. <https://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html>.

- . 2015 (November 4, last updated). Endangerment and Cause or Contribute Findings for Greenhouse Gases under Section 202(a) of the Clean Air Act. Washington, D.C.: USEPA. <http://www.epa.gov/climatechange/endangerment/>.
- . 2010 (April). Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks. Washington, D.C.: USEPA. <http://www.epa.gov/otaq/climate/regulations/420f10014.pdf>.
- U.S. Environmental Protection Agency and U.S. Department of Transportation, National Highway Traffic Safety Administration (USEPA and NHTSA). 2012 (October 15). 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards. *Federal Register* (Volume 77, No. 199, pp. 62623–63200). Washington, D.C.: USEPA and NHTSA.
- Williams, J.H., A. DeBenedictis, R. Ghanadan, A. Mahone, J. Moore, W.R. Morrow III, S. Price, M.S. Torn. 2012. The Technology Path to Deep Greenhouse Gas Emissions Cuts by 2050: The Pivotal Role of Electricity. *Science* 335 (6064): 53–59. Washington, D.C.: Association for the Advancement of Science. <http://www.sciencemag.org/content/335/6064/53.full>.
- World Resources Institute (WRI). 2016. Climate Analysis Indicators Tool (CAIT) version 9.0. Washington, D.C.: WRI. <http://cait.wri.org/>.

This page intentionally left blank

4.7 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 Appendix H.

4.7.1 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 on the Tustin Plain, a broad basin filled with marine and alluvial sediments deposited on marine sedimentary bedrock (Fife 1974). The Tustin Plain is bound by bedrock; the Santa Ana Mountains to the north and east; and the San Joaquin Hills to the south. Shallow native subsurface soils beneath the Project site (i.e., soils generally less than 200–300 feet below ground surface [bgs]) consist of alluvial deposits originating from the Santa Ana Mountains to the northeast and the San Joaquin Hills to the southwest. The alluvial deposits consist primarily of lean clay and silts, with interbedded layers of fine- to medium-grained sands, sands with silt, silty sands, and sandy silts. First encountered groundwater generally flows in these alluvial sediments. Depth to groundwater at the Project site is approximately 100 feet bgs (Enviro Compliance Solutions 2014).

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). Beginning with the IAS, a total of 24 IRP Sites (1–22, 24, and 25) were identified for investigation at MCAS El Toro. Many of the IRP Sites were further subdivided into separate Units based on historical uses, nature of known releases, types of contaminants present, or media 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 Feasibility Study (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 IRP Sites located on the Project site are included in the Existing Conditions (Section 4.7.4).

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. In general, other LOCs are smaller and more limited in scope than the identified IRP Sites. Types of LOCs on the Project site include Installation Restoration Program (IRP) Sites, 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). It should be noted that IRP Sites may include several types of LOCs and/or concerns that were not separately identified as one of the other types of LOCs. The DoN is responsible for the cleanup of the contamination related to the IRP Sites and 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 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

¹ A Record of Decision (ROD) is a document that memorializes the regulatory agency's 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.

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). While conducting the ESA, Geosyntec reviewed conditions at the LOCs and identified six LOCs within the Project site that had not previously been identified by the DoN. Subsequently, four of these six LOCs were recognized and addressed by the DoN. The remaining two LOCs, having been identified during a third party ESA, were not considered by the DoN nor the FFA regulatory signatories (USEPA, DTSC, and RWQCB) to be significant, and they were not the subject of investigation or remediation by the DoN. However, they were included with the DoN-identified LOCs in subsequent County evaluations performed by Geosyntec and described below. It should be noted that Geosyntec's opinions presented in the ESA (Geosyntec 2001) considered the ASMP reuse of 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, 2003a). 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. 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 work conducted by the DoN at MCAS El Toro. Based on a review of select, available DoN documents and reports, a total of approximately 47 LOCs were identified on the Project site. 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. Thirty of the 47 LOCs were screened out as not requiring further action and all had documented NFA or No Further Investigation (NFI) status from regulatory agencies. Seventeen of the 47 LOCs were recommended for some type of further action: additional document review, additional evaluation, preparation of a Soils Management Plan, and/or identified as containing physical constraints due to ongoing remediation. It should be noted that eight of the 17 LOCs identified for further action in 2011 had documented NFA status. Those eight LOCs were conservatively recommended for further action based on historically documented concentrations of total petroleum hydrocarbons (TPH) or other chemicals that were above residential screening

levels. The 17 IRP Sites and other LOCs remaining after the screening update in 2011 are included in the Existing Conditions section, and existing conditions have been updated with additional information that has been obtained from DoN reports published since 2011.

Lease in Furtherance of Conveyance and Finding of Suitability to Transfer

A portion of the Project site (approximately 40 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 City of Irvine by a LIFOc pending further environmental investigation and/or remediation by the DoN, and subleased to the County. This area (referred to as “the LIFOc area”) of the Project site contains all or portions of IRP Sites 8, 12, and 24 (the Volatile Organic Compound [VOC] Source Area/Vadose Zone) (see Exhibit 2-1 for the LIFOc area). With closure of the IRP Site 24 VOC Source Area (Vadose Zone) in 2006 and IRP Sites 8 and 12 in 2014, the DoN maintains that the only issue preventing transfer of the LIFOc area of the Project site is the pending DoN report documenting the results of a radiological investigation of an off-site (i.e., not within the Project site) former paint room located in Hangar 296, where radium-226 (Ra-226) paints were used. Sanitary sewer lines and/or industrial wastewater lines may have conveyed wastewater from Hangar 296 to a former industrial wastewater treatment plant or a sanitary wastewater treatment plant and associated sludge drying beds (IRP Site 12) located on the Project site. Results of the radiological investigation of the paint room in Hangar 296 presented by the DoN at various Restoration Advisory Board (RAB) meetings indicate that sewer lines connecting Hangar 296 with IRP Site 12 were not impacted with Ra-226. Assuming that the final radiological report releases Hangar 296 and the associated sewer lines, the LIFOc area will be suitable for transfer, meaning that the DoN has completed necessary remediation on the Project site, with the exception of ongoing remediation at IRP Site 24 (described in more detail Section 4.7.4). The DoN has also indicated that ongoing remediation at IRP Site 24 will not prevent transfer of the LIFOc area to the County. Thus, upon DoN issuance of a Finding of Suitability to Transfer (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.

4.7.2 REGULATORY SETTING

Agency Jurisdiction

Environmental cleanup of contamination related to the former use of the Project site as MCAS El Toro is being conducted under a 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 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), OC Development Services, and the Orange County Chief Executive Office’s

(CEO) 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.

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 IRP Sites located on the Project site are included in the Existing Conditions (Section 4.7.4).

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. On the former MCAS El Toro, RCRA addresses former hazardous waste storage and management facilities, while CERCLA addresses the release of hazardous materials and hazardous waste. Former hazardous waste storage and management facilities that existed on the Project site were identified and/or investigated during the station-wide RCRA Facility Assessment (RFA) and, if warranted, these areas were either further investigated and remediated under a state or local program, or rolled into an investigation of IRP Sites/Operable Units in the RI/FS (i.e., under CERCLA). To the County’s knowledge, 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.

Asbestos Regulations

Asbestos, a naturally occurring fibrous material, was used for years in many building materials for its fire-proofing and insulating properties. Loose insulation, ceiling panels, and brittle plaster are potential sources of friable (easily crumbled) asbestos. Non-friable asbestos is generally bound to other materials such that it does not become airborne under normal

conditions. Activities that involve cutting, grinding, or drilling during demolition of asbestos-containing materials (ACMs) can release friable asbestos fibers unless proper precautions are taken. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, thereby making friable ACMs the focus of regulation.

Asbestos is a known human carcinogen; there is no known threshold level of exposure at which adverse health effects are not anticipated. Given this, the USEPA and CalEPA have identified asbestos as a hazardous air pollutant pursuant to Section 12 of the Federal Clean Air Act. Further, the California Air Resources Board (CARB) has identified asbestos as a Toxic Air Contaminant (TAC) pursuant to the *California Health and Safety Code* (Sections 39650 et seq.). Asbestos is also regulated as a potential worker safety hazard under the authority of the California Occupational Safety and Health Administration (CalOSHA). These rules and regulations prohibit emissions of asbestos from ACM demolition or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos. Because of the age of the facilities and structures on the Project site, asbestos may be present and would have to be abated if those facilities and structures are demolished, removed, relocated, or otherwise altered in a manner that may result in a release of asbestos into the atmosphere.

In California, asbestos abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Health Services. In addition, CalOSHA has regulations to protect worker safety during potential exposure to asbestos under Title 8 of the *California Code of Regulations* (Section 1529, Asbestos). Demolition that could result in the release of asbestos must be conducted according to CalOSHA standards. These standards were developed to protect the general population and construction workers from respiratory and other hazards associated with exposure to these materials.

Lead Regulations

Lead is a naturally occurring metallic element. Among its numerous uses and sources, lead can be found in paint, water pipes, solder in plumbing systems, soils around buildings, and structures painted with lead-based paint. In 1978, the federal government required the reduction of lead in house paint to less than 0.06 percent (600 parts per million [ppm]). However, some paints manufactured after 1978 for industrial uses or marine uses legally contain more than 0.06 percent lead. Because of its toxic properties, lead is regulated as a hazardous material. Lead is also regulated as a TAC. Because of the age of the facilities and structures on the Project site, lead from paint may be present and would have to be abated if those facilities and structures are demolished, removed, relocated, renovated, or otherwise altered in a manner that may result in a release of lead into the environment.

In California, lead abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Health Services. In addition, CalOSHA has safety regulations to protect workers during potential exposure to lead and asbestos under Title 8 of the *California Code of Regulations* (Section 1532.1, Lead). Demolition that could result in the release of lead must be conducted according to CalOSHA standards.

Polychlorinated Biphenyls Regulations

Polychlorinated biphenyls (PCBs) are managed under the Toxic Substances Control Act (TSCA), which bans the manufacture, processing, use, and distribution of PCBs. TSCA also gives the USEPA the authority to develop, implement, and enforce regulations concerning the use, manufacture, cleanup, and disposal of PCBs. These regulations can be found in the *Code of Federal Regulations* (CFR, specifically, Title 40, Section 761). PCBs may exist on the Project site in the form of PCB-containing lighting ballasts or other appurtenances within existing buildings, which must be managed as hazardous waste.

Mercury Regulations

Disposal of mercury lamps (generally considered hazardous waste) may be managed under RCRA full Subtitle C hazardous waste regulations or the less stringent Universal Waste Rule (UWR). Under the UWR, mercury lamps are best treated by recycling. Limited disposal is allowed by CalEPA, but not in the larger quantities typically generated during a major renovation project. Mercury-containing thermostats and fluorescent light tubes were found during a hazardous building materials survey of Building 317 (SCA/LA 2014) and may remain within other buildings at the Project site that are planned for demolition.

Creosote Regulations

Creosote is a wood preservative obtained from the high-temperature distillation of coal tar. It is used as a fungicide, insecticide, miticide, and sporicide to protect wood, primarily utility poles and railroad ties. Creosote is a possible human carcinogen and has no registered residential uses. There are no specific regulations regarding creosote. While the USEPA has not reached conclusions about the potential for creosote-treated wood products to contribute to cancer risk in workers and handlers of this wood, contact with creosote-containing timber should be avoided. There are a number of railroad spurs on the Project site, with railroad ties that may have creosote-treated timber.

Petroleum-Hydrocarbon-Impacted Soil

There are no Federal or State regulations identifying specific action levels for petroleum-hydrocarbon-impacted soils. Additionally, Orange County does not have specific regulations regarding action levels for petroleum-hydrocarbon-impacted soils. Some common VOC constituents of gasoline and diesel fuel known as benzene, toluene, ethylbenzene, and xylene (BTEX) do have associated federal screening levels. Petroleum-hydrocarbon-impacted-soil action levels are often set with the oversight agency (e.g., RWQCB, DTSC, or OCHCA) as a condition of obtaining an initial grading permit. Petroleum-hydrocarbons are known to exist in specific areas of the Project site based on numerous investigations of IRP Sites and LOCs.

Volatile Organic Compound-Impacted Soils

The SCAQMD is the local enforcement agency for the Federal Clean Air Act (CAA). Among other pollutants, the Federal CAA regulates “hazardous air pollutants” (i.e., those which can cause cancer or other severe localized health effects due to emissions from a single facility). The SCAQMD has instituted Rule 1166, Volatile Organic Compound Emissions from

Decontamination of Soil, which requires that an approved mitigation plan be obtained from the SCAQMD prior to commencing the excavation or grading of soil containing VOC materials such as gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOCs and/or the handling or storage of VOC-contaminated soil (defined as soil that registers >50 parts per million or greater using an organic vapor analyzer calibrated with hexane). In addition to the previously mentioned petroleum-hydrocarbon impacts that are known to exist in certain areas of the Project site, other VOC-impacted soils may be encountered.

Radiologically Impacted Soils

Cleanup of radium-226-impacted soils at MCAS El Toro has been performed by the DoN pursuant to the NCP, the federal government's blueprint for responding to hazardous substance releases. The NCP specifies an acceptable residual carcinogenic risk management range (above background) of 1E-04 to 1E-06. Cleanup has also been subject to the Nuclear Regulatory Commission (NRC) standards for protection against radiation, specified in the CFR (see Title 10, Section 20.1402). Radiologically impacted soils that were identified within the Project site during the RI/FS process have been remediated to the aforementioned standards, as discussed in Section 4.7.4, Existing Conditions. Offsite radiological investigations are being performed at MCAS El Toro that will also evaluate the potential for migration onto the Project site, as discussed in Section 4.7.1.

4.7.3 METHODOLOGY

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 LOCs on 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 4.7.1, Background, for details). The IRP Sites and other LOCs remaining after the update in 2011, including current regulatory status, remedial history, and potential petroleum-hydrocarbon impacts, are discussed in Section 4.7.4, Existing Conditions.

The evaluations of existing environmental conditions at the Project site are based upon 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 Due Diligence Report for the Project site (Jones Planning Consultants 2008); original Administrative Record File (e.g., CERCLA); and supplemental investigations conducted on behalf of the County as identified in Section 4.7.4.

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 4.7.5.

In Section 4.7.6, 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 disturbance of existing hazardous materials onsite, from activities such as grading or building demolition, as well as any impacts associated with construction activities or long-term operation of the Project. It is important to note that the

NFA status designation implies that the DoN has attained the cleanup levels mandated under CERCLA, which may not have been compatible with all future land uses. For example, IRP Sites and other LOCs that have been granted NFA status by regulatory agencies based on cleanup to levels generally accepted for commercial/industrial land use may still require some additional remediation before they can be utilized for residential use. These areas were assessed, as presented below, and generally discussed with regulatory agencies as part of the activities associated with the preparation of this EIR. In order to assess whether IRP Sites and other LOCs with NFA status may currently have impacts to soils or soil gas that present a significant hazard to human health, human health risks that were calculated by the DoN after remediation at the time of closure were compared to generally accepted ranges for the type of land use contemplated (residential or commercial). If these calculated risks exceeded the generally accepted ranges or if no post-remediation risks were calculated, 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 (Geosyntec 2015) and concentrations were compared to appropriate regulatory screening levels to assess whether off-gassing from the VOC plume in groundwater is creating a potential for vapor intrusion into buildings (existing or planned). A hazardous building materials survey and a radiological survey were performed on Building 317 to assess feasibility for abatement and reuse. 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 mitigation measures and development requirements that must be applied, if any, so that impacts will be mitigated to a less than significant level.

The same level of data does not exist regarding environmental conditions in IRP Sites and LOCs located in the LIFOC area because provisions of the County's sublease of the LIFOC area from the City of Irvine limit activities. Consequently, supplemental investigations could not be performed in the LIFOC area. These areas have been addressed in the hazards section through mitigation measures that require supplemental investigations to be performed once transfer of the LIFOC area to the County is complete as a first step. Some of the mitigation measures specify cumulative human health risk goals that must be achieved prior to commencement of initial grading in these areas.

4.7.4 EXISTING CONDITIONS

The following sections present existing environmental conditions on the Project site grouped into two categories: those that are associated with identified IRP Sites or other LOCs and those related to hazardous building materials and railroad ties that are general in nature (i.e., not directly associated with an IRP Site or other LOC).

Installation Restoration Program Sites and Other Locations of Concern

The following sections present existing environmental conditions on the Project site that are associated with identified LOCs (IRP Sites or other LOCs), including current regulatory status, a summary of their remedial history, and a summary of known petroleum-hydrocarbon impacts.

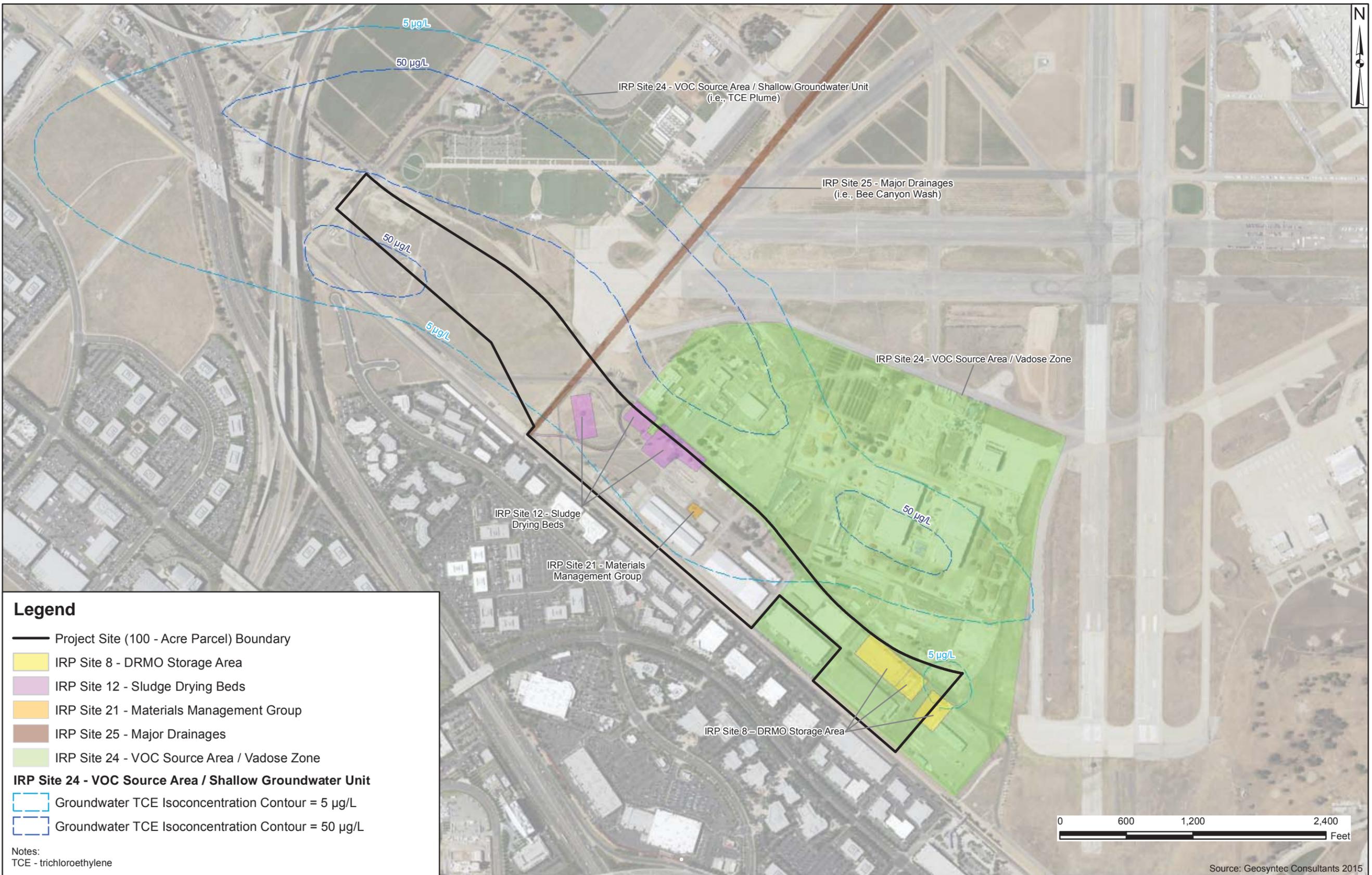
² Testing in the LIFOC area was not permitted.

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. These impacts are easily mitigated with a Soils Management Plan as discussed further in Section 4.7.6. Locations of the IRP Sites and other LOCs on the Project site are shown in Exhibits 4.7-1 and 4.7-2, respectively. The current regulatory statuses, 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 Sites and other LOCs are listed in Table 4.7-1.

Potential Petroleum-Hydrocarbon-Impacted Soils

There are a number of LOCs on the Project site for which the only COC identified was petroleum hydrocarbons (e.g., APHO 120, UST 322B, and UST 359C). There are other LOCs or IRP Sites where other chemicals of potential concern (COPCs) were addressed but some level of petroleum impacts remain (e.g., IRP Site 8 all Units and IRP Site 12 Unit 3). In some (but not all) cases, petroleum-hydrocarbon impacts were not directly addressed during the Navy's remedial actions. On some of these sites, incidental removal or treatment of petroleum hydrocarbons is presumed to have occurred as a result of the Navy's remedial actions for other COCs, but the level of petroleum hydrocarbon treatment or removal is not known (e.g., IRP 12 Unit 3). Petroleum-hydrocarbon impacts to soil are listed for each IRP Site or other LOC in the following sections. In addition to these known and/or documented 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

D:\Projects\LowE\0001\Graphics\EIR\ElToro\Ex_IRP_Sites_20151028.ai

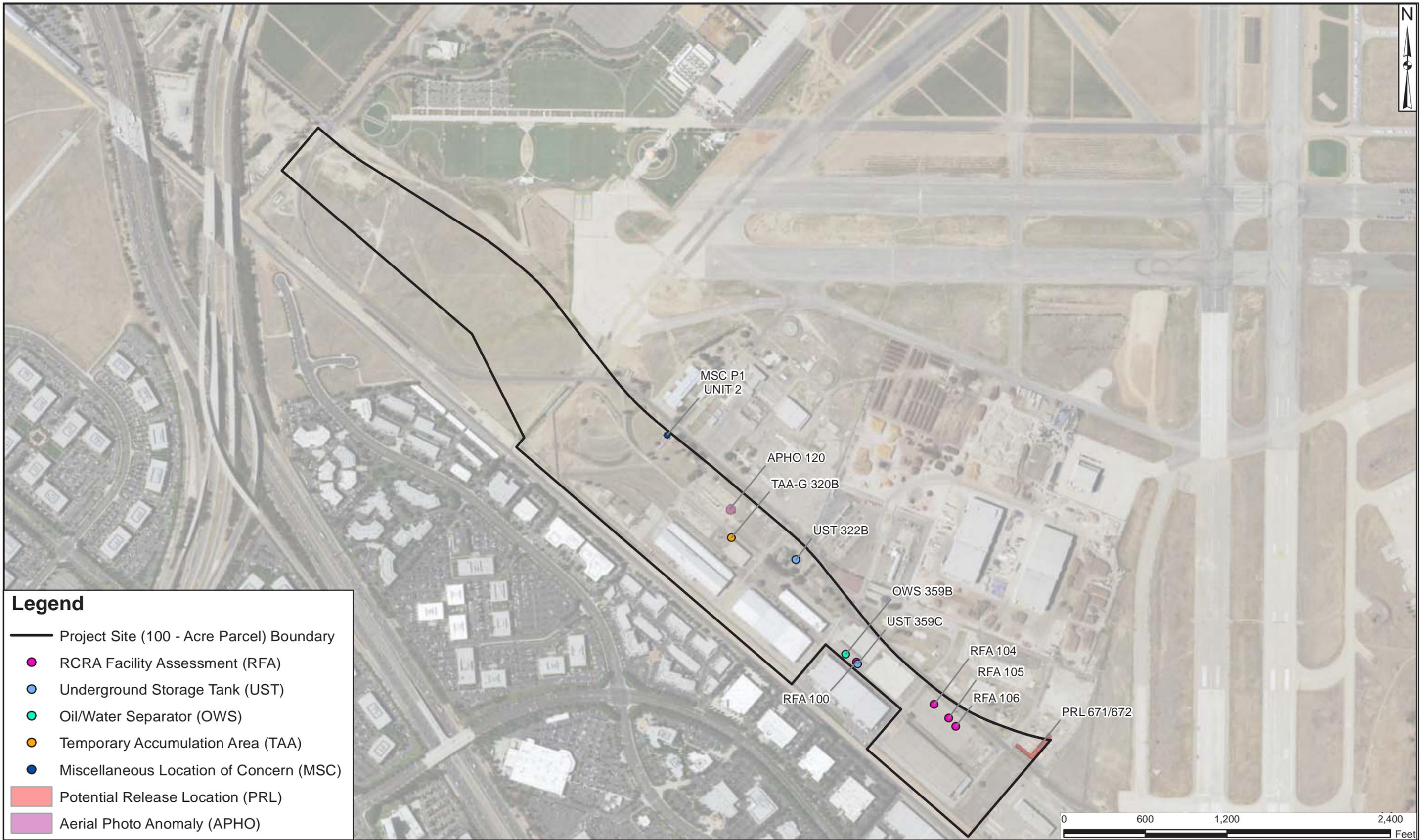


Locations of IRP Sites within Project Site

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.7-1





Legend

- Project Site (100 - Acre Parcel) Boundary
- RCRA Facility Assessment (RFA)
- Underground Storage Tank (UST)
- Oil/Water Separator (OWS)
- Temporary Accumulation Area (TAA)
- Miscellaneous Location of Concern (MSC)
- Potential Release Location (PRL)
- Aerial Photo Anomaly (APHO)

Other Locations of Concern within Project Site

EI Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.7-1
INSTALLATION RESTORATION PROGRAM SITES AND OTHER LOCATIONS OF CONCERN ON 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 8 – DRMO Storage Area	Unit 1	<u>Non-Radiological</u> Residential ELCR = 3.7E-06; HI = 0.5 (DoN 2007) Industrial ELCR = 1.1E-06; HI = 0.04 (DoN 2007) <u>Radiological</u> 1E-04>ELCR>1E-06 (AECOM 2012)	NFA RWQCB 5/25/2012	Planning Area 13 (Commercial)	MM HAZ-2; MM HAZ-3
	Unit 2	<u>Non-Radiological</u> Residential risks were not calculated post-remediation; however residential risk driver COCs were within Unit 3 Industrial ELCR = 1.4E-06; HI = 0.02 (DoN 2007) <u>Radiological</u> SEA/Background (Weston 2004)	NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Areas 12 and 13 (Commercial)	MM HAZ-2
	Unit 3	<u>Non-Radiological</u> Residential risks were not calculated post-remediation; however residential risk driver COCs were removed from Unit 3 Industrial ELCR = 1.4E-06; HI = 0.02 (DoN 2007) <u>Radiological</u> SEA/Background (Weston 2004)	NFA RWQCB 5/25/2012	Planning Area 12 and 13 (Commercial)	MM HAZ-2
	Unit 4	<u>Non-Radiological</u> Residential ELCR = 3.7E-06; HI = 0.5 (DoN 2007) Industrial ELCR = 1.1E-06; HI = 0.04 (DoN 2007) <u>Radiological</u> 1E-04>ELCR>1E-06 (AECOM, 2012)	NFA RWQCB 5/25/2012	Planning Area 13 (Commercial)	MM HAZ-2; MM HAZ-3
	Unit 5	<u>Non-Radiological (excluding PAHs):</u> Residential ELCR = 3E-07; HI = 0.6 (DoN 2007) Industrial ELCR = 1.2E-06; HI = 0.02 (DoN 2007)	NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Area 13 (Commercial) Planning Area 14 (Commercial; Parking Structure)	MM HAZ-2

**TABLE 4.7-1
INSTALLATION RESTORATION PROGRAM SITES AND OTHER LOCATIONS OF CONCERN ON 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 12 – Sludge Drying Beds	Unit 1	Residential ELCR = 2.5E-05; HI = 2.6 (DoN 2007) Industrial ELCR = 6.9E-06; HI = 0.1 (DoN 2007)	NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Areas 6, 7, and 19 (Residential)	MM HAZ-2; MM HAZ-4
	Unit 2	Residential ELCR = 1.4E-05; HI = 1.1 (DoN 2007) Industrial ELCR = 3.4E-06; HI = 0.05 (DoN 2007)	NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Areas 7 (Residential) Planning Area 8 (Commercial; Hotel)	MM HAZ-2; MM HAZ-4
	Unit 3	Residential risks were not calculated post-remediation; cleanup was to RBCs for COCs, but the cumulative risks are not known Industrial ELCR = 7.4E-06 ^d ; HI = 0.4 ^d (DoN, 2007)	NFA RWQCB 5/25/2012	Planning Areas 7 and 19 (Residential) Planning Area A (Open Space)	MM HAZ-2; MM HAZ-5
	Unit 4	Residential ELCR = 1.4E-05; HI = 1.1 (DoN 2007) Industrial ELCR = 3.4E-06; HI = 0.05 (DoN 2007)	NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Area 8 (Commercial; Hotel) Planning Area 9 (Commercial)	N/A
IRP 21 – Materials Management Group	Unit 1	Residential ELCR = 2.5E-05; HI = 2.0 (BNI 1997) Industrial ELCR = 1.1E-05; HI = 0.15 (BNI 1997)	USEPA No Action Site 09/29/1997 DTSC 09/26/1997 RWQCB 09/30/1997	Planning Area 9 (Commercial)	MM HAZ-2
	Catch Basin	Residential ELCR = 1.8E-04; HI = 0.91 (BNI 1997) Industrial ELCR = 1.1E-04; HI = 0.11 (BNI 1997)	USEPA No Action Site 09/29/1997 DTSC 09/26/1997 RWQCB 09/30/1997	Planning Area 9 (Commercial)	MM HAZ-6
IRP 24 – VOC Source Area/Vadose Zone	VOC Source Area	Not Calculated ^e	NFA USEPA, DTSC, RWQCB March 2006	Planning Area 7 through Planning Area 15 (Multiple)	MM HAZ-7
IRP 24 – VOC Source Area/Shallow Groundwater Unit	Shallow Groundwater Unit	N/A – Ongoing Remediation	Ongoing Remediation	Planning Area 1 through Planning Area 13 Planning Area 15 through Planning Area 20 (Multiple)	MM HAZ-8
IRP 25 – Major Drainages	N/A	Not calculated ^e	USEPA No Action Site 09/29/1997 DTSC 09/26/1997 RWQCB 09/30/1997	Planning Area 5 (Residential) Planning Area 20 (Residential)	MM HAZ-2
APHO 120 – Arial Photo Anomaly	N/A	Not calculated ^e	Unknown (possible NFA)	Planning Area 9 (Retail)	MM HAZ-2

**TABLE 4.7-1
INSTALLATION RESTORATION PROGRAM SITES AND OTHER LOCATIONS OF CONCERN ON 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
MSC P1 Unit 2 – Past Pesticide Storage Area	N/A	Residential ELCR = 3.2E-06; HI = 0.99 (RMA 2009) ^f	NFA DTSC 04/09/2009	Planning Area F (Open Space)	N/A
OWS 359B – Oil/Water Separator (1,000 gal.)	N/A	Not calculated ^e	NFA RWQCB 3/31/2000	Planning Area 11 (Commercial)	MM HAZ-2
PRL 671/672 – Refueling Vehicle Parking Area	N/A	Not calculated ^e	NFI USEPA 03/16/2005 DTSC 07/13/2005	Planning Area 13 (Commercial)	MM HAZ-2
RFA 100 – TCE Degreaser	N/A	Not calculated ^e	NFA DTSC 07/23/1996	Planning Area 11 (Commercial)	MM HAZ-2
RFA 104 – <90-Day Accumulation Area (RFA 104 is located within IRP 8 Unit 2)	N/A	Not calculated ^e	Conditional NFA DTSC 08/25/1999 NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Area 12 (Commercial)	Addressed Under IRP Site 8 Unit 2
RFA 105 – <90-Day Accumulation Area (RFA 105 is located within IRP 8 Unit 2)	N/A	Not calculated ^e	Conditional NFA DTSC 08/25/1999 NFA USEPA 05/08/2007 DTSC 05/22/2007	Planning Area 12 (Commercial)	Addressed Under IRP Site 8 Unit 2
RFA 106 – <90-Day Accumulation Area (RFA 106 is located within IRP 8 Unit 2 or Unit 3)	N/A	Not calculated ^e	Conditional NFA DTSC 08/25/1999 Unit 2 NFA USEPA 05/08/2007 DTSC 05/22/2007 Unit 3 NFA RWQCB 5/25/12	Planning Area 12 (Commercial)	Addressed under IRP Site 8 Unit 2 and 3
TAA G 320B – Covered Concrete Pad (Located within IRP 21, which was a drum storage area)	N/A	Not calculated ^e	Located within IRP Site 21 – USEPA No Action Site 09/29/1997 DTSC 09/26/1997 RWQCB 09/30/1997	Planning Area 9 (Retail)	Addressed under IRP Site 21
UST 322B – Diesel Storage Tank (530 gal.)	N/A	Not calculated ^e	NFA RWQCB 12/12/1995	Planning Area 10 (Commercial)	MM HAZ-2

**TABLE 4.7-1
INSTALLATION RESTORATION PROGRAM SITES AND OTHER LOCATIONS OF CONCERN ON 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
UST 359C – Waste Oil Storage Tank (500 gal.)	N/A	Not calculated ^e	NFA OCHCA 12/09/1996	Planning Area 11 (Commercial)	MM HAZ-2
<p>LOC ID: Location of Concern Identification; IRP: Installation Restoration Program; DRMO: Defense Reutilization and Marketing Office; ELCR: Excess Lifetime Cancer Risks; HI: Non-Cancer Hazard Index; NFA: No Further Action; RWQCB: Regional Water Quality Control Board; MM: Mitigation Measure; COC: Chemical of Concern; USEPA: United States Environmental Protection Agency; DTSC: Department of Toxic Substances Control; SEA: site evaluation accomplished; PAH: polycyclic aromatic hydrocarbon; RBC: risk-based concentrations; N/A: Not Applicable; VOC: volatile organic compound; APHO: Aerial Photograph Anomaly; MSC: Miscellaneous Location of Concern; OWS: Oil Water Separator; gal.: gallons; PRL: potential release location; NFI: No Further Investigation; RFA: Resource Conservation and Recovery Act (RCRA) Facility Assessment Site; TCE: trichloroethylene; TAA: temporary accumulation area; UST: underground storage tank; OCHCA: Orange County Health Care Agency</p> <p>^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.</p> <p>^b Regulatory status obtained from review of available documents in the Administrative Record File for former MCAS El Toro.</p> <p>^c Planning Areas per El Toro, 100-Acre Parcel Development Plan 2016.</p> <p>^d These risks were calculated prior to remediation.</p> <p>^e Human health risks were either not calculated or the information was not found in available documentation; to the County’s knowledge risk calculations were not performed for these LOCs.</p> <p>^f Excludes metals at concentrations below background.</p>					

Installation Restoration Program Site 8 – Defense Reutilization and Marketing Office Storage Area

IRP Site 8 is a former Defense Reutilization and Marketing Office (DRMO) Storage Area for containerized liquids and scrap and salvage materials, including mechanical and electrical components. IRP Site 8 is comprised of two separate but adjacent areas: an old salvage yard and a main storage yard. These two areas were divided into five units during the Phase II Remedial Investigation (RI) (BNI 1997): the east storage yard (Unit 1), the west storage yard (Unit 2), the refuse pile area (Unit 3; within Unit 2), the PCB spill area (Unit 4; within Unit 1), and the old salvage yard (Unit 5).

Current Regulatory Status

All five Units have received NFA concurrence from the applicable regulatory agencies³. Units 2 and 5 received NFA concurrence from the USEPA on May 8, 2007, and from the DTSC on May 22, 2007 (DoN 2007). Units 1, 3, and 4 received NFA concurrence from the RWQCB on May 25, 2012 (SARWQCB 2012a).

Remedial History

Units 1 through 4 were used as materials storage areas from the late 1940s through base decommissioning in 1999. A refuse pile (Unit 3; within Unit 2) was removed in 1991 prior to the Phase I RI (JEG 1993b). In December 1993, after Phase I RI sampling, the top two feet of soil from Unit 3 (approximately 229 cubic yards [CY]) was excavated and removed and Unit 2 (including Unit 3) was paved. The total PCBs in the excavated soil ranged from non-detected (ND < 0.1 milligrams per kilogram [mg/kg]) to 20.0 mg/kg with a mean concentration of 6.37 mg/kg. Approximately five gallons of PCB-containing oil was reportedly spilled in a specific area (Unit 4) in Unit 1 in 1984 and approximately 1,500 square feet was excavated to a depth of one foot below grade and disposed of offsite (JEG 1993b). Unit 5 was used as a materials storage area from the late 1940s through the 1970s, but by the mid-1980s, it had been elevated and regraded with approximately five feet of imported fill material. Subsequently, Unit 5 was used for vehicle parking and is unpaved. Units 1 and 4 apparently handled small quantities of Ra-226-painted parts.

Based on site characterization data collected from the Phases I and II RIs (JEG 1993b; BNI 1997), and analyses performed during the Phase II Feasibility Study (FS) (BNI 1998), a Proposed Plan (DoN 1999b) and subsequently a Draft Record of Decision (ROD) (BNI 1999) were issued. The Draft ROD identified NFA for Units 1, 2, and 4 (for non-radiological impacts) and excavation as the selected remedy for non-radiologically impacted soils in Units 3 and 5, with recycling of excavated soil as landfill cap foundation material at the Station IRP Site 2 or 17 landfill, and confirmation sampling to evaluate whether soil exceeding residential risk-based concentrations (RBCs) developed as part of the Phase II RI (BNI 1997) for chemicals of concern (COCs) had been removed. Risk reevaluation based on updated toxicity indices,

³ It is important to note that each Unit of an IRP Site or each other type of LOC does not require an NFA letter from each of the FFA regulatory signatories (i.e., USEPA, DTSC, and RWQCB). The regulatory agencies cooperated and decided which agency would take the lead for certain IRP Units or other types of LOCs. For example, often USEPA and DTSC signed a ROD with a NFA determination for certain Units and RWQCB took the lead on investigation/remediation of other Units. Subsequently, the RWQCB alone signed a NFA letter for the remaining Units. Generally RWQCB took the lead in areas believed to pose a particular threat to groundwater.

exposure factors, and subsequent soil sampling at Unit 5 resulted in concurrence with the NFA recommendation for Units 1, 2, and 4 (for non-radiological impacts), and in a recommendation for reevaluation of the selected remedy documented in the Draft ROD for Units 3 and 5 (OHM/IT Group 1999; Earth Tech 2003b).

Subsequent to the FS and Draft ROD, IRP Site 8 underwent radiological evaluation as part of the station-wide Historical Radiological Assessment (HRA) (R.F. Weston 2000). Based on an employee interview, the HRA recommended further investigation. Characterization surveys and sampling were conducted in June through November 2001 and in March 2004. Results were presented in the Final Radiological Release Report (Weston 2004) along with a Site Evaluation Accomplished (SEA) recommendation for Units 2, 3, and 5. Units 1 and 4 were selected for further response action, and remedial action alternatives were developed and evaluated in a FS Addendum for IRP Site 8 (Earth Tech, 2006).

A revised Proposed Plan (DoN 2006a) recommended and subsequently a final ROD (DoN 2007) identified NFA for Units 2 and 5 and excavation and off-site disposal as the selected remedy for non-radiologically impacted soil at Unit 3 and Ra-226-impacted soil at Units 1 and 4 along with a NFA status determination for groundwater beneath IRP 8. The USEPA and DTSC signed the final ROD concurring with NFA status for Units 2 and 5 on May 8 and 22, 2007, respectively.

Excavation and removal of soils impacted above the residential RBC for Aroclor 1254 was the selected remedy for Unit 3 and soils impacted above the target cleanup goal for Ra-226 was the selected remedy for Units 1 and 4. As planned in the Final Remedial Design/Remedial Action Work Plan (Accord 2008), Unit 3 underwent pre-excavation soil sampling and excavation to address PCB-impacted soil. Aroclor 1254 (i.e., the mixture of PCBs that had previously been detected at highest concentrations) was not detected in the pre-excavation samples in Unit 3; therefore, no confirmation samples were collected. On February 5, 2009, approximately six CY of soil was excavated to a depth of approximately five feet and the excavation was backfilled with borrow material from Unit 5. Ra-226-impacted soils were removed from 14 hotspot locations (with concentrations ranging from 7.5 to 329 picocuries per gram [pCi/g]) from Units 1 and 4 from January 13 to March 31, 2009. No Final Status Survey (FSS) sample results exceeded the site-specific target cleanup goal (2.05 pCi/g). Remedial Action Objectives (RAOs) were attained as described in the Final Remedial Action Completion Report that was submitted in April 2012 (AECOM). The RWQCB provided a letter of NFA for the soil at IRP 8 on May 25, 2012 (SARWQCB 2012a).

Petroleum-Hydrocarbon Impacts

Petroleum-hydrocarbon impacts present at IRP Site 8 were not specifically addressed by the DoN's remedial actions and, though some incidental removal of petroleum hydrocarbons is presumed to have occurred during remedial excavations in Units 1, 3, and 4, petroleum-hydrocarbon impacts are presumed to remain within Units 1 through 5. Measured concentrations of total recoverable petroleum hydrocarbon (TRPH) from the Phase I and Phase II RIs are summarized below (BNI 1997):

Units 1 and 4

- 1,000 ppm < TRPH < 10,000 ppm
- Maximum detected TRPH was 7,730 ppm

- There were TRPH detections in 12 of 19 samples analyzed

Units 2 and 3

- 1,000 ppm < TRPH < 10,000 ppm
- Maximum detected TRPH was 1,698 ppm
- There were TRPH detections in three of 11 samples analyzed

Unit 5

- 100 ppm < TRPH < 500 ppm
- Maximum detected TRPH was 269 ppm
- There was TRPH detected in one of six samples analyzed

Installation Restoration Program Site 12 – Sludge Drying Beds

IRP Site 12 consists of two sludge drying beds (Units 1 and 2), an unlined drainage ditch (Unit 3), and a former wastewater treatment plant (WWTP) area (Unit 4). The drying beds are associated with a WWTP that operated between 1943 and 1972 and an industrial wastewater treatment plant (IWWTP) that reportedly operated from 1945–1946.

Current Regulatory Status

All four Units have received NFA concurrence. Units 1, 2, and 4 received NFA concurrence from the USEPA on May 8, 2007 and from the DTSC on May 22, 2007 (DoN 2007). Unit 3 received NFA concurrence from the RWQCB on May 25, 2012 (SARWQCB 2012b).

Remedial History

As noted above, IRP 12, the Sludge-Drying Beds, is comprised of the following four units: former location of West Sludge-Drying Beds (Unit 1), former location of East Sludge-Drying Beds (Unit 2), drainage ditch (Unit 3; discharges into Bee-Canyon Wash), and location of the former WWTPs (Unit 4). Units 1 and 2 consisted of multi-celled sand infiltration beds surrounded by a four-foot-high earthen berm. The drainage ditch (Unit 3) was an unimproved earthen channel that skirted both sludge-drying bed areas and terminated at Bee Canyon Wash. The WWTP area (Unit 4) included a WWTP (non-industrial; presumably sanitary) including eight concrete aboveground treatment tanks and a pump building, and an IWWTP located immediately east of the WWTP that included two aboveground tanks and a sludge sump. The IWWTP treated waste liquids generated during metal plating operations that occurred primarily at Buildings 295, 296, 297, and 324, and reportedly operated for only a brief period from 1945 to 1946. Industrial sewer lines are believed to have brought waste liquids from these buildings to the IWWTP. Effluent lines ran from the IWWTP to the WWTP and sludge lines ran from both the WWTP and IWWTP to the East and West Sludge-Drying Beds (Units 1 and 2), where the sludge was dewatered.

Based on site characterization data collected from the Phase I and II RIs (JEG 1993b; BNI 1997), and analyses performed during the Phase II FS (BNI 1998), a Proposed Plan (DoN 1999b) and subsequently a Draft ROD (BNI 1999) were issued. The Draft ROD identified NFA for Units 1, 2, and 4 (for non-radiological impacts) and excavation as the selected remedy for non-

radiologically impacted soils in Unit 3 with recycling of excavated soil as landfill cap foundation material at the on-Station IRP Site 2 or 17 landfill and confirmation sampling to ensure that soil exceeding residential RBCs developed as part of the Phase II RI (BNI 1997) for COCs had been removed. Risk reevaluation based on updated toxicity indices, exposure factors, and subsequent soil sampling at Unit 3 (OHM/IT Group 1999) resulted in concurrence with the NFA recommendation for Units 1, 2, and 4 (for non-radiological impacts), and a recommendation for reevaluation of the selected remedy documented in the Draft ROD for Unit 3 (Earth Tech 2003b).

Subsequent to the FS and Draft ROD, IRP Site 12 underwent radiological evaluation as part of the base-wide HRA (R.F. Weston 2000). The HRA considered IRP Site 12 as potentially impacted since the former IWWTP and sludge-drying beds were located downstream of Building 296 (former location of radium paint room) and processed effluent from Station buildings connected to the industrial waste sewer system (R.F. Weston 2000). Characterization surveys and sampling were conducted in June through November 2001 and in March 2004. Results were presented in the Final Radiological Release Report (Weston 2004) along with an SEA recommendation for all Units of IRP 12.

A revised Proposed Plan (DoN 2006a) recommended and subsequently a final ROD (DoN 2007) identified NFA for Units 1, 2, and 4 and excavation and off-site disposal as the selected remedy for non-radiologically impacted soil along with an NFA status determination for groundwater beneath IRP 12. The final ROD also established target cleanup goals for excavating contaminants in shallow soil in Unit 3 to protect human health and the environment. The USEPA and the DTSC signed the final RODs concurring with the NFA status for Units 1, 2, and 4 on May 8 and 22, 2007, respectively.

As planned in the Final Remedial Design/Remedial Action Work Plan (Accord 2008), Unit 3 underwent pre-excavation soil sampling, excavation, and post-excavation soil sampling to address PCB, PAH, chlorinated pesticide, and herbicide impacted soil. Excavation of COC-impacted soils began on January 20, 2009, and was completed in February 2009. For IRP Site 12, Unit 3, the reported concentrations of COCs were less than their respective target cleanup goals in confirmation soil samples obtained following the completion of excavation activities. The excavation was graded into a trapezoidal channel rather than backfilled. Remedial Action Objectives (RAOs) were attained as described in the Final Remedial Action Completion Report that was submitted in April 2012 (AECOM). The RWQCB provided a letter of NFA for the soil at IRP 12 on May 25, 2012 (SARWQCB 2012b).

Petroleum-Hydrocarbon Impacts

Petroleum-hydrocarbon impacts present at IRP Site 12 were not specifically addressed by the DoN's remedial actions and, though some incidental removal of petroleum hydrocarbons is presumed to have occurred during remedial excavation in Unit 3, petroleum-hydrocarbon impacts are presumed to remain within Units 1, 2, and 3. Measured concentrations of TRPH results from the Phase I and Phase II RIs are summarized below (BNI 1997).

Unit 1

- 100 ppm < TRPH < 500 ppm
- Maximum detected TRPH was 372 ppm

- There were TRPH detections in seven of nine shallow samples analyzed

Unit 2

- TRPH < 100 ppm
- Maximum detected TRPH was 67 ppm
- There were TRPH detections in three of seven shallow samples analyzed

Unit 3

- TRPH > 10,000 ppm
- Maximum detected TRPH was 42,529 ppm
- There were TRPH detections in five of ten samples analyzed

Unit 4

- TRPH was not analyzed in samples collected from Unit 4

Installation Restoration Program Site 21 – Materials Management Group

IRP Site 21 (a.k.a. SWMU 94) consists of a single unit (Unit 1) that was a former chemical storage area located on the northwest end of Building 320. IRP Site 21 contains the TAA G 320B LOC, and a concrete-lined catch basin located near the southwest corner of the site.

Current Regulatory Status

No Action Site concurrence for IRP Site 21 was received from the USEPA on September 29, 1997, the DTSC on September 26, 1997, and the RWQCB on September 30, 1997 (DoN 1997b).

Remedial History

IRP Site 21, which is comprised of a single unit (Unit 1), is a former chemical storage area on the northwest side of Building 320, which formerly housed the Materials Management Group. The $\frac{1}{3}$ -acre site is an unpaved fenced enclosure covered by dirt and gravel, with small areas of patchy concrete. A 20-foot by 25-foot bermed (i.e., contained) and covered concrete pad (Structure 949), used for storage of hazardous chemicals, is situated in the southwest corner of the site. A concrete-lined catch basin, which receives surface water runoff, is located just outside the fence near the southwestern corner of the site. The catch basin may also receive runoff from off site. Human health risks were calculated separately for Unit 1 of IRP Site 21 and the catch basin. Drummed materials were stored at IRP Site 21 until 1995 when they were removed. No leaks or spills have been documented. Soil sampling was performed as part of the Phase I and II RIs (JEG 1993b; BNI 1997), and it was concluded that site-related contamination is limited to the shallow soil interval. Nine shallow soil samples, seven deeper subsurface soil samples, and one sediment sample were collected during the Phase I RI (JEG 1993b) and ten shallow soil samples were collected during the Phase II RI (BNI 1997). Human health risk assessments showed that the contaminants present in the soil do not present an unacceptable risk to human health and/or the environment. This determination was documented in the Draft Final ROD, Operable Units 2A and 3A – No Action Sites (DoN 1997b) and was signed by USEPA on September 29, 1997, DTSC on September 26, 1997, and the RWQCB on September 30, 1997.

Petroleum-Hydrocarbon Impacts

Gasoline and motor oil were each reported in one surface-soil sample from two of seven boring locations at IRP Site 21. Motor oil was reported at a concentration of 140 ppm and gasoline was reported at a concentration of 0.0992 ppm in the surface-soil sample. Petroleum hydrocarbons were not reported in shallow soil at depths greater than one foot bgs.

Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Vadose Zone

The vadose zone refers to the soil between the ground surface and the top of the groundwater table. VOCs, mainly trichloroethylene (TCE), were historically used for degreasing parts, paint stripping, and aircraft washing in an area in the southwestern portion of former MCAS El Toro (DoN 2005). This area was designated as IRP Site 24, the VOC Source Area. The IRP Site 24 VOC Source Area includes the southeastern 1/3 of the Project site, though based on concentrations in groundwater, it appears that releases of VOCs occurred primarily to the northeast, outside the Project site. Releases of VOCs contaminated the soil and migrated vertically downward into the groundwater, resulting in a plume of contaminated groundwater beneath much of the Project site and extending off site to the west of former MCAS El Toro (DoN 2005). Contaminants in the soil and soil gas have been remediated by the Navy and contaminants in the groundwater are still undergoing active remediation.

Current Regulatory Status

No Further Action (NFA) concurrence for IRP Site 24 vadose zone was granted by the USEPA, DTSC, and RWQCB, in April 2006 (DoN 2006b).

Remedial History

The Interim ROD for the Site 24 VOC Source Area Vadose Zone (i.e., the unsaturated soil above groundwater) was completed in September 1997 (DoN 1997a) and documented soil vapor extraction (SVE) as the selected remedy to address VOCs in soil. The Interim ROD also contained a provision for resampling the vadose zone at the conclusion of groundwater remediation (discussed in the next section). This provision was later transferred to the groundwater ROD, via the Explanation of Significant Differences (ESD) in December 2008. The major components of the selected remedy for the vadose zone soil at Site 24 (per the Interim ROD) included construction, operation and maintenance of an SVE system to remove TCE and other VOCs from the soil; performance monitoring; treatment of VOC-contaminated soil vapor with activated carbon filters to meet air quality standards prior to discharge to the atmosphere; confirmatory soil vapor sampling at the end of the vadose zone remediation to confirm that average VOC concentrations are below levels that would contaminate groundwater above maximum contaminant levels. The selected remedy was implemented and documented in the Closure Report (Earth Tech 2002). The Closure Report concluded that VOC concentrations in soil vapor had been reduced below the groundwater protective threshold limits established in the Interim ROD. The Final ROD (DoN 2006b) for the soil documenting NFA for the IRP Site 24 vadose zone was signed by USEPA, DTSC, and RWQCB in April 2006. Soil vapor cleanup levels were designed to be protective of groundwater but not the vapor intrusion to indoor air pathway. Soil vapor cleanup goals exceeded screening levels for residential and commercial/industrial use by over an order of magnitude. No post-closure

(2002) data was available describing the nature and extent of the current VOC impacts to soil gas.

County Supplemental Investigation

To understand the nature and extent of potential VOC impacts to soil gas at the Project site that may exist, soil gas probes were installed and sampled. A total of 51 individual soil gas probes were installed in 20 locations. Each location had two completion depths (generally five and 15 feet bgs), and 11 locations had an additional deeper completion depth (generally 40 feet bgs). Each individual probe completion was sampled and analyzed for VOCs (USEPA Method 8260B) and the 5- and 15-foot bgs completions were analyzed for methane (ASTM D1946). A total of seven VOC compounds (tetrachloroethylene [PCE]; TCE; chloroform; toluene; 4-isopropyltoluene; carbon tetrachloride; and Freon 113) were detected in 12 of 20 sampling locations at the Project site. Methane was not detected in samples from the Project site. For full details please see the *100-Acre Parcel Soil Gas Assessment Report* (Geosyntec 2015). Based on the data and results presented in the report, the following conclusions were drawn:

- The detections of VOCs in the 51 soil gas samples collected for VOC analysis 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 implementation of the Development Plan for the Project site:
 - Only one VOC was detected (Freon 113) in three locations currently planned for residential land use at concentrations more than 10,000 times below residential screening levels.
 - Three VOCs were detected (PCE, TCE, and chloroform) in three separate locations currently planned for commercial use at concentrations below commercial/industrial screening levels. Further, the detections of TCE and chloroform were only in the deepest completions at those two locations, 35 feet bgs and 35.5 feet bgs (i.e., TCE and chloroform were not detected in the shallower completions at those locations).
 - The implemented groundwater remedy (see discussion below) is expected to continue 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.
- There were no detections of methane in the 38 soil gas samples collected for methane analysis from the Project site.

Petroleum-Hydrocarbon Impacts

Petroleum-hydrocarbon impacts in the area of the IRP Site 24 VOC Source Area/Vadose Zone were not specifically investigated during remedial actions. Therefore, there are no known petroleum-hydrocarbon impacts specifically related to this IRP Site. It should be noted that IRP Sites 8 and 12 as well as several other LOCs are partially or entirely within IRP Site 24 VOC Source Area/Vadose Zone. Known petroleum-hydrocarbon impacts at those sites are discussed in their respective sections.

Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Shallow Groundwater Unit

VOCs, mainly TCE, were historically used for degreasing parts, paint stripping, and aircraft washing in an area in the southwestern portion of former MCAS El Toro (DoN 2005). This area was designated as IRP Site 24, the VOC Source Area. Releases of VOCs in this area contaminated the soil and migrated vertically downward into the Shallow Groundwater Unit (SGU), resulting in a plume of contaminated groundwater beneath much of the Project site and extending off site to the west of former MCAS El Toro (DoN 2005). The contaminants in the soil and soil gas have been remediated by the Navy and contaminants in the groundwater are still undergoing active remediation.

Current Regulatory Status

Groundwater remediation is ongoing at IRP Site 24, with documented VOC impacts to the SGU still present.

Remedial History

The final groundwater ROD addressing IRP Site 24 SGU (i.e., the VOC groundwater plume beneath the Project site) and downgradient IRP Site 18, the principal aquifer, was issued in 2002 (DoN 2002), and documented groundwater extraction and treatment using air stripping as the selected remedy to address VOCs in groundwater. The groundwater treatment system began operating in 2006. An ESD was completed in January 2006 to describe modifications to actions required at Sites 18 and 24 (relocation of VOC treatment plants, reconfiguration of groundwater extraction well locations and extraction rates in the principal aquifer, alternative disposal of treated SGU groundwater). An ESD was completed in December 2008 (DoN 2008) that requires vadose zone resampling at the completion of the groundwater remedy and incorporation of this vadose zone resampling as a component of the selected remedy for groundwater. At present, groundwater is being extracted from 43 extraction wells (24SGU-1 through 24SGU-39 and 24EX3 through 24EX6). The extracted water is conveyed to Irvine Ranch Water District's (IRWD's) SGU Treatment Plant where VOCs are removed using air stripping; and the water is subsequently disposed of via the South Orange County Wastewater Authority's ocean outfall pipeline.

Groundwater remediation is ongoing at IRP Site 24, with documented VOC impacts to the SGU still present. The Final Semiannual Groundwater Monitoring and System Operations Data Package IRP Sites 18 and 24 Groundwater Remedy Report (Enviro Compliance Solutions 2014) indicates decreasing TCE trends in groundwater wells and provides the most recent groundwater plume information.

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 constructed structures and (2) there are two extraction wells with appurtenances and approximately 11 monitoring wells that are associated with IRP Site 24 on

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 potential for vapor intrusion impacts at the Project site, the County performed a supplemental investigation of soil gas as described in the previous section. For full details please see the *100-Acre Parcel Soil Gas Assessment Report* (Geosyntec 2015). In addition, the implemented groundwater remedy is expected to continue 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 extraction wells and appurtenances and the existing groundwater monitoring wells on the Project site represent existing environmental conditions that the Project must take into consideration.

Petroleum-Hydrocarbon Impacts

Groundwater at the site is located at a depth of approximately 100 feet bgs. Petroleum-hydrocarbon impacts that may exist in the groundwater plume will be addressed by remediation of the VOC groundwater plume.

Installation Restoration Program Site 25 – Major Drainages (Operable Unit 2A)

IRP Site 25 comprises the four major washes that flow through former MCAS El Toro. These are Agua Chinon Wash, Bee Canyon Wash, Borrego Canyon Wash, and Marshburn Channel. The southern portion of Bee Canyon Wash traverses the Project site.

Current Regulatory Status

No Action Site concurrence for IRP Site 25 was received from USEPA on September 29, 1997, from the DTSC on September 26, 1997, and the RWQCB on September 30, 1997 (DoN 1997b).

Remedial History

The drainages identified as IRP Site 25 were investigated as part of the Phase I RI for Sites 18 and 24 to evaluate the source of the off-site VOC groundwater plume. Potential contamination in the major drainages was assessed by analyzing surface water, sediment, soil, and soil gas samples. Soil samples from Bee Canyon Wash near the southern boundary of the MCAS reported petroleum hydrocarbon concentrations at 25 feet bgs (total petroleum hydrocarbons [TPH]-gasoline was detected at 1,260 mg/kg and TPH-diesel was detected at 1,560 mg/kg). The Draft Final RI Report concluded that the site-related contamination is limited to sediment and surface water and the human health and ecological risk assessments showed that the contaminants present in these media do not present an unacceptable risk to human health or the environment. This determination was documented in the Draft Final ROD, Operable Units 2A and 3A – No Action Sites (DoN 1997b) and was signed by USEPA on September 29, 1997, DTSC on September 26, 1997, and the RWQCB on September 30, 1997.

Petroleum-Hydrocarbon Impacts

Soil samples from Bee Canyon Wash near the southern boundary of the Station reported petroleum hydrocarbon concentrations at 25 feet bgs (TPH-gasoline was detected at 1,260 ppm and TPH-diesel at 1,560 ppm).

Aerial Photograph Anomaly 120

This area was identified as a LOC due to staining and wet soil observed in a 1984 aerial photograph.

Current Regulatory Status

Human health risks were either not calculated or the information was not found in available documentation; to the County's knowledge risk calculations were not performed (possible NFA).

Remedial History

An Information Package dated October 2003 stated that there were probable stains or wet soil at this LOC evident in historical aerial photographs and that additional investigation was required. However, a 2005 Base Realignment and Closure Environmental Business Plan states that the site received NFA status. Neither of these documents nor other documents related to APHO 120 could be located in the Administrative Record File. Other than references to previously reviewed documents that include information on soil and soil gas sampling, there is currently no documentation of sampling, analysis, or closure for this LOC.

Petroleum-Hydrocarbon Impacts

The only documented COC for APHO 120 is petroleum hydrocarbons. Because there was no documented removal of soil, the following historically detected petroleum-hydrocarbon impacts are presumed to remain:

- 100 ppm < TPH < 1,000 ppm

Miscellaneous Location of Concern P1 Unit 2 - Past Pesticide Storage Area

MSC P1 was an area where pesticides were historically stored. Based on results of soil investigations, remediation consisting of excavation and off-site disposal was conducted.

Current Regulatory Status

NFA concurrence for MSC P1 Unit 2 was granted by DTSC on April 9, 2009 (DTSC 2009).

Remedial History

MSC P1 Unit 2 is identified as a past pesticide storage area. Results of soil investigations identified chlorinated pesticides and other inorganics in soils. Chlorinated pesticides were detected at concentrations below residential screening levels. However, 15 inorganic

constituents in one or more samples were measured at concentrations greater than established site background levels and residential or industrial screening levels. Approximately 85.5 tons of soil was excavated from the southwestern portion of the site during three separate events in 2006 and 2007. Based upon soil removal and evaluation of residual human health risk, the Closure Report for Former MSC P1, Unit 2 (RMA 2009) recommended NFA status, and DTSC concurrence was granted on April 9, 2009 (DTSC 2009).

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts at MSC P1 Unit 2.

Oil Water Separator 359B

OWS 359B was a 1,000-gallon Oil/Water Separator associated with Building 359.

Current Regulatory Status

NFA concurrence was granted for OWS 359B from RWQCB on March 31, 2000 (SARWQCB 2000).

Remedial History

A 25-foot boring was advanced and five samples were collected and analyzed for TPH and VOCs as part of the RCRA Facility Assessment. The maximum TPH concentration detected was 170 ppm at a depth of five feet and concentrations of VOCs were less than residential screening levels. Building 359 lies within the IRP Site 24 VOC Source Area/Vadose Zone, where VOCs are present in the vadose zone and TCE has been detected in the groundwater. Closure was requested in the Site Assessment Report, OWS 359B, dated November 17, 1999, and NFA concurrence was granted from RWQCB on March 31, 2000 (SARWQCB, 2000).

Petroleum-Hydrocarbon Impacts

Because there was no documented remediation of soils, the following historically detected concentrations of petroleum-hydrocarbons are presumed to remain:

- 100 ppm < TPH < 500 ppm
- Maximum detected TPH was 170 ppm at five feet bgs

Potential Release Location 671/672 – Refueling Vehicle Parking

Damaged asphalt in a refueling vehicle parking area, possibly due to waste discharges, was observed during the 2002 Visual Site Inspections (VSIs) conducted in support of the 2003 EBS (Earth Tech 2003a).

Current Regulatory Status

No Further Investigation (NFI) concurrence was granted by USEPA on March 16, 2005, and DTSC concurrence was granted on July 13, 2005 (Earth Tech 2008).

Remedial History

Surface water flow from the parking area is to the southwest with subsequent discharge to a storm drain situated at the intersection of "R" Street and South Marine Way. Samples were taken in October 2004 to assess the potential for subsurface impacts. Based on a review of sampling data and risk evaluation, NFI was recommended for this LOC in the February 2005 Summary Report for Group I PRLs (Earth Tech 2005). USEPA concurrence was granted on March 4, 2005, and DTSC concurrence was granted on July 13, 2005 (Earth Tech 2008).

Petroleum-Hydrocarbon Impacts

Because there was no documented remediation of soils, the following historically detected concentrations of petroleum-hydrocarbons are presumed to remain:

- 100 ppm < TPH < 500 ppm

Resource Conservation and Recovery Act Facility Assessment Site 100 – Trichloroethylene Degreaser

RFA 100 is a TCE degreaser that was formerly located in Building 359.

Current Regulatory Status

NFA concurrence was granted by DTSC on July 23, 1996 (DTSC 1996).

Remedial History

Potential subsurface impacts were assessed through the drilling and sampling of soil borings. VOCs were detected at concentrations below residential screening levels. TPH was detected at concentrations less than 1,000 ppm. Based on these data, the Final RCRA Facility Assessment Report (JEG 1993a) recommended No Further Action, and concurrence was granted by DTSC on July 23, 1996 (DTSC 1996).

Petroleum-Hydrocarbon Impacts

Because there was no documented remediation of soils, the following historically detected concentrations of petroleum-hydrocarbons are presumed to remain:

- 500 ppm < TPH < 1000 ppm

Resource Conservation and Recovery Act Facility Assessment Site 104 – <90-Day Accumulation Area

Located within IRP Site 8, RFA 104 was identified during the RCRA Facility Assessment (JEG 1993a) as a "Drum Storage Area" where hazardous wastes were historically stored.

Current Regulatory Status

DTSC granted conditional NFA in a letter dated August 25, 1999, provided that the proposed radiological survey/sampling for IRP Site 8 does not reveal unacceptable risk to human health or the environment. DTSC provided subsequent concurrence of NFA status for IRP Site 8 Unit 2 (RFA 104 is located in IRP Site 8 Unit 2) by signing the final ROD (DoN 2007) on May 22, 2007.

Remedial History

Located adjacent to Building 360, RFA 104 is within the boundaries of IRP Site 8, Unit 2. The Summary Report for SWMUs 104, 105, and 106 dated August 3, 1999, recommended No Further Action status because SWMUs 104, 105, and 106 were investigated as part of the Remedial Investigation of IRP Site 8. The RWQCB granted concurrence with NFA status on November 6, 2000. However, this site was given conditional NFA approval by DTSC in a letter dated August 25, 1999, provided that the proposed radiological survey/sampling for IRP Site 8 does not reveal unacceptable risk to human health or the environment. IRP Site 8 underwent radiological evaluation as part of the station-wide HRA (R.F. Weston 2000), and was recommended for further evaluation. Radiological survey results were presented in the Final Radiological Release Report (Weston 2004) along with an SEA recommendation for IRP Site 8 Units 2, 3, and 5. No action was selected in the final ROD (DoN 2007) for IRP Site 8 Units 2 and 5. The USEPA and DTSC signed the final ROD concurring with NFA status for Units 2 and 5 on May 8 and 22, 2007, respectively.

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts at RFA 104.

Resource Conservation and Recovery Act Facility Assessment Site 105 – <90-Day Accumulation Area

Located within IRP Site 8, RFA 105 was identified during the RCRA Facility Assessment (JEG 1993a) as a “Drum Storage Area” where hazardous wastes were historically stored.

Current Regulatory Status

DTSC granted conditional NFA in a letter dated August 25, 1999, provided that the proposed radiological survey/sampling for IRP Site 8 does not reveal unacceptable risk to human health or the environment. DTSC provided subsequent concurrence of NFA status for IRP Site 8 Unit 2 (RFA 105 is located within IRP Site 8 Unit 2) by signing the Final ROD (DoN 2007) on May 22, 2007.

Remedial History

RFA 105 is also located within the boundaries of IRP Site 8, Unit 2. RFA 105 was assessed concurrent with RFA 104 described above. Following the completion of the radiological assessments, the USEPA and DTSC signed the final ROD (DoN 2007) concurring with NFA status for Units 2 and 5 on May 8 and 22, 2007, respectively.

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts at RFA 105.

Resource Conservation and Recovery Act Facility Assessment Site 106 – <90-Day Accumulation Area

Located within IRP Site 8, RFA 106 was identified during the RCRA Facility Assessment (JEG 1993a) as a “Drum Storage Area” where hazardous wastes were historically stored.

Current Regulatory Status

The DTSC granted a conditional NFA in a letter dated August 25, 1999, provided that the proposed radiological survey/sampling for IRP Site 8 does not reveal unacceptable risk to human health or the environment. The DTSC provided subsequent concurrence of NFA status for IRP Site 8 Unit 2 (RFA 106 is located in IRP Site 8 Unit 2 and possibly Unit 3) by signing the final ROD (DoN 2007) on May 22, 2007. The RWQCB provided NFA concurrence for IRP Site 8 Unit 3 on May 25, 2012 (SARWQCB 2012a).

Remedial History

RFA 106 is also located within the boundaries of IRP Site 8, Unit 2 (and possibly Unit 3). RFA 106 was assessed concurrent with RFA 104 and 105 described above. Following the completion of the radiological assessments, the USEPA and DTSC signed the final ROD (DoN 2007) concurring with NFA status for Units 2 and 5 on May 8 and 22, 2007, respectively. After remediation for non-radiological impacts, the Final Remedial Action Completion Report (AECOM 2012) included an NFA recommendation for Unit 3 (non-radiological). The RWQCB provided NFA concurrence for the soil at IRP Site 8 on May 25, 2012 (SARWQCB 2012a).

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts at RFA 106.

Temporary Accumulation Area G 320B – Drum Storage Area

Located within the boundaries of IRP Site 21, TAA G 320B is a covered concrete pad approximately 25 feet by 20 feet that is located about 40 feet west of Building 320. The pad is unbermed and is surrounded by soil. TAA G 320B was reportedly used to store drummed wastes.

Current Regulatory Status

TAA G 320B is located in IRP Site 21, which was investigated and received No Action Site concurrence from USEPA on September 29, 1997, from the DTSC on September 26, 1997, and from the RWQCB on September 30, 1997 (DoN, 1997b).

Remedial History

Building 320 was a paint/chemical storehouse according to the BRAC Business Plan. TAA G 320B was a drum storage area and was included as a hazardous material accumulation point in the Station's 1994 Hazardous Material/Hazardous Waste Management Plan. The Summary Report for SWMU 94 (DoN 1999a) states that the area may have been misidentified as a hazardous-materials storage location. Per the 2001 Phase I ESA, TAA G 320B had not been characterized with sampling. No other documentation of this site was available. However, as the site is within IRP Site 21, the RI for IRP Site 21 addresses impacts at this LOC. IRP Site 21 was investigated and received No Action Site concurrence from the USEPA on September 29, 1997, from the DTSC on September 26, 1997, and from the RWQCB on September 30, 1997 (DoN 1997b).

Petroleum-Hydrocarbon Impacts

There are no known petroleum-hydrocarbon impacts at TAA G 320B.

Underground Storage Tank 322B – Diesel Storage

Underground Storage Tank (UST) 322B is a former 530-gallon UST that was historically used to store diesel fuel.

Current Regulatory Status

NFA concurrence was received from the RWQCB on December 12, 1995 (Geosyntec 2001).

Remedial History

Per the Phase I ESA (Geosyntec 2001), the tank was removed, and analysis of soil samples collected beneath the tank (9 feet bgs) revealed concentration of TPH as high as 38,000 ppm. Several VOCs were also detected in soil samples at varying concentrations: 0.88 mg/kg toluene, 0.72 mg/kg ethylbenzene, and 4.9 mg/kg xylene. Benzene was not detected above laboratory reporting limits. Based on these data, additional soil was excavated. At the bottom of the excavation (14 feet bgs), samples were again collected and TPH concentrations were up to 120 ppm, while BTEX concentrations were below laboratory reporting limits. The Final Site Assessment Report Former UST Site 322B, dated August 22, 1995, recommended closure, and NFA concurrence by the RWQCB was received on December 12, 1995 (Geosyntec 2001).

Petroleum-Hydrocarbon Impacts

TPH-impacted soils were removed through excavation. Based on confirmation sampling data, some petroleum-impacted soils likely remain within the following concentration range:

- 100 ppm < TPH < 500 ppm

Underground Storage Tank 359C – Waste Oil Storage

UST 359C is a former 500-gallon UST that was historically used for waste oil storage.

Current Regulatory Status

NFA concurrence was received by OCHCA on December 9, 1996 (Geosyntec 2001).

Remedial History

There was no observed staining or odors reported during the tank removal (1993). During tank removal, two soil samples were collected adjacent to the tank and one soil sample was collected near the associated copper fill piping. Testing for TPH indicated concentrations less than 100 ppm. Testing for BTEX indicated concentrations less than residential screening levels.

RFA sampling of UST 359C was also conducted in 1991. A boring was advanced to 25 feet bgs in the former UST location and samples were collected at 5-foot intervals. TPH concentrations were below laboratory reporting limits, with the exception of the 5-foot bgs sample, which had a TPH concentration of 170 ppm. NFA concurrence by OCHCA was received on December 9, 1996 (Geosyntec 2001).

Petroleum-Hydrocarbon Impacts

Based on the sampling results, some petroleum-impacted soils may remain at the following concentration range:

- 100 ppm < TPH < 500 ppm

General

This section presents existing environmental conditions related to hazardous building materials, and railroad ties at the Project site that are general in nature (i.e., not directly associated with an IRP Site or other LOC).

Hazardous Building Materials

Exhibit 2-2 shows the locations of existing buildings/structures and facilities on the Project site. There are three large warehouse buildings (Buildings 317, 318, and 360), four buildings of significant size (Building 320, 321, 322, and 359), three very small buildings (Buildings 496, 926, and 1580), two covered outdoor storage structures (949 and 1703), two facilities (789 and 862), and two open concrete pads covered with awnings that appear to be former barbecue and picnic areas (un-numbered). Most of these were built during the mid-1940s and, consequently, contain hazardous building materials including ACM and lead-based paint (LBP). Most have been surveyed in the past for ACM and LBP. Table 4.7-2 includes a description of each of the existing buildings/structures and facilities along with their status with respect to ACM and LBP (i.e., whether they have been surveyed and whether ACM and/or LBP were present). These buildings/structures and facilities are planned to be demolished, with the exception of the large warehouse Building 317, which is potentially planned for reuse. In addition to these facilities, it should be noted that the Project site contains several building foundations remaining from buildings that have been razed.

**TABLE 4.7-2
BUILDINGS/STRUCTURES AND FACILITIES**

Building / Structure ID	Description	Square Footage	Year Built	Non-FAD ACM	FAD ACM	LBP ^a
317	Laundry Pickup Point/Marine Corps Supply/DECA Office	126,322	1945	Present	Not Present	Present
318	General Warehouse Navy/MTIS Building	122,409	1945	Present	Not Present	Present
320	Hazardous and Flammable Materials Warehouse	17,100	1945	Present	Not Present	Present
321	Administration Office/General Warehouse	71,900	1945	Not Present	Present	Present
322	Vacant Mess Hall	10,653	1945	Not Present	Present	Present
359	MTIS Building	13,065	1952	Present	Not Present	Present
360	Warehouse Building	122,815	c. 1945	Not Present	Present	Unknown
496	Shop Storage/Building	480	1948	Unknown	Unknown	Present
789	Sewage Monitoring Station	36	1984	Unknown	Unknown	Unknown
862	Hazardous Waste Storage Transfer	793	1986	Unknown	Unknown	Unknown
926	DRMO Office Disposal Yard #1	613	1993	Unknown	Unknown	Unknown
949	Hazardous Waste Storehouse	288	c. 1997	Not Present	Not Present	Unknown
1580	General Warehouse Navy	375	1945	Not Present	Not Present	Present
1703	Hazardous and Flammable Materials Storehouse	480	1952	Present	Not Present	Present

FAD: friable, accessible, and damaged (as applied to ACM); ACM: asbestos-containing material; LBP: lead-based paint; DECA: Defense Commissary Agency; MTIS: Materials Turned-In to Store; c.: circa; DRMO: Defense Realization and Marketing Office.

^a Jones Planning Consultants, 2008

Source: Earth Tech 2003a

Navy Investigations

ACM surveys were conducted on various buildings/structures at former MCAS El Toro in 1989 by IT Corporation, in 1991 by Ecology and Environmental, Inc., 1995, in 1996 by Navy Public Works Center (PWC), in 1999 by CABCO/Tait, and in 2000 and 2001 by Brown and Caldwell (Jones Planning Consultants 2008). The 2000 and 2001 surveys were limited to friable, accessible, and damaged (FAD) ACM. Buildings/structures containing FAD ACM on the Project site include Buildings 321, 322, and 360. Non-FAD ACM was found in Buildings 317, 318, 320, 359, and in Structure 1703. Existing small buildings/structures and facilities where ACM was not identified include 926, 949, and 1580. There does not appear to be ACM information for the following small buildings/structures or facilities: 496, 789, and 862.

According to the 2003 EBS, the following buildings/structures within the County Parcel are considered to have LBP: 317, 318, 320, 321, 322, 359, 360, 496, 1580, and 1703 (Earth Tech

2003a). However, it is not clear whether the other remaining small buildings/structures and facilities (789, 862, 926, 949, un-numbered awnings) were tested for LBP.

County Investigations

In 1999, the County retained Masek Consulting Services, Inc. to conduct ACM and LBP surveys of selected buildings on the former MCAS El Toro. Masek presented the results of their survey in a June 15, 1999 report consisting of six volumes. The structures surveyed by Masek on the Project site included 317, 318, 320, 321, 359, and 360. Consistent with the Navy investigations, Masek found ACM and LBP in each of these building (Jones Planning Consultants 2008).

To assist in planning for abatement and reuse of Building 317, a hazardous building materials survey was performed on Building 317 in 2014 (SCA/LA). The hazardous building materials survey found ACM associated with vinyl floor tiles, various mastics, pipe insulation, sink undercoatings, and corrugated Transite; LBP used extensively on the interior and exterior of the building; suspected PCB-containing lighting ballasts; mercury-containing thermostats and assumed mercury-containing fluorescent light tubes; and potential mold and other biological hazards.

Railroad Ties

The Project site contains several existing railroad spurs parallel to its southwestern border (see Exhibit 2-2). The longest of these railroad spurs run in a northwesterly to southeasterly direction on the northwest side and parallel to the three large warehouse buildings (Buildings 317, 318, and 360). To the northwest of the warehouses, the spurs traverse the Project site to its northwestern border, where they formerly tied into the existing track owned by the Southern California Regional Rail Authority and were operated by Metrolink. The railroad spurs are of typical construction, consisting of steel rails fastened atop railroad ties (presumably creosote-pressure-treated timber), which are anchored in place by crushed-rock track ballast. Creosote is a possible human carcinogen. Creosote railroad ties are not considered hazardous waste, but do present some hazards due to contact with creosote if they are handled.

4.7.5 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 4.7-1 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 4.7-2 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.

4.7.6 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 4.7.8, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.7-1

Would the Project 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?

The Project contemplates a mixed residential and commercial use with associated infrastructure, parking, open space, and common areas. Hazardous materials are not expected to exist in significant quantities once the Project is implemented. Therefore the impact analyses under Threshold 4.7-1 are focused on existing hazardous materials at the Project Site that are subject to reasonably foreseeable upset and accident conditions during the demolition and construction phases of the Project and once the Project is implemented. Impact analyses are arranged based on the following existing environmental conditions, which may present significant hazards due to reasonably foreseeable upset or accident conditions: hazardous building materials and railroad ties. It should be noted that there are petroleum hydrocarbon impacts and other potential impacts associated with existing environmental conditions at LOCs that are not specifically discussed within the following sections for this threshold. Examples of such impacts that could fit within this threshold are: (1) inhalation by workers of VOCs from petroleum hydrocarbons or IRP Site 24 during grading (upset condition), (2) inhalation by workers of dust from soils at IRP Sites or other LOCs impacted by other contaminants (metals, PCBs, Ra, etc.) from various IRP Sites (upset condition), (3) a load of soil during potential future dig-and-haul remediation (i.e., under a MM) accidentally spilling on the road or other uncontrolled location creating a dust inhalation issue or being washed into a storm drain (accident condition), or (4) a break or leak in conveyance piping of IRP 24 that releases water impacted with VOCs to the subsurface or surface (accident condition). However, (1) the soil gas investigation (Geosyntec 2015) showed that VOCs in soil gas were below risk-based thresholds, (2) the duration of exposures to dust from soils at IRP Sites or other LOCs will be relatively short, (3) it is not known whether a dig-and-haul remedy will be performed and if one is, it is unlikely that a spill would occur that could not be contained before it became airborne or washed into a storm drain, and (4) the conveyance piping for IRP Site 24 is double contained and only intersects a small portion of the Project site along the northwestern-most end. Therefore, 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. As 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), the petroleum hydrocarbon impacts and other potential impacts associated with existing environmental conditions at LOCs have also been addressed under Threshold 4.7-2 and are not specifically discussed in the following sections under Threshold 4.7-1.

Hazardous Building Materials

Exhibit 2-2 shows the locations of existing buildings/structures and facilities on the Project site. Most of these were built during the mid-1940s and, consequently, contain hazardous building materials including ACM and LBP. Table 4.7-2 includes a description of each of the existing buildings/structures and facilities along with their status with respect to ACM and LBP (i.e., whether they have been surveyed and whether ACM and/or LBP were present). As part of the Project, these buildings/structures and facilities are planned to be demolished, with the exception of the large warehouse Building 317, which is potentially planned for reuse. In addition, Building 317 is known to contain suspected PCB-containing lighting ballasts, mercury-containing thermostats and assumed mercury-containing fluorescent light tubes, and potential mold and other biological hazards. Similar materials may exist in other buildings at the Project Site.

Asbestos is a known human carcinogen. Exposure to asbestos present in building materials can occur through inhalation when asbestos is disturbed and becomes friable and airborne. Lead causes many adverse health effects including neurological effects (especially in children), abdominal pain, depression, distraction, forgetfulness, irritability, nausea, high blood pressure, heart disease, kidney disease, and reduced fertility. Exposure to lead from LBP can occur through ingestion of paint chips or soil impacted with peeling paint, or inhalation of small particles of paint created during demolition. Lead is more readily absorbed when it is inhaled than when it is ingested. PCBs are carcinogenic and have many non-cancer adverse health effects on the immune system, reproductive system, nervous system, and endocrine system. Exposure to PCBs from lighting ballasts can occur by inhalation, from absorption through the skin when directly exposed, or from ingestion of impacted soils if the ballasts are damaged or destroyed during demolition. Mercury is a neurotoxin that can interfere with the brain and nervous system and can cause birth defects, developmental delays, learning disabilities in children, reduced fertility, memory loss, vision loss, numbness in fingers and toes, and affects blood pressure regulation. Exposure to mercury can occur from inhalation of mercury vapors released from broken fluorescent light tubes or thermostats, or from absorption through the skin when directly exposed, or from ingestion of impacted soils from damaged light tubes of thermostats.

Demolition of buildings/structures and facilities containing ACM that have not been properly abated would cause ACM to become friable and airborne, thus causing a danger from inhalation. Demolition of buildings/structures and facilities containing LBP, PCB-containing lighting ballasts, and mercury-containing thermostats or fluorescent light tubes that have not been properly abated would cause a danger from inhalation, direct absorption through the skin, and ingestion of impacted soils. In Building 317, which is planned for potential reuse, ACM is only a danger if it becomes friable during building renovation as friable ACM was not observed during the hazardous building materials survey (SCA/LA 2014). LBP on the inside and outside of Building 317 is peeling and per applicable regulations (see Section 4.7.2) will require abatement prior to reuse. Suspected PCB-lighting ballasts and mercury-containing fluorescent light tubes or thermostats in Building 317 do not pose a threat in their current

condition. Therefore, hazards due to hazardous building materials present or presumed to be present in existing on-site buildings/structures and facilities are potentially significant.

As discussed in Section 4.7.2, various Federal and State regulations governing testing and abatement of ACM, LBP, PCB-containing lighting ballasts, and/or mercury containing thermostats or fluorescent light tubes require that buildings/structures and facilities containing these materials must be properly tested and abated prior to demolition or renovation for reuse. These regulations are enumerated in Development Requirement (DR) HAZ-1, which requires testing and abatement of hazardous building materials and provides for worker health and safety during testing, abatement prior to demolition, or renovation of buildings containing these materials. In addition, DR HAZ-2 enumerates regulations concerning the transport and disposal of hazardous materials, including hazardous building materials. 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. With implementation of the regulations in these DRs as required by law, impacts would be less than significant pursuant to Threshold 4.7-1.

Impact Conclusion: *Significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment due to hazardous building materials present or presumed to be present in existing on-site buildings/structures and facilities are potentially significant. Implementation of development requirements that would address hazardous building materials include DR HAZ-1, which includes testing and abatement of hazardous building materials, and DR HAZ-2, which addresses transportation and disposal of hazardous waste. With implementation of these DRs, impacts would be less than significant pursuant to Threshold 4.7-1.*

Railroad Ties

Exhibit 2-2 shows the locations of multiple railroad spurs on the Project site. The railroad spurs are of typical construction, consisting of steel rails fastened atop railroad ties (presumably creosote-pressure-treated timber), which are anchored in place by crushed-rock track ballast. Creosote is a possible human carcinogen. Creosote railroad ties are not considered hazardous waste but do present some hazards to workers during removal or to future residents if they were to be left in place (primarily incidental ingestion, dermal contact, or injection through splintered timber). Therefore hazards due to railroad ties present at the Project site are potentially significant without mitigation.

Mitigation Measure (MM) HAZ-1 requires that railroad ties will be removed and recycled or properly disposed of offsite prior to commencement of grading activities. In addition, MM HAZ-1 requires that in the event that railroad ties split, disintegrate, or break during removal, fragments of railroad ties that can be visually identified and that are large enough to physically remove will be collected for disposal while splintered or disintegrated railroad tie materials that have been mixed with soil or track ballast will be collected along with the

minimum amount of soil or track ballast necessary to remove them based on visual identification. This requirement shall be included on the contractors' specifications and verified during procurement of the grading permit. With implementation of this measure, impacts would be reduced to less than significant pursuant to Threshold 4.7-1.

Impact Conclusion: *Significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment due to railroad ties present at the Project site would be potentially significant without mitigation. MM HAZ-1 addresses removal and off-site disposal of railroad ties, thereby reducing the impacts to less than significant pursuant to Threshold 4.7-1.*

Threshold 4.7-2

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?

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 4.7-2 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: unknown soil impacts, potential petroleum-hydrocarbon-impacted soils at LOCs, and other potential impacts, which are related to and arranged by IRP Site or LOC.

Unknown Soil Impacts

Though not anticipated, currently unknown hazardous-materials and/or petroleum-hydrocarbon impacts to soil may be present at the Project site as a result of former MCAS El Toro operations. MM HAZ-2 describes a Soils Management Plan that will be developed and implemented to provide measures for identifying and mitigating potential petroleum hydrocarbon and other impacts in soils that are encountered during grading or construction of the Project. With implementation of this MM, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2. 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 encountered during construction. 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. DR HAZ-3 enumerates applicable sections of the *California Code of Regulations* and the *California Health and Safety Code* that will be implemented should underground storage tanks (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 4.7-2.

Impact Conclusion: *Significant hazard to the public or the environment due to unknown soil impacts would be potentially significant. MM HAZ-2 requires development of a Soils Management Plan to address unknown hazardous-materials impacts and/or petroleum-hydrocarbon impacts to soil that would be 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 MM HAZ-2, DR HAZ-2, and DR HAZ-3, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2.*

Potential Petroleum-Hydrocarbon-Impacted Soils at LOCs

The following IRP Sites and LOCs on the Project site were documented historically to have petroleum-hydrocarbon impacts to soil:

- IRP Site 8 (all Units)
- IRP Site 12 (Units 1, 2, and 3)
- IRP Site 21 (Unit 1)
- IRP Site 25
- APHO 120
- OWS 359B
- PRL 671/672
- RFA 100
- UST 322B
- UST 359C

Petroleum hydrocarbons is a term used to describe a mixture of a broad family of several hundred chemical compounds that originally come from crude oil. Health effects from exposure to petroleum hydrocarbons depend on many factors including the types of chemical compounds present, how long the exposure lasts, and the amount of the chemicals contacted. Exposure to petroleum hydrocarbons in impacted soils can occur through inhalation of vapors, absorption through the skin by direct contact, or ingestion of impacted soils. Some petroleum hydrocarbon compounds can affect the blood, immune system, liver, spleen, kidneys, developing fetus, reproductive organs, lungs, and are irritating to the skin and eyes.

During grading and construction phases of the Project, construction and utility workers may be exposed to petroleum-hydrocarbon-impacted soils in these areas or in other areas where impacts are not currently identified. Though these potential exposures would result from a “reasonably foreseeable upset condition” (i.e., Threshold 4.7-1), as the Project site is a portion of the former MCAS El Toro Superfund Site, the potential impacts due to upset are more appropriately addressed in this analysis under Threshold 4.7-2. After construction is complete, future residents may be exposed to remaining petroleum-hydrocarbon-impacted soils that are in areas proposed for parks or open space. Therefore hazards due to petroleum-hydrocarbon impacts are potentially significant at each of these IRP Sites and LOCs. Due to nature of the planned residential development (e.g., multi-family dwellings without yards) future resident

exposure to hydrocarbon-impacted soils in areas other than parks or open space after development is not expected.

MM HAZ-2 describes a Soils Management Plan that will be developed and implemented to address, among other issues, petroleum-hydrocarbon impacts and the potential for reasonably foreseeable upset conditions. The Soils Management Plan will reduce impacts by providing measures for identification of impacted soils during grading through use of field equipment and personnel training, sampling and laboratory analyses of suspect impacted soils, segregation and temporary stockpiling specifications, and on-site or off-site treatment and/or off-site disposal options in accordance with applicable law. Therefore worker exposures during grading and construction and residential exposures after construction will be reduced. With implementation of this mitigation measure, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2.

Impact Conclusion: *Significant hazard to the public or the environment due to petroleum-hydrocarbon impacts would be potentially significant at each of the described IRP Sites and LOCs. MM HAZ-2 requires development of a Soils Management Plan to address petroleum-hydrocarbon impacts. With implementation of this mitigation measure, impacts during and after construction would be less than significant pursuant to Threshold 4.7-2.*

Other Potential Impacts at LOCs

There are IRP Sites or other LOCs within the Project site that have NFA status but that may have non-petroleum-hydrocarbon-related impacts to soils or soil gas that present a significant hazard to human health based on previously calculated human health risks or chemical concentrations greater than risk-based screening levels. Previously calculated risks were derived as part of site-specific human health risk assessments performed by the DoN using concentrations of specific chemicals remaining after remediation at the sites. The DoN calculated human health risks for residential and commercial receptors. In general, these risk numbers are different because potential exposure routes and exposure durations are different for residential receptors versus commercial receptors. In addition to risk numbers being calculated differently for different receptors, generally acceptable thresholds are different for different receptors (i.e., planned land use). The following sections provide impact analyses for each IRP Site or other LOC for which the DoN calculated human health risks or where supplemental investigations were performed in support of the EIR. These impact analyses evaluate the calculated human health risks or chemical concentrations against the planned land use or associated risk-based screening levels as a basis for whether significant hazards to the public or the environment are posed as a result of the Project. The data and technical analysis demonstrates that IRP Sites and other LOCs (other than those with petroleum-hydrocarbon impacts that were addressed separately in the previous section) that are not listed in the following sections (i.e., RFA 104, 105, 106, and TAA G 320B) are located within other IRP sites and are addressed within those sections. In addition, the only active ongoing remediation on the Project site is the groundwater extraction and treatment system and associated monitoring wells related to IRP Site 24, the VOC source area groundwater plume. The impact analysis for this IRP Site considers hazards due to impacts to the operation and maintenance of the groundwater treatment system and monitoring of the groundwater plume at IRP Site 24 during grading and construction.

Installation Restoration Program Site 8 – Defense Realization and Marketing Office Storage Area

Because Units 1 and 4 of IRP Site 8 included both radiological and non-radiological impacts, risks were calculated separately for these impacts by the DoN. Non-radiological impacts are discussed first while radiological impacts are discussed below. Units 2, 3, and 5 were found to include only non-radiological impacts (see Existing Conditions Section 4.7.4). Non-radiological Excess Lifetime Cancer Risks (ELCRs) and non-cancer Hazard Indexes (HIs) for industrial receptors reported in the Final ROD (DoN 2007) were between $1E-05$ and $1E-06$ and less than 1, respectively (i.e., the generally accepted range for commercial/industrial land use), for all Units of IRP Site 8. Therefore, for commercial use, non-radiological impacts for all Units of IRP Site 8 are less than significant without mitigation. Non-radiological ELCRs and non-cancer HIs for residential receptors were greater than $1E-06$ and less than 1, respectively, for Units 1 and 4. Therefore, for residential use, non-radiological impacts for Units 1 and 4 of IRP Site 8 are potentially significant without mitigation. Non-radiological ELCRs and non-cancer HIs for residential receptors were not calculated post-remediation for Units 2 and 3. Non-radiological ELCRs and non-cancer HIs for residential receptors were less than $1E-06$ and less than 1, respectively, for Unit 5. Therefore, for residential use, non-radiological impacts for Unit 5 of IRP Site 8 are less than significant without mitigation. Because planned land use is assigned to each planning area whereas risks were calculated based on Units of IRP Site 8, Table 4.7-1 shows for each Unit of IRP Site 8 the corresponding Project planning areas: Units 1 and 4 are portions of Planning Area 13, Units 2 and 3 are portions of Planning Areas 12 and 13, and Unit 5 is a portion of Planning Areas 13 and 14. Each of these planning areas (i.e., Planning Areas 12, 13, and 14) are currently planned for commercial reuse. Therefore, for non-radiological impacts, risks are below generally accepted thresholds and no mitigation measures are required. If planned land use in Planning Areas 12 or 13 (which contain all or portions of IRP Site 8 Units 1 through 5) changes to residential, the developer will submit supplemental information to the appropriate regulatory agency(ies) that re-evaluates the potential residential risks for those areas. The supplemental information will provide mitigation measures as appropriate and be completed in accordance with regulatory guidance per the *California Health and Safety Code*. If land use in Planning Area 14 (which contains only a portion of IRP Site 8 Unit 5) changes to residential, no additional investigation is required as risks calculated for Unit 5 are below the generally accepted range for residential land use. Given commercial re-use of Planning Areas 12, 13, and 14 or residential use within Planning Area 14, non-radiological impacts for all Units of IRP Site 8 are less than significant without mitigation.

Cleanup goals established for radiological impacts for Units 1 and 4 were designed to bring ELCR (radiological) to within the NCP risk management range (i.e., between $1E-04$ and $1E-06$) for unrestricted (i.e., residential, parks or open space, or commercial/industrial) land use. Post-remediation cancer risks (radiological) for Units 1 and 4 were not calculated so it is not known whether final radiological cancer risks for Units 1 and 4 are between $1E-05$ and $1E-06$ (the generally accepted range for commercial/industrial use). This need for additional information regarding radiological risks in Units 1 and 4 requires imposition of a mitigation measure. Radiological impacts in IRP Site 8 Units 1 and 4 are potentially significant without mitigation. MM HAZ-3 requires that prior to initial grading, an independent radiological survey will be performed at IRP Site 8, Units 1 and 4 using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance to assess the cumulative human health risks associated with remaining radiological impacts above site background radiation levels. If

cumulative human health risks (above background) are greater than acceptable levels for the proposed land use, targeted soil excavation and off-site disposal will be performed until cumulative human health risks (above background) are below acceptable levels. If land use in Planning Area 13 (which contains all of IRP Site 8 Units 1 and 4) changes to residential, MM HAZ-3 will be imposed and the developer will submit supplemental information to the appropriate regulatory agency(ies) that re-evaluates the potential residential risks for those areas as required by applicable law. The supplemental information will provide mitigation measures as appropriate and be completed in accordance with regulatory guidance per the *California Health and Safety Code*. With implementation of MM HAZ-3 and compliance with applicable law, impacts would be less than significant pursuant to Threshold 4.7-2.

Impact Conclusion: *Given commercial re-use for all the above referenced sites and residential use for Planning Area 14, non-radiological impacts for all Units of IRP Site 8 would be less than significant without mitigation. Radiological impacts in IRP Site 8 Units 1 and 4 would be potentially significant without mitigation. MM HAZ-3 would address potential radiological impacts at IRP Site 8 Units 1 and 4. With implementation of this mitigation measure and compliance with applicable laws, impacts would be less than significant pursuant to Threshold 4.7-2.*

Installation Restoration Program Site 12 – Sludge Drying Beds

ELCRs and non-cancer HIs for industrial receptors reported in the Final ROD (DoN 2007) were between 1E-05 and 1E-06 and less than 1, respectively (i.e., the generally accepted range for commercial/industrial use), for all Units of IRP Site 12. Therefore, for commercial use, impacts for all Units of IRP Site 12 are less than significant without mitigation. ELCRs and non-cancer HIs reported in the Final ROD (DoN 2007) for residential receptors were greater than 1E-06 and 1, respectively (i.e., the generally accepted range for residential use), for Units 1, 2, and 4. Therefore, for residential use, impacts for Units 1, 2, and 4 of IRP Site 12 are potentially significant without mitigation. Post-remediation human health risks were not calculated by the DoN for Unit 3. Remedial excavation at Unit 3 was performed to risk-based concentrations (RBCs) corresponding to an ELCR of 1E-06 and HI of 1. Concentrations in confirmation samples were below RBCs for individual chemicals of concern. However, cumulative human health risks were not calculated. Because planned land use is assigned to each planning area whereas risks were calculated based on Units of IRP Site 12, Table 4.7-1 shows for each Unit of IRP Site 12 the corresponding planning areas (i.e., Planning Areas 6, 7, 8, 9, 19, and 20). Unit 1 is a portion of Planning Areas 6, 7, and 19 (currently planned for residential land use). Unit 2 is a portion of Planning Area 7 (currently planned for residential land use) and Planning Area 8 (currently planned for a hotel; i.e., commercial land use). Unit 3 is a portion of Planning Areas 7 and 19 (currently planned for residential land use) and Planning Area A (currently planned for open space). Unit 4 is a portion of Planning Area 8 (currently planned for a hotel; i.e., commercial land use) and Planning Area 9 (currently planned for commercial land use).

Units 1 and 2 include some planned residential use and therefore require imposition of a mitigation measure unless planned land use in Planning Areas 6, 7, and 19 changes to all commercial. MM HAZ-4 requires, prior to initial grading, data collected during the Phase I and Phase II RIs (JEG 1993b; BNI, 1997) for IRP Site 12 Units 1 and 2 be evaluated and, if warranted, additional sampling, targeted excavation, and/or confirmation sampling be performed to assess conditions or to remove impacted soils in order to reduce cumulative

human health risks to acceptable levels for the proposed land use (currently residential). Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Units 1 and 2 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied. With implementation of this measure, impacts at Units 1 and 2 would be reduced to less than significant pursuant to Threshold 4.7-2. Additional information regarding existing cumulative human health risks for residential receptors at Unit 3 is needed and thus requires imposition of a mitigation measure unless planned land use in Planning Areas 7 and 19 changes to commercial. MM HAZ-5 requires, prior to initial grading, confirmation sampling results for identified chemicals of concern (COCs) collected during remediation of IRP Site 12 Unit 3 if available, be evaluated and cumulative human health risks be calculated (utilizing risk-based concentrations [RBCs] that were developed and used as cleanup goals) and compared to acceptable levels for the proposed land use (currently residential). If necessary, additional sampling, targeted excavation, and/or confirmation sampling will be performed to remove impacted soils in order to reduce cumulative human health risks to acceptable levels for the proposed land use. Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Unit 3 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied. With implementation of this measure, impacts at Unit 3 would be reduced to less than significant pursuant to Threshold 4.7-2. Unit 4 is entirely in areas planned for commercial use (i.e., Planning Areas 8 and 9) and therefore, does not require mitigation measures. However, if planned land use in Planning Areas 8 or 9 (which contain all of Unit 4) changes to residential, the developer will submit supplemental information to the appropriate regulatory agency(ies) that re-evaluates the potential residential risks for those areas as required by applicable law. The supplemental information will provide mitigation measures as appropriate and be completed in accordance with regulatory guidance per the *California Health and Safety Code*. Hazards in Unit 4 are less than significant without mitigation pursuant to Threshold 4.7-2.

Impact Conclusion: *Impacts at IRP Site 12 Units 1 and 2 would be potentially significant without mitigation. MM HAZ-4 would address impacts in Units 1 and 2 and reduce hazards to less than significant pursuant to Threshold 4.7-2. Based on the available information regarding existing cumulative human health risks in Unit 3 a mitigation measure would be required. MM HAZ-5 would address impacts in Unit 3 and reduce hazards to less than significant pursuant to Threshold 4.7-2. Hazards in Unit 4 would be less than significant without mitigation pursuant to Threshold 4.7-2.*

Installation Restoration Program Site 21 – Materials Management Group

The ELCR for industrial receptors reported in the Phase II RI (BNI 1997) for Unit 1 was 1.1E-05, which is slightly above the 1E-05 to 1E-06 range (i.e., the generally accepted range for commercial/industrial use). However, most of the risk (91 percent) was due to dermal contact and incidental ingestion of arsenic. The Phase II RI pointed out that risks were calculated based on the maximum concentration of arsenic detected at IRP Site 21, because there was a relatively small number of arsenic data points and a large variation in the arsenic concentrations. The Phase II RI concluded that the assumption of long-term contact with the maximum concentration is conservative, and the use of maximum concentrations in the risk assessment results in overestimates of exposures and risks. In addition, the highest arsenic

concentration detected was 9.5 mg/kg, which is below the value that is currently generally accepted as background for soils in Southern California (i.e., 12 mg/kg). Thus, as arsenic levels are below the concentrations accepted as background in Southern California, an updated ELCR for industrial receptors calculated when arsenic is excluded is below the generally accepted range for commercial/industrial use. The non-cancer HI was less than 1. Therefore, for commercial use, impacts for Unit 1 of IRP Site 21 are less than significant without mitigation. Table 4.7-1 shows the corresponding planning area for Unit 1 of IRP Site 21. Unit 1 is entirely within Planning Area 9 (currently planned for commercial land use) and therefore, does not require mitigation measures. However, if planned land uses in Planning Area 9 change to residential, the developer will be required to submit supplemental information to the appropriate regulatory agency(ies) that re-evaluates the potential residential risks for those areas. The supplemental information will provide mitigation measures as appropriate and be completed in accordance with regulatory guidance per the California Health and Safety Code. The ELCR for industrial receptors reported in the Phase II RI (BNI 1997) for the catch basin (separate from Unit 1) was 1.1E-04 and thus exceeded the NCP risk management range (i.e., between 1E-04 and 1E-06), while the non-cancer HI for the catch basin was less than 1. Therefore a mitigation measure has been imposed for the catch basin. MM HAZ-6 requires, prior to initial grading, the sediment within the IRP Site 21 catch basin and/or the connected culvert be removed and properly disposed. Upon completion of sediment removal, the catch basin will be removed and properly disposed. Confirmation samples will be collected from underlying soils. Because most of the calculated ELCR (88 percent)⁴ was due to dermal contact and incidental ingestion of PAHs, confirmation samples will be analyzed for PAHs and the results compared with the USEPA's industrial Regional Screening Levels (RSLs) to verify post-removal concentrations are below the industrial RSLs. Subsequent rounds of excavation and confirmation sampling will be performed until post-removal concentrations of PAHs are below the USEPA's industrial RSLs. With implementation of MM HAZ-6, impacts would be less than significant pursuant to Threshold 4.7-2.

Impact Conclusion: *Impacts due to the catch basin would be potentially significant without mitigation. MM HAZ-6 would address impacts at the catch basin and reduce impacts to less than significant pursuant to Threshold 4.7-2.*

Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Vadose Zone

The cleanup approach for IRP Site 24 as documented in the Interim ROD (DoN 1997a) for soil, the Final ROD (DoN, 2002) for groundwater, and the Final ROD (DoN 2006b) for soil was to clean up the soil gas to levels that were protective of groundwater (i.e., so that soil gas VOCs would not contaminate groundwater). The groundwater is currently being remediated to drinking water maximum contaminant levels, which protect human health. However, groundwater at the site will not be extracted for municipal use. There is a provision in the Final ESD (DoN 2008) to re-sample soil gas at the conclusion of the groundwater remediation. However, it is likely to take several decades to complete the groundwater remediation, and presumably, resampling concentrations would only be compared to the original cleanup goals that were protective of groundwater, but not necessarily of human health. The data gap that

⁴ Arsenic was also responsible for 10 percent of the calculated ELCR. However, the highest arsenic concentration detected at IRP Site 21 was 9.9 mg/kg, which is below the value that is currently generally accepted as background for soils in Southern California (i.e., 12 mg/kg).

existed regarding the nature and extent of potential VOC impacts to soil gas at the Project site that may exist due to residual VOCs in soil or off-gassing of the underlying groundwater VOC plume has been partially filled (i.e., in the non-LIFOC areas) by the soil gas investigation performed at the direction of Lowe Enterprises on behalf of the County (Geosyntec 2015). Three VOCs were detected (PCE, TCE, and chloroform) in three separate locations in Planning Areas 9, 14, and 17, respectively (each currently planned for commercial land use) at concentrations below commercial/industrial screening levels but above residential screening levels. Therefore, for commercial use, impacts to soil gas are less than significant without mitigation. The detections of TCE and chloroform were only in the deepest completions (35 feet bgs and 35.5 feet bgs) at those locations in Planning Areas 14 and 17, respectively. If planned land uses in Planning Areas 14 and 17 change to residential, no additional documentation would be required as risks at shallower depths are below the generally accepted range for residential land use. If planned land uses in Planning Area 9 change to residential, the developer will submit additional documentation to demonstrate to the appropriate regulatory agency(ies) that the risks would be acceptable for residential land use. The supplemental information will include a re-evaluation of potential risks to residential receptors and will provide mitigation measures as appropriate and in accordance with regulatory guidance per the *California Health and Safety Code*. VOCs in soil gas could not be tested in areas of the Project site that are within the LIFOC area. Soil gas concentrations in the LIFOC area are not expected to be significantly different than soil gas concentrations measured in non-LIFOC areas (Geosyntec, 2015) because both the LIFOC area and non-LIFOC areas similarly overlie the VOC groundwater plume. However, additional information is needed regarding the current VOC impacts to soil gas, and therefore a mitigation measure is required. MM HAZ-7 requires, prior to initial grading, soil vapor sampling be performed within the LIFOC area of the Project site. Sampling will be similar to the sampling that was completed during the recent soil gas investigation (Geosyntec 2015) in non-LIFOC areas. The probes will be sampled according to Advisory Active Soil Gas Investigations (DTSC et. al. 2015) and results will be compared to appropriate risk-based screening levels as in the 100-Acre Parcel Soil Gas Assessment Report (Geosyntec 2015). If concentrations are below screening levels, no further measures will be required. If concentrations are above screening levels, other measures may be developed in consultation with appropriate regulatory agencies per the *California Health and Safety Code*, or other applicable law. With implementation of MM HAZ-7 impacts would be less than significant pursuant to Threshold 4.7-2.

Impact Conclusion: *Given commercial re-use, impacts due to VOCs in soil gas within non-LIFOC areas would be less than significant without mitigation.*

Impacts due to VOCs in soil gas within the LIFOC area were not able to be tested. Therefore, MM HAZ-7 would address this data gap and potential impacts due to VOCs present in soil gas. With implementation of this mitigation measure and compliance with applicable laws impacts would be less than significant pursuant to Threshold 4.7-2.

Installation Restoration Program Site 24 – Volatile Organic Compound Source Area/Shallow Groundwater Unit

The only active ongoing remediation on the Project site is the groundwater extraction and treatment system and associated monitoring wells related to IRP Site 24, the VOC source area groundwater plume. In order to protect human health and the environment, it is important that

the remediation system 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 system and associated monitoring wells and (2) the system and the monitoring wells must be protected during construction of the Project. The Final ROD specifies that remediation of the existing contamination of the Shallow Groundwater Unit at IRP Site 24 will continue to unrestricted standards. This remediation process will likely take a period of years to complete and, during this time, the DoN has implemented institutional controls to limit access to the groundwater and related activities to portions of IRP Site 24. The Draft FOST #6 (DoN 2010) identifies institutional controls that must be implemented in the form of land use or activity restrictions to be implemented for a portion of IRP Site 24. It is expected that the final institutional controls will be transferred with the property. However, in order to ensure the continued and uninterrupted access to and operation of the groundwater extraction and monitoring system during construction, a mitigation measure has been imposed. MM HAZ-8 requires, prior to initial grading, a complete listing, survey coordinates, and map showing locations of existing groundwater wells related to past and current remedial activities on the Project site be requested from the DoN. In addition, a field survey will be conducted to confirm the location of existing groundwater wells on the Project site and to identify whether other groundwater wells exist on the Project site. 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 assure 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, realigning conveyance piping if necessary (for the remediation system), 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 Department of the Navy (DoN) and the Regional Water Quality Control Board (RWQCB). With implementation of MM HAZ-8, impacts would be reduced to less than significant pursuant to Threshold 4.7-2.

Impact Conclusion: *Impacts to the operation and maintenance of the groundwater treatment system and monitoring of the groundwater plume at IRP Site 24 would be potentially significant without mitigation. MM HAZ-8 would address protection of the system during grading and construction. With implementation of this measure, impacts would be reduced to less than significant pursuant to Threshold 4.7-2.*

Miscellaneous Location of Concern P1 Unit 2 – Past Pesticide Storage Area

The ELCR for residential receptors reported in the Closure Report (RMA 2009) was above 1E-06 (i.e., the generally accepted range for residential use). However, the majority of the risk was due to inhalation of dust, dermal contact, and incidental ingestion of arsenic (81.4 percent). The highest arsenic concentration detected after remediation was 5.41 mg/kg, which is below the currently generally accepted as background for soils in Southern California (i.e., 12 mg/kg). As arsenic levels are below the concentrations accepted as background in Southern California, those are excluded and the ELCR for residential receptors was 3.2E-06, which is slightly above 1E-06. Excluding metals at concentrations below background concentrations, the non-cancer HI was less than 1. Therefore, for residential use, impacts to soil at MSC P1 Unit 2 are

potentially significant without mitigation pursuant to Threshold 4.7-2. Table 4.7-1 shows the corresponding planning area for MSC P1 Unit 2 (i.e., Planning Area F). MSC P1 Unit 2 is entirely within Planning Area F (currently planned for open space). Under an open space scenario (e.g., recreational park), exposures are typically significantly lower than under a residential scenario. For example, the frequency and duration of exposure of individuals at a park (e.g., occasional weekend exposure) is significantly less than the amount of time a resident spends at home (e.g., 350 days per year for 26 years). Consequently, potential health risks are expected to be significantly lower for receptors in an open space scenario, as compared to a residential scenario. Therefore, MSC P1 Unit 2 does not require mitigation measures. However, if planned land use in Planning Area F changes to residential, the applicable laws require the developer to submit supplemental information to the appropriate regulatory agency(ies) that re-evaluates the potential residential risks for those areas. The supplemental information will provide measures as appropriate and be completed in accordance with regulatory guidance per the California Health and Safety Code. Given open space re-use, impacts to soil at MSC P1 Unit 2 are less than significant without mitigation pursuant to Threshold 4.7-2.

Impact Conclusion: *Given open space re-use, impacts to soil at MSC P1 Unit 2 would be less than significant without mitigation pursuant to Threshold 4.7-2.*

4.7.7 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.

4.7.8 MITIGATION PROGRAM

Development Requirements

DR HAZ-1 Hazardous Building Materials. Prior to demolition or renovation for reuse of buildings/structures or facilities, building materials shall be carefully assessed for the presence of lead-based paint (LBP), asbestos-containing materials (ACM), and other common hazardous building materials (e.g., polychlorinated biphenyl [PCB]-containing lighting ballasts and mercury-containing light tubes and switches). Their removal, where necessary, must comply with State and federal regulations, including Occupational Safety and Health Administration (OSHA) regulations in the *Code of Federal Regulations* (specifically Title 29, Part 1926) and South Coast Air Quality Management District (SCAQMD) Rule 1403. The OSHA rule establishes standards for occupational health and environmental controls for lead exposure and includes requirements addressing exposure assessment, methods of compliance, respiratory protection, protective clothing

and equipment, hygiene facilities and practices, medical surveillance, medical removal protection, employee information and training, signs, recordkeeping, and observation of monitoring. Rule 1402 specifies work practices with the goal of minimizing asbestos emissions during building demolition and renovation activities, including the removal and associated disturbance of ACMs. During demolition, grading, and excavation, workers shall comply with the requirements of the *California Code of Regulations* (specifically, Title 8, Section 1532.1 and 1529), which provide for exposure limits, exposure monitoring, respiratory protection, and good working practice by workers exposed to lead and asbestos, respectively. LBP and ACM-contaminated debris and other wastes shall be managed and disposed of in accordance with the applicable provision of the *California Health and Safety Code*. Specific requirements for LBP include (i.e., Title 17, Division 1, Chapter 8) procedures that must be followed for accreditation, certification, and work practices for lead-based paint and lead hazards. Section 36100 specifically sets forth requirements for lead-based paint abatement in public and residential buildings. The requirements for demolition and renovation activities related to ACM include asbestos surveying; notification; ACM removal procedures and time schedules; ACM handling and cleanup procedures; and storage, disposal, and landfill disposal requirements for asbestos-containing waste materials.

DR HAZ-2 Management of Hazardous Waste. During site demolition, 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 non-hazardous waste manifests as “Generator”.

DR HAZ-3 Underground Storage Tanks. 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 Orange County Health Care Agency’s (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*.

Mitigation Measures

MM HAZ-1 Prior to commencement of grading activities, railroad ties will be removed and recycled or properly disposed of offsite. If railroad ties split, disintegrate, or break during removal, fragments of railroad ties that can be visually identified and that are large enough to physically remove will be collected for disposal. Splintered or disintegrated railroad tie materials that have been mixed with soil or track ballast will be collected along with the minimum amount of soil or track ballast necessary to remove them based on visual identification. This requirement shall be included on the contractors’ specifications and verified by the OC Development Services.

MM HAZ-2 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. Field testing will consist of periodically screening soils with a photoionization detector (PID) in accordance with SCAQMD Rule 1166. Grading equipment operators and environmental professionals performing Rule 1166 monitoring will be trained in identifying evidence of contaminated soils. The Soils Management Plan will specifically identify LOCs where the main chemical of potential concern (COPC) is petroleum hydrocarbons and other locations of concern (LOCs)/installation restoration programs (IRPs) where petroleum hydrocarbons have been identified and may still be present. 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 on-site or off-site treatment and/or off-site

disposal options in accordance with applicable law. This Soils Management Plan will be submitted to the Manager of Building & Safety for review and approval.

MM HAZ-3 Prior to initial grading, an independent radiological survey will be performed at IRP Site 8, Units 1 and 4 using the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance to assess the cumulative human health risks associated with remaining radiological impacts above site background levels. If cumulative human health risks are greater than acceptable levels for the proposed land use, targeted soil excavation and off-site disposal will be performed until cumulative human health risks (above background) are below acceptable levels.

MM HAZ-4 Prior to initial grading, data collected during the Phase I and Phase II RIs (JEG 1993b; BNI, 1997) for IRP Site 12 Units 1 and 2 will be evaluated and, if warranted, additional sampling, targeted excavation, and/or confirmation sampling will be performed to assess conditions or to remove impacted soils in order to reduce cumulative human health risks to acceptable levels for the proposed land use (currently residential). Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Units 1 and 2 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied.

MM HAZ-5 Prior to initial grading, confirmation sampling results for identified chemicals of concern (COCs) collected during remediation of IRP Site 12 Unit 3 if available, will be evaluated and cumulative human health risks will be calculated (utilizing risk-based concentrations [RBCs] that were developed and used as cleanup goals) and will be compared to acceptable levels for the proposed land use (currently residential). If necessary, additional sampling, targeted excavation, and/or confirmation sampling will be performed to remove impacted soils in order to reduce cumulative human health risks to acceptable levels for the proposed land use. Alternatively, if supported by risk assessment calculations, soils in the top several feet of IRP Site 12 Unit 3 may be removed and stockpiled for use as fill material in Project site areas planned for commercial use. If the planned land use changes from residential to commercial, this mitigation measure will not be applied.

MM HAZ-6 Prior to initial grading, the sediment within the IRP Site 21 catch basin and/or the connected culvert will be removed, placed into 55-gallon drums, and profiled for disposal (note: depending on observations made during removal of the concrete catch basin, bedding material and underlying soils may also be removed and disposed of). If necessary to remove the sediment, the catch basin will be pressure washed and liquids will be collected, drummed, and profiled. Upon completion of sediment removal, the catch basin will be removed and properly disposed. Confirmation sampling will be performed to verify post-removal concentrations of the risk-driving chemicals of concern (COCs) (i.e., PAHs) are below the USEPA's industrial Regional Screening Levels (RSLs). Subsequent rounds of excavation and confirmation sampling will be performed

until post-removal concentrations of PAHs are below the USEPA's industrial RSLs.

MM HAZ-7 Prior to initial grading, soil vapor sampling will be performed within the Lease in Furtherance of Conveyance (LIFOC) area of the Project site. Sampling will be similar to the sampling that was completed during the recent soil gas investigation (Geosyntec 2015) in non-LIFOC areas. The probes will be sampled according to Advisory Active Soil Gas Investigations (DTSC et. al. 2015) and results will be compared to appropriate risk-based screening levels as in the 100-Acre Parcel Soil Gas Assessment Report (Geosyntec 2015). If concentrations are below screening levels, no further mitigation is required. If concentrations are above screening levels, other mitigation measures may be developed in consultation with appropriate regulatory agencies.

MM HAZ-8 Prior to initial grading, the County will secure from the DoN an updated, complete listing, survey coordinates, and map showing locations of existing groundwater wells related to past and current remedial activities on the Project site. In addition, a field survey will be conducted within the area to be graded prior to grading of the area to confirm the location of existing groundwater wells on the portion of the Project site at issue and to identify whether other groundwater wells exist on that portion of the Project site. 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 assure 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, realigning conveyance piping if necessary (for the remediation system), 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 Department of the Navy (DoN) and the Regional Water Quality Control Board (RWQCB).

4.7.9 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-3 and MM HAZ-1 through MM HAZ-8. No significant unavoidable impacts would occur.

4.7.10 REFERENCES

Accord Engineering, Inc. (Accord). 2008 (December). *Final Remedial Design/Remedial Action Work Plan Installation Restoration Program Sites 8 and 12 Former Marine Corps Air Station El Toro, California*. Santa Ana, CA: Accord.

AECOM Technical Services, Inc. (AECOM). 2012 (April). *Final Remedial Action Completion Report, Installation Restoration Program Sites 8 and 12, Former Marine Corps Air Station, El Toro, California*. Honolulu, HI: AECOM.

Bechtel National, Inc., (BNI). 1999 (June). *Draft Record of Decision, Operable Unit 3A, Sites 8, 11, and 12, Marine Corps Air Station, El Toro, California*. San Diego, CA: NAVFAC SW.

———. 1998 (January). *Draft Final Phase II Feasibility Study, OU-3A Sites, Marine Corps Air Station, El Toro, California*. San Diego, CA: NAVFAC SW.

———. 1997 (June). *Draft Final Phase II Remedial Investigation Report, OU-3A Sites, Marine Corps Air Station, El Toro, California*. San Diego, CA: NAVFAC SW.

Brown and Caldwell. 1986. *Initial Assessment Study (IAS) of Marine Corps Air Station El Toro, California*. Irvine, CA: Brown and Caldwell.

Department of the Navy (DoN). 2010 (May). *Draft Finding of Suitability to Transfer #6 for Carve-Outs I-D, I-Q, I-R, II-B, II-K, II-N, II-O, III-B-1, III-B-2, III-E, and III-F, Former Marine Corps Air Station El Toro, California*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2008 (December). *Final Explanation of Significant Differences, Site 18 – Regional Volatile Organic Compound Groundwater Plume (Operable Unit 1) Site 24 – VOC Source Area (Operable Unit 2A) Vadose Zone Resampling, Former Marine Corps Air Station El Toro, California*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2007 (January). *Final Record of Decision Operable Unit 3A, Sites 8 and 12, Former Marine Corps Air Station El Toro, California*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2006a (March). *Proposed Plan, Sites 8 and 12, Installation Restoration Program, Former Marine Corps Air Station, El Toro, Navy Proposes Excavation and Off-Site Disposal of Contaminated Soil*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2006b (April). *Final Record of Decision, Operable Units 2A – Site 24, VOC Source Area Vadose Zone, Former Marine Corps Air Station El Toro, California. Southwest Division, Naval Facilities Engineering Command, San Diego, California*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2005 (July). *Proposed Plan Site 24 VOC Source Area Installation Restoration Program, Former Marine Corps Air Station El Toro*. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

———. 2002 (June). *Final Record of Decision, Operable Unit 1, Site 18 – Regional Volatile Organic Compound Groundwater Plume, Operable Unit 2A, Site 24 – VOC Source Area,*

Former Marine Corps Air Station El Toro, California. San Diego, CA: DoN, Southwest Division Naval Facilities Engineering Command.

- . 1999a (September). Summary Report, Solid Waste Management Unit 94, Former Drum Storage Area, Resource Conservation and Recovery Act Facility Assessment, Marine Corps Air Station, El Toro, California. San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.
- . 1999b (May). *Proposed Plan for Cleanup at Three Shallow Soil Sites at Marine Corps Air Station El Toro.* San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.
- . 1997a (September). *Draft Final Interim Record of Decision, Operable Unit 2A, Site 24 – VOC Source Area, Vadose Zone, Marine Corps Air Station El Toro, California.* San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.
- . 1997b (September). *Draft Final Record of Decision, Operable Units 2A and 3A – No Action Sites. Marine Corps Air Station El Toro, California.* San Diego, CA: DoN, Southwest Division, Naval Facilities Engineering Command.

Department of Toxic Substances Control (DTSC). 2009 (April 9). Letter: Concurrence With Final Closure Report, Former Pesticide Storage Area MSC P1, Unit 2, Former Marine Corps Air Station (MCAS) El Toro, Irvine, California.

- . 1996 (July 23). Letter: Final RCRA Facility Assessment (RFA) Approval: Marine Corps Air Station (MCAS) El Toro.

Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board – Los Angeles Region (LARWQCB), and Regional Water Quality Control Board – San Francisco Region (SFRWQCB). 2015 (July). *Advisory Active Soil Gas Investigations.* Sacramento, CA: DTSC.

Earth Tech, 2008 (May). *Final Site Inspection Work Plan, Potential Release Locations, Former Marine Corps Air Station El Toro, California.* Honolulu, HI: Earth Tech

- . 2006 (February). *Final FS Addendum, Operable Unit 3A, Installation Restoration Program Site 8, Former Marine Corps Air Station, El Toro, California.* San Diego, CA: Earth Tech.
- . 2005 (February). *Summary Report for Group I Potential Release Locations, Environmental Baseline Survey, Former Marine Corps Air Station, El Toro, California.* Long Beach, CA: Earth Tech.
- . 2003a (September). *Final Environmental Baseline Study, Former Marine Corps Air Station El Toro, California.* Long Beach, CA: Earth Tech.
- . 2003b (February). *Final Technical Memorandum, Reevaluation of Risk, IRP Sites 8, 11, and 12, Marine Corps Air Station, El Toro, California.* Honolulu, HI: Earth Tech.

- . 2002 (June). *Draft Final Site Closure Report, Vadose Zone Remediation, IRP Site 24, Volatile Organic Compounds Source Area, Former Marine Corps Air Station, El Toro, California*. Long Beach, CA: Earth Tech.
- Enviro Compliance Solutions, Inc., 2014 (September). *Final Semiannual Groundwater Monitoring and System Operations Data Package, IRP Sites 18 and 24 Groundwater Remedy, January 2014 – June 2014, Event 27, Former Marine Corps Air Station El Toro, Irvine, California*. Tustin, CA: Enviro Compliance Solutions.
- Fife, D. L. 1974. *Geology of the South Half of the El Toro Quadrangle, Orange County, California*. Sacramento, CA: California Division of Mines and Geology.
- Geosyntec Consultants, Inc. (Geosyntec). 2015 (November). *100-Acre Parcel Soil Gas Assessment Report, Former Marine Corps Air Station El Toro, Irvine, California*. Huntington Beach, CA: Geosyntec.
- . 2011 (May). *Draft Environmental Assessment Summary County of Orange Reuse Parcels, Former MCAS El Toro*. Huntington Beach, CA: Geosyntec.
- . 2007 (April). *Environmental Issues Evaluation, County of Orange Reuse Parcels, MCAS El Toro, Orange County, California*. Huntington Beach, CA: Geosyntec.
- . 2005 (February). *Environmental Issues Evaluation County of Orange Reuse Parcels, MCAS El Toro* (Prepared for the County of Orange Planning & Development Services Department). Huntington Beach, CA: Geosyntec.
- . 2001 (November). *Final Report, Environmental Site Assessment for the Former MCAS El Toro* (Prepared for The MCAS El Toro Local Redevelopment Authority). Huntington Beach, CA: Geosyntec.
- Jacobs Engineering Group, Inc. (JEG). 1993a (July). *Marine Corps Air Station El Toro, El Toro, California, Installation Restoration Program Final Resource Conservation and Recovery Act (RCRA) Facility Assessment Report*. San Diego, CA: JEG.
- . 1993b (May). *Marine Corps Air Station El Toro, El Toro, California, Installation Restoration Program Phase I Remedial Investigation Draft Technical Memorandum*. San Diego, CA: JEG.
- Jones Planning Consultants. 2008 (June). *Due Diligence Report, 100-Acre County Parcel, Orange County Great Park, Former MCAS El Toro, Irvine, California*. Tustin, CA: Jones Planning Consultants.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- New World Environmental. 2014 (September). *Radiological Survey Report, Warehouse Building #317, Former MCAS El Toro, Irvine, California*. Livermore, CA: New World Environmental.

- OHM/IT Group, 1999 (May). *Analytical and Location Survey Data Package, IRP Sites 8, 11, and 12*. Irvine, CA: DoN, Southwest Division, Naval Facilities Engineering Command.
- RMA Land Construction, Inc. (RMA). 2009 (February). *Closure Report for Former Pesticide Storage Area MSC P1, Unit 2, Former Marine Corps Air Station El Toro, California*. Brea, CA: RMA Land Construction.
- Roy F. Weston, Inc. (R.F. Weston). 2000 (May). *Final Historical Radiological Assessment (HRA), Marine Corps Air Station, El Toro*. Vallejo, CA: R.F. Weston.
- Santa Ana Regional Water Quality Control Board (SARWQCB). 2012a (May 25). Letter: Closure of Installation Restoration Program Site 8, Defense Reutilization and Marketing Office (DRMO) Storage Area, Former Marine Corps Air Station (MCAS), El Toro. Riverside, CA: SARWQCB.
- . 2012b (May 25). Letter: Closure of Installation Restoration Program Site 12, Sludge Drying Beds Site, Former Marine Corps Air Station, El Toro. Riverside, CA: SARWQCB.
- . 2000 (March 31). *Letter: Review of the Site Assessment Report, Oil/Water Separator Site 359B, Former Marine Corps Air Station, El Toro*. Riverside, CA: SARWQCB.
- SCA/LA Environmental, Inc. (SCA/LA). 2014 (August). *Summary Report: Pre-Renovation Hazardous Building Materials Survey, Warehouse Building #317, Former MCAS El Toro, Irvine, California*. Long Beach, CA: SCA/LA.
- South Coast Air Quality Management District (SCAQMD). 1989 (as amended through 2007). Rule 1403, Asbestos Emissions from Demolition/Renovation Activities. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1403.pdf?sfvrsn=4>.
- . 1988 (as amended through 2001). Rule 1166, Volatile Organic Compound Emissions from Decontamination of Soil. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/rule-1166.pdf?sfvrsn=4>.
- Weston Solutions, Inc. (Weston). 2004 (November). *Final Radiological Release Report, IRP Site 8 (Units 2, 3, & 5), IRP Site 12, and IRP Site 25 (Bee Canyon Wash Outfall), Former Marine Corps Air Station (MCAS) El Toro, CA*. Vallejo, CA: Weston.

This page intentionally left blank

4.8 HYDROLOGY AND WATER QUALITY

This section discusses Project-related impacts to hydrology/drainage and water quality at the El Toro, 100-Acre Parcel Development Plan (Development Plan) Project site. The analysis in this section is based on the *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)*, which includes the Best Management Practices (BMPs), and the *Conceptual Drainage Analysis, Existing vs. Proposed*. Both reports were prepared by Tait & Associates, Inc. in September 2015. The Drainage Analysis addresses pre-construction and post-construction storm water runoff volumes from the Project site and mitigation required by the Santa Ana Regional Water Quality Control Board (RWQCB). The WQMP addresses the Project's Low Impact Development (LID) objectives and methods to treat storm water runoff before it enters the backbone storm drain system and the downstream receiving drainage systems. The *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)* and the *Conceptual Drainage Analysis, Existing vs. Proposed* are included as Appendix I-1 and Appendix I-2, respectively.

4.8.1 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).

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.

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.

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) would occur in 2016. Table 4.8-1 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 4.8-1
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
	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	

**TABLE 4.8-1
SUMMARY OF 303(D) LIST FOR THE PROJECT RECEIVING WATER BODIES**

Water Body	Pollutant	TMDL Requirement Status	Potential Pollutant Sources (Where Identified)
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 2010. 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
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.

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.

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, 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 Groundwater-Related Discharges and De Minimis 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

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.

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 (Model WQMP).

4.8.2 METHODOLOGY

The Project's hydrology was analyzed using the Rational Method⁵, as described in the Orange County Local Drainage Manual, dated January 1996, as the Project's stormwater discharge will be to drainage areas that are less than 640 acres.

⁵ The Orange County Hydrology Manual is used in estimating peak discharges and volumes of storm water runoff for the design of flood control facilities and flood plain determination. The primary goal is to provide 100-year flood protection for all habitable structures. The Manual has been calibrated to local watershed conditions. The Manual provides two methods for development of discharges—the Rational Method and the Unit Hydrograph Method. The Rational Method is used to estimate the peak discharge of stormwater runoff for drainage areas that are less than 640 acres. The Manual uses a modified Rational Method that considers factors such as land use, quality of cover, soil type, and time of concentration to find discharge values. The traditional formula for the Rational Method is $Q=CIA$ where Q is the peak discharge, C is the runoff coefficient, I is the rainfall intensity, and A is the drainage area.

Runoff Calculation Methodology

A computer model was made using AES RATSCX software with built-in methodology following the 1986 Orange County Hydrology criterion.

Design input criteria for the model were as follows:

Design Storm:	25-year and 100-year
Antecedent Moisture Condition (AMC):	II and III
Soil Conservation Service Soil Group:	B
Existing Land Use:	West of Bee Canyon Channel – “Public Park” (15 percent impervious) East of Bee Canyon Channel – “5-7 Dwellings/Acre” (50 percent impervious)
Proposed Land Use:	All streets – “Commercial” (90 percent impervious) Planning Areas A thru J – “Park/Open Space” (15 percent impervious) Planning Areas 1 thru 7, 19, and 20 – “Residential” (80 percent impervious) Planning Areas 8 thru 18, Second Harvest Food Bank Warehouse Parcel, City parcel, and OCTA parcel – “Commercial” (90 percent impervious) ⁶

The detailed hydrologic calculations and values are included in the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR).

Runoff and Detention

The peak 25-year and 100-year storm runoff was calculated for the existing and proposed condition of both the eastern and western sections of the study area, which includes the Project site, the OCTA’s approximately 21-acre parcel, the Second Harvest Food Bank warehouse parcel, and the City of Irvine property located along the former western boundary of the Marine Base. To comply with existing WQMP and LID requirements imposed by applicable law, the proposed site runoff may not exceed the existing site runoff volume for the design 100-year storm event. The following describes the conceptual manner in which the Project will comply with those laws.

To comply with this requirement, the Development Plan (Section 2.6.4, Drainage), requires the developer of each planning area on the Project site will be responsible to provide detention basins designed to store and discharge runoff at an allowable flow rate equal to the existing condition peak runoff for addressing their proportionate share of storm water detention for all streets (except for Marine Way and Ridge Valley). For two adjacent planning areas there would be no restriction against constructing shared facilities provided all standards are achieved. For

⁶ Though not a part of the Project, for the analysis of drainage, the Second Harvest Food Bank warehouse, City, and OCTA parcels have been included as part of the study area because they would influence the drainage characteristics of the site. These parcels have been assumed to be 90 percent impervious.

conceptual sizing and site planning purposes only, a detention basin for each planning area has been designed that will reduce the peak runoff rate from each planning area before entering the main storm drain system. Detention requirements for each planning area basin are based on distributing the total required detention (difference between Existing and Proposed 100-year event at each outfall) to each planning area proportionally by the ratio of its area to the total area. Additionally, each planning area will also be required to detain an additional flow volume equivalent to the estimated 100-year “detained” storm volume flow from the Project site’s backbone private streets located adjacent to each planning area.

For conceptual design purposes, each planning area’s detention basin was designed using AES CH1 computational hydraulic software with built-in methodology following the 1986 Orange County Hydrology Criterion. The small area unit hydrograph method was used to produce a runoff hydrograph for each basin’s tributary area. The runoff hydrograph was then routed through a flow-through detention basin model, which reduced the peak runoff by the designated rate. A summary and calculations for each of the planning area’s detention basins are included in Appendix G of the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR).

Water Quality

The proposed Project site must meet additional WQMP and LID requirements pertaining to storm water treatment as described in the TGD for the Orange County WQMPs. The TGD requirements specify a Design Capture Volume (DCV) to be treated. How this requirement is to be implemented in each planning area will be addressed in the Project’s final design documents and in each planning area’s Final WQMP. The Conceptual WQMP identifies potential alternatives for addressing storm water runoff treatments that will be developed to satisfy storm water runoff for each planning area and the backbone private streets of the proposed Project.

4.8.3 EXISTING CONDITIONS

Existing Topography and Facilities

The Project’s hydrological study area is a long linear area that is bound by the future extension of Marine Way to the north and the existing OCTA rail lines right-of-way to the south. For the reasons explained previously, the study area covers approximately 136 acres, which includes the Project site; the existing Second Harvest Food Bank warehouse property; the OCTA’s potential Metrolink Maintenance Yard; and a small City of Irvine property that includes the Department of Navy’s groundwater treatment facility.

The existing (and proposed) topography of the Project site is relatively flat with a very gentle slope falling in a southwesterly direction, except for an approximate five-acre area on the eastern edge of the Project site that drains in a southeasterly direction towards an existing storm drain line that ultimately connects to Agua Chinon Channel. The existing ground surface elevations range from a high of 280 feet above mean sea level (msl) to a low of 218 feet above msl.

The study area can be divided in two sections based on the location of the existing Bee Canyon Channel double box culvert that crosses the site. The westerly portion consists of a large open

space area containing barren grassland and an existing paved two-lane road. This area, located within the Marshburn Channel Watershed, includes the Project site and the OCTA and City properties. The existing land coverage in this westerly section is roughly 15 percent impervious.

The easterly section of the study area consists of several large industrial buildings with abandoned railroad track spur lines, cracked and weathered asphalt parking lots, a two-lane main access roadway, and several additional service access roadways. Near its western edge there is an open space area consisting of barren grassland. The existing Second Harvest Food Bank warehouse is located on a 6.5-acre parcel in this easterly portion. Except for a small five-acre area that drains to the Agua Chinon Channel watershed, the majority of the easterly section's storm water runoff will drain into the Bee Canyon Channel Watershed. The existing land coverage in the easterly section is roughly 50 percent impervious.

Currently, storm water runoff from the Project site is conveyed to downstream receiving drainage systems as surface flow and through existing underground storm drain lines that were constructed as part of the former Marine base site improvements or as part of the recent Bee Canyon Channel improvements.

Watershed

The Project site is located in the Santa Ana Region Hydrologic Unit as defined by the RWQCB, Region 8, and is tributary to Newport Bay. Within the Newport Bay Watershed, the Project site's storm water runoff will ultimately be discharged into three separate OCFCD facilities: Marshburn Channel (F16), Bee Canyon Channel (F17), and Agua Chinon Channel (F18); the three OCFCD channels discharge to the San Diego Creek Channel. Only the proposed storm drain improvements in the Bee Canyon Channel Watershed have direct connections with the County's existing flood-control facility (Bee Canyon Channel Double-Box Culvert). The site is within a potential area of erosion, habitat, and physical structure susceptibility due to the presence of an unstabilized natural drainage channels downstream of the Project area.

Hydrologic (Groundwater Conditions)

The historic high groundwater was reported to be as shallow as 40 feet below the existing ground surface (bgs); however, in recent years the depth to groundwater at the Project site is approximately 100 feet bgs. The El Toro Marine Base Groundwater Plume Protection Boundary area located beneath the Project site has been identified to be a protected plume due to its contamination as a result of the former Marine Corps Air Station (MCAS) El Toro operations. However, the proposed Project site grading is not anticipated to reach the existing groundwater. For additional information on the existing groundwater conditions and the Groundwater Plume Protection Boundary area, refer to Section 4.7, Hazards and Hazardous Materials, of this EIR.

Soil Conditions

The Project site location has been graphically shown on the Orange County Hydrology Manual Hydrologic Classification of Soils Map, which has been included in Appendix C of the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR). The map shows the Project to be in an area of

Hydrologic Soil Group B. Group B soils are typically silt loams and loams. They have a moderate infiltration rate when thoroughly wetted and consist mainly of moderately deep to deep and moderately well to well drained soils with moderately fine to moderately coarse texture.

Existing Drainage Patterns

The existing topography in the 136-acre study area can be separated into 3 main drainage areas, each discharging to existing underground drainage systems that ultimately drain into one of three separate OCFCD drainage facilities. These OCFCD facilities are Marshburn Channel (F16), Bee Canyon Channel (F17), and Agua Chinon Channel (F18). Existing storm drainage is depicted on Exhibit 3-8, Conceptual Drainage Infrastructure in Section 3.0, Project Description.

The study area boundary is limited by the proposed extension of Marine Way along the northern boundary of the study area. The proposed Marine Way improvements, including the public storm drain lines within Marine Way (including the Raceway storm drain line⁷), will cut off and eliminate any run-on from areas upstream of the study area. The southerly limit is the OCTA/Southern California Regional Rail Authority (SCRRA) right-of-way based on the existing drainage patterns and graded drainage swales that run parallel to the railroad right-of-way for the majority of the study area's southern boundary.

It should be noted that three studies (*PA 51 and PA 30 Watershed Update Bee Canyon Channel, Agua Chinon Channel, Borrego Canyon Channel, Serrano Creek Channel, and Upper San Diego Creek; PA 51 Marshburn Watershed Update; and Amendment to PA 51 Marshburn Watershed*) regarding the drainage facilities were prepared for the Orange County Flood Control District (OCFCD) and approved by the City of Irvine. The studies analyzed the abilities of the three systems to convey the 100-year storm water runoff, and concluded that the proposed improvements to Marshburn Channel, Bee Canyon Channel, and Agua Chinon Channel within the proposed Heritage Fields development will adequately address the 100-year storm flow volume that will be contained within the storm drain systems and that no flooding will occur to the adjacent properties.

The following provides a description of each of the existing three drainage areas studied in the Drainage Analysis.

Outfall 1 - Marshburn Channel

The drainage area as part of Outfall 1 consists of a 56.99-acre area that encompasses the Project site west of the Bee Canyon Channel and the parcels that are owned by the City of Irvine and the OCTA. The existing topography in this area directs storm water runoff as overland flow in a northwest to southeast direction across the Project site onto and through the adjacent OCTA and City properties to an existing earthen swale that is located along the southern boundary of the former Marine Base. This existing graded swale and other unlined flowlines collect and direct the storm water runoff to the southwest corner of the former Marine Base where it is intercepted by an existing concrete trap channel that extends off site to an existing 60-inch storm drain (OCFCD F16P01), which is located within the California Department of Transportation (Caltrans) right-of-way ("Caltrans Storm Drain"). The storm drain is located

⁷ The Raceway storm drain line is a recently constructed facility in Marine Way, which connects to the Marshburn Channel upstream of the I-5 / Marshburn Channel Crossing.

beneath the existing SR-133 bridge overcrossing of the railroad lines and Interstate (I) 5, and it runs parallel to the railroad right-of-way line. Downstream of the Caltrans Storm Drain, the existing storm drain system eventually conveys the Project area's storm water runoff discharges to the Marshburn Channel (west of the Project site and SR-133). This connection occurs north of the I-5's Marshburn Channel crossing and downstream of the existing Marine Way crossing of Marshburn Channel.⁸

Outfall 2 – Bee Canyon Channel

Runoff from the 73.98 acres of the study area east of the existing Bee Canyon Channel is directed southwesterly to multiple discharge points into the existing Bee Canyon Channel Double Box Culvert that was recently constructed by Five Point Communities. Runoff in the vicinity of the existing buildings is collected via existing underground storm drain systems and directed westerly to Bee Canyon Channel. Areas south and west of the existing buildings convey runoff as overland flow in a southwesterly direction to an existing 60-inch storm drain lateral located at the southwest corner of the Bee Canyon Channel drainage area boundary.

Outfall 3 – Agua Chinon Channel

Storm water runoff from a 5.24-acre portion of the study area and the Project site's eastern boundary is directed to an existing storm drain line that connects to Agua Chinon Channel east of the study area. Surface runoff is collected by several on-site drainage inlets and is conveyed through an existing on-site and off-site 36-inch storm drain system that runs along the eastern boundary of the Project site and exits the site at the southeastern corner. The storm drain system runs parallel to the OCTA/SCRRRA railroad right-of-way and eventually discharges into the Agua Chinon Channel. The existing off-site storm drain line is located within the Great Park Neighborhood District 6 property, owned by Five Point Communities.

Existing Water Quality

Existing Project Site

The site was previously developed as the former Marine Corps Air Station (MCAS) El Toro. Currently, the western half of the site primarily consists of barren grassland and an existing two-lane paved road. The eastern half of the Project site consists of several large industrial buildings, abandoned railroad tracks, barren grassland, and weathered asphalt surfaces in addition to roadways that provide access to the existing users and tenants. The water quality issues and the pollutants of concern related to the former use of the Project site are addressed in Section 4.7, Hazards and Hazardous Materials.

⁸ Note: The Project's existing and proposed storm water discharge design volumes for Outfall 1 are based on the existing storm water runoff flows to the Caltrans Storm Drain. The flows would be limited in volume due to the extension of Marine Way from Ridge Valley to its crossing of Bee Canyon Channel, which is currently under construction, and the completion of the Raceway Storm drain line by the City of Irvine. These Marine Way improvements will reroute storm water runoff for areas upstream of Marine Way through the Raceways Storm Drain line, which will connect up to the Marshburn Channel upstream of the I-5/Marshburn Channel Crossing.

The drainage design for the westerly section of the proposed Project will be based on limiting storm water flow volume and maintaining existing discharge velocities into the Caltrans Storm Drain and will not require any downstream improvements between the outlet of the Caltrans Storm Drain and Marshburn Channel.

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/Newport Bay are sediment, nutrients, toxics, and fecal coliform.

Regional Water Quality

The pollutants identified in the 303(d)-listed water bodies summarized in Table 4.8-1, 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.

4.8.4 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 4.8-1** Violate any water quality standards or waste discharge requirements.
- Threshold 4.8-2** 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 4.8-3** 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 4.8-4** 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 4.8-5** Otherwise substantially degrade water quality.

4.8.5 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 4.8.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Thresholds 4.8-1 and 4.8-5

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. Preliminary analysis conducted for the Water Quality Technical Report indicates that the proposed Project would most likely be categorized as a Risk Level 2 (high risk for receiving water, low-medium risk for sediment production). BMPs required by the Construction General Permit would be incorporated assuming this level of risk.

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 performance standard ensures mitigation of construction water quality impacts over time.

Development Requirement (DR) HWQ-6 through DR HWQ-9 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-6 to HWQ-9 are required.

Operational (Long-Term) Water Quality

A Conceptual Water Quality Management Plan has 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-6, 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, which was prepared utilizing the DAMP and Model WQMP and is in compliance with the updated 2009 MS4 Permit. This development requirement ensures the final Project design incorporates all conditions for biotreatment and hydromodification identified in the approved Conceptual WQMP. Through this process, the County would substantiate that post-construction water quality issues are in compliance the RWQCB permit requirements and consistent with the analysis in the EIR. Similarly, consistent with the basis for the analysis in the EIR, DR HWQ-7 establishes the requirement for verification that the provisions of the NPDES Implementation Program have been implemented.

The proposed site drainage patterns have been designed to closely resemble the existing drainage patterns. Runoff would typically flow in a north to south and west to east direction, except for Planning Areas 5, 14, and 20, which would be designed to convey flow in a north to south and west to east direction due to the location of the downstream receiving drainage system.

Development allowed by the Project is expected to be a potential source of bacteria/pathogens, nutrients, and suspended solids that may enter the storm water. These pollutants, which are typical of urban development, could potentially add to existing impairments of bacteria/pathogens and metals for the receiving waters (see Table 4.8-1).

Since the Project site is located over the RWQCB's designated El Toro Marine Base Groundwater Plume Protection Boundary area, infiltration of the storm water runoff from the Project site would not be considered as a feasible storm water treatment method. Alternative methods to address County DAMP requirements for LID have been developed as part of the BMP solutions for storm water runoff management and treatment. A list of Structural and Non-Structural BMPs proposed for implementation as part of the Project are provided in the *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)* (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 (suspended-solid/sediment, nutrients, heavy metals, pathogens such as bacteria/viruses, pesticides, oil and grease, toxic organic compounds, trash and debris) from entering downstream receiving drainage systems and water bodies. For backbone private streets, storm water-modulated wetlands and/or Filtera storm water treatment devices along with storm water runoff storage basins to store the required design capture volume would be installed in conjunction with the Project's street catch basins to address storm water runoff water quality requirements for the 2-year 24-hour storm event. Other potential alternatives for street storm water runoff include bio-swales and bio-filtration water quality basins, which may be implemented during final design.

Runoff from each planning area would be collected in one of several storm drain systems, as depicted on Exhibit 3-8, Conceptual Drainage Infrastructure. Before entering the storm drain system, each planning area would be required to treat its runoff for pollutants in accordance with current WQMP requirements and mitigate any increase in flow resulting from the overall proposed Project. The developer of these areas would be responsible for preparing that Project's drainage system that would address both storm water runoff detention and treatment in accordance with applicable law. The developer would have the flexibility to design their private drainage system to blend into their project's design. Storm water detention could be addressed using either an at-grade drainage basin; an underground basin; pervious pavement areas as a means of capturing flows for storage; green roof; or other acceptable detention systems. Underground basins could vary from buried pipe chambers to gravel and subdrain systems placed under pervious pavement. Storm water treatment could also vary depending on the planning area's site improvements and could include biotreatment devices such as modular wetlands or planter boxes and bio-filtration swales. Other options include disconnect of impervious areas, increase of pervious areas, such as pervious pavement, and increased tree

canopy coverage. Although not required, solutions to “capture and reuse” storm water runoff and to reduce impervious areas (by considering rain harvesting; green roofs; brown roofs; and/or blue roofs) may also be considered by the future developers.

With respect to proposed open space areas, the Project would include storm water detention and treatment measures for the proposed public parks in Planning Areas A and B and the proposed “Park-within-a-Park” Greenbelt along Marine Way through Planning Areas C and F, as each of these open space areas are phased into the development of the Project site. Private storm drain lines would be extended in backbone private streets and through developable planning areas to convey the storm water runoff from the open space areas to the backbone storm drain system and to Bee Canyon Channel’s double box culvert.

Street-related storm water runoff would also be treated for pollutants in accordance with current WQMP requirements prior to interception by the streets’ storm drain systems.

Hydromodification, which is a HCOCs is discussed below as part of the drainage evaluation. Based on the analysis conducted for the WQMP, the Project would cause an increase in the peak flow and volume and a decrease in the time of concentration for the storm event due to a decrease in pervious surfaces. Therefore, the Project has been determined to have HCOCs. HCOCs would be mitigated through the use of underground detention basins to store the difference in runoff volumes. These basins are designed to discharge at an allowable flow rate equal to the existing peak runoff for the 100-year storm event. In addition, the proposed biotreatment BMPs would also detain runoff to serve as additional mitigation to address Project’s HCOCs.

Two typical categories of BMPs are infiltration (e.g., infiltration basins, trenches, and injection drywells) and harvest and reuse of storm water on site. As discussed above, infiltration is not feasible for the Project due to site’s location over an existing RWQCB’s designated El Toro Marine Base Groundwater Plume Protection Boundary area. Harvest and reuse BMPs are not feasible options at a Project-wide level, as the proposed Project would not include sufficient landscape for irrigation reuse. Additionally, dual-plumbed recycled water systems are not currently accepted by the California State Health Department (See Section 60313, General Requirements). Evapotranspiration and evaporation BMPs would not be effective because of the limited physical area. Even though the Project’s proposed site landscape improvements and proposed Bio-Filtration BMPs may potentially result in some evapotranspiration, the benefits based on their limited footprints are not quantifiable. In addition, the Project does not propose construction of large exposed detention basins where the expose surface area would encourage evaporation. Therefore, these are not considered viable BMP options for this Project.

Since infiltration BMPs, evapotranspiration, and evaporation BMP’s are not feasible for the 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. With the proposed BMPs and compliance with development requirements, water quality standards would not be violated and water quality would not be degraded. Therefore, impact would be less than significant.

Impact Conclusion: *With the implementation of the recommended and applicable BMPs and the development requirements included in this section, the Project would not violate any water quality standards and waste discharge requirements nor would it otherwise substantially degrade water quality during construction and operation, pursuant to Thresholds 4.8-1 and 4.8-5. The water quality-related impacts would be less than significant. Additionally, implementation of DR HWQ-6 through DR HWQ-9, which include 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 4.8-2, 4.8-3, and 4.8-4

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 Conditions and Drainage Area Diversions

The hydromodification requirements in the MS4 Permit specify that a project would cause hydromodification impacts to receiving waters if either the post-development runoff volume or time of concentration for the 2-year, 24-hour storm exceeds the pre-development runoff volume or the time of concentration by more than 5 percent.

The results for the 2-year 24 hour storm event calculations for pre-Project and post-Project peak flows, time of concentrations, and runoff volumes are shown in Table 4.8-2, below.

**TABLE 4.8-2
PERFORMANCE STANDARD FOR ASSESSING
PROJECT HYDROLOGIC CONDITIONS OF CONCERN**

Lot	Drainage Area (acre)		Peak Flow (cfs)		Time of Concentration (minutes)		Volume (ft ³)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Outfall 1	57.00	49.60	23.80	44.08	36.87	14.28	71,438	163,350
Outfall 2	74.00	83.30	52.63	65.28	25.16	18.37	154,638	250,034
Outfall 3	5.20	3.30	6.19	4.92	10.70	8.47	9,148	14,375
Totals	136.20^a	136.20^a	82.62	114.28	--^b	--^b	235,224	427,759
Increase % or Amount	0		38%		--^b		82%	

cfs: cubic feet per second; ft³: cubic feet

^a The total area includes approximately 21 acres of the OCTA parcel, 0.5 acre of the City of Irvine property, and 6.47 acres of the Second Harvest Food Bank warehouse property in addition to the Project area.

^b Time of Concentration for each of the individual outfalls would not be totaled.

Source: Tait & Associates 2015a.

Based on the information shown above, the total runoff for the Project would exceed the peak flows over the pre-development conditions by 38 percent and total volume by 82 percent. Increases of this level have the potential to alter the natural flow characteristics, and therefore is identified as an HCOC and the hydromodification requirements in MS4 permit would apply to the Project.

To address hydromodification, 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, in accordance with DAMP requirements. Development in each individual planning area would be responsible for addressing the storm water detention requirement for their respective area and for half-width improvements for all backbone streets along the planning area frontage.

The development of the site is planned to primarily maintain the existing condition drainage patterns (Exhibit 3-8, Conceptual Drainage Infrastructure). However, due to site topography constraints, the planned grading for several planning areas would result in two minor drainage area diversions to the Bee Canyon Channel. One area of diversion is an approximately 7.5-acre area located west of and immediately adjacent to the Bee Canyon Channel. This area is proposed to be diverted to Bee Canyon Channel since the underlying topography would create a low point at the southeast corner of Planning Area 20. This low point would address the existing drainage pattern that has storm water runoff from the Project site sheet-flowing into the OCTA property. To prevent this condition, Planning Area 5 and Planning Area 20 would be graded in a northwest to southeast direction, which is opposite the existing direction. The estimated 100-year flow volume contribution from this 7.5-acre area is estimated to be 26.5 cubic feet per second (cfs), which is not considered to be a substantial modification when compared to the estimated 1607.9 cfs for the 100-year storm flow volume estimated to be conveyed to Bee Canyon Channel. This location is upstream of the existing double box culvert's outlet into the Bee Canyon Channel crossing of the OCTA/SCRRRA railroad right-of-way (per the OCFCD's approved July 2014 Bee Canyon Channel Improvement Plans prepared by RBF). This

diversion does not include any storm water runoff diversion for the approximately 21-acre OCTA property located west of the Bee Canyon Channel.

The second area of diversion is on the Project's easterly boundary. In this area, the proposed site grading and projected building layout would impact the storm water runoff drainage patterns within the Project site. The proposed site improvements would result in reducing the storm water runoff volume that reaches the downstream Agua Chinon Channel drainage system; as a result, there would be a slight diversion from the Agua Chinon Channel Watershed to the Bee Canyon Channel Watershed. The site topography in this area would reduce the tributary drainage area to the Agua Chinon Channel Watershed by approximately 1.9 acres (or approximately 5.5 cfs for a 100-year storm event). This diverted volume is not considered substantial when compared to the estimated 100-year storm flow in Bee Canyon Channel.

This total projected diversion of approximately 9.3⁹ acres along with the proposed changes in land uses would result in a 28.12-cfs increase in storm water runoff volume (for a 100-year storm event) compared to the existing condition. The estimated 28.12 cfs would be an approximately 1.7 percent increase in the projected 100-year storm water flow in the Bee Canyon Channel at the Project's southern boundary (1607.9 cfs). However, it should be noted that the OCFCD's 100-year storm volume in Bee Canyon Channel assumed a developed condition for the Project site, so a portion of this 28.12-cfs increase has already been included in the estimated 100-year flow volume for this flood-control facility. Additionally, the 28.12 cfs does not consider any on-site detention that might further reduce the peak storm flows from the Project site.

In addition to the two diversions, for the proposed drainage condition, each planning area would be required to detain a percentage of its storm water runoff along with the required percentage of storm water runoff from the adjacent private streets in order to address the Project's hydromodification storm water runoff management requirements. The Project's required detention would accommodate the storm water runoff from the private streets, and therefore, private streets would not be required to detain any runoff.

In addition to on-site storm water detention, each planning area, as well as the backbone private streets, would be required to provide LID improvements to satisfy the County's DAMP requirements for treatment of storm water runoff.

The proposed Project is planned to primarily maintain the existing condition drainage patterns. While the Project would result in a total diversion of 9.3 acres, the associated flows are not substantial compared to the 100-year storm flow volume estimated to be conveyed to the Bee Canyon Channel. By complying with hydromodification requirements, the proposed Project would not result in increased runoff or impacts to storm water flows resulting in flooding on- or off-site nor would it exceed the existing or planned capacity of the system. The requirements to provide LID improvements, including detention basins would reduce the potential for erosion or siltation leaving the Project site. These basins would also provide water quality treatment that would meet the requirements of the DAMP and reduce the potential for the discharge of polluted runoff. DR HWQ-1 through DR-HWQ-5 pertain to requirements

⁹ There are two minor drainage area diversion. The first is approximately 7.5-acre area located west of and immediately adjacent to the Bee Canyon Channel. The second is a reduction the tributary drainage area to the Agua Chinon Channel Watershed by approximately 1.9 acres. Due to rounding, the total diversion is 9.3 acres.

associated with drainage would apply to the Project. Therefore, the impact would be less than significant.

Proposed Drainage Improvements

As described above, the proposed drainage patterns are designed to substantially maintain the existing drainage pattern. However, as also indicated, the Project peak flows rates would exceed the pre-development conditions by 38 percent and total volume by 82 percent. The following is a discussion of the three drainage areas (Outfall 1, 2, and 3) and the proposed improvements to address the Project's impacts associated with hydromodification and the potential for impacts at each of these three outfall locations for potential impacts associated with (1) alteration of the course of a stream or river, in manner which would result in substantial erosion or siltation on or off-site; (2) increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; and (3) contribute runoff water that would exceed capacity of existing or planned storm water drainage system or provide substantial additional sources of polluted runoff, as prescribed in the thresholds listed above. The evaluation considers the outfall locations, as well as downstream conditions.

Outfall 1 – Marshburn Channel

Storm water runoff from the Project's Planning Areas 1, 2, 3, 4, C, D, and a portion of E (referred to herein as E1) as well as the Project's backbone private streets serving these planning areas would be collected by a proposed storm drain system in the Project's private street systems and discharged to a proposed storm drain line, constructed as part of the Project's overall infrastructure improvements off-site in non-County of Orange property. This storm drain line (the "Off-Site Storm Drain") would run in a north to south direction along the western boundary of the former Marine base and would extend outside the Project site into the City and OCTA properties. The off-site storm drain would also be used to collect storm water runoff from the City and OCTA properties. At the downstream terminus of the off-site storm drain, storm water would be discharged into a proposed concrete drainage channel, which would replace the existing concrete lined drainage channel. This confluence would occur in the southwest corner of the former MCAS El Toro on OCTA property. The study area's post-development storm water runoff would then be conveyed by the new concrete channel to the existing 60-inch Caltrans Storm Drain (OCFCD F16P01) located off site within Caltrans right-of-way.

The total proposed drainage tributary area that would discharge to the existing Caltrans storm drain line and ultimately into the Marshburn Channel is 49.58 acres (27.58 acres from the Project and 22.00 acres from the combined OCTA and City properties), which is approximately 7.5 acres less than in the existing condition. However with the proposed change in land use from open space grasslands to multi-family residential, the total discharge into the Caltrans storm drain would increase from 114.86 cfs to 131.3 cfs (a 16.44 cfs increase) without detention of storm water runoff.

The design concept for the Outfall 1 storm water runoff is to maintain the existing storm water runoff volume in the existing Marshburn Channel at the upstream end of the Marshburn Channel Crossing with I-5. In order to achieve this condition, in accordance with County DAMP, the combined runoff from the Project site and the OCTA and City properties would have to be limited to the existing condition 100-year peak flow volume discharging to Marshburn Channel.

Using the Rational Method, runoff calculations are provided in Appendix B of the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR) for Outfall 1's drainage area. In the proposed condition, the calculations indicate that the area would produce an increased 100-year peak flow rate for Outfall 1. As a result, the proposed storm drain systems for the proposed Project and the OCTA parcel would be required to provide storm water detention to reduce the peak flow rate discharging to the Caltrans Storm Drain and Marshburn Channel. The exact discharge rate and detention requirements for the Project would be determined in the final design phase after storm water LID BMPs are identified for each planning area. Any required reduction in flow to the Caltrans storm drain line is assumed to be allocated based on the percentage each area contributes to the total storm water runoff in the tributary area to Outfall 1 as well as any contribution for a developed OCTA Maintenance Yard for the Metrolink rail service.

In summary, each planning area that is tributary to Marshburn Channel would treat its runoff in accordance with current WQMP requirements and would mitigate any increase in flow as a result of the Project through the implementation of BMPs, thereby reducing the peak flow rate. The proposed storm drain systems would discharge off site at the existing locations. With implementation of these measures, impacts to Marshburn Channel associated with the alteration of the existing drainage pattern in a manner that would cause erosion or siltation or flooding due to the increased flow rates 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. Development Requirements (DRs) HWQ-1 through HWQ-3 and DR HWQ-5 would also be applicable. Therefore, with all the measures in place impacts would be less than significant.

Outfall 2 – Bee Canyon Channel

Planning Areas 5 through 13, B, E2, and F through J along with the Project's private streets serving these planning areas would discharge storm runoff to a proposed storm drain system that would run east to west across the middle of the Project site where it would discharge to the Bee Canyon Channel. Planning Areas 15 through 20 and the Second Harvest Food Bank warehouse property would discharge storm water runoff to a second storm drain system that would run east to west along the southern site boundary where it would discharge to the Bee Canyon Channel. Each planning area would include a detention basin to reduce the peak flow rate of the storm drain system.

Using the Rational Method, runoff calculations are provided in Appendix B of the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR) for Outfall 2's drainage area. The total proposed tributary area that would discharge to the Bee Canyon Channel is 83.30 acres, which is approximately a 9.3-acre increase over the existing condition's 74 acres. This increase is the result of the two previously identified diversions for storm water runoff that flow from Marshburn Channel (contributed from Planning Areas 5, 20, and a portion of E2) and from Agua Chinon Channel (contributed from a portion of Planning Area 13 and the private street serving Planning Areas 13 and 14).

In summary, each planning area that is tributary to Bee Canyon Channel would treat its runoff for pollutants in accordance with current WQMP requirements and would mitigate any increase in flow as a result of the Project through the implementation of BMPs, thereby reducing the peak flow rate. The proposed storm drain systems would discharge off site at the

existing locations. With implementation of these measures, impacts to Bee Canyon Channel associated with the alteration of the existing drainage pattern in a manner that would cause erosion or siltation or flooding due to the increased flow rates 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. DR HWQ-1 through HWQ-5 would also be applicable. Therefore, impacts would be less than significant.

Outfall 3 – Agua Chinon Channel

Storm runoff from Planning Area 14 would flow toward the southeastern corner of the Project site and would discharge to an existing 36-inch storm drain tributary to the Agua Chinon Channel. The proposed tributary area that would discharge to the Agua Chinon Channel would be reduced from 5.24 acres to 3.33 acres. Based on the Rational Method runoff calculations provided in Appendix B of the *Conceptual Drainage Analysis* (Appendix I-2 of this EIR), the proposed condition would produce a decreased 100-year peak flow rate at Outfall 3; therefore, Planning Area 14 would not require storm water detention before discharging to the Agua Chinon Channel. As a result, runoff directed to the Agua Chinon Channel would be treated in accordance with current WQMP requirements through the implementation of BMPs. Peak flows would be decreased as a result of the reduced tributary area. Therefore, with implementation of these measures, impacts to Agua Chinon Channel associated with the alteration of the existing drainage pattern in a manner that would cause erosion or siltation or flooding due to the increased flow rates would be less than significant because discharges would generally be comparable to existing peak flows. For this outfall, no retention of storm water is required to ensure 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. DR HWQ-1 through HWQ-3 and DR HWQ-5 would still be applicable. Therefore, impacts would be less than significant.

Downstream Conditions

Marshburn Channel

A number of existing drainage reports about the proposed Project drainage area were reviewed to determine if the Marshburn Channel has adequate capacity to accept runoff from the proposed Project site and to establish the allowable site discharge rate. Based on the hydrological study presented in the Drainage Analysis and one of the reports titled *Amendment to PA51 Marshburn Watershed*, the existing Marshburn Channel has been designed to receive storm water runoff from the proposed Project site. Additionally, the existing Channel has adequate capacity to accept the proposed storm water runoff from the developed portion of the Project site that contributes storm water runoff to the Marshburn Channel. The Project total volume discharge would not be greater than the existing condition. Therefore, the proposed storm water runoff would not adversely impact storm water flows in Marshburn Channel resulting in substantial erosion or siltation on- or off-site, or flooding on- or off-site, nor would it exceed the existing or planned capacity of the channel or create substantial additional sources of polluted runoff.

Bee Canyon Channel

The report titled, *Bee Canyon Channel (F17) Improvements*, demonstrates that Bee Canyon Channel at the crossing with OCTA/SCRRA railroad lines had been designed to adequately accommodate a 100-year storm event from a fully developed upstream area. The upstream area included the portion of the Project site located east of Bee Canyon Channel. In the above referenced report, the Project site was assumed to be developed with commercial uses, which is consistent with the current development plan for this area, from a hydrological perspective. In the study, none of the area on the Project site, east of Bee Canyon Channel, was identified to be discharging into the Agua Chinon Channel Watershed; however, based on historical drainage patterns and the existing storm drain systems, a small five-acre area on the easterly edge of the Project site does not discharge into the Bee Canyon Watershed and instead flows towards the Agua Chinon Channel.

The storm water runoff analysis for the Project proposes two storm water runoff diversions to Bee Canyon Channel. The estimated increase in the Pre-Project and Post-Project storm water runoff flow volumes to Bee Canyon Channel is approximately 28.12 cfs. This difference represents a 1.7 percent increase to the projected buildout 100-year storm flow volume (1607.9 cfs) in Bee Canyon Channel Double Box Culvert and at the Channel's railroad crossing bridge flows. It should be noted that the projected 28.12-cfs flow increase is based on the difference between Pre-Project former Marine Base development and the Post-Project development flows and the diversion associated with the additional 9.3 acres of area discharging into Bee Canyon Channel. The 100-year design flow in Bee Canyon Channel was based on the Project area as a commercial development, so the actual amount of increased flow to Bee Canyon would be less than 28.12 cfs.

Based on Orange County Flood Control District' review of the Project's Preliminary Drainage Analysis, the proposed 1.7 percent increase in the 100-year storm flow and the 9.3-acre diversion area are not substantial with respect to the total 100-year flow in upstream tributary area of Bee Canyon Channel. Therefore, the Project would not adversely impact storm water flows in Bee Canyon Channel resulting in substantial erosion or siltation on- or off-site, or flooding on- or off-site, nor would it exceed the existing or planned capacity of the channel or create substantial additional sources of polluted runoff.

Agua Chinon Channel

Based on a review of the existing records and the existing storm drain systems for the former MCAS El Toro, a 5.24-acre area in the existing study area (and the Project site) is currently draining through an off-site storm drain line to the Aqua Chinon Channel. This existing storm drain system includes several inlets and pipelines on the Project site east of the existing easterly warehouses and was constructed as part of the former MCAS El Toro storm drain system. The existing storm drain line that conveys storm water runoff off site to the Agua Chinon Channel is a 36-inch storm drain line that extends from the Project site and confluences with the Agua Chinon Channel upstream of the OCTA railroad right-of-way and Channel crossing. The proposed Project would continue to discharge runoff to the Agua Chinon Channel, but the tributary area and peak discharge would be decreased from 5.24 acres to 3.33 acres. Based on a reduced volume for storm water runoff, the amount of flow from the smaller contributing area would not result in any impact to the downstream 36-inch existing storm drain line or to the Agua Chinon Channel. The area of discharge has been reduced, thus

resulting in a reduced volume storm water runoff to Agua Chinon Channel. Therefore, the existing and planned capacity would not be exceeded, and the Project would not result in substantial erosion or siltation on- or off-site, or flooding on- or off-site, nor would it create substantial additional sources of polluted runoff.

A summary of the results for each drainage outfall area is presented in Table 4.8-3, below.

**TABLE 4.8-3
SUMMARY OF RESULTS**

Outfall	Receiving Water		Tributary Area (ac)		25-Year Flood (cfs)		100-Year Flood (cfs)		Proposed Reduction of Outflow ^b
			Existing	Proposed	Existing	Proposed ^a	Existing	Proposed ^a	
1	Marshburn Channel	Project	56.99	49.58	75.25	102.53	101.75	133.63	31.88 cfs ^b
		City/OCTA		22.00		45.50		59.30	
2	Bee Canyon Channel		73.98	83.30	130.87	153.80	171.84	199.96	28.12 cfs ^b
3	Agua Chinon Channel		5.24	3.33	14.83	10.82	19.36	13.92	0 cfs ^b
TOTAL			136.21	158.21	220.95	312.65	292.95	406.81	

ac: acres; cfs: cubic feet per second; OCTA: Orange County Transportation Authority

^a 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 conditions and requirements pertaining to storm water detention and treatment.

^b Each planning area shall be responsible to reduce runoff based on an overall permitted contribution to each outfall point. The final percentage reduction of proposed discharge to each outfall shall be based on the flow volumes for the existing condition to each outfall point.

Source: Tait & Associates 2015b.

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 were designed to best maintain existing drainage runoff flow patterns, when feasible. However, the Project site topography and the proposed redevelopment for the MCAS El Toro have resulted in two small drainage area diversions for a total of 9.3 acres, which would not have any significant effect on the downstream receiving water bodies (i.e., Marshburn, Bee Canyon, and Agua Chinon Channels). 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 the DR HWQ-1 through DR HWQ-5 and no mitigation is required, pursuant to Thresholds 4.8-2 through 4.8-4. 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 on the proposed development plan and the backbone storm drain system for each area.*

4.8.6 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 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 other 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 is surrounded by an area that is developed, approved for development, or planned for development. The proposed Project and other new developments anticipated in the area would result in changes to on-site land uses, primarily the conversion of previously developed vacant 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 that would result in substantial erosion or siltation on- and off-site, flooding on- and off-site, exceeding the existing capacity or substantial additional sources of polluted runoff, mitigation measures would be imposed 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.

4.8.7 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 diversions, off-site areas that drain onto and/or through the Project, and justification of any 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, and
 2. Design all necessary storm drain facilities extending to a satisfactory point of disposal for the proper control and disposal of storm runoff.

- 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.

DR HWQ-4 Easement Subordination. Prior to the final inspection approval, the County or its designee shall not grant any easements over any property subject to a requirement of dedication or irrevocable offer to the Orange County Flood Control District (OCFCD), unless such easements are expressly made subordinate to the easements to be offered for dedication to the County. Prior to granting any of said easements, the County or its designee shall furnish a copy of the proposed easement to the Manager of Building & Safety, or designee for review and approval. Further, a copy of the approved easement shall be furnished to the Manager of Building & Safety, or designee prior to the final inspection approval.

DR HWQ-5 Diversion of Storm Water Flow. Prior to issuance of any grading permits, the County or its designee shall obtain approval from the OCFCD for any diversion of storm water flow between County watersheds.

Water Quality

DR HWQ-6 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.

The BMP Exhibit from the approved WQMP shall be included as a sheet in all plan sets submitted for plan check, and all BMPs shall be depicted on these plans. Grading and building plans must be consistent with the approved BMP exhibit.

DR HWQ-7 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. The 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-8 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-9 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.

4.8.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed improvements are designed to best maintain existing drainage runoff flow patterns, when feasible. However, the Project site topography and the proposed redevelopment for the MCAS El Toro have resulted in two small drainage area diversions, which would not have any significant effect on the downstream receiving water bodies (i.e., Marshburn, Bee Canyon, and Agua Chinon Channels). 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 individual planning areas based on construction level plans and the backbone storm drain system for each area.

As infiltration, evapotranspiration, and evaporation BMPs are not feasible options given the condition of the groundwater and lack of sufficient landscaping, water treatment would occur through use of proprietary biotreatment BMPs. In compliance with the recommended BMPs and DR HWQ-6 through DR HWQ-9, the short- and long-term Project-specific and cumulative 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.

4.8.9 REFERENCES

- KTGY Group, Inc. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- OC Public Works. 2015 (October, access date). Hydrology. Santa Ana, CA: OC Public Works. <http://ocflood.com/nfc/hydrology>.
- Orange, County of, Cities of Orange County, and Orange County Flood Control Division (OCFCD). 2003 (September). *Drainage Area Management Plan*. Orange County, CA: the County, the Cities, and the OCFCD. <https://media.ocgov.com/gov/pw/watersheds/documents/damp/mapplan.asp>.
- RBF Consulting. 2012 (October). *Basis of Design Report, Bee Canyon Channel (F17) Improvements, Orange County, California*. Irvine, CA: RBF Consulting.
- . 2011 (September, approved). *Amendment to PA 51, Amendment to Marshburn Watershed*. Irvine, CA: RBF Consulting.
- Regional Water Quality Control Board, Santa Ana Region (Santa Ana RWQCB). 2016 (January, access date). Orange County Municipal NPDES Storm Water Permit. Riverside, CA: Santa Ana RWQCB. http://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/oc_permit.shtml.
- . 2011a (May 19, approval date). Exhibit 7.II: Model Water Quality Management Plan (Model WQMP). Riverside, CA: Santa Ana RWQCB. http://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/docs/ocpermit/wqmp/2011/2011-05-19_Model_WQMP2.pdf.
- . 2011b (May 19, approval date). Exhibit 7.III: Technical Guidance Document for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Plans (WQMPs). Riverside, CA: Santa Ana RWQCB. http://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/docs/ocpermit/wqmp/2011/OC_TGD_5-19-11.pdf.
- . 1995 (as amended through 2011). *Water Quality Control Plan, Santa Ana River Basin*. Riverside, CA: Santa Ana RWQCB. http://www.swrcb.ca.gov/santaana/water_issues/programs/basin_plan/index.shtml.
- State Water Resources Control Board (SWRCB). 2015 (July, approval date). 2012 303(d) List of Water Quality Limited Segments (an Excel Spreadsheet). Sacramento, CA: SWRCB. http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml.
- Tait & Associates, Inc. 2015. *Conceptual County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)*. Anaheim, CA: Tait & Associates.
- . 2015b. *Conceptual Drainage Analysis Existing vs. Proposed El Toro 100-Acre Parcel Development*. Anaheim, CA: Tait & Associates.

This page intentionally left blank

4.9 LAND USE AND PLANNING

This section describes the existing land uses on 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.

4.9.1 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 2015a).

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 property may be done as if the 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 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 4.9 of the DEIR 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 2015a, 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 or Irvine Zoning Ordinance.

4.9.2 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.

4.9.3 EXISTING CONDITIONS

Local access to the Project site is currently provided from the existing two-lane Marine Way and Perimeter Road. Future access will be via the realigned and extended Marine Way, which will replace Perimeter Road. Future Marine Way will abut the Project site on the northeast and will be improved as a four-lane Primary Highway by others (Irvine 2015a, 2015d).

As described in detail in Section 2.0, Introduction, Project History, and Setting, in consideration of LAFCO's determination of annexation of the base to the City of Irvine, 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. As part of that Pre-Annexation Agreement, the City agreed to provide fee ownership to certain lands to the County, and hence an approximately 100-acre portion of the site was included in the parcels to be conveyed to the County. The Pre-Annexation Agreement gives the County or its designees, lessees, or concessionaires, including but not limited to joint ventures with private or public agencies, the right to construct and operate permitted uses and facilities. The Pre-Annexation Agreement recognizes, and the City agreed, that the County would retain land use authority over the property the County acquires on the former MCAS El Toro and the County would be entitled to place any development upon that property that the County shall determine to be desirable for the County's needs as if that property remained unincorporated.

General Plan Designation and Zoning

The *City of Irvine General Plan* identifies the Project site 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. As contemplated in the corresponding EIR, Table A-1 further identifies 436,000 square feet of Institutional/Pubic Facilities on the Project site. Of the 436,000 square feet, 300,000 square feet is designated for County facilities and 136,000 is designated for warehousing for homeless providers.¹ 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's Zoning Map identifies the Project site as 6.1, Institutional. That zoning designation applies to land for public and quasi-public facilities, including churches, schools, or utilities. Permitted uses within this zoning district include, but are not limited to, agriculture, emergency shelters, residential shelter, information center, park, school, and wireless communication facility.

On-Site Uses

The Project site consists of approximately 108 acres of land that was part of the former Marine Corps Air Station (MCAS) El Toro. The northwestern section of the site is land that was part of MCAS El Toro's runway protection zone. The central portion of the site is land that includes a drainage channel and rail spurs that extend from the Southern California Regional Rail Authority (SCRRA) rail line south and southwest of the site towards the warehouse structures on the southeastern portion of the site. The existing warehouses on the site are currently vacant; however, the Second Harvest Food Bank warehouse, which is surrounded by the Project site on three sides, is in use. The Project site includes a number of vacant structures that are considered

¹ It should be noted that as part of the acquisition of the Building 360 from Community Action Partnership of Orange County and Families Forward (CAP/FF) the County coordinated with the federal government on the transfer, which resulted in the removal of the requirement to use the site for homeless providers. However, the City of Irvine General Plan has not updated the designation.

dilapidated and beyond repair based on an evaluation conducted in July 2009. However, one of the existing structures, Building 317, may potentially be re-used as part of the Development Plan.

Surrounding Uses

Land uses adjacent to the site include agricultural land and the Orange County Great Park (OCGP) sports fields to the northwest and north and undeveloped land, Great Park Neighborhoods District 6 and the Irvine Station, a major transit center to the east and southeast. To the south and southwest of the site are the SCRRA rail lines and business park/office uses. State Route (SR) 133 and vacant land owned by Orange County Transportation Authority (OCTA) are to the west and southwest of the site. A warehouse used as the field offices of Heritage Fields and Five Point Communities is located to the south/southeast of the site. The existing OCTA bus base and Irvine Community Church are located to the northwest of the site on Sand Canyon Avenue, west of SR-133 and the future alignment of Marine Way.

The Irvine Technology Center is located south and southwest of the Project site. Though it is adjacent to the Project site, it is separated by the SCRRA rail line. There are no roadways that would provide direct connection between the Irvine Technology Center and the Project site. The Irvine Technology Center has generally been developed as two-story industrial buildings surrounded by surface parking.

The nearest land use is the Second Harvest Food Bank warehouse, which the Project site surrounds on three sides. Activities at this warehouse are conducted largely indoors and during the day.

The land to the northeast and east of the site are planned for the new alignment of Marine Way and future development of the Cultural Terrace of the OCGP. The existing two-lane Perimeter Road would be replaced by an extended and realigned Marine Way through a multi-phase construction project. The future Marine Way alignment would connect Sand Canyon Avenue to the northwest of the Project site to Alton, Barranca, and Bake Parkways to the southeast. The first phase of Marine Way would be located between Ridge Valley and future Great Park Boulevard West². The remainder of Marine Way does not have an anticipated time frame, although the portion between Alton and Barranca Parkways would likely be constructed in conjunction with the Broadcom Campus, which is to the south of the Project site and SCCRA. The Broadcom Campus is anticipated to be completed in 2017.

Planned Uses

The current and planned development in the surrounding area would change the general character of the area from a former marine base with warehousing buildings and a partially developed regional park to a fully developed regional park surrounded by residential, mixed-use, commercial, office, cultural and retail uses. The proposed Project is part of an area that is slated for development with compatible uses. The City of Irvine approved the Great Park Neighborhoods development on portions of Planning Area (PA) 51 and former PA 30 between 2003 and 2011. The Great Park Neighborhoods development is adjacent to the OCGP and is privately owned by Five Point Communities. As originally approved, the development would consist of residential and non-residential uses, including 3,625 residential units and 1,269

² Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents.

density bonus units as well as 1,154,700 square feet of non-residential uses in District 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 former PA 30 and PA 51 (combined PA 51). The 2012 Modified Project, approved by the City in 2013 as a modification of the Great Park Neighborhoods development project, 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).

In the Middle 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, adjacent and to the north and northeast 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 2015c).

Located in the southeastern portion of the OCGP, adjacent to the 688-acre Sports Park, and east of the proposed Project 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 2015c).

OCTA owns a 21-acre parcel south and southwest of the Project site. The site is designated for a future rail maintenance facility. Currently, there are no uses on this parcel and a site development plan for the rail maintenance facility has not been prepared. The timing for the development of the OCTA site has not been established.

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 land use impact if it would:

Threshold 4.9-1 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.

4.9.5 IMPACT ANALYSIS

Threshold 4.9-1

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, 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.

The comparison of the Project with these programs is discussed in this section, and Tables 4.9-1, 4.9-2, and 4.9-3 provide a comparison against specific goals and policies.

Comparison to Planning Documents

County of Orange General Plan and Zoning Code

As discussed above in Section 4.9.1, 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 4.9.1, 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 6.1, Institutional, which applies to land for public and quasi-public facilities, including churches, schools, or utilities.

The Project proposes a mix of uses allowed under the City's General Plan Orange County Great Park designation. The intensity and nature of uses identified in the City's General Plan Table A-1 is different than the Project proposes. Further, not all of the uses identified by the Project for the Project site are contemplated under the City's 6.1, Institutional zoning designation.

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 (Irvine 2015a, 2015d) to reflect the Project. For that same purpose, other minor changes to sections of the City of Irvine General Plan would also occur. 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 16 for non-residential uses to convert the 1,876,000 square feet of Multi-Use (Office) within PA 51 to other uses, pursuant to the El Toro, 100-Arce Parcel Development Plan, as approved and implemented by the County of Orange, without the need for a GPA.
- Revisions to Footnote 17 to change the square footage of Institutional/Public Facilities in PA 51 from 1,233,000 to 797,000; warehousing for homeless providers from 263,000 to 127,000; and removing 300,000 square feet of County of Orange facilities.
- Addition of a new Footnote 30 to indicate that the square footage for Multi-Use does not include an additional 242 hotel rooms for the County of Orange property in PA 51.
- Revisions to Footnotes 18 and 26 of Table A-1 and Footnote 8 of Table A-2, to provide clarifications regarding the responsibility of the Heritage Fields' property owner in PA 51.
- Revisions to Table A-1 of the General Plan Land Use Element are depicted in Section 3.5.8.

While permitted land uses in the Development Plan include institutional uses, the Development Plan has been developed to be generally consistent with the uses contemplated by the TTOD (8.1) zone of the City's Zoning Code. The TTOD designation allows for a mix of residential, commercial, recreational, and education uses that would support a multi-use development. For purposes of informed decision making and to reflect the Project, the City could place the Project in the TTOD designation and make the following changes to the TTOD zone, Section 3-37-39, of the City's Zoning Code:

- Revisions to Section 3-37-39.B.1, the intensity standard in PA 51, to allow the 8.1C zoning district to have up to 80.0 dwelling units per net acre for individual sites as long as the total net density within 8.1C for residential uses does not exceed 50.0 dwelling units per net acre.
- Revisions to exclude the 8.1C zoning district from total maximum intensities listed for areas other than Project site and the maximum average daily trips (ADT) currently allowed in PA 51.
- Addition of B.4 to Section 3-37-39 to provide for the maximum development intensity and maximum ADT for 8.1C zoning district.
- Revisions to Section 3-37-39.G, Maximum Site Coverage, to provide unlimited site coverage for 8.1C zoning district.

Proposed changes to Section 9-51, Planning Area 51 (Orange County Great Park), to reflect the Project could include the following:

- Revisions under Section 9-51-2 to provide clarification regarding the responsibility of the master developer of the Great Park Neighborhoods in PA 51.
- Revisions to the statistical table for PA 51 to change the maximum square footage of the Institutional use from 685,500 to 249,500; to provide acreage, maximum square footage, and maximum dwelling units for 8.1C zoning district uses (community commercial [retail], residential, hotel, and multi-use [office]); and to revise the totals to reflect the changes. The revised table is included in Section 3.5.8, of this EIR.
- Revisions to Footnote 4 of the above table to remove 300,000 square feet for County facilities and to reduce the square footage of “McKinney Act” warehousing from 263,000 to 127,000.
- Addition of two new footnotes (i.e., Footnotes 7 and 8) to provide for acreage of 8.1C TTOD (108 acres) and 242 hotel rooms.
- Revisions to the *Notes on Maximum Intensities* to provide clarification regarding the responsibility of the master developer of the Great Park Neighborhoods in PA 51.
- Replacing the existing zoning district map for PA 51 to include the 8.1C zoning district.
- Revisions to Section 9-51-6(A), Affordable Housing, to exclude 8.1C zoning district from provisions of Chapter 2-3, Affordable Housing Implementation Procedures.
- Revisions to TTOD zoning district intensity to exclude 8.1C zoning district from maximum residential and non-residential intensity requirements.
- Addition of a new paragraph to provide the maximum residential and non-residential intensities for the 8.1C zoning district. Additional revisions and clarifications to items 9 through 12 in the same section to exclude the 8.1C zoning district from requirements of TTOD zoning district and to identify the *El Toro, 100-Acre Parcel Development Plan* as the governing document for the 8.1C zoning district.
- Revisions to Sec. 9-51-6(D), Trip Budget (C), provisions to provide clarification on maximum ADT limits for properties within the 8.1C zoning district.
- Revisions to exclude the 8.1C 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 8.1C zoning district versus the Great Park Neighborhoods development.
- Addition of item V, Special Development Standards and Discretionary and Ministerial Permit Processing within 8.1C Zoning District, which subjects properties within 8.1C zoning districts to the guidelines, developments standards, and requirements of the *El Toro, 100-Acre 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 ZC 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 4.9-1 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 4.9-1
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.	
<p>Policy (a): Develop identifiable City edges, pathways, entry points, and landmarks, and conserve visual resources along the scenic corridors which characterize Irvine.</p>	<p>Project Would Not Conflict</p> <p>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). Using the history of the site (i.e., railways, agricultural usage, and military operations), the Project would include identity features and landmarks that would reflect the City’s and Project site’s historical background. These features would include iconic connectors, focal landmarks, identity markers, gateway monuments, and local features.</p>
<p>Policy (b): Use building masses and landscaping to create a sense of unity for the various components throughout the City.</p>	<p>Project Would Not Conflict</p> <p>The Project introduces high-density residential, mixed-use, retail, and commercial uses in the area. The type of uses proposed are compatible with the existing and planned uses in the surrounding areas. The Project site on average, would have the same maximum density allowed as the surrounding residential developments. 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 cohesive development throughout the site and a sense of unity for the Project without requiring a uniformity in design that would result in monotony.</p>
<p>Policy (c): Ensure energy efficiency and low maintenance needs through the following methods:</p> <ul style="list-style-type: none"> • Land use planning. • Building design. • Landscaping design. <p>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.</p>	<p>Project Would Not Conflict</p> <p>The Project can be classified as a sustainable development due to its in-fill location on a previously developed site, its proximity to existing transit, employment and recreational amenities, its mix of compatible uses, and use of sustainable resources, including repurposed site materials, to support smart growth. Additionally, the Development Plan includes Guidelines for material resource conservation that include reusing, repurposing, and recycling of materials and using materials made from rapidly renewable resources. Moreover, the proposed landscape for the Project incorporates native plants and promotes water-efficient landscape practices. Development standards are included in the</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
	Development Plan that would enforce compliance with water use limitations as specified in the County of Orange Zoning Code and smart irrigation techniques included in the Development Plan.
<p>Policy (g): Distinguish individual planning areas in character and physical appearance by considering the following characteristics during design and development:</p> <ul style="list-style-type: none"> • Physical and visual separation. • Architectural style. • Planning area edge. 	<p>Project Would Not Conflict</p> <p>The character and individuality of each of the 3 Districts on the Project site would be enforced through landscape and architectural design elements, identity features, parks and open space, site lighting, and site furnishings. Each District would have a unique design and program for each of those elements, but also require consideration of the larger context of the Project. While the design guidelines ensure a consistent character throughout the development, individual Districts are identified by designs unique to each one.</p>
<p>Policy (h): Incorporate the following components in each residential planning area:</p> <ul style="list-style-type: none"> • A mixture of housing types and densities. • A variety of public and private facilities. • Activity nodes. • Open space areas. 	<p>Project Would Not Conflict</p> <p>The Project is located in City of Irvine PA 51, which is projected to include a range of housing type and densities. The Project site on average will have the same maximum density allowed as the surrounding residential developments. The Project would also provide a wide range of residential products for future residents, including townhome, wrap/podium, and mixed-use. Recreational open space such as active and passive parks, community gathering areas, linear parks, children’s play areas, and private recreation areas would be distributed throughout all of the Districts.</p>
<p>Objective A-4: Balanced Land Uses. Manage growth to ensure balanced residential and nonresidential development throughout the City.</p>	
<p>Policy (c): Achieve a land use balance through the following methods:</p> <ul style="list-style-type: none"> • 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. 	<p>Project Would Not Conflict</p> <p>Consistent with this policy, the Project site is located in the vicinity of existing roadways and transportation corridors. Access to I-5 is located just over a ½ mile northwest of the Project site via Sand Canyon Avenue, which connects to Marine Way. Access to I-405 is located approximately 2.3 miles west of the Project site via Sand Canyon Avenue, which connects to Marine Way. Access to SR-133 is located just under 2 miles north of the Project site via Irvine Boulevard, which connects to the planned future Ridge Valley. Future access will be via the realigned and extended Marine Way, which will replace Perimeter Road. Ridge Valley will also be extended south of Marine Way and will provide access to the western portion of the Project site. Further, Irvine Station is located less than ½ mile from the Project site.</p> <p>The Project would include a variety of high density housing types primarily in the Residential District; however, housing would also be allowed in the Mixed-Use and Commercial Districts. The Project would include diverse range of residential product types, including townhome, wrap/podium, and mixed-use.</p> <p>The Project would include approximately 11 acres of open space. A 50-foot average “Park within the Park” along Marine Way will complement the adjacent OCGP. The Residential District would include a 2.5-acre park with active and/or passive recreational uses and a community gathering area designed for residents. Urban plazas would also be encouraged to enhance the open space program.</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
Policy (d): Reduce expenditures for public services and facilities by clustering residential development.	Project Would Not Conflict The proposed Project is an in-fill development located on previously developed site that includes a Residential District consisting of high density units clustered in the northwestern portion of the site. 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 4.11, Population and Housing, the proposed Project would result in a maximum of 2,103 housing units, which would represent 1.4 percent of the OCP-2014 housing growth for Orange County and 5.0 percent for the City of Irvine between 2012 and 2040. In addition, the Project would result in a total of 7,799 jobs, which would represent 2.1 percent of the overall job growth for Orange County and 8.1 percent of the overall growth for the City of Irvine between 2012 and 2040. The County will request modifications to the next OCP update to document the approval of the additional housing and employment opportunities authorized by the Development Plan.
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 a balanced mixed-use destination incorporating residential, retail, hospitality and commercial business uses in 3 districts of Residential, Mixed-Use, and Commercial. While the Project has a strong revenue-generating component, it includes residential and open space to create a balanced, sustainable, pedestrian- and transit-oriented development.
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 County-owned property at the southerly 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. The EIR identifies significant, unavoidable impacts because even though mitigation strategies have been developed that would reduce the majority of impacts, implementation of some of the mitigation measures are outside of the control of the County of Orange. Therefore, a finding that the impact is mitigated to less than significant cannot be made. Additionally, certain impacts, such as the deficiencies on the freeway system, are regional in nature and beyond the scope of any individual project.
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 following the policy analysis. As identified, the Development Plan would introduce mixed-use, multi-family residential, office, commercial, hospitality, retail, and recreation/open space uses that would be compatible with the existing and planned land uses around the site. Additionally, the Project would introduce features, such as the 50-foot average "Park within the Park" along Marine Way that would create buffer(s) with adjacent uses.

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
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 design of the internal roadways would follow the design requirements in the Development Plan, which would provide safe and efficient vehicular flow while enhancing the pedestrian experience. 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 4.14, Transportation and Traffic and Transportation Impact Analysis [TIA] in Appendix L, for an evaluation of design compatibility). A TIA has been prepared for the proposed Project to assess traffic related impacts and to propose mitigation measures to address the impacts. The proposed Project would result in impacts to the City of Irvine intersections; however, measures to reduce the impacts on local intersections, such as participation in North Irvine Traffic Mitigation (NITM) Program are proposed that would minimize these impacts. The EIR finds the circulation impacts to be significant and unavoidable predominately because the implementation of mitigation measures and/or improvements would be outside the jurisdiction and control of the County of Orange. Assuming the City of Irvine allows the County to participate in the NITM process or enters into an alternative fair share agreement with the County of Orange, the impacts on the local roadway network would be minimized. The Project would contribute traffic to the freeway system which is proposed to operate at deficient levels of service. Mitigation is proposed, but implementation of the mitigation for these impacts is outside of the County's jurisdiction and control 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. Policy (c): Design and locate land uses to encourage access to them by nonautomotive means.	Project Would Not Conflict The proposed Project supports ease of access for pedestrians both internally and to the adjacent uses. Mixed land uses create an environment where residents can easily access community-serving retail and other uses without relying on the automobile. Additionally, the internal roadway network provides numerous pedestrian crossing locations across the Project, and internal intersections with stop controls provide pedestrian crossing facilities such as signage and markings. Trails and walkways are provided throughout the Project site, such as an 8-foot multi-use trail within the 50-foot "Park within the Park" along Marine Way and along the central spine street, which provides walkways that would connect all the planning areas within the Project site. Traffic calming techniques are proposed to reduce traffic speed and promote pedestrian safety. In addition, features that would encourage walking (e.g., shade trees on at least one side of all streets) would also be provided.

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
<p>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.</p>	
<p>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.</p> <p>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.</p> <p>Policy (c): The trail system shall be designed to accommodate cyclists of all levels of experience and shall provide for both recreation and transportation.</p> <p>Policy (d): Require bicycle trail linkages between residential areas, employment areas, schools, parks, community facilities, commercial centers, and transit facilities.</p> <p>Policy (e): Require pedestrian and bicycle circulation plans detailing access to the subject property, and adjacent properties in conjunction with new development.</p> <p>Policy (f): Require that bicycle trip destinations, including community facilities, commercial centers, and transit facilities be equipped with appropriate bicycle facilities including, but not limited to, the provision of showers and bike racks.</p> <p>Policy (g): Require traffic control devices and traffic signal phasing for bicycle crossing, turning, and through movements.</p> <p>Policy (h): Require grade-separate crossings for Class I bikeways at major intersections, wherever feasible, to increase safety and efficiency.</p> <p>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.</p> <p>Policy (j): Support programs to increase public awareness of bicycle safety and bicycling as an alternative mode of transportation.</p> <p>Policy (k): Incorporate, where appropriate, school and park locations within the design of the bikeway system.</p>	<p>Project Would Not Conflict</p> <p>As depicted in Exhibit 4.13-5, Marine Way Cross Section in Section 4.13, Recreation, of this EIR, there is an 8-foot Class II bike lane on Marine Way in each direction in addition to a Class I bike trail at the north of the Marine Way right-of-way. These facilities would be augmented with the Class III bike route, which is proposed along the central spine street within the Project.</p> <p>Although not required for the Project to avoid a conflict with these policies, the design guidelines in the Development Plan identify the potential for an optional pedestrian bridge to provide a direct connection between the Project and the OCGP without vehicular interruptions. The Development Plan includes a conceptual pedestrian and bicycle circulation plan that contemplates a design of bicycle and pedestrian paths with easy, direct, and safe routes for non-vehicular commuting between the Residential, Mixed-Use, and Commercial Districts and with connections to adjacent properties.</p> <p>Additionally, the proposed Project promotes use of bicycles as an alternative mode of transportation within the Project site by proposing bicycle amenities (e.g. designated bike racks, bike storage areas, and shower facilities) in strategic locations to make it easy, safe, and convenient for future residents, employees and visitors to use bicycles. The Development Plan also encourages the provision of shared community bicycles and/or electric bikes that could be available throughout the Project site.</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
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 include a variety of high-density housing types, including townhome, wrap/podium, and mixed-use products. These units would vary in size and offer a wide range of rental housing choices and housing prices. The residential component of 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). While rental housing is often more affordable than ownership, the Project does not propose any dedicated affordable housing.
Policy 1.2: Strive to improve the City's jobs-to-housing balance.	Project Would Not Conflict As stated in Section 4.11, 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 non-residential uses in the area, which would result in approximately 7,799 new jobs. Although the Project would have a 3.71 jobs-housing ratio, it strives to improve the City's jobs to housing balance. The Project would provide an employment center in close proximity to the Irvine Station and Irvine Spectrum. Proximity to the Irvine Station would facilitate access from other locations that are housing rich (i.e., unincorporated areas in south Orange County). In addition the Project would provide 2,103 new homes.
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 discussed above, the Project will provide increased housing opportunities and provide employment opportunities in close proximity to the Irvine Station. As discussed in Section 4.11, Population and Housing, the County will request that the next update to the OCP projections include the development contemplated by the Project.
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 is an in-fill development that does not require the extension of infrastructure, services and facilities to previously undeveloped areas. The Project includes various on- and off-site 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 sanitary sewers. Additionally, the Project provides services that would meet the needs of future residents and employees.
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 4.5, 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

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
	with implementation of the proposed Project. Additionally, DR GEO-1 requires the preparation of a detailed geotechnical report prior to implementation of grading permits. Based on the findings of Section 4.5, Project-specific and cumulative impacts related to geology and soils would be less than significant.
<p>Policy (h): Continue to require structures to conform to the seismic design requirements found in the Uniform Building Code.</p> <p>Policy (i): Ensure that the most recent adopted seismic standards are used for new construction.</p>	<p>Project Would Not Conflict</p> <p>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 Project will have to comply with the seismic design requirements of the 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.</p>
Cultural Resources Element	
<p>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.</p>	
<p>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.</p>	<p>Project Would Not Conflict</p> <p>As discussed in Section 4.4, Cultural Resources, all structures that were a part of the former MCAS El Toro were evaluated and determined, pursuant to the State CEQA Guidelines Section 15064.5, not to be eligible for the National Register of Historic Places, the California Register of Historical Resources, and local register of historical resources, and not eligible for Cold War Legacy status. The California State Historic Preservation Officer (SHPO) concurred with this finding.</p>
<p>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.</p>	
<p>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.</p>	<p>Project Would Not Conflict</p> <p>Section 4.4, 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.</p>
Noise Element	
<p>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.</p>	
<p>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).</p>	<p>Project Would Not Conflict</p> <p>Section 4.10, Noise, addresses noise levels that would be experienced by the uses proposed to be allowed on the Project site, including noise from adjacent roadways and rail line. As described in the analysis, with implementation of identified development requirements (DRs) and</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
	mitigation measures, future development would comply with the applicable Noise Ordinance.
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 4.10, 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 more detailed acoustical studies to confirm that required noise levels are met prior to issuance of building permits.
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, the proposed Project would be compatible with the existing and planned uses in the surrounding area. No compatibility impacts have been identified. Further, measures applicable to the Project include the preparation of more detailed acoustical studies to confirm that required noise levels are 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 DRs require that the Project comply with applicable noise standards for new construction. The mitigation program identified in Section 4.10, 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 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: <ul style="list-style-type: none"> • Temporary noise attenuation fences. • Preferential location of equipment. • Use of current technology and noise suppression equipment. 	Project Would Not Conflict Section 4.10, Noise, analyzes potential noise impacts associated with construction activities on the Project site. The closest existing sensitive receptors in proximity to the Project site is the Irvine Community Church located on Sand Canyon Avenue and Marine Way. The proposed residential uses would also be a sensitive receptor from surrounding noise sources. As identified in Section 4.10, with implementation of the mitigation program, which places limits on the construction hours, potential impacts are less than significant.
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 4.12, Public Services, of the EIR discusses and analyzes the potential impacts of the proposed Project on public service providers. No impacts on the Orange County Fire Authority (OCFA) or schools have been identified.

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
<p>Policy (l): Continue to include school districts in the review of new developments that, by location and function, could impact any school facility.</p>	<p>Project Would Not Conflict</p> <p>The Project would not conflict with any facilities planning being conducted by the school district. Capacity exists at the local schools to accommodate the Project. Consistent with the requirements of Section 65995 of the California Government Code, the Project will pay mandated school fees to the Saddleback Valley Unified School District, which would provide full mitigation of potential impacts to schools resulting from the Project.</p>
<p>Integrated Waste Management Element</p>	
<p>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.</p>	
<p>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.</p>	<p>Project Would Not Conflict</p> <p>As provided in Section 4.15, 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.</p>
<p>Objective H-3: Waste Water. Control waste water and storm runoff in a manner to minimize impact on adjacent existing or planned land uses.</p>	
<p>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.</p>	<p>Project Would Not Conflict</p> <p>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.</p>
<p>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.</p>	<p>Project Would Not Conflict</p> <p>The proposed site drainage patterns have been designed to closely match the existing drainage patterns. Runoff would flow in a westerly direction and ultimately be collected in 1 of the 3 existing storm drain systems (Marshburn Channel, Bee Canyon Channel, or Agua Chinon Channel). Before entering the on-site storm drain lines, each planning area would treat its runoff for pollutants in accordance with the Final Water Quality Management Plan (WQMP) requirements and mitigate any increase in flow resulting from the development. The proposed storm drain system would connect to the existing drainage system via underground storm drain lines. Storm water runoff from street areas would also be treated in accordance with the Final WQMP requirements prior to collection by the various street storm drain systems.</p> <p>IRWD has provided a will serve letter demonstrating that there is sufficient capacity to provide sewer service to the Project. As discussed in Section 4.15, Utilities, Wastewater discharges from the Project would end up at the Michelson Water Reclamation Plant, which has a treatment capacity of 28 million gallons per day.</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
<p>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.</p> <p>Encourage the use of alternatives Best Management Practices (BMPs) to control and minimize urban pollutant runoff.</p>	<p>Project Would Not Conflict</p> <p>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. Development requirements included in the mitigation plan require implementing projects to secure NPDES permits and encourage the use of BMPs.</p>
<p>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.</p> <p>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.</p> <p>Policy (h): Provide for appropriate permanent measures to reduce storm water pollutant loads from the development site.</p>	<p>Project Would Not Conflict</p> <p>As discussed in Section 4.8, Hydrology and Water Quality, since the site is located over an existing contaminated groundwater plume, infiltration BMPs are not feasible. Also, evapotranspiration and evaporation BMPs are not feasible for the proposed Project due to limited space available for planting large tree canopies and planted fields. The Project would utilize Proprietary Bio-Treatment BMPs for locations where the Low Impact Development (LID) performance criteria cannot be met. Each planning area would be able to consider alternative Bio-Treatment approaches to satisfy their Final WQMP requirements. Bio-Treatment systems for the Project streets would also consist of Modular Wetland Units or other equipment devices.</p>
Energy Element	
Objective I-1: Energy Efficiency. Maximize energy efficiency through land use and transportation planning.	
<p>Policy (b): Encourage and promote incorporation of energy conservation measures. The measures should be developed in conjunction with the applicant and may include:</p> <ul style="list-style-type: none"> • Active solar water and/or space heating. • Passive design features for heating and cooling. • Use of energy efficient devices. 	<p>Project Would Not Conflict</p> <p>Solar applications are not required by the Development Plan; however, as a mitigation measure for Greenhouse Gas Emissions (MM GHG-1), the Project will incorporate renewable energy generation with the capacity to generate at least 6,168,000 kilowatt hours (kWh) of electricity per year at buildout. 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</p>
<p>Policy (c): Encourage development of shared energy facilities in major commercial projects where cost effective, such as:</p> <ul style="list-style-type: none"> • Heating/cooling system. 	

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
<ul style="list-style-type: none"> • Solar water heating. • Photovoltaic (e.g., solar panel). 	<p>encourage future developers to explore opportunities for energy efficiency.</p> <p>For instance, developers are encouraged to:</p> <ul style="list-style-type: none"> • 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 envelopes 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.
<p>Policy (f): Require developers of major commercial or industrial facilities who develop a transportation management plan to address such measures as:</p> <ul style="list-style-type: none"> • Flex time and/or shifting work schedules to avoid peak traffic. • Employee carpools and vanpools. • Preferential and free parking for carpoolers and vanpoolers. • Ridesharing programs. • Shuttle services from regional transportation (e.g., rail/bus) stations to final destination. • Subsidies for transit passes. • Locker room facilities for employees (e.g., for bicyclists). 	<p>Project Would Not Conflict</p> <p>The Development Plan, Section 2.3, Circulation Design, encourages developing a Traffic Demand Management program that supports alternatives to single occupancy vehicle use. This is further supported through the mitigation measures identified in Section 4.2, Air Quality, (MMs AQ-1 through AQ-5), which among other things, require future residential and non-residential projects to accommodate ridesharing, sustainable vehicles, bike riding, and employee programs such as Spectrumotion by providing facilities and amenities in their respective developments. The mixed use nature of the Project and the proximity to the Irvine Station also further the goals of this policy.</p>
<p>Policy (g): Promote use of alternative modes of transportation by the following programs:</p> <ul style="list-style-type: none"> • Encourage use of regional public transportation (e.g., rail service) by: <ol style="list-style-type: none"> 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. 	<p>Project Would Not Conflict</p> <p>The proposed Project consists of 3 overlapping districts (Residential, Mixed-Use, and Commercial) that are intended to create a walkable community. Easy access to uses on the Project site 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.</p> <p>The Project would have access to a number of Class I, bike trail, Class II bike lane, and Class III bike routes, which would promote biking throughout the development and out to the Irvine Station and adjacent uses. Use of bikes are further supported by ample bicycle amenities in</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
<ul style="list-style-type: none"> • Encourage use of the bus system by working with OCTA to provide: <ol style="list-style-type: none"> 1. Bus circulation between residential, commercial and industrial uses. 2. More efficient transfers between 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. 	<p>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, walking paths and a potential pedestrian/bike bridge are proposed to provide a direct connection between the Project and the OCGP without vehicular interruptions.</p>
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.	
<p>Policy (e): Require development proposals to be reviewed by the Orange County Fire Authority to ensure adequate fire protection and precautions occur.</p>	<p>Project Would Not Conflict</p> <p>The County has coordinated with OCFA regarding the potential effects of the proposed Project on OCFA’s facilities and staffing. As part of Project implementation, the Project will continue to coordinate with the OCFA to ensure that an adequate level of service and facilities exist to serve the proposed Project.</p>
Objective J-2: Disaster Response. Identify actions that the City, in conjunction with other jurisdictions, must take to reduce the severity of disasters.	
<p>Policy (a): Ensure that developments will be properly served by police and fire service.</p>	<p>Project Would Not Conflict</p> <p>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, commercial, office, and hotel developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response. The OCFA has indicated that 3 stations (Stations 20, 38, and 51) would be able to serve the Project. A future fire station is planned in the Project vicinity as part of the OCGP development and would replace Fire Station 20. This future fire station would continue to provide adequate fire protection levels of service to the Project site.</p> <p>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 office, commercial, and residential areas is expected to be sufficient to meet all law enforcement service needs of the proposed development.</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with Policy
Policy (b): Ensure that each development will have adequate emergency ingress and egress.	Project Would Not Conflict The Project is proposed as a grid-based development. Each property 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 Marine Way.
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.
Conservation and Open Space 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.	
<p>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:</p> <ul style="list-style-type: none"> • Community centers. • Athletic facilities. • Competition level swimming pools. • Picnic areas. • Cultural centers. • Day care centers. <p>Policy (c): Provide neighborhood parks that respond to recreational needs at a local level.</p>	<p>Project Would Not Conflict</p> <p>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 across the street from the OCGP; therefore, duplicating such resources is not necessary. As discussed in Section 4.13, Recreation, the Project provides parks/recreation facilities in compliance with the standards listed in the County of Orange Park Code. The Project would provide approximately 11 acres of open space that would include active and passive parks, community gathering areas, children’s play areas, urban plazas, and/or private recreation areas throughout the development.</p>
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 4.13, Recreation, of this EIR the Project site is property of the County, and the County retains land use authority over the Project. The Project would provide a minimum of 2.5 acres of parkland per 1,000 residents for a total of 9.88 acres. Based on the current Conceptual Site Plan, the Project has incorporated provisions for approximately 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.	<p>Project Would Not Conflict upon Participation in NITM or a Fair-Share Agreement</p> <p>As discussed in Section 4.14, Transportation and Traffic, a mitigation measure for impacts to the local road 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.</p>

**TABLE 4.9-1
PROJECT COMPARISON TO CITY OF IRVINE GENERAL PLAN ELEMENTS**

Policy	Compliance with 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 The Development Plan includes a pedestrian and bicycle circulation plan. 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, pedestrian, transit, and low speed vehicles by providing facilities that improve safety and efficiency. The Project would have access to Class I bike trail, Class II bike lanes, provided by other entities as part of the Marine Way improvements, and provide an on-site Class III bike route network.
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 4.12, Public Services, and 4.13, Recreation, the Project would address and meet 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 4.12, 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, 2015d.	

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 4.9-2, 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 4.9-2.

**TABLE 4.9-2
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE
COMMUNITIES STRATEGY GOALS**

RTP/SCS Goal	CONSISTENCY ANALYSIS
<p>RTP/SCS G1: Align the plan investments and policies with improving regional economic development and competitiveness.</p>	<p>Project Would Not Conflict</p> <p>The proposed Project involves improvements to a previously developed portion of the former MACS El Toro that is currently not in use. As discussed in the <i>El Toro, 100-Acre Parcel Development Plan</i> document, the Project proposes a mixed-use development that would provide residential, retail, entertainment, office, and employment opportunities at the site to serve the future residents as well as the region overall. Implementation of the Development Plan would create both jobs and housing, providing economic benefits to the local area, the County, and the region.</p>
<p>RTP/SCS G2: Maximize mobility and accessibility for all people and goods in the region.</p>	<p>Project Would Not Conflict</p> <p>The proposed vehicular, bicycle, and pedestrian circulation system that is outlined in the Development Plan and described in Section 3, Project Description, and Section 4.14, Traffic and Circulation, of this EIR would be designed, developed, and maintained to meet local and regional transportation needs and would ensure efficient mobility and access. On-site circulation facilities would provide convenient, safe, and efficient access/connections to residential and non-residential land uses on the site and in surrounding areas by pedestrians, bicyclists, and motorists.</p> <p>The Development Plan proposes a mixed-use development that would provide on-site residents with easy access to goods, services and places of employment and entertainment. This would promote walking and biking as alternatives to automobile use. In addition, the Project site is located within ½ mile northwest of the Irvine Station, which includes an Amtrak/Metrolink Station and bus facilities. Residents, employees, and visitors of future development on the site would be served by these transportation systems. Also, commercial goods, services, and jobs at the site would be readily accessible to on-site residents and others in the surrounding areas and in the region.</p>
<p>RTP/SCS G3: Ensure travel safety and reliability for all people and goods in the region.</p>	<p>Project Would Not Conflict</p> <p>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 the Irvine Station, a major transit center. The Project would not disturb or disrupt commuter and freight trains using the railroad tracks along the site’s southwestern and western boundaries.</p>
<p>RTP/SCS G4: Preserve and ensure a sustainable regional transportation system.</p>	<p>Project Would Not Conflict</p> <p>The Project proposes an in-fill mixed-use development that would include residential, office, retail, hotel, and other land uses on a site that is located near the Irvine Station. It would promote transit ridership on the Amtrak and Metrolink commuter trains, OCTA and iShuttle buses, and it would encourage walking or biking due to the high intensity and mixed-use nature of the development. This would reduce travel distances between homes, jobs, goods, and services. Promoting reduced vehicle use would result in decreased traffic congestion, air pollution, greenhouse gas (GHG) emissions, increased</p>

**TABLE 4.9-2
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE
COMMUNITIES STRATEGY GOALS**

RTP/SCS Goal	CONSISTENCY ANALYSIS
	Amtrak and Metrolink fare revenues, and lower transportation costs. These benefits would contribute to a more sustainable regional transportation system.
RTP/SCS G5: Maximize the productivity of our transportation system.	<p>Project Would Not Conflict</p> <p>The proposed Project is an in-fill development that does not require the extension of the regional transportation system to previously undeveloped areas. The Project would provide an internal circulation system that would provide convenient, safe, and efficient access and connections to the 3 Districts on the site and the adjacent OCGP uses. The Project would be located near the Irvine Station and also proposes sidewalks, trails, and bicycle routes. These features would reduce vehicle use and would facilitate the use of the Metrolink and Amtrak trains, as well as OCTA and iShuttle buses that stop at the Irvine Station.</p>
RTP/SCS G6: Protect the environment and health for our residents by improving air quality and encouraging active transportation (non-motorized transportation, such as bicycling and walking).	<p>Project Would Not Conflict</p> <p>The CEQA process ensures that plans at all levels of government consider environmental impacts. Various sections of this Program EIR appropriately address the potential environmental impacts related to future development under the Development Plan and outline mitigation measures and DRs that would reduce environmental impacts, as applicable and feasible.</p> <p>Project implementation would also strive to maximize the protection of the environment and the improvement of air quality by encouraging and improving the use of the nearby Irvine Station by residents, employees and visitors of the Project. As discussed in Section 3, Project Description, of this EIR, the Development Plan would lead to mixed-use developments on the site, and it features a pattern of streets and paths that promote connectivity and walkability on site and with adjacent land uses. The availability and use of alternative transportation systems would reduce pollutant emissions from vehicle use (see Section 4.2, Air Quality, of this EIR) and would promote an active lifestyle.</p>
RTP/SCS G7: Actively encourage and create incentives for energy efficiency, where possible.	<p>Project Would Not Conflict</p> <p>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 and Nonresidential Buildings.</p> <p>Also, transportation fuel use by future development would be reduced over traditional development due to the high density/intensity of development; the mixed-use nature of the Project; planned pedestrian and bicycle facilities; and availability of Amtrak and Metrolink passenger train services near the Project site at the Irvine Station. Further, 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. The Development Plan also includes a number of recommendations that encourage future developers to explore opportunities for energy efficiency.</p>

**TABLE 4.9-2
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE
COMMUNITIES STRATEGY GOALS**

RTP/SCS Goal	CONSISTENCY ANALYSIS
<p>RTP/SCS G8: Encourage land use and growth patterns that facilitate transit and non-motorized transportation.</p>	<p>Project Would Not Conflict</p> <p>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. The Project also involves the development of a mixed-use community that would decrease dependency on the automobile by allowing mixed uses within buildings, planning areas, and districts; locating housing near existing and planned employment-generating uses, goods and services, and recreational facilities; and improving connectivity to the adjacent OCGP uses and facilities. Additionally, the Irvine Station is located less than ½ mile southeast of the Project site and could be used by residents, employees, and visitors.</p>
<p>RTP/SCS G9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.</p>	<p>Project Would Not Conflict</p> <p>The proposed Project does not involve the construction or expansion of the regional transportation system. Therefore, security associated with regional transportation systems is not applicable to the proposed Project. No direct access to the SCRRA rail line along the site’s southern boundary is proposed, and a minimum 10-foot required setback would separate the site from the railroad tracks. The potential impact of the proposed Project to public services, including police and fire protection, is discussed in Section 4.12, Public Services, of this EIR.</p>
<p>Source (policies): SCAG 2016.</p>	

SCAG, in their December 8, 2014, 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 4.9-3.

**TABLE 4.9-3
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.	<p>Project Would Not Conflict</p> <p>The proposed Project would provide a maximum of 2,103 high-density residential units in PA 51. The proposed housing units would assist the region in meeting the State-mandated fair share housing production target.</p>
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.	<p>Project Would Not Conflict</p> <p>The Project proposes approximately 11 acres of open space along with sidewalks, trails, and bicycle lanes throughout the site. A central spine street with a pedestrian/transit promenade would cross through the center of the site, with pedestrian and bicycle linkages, private parks, and public plazas. A 50-foot “Park within the Park” with walking trails would also be provided along Marine Way. Additionally, multiple Class I bike trails, Class II bike lanes, and Class III bike routes are within proximity to the Project site to provide opportunities for alternative modes of transportation. Design guidelines encourage providing shared community bicycles and electric bikes. The Project is also located across the street from the OCGP.</p>
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.	<p>Project Would Not Conflict</p> <p>Development Plan would create a mixed-use development that would include a variety of high density housing types; retail, commercial, office, hotel, and public plazas; and easy access to the recreational and cultural facilities at the OCGP.</p>
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.	<p>Project Would Not Conflict</p> <p>The Project would create a mixed-use development that would promote walkability between residential and non-residential uses on the site and the surrounding area and would be located near a major transit station, the Irvine Station, which is located less than ½ mile southeast of the site and includes Metrolink and bus facilities. Additionally, the Development Plan’s design guidelines provide a full range of design direction that will promote a multi-modal system.</p>
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.	<p>Project Would Not Conflict</p> <p>The Project would create a mixed-use development with sidewalks, trails, and bicycle lanes throughout the site. The location of retail, service, entertainment, recreational uses and the Irvine Station within close proximity to the Project site will encourage walking and bicycling and the use of public transit. Additionally, the Development Plan’s design guidelines encourage the use of alternative modes of transportation, including neighborhood electric vehicles (NEVs). The Development Plan, Section 2.3, Circulation Design, encourages developing a Traffic Demand Management program that supports alternatives to single occupancy vehicle use. This is further supported through the mitigation measures discussed in Section 4.2, Air Quality, (MMs AQ-1 through AQ-5), which among other things, require future residential and non-residential projects to accommodate ridesharing, sustainable vehicles, bike riding, and employee programs such as Spectrumotion by providing facilities and amenities in their respective developments.</p>

**TABLE 4.9-3
CONSISTENCY WITH REGIONAL TRANSPORTATION PLAN/SUSTAINABLE
COMMUNITIES STRATEGIES**

Proposed Action/Strategy	CONSISTENCY ANALYSIS
Collaborate with local jurisdictions to plan and develop residential and employment development around current and planned transit stations and neighborhood commercial centers.	<p>Project Would Not Conflict</p> <p>The Irvine Station, a major transit center, is located within ½ mile southeast of the Project site and would be easily accessible by future residents and employees within the Project site.</p>
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.	<p>Project Would Not Conflict</p> <p>The Project proposes a central spine street with a pedestrian/transit promenade extending through the center of the site and a 50-foot “Park within the Park” with walking trails along Marine Way. Multiple Class I bike trails, Class II bike lanes, and Class III bike routes would be available as part of the broader circulation network around the Project site. The design guidelines provide a full range of design recommendations and encourage use of alternative modes of transit, including NEVs, community bicycles, and electric bikes. The Development Plan, Section 2.3, Circulation Design, encourages developing a Traffic Demand Management program that supports alternatives to single occupancy vehicle use. This is further supported through the mitigation measures identified in Section 4.2, Air Quality, (MMs AQ-1 through AQ-5), which among other things, require future residential and non-residential projects to accommodate ridesharing, sustainable vehicles, bike riding, and employee programs such as Spectrumotion by providing facilities and amenities in their respective developments.</p>
Encourage the development of telecommuting programs by employers through review and revision of policies that may discourage alternative work options.	<p>Project Would Not Conflict</p> <p>The proposed Project provides accommodations for telecommuting in the Residential Districts. The Development Plan provides development standards for “home occupation” uses that would support the concept of telecommuting.</p>
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 not applicable to individual development projects. The following analyzes and demonstrates the Project’s consistency with the foundational land use policies identified in the 2016-2040 RTP/SCS:³

- *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

³ 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 strategies discussed in the 2008 RTP (SCAG 2008b).

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 Project would allow the reuse of a property, which is currently unused with existing buildings that were found to be dilapidated and beyond repair (KTYG 2016). Based on its location in central Orange County, with nearby access to the Irvine Station, the OCGP and access to the freeway 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. As discussed above, the future development under the Development Plan would create a mixed-use development that would include within a relatively short distance a variety of high density housing types; retail, commercial, office, hotel, and entertainment uses; local parks and plazas; and easy access to the recreational and cultural facilities at the OCGP. This mix of uses is internally connected and connected to the surrounding amenities and areas through a combination of motorized and alternative modes of transportation, such as pedestrian walking paths and bicycle paths. 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 and in Section 4.11, Population and Housing, the Project provides additional housing and jobs near transit with nearby access to the Irvine Station and takes 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 and jobs near 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, appealing 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 and the Irvine Station. 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 the infill, mixed use development near the Irvine Station. It is not immediately adjacent to 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 development ensure 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 the providing open space and preserving habitat areas. As discussed in Section 4.3, Biological Resources, the Project is located in 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. The Project site is in a NCCP/HCP development area and would not impact the 37,000 Reserve Area 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 presented in Table 4.9-3. The key land use strategies and the Project's consistency with the strategies is 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 and the Irvine Station. The Project site is located in an area identified in the RTP/SCS as a high quality transit area (see Exhibit 5.1 of the 2016-2040 RTP/SCS). The Project is consistent with these land use strategies.

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. The Project site is consistent with this strategy as it is an

underutilized, previously disturbed site located in proximity to the Irvine Station, employment and the OCGP. As a mixed use, in-fill development that incorporates multi-family residential, employment, retail, open space and entertainment uses on such a Project site, the Project is consistent with the strategy of focusing new growth around transit.

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 neighborhood nodes, which are accessible by walking and biking. The Project includes provisions for active transportation improvements and provides for complete streets. 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 a mixed-use development with sidewalks, trails, and bicycle lanes throughout the site. The location of retail, service, entertainment, recreational uses and the Irvine Station within close proximity to the Project site will encourage walking and bicycling. The Development Plan encourages shared community bicycles and electric bikes that would be used by residents throughout the Project site. Additionally, the Development Plan's design guidelines encourage the use of alternative modes of transportation, including neighborhood electric vehicles (NEVs). The Project is 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 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 these planning practices. The Project's mixed-use design with a combination of employment, multi-family residential, commercial, hospitality and open spaces in the vicinity of a transit station meets the design guidelines that SCAG has embraced as a means of implementing the SCS. Additionally, the Project would be walkable development with the incorporation of design measures that encourage walking and bicycling. As discussed in Section 4.6, Greenhouse Gas Emissions, Mitigation Measure (MM) GHG-1 also requires the Project to incorporate renewable energy generation with the capacity to generate at least 6,168,000 kilowatt hours (kWh) of electricity per year at buildout. 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 in recent history. 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 or immediately adjacent to 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 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. However, the strategy also looks to congestion management and transportation systems management as operational management strategies. As discussed above, the Project provides for alternative transportation modes; is in close proximity to the Irvine Station facilitating the use of transit; and the mixed-use nature allows for reduction in the overall number of trips through internal trip capture. Additionally, MM AQ-5 and MM AQ-6, requires both residential and non-residential uses to post transit schedules and affiliate with Spectrumotion or a similar transportation management program that promotes alternatives to solo commuting with fossil-fueled vehicles (see Section 4.2, Air Quality for the full measure). 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 is consistent with the component of this strategy to integrate transit and active transportation (walking and bicycling) into the overall circulation system for the region. 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 4.14, 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 RTP/SCS adoption. 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 4.9-1, 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 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. The proposed residential uses and mixed-use development in the Residential District at the northwestern portion of the site would not conflict with undeveloped land, agricultural land, or the OCGP sports fields. Proximity between these types of uses is quite common. For example, residential uses are frequently located in proximity to recreation uses, and connections to the park are proposed by the Development Plan. An average 50-foot linear park is proposed along Marine Way (for a total of 1.5 miles). This area across from the southwestern boundary of OCGP creates a “Park within the Park” that would be compatible with and complement the adjacent OCGP.

The rail line, located along the southwest boundary of the Project site, would have the potential of being incompatible with sensitive land uses in close proximity to the line. The measured existing CNEL at 150 feet from the centerline of the rail line is 65 dBA. As discussed in Section 4.10, Noise, based on forecasts for other parts of the Metrolink system, it is conservatively estimated that rail traffic could double in future years. With that assumption, rail noise at the Project site would be 68 dBA CNEL at a distance of 150 feet from the rail line and 65 dBA CNEL at a distance of 225 feet. Based on the Conceptual Land Use Plan, there would be no noise-sensitive uses within this distance of the rail line. Additionally, prior to issuance of a building permit, mitigation measure MM NOI-3 requires an acoustical report demonstrating compatibility of all habitable rooms.

The Second Harvest Food Bank warehouse would be surrounded on three sides by the land uses in the Project’s Commercial District and would be interfacing with the office, retail, parking structures, and/or mixed uses across proposed roadways and the required eight-foot setbacks from the Project Planning Areas 11, 15 and 16. The proposed commercial uses would not conflict

with the warehouse use of the Second Harvest Food Bank warehouse, as the warehouse use is not considered a sensitive use and is compatible with the future commercial uses.

Land use compatibility with future adjacent land uses is discussed since undeveloped lands near the site are planned for development within the same time frame or prior to future development of the proposed Project.

The future Residential District of the Project site also abuts a 21-acre site owned by the OCTA to the west and southwest of the site. The site is currently vacant. Although no detailed information about future development of the OCTA property is known, it is anticipated that the site would be developed with rail maintenance facilities. The uses proposed would not be considered sensitive uses, and therefore, the proposed residential uses are not anticipated to create compatibility impacts with the future OCTA uses. Additionally, the proposed Project structures would be setback a minimum of from the boundary between the Project and the OCTA sites and would also include landscaping that would create a buffer. Therefore, no impacts would occur.

The land northeast and east of the Project site is proposed for development as part of the OCGP's Cultural Terrace. As described under Planned Uses above, the potential facilities in this area would include a museum, a library, a multi-cultural center in addition to a lake, gardens, an amphitheater, and/or other uses, which would be compatible with the land uses of the Project's Mixed-Use and Commercial Districts. The Project and Cultural Terrace developments would create a synergy and encourage mutual use of the proposed facilities in the said developments. Additionally, even though the proposed uses would be compatible with the uses within Cultural Terrace, Marine Way and the 50-foot-wide "Park within the Park" along Marine Way would create a buffer between the future uses in the Mixed Use and Commercial Districts and the Cultural Terrace uses. Therefore, no land use conflict would occur.

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. The Project is consistent with the provisions of the NCCP/HCP Implementation Agreement. Consistency with the NCCP/HCP is further discussed in Section 4.3, Biological Resources.

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 Program EIR. Mitigation measures are provided in other EIR sections to address potentially significant adverse impacts on adjacent existing and future land uses.

Impact Conclusion: *The Development Plan would introduce mixed-use, multi-family residential, office, retail, and recreation/open space uses that would be compatible with the existing and planned land uses around the site. Additionally, the Project would introduce features, such as the 50-foot "Park within the Park" along Marine Way that would create buffer(s) with adjacent uses. Hence, the impacts would be less than significant pursuant to Threshold 4.9-1 as it pertains to consistency with land use plans and no mitigation is required.*

4.9.6 CUMULATIVE IMPACTS

Future development on the 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 Section 2.6, Cumulative Projects) 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 the site and in the 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 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 West Alton 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, near the northeasterly edge of the former MCAS El Toro, northwest of the intersection of Alton Parkway and Irvine Boulevard, within the City of Irvine. Similar to the proposed Project, the West Alton 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 West Alton Parcel Development Plan Project would be significant and unavoidable as a revision to those programs is not within the jurisdiction or control of the County. Thus, cumulatively, the West Alton Parcel Development Plan Project and the proposed Project would have significant and unavoidable impacts associated with inconsistency with the regional planning programs.

In light of the above, cumulative land use impacts and the Project's contribution to cumulative impacts would be less than significant.

4.9.7 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).

4.9.8 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 West Alton Parcel Development Plan Project would result in cumulative significant and unavoidable impact with respect to consistency with the regional planning programs.

4.9.9 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.

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 (January 26, current through). *Irvine, California – Zoning*. Tallahassee, FL: Municode Corporation for the City.

———. 2015c (October, access date). 688 acres at Great Park. Irvine, CA: the City. http://legacy.cityofirvine.org/cityhall/citymanager/688_acres_at_great_park.asp.

———. 2015d (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>.

———. 2012 (July). *Draft Heritage Fields Project 2012 GPA/ZC Second Supplemental Environmental Impact Report* (SCH No. 2002101020). Irvine, CA: the City.

- 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 Group, Inc. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Orange, County of. 2015 (September, current through). *Orange County, California – Code of Ordinances* (Title 7, Land Use and Building Regulations; Division 9, Planning; Article 2, The Comprehensive Zoning Code). Tallahassee, FL: Municode Corporation for the County. https://www.municode.com/library/ca/orange_county/codes/code_of_ordinances?no_deId=11378.
- Orange County Transportation Authority (OCTA). 2014 (October). 2014 Master Plan of Arterial Highways, Orange County, California. Orange, CA: OCTA. https://www.octa.net/pdf/MPAH_2014-0904.pdf.
- Southern California Association of Governments (SCAG). 2016 (April, adopted). *2016–2040 Regional Transportation Plan (RTP), Sustainable Communities Strategy A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life*. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx>.
- . 2015a (October, access date). About SCAG. Los Angeles, CA: SCAG. <http://scag.ca.gov/about/Pages/Home.aspx>.
- . 2015b (October, access date). What is the RHNA? (What’s New). Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/Regional-Housing-Needs-Assessment.aspx>.
- . 2012 (April, adopted). *2012–2035 Regional Transportation Plan (RTP), Sustainable Communities Strategy Towards a Sustainable Future*. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>.
- . 2008a. *Final 2008 Regional Comprehensive Plan*. Los Angeles, CA: SCAG. http://www.scag.ca.gov/rcp/pdf/finalrcp/f2008RCP_Complete.pdf.
- . 2008b. *2008 Regional Transportation Plan*. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/2008-RTP.aspx>.
- U.S. Census Bureau. 2014 (December 4, last revised). State and County QuickFacts (Data derived from Population Estimates, the American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, and Business Permits). Washington, D.C.: U.S. Census Bureau. <http://quickfacts.census.gov/qfd/states/06/06059.html>

4.10 NOISE

This section discusses Project-related impacts to the human noise environment in the vicinity of the El Toro, 100-Acre 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.

4.10.1 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, 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 4.10-1 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 4.10-1
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		
<i>Local</i>	2c	2c
<i>Community</i>	2c	2c
<i>Regional</i>	2c	2c
Educational Facilities		
<i>Schools (K through 12)</i>	2c, d, e	2c, d, e
<i>Preschool, college, other</i>	2c, d, e	2c, d, e
Places of Worship	2c, d, e	2c, d, e
Hospitals		
<i>General</i>	2a, c, d, e	2a, c, d, e
<i>Convalescent</i>	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		
<i>Executive Apartments</i>	1a, b, e	2a, e
<i>Caretakers</i>	1a, b, c, e	2a, c, e
dB: decibel; CNEL: Community Noise Equivalent Level <u>EXPLANATION AND DEFINITIONS</u> <u>Action Required to Ensure Compatibility Between Land Use and Noise From External Sources</u> 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. <u>Standards Required for Compatibility of Land Use and Noise</u> 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. <u>Key Definitions</u> 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 4.10-1
ORANGE COUNTY COMPATIBILITY MATRIX FOR LAND USE AND
COMMUNITY NOISE EQUIVALENT LEVELS**

Type of Use	65+ dB CNEL	60 to 65 dB CNEL
<p>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.</p> <p>Interior – Spaces that are covered and largely enclosed by walls.</p> <p>Leq(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.</p> <p>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).</p> <p>Source: County of Orange 2005 (see Tables VIII-2 and VIII-3 of the Noise Element).</p>		

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 4.10-2 and 4.10-3.

**TABLE 4.10-2
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
<p>dBA: A-weighted decibels Source: County of Orange 2015</p>		

**TABLE 4.10-3
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 (Irvine 2015a, 2015b).

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 4.10-4 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 4.10-4
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
	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
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. ^b 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: Irvine 2015a, 2015b (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 4.10-5 below, presents the land use compatibility standards for community noise exposure. The noise compatibility 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”.

**TABLE 4.10-5
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
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

**TABLE 4.10-5
CITY OF IRVINE LAND USE NOISE COMPATIBILITY**

Land Use Categories		Energy Average (CNEL)						
Categories	Uses	<	55	60	65	70	75	80>
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 or development should normally be discouraged. If new construction or 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: Irvine 2015a, 2015b (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 4.10-6. 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 4.10-6
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: Irvine 2015c.

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 a.m. and 7:00 p.m. on any day except Sundays, or between 9:00 a.m. and 6:00 p.m. 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 (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.

4.10.2 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 4.10-7 shows the relationship of various noise levels in dBA to commonly experienced noise events.

**TABLE 4.10-7
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 Transportation Impact Analysis (TIA) described in Section 4.14, Transportation/Traffic of this EIR and in Appendix L.

Consistent with 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 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.

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.

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.

$$L_D = L_{50} - 20 \log (D/50), \text{ where}$$

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:

$$L_{eq} = L_{max} + 10 \log (UF), \text{ where,}$$

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 4.10.5, Threshold 4.10-4.

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:

$$PPV_{\text{equip}} = PPV_{\text{ref}} \times (25/D)^n \text{ where}$$

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) establishes a value of 1.5 for n for all equipment (FTA 2006).

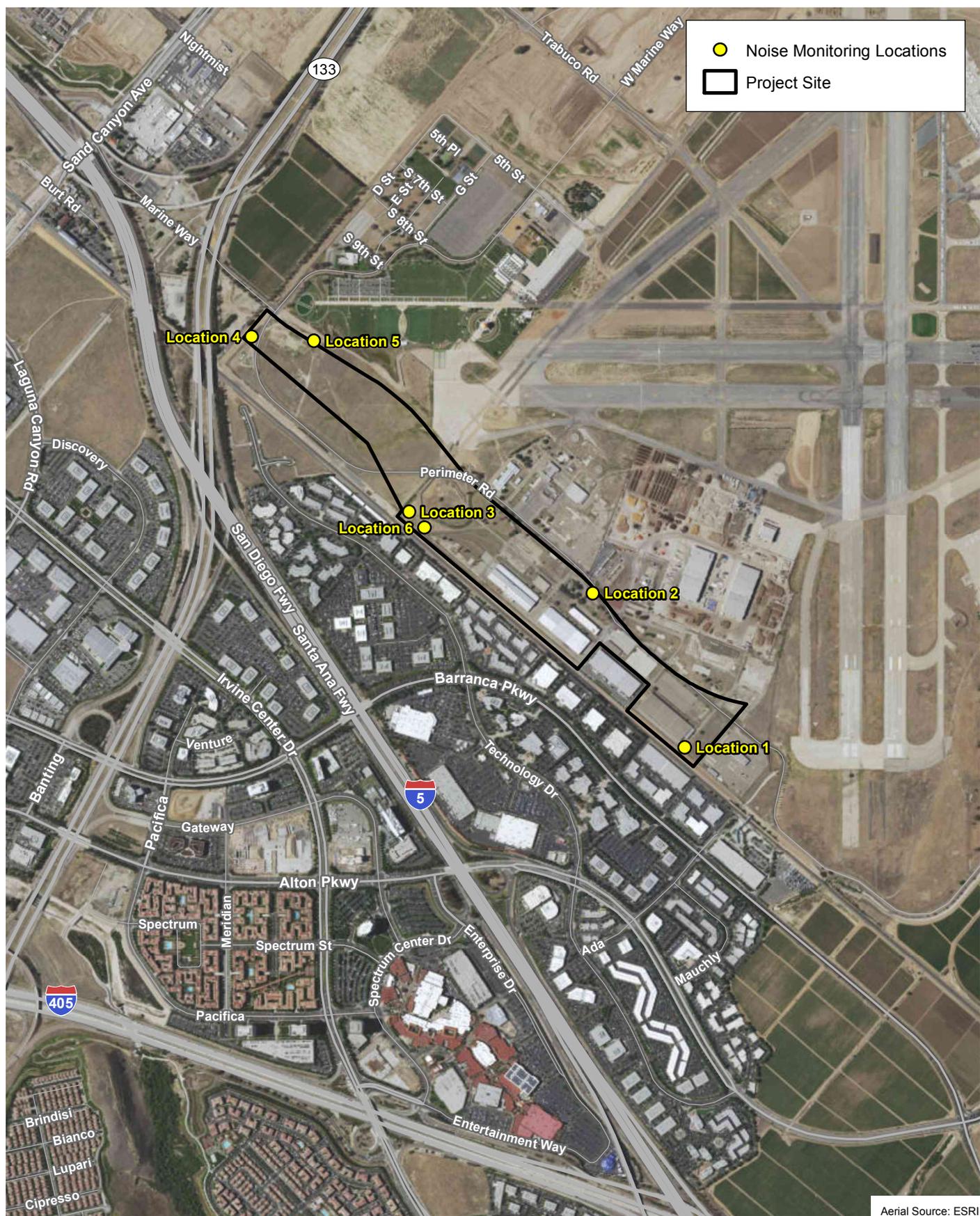
4.10.3 EXISTING CONDITIONS

There are three primary noise sources that affect the Project area: traffic noise, train noise, and operations at the Second Harvest Food Bank. Within the Project boundaries, Marine Way is the sole source of traffic noise. Outside the Project boundaries, Barranca Parkway, Technology Drive, Interstate (I) 5, and State Route (SR) 133 contribute traffic noise. Adjacent to the southern boundary of the Project site is a railway that supports both passenger (Metrolink and Amtrak) and freight operations. The U.S. Department of Transportation Crossing Inventory Form for the Sand Canyon Avenue crossing indicates that (1) the average number of passenger trains per day is 62; (2) the estimated number of trains between 6:00 AM and 6:00 PM is 52; and (3) the estimated number of trains between 6:00 PM and 6:00 AM is 18 (FRA 2014). From this data it may be inferred that there are approximately 8 freight trains per day on this segment of track. The Second Harvest Food Bank has loading docks servicing approximately 11 to 16 daily round trips of truck deliveries (Schoeningh 2015).

In addition to the primary noise sources, there are industrial operations at the site of the existing and planned Orange County Great Park (OCGP), including the site of the future Cultural Terrace, adjacent and to the northeast, east, and southeast of the Project site. In addition, there are occasional noise events from use of the Great Park sport fields to the north of the Project site.

BonTerra Psomas conducted ambient noise surveys to document the existing noise environment at five locations along the Project boundary, which are identified in Exhibit 4.10-1. The surveys were conducted on September 1, 2015, and each lasted 25 minutes. As shown in Table 4.10-8, average noise levels (L_{eq}) ranged from 48.9 to 61.0 dBA. Maximum noise levels occurred during train passbys.

Additional noise monitoring was conducted on September 28 through 30, 2015 for a continuous period of approximately 46 hours at Location 6. The purpose of the monitoring was to determine the existing CNEL at the Project site. The results are shown in Table 4.10-8. The measured existing CNEL at 150 feet from the centerline of the rail line is 65 dBA. Higher noise levels occurred approximately 14 times between 6 pm and midnight and 9 times between midnight and 7 am due to apparent train passing during the measurement.



D:\Projects\LowE\100011MXDs\EIR\ElToro\Ex_Noise_20151028.mxd

Aerial Source: ESRI

Noise Monitoring Locations

Exhibit 4.10-1

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.10-8
EXISTING MEASURED NOISE LEVELS**

Location ID	Location Description (latitude, longitude)	Time Started/Duration ^a	Major Noise Sources	Noise Level (dBA)			Comments
				Leq	L _{max} ^b	L _{min} ^b	
1	Southeast corner of site boundary, 95 feet north of the rail line (33.65955, -117.73555)	2:07 PM/ 25 min	Background vehicles	48.9	61.9	45.2	No trains passed this location during monitoring.
2	50 feet south of Marine Way, north of Building 317 (33.66431, -117.73900)	2:54 PM/ 25 min	Traffic	58.7	79.3	43.3	Construction activities north of Marine Way
3	Along the southern boundary of site, 185 feet north of the rail line (33.66680, -117.74582)	3:31 PM/ 25 min	Metrolink and Amtrak	60.4	80.4	50.0	2 northbound Metrolink trains; 1 southbound Amtrak train; airplane in the distance
4	Along the western boundary of site, 550 feet north of rail line (33.67220, -117.75172)	4:07 PM/ 25 min	Traffic, Metrolink	61.0	74.2	54.4	2 northbound Metrolink trains; 1 southbound Metrolink train
5	Along the northern boundary of site, 525 feet west of Marine Way and south of the Great Park sport fields (33.67208, -117.74940)	4:41 PM/ 25 min	Birds, distant traffic, Metrolink, Amtrak	55.3	62.9	52.3	1 northbound Metrolink train; 1 southbound Metrolink train; 1 southbound Amtrak train
6	Along the southern boundary of site, 185 feet north of the rail line (33.66628, -117.74541)	4:30 PM/ 45 hrs, 45 min	Metrolink, Amtrak	-	88.5	40.2	CNEL is 65 dBA

dBA: A-weighted decibels; Leq: average noise level, L_{max}: maximum noise level, L_{min}: minimum noise level,
^a Locations 1–5 were measured on September 1, 2015; Location 6 was measured on September 30, 2015.
^b Locations 1 through 5 measurements utilize 1-minute data (average) increments, the Location 6 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 (Irvine 2015a, 2015b). The northwestern portion of the Project site consists of vacant land that was designated for the former Marine Corps Air Station (MCAS) El Toro's runway protection zones. The central portion has rail spurs that extend from adjacent rail lines and which served the warehouse structures at the southeastern portion of the site. There are several existing structures remaining on the site, but

these facilities are no longer in use. Therefore, there are no existing sensitive receptors on the Project site.

The area immediately surrounding the Project site consists primarily of industrial, commercial, and transportation uses and undeveloped land. The nearest noise-sensitive receptor to the Project site is Irvine Community Church, approximately 0.5 miles to the west. Sports fields associated with the OCGP are approximately $\frac{1}{4}$ mile to the northeast; the sports fields are not sensitive noise receptors.

Future residents of the Project would be sensitive noise receptors.

4.10.4 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 4.10-1 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 4.10-2 Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Threshold 4.10-3 Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.

Threshold 4.10-4 Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.

4.10.5 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 4.10.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.10-1

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 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.

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 4.10.1, 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 noise above identified thresholds. Thus, compliance with laws ensures that impacts would be less than significant.

The primary on-site noise sources at non-residential buildings would include HVAC systems and may also include, but not be limited to, trucks idling, loading and unloading at loading docks, loudspeakers at fast-food restaurants, outdoor restaurant patios, and vehicle noise from parking garages.

As discussed in the Development Plan (see Section 2.5.3.2, Community Elements and Criteria), an opportunity is envisioned for outdoor activities in the plaza area of the Mixed-Use District. This could include festivals, farmers markets, outdoor music events, art galleries, sports or fitness events, food trucks and many other types of social gatherings. These events would be used to provide entertainment and to create an Entertainment Core for the Project. These events, especially the live and/or recorded music, would result in potential elevated noise levels on adjacent land uses. The noise generated by these uses would comply with the provisions of the City Noise Ordinance, which limits exterior and interior noise at residential properties to the levels shown in Table 4.10-6. It should be noted that if the noise source includes music, then the noise limits are reduced by 5 dBA.

The City of Irvine Noise Ordinance limits exterior noise levels as shown in Table 4.10-4. The proposed Project would have a mix of residential (Irvine noise zone 1), professional office (noise

zone 2), and commercial (noise zone 3) buildings. For purposes of this noise impact analysis, each building is considered as a separate property. Because neither the detailed design of buildings nor the specific mix of land uses will be determined until Project implementation, it would be too speculative to approximate future noise levels from commercial and office sources. However, in order to ensure that on-site noise sources would not result in significant impacts, the Project incorporates MM NOI-1 and MM NOI-2. MM NOI-1 requires an acoustical analysis for HVAC systems at all proposed buildings demonstrating compliance with the 50 dBA and time period limits. These thresholds are the same as the County and City Noise Ordinance limit for nighttime for continuous noise sources at the nearest residential building. MM NOI-2 requires an acoustical analysis for non-HVAC sources (such as loading docks or parking facilities) at all proposed buildings demonstrating compliance with the City Noise Ordinance exterior noise limits at residential buildings.

Noise and Land Use Compatibility

As described in Section 4.10.1, the Orange County General Plan Noise Element includes the noise compatibility guidelines shown in Table 4.10-1, and the Irvine General Plan Noise Element includes the noise compatibility guidelines shown in Table 4.10-4. 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 Marine Way and from railroad operations on the Southern California Regional Rail Authority (SCRRA) tracks south of the Project site. The highest forecasted traffic volumes on Marine Way are in the post-2035 scenario; these volumes provide the anticipated maximum noise impact (Fehr & Peers 2015). Post-2035 traffic noise levels on Marine Way were calculated as described in Section 4.10.2. The Post-2035 traffic volume on Marine Way between Ridge Valley and B Street is forecasted at 32,500 to 34,745 average daily trips (Fehr & Peers 2015). Traffic noise levels along the northeast side of the Project site are estimated at approximately 72 dBA CNEL at a distance of 100 feet from the roadway centerline. On the south and southwest sides of the Project site, existing rail noise was measured at 65 dBA CNEL at a distance of approximately 150 feet from the rail line. Although rail operations forecasts for the various rail services (e.g., Metrolink Orange County, Metrolink Inland Empire-Orange County, Amtrak) were not available, based on forecasts for other parts of the Metrolink system, it is conservatively assumed that rail traffic could double in future years. With that assumption, rail noise at the Project site would be 68 dBA CNEL at a distance of 150 feet from the rail line. The projected future 65 dBA CNEL noise contour would be approximately 240 feet from the rail line.

Therefore, proposed residential, commercial, hotel, and employment uses facing Marine Way and facing the rail line could be in the 65+ decibels CNEL category of Table 4.10-1, the County Land Use/Noise Compatibility Matrix. With respect to the Irvine Land Use Compatibility Matrix, Table 4.10-4, post-2035 noise levels at proposed residential receptors (i.e., residents of the Project) would be in the Normally Incompatible category and may be in the Clearly Incompatible category. In order to avoid potentially significant noise/land use compatibility impacts, MM NOI-3 and MM NOI-4 would be incorporated into the Project. MM NOI-3 requires an acoustical analysis demonstrating that Project design features would ensure that residential and hotel exterior and interior noise levels would not exceed applicable State Building Code, County General Plan, and Irvine General Plan standards. MM NOI-4 requires an acoustical analysis demonstrating that Project design features would ensure that non-residential interior noise

levels would not exceed applicable County General Plan standards. The Project would also incorporate MM NOI-5, which requires disclosure of 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-3, MM NOI-4, and MM NOI-5, the potential noise impacts 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 4.10-1. 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 4.10-1, with the implementation of MM NOI-1 and MM NOI-2. Post-2035 traffic noise and train noise could create a potential noise incompatibility with surrounding land uses. MM NOI-3, MM NOI-4, and MM NOI-5 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-3, MM NOI-4, and MM NOI-5, the impact would be less than significant pursuant to Threshold 4.10-1.*

Threshold 4.10-2

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 4.10-9.

**TABLE 4.10-9
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 structure to the Project construction areas is the Second Harvest Food Bank warehouse building. In terms of the classifications in Table 4.10-7, this structure is considered the equivalent of “some old buildings”. Therefore, the criterion for a significant impact for continuous/frequent intermittent sources is 0.25 peak particle velocity (ppv) inch per second (in/sec).

The Caltrans vibration annoyance potential guideline thresholds are shown in Table 4.10-10. Based on the guidance in Table 4.10-10, 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.

**TABLE 4.10-10
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 4.10-11 summarizes typical vibration levels measured during construction activities for various vibration-inducing pieces of equipment at a distance of 25 feet.

**TABLE 4.10-11
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.		

Demolition, grading, and road and utility construction would occur adjacent to the Second Harvest Food Bank. Based on the data in Table 4.10-11 and using the vibration equation shown in Section 4.10-2, there is a potential to exceed the significance criterion of 0.24 ppv in/sec if a vibratory roller would be used within 25 feet or if a large bulldozer or similar equipment would be used within 12 feet of adjacent structures. In order to avoid a potentially significant vibration impact at the Second Harvest Food Bank during demolition and grading, MM NOI-6 would be incorporated into the project. MM NOI-6 requires that it be demonstrated that the equipment to be used within 25 feet of a building would not include vibratory rollers, large bulldozers, or similar heavy equipment. Vibratory rollers operated in the static mode would be allowed. Because the distinctly perceptible impact threshold is lower than the potential structural damage impact threshold, avoidance of a distinctly perceptible vibration impact would also avoid a potential structural damage impact. MM NOI-6 would reduce potential demolition and grading vibration impacts to a less than significant level.

Construction of later Project elements would occur after initial buildings are completed and occupied. Because Project development is anticipated to generally progress from west to east there would be a very low potential for the grading and excavation activities that cause vibration to occur near occupied buildings. However, to avoid the potential of a significant impact, MM NOI-6 would be applicable.

If it is determined that pile driving, by either impact or vibratory/sonic methods is required for building construction, MM NOI-7 would apply to the Project; MM NOI-7 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-7, the impact would be less than significant.

Operational

Vibration Produced by the Proposed Project

There are no anticipated operational land uses that would produce discernable vibration that would cause a potentially significant impact pursuant to Threshold 4.10-2.

Vibration from External Sources to the Proposed Project Site

Train vibration has the potential to generate perceptible vibration levels at the buildings proposed to be constructed near the rail line. Train passbys can create vibration levels that propagate through the building, creating perceptible vibration and causing annoying rattling of windows and items in the structure. Vibration at night can disturb sleep.

Neither the California Building Code, the County Code, nor the Irvine Municipal Code include requirements for average or maximum vibration levels generated by exterior sources (e.g., rail activity). Therefore, FTA criteria are used in this analysis. Ground vibration criteria recommended in the FTA Impact Assessment are shown in Table 4.10-12.

**TABLE 4.10-12
RECOMMENDED GROUNDBORNE VIBRATION IMPACT CRITERION**

Land Use Category	Groundborne Vibration Impact Levels (VdB)		
	Frequent Events (> 70 events/day)	Occasional Events (30-70 events/day)	Infrequent Events (< 30 events/day)
Residences and buildings where people normally sleep	< 72 VdB	< 75 VdB	< 80 VdB
"Institutional" land uses with primarily daytime use.	< 75 VdB	< 78 VdB	< 83 VdB
VdB: vibration decibel Source: FTA 2006.			

As discussed in Section 4.10.3, U.S. Department of Transportation (USDOT) data indicate that an average of 70 trains per day use the rail tracks south of the Project site (FRA 2014). Although no forecasts of long-term operations on this line were found, it is highly likely that the number of trains would increase to more than 70 daily trains in future years. Therefore, the analysis was completed using the FTA-recommended criterion for vibration annoyance, which is 72 VdB for buildings where people normally sleep. The vibration criterion for land uses with primarily daytime use, would be 75 VdB. The FTA defines these buildings as follows:

Schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference. Although it is generally appropriate to include office buildings in this category, it is not appropriate to include all buildings that have any office space. For example, most industrial buildings have office space, but it is not intended that buildings primarily for industrial use be included in this category.

The FTA Impact Assessment recommends that a vibration analysis be performed when buildings where people normally sleep would be built within 200 feet of a conventional commuter railroad right-of-way and when buildings with primarily daytime use would be built within 120 feet of a conventional commuter railroad right-of-way; these are “screening distances”. The Project site’s southwestern and western property lines are less than 100 feet from the railroad right-of-way, and the minimum required setback on the southern property line is 10 feet. Therefore, there is a potential for a significant vibration impact to future building occupants. To avoid this impact, MM NOI-8 would be incorporated into the Project. MM NOI-8 requires a vibration analysis prior to the issuance of a building permit for buildings where people normally sleep when Project improvements are proposed within the screening distances described above. The vibration analysis must show that rail operation-induced building vibrations would not exceed the vibration impact criteria recommended by the Federal Transit Administration or similar authority. With the implementation of MM NOI-8 the impact would be less than significant pursuant to Threshold 4.10-2.

Impact Conclusion: *Vibration-generating construction activities could occur within 25 feet of the Second Harvest Food Bank or future on-site buildings. The potential annoyance or structural damage impact would be less than significant through enforcement of MM NOI-6, pursuant to Threshold 4.10-2. Pile-driving operations have the potential to exceed vibration impact thresholds. Impacts would be less than significant, pursuant to Threshold 4.10-2, by implementation of MM NOI-7, 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. Vibration from railroad operations have the potential to exceed vibration annoyance criteria. Impacts would be less than significant, pursuant to Threshold 4.10-2, by implementation of MM NOI-8, which requires building-specific design that rail operation-induced building vibrations would not exceed the vibration impact criteria recommended by the Federal Transit Administration or similar authority for Threshold 4.10-2.*

Threshold 4.10-3

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 4.10.2. 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 TIA (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.

- **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 1,546 residential units at the southeast corner of Marine Way and Ridge Valley.
- **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 1,876,000 square feet of multi-use (office); 2,103 residential dwelling units; 220,000 square feet of community commercial (retail); and 242 hotel rooms.
- **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 1,876,000 square feet of multi-use (office); 2,103 residential dwelling units; 220,000 square feet of community commercial (retail); and 242 hotel rooms.

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 4.10.1, a 3 dBA increase is barely perceivable to the average healthy human ear and an increase of 5 dBA is readily perceptible. Therefore, the following threshold is used 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 With Project noise increase represents how much the noise levels increase with Project-generated traffic compared to the Without Project conditions. The Project's traffic analysis provided With Project and Without Project traffic volumes for 362 roadway segments in the Project study area for the 4 above-listed scenarios. Noise level increases were calculated and

segments where the forecasted noise increase exceeds 1 dBA in the existing, 2017, 2035, and post-2035 scenarios and are shown in Tables 4.10-13 through 4.10-16, respectively.

**TABLE 4.10-13
EXISTING PLUS PROJECT CONDITIONS OFF-SITE TRAFFIC NOISE INCREASES
GREATER THAN 1 A-WEIGHTED DECIBEL**

Street	No Project	With Project	Project Contribution	Impacts	
				Yes	No
Marine (east of Sand Canyon)	67.0	73.2	6.2	Yes	Yes
Trabuco (east of Sand Canyon)	60.5	65.8	5.3	Yes	Yes

dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level.
Numbers may not add due to rounding.

**TABLE 4.10-14
2017 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN ONE DBA**

Street	No Project	With Project	Project Contribution	Impacts	
				Yes	No
Marine Way (east of Sand Canyon)	70.0	72.3	2.2	No	No
Marine Way (east of Ridge Valley)	68.9	71.1	2.2	No	No
Ridge Valley (north of "LV" St)	62.4	64.6	2.2	No	No
Ridge Valley (north of Marine Way)	64.6	65.8	1.1	No	No
"LY" St (north of LQ)	54.6	55.9	1.2	No	No

dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level
Numbers may not add due to rounding.

**TABLE 4.10-15
2035 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN
ONE A-WEIGHTED DECIBEL**

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)			Adjacent Sensitive Receptor?	Potential Impact?
	No Project	With Project	Project Contribution		
"F" St ("B" St to "D" St)	50.3	53.4	3.1	No	No
Marine Way (east of "B" St)	72.9	74.9	2.1	No	No
Marine Way (west of "B" St)	73.4	75.3	1.9	No	No
Marine Way (north of Barranca Pkwy)	73.6	75.3	1.7	No	No
Ridge Valley (north of "LV" St)	68.4	70.0	1.6	No	No
Marine Way (Barranca Pkwy to Alton Pkwy)	71.4	72.8	1.4	No	No
Astor (east of Fairbanks)	68.9	70.0	1.1	No	No
"F" St ("E" St to Irvine Blvd)	62.9	63.9	1.1	No	No

CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels
Numbers may not add due to rounding.

**TABLE 4.10-16
POST-2035 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN
ONE A-WEIGHTED DECIBEL**

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)			Adjacent Sensitive Receptor?	Potential Impact?
	No Project	With Project	Project Contribution		
"F" St ("B" St to "D" St)	51.2	53.3	2.1	No	No
Marine Way (east of "B" St)	73.0	75.0	2.1	No	No
Ridge Valley (north of "LV" St)	68.3	70.3	2.0	No	No
Marine Way (east of Ridge Valley)	73.6	75.5	1.9	No	No
Marine Way (west of "B" St)	73.4	75.2	1.8	No	No
Marine Way (north of Barranca Pkwy)	73.7	75.4	1.7	No	No
Marine Way (east of Sand Canyon Ave)	75.3	77.0	1.7	No	No
Marine Way (Barranca Pkwy to Alton Pkwy)	72.2	73.8	1.6	No	No
Astor (east of Fairbanks)	69.9	71.0	1.1	No	No
dBA: A-weighted decibels; CNEL: Community Noise Equivalency Level Numbers may not add due to rounding.					

As shown in Table 4.10-13, there would be potential substantial noise increases at two receptors:

- **Marine Way, east of Sand Canyon Avenue.** The Irvine Community Church at 14804 Sand Canyon Avenue, which has one facade that faces Marine Way at a distance of approximately 150 feet from Marine Way.
- **Trabuco Road, east of Sand Canyon Avenue.** Residences south of Peony at a distance of approximately 100 feet from the centerline of Trabuco Road; there is a 6-foot-high wall adjacent to the residences and facing Trabuco Road.

The Existing Plus Project analysis is a hypothetical scenario that assumes full development of the Project overlaid on the existing road network and traffic conditions. This scenario could not occur, given the time frame for the Project and the lack of inclusion of the anticipated future circulation system improvements and population and traffic growth that would occur concurrent with the Project development. However, to be conservative and based on case law, the Existing Plus Project analysis has been included in the DEIR. As shown in Table 4.10-13 and discussed above, noise impacts would be significant on two roadway segments with this scenario. However, because the impact would not practically occur, no mitigation is proposed.

As shown in Tables 4.10-14 through 4.10-16, there would be no substantial noise increases under any of the other scenarios. As a result, long term off-site noise impacts would be less than significant.

Noise Generated by Operational On-Site Sources

As discussed under Threshold 4.10-1, on-site noise sources would include HVAC systems, truck deliveries, loading dock noise, on-site vehicle travel, and use of outdoor plazas and venues. With implementation of the mitigation measures and development requirements identified under Threshold 4.10-1, 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 significant on two roadway segments with the Existing Plus Project scenario. However, this scenario is a hypothetical condition that would not practically occur. Under the remaining scenarios (2017, 2035, and post-2035) traffic noise increases at sensitive receptors would be less than significant pursuant to Threshold 4.10-3. With the implementation of MM NOI-1 and MM NOI-2, 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 4.10-3.*

Threshold 4.10-4

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 4.10-1 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 4.10-17. 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; none of these activities is anticipated for the proposed Project. The loudest phases of the proposed Project are anticipated to be demolition and 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 demolition and grading equipment.

**TABLE 4.10-17
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		

Demolition equipment would typically include dozers, excavators, hoe-rams, backhoe/loaders, and heavy trucks. Grading would use similar equipment and may also use scrapers and graders. 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 4.10-17. 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 levels at that receptor would be approximately 76 dBA L_{eq} .

There are no existing sensitive noise receptors within ½ mile of the Project site. With distance and intervening buildings and traffic noise, Project construction noise would not be heard at off-site sensitive receptors. Thus, there would be no substantial noise increase with respect to existing sensitive noise receptors.

Based on the anticipated development phasing concept (see Section 3.5.8, Phasing), 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 on the northwestern part of the Project site, demolition will have been completed and grading would occur on the southeastern part of the Project site. Development Requirement (DR) NOI-1, included in Section 4.10-2, would require all construction equipment operated within 1,000 feet of a dwelling 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 dwellings. While it is not possible to define the distance between future occupied buildings and concurrent future grading activities, it is reasonable to conclude, based on the west-to-east development scenario and the time required for building construction and occupancy, that grading would occur at a distance of more than 500 feet from an occupied residential building and construction noise levels would be less than 70 dBA L_{eq} . For daytime construction noise occurring within the hours specified in DR NOI-1, this noise level would not be considered a substantial increase in ambient noise.

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. With distance and intervening buildings and traffic noise, Project construction noise would not be heard at off-site sensitive receptors. New residents of the Project would hear some of the ongoing construction noise. However, the noise increase would be less than significant because of noise reduction that would occur over the distance between the source and receptor. Temporary increases in ambient noise levels due to Project construction would not be substantial and would be less than significant pursuant to Threshold 4.10-4.*

4.10.6 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 Orange County Great Park Cultural Terrace, Great Park Neighborhoods District 6, and Great Park Western Sector Park Development Plan. The nearest existing noise-sensitive receptor to the Project site is Irvine Community Church, approximately 0.5 miles to the west; 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.² 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.

A total of 362 roadway segments were evaluated. Table 4.10-18 shows that cumulative noise level increases greater than 3 dBA are projected to occur along 31 roadway segments when compared to Existing Conditions. Among them, there are four roadway segments that would result in Project contribution of more than 1 dBA between post-2035 with-project and the

² 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.

existing conditions. There would be potential substantial noise increases in these four segments. These four roadway segments are discussed in detail below.

**TABLE 4.10-18
POST-2035 PLUS PENDING PROJECTS CUMULATIVE OFF-SITE TRAFFIC NOISE
INCREASES GREATER THAN THREE A-WEIGHTED DECIBELS**

Roadway/ Segment	Average Daily Traffic Volume		Cumulative Increase dBA	Project Contribution dBA	Potential Significant Impact?
	Existing	Post-2035 With Project			
Trabuco (east of Sand Canyon)	1,083	43,600	16.0	0.3	No
Portola (Portola Springs to SR-241)	976	30,794	15.0	0.0	No
Irvine (A-02 to Alton)	2,402	56,041	13.7	0.1	No
Marine (east of Sand Canyon)	5,217	50,000	9.8	1.7	Yes
Moulton (Ridge Route to Santa Maria)	5,015	44,300	9.5	0.0	No
Marine (north of Barranca)	5,217	34,500	8.2	1.9	Yes
Marine (west of B)	5,217	33,100	8.0	2.0	Yes
Marine (Sterling to Bake)	5,217	27,686	7.2	1.0	Yes
Modjeska (Portola Springs to Irvine)	3,339	14,848	6.5	0.0	No
Bake (Irvine Center to Lake Forest)	3,600	15,260	6.3	0.0	No
Tustin Ranch (Jamboree to Portola)	3,327	13,800	6.2	0.0	No
Lake Forest (Laguna Canyon to Bake)	8,600	32,100	5.7	0.0	No
Portola (west of Alton)	6,266	19,951	5.0	0.0	No
Lake Forest (Bake to Scientific)	8,635	25,600	4.7	0.0	No
Sand Canyon (I-5 to ICD)	17,100	45,700	4.3	0.4	No
Alton (Rancho to Commercentre)	19,167	49,731	4.1	0.1	No
Portola (Ridge Valley to Portola Springs)	6,500	16,800	4.1	0.1	No
Portola Springs (Portola to Modjeska)	2,700	6,500	3.8	0.0	No
Oak Canyon (Valley Oak to Sand Canyon)	6,088	14,200	3.7	0.0	No
Trabuco (Yale to Jeffrey)	8,152	18,900	3.7	0.1	No
Research (Irvine Center to Hubble)	6,253	14,200	3.6	0.0	No
Rancho (east of Lake Forest)	14,427	31,064	3.3	0.0	No
Bake (Research to Irvine Center)	7,371	15,400	3.2	0.1	No
Irvine (Alton to Bake)	16,500	34,000	3.1	0.1	No
Jeffrey (Portola to Irvine)	9,090	18,700	3.1	0.0	No
Portola (Sand Canyon to Ridge Valley)	12,127	24,500	3.1	0.0	No
Ridge Valley (south of Portola)	3,299	6,644	3.0	0.5	No
Gateway (Alton to Fortune)	5,432	10,800	3.0	0.0	No
Irvine (Tustin Ranch to Jamboree)	22,654	44,900	3.0	0.0	No
Sand Canyon (Irvine Center to Barranca)	21,000	41,500	3.0	0.2	No
Alton (Commercentre to Irvine)	21,239	41,900	3.0	0.1	No

CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels

- **Marine Way (east of Sand Canyon Avenue).** The Irvine Community Church at 14804 Sand Canyon Avenue receives traffic noise from two major roads that would be affected by the Project: Marine Way and Sand Canyon Avenue. In the Year 2035 Plus Pending Projects scenario, the combined noise level at the church from the two sources without the Project is forecasted to be 79.2 dBA CNEL (75.4 from Marine Way and 76.9 from Sand Canyon Avenue). In this scenario, implementation of the Project is forecasted to increase traffic on Marine Way east of Sand Canyon Avenue and slightly decrease traffic on Sand Canyon Avenue north of Marine Way. The resulting combined noise level at the church from the two sources with the Project is forecasted to be 80.0 dBA CNEL (77.1 from Marine Way and 76.8 from Sand Canyon Avenue). As a result, the noise increase from Project-generated traffic would be 0.8 dBA, which is less than 1.0 dBA.
- **Marine Way (north of Barranca Parkway).** There are no adjacent noise sensitive land uses at this segment.
- **Marine Way (west of “B” Street).** There are no adjacent noise sensitive land uses at this segment.
- **Marine Way (Sterling to Bake Parkway).** There are no adjacent noise sensitive land uses at this segment.

Based on the above discussion, the four roadway segments with potential substantial noise increases would either have less than 1.0 dBA total Project contribution or have no noise sensitive land uses areas adjacent to the roadway. As a result, the cumulative noise impact would be less than significant.

4.10.7 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:
1. 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.
 2. Stockpiling and/or vehicle staging areas shall be located as far as practicable from 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.
- MM NOI-2** 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 loading docks, parking facilities, and other noise-generating activities associated with the proposed uses of the building would not exceed the exterior noise limits at the nearest buildings as specified in the City of Irvine Noise Ordinance.
- MM NOI-3** Prior to the issuance of each building permit for a residential building or hotel, 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 and rail noise conditions) in all habitable rooms of the proposed buildings facing Marine Way and the rail line. 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 4.10-4, Irvine Interior and Exterior Noise Standards.
- MM NOI-4** Prior to the issuance of each building permit for a non-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 architectural design would provide an interior average hourly noise level (L_{eq}) during the normal hours of occupancy of 55 dBA or less for commercial, retail, bank, and restaurant uses, and 50 dBA L_{eq} or less for office, professional, and research and development uses.
- MM NOI-5** 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 will exceed 65 dBA CNEL.

MM NOI-6 Prior to the issuance of each grading permit, the County or designee shall produce evidence acceptable to the Manager of Building & Safety, or designee demonstrating that the equipment to be used for demolition and grading that would occur within 25 feet of an occupied structure shall not include vibratory rollers, large bulldozers, or similar heavy equipment. Vibratory rollers operated in the static mode would be allowed.

MM NOI-7 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-8 Prior to the issuance of each building permit for buildings where people normally sleep within 200 feet of the railroad tracks south of the Project site, or buildings with primarily daytime use where vibration could interfere with normal activities within 120 feet of the railroad tracks, the County or designee shall obtain the approval of the Manager of Building & Safety, or designee, for a Vibration Analysis Report and appropriate plans that demonstrate that anticipated building vibrations, based on the best available forecast of future rail operations, would not exceed the vibration impact criteria recommended by the Federal Transit Administration or similar authority acceptable to the Manager of Building & Safety, or designee. The FTA-recommended criterion for vibration annoyance, at buildings where people normally sleep is 72 VdB. The vibration criterion for buildings with primarily daytime use is 75 VdB. The vibration analysis shall describe whether an increased setback or vibration-reducing structural building elements are required to achieve the performance standard.

4.10.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Project-specific and cumulative noise impacts would be less than significant. No significant unavoidable impacts would occur.

4.10.9 REFERENCES

California Building Standards Commission (CBSC). 2015 (access date). California Building Code (Supplement, Part 2, Volume 1). Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Home/Current2013Codes.aspx>.

California Department of Transportation (Caltrans). 2013a (September) *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Caltrans. http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf.

- . 2013b (September). *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Sacramento, CA: Caltrans. http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013B.pdf.
- Fehr & Peers. 2015 (September). *El Toro 100 Acre Project, Draft Transportation Impact Analysis*. Anaheim, CA: Fehr & Peers.
- Irvine, City of. 2015a (current through). *City of Irvine General Plan*. Irvine, CA: the City. <http://www.cityofirvine.org/community-development/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>.
- . 2015c (July). *Municipal Code, City of Irvine* (Title 6, Public Works; Division 8, Pollution; Chapter 2, Noise). https://www.municode.com/library/ca/irvine/codes/code_of_ordinances?nodeId=TIT6PUWO_DIV8PO_CH2NO.
- . 2012 (May). *CEQA Manual Volume 2: Technical Guidelines*. Irvine, CA: City of Irvine. <http://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=21575>.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Orange, County of. 2015 (September 1, 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
- . 2014 (July version). *County of Orange General Plan*. Santa Ana, CA: the County. <http://ocplanning.net/planning/generalplan2005>.
- Schoeningh, J. 2015 (April 8). Personal communication. Email from J. Schoeningh, Director of Public Affairs (Second Harvest Food Bank) to J. Kurtz, Director, Air Quality & Acoustical Programs (BonTerra Psomas)
- Thalheimer, E. 2000. Construction Noise Control Program and Mitigation Strategy as the Central Artery/Tunnel Project. *Noise Control Engineering Journal* 48(5), Sep–Oct. Indianapolis, IN: Institute of Noise Control Engineering.
- U.S. Department of Transportation, Federal Transit Administration (FTA). 2006 (May). *Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06* (prepared by Harris Miller Miller & Hanson, Inc.). Washington, D.C.: FTA. http://www.fta.dot.gov/documents/FTA_Noise_and_Vibration_Manual.pdf.
- U.S. Department of Transportation, Federal Railroad Administration (FRA). 2014 (November 5 Revision Date). 5.02 – Generate Crossing Inventory and Accident Reports (“Current” Inventory for Crossing No. 026765A). Washington, D.C.: FRA. <http://www.cpuc.ca.gov/PUC/safety/Rail/Crossings/crossingininventory.htm>.

4.11 POPULATION AND HOUSING

This section discusses Project-related impacts to population and housing in the vicinity of the El Toro, 100-Acre 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 (Irvine 2015c).

4.11.1 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 4.9, Land Use and Planning and SB 375 is more fully discussed in Section 4.6, 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 4.6, 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).

4.11.2 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 (the 2,103 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 and employment increases associated with the proposed Project, estimates based on the number of proposed residential units and amount of non-residential development, the County's population generation factor of 1.88 persons per dwelling unit was used, which is based on County Local Park Code (Orange County Codified Ordinances [OCCO] Section 7-9-522) factor used for residential developments with similar density.² In terms of employment, projections were developed using the IMPLAN model, which generates employment generation numbers for development based on the type of uses proposed.³

4.11.3 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 for growth 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

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, 2 population generation factors would apply: 1.46 for the 31.1–50.0 du/ac density and 2.25 for the 12.6–31.0 du/ac density, per 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 3,403.

³ IMPLAN (Impact Analysis for PLANning), a social accounting and impact analysis software program, was developed in 1979 by the U.S. Forest Service in cooperation with the Federal Emergency Management Agency and the U.S. Bureau of Land Management to assist the Forest Service in land and resource planning and management. The program was updated and improved over subsequent years. In 1992, IMPLAN was transferred under a technology transfer agreement to the Minnesota IMPLAN Group, Inc. (MIG), which was run by three of the key University of Minnesota staff members who worked on the original program and subsequently developed the current modeling system. In 2013, IMPLAN was purchased by MIG, Inc. and privatized.

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.

OCP-2014 projections at the County, City, and RSA levels are provided in Table 4.11-1 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 on Table 4.11-1, 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 4.11-1
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). OCP-2014 projects 2.56 persons per dwelling units in 2040.⁴ Table 4.11-2 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 4.11-2
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
Multifamily, 2-4 Units	4,420	5.3
Multifamily, 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: Irvine 2015c (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 4.11-1, 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 4.11-1, 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.

⁴ 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.

The City had 224,435 jobs as of 2012, according to OCP-2014. As shown in Table 4.11-1, 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.

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.⁵

As demonstrated in Table 4.11-1, 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.

4.11.4 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 4.11-1 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).

⁵ 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.

4.11.5 IMPACT ANALYSIS

Threshold 4.11-1

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 housing, commercial, and office uses and an associated residential and employment population as well as infrastructure improvements. Adopted projections, plans, and policies provide benchmarks for evaluating the potential population, housing, and employment impacts from 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 4.11-3 compares the Project's maximum expected population, housing, and employment growth with OCP-2014 projections.

**TABLE 4.11-3
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 ^a	182,705	265,196	82,491
Project	0	3,954	3,954
Dwelling Units			
Orange County	1,056,157	1,205,608	149,451
Irvine	86,755	128,153	41,398
RSA E-44 ^a	70,339	101,725	31,386
Project	0	2,103	2,103
Employment			
Orange County	1,526,227	1,898,685	372,458
Irvine	224,435	320,033	95,598
RSA E-44 ^a	183,257	271,357	88,100
Project	0	7,799	7,799
^a 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 an additional 2,103 housing units within the City's 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 5.0 percent of the City's OCP-2014 projected housing growth between 2012 and 2040, and approximately 1.4 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 due to the institutional designation of the site no population was attributed to Project site.⁶ 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 2,103 housing units associated with the Project would assist the City in meeting State-mandated fair share housing production targets.

Population Growth Analysis

The Project population growth is a direct consequence of its housing component. However, it should be noted that the employment uses could generate additional demand for housing. Using the population generation factor of 1.88 persons per dwelling unit for higher density housing based on County Local Park Code, OCCO Section 7-9-522, the estimated population associated with the proposed Project would be approximately 3,954 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 a 1.46 persons per unit factor for development at 31.1–50.0 dwelling unit per acre (du/ac) density and 2.25 persons per unit for the 12.6–31.0 du/ac density. Of the proposed 2,103 residential units, approximately 80 percent would be in the 31.1–50.0 du/ac and 20 percent in the 12.6–31.0 du/ac density. Using the City's generation factors, the Project would generate approximately 3,403 residents. The population increase using the County population generation factor represents 3.9 percent of the City's OCP-2014 projected population growth between 2012 and 2040 and 3.4 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 7,799 long-term jobs in addition to construction related jobs, which are discussed later in this section. The Project represents approximately 8.2 percent of the City's OCP-2014 projected employment growth between 2012

⁶ 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.

and 2040, and approximately 2.1 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 4,896 temporary construction jobs during the build out period. Construction jobs would be generated over the construction period of the Project, which is anticipated build out in approximately 2028. 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.

Jobs/Housing Ratio Analysis

In addition to the absolute population, housing, and employment 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. Table 4.11-4 compares the proposed Project’s estimated jobs/housing ratios with the County, the City as a whole, and RSA E-44.

**TABLE 4.11-4
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	3.71
Calculations based on OCP-2014 (CDR 2014).				

The proposed Project would provide 2,103 new dwelling units and approximately 7,799 new jobs, resulting in a 3.71 jobs/housing ratio upon completion. While the Project would exceed the jobs/housing ratios for the County and the City, the Project would contribute to the City’s housing stock and provide new housing units located within a major employment concentration with proximity to the Irvine Station and nearby Irvine Spectrum. The Project would further contribute to the imbalance of housing and jobs because it would not add sufficient housing to accommodate the housing demand associated with the number of jobs being provided by the Project.

Direct Population Growth Potential

The housing, population, employment, and jobs/housing analyses provided above, demonstrates that the Project is not included in the growth projections used as part of the long-range planning programs for the region. As a proposed General Plan Amendment, 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).⁷ Therefore, the Project would directly induce growth by providing new homes and businesses on a site currently assumed in the General Plan and OCP-2014 dataset as limited Institutional and warehouse uses. However, the Project functions as an infill project and would not substantially extend infrastructure and other improvements that would encourage development levels 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 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 4.14, Transportation and Traffic). Additionally, there would be increased air emission (Section 4.2), greenhouse gas emissions (Section 4.6), public services (Section 4.12), and utilities and service systems (Section 4.15). (Note consistency with regional planning programs has been addressed in Section 4.9, Land Use and Planning.)

Impact Conclusion: *The Project proposes new dwelling units and mixed-use development, which would generate approximately 3,954 new residents and approximately 7,799 new jobs in the City. Because this Project is not provided for in the General Plan, this growth has not been incorporated into the long-range planning programs. Therefore, the Project would have a direct growth-inducing impact. However, due to the infill nature of the Project a substantial indirect growth-inducing impact related to the Project is not anticipated. The direct growth-inducing effects would be considered a significant and unavoidable impact, pursuant to Threshold 4.11-1, as no population growth for the proposed Project was expected or included in the OCP-2014.*

4.11.6 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. A preliminary assessment indicates that the other cumulative projects on the list provided in Section 4.0 have been provided for in the long-range growth assumptions, with the exception of the West Alton Parcel Development Plan Project that is located on County-owned property, near the northeasterly edge of the former MCAS El Toro, northwest of the intersection of Alton Parkway and Irvine Boulevard, within the City of Irvine. Similar to the proposed Project, the West Alton Parcel Development Plan Project is not included in the current growth projections used as part of the long-range planning program for the region. Therefore, this project's population growth was not included nor anticipated in the OCP-2014 dataset. Similar to the proposed Project, this impact of the West Alton Development Plan would be considered significant and unavoidable as revisions to the applicable programs is not within the jurisdiction or control of the County. Consequently, the proposed Project's significant and unavoidable impact associated with direct population growth would be further exacerbated in light of the significant and unavoidable

⁷ 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 before later phases of the Project.

impact of the West Alton Parcel Development Project, resulting in a significant and unavoidable cumulative population impact.

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, they would represent a negligible amount of the future growth forecasts in the County (approximately 0.11 percent of the projected 2040 Orange County population; 0.17 percent of the dwelling units in 2040; and 0.38 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. 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, especially around transit stations is encouraged to minimize overall environmental impacts.

4.11.7 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.

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 West Alton Parcel Development Plan Project that, similar to the proposed Project, was not anticipated in the regional growth projections.

However, due to the infill 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.

4.11.8 REFERENCES

- California Department of Finance (DOF). 2014 (January). Population and Housing Estimates, Series E-5. Sacramento, CA: DOF.
- California Planning Roundtable. 2008. *Deconstructing Jobs-Housing Balance*. Los Angeles, CA: California Planning Roundtable. http://www.cproundtable.org/media/uploads/pub_files/CPR-Jobs-Housing.pdf.
- Center for Demographic Research (CDR). 2014 (September, final approval). OCP-2014 Report Data (City and RSA Tabs) (an Excel Spreadsheet). Fullerton, CA: CDR.
- 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>.
- . 2015c (August). City of Irvine 2013-2021 Housing Element. Irvine, CA: the City. <http://alfresco.cityofirvine.org/alfresco/guestDownload/direct?path=/Company%20Home/Shared/CD/Planning%20and%20Development/General%20Plan/04.%20Housing%20Element%20-%20Aug%202015.pdf>.
- KTGY. 2016 (September). *El Toro, 100-Acre 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.
- Southern California Association of Governments (SCAG). 2016 (April, adopted). *2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (Demographics & Growth Forecast Appendix)*. Los Angeles, CA: SCAG. http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf.
- U.S. Census Bureau. 2016a (January, access date). American FactFinder: ACS Demographic and Housing Estimates, 2006–2010 American Community Survey 5-Year Estimates. Washington, D.C.: U.S. Census Bureau.
- . 2016b (January, access date). American FactFinder: ACS Demographic and Housing Estimates, 2010–2014 American Community Survey 5-Year Estimates. Washington, D.C.: U.S. Census Bureau.

- . 2015a (October, access date). American FactFinder: Population, Housing Units, Area, and Density: 2000 – County – County Subdivision and Place; Geography: Orange County, California. Washington, D.C.: U.S. Census Bureau.
- . 2015b (October 14, last revised). Irvine (city), California. Washington, D.C.: U.S. Census Bureau. <http://quickfacts.census.gov/qfd/states/06/0636770.html>.
- . 2015c (October, access date). Welcome to QuickFacts Beta: Orange County, California. Washington, D.C.: U.S. Census Bureau. <http://www.census.gov/quickfacts/table/PST045213/06059/embed/accessible>.

Weitz, J. 2003. Jobs-Housing Balance. *Planning Advisory Service No. 516*. Chicago, IL: APA.

This page intentionally left blank

4.12 PUBLIC SERVICES

This section describes existing public services for the El Toro, 100-Acre 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 (Saddleback Valley Unified School District),
- Library services (OC Public Libraries).

Project impacts to parks and recreational facilities is discussed in Section 4.13, Recreation.

4.12.1 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 be required to comply with 2013 IFC 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 4.9, Land Use and Planning.

Schools

The proposed Project is located within the boundaries of the Saddleback Valley Unified School District (SVUSD, District). The SVUSD 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 SVUSD actively participates in the State funding program obtaining over \$146 million in State funding for new construction and modernization projects districtwide. The most recent new construction project in SVUSD consisted of expansion of Trabuco Hills High School and was completed in 2011. With the exception of 33 middle school seats within the Laguna Hills High School attendance area and 92 severe special day class seats, the SVUSD has no eligibility for funding 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. In addition, limited State funding remains from the previously approved statewide bond measures.

An initiative for a new statewide bond measure has been filed. Adequate signatures have been collected to place a bond measure on the November 2016 ballot to continue the state funding program for facilities.

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 pre-requisites 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 State new construction funding, the State will match the Level 2 fees if funds are available. As previously mentioned, limited State funds for new school construction are available from existing bond measures.
- **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. If the State runs out of bond funds, the SVUSD would not be eligible to charge Level 3 fees.

In 2004, residents within the boundaries of the SVUSD passed a local Measure B authorizing the sale of \$180 million in General Obligation bonds. The current tax rate for the repayment of Measure B bonds is \$30.08 for every \$100,000 of assessed value. New development on the Project site shall be subject to the same General Obligation bond tax rate as already applied to other properties within the SVUSD for Measure B based upon assessed value of the residential and commercial uses. Measure B funds are used by the SVUSD to repair, upgrade, construct and equip classrooms and facilities.

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 4.9, Land Use and Planning.

4.12.2 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.

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 El Toro Project, 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 generate rates used for this analysis are shown in Table 4.12-1.²

¹ Private institutions and higher education institutions are not evaluated since they are privately funded and/or are not mandated to provide services.

² In the last five years, the SVUSD has not experienced new development similar to the Project. Therefore, data from the adjacent Irvine Unified School District (IUSD), which has experienced significant residential growth in north and south Irvine, was used to create student generation rates for the Project. The sample collected from IUSD included Irvine residential projects (i.e., the Village and the Park), which have high-density units that are similar to the Project.

**TABLE 4.12-1
STUDENT GENERATION RATES**

Dwelling Unit Type	K-6	7-8	9-12	Total
High-Density Attached Student Generation Rate	0.052	0.008	0.022	0.082*
* 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 2015).

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.

4.12.3 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 from 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 2015b).

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 4.12-2 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 4.12-2
OCFA FIRE STATIONS IN PROXIMITY TO THE PROJECT SITE**

Fire Station	Address	Equipment	Personnel	Distance to the Project Site
20	6933 Trabuco Road	Engine/Medic Van/ Water Tender	15 personnel	0.9 mile
38	26 Parker	Paramedic Engine	15 personnel	2.4 miles
51	18 Cushing	Paramedic Engine	13 personnel	3.9 miles

Source: OCFA 2015a.

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. The Project site is not located within or adjacent to an area designated as a Very High FHSZ (OCFA 2015c).

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 one mile south/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 6.0 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.³ 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) 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 which 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 SVUSD, which serves grades kindergarten through 12th grade (K–12). The District operates 35 schools: 24 elementary schools (K–6), 4 intermediate schools (7–8), 4 comprehensive high schools (9–12), and 3 alternative education facilities.

District-wide enrollment for the 2015–2016 school year was 28,620 students with a total school capacity of 35,166 seats. As shown in Table 4.12-3, the SVUSD had an enrollment of 14,430 students in grades K–6, 4,455 students in grades 7–8, and 9,735 students in grades 9–12 (JCJ 2016). When enrollment is compared to school capacity aggregated by grade level, an estimated capacity surplus of approximately 6,546 seats is identified for grades K–12. Over the

³ The number of officers working at a given time depends of the time of day. For instance, there are a minimum of 12 officers assigned to work from 1:00 PM to 11:00 PM hours when the IPD experiences the largest number of calls for service. However, a minimum of 9 officers are assigned to work from the hours of 11:00 PM to 6:00 AM, when fewer calls for service are experienced. In general, there are a minimum of 10 officers assigned to work from 6:00 AM to 1:00 PM (Mahoney 2015).

last ten years, the SVUSD has experienced decline in enrollment of 17.3 percent or 5,972 students. Several elementary school campuses have been closed as a result of the decline.

TABLE 4.12-3
SADDLEBACK VALLEY UNIFIED SCHOOL DISTRICT
DISTRICTWIDE SCHOOL CAPACITY AND ENROLLMENT (2015-2016)

School (Grade Level)	School Capacity	Enrollment	Available Capacity
Elementary (K-6)	17,614	14,430	3,184
Intermediate (7-8)	6,183	4,455	1,728
High (9-12)	11,369	9,735	1,634
District Total	35,166	28,620	6,546
Source: JCJ 2016.			

The closest SVUSD school facilities to the Project site are Rancho Canada Elementary, La Madera Elementary, Santiago Elementary, Serrano Intermediate, and El Toro High Schools. Table 4.12-4 identifies the capacity of these schools as reported in 2015 (JCJ 2016). The location of these schools, as well as the SVUSD boundary, are shown on Exhibit 4.12-1.

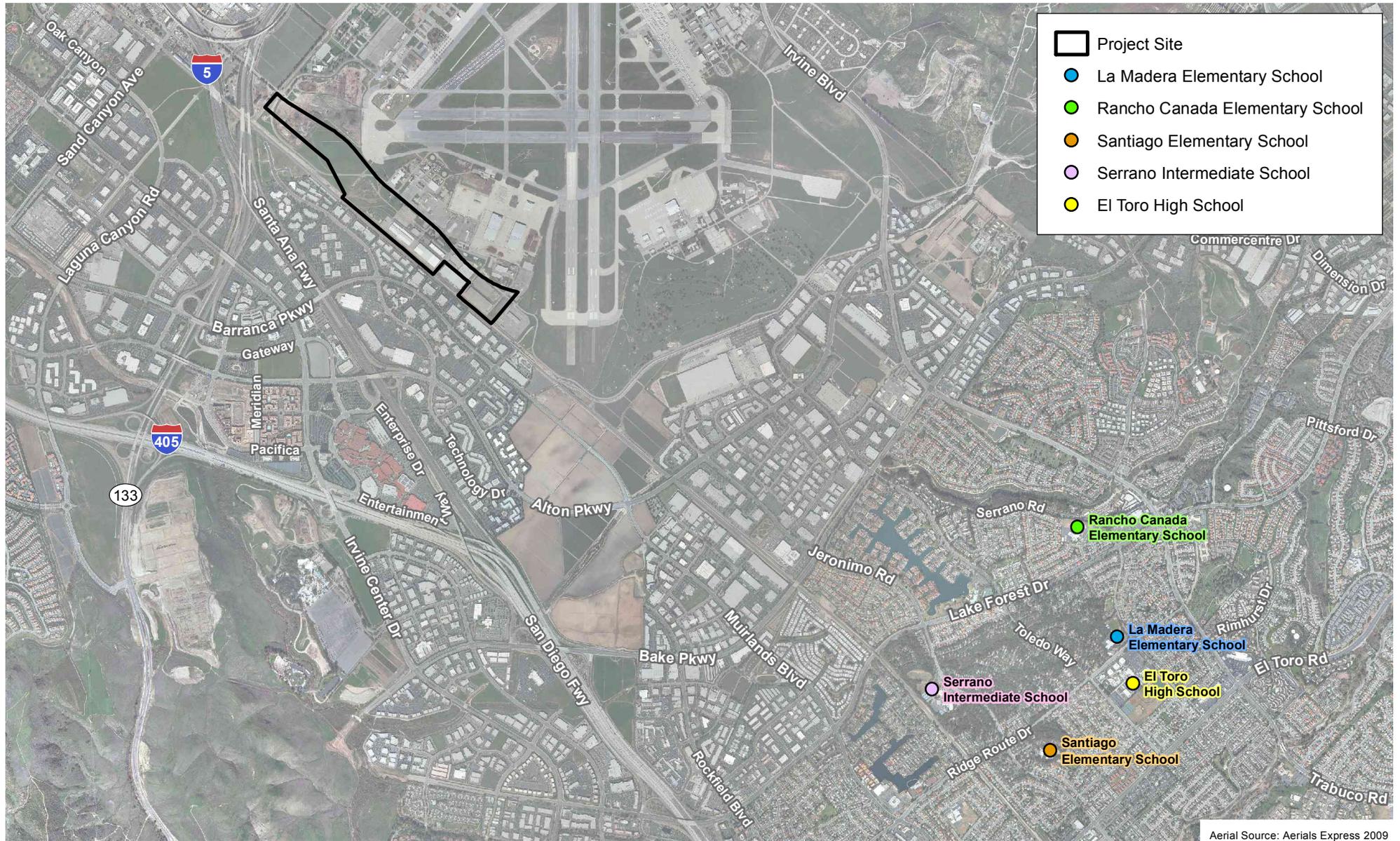
TABLE 4.12-4
ENROLLMENT AND CAPACITY OF SCHOOLS
SERVING THE PROJECT SITE

School Name	Current Permanent Capacity	Enrollment	Available Capacity	Distance to the Project Site (miles)
Rancho Canada Elementary	728	714	14	7.3
La Madera Elementary	688	627	61	7.5
Santiago Elementary	576	427	149	7.1
<i>Subtotal Elementary</i>	<i>1,992</i>	<i>1,738</i>	<i>224</i>	<i>--</i>
Serrano Intermediate	1,807	1,253	554	6.5
El Toro High	2,986	2,518	468	7.1
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 4.12-5). The existing libraries total approximately 43,661 square feet and 326,982 volumes (Butler 2015).

D:\Projects\LowE\1000\1\MXDs\EIR\EIR\ElToro\Ex_Schools_20151026.mxd



- Project Site
- La Madera Elementary School
- Rancho Canada Elementary School
- Santiago Elementary School
- Serrano Intermediate School
- El Toro High School

Aerial Source: Aerials Express 2009

SVUSD Schools Serving the Project Site

Exhibit 4.12-1

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.12-5
ORANGE COUNTY PUBLIC LIBRARY FACILITIES
(CITY OF IRVINE)**

Facility	Facility Square Footage	Number of Volumes
Heritage Park	21,000	160,367
University Park	11,411	115,693
Wheeler Branch	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 (City of 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 within the City, was completed in October 2006 (Arroyo Associates 2006). The study determined 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 the 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 (City of 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 Study. 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 City-wide 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 Great Park. 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 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) and allows checkout at all libraries within the University of California system. IVC has a collection of approximately 69,251 volumes which includes e-books, and audiovisual materials (NCES 2016), 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).

4.12.4 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 if it would:

Threshold 4.12-1 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

4.12.5 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 4.12.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.12-1(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. 20, 38, and 51. Station No. 20, a temporary station, is located approximately 0.9 mile to the north of the Project site; Station 38 is located approximately 2.4 miles southeast of the Project site; and Station 51 is located approximately 3.9 miles south of the Project site.

The proposed Project would involve the development of up to 1,876,000 sf of multi-use (office) space, 2,103 residential units, 220,000 sf of community commercial (retail) space, and 242 hotel rooms. Development of these uses 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, commercial, office and hotel developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response.

The OCFA has indicated that the two stations identified above (Stations 20 and 38) are within two and one-half miles of the Project site. Having stations within this 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). A future fire station is planned in the Project vicinity as part of the Orange County Great Park (OCGP) Neighborhoods and would replace Fire Station 20. Fire Station 20 (both the temporary facility and ultimately the future fire station) would provide adequate fire protection levels of service to the Project site. The OCFA does not anticipate major changes in the demand for fire protection services with the Project and would be able to provide service to the Project (County of Orange 2015). The development of Fire Station 20 has been previously addressed as part of Secured Fire Protection Agreement between OCFA and the Irvine Company to provide protection to Planning Areas 9 and 40 as part of the Irvine Northern Sphere project. The City of Irvine's Northern Sphere Area EIR found that the "construction and operation impacts for the new fire stations are not exceptional to the impacts of the project generally, and are not considered significant individually or cumulatively." (Irvine 2002) Additionally, Fire Station 51 at 18 Cushing with one paramedic engine and 13 personnel is within 3.9 miles of the Project site and would provide additional backup and support. No new facilities beyond the future permanent Fire Station 20 are anticipated; therefore, there would be no additional significant impacts.

Moreover, a Secured Fire Protection Agreement (SFPA), as identified in DR FIRE-5, would be required for the Project to ensure the County's pro-rata fair share funding of capital improvements necessary to maintain adequate fire protection services in the area. Compliance with SFPA would ensure that adequate fire protection and emergency services would be provided.

Development of the Project site would require compliance with several development requirements 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 within 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. These DRs ensure adequate provision of fire protection and emergency services/access to the future residents of the Project sites and surrounding areas. 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, commercial, office, and hotel developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response. With the incorporation of DR FIRE-1 through DR FIRE-5, Project impacts on fire protection services would be less than significant pursuant to Threshold 4.12-1 (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 4.12-1(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 3,954 residents and 7,358 employees (refer to Section 4.10, 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. However, after construction, the proposed land uses are anticipated to generate a typical range of police service calls as similar developments (e.g., vehicle burglaries, office and residential thefts).

Based on correspondence with the IPD, the IPD is anticipating approximately 5,000 additional calls for service per year to meet all law enforcement service needs of the proposed development (Mahoney 2015). The IPD has indicated that the Project would require approximately 4 sworn

officers, 1.4 non-sworn full-time professional staff and 1 non-sworn part-time staff member to adequately serve the Project (Mahoney 2015). 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 2015).⁴ 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 from the Irvine Police Department, 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 4 sworn officers, 1.4 non-sworn full-time professional staff and 1 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 4.12-1 (ii).*

Threshold 4.12-1(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 4.12-1) were applied to the future development. As shown in Table 4.12-6, the construction of the 2,103 new units proposed by the Project would generate approximately 189 additional students.

⁴ 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 Program EIR.

**TABLE 4.12-6
STUDENTS GENERATED BY THE PROPOSED PROJECT**

Dwelling Unit Type	Units	K-6	7-8	9-12	Total
High Density Attached Student Generation Rate		0.052	0.008	0.022	0.082*
High Density Residential	2,103	109	17	46	172
* Totals may not add up due to rounding. Source: JCJ 2016.					

The number of 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, the 3 elementary schools located nearest to the Project site could accommodate the 109 Project-generated elementary students without the addition of new classrooms (Table 4.12-4). Serrano Intermediate School has available capacity of 554 students and could accommodate the 17 middle school students generated by the Project. El Toro High School has available capacity of 468 students and would accommodate the Project's 46 high school students. Because the existing schools have capacity, the impact to schools resulting from the Project is considered less than significant.

In addition, SVUSD has a Level 1 fee program in place, and the Project 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. Additionally, new development on the Project site would be subject to taxes from both General Obligation bond measures approved by the SVUSD. The Project would result in less than significant impacts to schools.

Impact Conclusion: *The Proposed Project would generate approximately 172 students in the SVUSD. The SVUSD has existing capacity in schools that would serve the Project. The Project would also be required to comply with the California Government Code (payment of State-mandated school fees). Additionally, the development would be required to pay the Measure B General Obligation bond taxes. Therefore, with these measures, impacts to schools would be less than significant pursuant to Threshold 4.12-1 (iii). The provision of new or physically altered school facilities would not be required.*

Threshold 4.12-1(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 2,103 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 3,954 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 electronic 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 1,977 sf of library facility and 7,735 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, 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 area. 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 3,954 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 4.12-1 (iv).

4.12.6 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 Orange County Great Park 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 (City of Irvine 2008). 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 2015).⁵ 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 SVUSD. Cumulative development in the SUVSD service area would generate an increase in student population in SUVSD 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 municipalities at the time building permits are issued and conveyed to the affected school district in accordance with a defined fee structure. 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. Additionally, over the last ten years, SVUSD has experienced significant decline in enrollment of 17.3 percent or 5,972 students and has over 6,500 seats in available school capacity districtwide. (JCJ 2016). Therefore, no cumulative impact on SVUSD and local school districts would result from implementation of the proposed Project and other area-wide development activities.

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 sf 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 electronic 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 CEQA documents. Thus, any cumulative impacts related to the provision of new or physically altered facilities for library services would be less than significant.

⁵ 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 Program EIR.

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 electronic materials and not on volumes in the traditional sense, these demands may be met through other venues, such as shared community resources.

4.12.7 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.

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 development requirements have been identified for schools.

Libraries

No applicable development requirements have been identified for libraries.

Mitigation Measures

No applicable mitigation measures have been identified for fire protection, police protection, schools, or libraries.

4.12.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Fire Protection

With the implementation of DR FIRE-1 through DR FIRE-5, 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 and Measure B General Obligation Bond would further reduce any potential impact of the Project on school resources.

Libraries

Project impacts on libraries would be less than significant.

4.12.9 REFERENCES

- Arroyo Associates, Inc. 2006 (October). *Library Needs Assessment Study Report for the City of Irvine* (Attachment 1 to the October 24, 2006, Annotated Agenda, City Council Regular Meeting). Irvine, CA: the City.
- Butler, J. 2015 (September 13). Personal communication. Email from J. Butler, Librarian (OC Public Library) to J. Cho, Project Manager (BonTerra Psomas).
- Center for Demographic Research (CDR). 2014 (September, final approval). OCP-2014 Report Data (City and RSA Tabs) (an Excel Spreadsheet). Fullerton, CA: CDR.
- Fried, H. 2015 (October 14). Personal communication. Email from H. Fried, Librarian (OC Public Library) to J. Cho, Project Manager (BonTerra Psomas).
- Irvine, City of. 2015a. *City of Irvine, California 2015–16 Budget (Adopted)*. Irvine, CA: the City. <http://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=27427>.
- . 2015b (current through). *City of Irvine General Plan*. Irvine, CA: the City. <http://cityofirvine.org/community-development/current-general-plan>.
- . 2015c (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>.
- . 2011 (August). *Final Great Park Neighborhoods Supplemental Environmental Impact Report*. Irvine, CA: the City.
- . 2008 (July). *Addendum No. 5 – 2008 General Plan Amendment and Zone Change for the Orange County Great Park Environmental Impact Report*. Irvine, CA: the City.
- . 2007 (September). *City of Irvine Library Alternatives Study* (prepared by W. Kreutzen and M. Grettenberg). Irvine, CA: the City.
- . 2002. *Final Program Environmental Impact Report for General Plan Amendment 48403-GA and Zone Change 48405-AZ for the Northern Sphere of Influence*. Irvine, CA: the City.

- Jeanette C. Justus Associates (JCJ). 2016 (October). *School Impacts and Mitigation Report for the El Toro Project Environmental Impact Report*. Newport Beach, CA: JCJ.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Mahoney, M. 2016a (May 9). Personal communication. Emails from M. Mahoney, Commander, Portola Area Command (City of Irvine Police Department) to J. Cho, Project Manager (BonTerra Psomas) regarding Public Services (Police Protection) EIR Section.
- . 2016b (January 20) Personal communication. Telephone conversation between M. Mahoney, Commander, Portola Area Command (City of Irvine Police Department) and J. Cho, Project Manager (BonTerra Psomas) regarding Public Services (Police Protection) EIR Section.
- . 2015 (October 22). Personal communication. Email from M. Mahoney, Commander, Portola Area Command (City of Irvine Police Department) to J. Cho, Project Manager (BonTerra Psomas) with an attachment entitled “El Toro Police Protection Excerpt_093015 kb MM.DOCX”.
- Mikhail, R. 2015 (September 14). Personal communication. Email from R. Mikhail, Information Services Librarian (Concordia University) to J. Cho, Project Manager (BonTerra Psomas).
- National Center for Education Statistics (NCES). 2016 (April, access date). Library Statistics Program, Compare Academic Libraries: Irvine Valley College, CA (data from Academic Libraries Data for Fiscal Year 2012). Washington, D.C.: NCES. <http://nces.ed.gov/surveys/libraries/compare/default.aspx>.
- Orange, County of. 2015 (March 10). Personal communication. Meeting with attendees from the County of Orange, Orange County Fire Authority, BonTerra Psomas, Lowe Enterprises, KTGY, and EPT to discuss the Project.
- Orange County Fire Authority (OCFA). 2016a (April, access date). Fire Stations. Irvine, CA: OCFA. <http://ocfa.org/AboutUs/FireStations.aspx>.
- . 2016b (April, access date). Orange County Fire Authority: About Us. Irvine, CA: OCFA. <http://ocfa.org/AboutUs/AboutOCFA.aspx>.
- . 2016c (April, access date). Pre-Fire Management. Irvine, CA: OCFA. <http://www.ocfa.org/AboutUs/Departments/CommunityRiskReductionDirectory/PreFireManagement.aspx>.
- . 2014. *Standards of Coverage and Deployment Plan* (assembled by Emergency Services Consulting International). Irvine, CA: OCFA. http://www.ocfa.org/_uploads/pdf/Orange%20County%20Fire%20Authority%20SOC_FINAL.pdf.
- University of California, Irvine (UCI). 2015 (August 12, access date). UCI Libraries: Collections. Irvine, CA: UCI. <http://www.lib.uci.edu/collections/library-collections.html>.

4.13 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 El Toro, 100-Acre Parcel Development Plan (Development Plan). The analysis in this section is based on existing regulatory documents and a literature search.

4.13.1 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. Section 7-9-502(g) of the County of Orange Local Park Code requires 2.5 acres of land per 1,000 residents, which equates to 0.0047 acre per unit.

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 for purposes of evaluating 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.

4.13.2 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 2.5 acres of land per 1,000 residents. 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.

4.13.3 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. Additionally, the Orange County Great Park (OCGP) sports fields and recreation facilities are located adjacent to the proposed Project. Table 4.13-1, Public Parks, lists public community parks and public neighborhood parks located within two miles of the boundaries of the El Toro, 100-Acre Parcel Development Plan site. Exhibit 4.13-1 depicts the location of these community and neighborhood parks in relation to the Project site.

**TABLE 4.13-1
CITY OF IRVINE PUBLIC PARKS**

Name	Location	Distance from Site Boundary (miles)	Size (acres)	Amenities
<i>Orange County Great Park</i>				
OCGP		adjacent	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 4.13-1
CITY OF IRVINE PUBLIC PARKS**

Name	Location	Distance from Site Boundary (miles)	Size (acres)	Amenities
Public Community Parks				
Cypress Community Park	255 Visions	1.45	17.9	1 multi-use building, 1 restroom, 6 drinking fountains, 2 child play areas, 1 open play area, 3 lighted tennis courts, 1 lighted softball/soccer overlay field, 1 lighted basketball court, 1 lighted baseball diamond, off street trail access, 6 barbecues, 1 outdoor sink, 3 group picnic areas, 12 picnic tables, electrical outlets.
Oak Creek Community Park	15616 Valley Oak	1.10	11.7	1 restroom, 2 drinking fountains, 2 child play areas, 2 lighted soccer fields, 1 ball diamond, 1 group picnic area, 8 barbecues, 8 picnic tables, electrical outlets
Window Community Park	285 E Yale Loop	2.0	18.9	Ryan Lemmon Stadium, 2 lighted ball fields, 1 lighted soccer field, 1 lighted basketball court (half-court), 4 batting cages, 1 concession stand, 4 picnic tables, 1 restroom, 3 drinking fountains, bicycle trail access, electrical outlets
Woodbury Community Park	130 Sanctuary	1.65	10.7	1 soccer field (unlighted), 2 basketball courts, 2 ball diamonds (unlighted), 4 barbecues, 3 group picnic areas, 11 picnic tables, 1 multi-use building, 1 restroom, 2 drinking fountains, 2 child play areas, 1 open play area, bicycle trail access
Public Neighborhood Parks				
Dovecreek Park	3 Dovecreek	1.80	7.8	2 baseball diamonds
Hoeptner Park	5331 Hoeptner	1.70	2.2	2 tennis courts, 2 drinking fountains, 1 child play area, 1 open play area, bicycle trail access

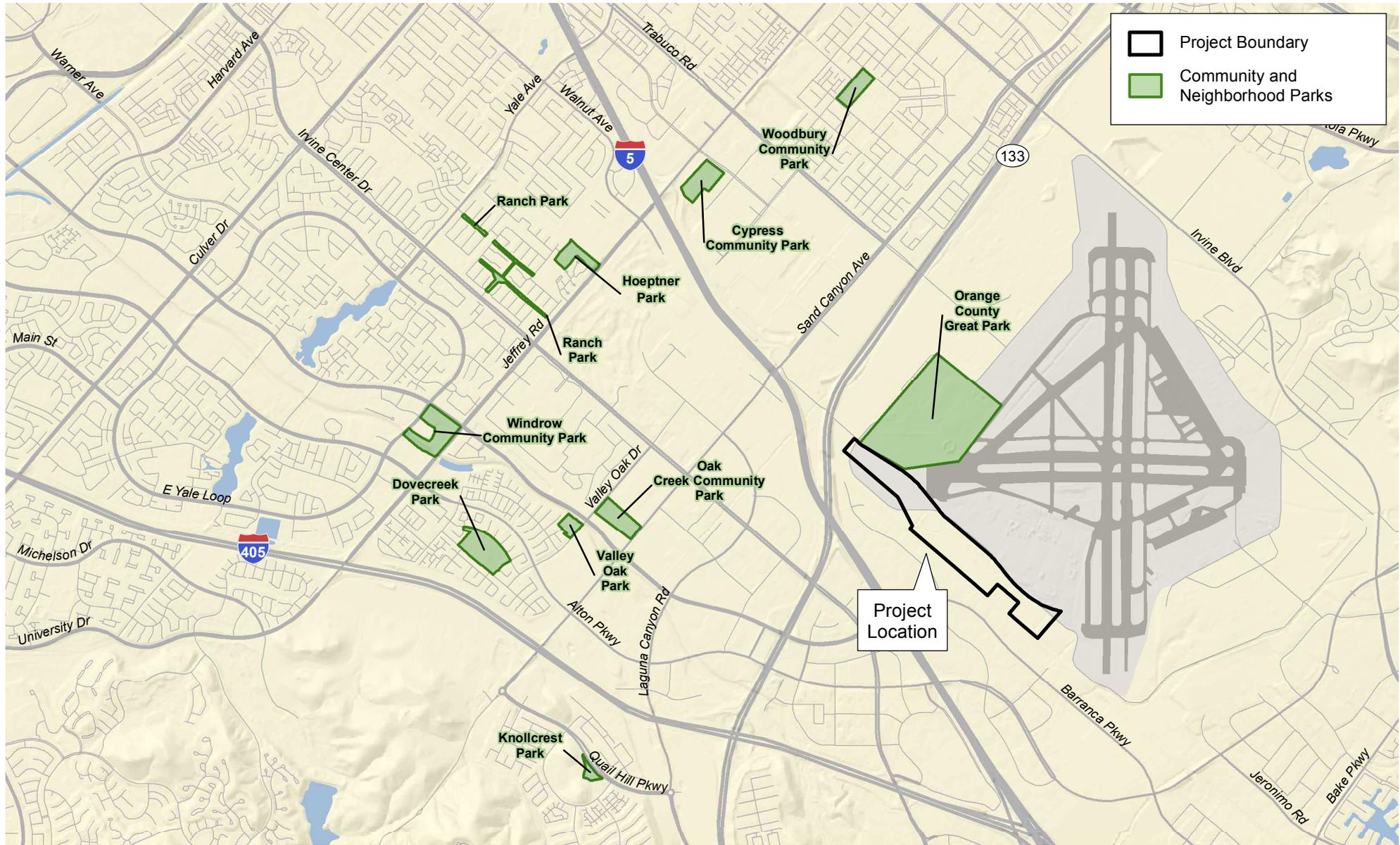
**TABLE 4.13-1
CITY OF IRVINE PUBLIC PARKS**

Name	Location	Distance from Site Boundary (miles)	Size (acres)	Amenities
Knollcrest Park	2065 Knollcrest	1.95	5.0	2 child play areas, 1 drinking fountain, 1 restroom, 2 lighted tennis courts, 2 barbecues, 1 group picnic area with 4 picnic tables, electrical outlets
Ranch Park	5161 Royale	1.95	8.7	2 barbecues, 1 group picnic area, 1 child play area, 1 open play area
Valley Oak Park	16001 Valley Oak	1.45	3.0	1 child play area, 1 drinking fountain, 1 open play area, 1 restroom, 1 basketball court, 2 lighted tennis courts, off street trail access, 1 group picnic area with 8 picnic tables
Source: Irvine 2015c				

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:

- **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 4.5 miles to the west of the Project site (OC Parks 2015).
- **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 5.5 miles northeast of the Project site (OC Parks 2015).

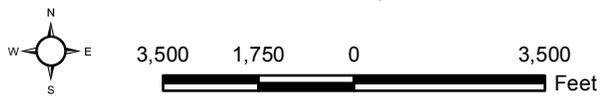
D:\Projects\LowE\1000\1\MXDs\EIR\EI\Toro\Ex_parks_20151028.mxd



Existing Community and Neighborhood Parks

Exhibit 4.13-1

EI Toro, 100-Acre Parcel Development Plan EIR



- **Laguna Coast Wilderness Park.**¹ This 7,000-acre regional park is located approximately 4.25 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).

Orange County beaches also offer recreational amenities to the residents of Orange County. Laguna Beach is the closest beach facility (approximately 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.

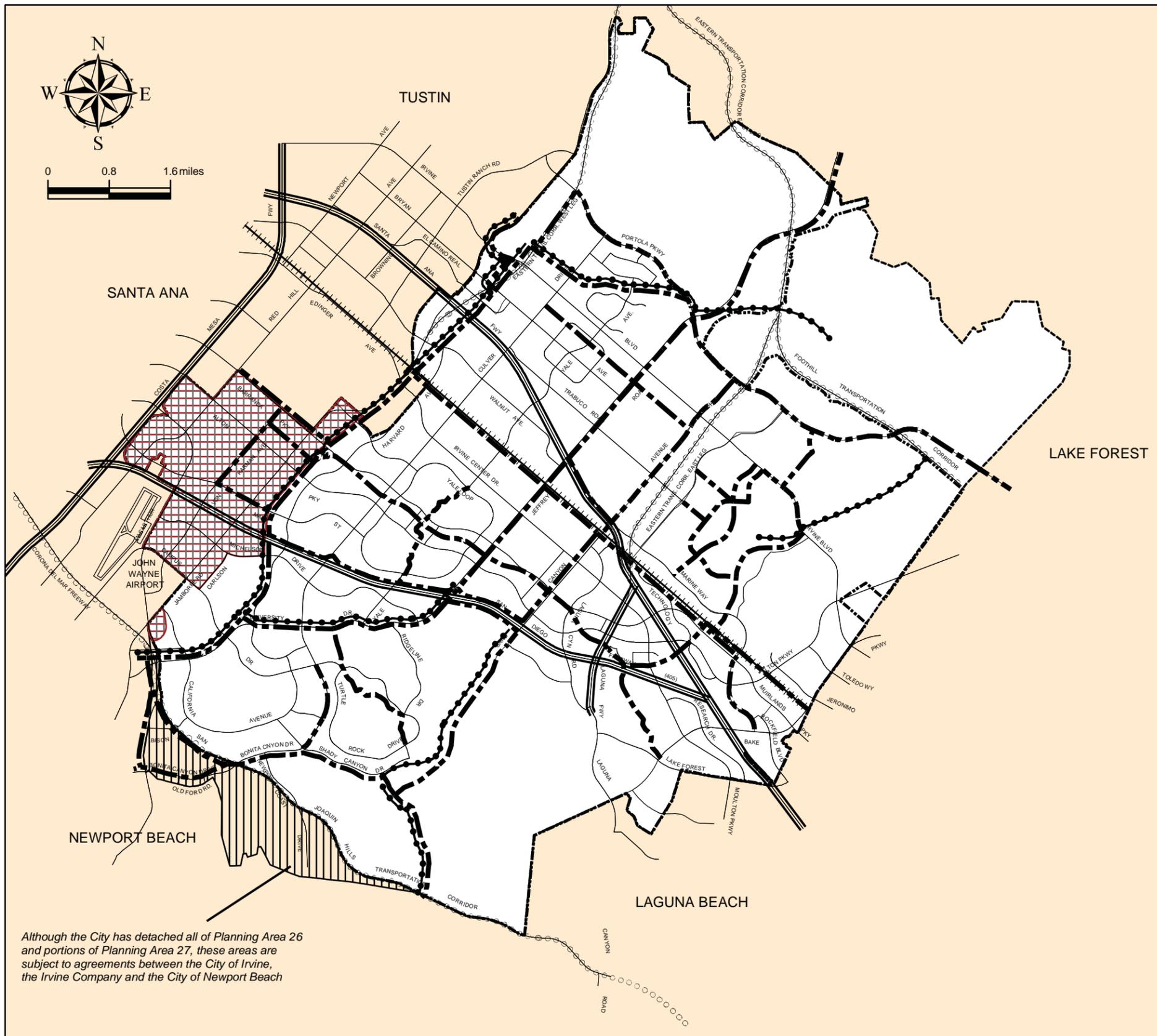
Local and Regional Trails and Bikeways

The City of Irvine trail system (shown in Figure B-4 of the City's General Plan) includes Class I (off-street) and Class II (on-street) paved trails in addition to unpaved riding and hiking trails (Irvine 2015b, 2015d). There are currently no trails on the Project site. There are two existing Class I trails in the OCGP: one extends from Irvine Boulevard and terminates at Marine Way on the northeastern boundary of the site, and one extends from Irvine Boulevard, crosses Marine Way, and terminates at the Southern California Regional Rail Authority (SCRRA) rail line. There is also a Class I trail along the south side of the SCRRA rail line. There are no riding trails on the Project site, although there is an existing riding trail that extends from the Foothill Transportation Corridor and terminates on OCGP property. Refer to Exhibit 4.13-2, 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 4.13-3, Multi-Use Trails. The multi-use trails accommodate walking and biking, and they include existing and future trail segments. The following trails are located within two miles from the Project site:

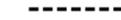
- Barranca Trail
- Freeway Trail
- Jeffrey Open Space Trail
- Modjeska Trail (future)
- Juanita Moe Trail
- Sand Canyon Trail
- San Diego Creek Trail
- Shady Canyon Trail
- University Trail

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.



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

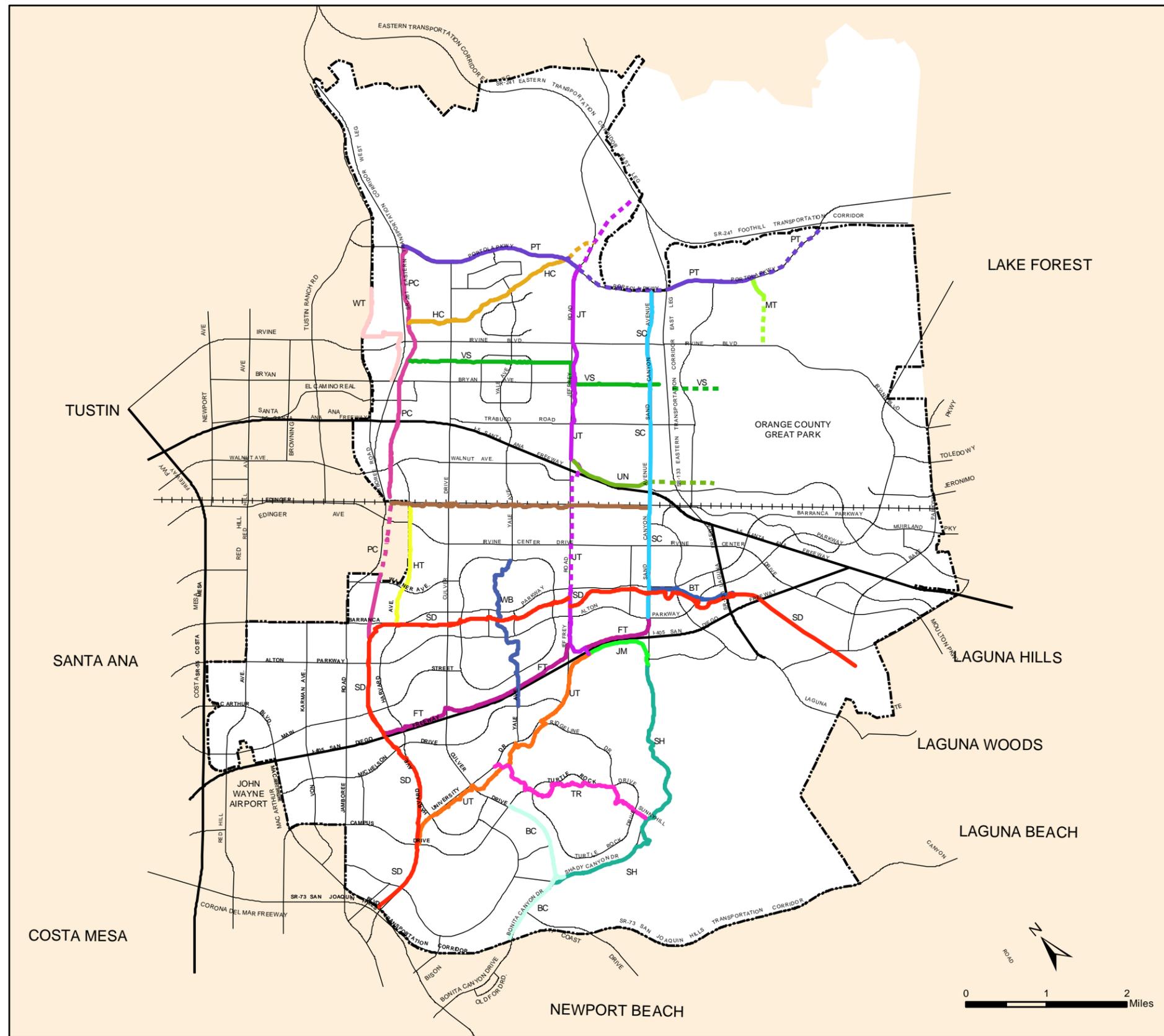
Trails Network

EI Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.13-2



D:\Projects\LowEri\0001\Graphics\EIR\EIToro\Ex_off_street_trails_20160316.ai



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 jurisdictions

Source: City of Irvine Bicycle Transportation Plan 2011, Updated November 2015

Multi-Use Trails

EI Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.13-3



- Unnamed Trail (a planned trail extending to the east of SR-133 and to the north of Marine Way)
- Venta Spur Trail
- Walnut Trail

There are currently no multi-use trails, existing or planned, on the Project site. Of the trails listed above, the Sand Canyon Trail along Sand Canyon Avenue, is closest existing trail and less than a mile to the west of the Project site. Additionally, a trail is proposed to extend from the existing Jeffrey Open Space Trail and its future extension, to the east along Interstate (I) 5, past Sand Canyon Avenue and SR-133. The proposed trail would be parallel and to the north of Marine Way. The proposed trail would be the closest to 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 Sand Canyon Avenue connecting Marine Way to Portola Parkway; an existing and future off-street bikeway along the same route; and three on-street bikeways south of the SCRRA rail line along Alton Parkway, Barranca Parkway, and Technology. Additionally, Exhibit 4.13-4, 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 within OCGP.

4.13.4 THRESHOLDS OF SIGNIFICANCE

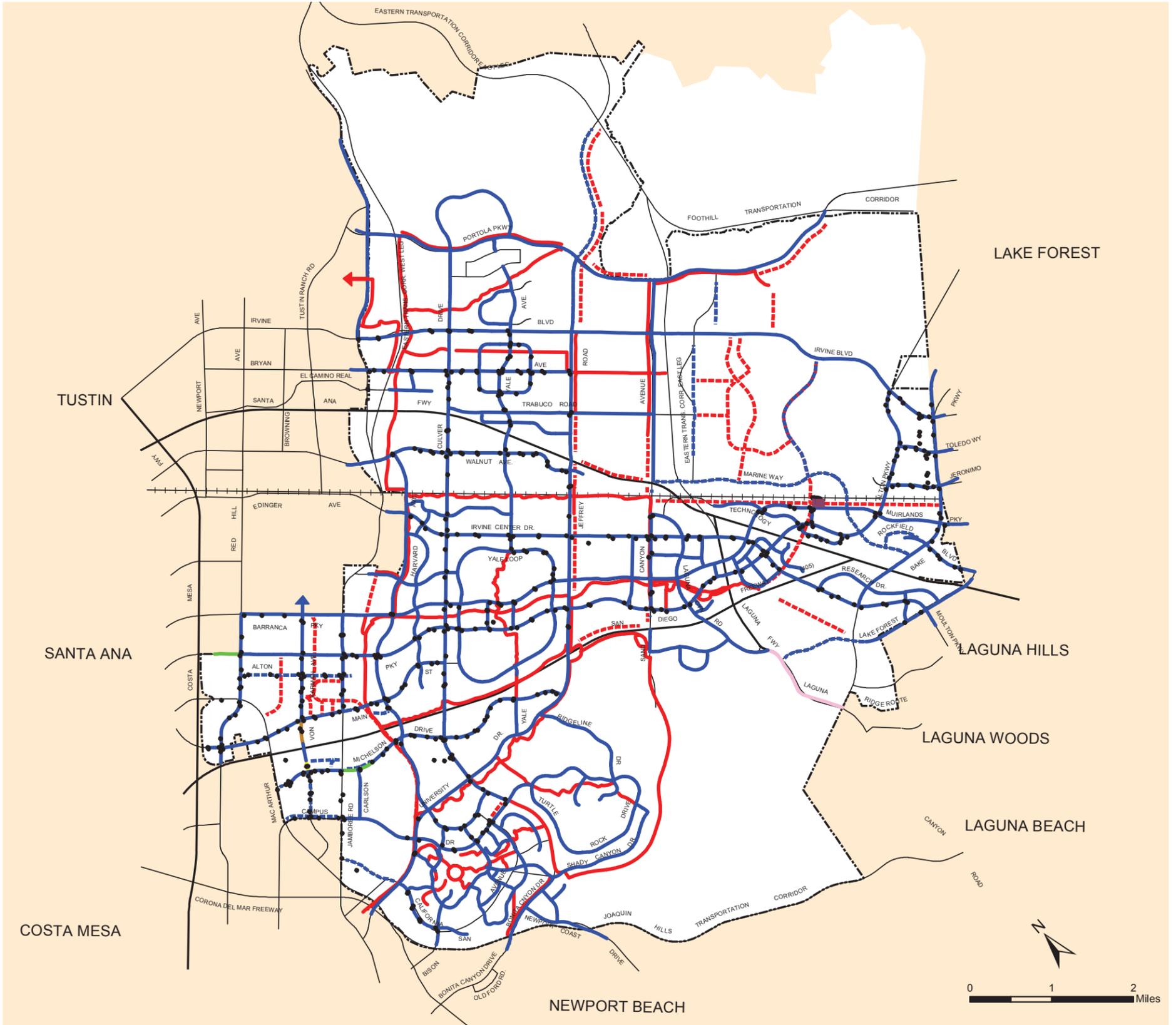
In accordance with the County's Environmental Analysis Checklist and Appendix G of the State CEQA Guidelines, the Project would result in a significant impact to recreation if it would:

Threshold 4.13-1 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 4.13-2 Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

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 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 4.13.7, 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, 2014

Bikeways

Exhibit 4.13-4

El Toro, 100-Acre Parcel Development Plan EIR



D:\Projects\LowE\Ent\J0001\Graphics\EIR\ElToro\Ex_bikeways_20151214.ai

Threshold 4.13-1

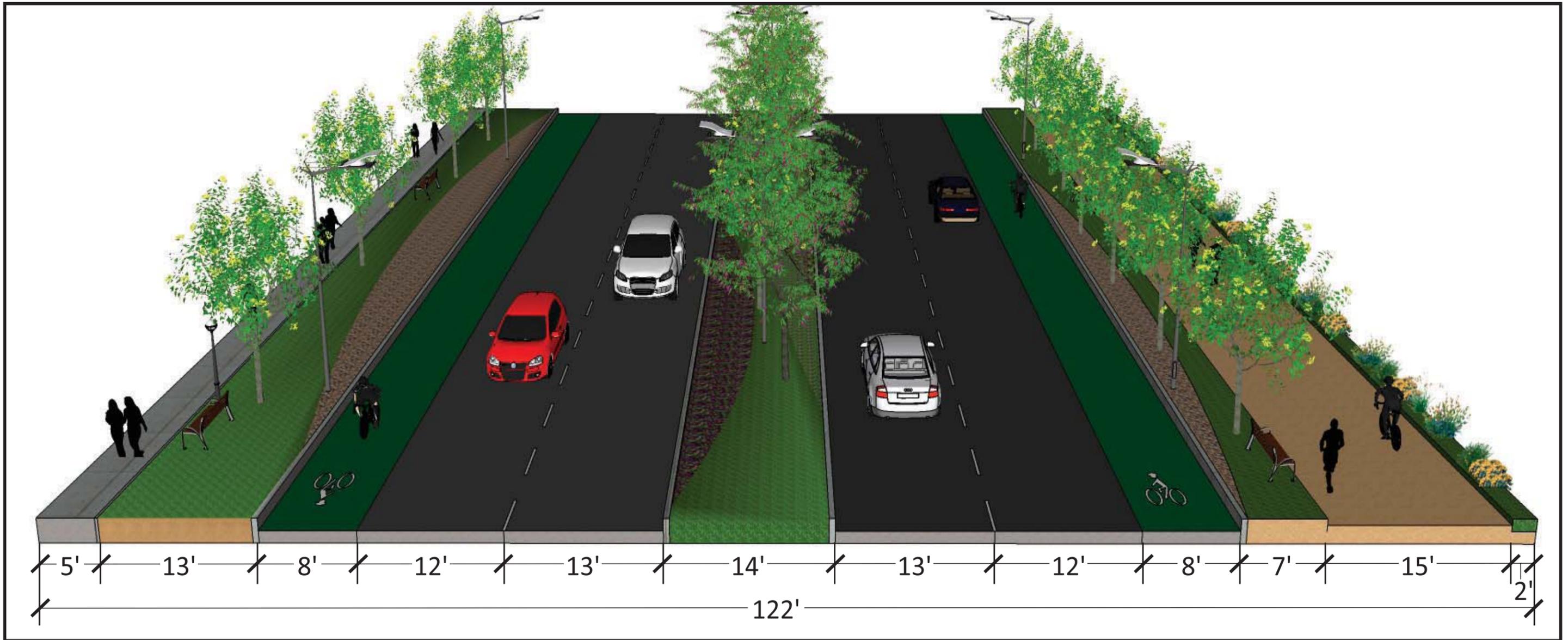
Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

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. For developments with 25.6 or more dwelling units per gross acre the persons per dwelling unit used is 1.88 persons (Section 7-9-522 of the County of Orange Code). The Project includes various low- and mid-rise attached residential product types where the densities are anticipated to range between 30 and 80 dwelling units per acre, with the overall Project having a maximum average density of 50 dwelling units per acre. Using the population generation factor of 1.88 persons per dwelling unit (du) based on County Local Park Code, the estimated population associated with the proposed Project would be approximately 3,954 persons.² Based on this estimate, the proposed Project would require approximately 9.9 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 required.

The El Toro, 100-Acre Parcel Development Plan would provide approximately 11 acres of an open space system that would include active and passive parks, community gathering areas, children's play areas, urban plazas, and private recreation areas throughout the development. Each District on the Project site would have a park system and publicly accessible open space, which are depicted on Exhibit 4.1-5, Landscape Zone Diagram, provided in Section 4.1, Aesthetics, and Exhibit 3-6, Recreation and Open Space Plan, provided in Section 3, Project Description. The open space and park system consist of the components listed below.

- **"Park within the Park" (Linear Park).** An average 50-foot wide linear park would be provided adjacent to Marine Way for a total of 7.3 acres that would include an 8-foot multi-use trail, rest areas, exercise equipment, or informal gardens. This continuous 1.5-mile stretch of linear park would provide an outdoor trail system for passive recreation, including walkways that would connect to the Great Park Neighborhoods District 6 to the southeast of the Project site. Additionally, adjacent to the linear park, Marine Way would include an eight-foot Class II bike lane in each direction and a Class I bike trail at the northerly edge of the right-of-way, as depicted on Exhibit 4.13-5, Marine Way Cross Section.

² 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. The City of Irvine has a breakdown of population generation factor by the residential density category. Hence, for purposes of the proposed Project, 2 population generation factors would apply: 1.46 for the 31.1–50.0 du/ac density and 2.25 for the 12.6–31.0 du/ac density, per Section 5-5-1004(D), Park Dedication (Manner of Compliance), of the City of Irvine Municipal Code. This would result in a population of 3,403, which would require 17 acres of parkland.



Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Marine Way Cross Section

El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.13-5

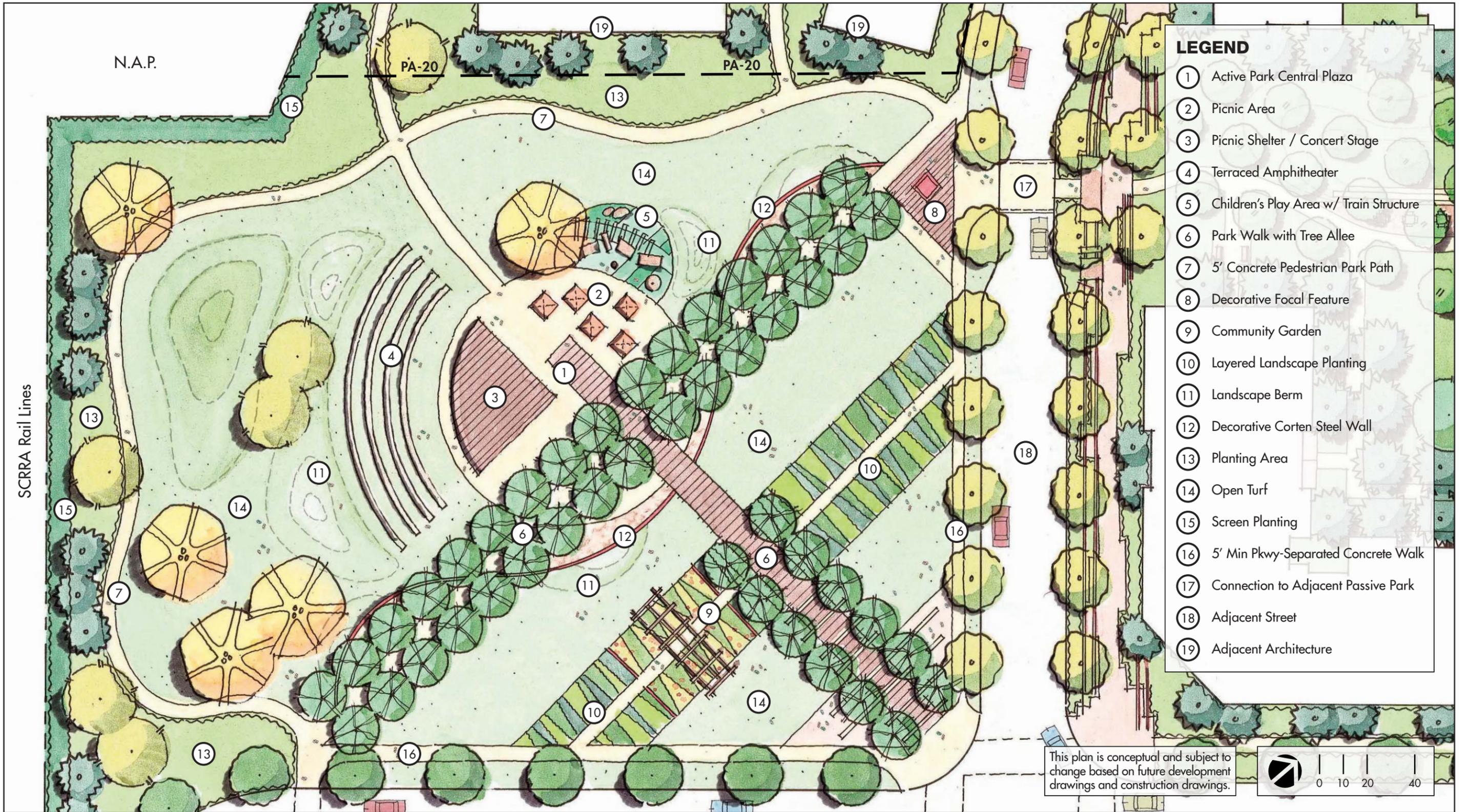


- **Active Park.** A 2.5-acre park with active and passive recreational uses would be provided in the Residential District. This venue would include programmed spaces such as a community center, amphitheater, shade pavilions, or a community garden. Recreational amenities would consist of outdoor exercise equipment or game tables, and an open lawn area would provide a children’s play area and picnic opportunities. This park would also provide meandering paved walkways for walking or jogging. A typical active park concept plan is depicted on Exhibit 4.13-6.
- **Passive Park.** A 0.9-acre passive recreation area would be provided in the Residential District. This area would serve as one of the key connective corridors that provides direct linkages from the Project’s central promenade out to the OCGP. Programmed spaces may include barbecue areas and less intense activity spaces such as bocce courts. Rest areas with benches or tables may be provided for outdoor relaxation. Walkways would accommodate walking and jogging. Refer to Exhibit 4.13-7, Typical Passive Park Concept Plan, for a conceptual layout of this type of passive community park space.

In addition to these local park facilities, the mixed-use core in front of Building 317 provides approximately a half-acre plaza as a central gathering place in the Mixed-Use District. Though this area would function as the Project’s primary venue for larger-scale community events and gatherings such as festivals, farmers markets, outdoor music events, art galleries, sports or fitness events, food trucks, and many other gatherings, this area would not contribute to the Project’s parkland requirement. This area would be linked to other Districts through the promenade along the central spine street. Refer to Exhibit 4.13-8, Entertainment Core Concept Plan, for a conceptual layout of this focal community open space. The central promenade area would extend through the entire length of the Project site and include features such as pedestrian paths, a bikeway, and art features that would connect the Districts to this feature. Refer to Exhibit 4.13-9, Promenade Concept Plan.

In addition to parks and recreational amenities on the Project, the Project residents would reasonably avail themselves of larger recreational facilities provided 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. 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” (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

D:\Projects\Lowe\0001\Graphics\EIR\ElToro\Ex_Active_Park_Concept_20151014.ai



Typical Active Park Concept Plan

El Toro, 100-Acre Parcel Development Plan EIR

Source: El Toro, 100-Acre Parcel Development Plan, 2016

Exhibit 4.13-6



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_Passive_Park_Concept_20151014.ai



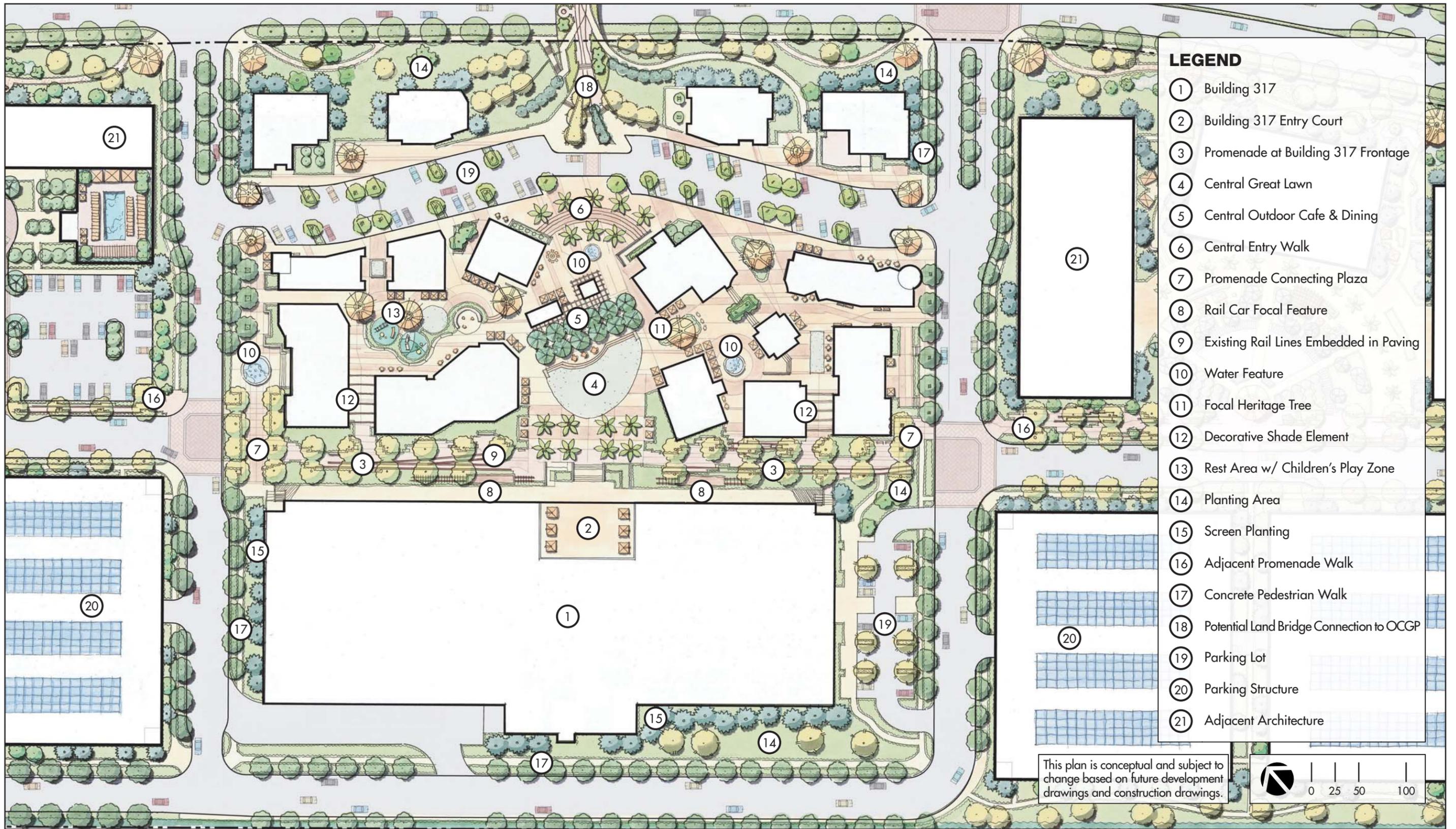
Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Typical Passive Park Concept Plan

Exhibit 4.13-7

El Toro, 100-Acre Parcel Development Plan EIR





Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Entertainment Core Concept Plan

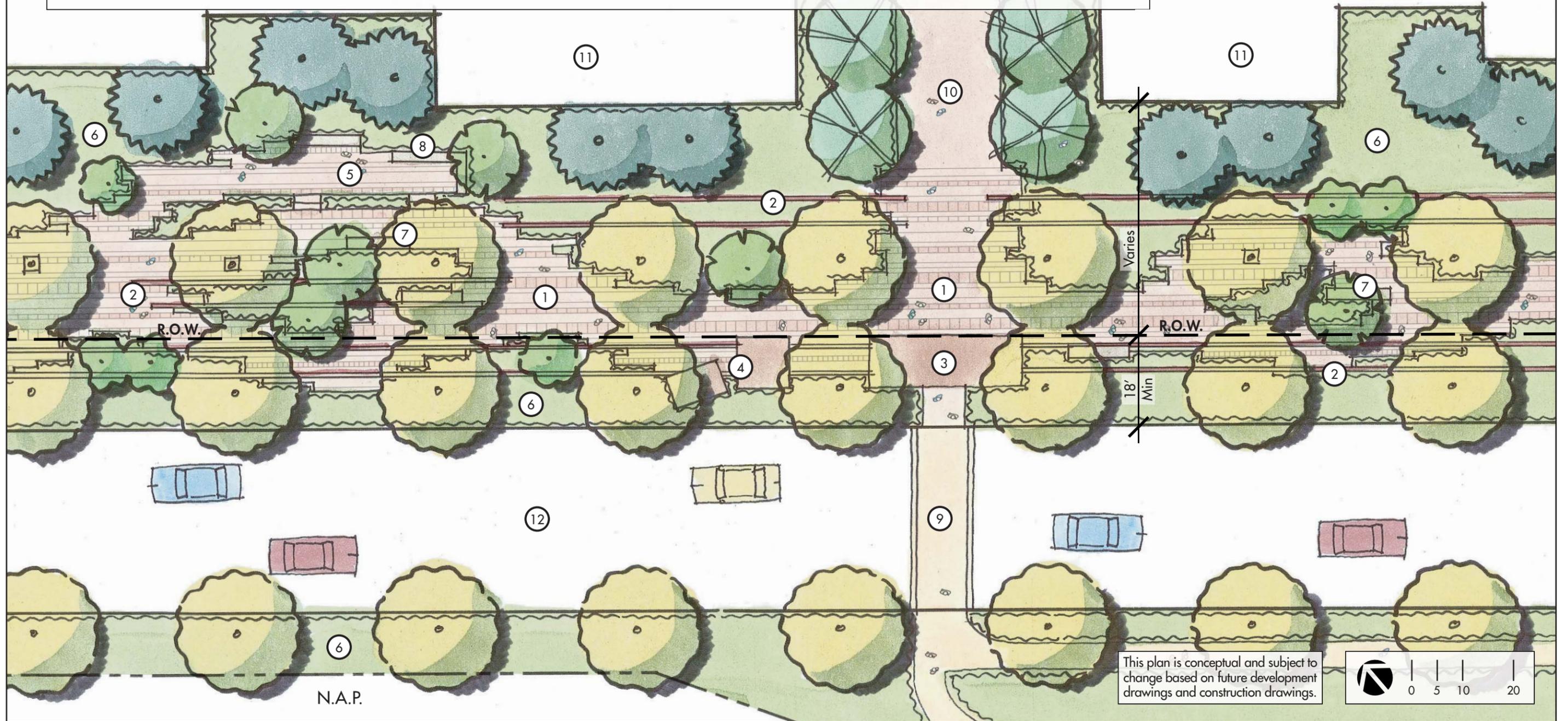
El Toro, 100-Acre Parcel Development Plan EIR

Exhibit 4.13-8



LEGEND

- | | | | |
|-----------------------------|--------------------------|-----------------|-----------------------------------|
| ① Promenade Pedestrian Walk | ④ Decorative Art Feature | ⑦ Bench Seating | ⑩ Access to Adjacent Architecture |
| ② Re-used Rail Line | ⑤ Rest Area | ⑧ Seatwall | ⑪ Adjacent Architecture |
| ③ Rail Car Focal Feature | ⑥ Planting Area | ⑨ Crosswalk | ⑫ Adjacent Street |



D:\Projects\LoweEnt\0001\Graphics\EIR\EIToro\Ex_Promenade_Concept_20160209.ai

Source: Source: El Toro, 100-Acre Parcel Development Plan, 2016

Promenade Concept Plan

Exhibit 4.13-9

El Toro, 100-Acre Parcel Development Plan EIR



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 4.11, Population and Housing, the Project would add approximately 3,954 residents to Orange County. This is approximately 0.12 percent of the estimated 2015 population in Orange County and would be the 0.11 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 deterioration of the local beaches.

Development Requirement (DR) REC-1, requires provision of 2.5 acres of parkland per 1,000 residences, which equates to approximately 9.88 acres of parkland for the Project. The Conceptual Site Plan identifies 10.7 acres of public parkland, thereby exceeding the requirements. This includes the "Park within the Park" (Linear Park) (7.3 acres), the Active Park (2.5 acres), and the Passive Park (0.9 acres). In addition, there would be private recreational facilities associated with the individual residential developments. Based on the County Local Park Code regulations, there would be sufficient parkland provided on site to address demands generated by the Project residents. In the ultimate condition, with the parkland improvements contemplated by the Project the increased demand on existing facilities would be less than significant and the proposed Project would not cause deterioration of these facilities to occur or be accelerated. No mitigation is required.

Dependent on the phased implementation of Marine Way, the construction of the full "Park within the Park" could be delayed. The "Park within the Park" provides 7.3 acres of parkland, with approximately 4.1 acres southeast of the proposed Great Park Boulevard West³/Marine Way intersection. In the concept plan shown in Exhibit 3-4, the Residential District is located northwest of the Great Park Boulevard/Marine Way intersection. Though not anticipated, should the full allocation of residential development occur prior to completion of Marine Way there would be a short-term shortage of parkland until the full "Park within the Park" is developed.⁴ This temporary shortage of parkland would be considered a significant impact, since the Project would not meet the parkland requirement identified in DR REC-1 and a jurisdiction other than the County controls the timing of the phasing of Marine Way. In this instance the shortage of

³ Great Park Boulevard West referenced herein and in all EIR exhibits is referred to as GP-1 in all City documents.

⁴ The current Conceptual Site Plan depicts the Residential District northwest of Bee Canyon, which is approximately the location of the intersection of Marine Way and Great Park Boulevard West (also known as GP-1). This would allow the development of the parkland in Planning Areas A through E, which is approximately 6.5 acres. Using the population generation factor of 1.88 persons per dwelling unit, this would provide sufficient parkland for 1,390 dwelling units. Therefore, if the residential development exceeds 1,390 dwelling units prior to the extension of Marine Way and provisions for the "Park within the Park" there would be a temporary shortfall of parkland.

parkland in the interim condition could result in greater demand on parks outside of the Project limits. Reasonably, the OCGP would be used because of its convenient location across Marine Way from the Project. Deterioration of the existing facilities would not be anticipated because, as discussed above, the OCGP is designed to serve a larger population than just the immediate community. However, 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 adjacent parkland. As stated above, this would be a significant and unavoidable impact as the City and others (not the County) control the timing of Marine Way.

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 a minimum of 2.5 acres of parkland per 1,000 residents (DR REC-1). This would be accomplished through the provision of active and passive parks and recreational facilities. Though the residents of the Project would reasonably avail themselves of larger recreational facilities in 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 4.13-1. However, there is the potential for a temporary shortage of parkland should the full allocation of residential development occur prior to completion of Marine Way because this would delay the full development of the "Park within the Park". Since the County has no control on the phasing of Marine Way, this would be considered a potential short-term significant impact pursuant to Threshold 4.13-1.*

Threshold 4.13-2

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 on-site amenities for future residents and users 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 Residential District, recreation uses would include parks, community gathering areas, children's play areas, and private recreation areas. The Mixed-Use District would include a centralized hub that would be used for large community events and gatherings. The Commercial District would include urban plazas and pocket parks. In addition to specific recreational facilities within each District, promenade paseos and linear landscaped trails would link the districts and provide additional open space.

These proposed recreational facilities and amenities would occur within the Residential District and the "Park within the Park" (Linear Park) along Marine Way to meet the recreational needs of the future residents. The additional open space facilities in the Commercial and Mixed-Use Districts would cater to the visitors and employees of the Project site. 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 within the site, the Project would not result in construction and expansion of recreational facilities beyond the proposed facilities or other improvements that will proceed independent and regardless of what happens with the Project. 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 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 on-site recreational facilities, the Project would not require the construction or expansion of other recreational facilities that might have any adverse physical effects on the environment. No additional recreation 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 4.13-2.*

4.13.6 CUMULATIVE IMPACTS

The El Toro, 100-Acre Parcel Development Plan 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.

4.13.7 MITIGATION PROGRAM

Development Requirements

DR REC-1 As identified in the *El Toro, 100-Acre Parcel Development Plan* the County or designee shall provide 2.5 acres of parkland per 1,000 residents through provision of an open space system on site.

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 the full residential component of the Project is constructed and Marine Way is not completed by the City and others in a corresponding timeframe. Since a jurisdiction other than the County controls the timing of the phasing of Marine Way this impact is identified as significant and unavoidable impact.

4.13.8 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 occur prior to completion of Marine Way there would be a delay in the full development of the “Park within the Park”. Since the County has no control on the phasing of Marine Way, this would be considered a potential short-term significant unavoidable impact.

4.13.9 REFERENCES

California Department of Parks and Recreation, Planning Division (CDPR). 2002 (May). *Quimby Act 101: An Abbreviated Overview*. Sacramento, CA: CDPR. <http://www.parks.ca.gov/pages/795/files/quimby101.pdf>

Irvine, City of. 2015a (October, access date). 688 acres at Great Park. Irvine, CA: the City. http://legacy.cityofirvine.org/cityhall/citymanager/688_acres_at_great_park.asp.

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

———. 2015c (October, access date). Interactive Park Map (Search for all parks listed in Table 4.13-1). Irvine, CA: the City. <http://www.cityofirvine.org/city-parks-facilities/interactive-park-map>.

———. 2015d (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>.

———. 2012. *Heritage Fields Project 2012 GPA/ZC Draft Second Supplemental EIR*. Irvine, CA: the City.

———. 2011 (last amended). *Final Bicycle Transportation Plan*. Irvine, CA: the City.

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.

OC Parks. 2015 (October, access date). Parks & Trails (William R. Mason Regional Park; Limestone Canyon and Whiting Ranch Regional Park; and Laguna Coast Wilderness Park). Irvine, CA: OC Parks. <http://ocparks.com/parks>.

4.14 TRANSPORTATION/TRAFFIC

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 *El Toro 100 Acre Project Transportation Impact Analysis* (“Transportation Impact Analysis” or “TIA”) prepared by Fehr & Peers in July 2015. The findings of this technical report are summarized in this section. The technical report is provided as Appendix L of this EIR.

4.14.1 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 4.14.5.

4.14.2 METHODOLOGY

The TIA 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 future analysis scenarios as mandated by the City of Irvine (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. Year 2017 Analyses
 - Year 2017 without the Project
 - Year 2017 with the Partially-Developed Project
- D. Long-Term (Year 2035) Analyses
 - Long-Term (Year 2035) without the Project
 - Long-Term Year 2035 with Proposed Project
- E. General Plan Buildout (Post-2035) Analyses
 - 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. Subsequent to completion of the Analysis, the City of Irvine revisited the Great Park Boulevard alignment. This change did not revise the ITAM V12.4.

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 4.14-1 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 4.14-2 provides more detailed mapping of the street network in the vicinity of the Great Park Neighborhoods and Exhibit 4.14-3 is the City of Irvine Master Plan of Arterial Highway Map.

Performance Criteria

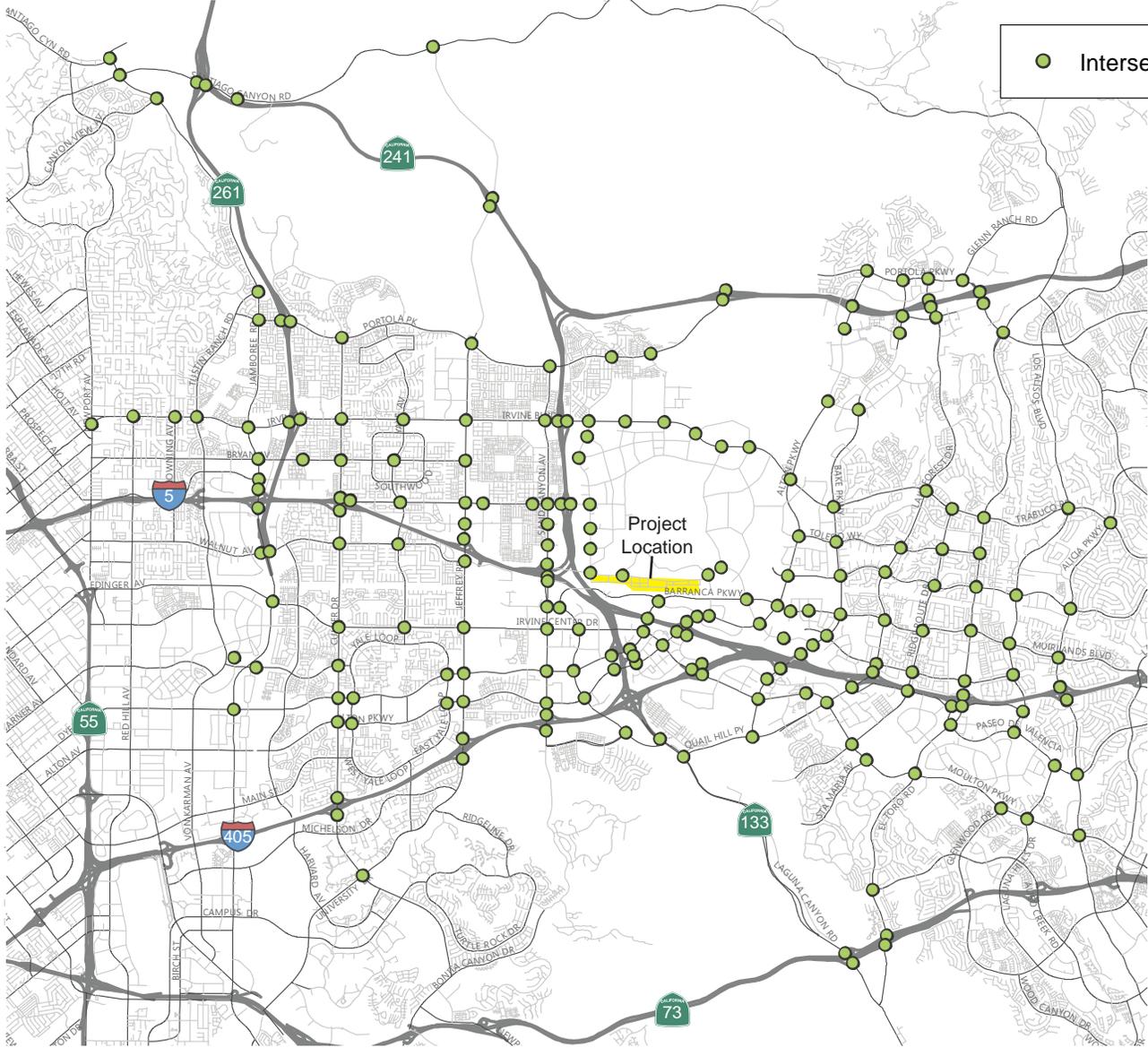
As the Project site is located within the physical boundaries of the City of Irvine, although not required, the performance standards and significance criteria described below are primarily taken from the City of Irvine's Traffic Impact Study Guidelines (Irvine 2004) and the California Department of Transportation (Caltrans) Traffic Study Guidelines (Caltrans 2002). 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, I-405, State Route (SR) 133, SR-261, and SR-241, which are in proximity to the Project site. LOS for freeway segments is based on volume to capacity (V/C) ratios, and density (passenger cars/mile/lane) is based on the HCM 2010 methodologies. The LOS criteria for freeway mainline analysis are provided in Tables 4.14-1 through 4.14-3. 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.

D:\Projects\LoweEmt\0001\Graphics\EIR\ElToro\Ex_traffic_study_area_20151027.ai



Source: Fehr & Peers, 2015

Traffic Analysis Study Area

Exhibit 4.14-1

El Toro, 100-Acre Parcel Development Plan EIR



D:\Projects\LoweEnt\0001\Graphics\EIR\ElToro\Ex_geo_seismic_hazards_20151026.ai



Project Area

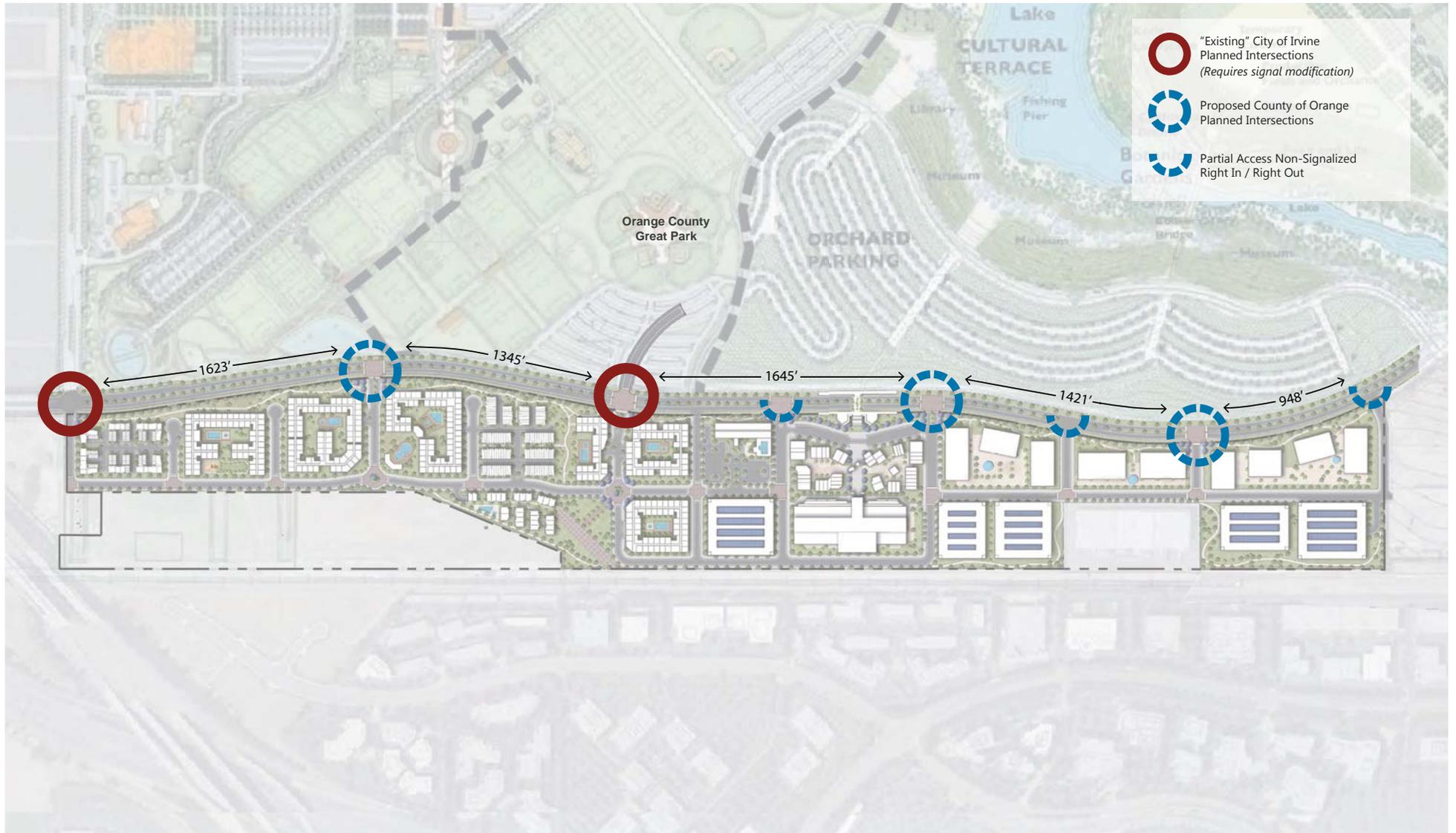
Source: Fehr & Peers, 2015

Great Park Neighborhoods Street Network

Exhibit 4.14-2

El Toro, 100-Acre Parcel Development Plan EIR





Source: Fehr & Peers, 2015

Project Recommended Access Points and Controls

Exhibit 4.14-3

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.14-1
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 4.14-2
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 4.14-3
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 one 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 one Fastrak (unstopped) lane.
- Non-Metered and Non-Tolled On-Ramps and Off-Ramps
 - A maximum capacity of 1,500 vph for a one-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 two auxiliary lanes.

V/C ratios for freeway ramp segments are provided in Table 4.14-4. For all the freeways and toll roads ramps Caltrans has a goal of maintaining a LOS E.

**TABLE 4.14-4
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 4.14-5 summarizes the LOS grades for the HCM methodology. For all the Caltrans intersections, the goal is to maintain a LOS C.

**TABLE 4.14-5
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 4.14-6 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 has adopted LOS E as the standard at the locations listed below.⁴

- City of Irvine Planning Area (PA) 33 intersections
- City of Irvine PA 36 intersections
- Bake Parkway at Interstate (I) 5 Ramp intersections
- Alton Parkway at Irvine Boulevard
- Bake Parkway at Irvine Boulevard
- Lake Forest Drive at I-5 Southbound Ramp/Avenida de la Carlota
- Lake Forest Drive at Irvine Center Drive

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 4.14-6
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 requires 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 2015a).

Proposed Site Trip 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 summarized in Table 4.14-7, includes internal capture due to the mixed-use nature of the Project as calculated by ITAM.

**TABLE 4.14-7
PROJECT TRIP GENERATION ESTIMATES**

ITE Reference		Daily	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Trip Generation Rates								
Apartments		5.47	18%	82%	0.40	64%	36%	0.42
Retail		54.72	66%	34%	2.90	45%	55%	4.58
Hotel		8.29	74%	26%	0.49	40%	60%	0.66
Office		11.30	78%	22%	0.78	36%	64%	0.87
Trip Generation								
2,103	DU Apartments	11,503	151	695	845	570	317	887
220	KSF Retail	12,038	419	219	638	453	555	1008
242	Rooms Hotel	2,006	88	31	119	64	95	159
1,876	KSF Office	21,199	1141	321	1462	581	1045	1626
Total		46,746	1,799	1,266	3,064	1,668	2,012	3,680
DU: dwelling unit; KSF: thousand square feet Note: The above trip generation rates are derived from the resulting trips generated and assigned by the ITAM model, which excludes trips that remain internal to the Project. The model calculated that approximately 2 percent Project trips would remain internal to the site. 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 provided in Appendix L (see Figures 3-1 through 3-3) for each future analysis scenario (Year 2017, Year 2035, and Post-2035).

4.14.3 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. Local access is currently provided by the existing two-lane Marine Way and Perimeter Road.

Transit Routes

Currently, several OCTA bus lines run along major roadways such as Alton Parkway, Barranca Parkway, and Irvine Center Drive. 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. Currently, the iShuttle does not have routes serving the area north of Southern California Regional Rail Authority (SCRRA) rail lines. Additionally, employers and commuters working in the Irvine Spectrum area to the south of the Project site can use services offered by Spectrumotion, which is the Transportation Management Association

funded by property owners in the Spectrum area. Commuter services include subsidized train and bus passes, and employer services include vanpool administration assistance.

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 approximately ¼ mile south of the Project site. The Orange County Master Plan of Arterial Highways also identifies Marine Way as ultimately providing connection from the Project site to the Irvine Station.

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 Drive/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 Rd/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 4.14-8 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)

⁵ These are graphically depicted on Figures 4-1 and 4 2, respectively, of TIA (Appendix L).

- El Toro Road and Aliso Creek Road (AM and PM)

As shown in Table 4.14-8, under existing conditions except for three intersections, all study intersections are operating at an acceptable LOS using ICU methodology.

**TABLE 4.14-8
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

**TABLE 4.14-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
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
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

**TABLE 4.14-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
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
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

**TABLE 4.14-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
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
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

**TABLE 4.14-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
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
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

**TABLE 4.14-8
EXISTING INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	AM Peak Hour		PM Peak Hour	
		V/C	LOS	V/C	LOS
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**.
 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.
 * Cities of Irvine, Lake Forest, Laguna Beach, Laguna Hills, and Laguna Woods have a goal of maintaining LOS E for these intersections.
 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 4.14-9. The following four ramp intersections perform at deficient levels of service at the time periods specified:

- Jeffrey Road and I-5 Northbound (NB) Ramps (PM)
- Jeffrey Road and Walnut Avenue/I-5 Southbound (SB) Ramps (AM and PM)
- Sand Canyon Avenue and I-5 NB Ramps (PM)
- Sand Canyon Avenue and I-405 SB Ramps (AM)

**TABLE 4.14-9
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
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 4.14-10 summarizes existing levels of service for freeway/toll road ramps. The following 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 4.14-10
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
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

**TABLE 4.14-10
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-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 13 locations on the freeway/toll road mainline that are operating at a deficient LOS. Table 4.14-11 summarizes existing V/C and corresponding LOS for freeway/toll road mainline segments.

**TABLE 4.14-11
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	
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

**TABLE 4.14-11
EXISTING FREEWAY MAINLINE LOS SUMMARY**

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	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
	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	

**TABLE 4.14-11
EXISTING FREEWAY MAINLINE LOS SUMMARY**

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	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
	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	

**TABLE 4.14-11
EXISTING FREEWAY MAINLINE LOS SUMMARY**

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	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
	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	

**TABLE 4.14-11
EXISTING FREEWAY MAINLINE LOS SUMMARY**

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
	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
	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	

**TABLE 4.14-11
EXISTING FREEWAY MAINLINE LOS SUMMARY**

Freeway/Toll Road	Segment	Type	Peak Hour	V/C	Density	LOS
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	
<p>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.</p> <p>Freeway mainline segments operating below acceptable standards are noted in bold.</p> <p>Caltrans has a goal of maintaining a LOS E for freeway mainline.</p> <p>Source: Fehr & Peers 2015.</p>						

4.14.4 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 4.14.2), 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.

4.14.5 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 4.14.7, 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 phase in the construction process are shown in Table 4.14-12. 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).

**TABLE 4.14-12
CONSTRUCTION PHASES AND ONE-WAY TRIPS/DAY
(PASSENGER CAR EQUIVALENT [PCE])**

Construction Phase	Start Date	End Date	Worker Trips	Vendor Trips	Hauling Trips
Demolition	7/1/2017	12/31/2017	23	0	56
Site Prep West	1/1/2018	4/30/2018	18	0	76
Grading West	5/1/2018	9/28/2018	30	0	60
Building Construction West	9/29/2018	6/30/2022	350	200	0
Paving	9/29/2018	12/31/2026	8	0	0
Architectural Coating	6/1/2019	12/31/2026	80	8	0
Site Prep East	1/1/2021	4/30/2021	18	0	76
Grading East	5/1/2021	9/30/2021	20	0	60
Building Construction East	7/1/2022	12/31/2026	450	300	0

Source: Construction trip generation numbers can be found in Appendix C.

Based on the CalEEMod trip estimates for each phase in the construction process, July 2022 through December 2026 would be the “worst-case” construction phase. This was determined based on the number of construction trips to and from the Project site per day, which is at its highest between July 2022 and December 2026. The daily construction trips from July 2022 through December 2026 would be 846. Table 4.14-13 shows the phases and trips associated with this phase.

**TABLE 4.14-13
JULY 2022 - DECEMBER 2026 CONSTRUCTION PHASES
AND ONE-WAY TRIPS/DAY (PCE)**

Construction Phase	Worker Trips	Vendor Trips	Hauling Trips
Paving	8	0	0
Architectural Coating	80	8	0
Building Construction East	450	300	0

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, and SR-133, as well as freeway/highway ramps on Sand Canyon Avenue, Alton Parkway, and Bake Parkway, as these are designated truck routes. Sand Canyon Avenue 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, haul hours, provisions for over-sized equipment, and site access. The construction management plan, as addressed in DR TRAN-6, would reduce potential 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 4.14-14 through 4.14-16 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 4.14-14
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	SB 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

**TABLE 4.14-14
2013-2017 COMMITTED ROADWAY IMPROVEMENTS**

Roadway	Limits	Jurisdiction	Lanes		Source
			2013	2017	
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 SB Ramps to I-5 NB Ramps	Irvine	4D	8D	NITM/City of Irvine CIP/Sand Canyon Grade Separation
Sand Canyon Ave	I-5 SB 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
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 4.14-15
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
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 4.14-16
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
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 192 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

Based on the ADT V/C performance criteria and impact thresholds previously discussed, two arterial roadway segments were identified for mid-block peak hour analysis for the Existing Plus Project scenario. This information is shown in Table 4.14-17. As shown, based on an analysis conducted consistent with City of Irvine traffic study guidelines, the peak hour LOS for these segments would operate at LOS C or better.⁶

**TABLE 4.14-17
EXISTING PLUS PROPOSED PROJECT
ARTERIAL ROADWAY PEAK HOUR ANALYSIS**

Arterial	Limits	Peak Hour Capacity	Highest Peak Volume	V/C	LOS
Bake Parkway	Rockfield Boulevard and I-5	4800	3414	0.71	C
Marine Way	Directly East of Sand Canyon	3200	820	0.51	A

Source: Fehr & Peers 2015.

⁶ Figures 5-1 and 5-2 in the Transportation Impact Analysis, shows the Existing Plus Project ADT and V/C ratios, respectively.

Existing Plus Project Peak Hour Intersection Levels of Service

Table 4.14-18 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 4.14-18
EXISTING PLUS PROPOSED PROJECT INTERSECTION LOS SUMMARY
(ICU METHODOLOGY)**

ID	Intersection	Juris.	Existing Conditions				Existing Plus 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
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	0.84	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**.
 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 5-2 for complete data).

The Existing Plus Project levels of service for intersections under the HCM methodology are shown in Table 4.14-19, 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 six intersections in the Existing Plus Project condition, as listed below. The Project contributes to impacts at all the locations other than the PM deficiency at the Jeffrey Road and Walnut Avenue/I-5 Southbound Ramps. For the rest of the intersections, the Project would not contribute sufficient traffic volume to the intersection to exceed the threshold.

The following six intersections exceed impact thresholds as a result of the proposed Project.

- Jeffrey Road and I-5 NB Ramps (PM)
- Jeffrey Road and Walnut Avenue /I-5 SB Ramps (AM)
- Sand Canyon Avenue and I-5 NB Ramps-Marine Way (AM and PM)
- Sand Canyon Avenue and I-405 SB Ramps (AM)
- Fortune Drive/I-5 SB Ramps and Enterprise Drive (PM)
- Bake Parkway and I-5 NB Ramps (AM)

**TABLE 4.14-19
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	10.7	B
			PM	59.6	E	66.2	E
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	48.3	D	49.2	D
			PM	82.6	F	81.9	F
303	Sand Canyon Ave and I-5 NB Ramps-Marine Way	Signal	AM	22.1	C	45.2	D
			PM	96.6	F	134.0	F
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	91.6	F	106.6	F
			PM	21.4	C	22.1	C
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	15.5	B	15.7	B
			PM	33.4	C	36.2	D
367	Bake Pkwy and I-5 NB Ramps	Signal	AM	29.6	C	40.2	D
			PM	6.1	A	6.5	A

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: Fehr & Peers 2015 (see Table 5-3 for complete data).

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 4.14-20. 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 4.14-20, below; however, the Project does not contribute to the deficiencies.

**TABLE 4.14-20
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	1891	1.26	F	2078	1.39	F
	SB Off	2	3,000	3174	1.06	F	2351	0.78	C	3169	1.06	F	2321	0.77	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: Fehr & Peers 2015 (see Table 5-4 for complete data).

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 4.14-21, below. As shown in Table 4.14-21, there are 13 freeway/toll road mainline segments operating at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following seven 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)
- I-5 SB (Jeffrey Off-Ramp) (PM)
- I-5 SB (Jeffrey to SR-133 NB) (AM)
- I-5 SB (SR-133 SB to Alton Pkwy) (AM and PM)
- I-405 NB (Jeffrey Slip On-Ramp) (AM)
- I-405 SB (Sand Canyon Off-Ramp) (AM)
- I-405 SB (SR-133 Off-Ramp) (AM)

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 4.14-21
EXISTING PLUS 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		19.54	F
	I-405 Off-Ramp to Bake Pkwy On-Ramp	Basic	AM	0.73	-	F	0.72	-	F
			PM	0.59	-	F	0.57	-	F
	Collector-Distributor Road On-Ramp	Basic	AM	0.79	-	F	0.79	-	F
			PM	0.71	-	F	0.71	-	F
	Alton Pkwy Off-Ramp	Diverge	AM	0.81	-	F	0.82	-	F
			PM	0.75	-	F	0.76	-	F
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.89	35.63	E	0.88	35.56	E
			PM	0.87	34.57	D	1.16	-	F
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	1.36	-	F	1.37	-	F
			PM	1.41	-	F	1.43	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	0.85	35.55	E	0.92	37.98	E
			PM	0.93	38.40	E	1.01	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.64	-	F	0.69	-	F
			PM	0.71	30.95	D	0.78	34.75	D
	SR-133 SB to Alton Pkwy	Weave	AM	1.18	-	F	1.24	-	F
			PM	0.94	41.68	E	1.11	-	F
	Jeffrey Rd Slip On-Ramp	Merge	AM	1.03	-	F	1.07	-	F
			PM	0.66	25.77	C	0.69	26.86	C
Sand Canyon Ave Off-Ramp	Diverge	AM	1.06	-	F	1.10	-	F	
		PM	0.91	37.51	E	0.93	37.95	E	
Sand Canyon Ave Loop On-Ramp	Merge	AM	0.66	-	F	0.78	30.70	D	
		PM	0.75	-	F	0.75	-	F	
Sand Canyon Ave to SR-133	Basic	AM	0.76	-	F	0.90	36.70	E	
		PM	0.83	-	F	0.83	-	F	
SR-133 Off-Ramp	Diverge	AM	0.99	33.40	D	1.05	-	F	
		PM	1.05	-	F	1.05	-	F	
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.61	-	F	0.63		F
			PM	0.18	5.46	A	0.18	5.58	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: Fehr & Peers 2015 (see Table 5-5 for complete data).

Year 2017 Traffic Impacts With and Without the Proposed Project

This section analyzes the impacts of an initial phase of the Project on Year 2017 traffic conditions in the study area. This early phase analysis was requested by the City of Irvine as part of their traffic analysis protocol. Based on the Project phasing, the following analysis assumes that 1,546 residential units will be developed by this interim year. This represents the build-out of the residential development west of Bee Canyon. ITAM 12.4 Year 2017 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 2017 analysis evaluated potential impacts on 201 intersections using the ICU methodology; 16 intersections using the Caltrans HCM methodology; 342 arterial roadway segments; 52 freeway ramps; and 118 freeway mainline segments. The analysis provides a comparison of the Year 2017 traffic conditions With the Partially-Developed Project 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 4.14-14 provided as part of the discussion of the Planned Circulation System in Section 4.14.5.

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. There are nine roadway segments in the study area that were identified for mid-block peak hour analysis with the proposed Project in the Year 2017 scenario. Based on peak hour LOS analysis, these segments would all operate at LOS A or B in the Year 2017 Project condition. Based on this analysis, the Project would not cause any of the roadway segments in the study area to operate at a deficient LOS.⁷

Year 2017 Peak Hour Intersection Levels of Service

The LOS was calculated using the ICU methodology for the study area intersections. Table 4.14-22 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 the Partially-Developed Project traffic does not cause any of the intersections to exceed adopted thresholds.

⁷ The Year 2017 Without Project ADT and V/C ratios are shown on Figures 6-1 and 6-2 in the Transportation Impact Analysis. Year 2017 With the Partially-Developed Project ADT and V/C ratios are shown on Figures 6-3 and 6-4.

**TABLE 4.14-22
YEAR 2017 PLUS 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
54	Browning Ave and Irvine Blvd	Tustin	0.93	E	0.79	C	0.94	E	0.79	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	0.81	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	0.95	E	0.88	D	0.94	E	0.88	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	0.65	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**.

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.

*City of Laguna Beach has a goal of maintaining LOS E for this intersection.

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 4.14-23 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be three 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. The Project would contribute traffic to Jeffrey Road and I-5 Northbound Ramps, but not in an amount sufficient to exceed the threshold.

- Jeffrey Road and I-5 Northbound (PM)
- Jeffrey Road and Walnut Avenue (AM and PM)
- Sand Canyon Avenue and I-5 Northbound (AM)

**TABLE 4.14-23
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	18.3	B
			PM	60.4	E	63.4	E
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	66.2	E	66.5	E
			PM	118.0	F	118.2	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

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).

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 the Partially-Developed Project conditions. Table 4.14-24 identifies one location that would operate at a deficient LOS without the Project; however, based on the performance criteria and impact thresholds, no ramps are forecasted to have Project-related impacts in the Year 2017.

**TABLE 4.14-24
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	3,177	1.06	F	2,258	0.75	C

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 the Partially-Developed Project freeway and toll road mainline segments was conducted. Table 4.14-25 identifies 22 locations that would operate at a deficient LOS without the Project; however, based on the performance criteria and impact thresholds, no mainline segment is forecasted to have Project-related impacts in Year 2017.

**TABLE 4.14-25
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		20.36	F		20.23	F
	I-405 Off-Ramp to Bake Pkwy On-Ramp	Basic	AM	0.76	-	F	0.75	-	F
			PM	0.62	-	F	0.62	-	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	0.78	-	F	0.79	-	F
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.93	38.56	E	0.93	38.56	E
			PM	1.24	-	F	1.25	-	F
SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	1.46	-	F	1.47	-	F	
		PM	1.56	-	F	1.57	-	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	1.00	-	F	1.01	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	0.93	38.51	E	0.93	38.43	E
			PM	1.07	-	F	1.08	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.72	-	F	0.72	-	F
			PM	0.84	38.37	E	0.85	38.50	E
	SR-133 SB to Alton Pkwy	Weave	AM	1.33	-	F	1.36	-	F
			PM	1.19	-	F	1.21	-	F
I-405 NB	Jeffrey Rd Off-Ramp	Basic	AM	0.92	-	F	0.92	-	F
			PM	0.72	26.52	D	0.72	26.64	D
	Jeffrey Rd Off- to On-Ramp	Basic	AM	1.00	-	F	1.00	-	F
			PM	0.72	26.30	D	0.72	26.46	D
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.93	-	F	0.94	-	F
			PM	0.61	25.15	C	0.61	25.25	C
	Jeffrey Rd Slip On-Ramp	Merge	AM	1.21	-	F	1.21	-	F
			PM	0.70	27.47	C	0.71	27.57	C

**TABLE 4.14-25
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	34.97	D	0.94	35.04	E
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	1.03	-	F	1.03	-	F
			PM	0.95	40.12	E	0.95	40.31	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	31.58	D	0.80	31.47	D
			PM	0.82	-	F	0.83	-	F
	Sand Canyon Ave to SR-133	Basic	AM	0.93	38.92	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	5.86	A	0.24	5.86	A
			PM	1.04	-	F	1.03	-	F
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.66	-	F	0.66	-	F
			PM	0.25	7.30	A	0.26	7.39	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 4.14.5.

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. There are nine roadway segments in the study area that were identified for mid-block peak hour analysis with the proposed Project in the Year 2035 scenario. Based on the peak hour LOS analysis, these segments would all operate at LOS A or B in the Year 2035 Project condition⁸ Based on this analysis, the Project would not cause any of the roadway segments in the study area to operate at a deficient LOS.

Year 2035 Peak Hour Intersection Levels of Service

The LOS was calculated using the ICU methodology for the study area intersections. Table 4.14-26 identifies those intersections that would operate at a deficient LOS. There would be 21 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following two intersections would exceed impact thresholds as a result of the proposed Project:

- Sand Canyon Avenue and I-5 Northbound/Marine Way (AM and PM)
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road (PM)

For the rest of the intersections, 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 4.14-26
YEAR 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
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	1.06	F	0.58	A	1.07	F
136	Jamboree Rd and Barranca Pkwy	Irvine	0.88	D	0.94	E	0.89	D	0.95	E
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	0.93	E	0.87	D	0.94	E
224	Culver Dr and Walnut Ave	Irvine	0.77	C	0.91	E	0.78	C	0.91	E
229	Culver Dr and Alton Pkwy	Irvine	0.85	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	0.97	E	0.90	D	0.97	E	0.91	E
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	0.80	C	0.77	C	0.94	E	0.91	E
306	Sand Canyon Ave and Oak Canyon/Laguna Canyon Rd	Irvine	0.76	C	0.91	E	0.78	C	0.95	E

⁸ See Table 7-1 in the TIA for the detailed description on the highest peak volume, V/C ratio, and LOS. Additionally, in the TIA, the Year 2035 Without Project ADT and V/C ratios are shown on Figures 7-1 and 7-2. Year 2035 With Project ADT and V/C ratios are shown on Figures 7-3 and 7-4.

**TABLE 4.14-26
YEAR 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
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	0.78	C	0.98	E	0.79	C	0.98	E
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.63	B	0.90	D	0.63	B	0.90	E
368	Bake Pkwy and I-5 SB Ramps*	Irvine	0.82	D	0.92	E	0.83	D	0.94	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	0.91	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
444	Sand Canyon Ave and Burt Rd	Irvine	0.90	D	0.83	D	0.91	E	0.87	D
465	SR-241/SR-261 NB Ramps and Chapman Ave	Orange	0.77	C	0.94	E	0.77	C	0.95	E
514	Alton Pkwy and Rancho Pkwy	Lake Forest	0.91	E	0.74	C	0.93	E	0.75	C
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.86	D	1.10	F	0.86	D	1.11	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 impact are shaded. The specific threshold that is triggered is discussed later in this section under Threshold Evaluation.

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.

* Cities of Irvine and Laguna Beach have a goal of maintaining LOS E for these intersections.

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 4.14-27 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be 11 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 intersections during the specified time periods:

- Jeffrey Road and I-5 NB (PM)
- Jeffrey Road and Walnut Avenue (AM and PM)
- Jeffrey Road and I-405 NB (PM)
- Sand Canyon Avenue and I-5 NB/Marine Way (AM and PM)
- Sand Canyon Avenue and I-5 SB (AM)
- Sand Canyon Avenue and I-405 SB (AM)
- Fortune Drive/I-5 SB and Enterprise Drive (PM)
- Bake Parkway and I-5 SB (PM)
- SR-133 SB and Trabuco Road (AM)
- SR-133 NB and Trabuco Road (PM)

Year 2035 Peak Hour Freeway/Toll Road Ramps Levels of Service

An evaluation of the freeway and toll road ramp LOS was conducted for Year 2035 Without Project and With Project freeway/toll road ramps. As shown in Table 4.14-28, 10 freeway/toll road ramps would operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following five freeway/highway ramps would have a Project-related impacts during the specified timeframes:

- I-5 SB On-Ramp at Jeffrey Road (AM)
- I-5 SB Off-Ramp at Sand Canyon Avenue (AM)
- I-5 SB Off-Ramp at Alton Parkway (AM)
- I-405 NB Direct On-Ramp at Sand Canyon Avenue (PM)
- I-405 SB Off-Ramp at Sand Canyon Avenue (AM)

While the Project may contribute to impacts at the remaining freeway/toll road ramps listed in Table 4.14-28, based on the performance criteria and impact thresholds, the addition of Project traffic would not cause any of the remaining freeway/toll road ramps listed in Table 4.14-28 to operate at a deficient LOS or an exceedance of applicable thresholds.

**TABLE 4.14-27
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
287	Jeffrey Rd and I-5 NB Ramps	Signal	AM	19.6	B	20.0	B
			PM	32.8	C	35.3	D
288	Jeffrey Rd and Walnut Ave/I-5 SB Ramps	Signal	AM	68.2	E	68.8	E
			PM	86.4	F	86.8	F
293	Jeffrey Rd and I-405 NB Ramps	Signal	AM	32.2	C	33.0	C
			PM	40.2	D	40.4	D
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Signal	AM	75.6	E	119.5	F
			PM	57.2	E	114.1	F
305	Sand Canyon Ave and I-5 SB Ramps	Signal	AM	39.1	D	39.3	D
			PM	26.6	C	27.0	C
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	53.0	D	57.1	E
			PM	28.3	C	28.0	C
316	SR-133 SB Ramps and Irvine Blvd	Signal	AM	39.8	D	39.6	D
			PM	24.1	C	24.8	C
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	29.2	C	31.0	C
			PM	55.1	E	58.2	E
368	Bake Pkwy and I-5 SB Ramps	Signal	AM	33.0	C	34.3	C
			PM	49.8	D	55.4	E
486	SR-133 SB Ramps and Trabuco Rd	Signal	AM	61.6	E	65.9	E
			PM	34.9	C	33.6	C
487	SR-133 NB Ramps and Trabuco Rd	Signal	AM	44.2	D	44.1	D
			PM	75.3	E	95.4	F

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).

**TABLE 4.14-28
YEAR 2035 PLUS PROPOSED PROJECT FREEWAY/TOLL ROAD RAMP
LOS SUMMARY**

Interchange	Ramp	Lanes	Peak Hour Capacity	Without Proposed 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 Jeffrey Rd	SB On	1	1,080	1,145	1.06	F	989	0.92	E	1,168	1.08	F	1,002	0.93	E
I-5 at Sand Canyon Ave	SB Off	1	1,500	1,491	0.99	E	930	0.62	B	1,665	1.11	F	971	0.65	B
I-5 at Alton Pkwy	SB Off	2	2,250	2,300	1.02	F	1,020	0.45	A	2,370	1.05	F	1,034	0.46	A
I-5 at Bake Pkwy	SB Off	2	3,000	3,265	1.09	F	2,304	0.77	C	3,264	1.09	F	2,275	0.76	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,500	1,360	0.91	E	1,433	0.96	E	1,410	0.94	E	1,503	1.00	F
	SB Off	1	1,500	1,729	1.15	F	1,081	0.72	C	1,790	1.19	F	1,131	0.75	C
I-405 at Irvine Center Dr	SB Off	2	2,250	2,387	1.06	F	1,787	0.79	C	2,403	1.07	F	1,775	0.79	C
SR-133 at Trabuco Rd	SB On	1	1,500	1,594	1.06	F	1,293	0.86	D	1,610	1.07	F	1,330	0.89	D
SR-133 at Barranca Pkwy	SB On	1	1,080	180	0.17	A	1,273	1.18	F	200	0.19	A	1,280	1.19	F
	NB On	1	1,080	778	0.72	C	1,340	1.24	F	798	0.74	C	1,347	1.25	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.
 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: Fehr & Peers 2015 (see Table 7-4 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 4.14-29, below. As shown in Table 4.14-29, there are 38 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 4.14-29
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	0.81	-	F	0.80	-	F
			PM	0.65	-	F	0.65	-	F
	Collector-Distributor 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	0.91	-	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	42.09	E
			PM	1.29	-	F	1.29	-	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	0.98	43.09	E	0.98	43.09	E
			PM	1.07	-	F	1.07	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	0.99	40.88	E	0.99	40.88	E
			PM	1.14	-	F	1.14	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.79	-	F	0.79	-	F
			PM	0.91	41.31	E	0.91	41.14	E
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.03	-	F	1.04	-	F
			PM	0.92	37.52	E	0.91	37.29	E
	SR-133 SB to Alton Pkwy	Weave	AM	1.39	-	F	1.39	-	F
			PM	1.28	-	F	1.27	-	F
	Spectrum Center On-Ramp	Merge	AM	0.71	28.52	D	0.70	28.47	D
			PM	1.00	-	F	0.97	37.76	E
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.78	29.39	D	0.78	29.15	D
PM			1.04	-	F	1.02	-	F	
I-405 On-Ramp	Basic	AM	0.57	20.43	C	0.56	20.26	C	
		PM	0.71	-	F	0.69	-	F	

**TABLE 4.14-29
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	27.97	D	0.75	27.84	D
	Jeffrey Rd Off- to On-Ramps	Basic	AM	1.02	-	F	1.02	-	F
			PM	0.75	27.78	D	0.74	27.62	D
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.98	-	F	0.98	-	F
			PM	0.64	26.40	C	0.64	26.30	C
Jeffrey Rd Slip On-Ramp	Merge	AM	1.25	-	F	1.25	-	F	
		PM	0.74	28.79	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	36.55	E
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	1.09	-	F	1.10	-	F
			PM	0.99	44.43	E	1.00	44.54	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	0.83	32.56	D	0.83	32.51	D
			PM	0.85	-	F	0.85	-	F
	Sand Canyon Ave to SR-133	Basic	AM	0.97	41.98	E	0.97	42.08	E
			PM	0.94	-	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	0.63	22.63	C	0.62	22.60	C	
SR-133 NB	I-5 NB On-Ramp	Merge	AM	0.45	19.26	B	0.45	19.34	B
			PM	1.03	-	F	1.03	-	F
	I-5 NB to Add Lane	Basic	AM	0.44	15.77	B	0.44	15.85	B
			PM	1.01	-	F	1.01	-	F
	I-5 SB to Trabuco Rd	Weave	AM	0.48	-	F	0.48	-	F
			PM	1.03	-	F	1.03	-	F
Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.45	11.72	B	0.46	11.96	B	
		PM	1.30	-	F	1.31	-	F	
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.96	-	F	0.96	-	F
			PM	0.42	12.69	B	0.42	12.65	B
	Trabuco Rd to I-5 NB	Weave	AM	0.90	-	F	0.90	-	F
			PM	0.37	13.91	B	0.37	14.03	B

**TABLE 4.14-29
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	1.07	-	F	1.07	-	F
			PM	0.58	25.61	C	0.58	25.73	C
	Portola Pkwy to Toll Road	Basic	AM	1.05	-	F	1.05	-	F
			PM	0.53	19.29	C	0.53	19.34	C
	Toll Road Off-Ramp	Diverge	AM	1.12	-	F	1.12	-	F
			PM	0.49	12.53	B	0.49	12.62	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	17.06	B	0.47	17.13	B	
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	0.94	-	F	0.95	-	F
			PM	0.61	15.17	B	0.61	15.03	B
	SR-133 NB On-Ramp to Toll Road Off-Ramp	Weave	AM	0.37	13.59	B	0.37	13.63	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 4.14.5.

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. There are 11 roadway segments in the study area that were identified for mid-block peak hour analysis with the

proposed Project in the Post-2035 scenario. Based on the peak hour LOS, these segments would all operate at LOS A or B with the exception of Marine Way east of Sand Canyon Avenue, which would operate at LOS C.⁹

Post-2035 Peak Hour Intersection Levels of Service

The levels of service were calculated using the ICU methodology for the study area intersections. Table 4.14-30 identifies those intersections that would operate at a deficient LOS. There would be 20 intersection locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following two intersections would exceed impact thresholds as a result of the proposed Project. Based on the performance standards and impact threshold criteria, the following intersections would exceed impact thresholds as a result of the proposed Project:

- Sand Canyon Avenue and I-5 Northbound (AM and PM)
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon (PM)
- Sand Canyon Avenue and Alton Parkway (PM)
- SR-133 NB/Gateway Boulevard and Pacifica (PM)
- Sand Canyon Avenue and Burt Road (AM and PM)

For the rest of the intersections, 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 4.14-30
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	0.82	D	0.92	E	0.82	D	0.92	E
91	Tustin Ranch Rd and Irvine Blvd	Irvine	1.08	F	0.90	D	1.08	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	0.85	D	0.92	E
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	0.94	E	0.86	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	0.97	E	1.00	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	0.92	E	0.97	E	0.93	E
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	0.83	D	0.82	D	1.06	F	1.04	F

⁹ See Table 8-1 in the TIA for the detailed description on the highest peak volume, V/C ratio, and LOS. Additionally, in the Transportation Impact Analysis, the Post-Year 2035 Without Project ADT and V/C ratios are shown on Figures 8-1 and 8-2. Post-Year 2035 With Project ADT and V/C ratios are shown on Figures 8-3 and 8-4.

**TABLE 4.14-30
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
306	Sand Canyon Ave and Oak Canyon/Laguna Cyn Rd	Irvine	0.84	D	0.95	E	0.87	D	1.01	F
310	Sand Canyon Ave and Alton Pkwy	Irvine	0.71	C	0.89	D	0.71	C	0.93	E
322	Laguna Canyon Rd and SR-73 NB Ramps*	Laguna Beach	0.94	E	0.67	B	0.93	E	0.67	B
334	SR-133 NB Ramps/Gateway Blvd and Pacifica*	Irvine	0.82	D	0.98	E	0.83	D	1.02	F
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.69	B	1.00	E	0.69	B	1.00	E
368	Bake Pkwy and I-5 SB Ramps*	Irvine	0.82	D	0.91	E	0.84	D	0.93	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	0.95	E	0.89	D
424	Los Alisos Blvd and Rockfield Blvd/Fordview St	Lake Forest	0.94	E	0.90	E	0.94	E	0.91	E
444	Sand Canyon Ave and Burt Rd	Irvine	0.95	E	0.87	D	0.97	E	0.92	E
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.86	D	1.01	F	0.86	D	1.01	F
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.73	C	1.09	F	0.73	C	1.10	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.

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.

* Cities of Irvine and Laguna Beach have a goal of maintaining LOS E for these 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 4.14-31 identifies those intersections that are projected to have a deficient LOS using the HCM methodology. There would be 11 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 intersections and the specified timeframes:

- Jeffrey Road and Walnut Avenue (PM)
- Sand Canyon Avenue and I-5 Northbound (AM and PM)
- Sand Canyon Avenue and I-5 Southbound (PM)
- Sand Canyon Avenue and I-405 Southbound (AM)
- Portola Parkway and SR-241 Northbound (PM)
- Portola Parkway and SR-241 Southbound (AM and PM)
- Alton Parkway and I-5 Northbound Ramps (AM)
- Fortune Drive/I-5 Southbound and Enterprise Drive (PM)
- Bake Parkway/I-5 Southbound (PM)
- Trabuco Road and SR-133 Southbound (PM)
- Trabuco Road and SR-133 Northbound (AM and PM)

**TABLE 4.14-31
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	85.6	F	84.6	F
			PM	108.1	F	112.7	F
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Signal	AM	88.6	F	>120	F
			PM	63.2	E	>120	F
305	Sand Canyon Ave and I-5 SB Ramps/Marine Way	Signal	AM	50.9	D	57.7	E
			PM	29.3	C	45.6	D
312	Sand Canyon Ave and I-405 SB Ramps	Signal	AM	63.8	E	64.9	E
			PM	16.5	B	17	B
324	Portola Pkwy and SR-241 NB Ramps	SSSC	AM	0.0	A	0.0	A
			PM	>120	F	>120	F
325	Portola Pkwy and SR-241 SB Ramps	SSSC	AM	42.5	E	43.9	E
			PM	>120	F	>120	F
345	Alton Pkwy and I-5 NB Ramps	Signal	AM	37.5	D	46.6	D
			PM	8.4	A	8.6	A
351	Fortune Dr/I-5 SB Ramps and Enterprise Dr	Signal	AM	31.8	C	31.3	C
			PM	54.5	D	59.3	E
368	Bake Pkwy and I-5 SB Ramps	Signal	AM	32.8	C	34.8	C
			PM	49.9	D	54.9	D
486	SR-133 SB Ramps and Trabuco Rd	Signal	AM	82.4	F	78.7	E
			PM	40.2	D	41.6	D
487	SR-133 NB Ramps and Trabuco Rd	Signal	AM	66.3	E	70.5	E
			PM	65.0	E	94.9	F

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 4.14-32 identifies those freeway/toll road ramps that are projected to operate at a deficient LOS. There would be nine ramp locations that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, the following four freeway/highway ramps would have a Project-related impacts at the specified timeframes:

- I-5 Southbound Off-Ramp at Sand Canyon Avenue (AM)
- I-5 Southbound Off-Ramp at Alton Parkway (AM)

- I-405 Northbound Direct On-Ramp at Sand Canyon Avenue (PM)
- SR-133 Northbound On-Ramp at Barranca Parkway (PM)

While the Project may contribute to impacts at the remaining freeway/toll road ramps listed in Table 4.14-32, based on the performance criteria and impact thresholds, the addition of Project traffic would not cause any of the remaining freeway/toll road ramps listed in Table 4.14-32 to operate at a deficient LOS or an exceedance of applicable thresholds.

**TABLE 4.14-32
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	1,601	1.07	F	1,001	0.67	B	1,746	1.16	F	1,112	0.74	C
I-5 at Alton Pkwy	SB Off	2	2,250	2,400	1.07	F	1,064	0.47	A	2,519	1.12	F	1,099	0.49	A
I-5 at Bake Pkwy	SB Off	2	3,000	3,362	1.12	F	2,380	0.79	C	3,361	1.12	F	2,361	0.79	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,800	1,540	0.86	D	1,860	1.03	F	1,580	0.88	D	2,010	1.12	F
	SB Off	1	1,500	2,184	1.46	F	1,212	0.81	D	2,190	1.46	F	1,284	0.86	D
I-405 at Irvine Center Dr	SB Off	2	2,250	2,456	1.09	F	1,854	0.82	D	2,462	1.09	F	1,853	0.82	D
SR-133 at Trabuco Rd	SB On	1	1,500	1,760	1.17	F	1,410	0.94	E	1,780	1.19	F	1,470	0.98	E
SR-133 at Barranca Pkwy	SB On	1	1,080	120	0.11	A	1,240	1.15	F	139	0.13	A	1,260	1.17	F
	NB On	1	1,080	849	0.79	C	1,363	1.26	F	860	0.80	C	1,433	1.33	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 4.14-33, below. There are 47 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 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 4.14-33
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 Pkwy On-Ramp	Basic	AM	0.81	-	F	0.80	-	F
			PM	0.61	-	F	0.63	-	F
	Collector-Distributor Road On-Ramp	Basic	AM	0.88	-	F	0.87	-	F
			PM	0.77	-	F	0.77	-	F
	Alton Pkwy Off-Ramp	Diverge	AM	0.92	-	F	0.91	-	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	0.96	40.98	E
			PM	1.28	-	F	1.29	-	F
SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	1.50	-	F	1.53	-	F	
		PM	1.60	-	F	1.62	-	F	
SR-133 SB On-Ramp to Jeffrey Rd Off-Ramp	Weave	AM	0.90	-	F	0.90	-	F	
		PM	0.82	34.72	D	0.83	35.36	E	
Jeffrey Rd Slip On-Ramp	Merge	AM	0.93	-	F	0.92	-	F	
		PM	0.71	28.62	D	0.72	29.12	D	
I-5 SB	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	1.06	-	F	1.07	-	F
			PM	1.13	-	F	1.14	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	1.08	-	F	1.10	-	F
			PM	1.20	-	F	1.20	-	F
	Jeffrey Rd Off to On-Ramps	Basic	AM	0.99	44.32	E	1.01	-	F
			PM	1.03	-	F	1.04	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.83	-	F	0.84	-	F
			PM	0.94	-	F	0.95	-	F
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.09	-	F	1.12	-	F
			PM	0.96	39.03	E	0.98	39.82	E
	SR-133 SB to Alton Pkwy	Weave	AM	1.43	-	F	1.44	-	F
			PM	1.29	-	F	1.30	-	F
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.80	30.52	D	0.80	30.27	D
PM			1.04	-	F	1.04	-	F	
I-405 On-Ramp	Basic	AM	0.59	21.23	C	0.58	21.12	C	
		PM	0.73	-	F	0.73	-	F	

**TABLE 4.14-33
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 NB	Sand Canyon Ave Off-Ramp to Lane Drop	Basic	AM	0.85	-	F	0.85	-	F
			PM	0.67	24.32	C	0.67	24.29	C
	Lane Drop to Sand Canyon Ave On-Ramp/HOV Add Lane	Basic	AM	1.06	-	F	1.06	-	F
			PM	0.84	32.46	D	0.83	32.39	D
	Sand Canyon Ave Loop On-Ramp	Basic	AM	0.91	-	F	0.91	-	F
			PM	0.71	25.87	C	0.70	25.79	C
	Sand Canyon Ave Slip On-Ramp	Merge	AM	1.01	-	F	1.01	-	F
			PM	0.89	32.66	D	0.92	33.55	D
	Sand Canyon Ave Slip On-Ramp to Jeffrey Rd Off-Ramp	Basic	AM	1.03	-	F	1.03	-	F
			PM	0.85	33.63	D	0.86	34.21	D
	Jeffrey Rd Off-Ramp	Basic	AM	1.03	-	F	1.03	-	F
			PM	0.85	33.63	D	0.86	34.21	D
	Jeffrey Rd Off- to On-Ramps	Basic	AM	1.13	-	F	1.13	-	F
			PM	0.89	35.74	E	0.90	36.45	E
Jeffrey Rd Loop On-Ramp	Merge	AM	1.22	-	F	1.22	-	F	
		PM	0.77	30.98	D	0.78	31.29	D	
Jeffrey Rd Slip On-Ramp	Merge	AM	1.51	-	F	1.51	-	F	
		PM	0.88	33.80	D	0.89	34.19	D	
I-405 SB	University Dr/Jeffrey Rd Off-Ramp	Diverge	AM	1.23	-	F	1.25	-	F
			PM	1.00	41.14	E	1.00	-	F
	Jeffrey Rd to Loop On-Ramp	Basic	AM	1.08	-	F	1.09	-	F
			PM	0.91	37.36	E	0.92	37.87	E
	Jeffrey Rd Loop On-Ramp	Merge	AM	1.11	-	F	1.13	-	F
			PM	0.83	32.10	D	0.84	32.22	D
	Jeffrey Rd Slip On-Ramp	Merge	AM	1.32	-	F	1.34	-	F
			PM	1.05	-	F	1.06	-	F
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	1.22	-	F	1.23	-	F
			PM	1.09	-	F	1.09	-	F
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.40	-	F	1.41	-	F
			PM	1.18	-	F	1.20	-	F
	Sand Canyon Ave Off- to On-Ramps	Basic	AM	1.00	44.76	E	1.01	-	F
			PM	1.00	44.65	E	1.00	44.54	E
Sand Canyon Ave Loop On-Ramp	Merge	AM	0.97	-	F	0.99	-	F	
		PM	0.92	-	F	0.92	-	F	
Sand Canyon Ave Slip On-Ramp	Merge	AM	1.01	-	F	1.02	-	F	
		PM	0.94	-	F	0.94	-	F	
SR-133 Off-Ramp	Diverge	AM	1.23	-	F	1.24	-	F	
		PM	1.26	-	F	1.26	-	F	
Bake Pkwy Off-Ramp	Basic	AM	0.71	-	F	0.72	-	F	
		PM	0.69	25.32	C	0.69	25.36	C	

**TABLE 4.14-33
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
SR-133 NB	I-5 NB On-Ramp	Merge	AM	0.46	19.95	B	0.46	19.95	B
			PM	1.08	-	F	1.09	-	F
	I-5 NB to Add Lane	Basic	AM	0.45	16.43	B	0.45	16.43	B
			PM	1.06	-	F	1.07	-	F
	I-5 SB to Trabuco Rd	Weave	AM	0.52	-	F	0.52	-	F
			PM	1.04	-	F	1.05	-	F
Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.43	11.46	B	0.42	11.34	B	
		PM	1.30	-	F	1.29	-	F	
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.95	-	F	0.96	-	F
			PM	0.38	11.19	B	0.38	11.18	B
	Trabuco Rd to I-5 NB	Weave	AM	0.94	-	F	0.93	-	F
			PM	0.38	14.36	B	0.40	14.74	B
	Barranca Pkwy Off-Ramp	Diverge	AM	1.00	-	F	0.99	40.88	E
			PM	0.38	18.07	B	0.39	18.17	B
SR-241 NB	Toll Road Off-Ramp	Diverge	AM	1.05	-	F	1.04	-	F
			PM	0.43	10.12	B	0.43	10.16	B
	Toll Road and Portola On to SR-133 SB Off	Weave	AM	1.02	-	F	1.01	-	F
			PM	0.41	14.30	B	0.41	14.36	B
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	0.91	-	F	0.93	-	F
			PM	0.55	13.03	B	0.55	13.03	B
	SR-133 NB On- to Toll Road Off-Ramp	Weave	AM	0.33	12.04	B	0.33	12.14	B
			PM	0.87	-	F	0.86	-	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 would 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 4.14-1 through 4.14-71 discuss impacts on traffic, specifically. Thresholds 4.14-72 and 4.14-73 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 4.14-74.

For ease of reference, Table 4.14-34 identifies those locations where Project impacts have been identified, along with the applicable threshold that has been triggered.¹⁰ Table 4.14-35 identifies mitigation measures, which if implemented, would reduce Project-related and cumulative impacts. However, as discussed in Section 4.14.8, 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.

¹⁰ Table 4.14-34 includes the summary of Project and cumulative impacts. The Project impacts are discussed below in this section and the cumulative impacts are discussed in Section 4.14.6.

**TABLE 4.14-34
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						
Sand Canyon Ave and I-5 NB			Threshold 4.14-1	Threshold 4.14-1	Threshold 4.14-1	Threshold 4.14-1
Sand Canyon Ave and Oak Canyon/Laguna Canyon Rd			Threshold 4.14-3	Threshold 4.14-3	Threshold 4.14-3	Threshold 4.14-3
Sand Canyon Ave and Alton Pkwy				Threshold 4.14-1		Threshold 4.14-1
SR-133 NB/Gateway and Pacifica				Threshold 4.14-2		Threshold 4.14-2
Sand Canyon Ave and Burt Rd				Threshold 4.14-3		Threshold 4.14-3
Browning Ave and Irvine Blvd					Threshold 4.14-11	
Jeffrey Rd and Alton Pkwy					Threshold 4.14-1	
Culver Dr and I-405 NB Ramps						Threshold 4.14-3
Marine Way and Ridge Valley						Threshold 4.14-1
Caltrans Intersections						
Jeffrey Rd and I-5 NB	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-65		Threshold 4.14-65	
Jeffrey Rd and Walnut Ave	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	
Sand Canyon Ave and I-5 NB	Threshold 4.14-66	Threshold 4.14-65	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66
Jeffrey Rd and I-405 NB			Threshold 4.14-66			
Sand Canyon Ave and I-5 SB			Threshold 4.14-66	Threshold 4.14-65	Threshold 4.14-66	Threshold 4.14-65
Sand Canyon Ave and I-405 SB	Threshold 4.14-66		Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66
Fortune Dr/I-5 SB and Enterprise Dr	Threshold 4.14-65		Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66
Bake Pkwy/I-5 NB	Threshold 4.14-65		Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66
Trabuco Rd and SR-133 SB			Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	
Trabuco Rd and SR-133 NB			Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66	Threshold 4.14-66
Portola Parkway and SR-241 NB				Threshold 4.14-66		Threshold 4.14-66

**TABLE 4.14-34
IMPACT SUMMARY**

	Existing Plus Project	Year 2017	Year 2035	Post-2035	Cumulative Impacts	
					Year 2035 (With Pending Projects) ^a	Post-2035 (with Pending Projects)
Portola Parkway and SR-241 SB				Threshold 4.14-66		Threshold 4.14-66
Alton Pkwy and I-5 NB Ramps				Threshold 4.14-66		Threshold 4.14-66
SR-133 SB and Irvine Blvd					Threshold 4.14-66	
<i>Caltrans Freeway On- and Off-Ramps</i>						
I-5 SB On-Ramp at Jeffrey Rd			Threshold 4.14-10			
I-5 SB Off-Ramp at Sand Canyon Ave			Threshold 4.14-9	Threshold 4.14-10	Threshold 4.14-9	Threshold 4.14-10
I-5 SB Off-Ramp at Alton Pkwy			Threshold 4.14-10	Threshold 4.14-10	Threshold 4.14-10	Threshold 4.14-10
I-405 NB Direct On-Ramp at Sand Canyon Ave			Threshold 4.14-9	Threshold 4.14-10	Threshold 4.14-9	Threshold 4.14-10
I-405 SB Off-Ramp at Sand Canyon Ave			Threshold 4.14-10		Threshold 4.14-10	
SR-133 NB On-Ramp at Barranca Pkwy				Threshold 4.14-10		Threshold 4.14-10
SR-133 SB On-Ramp at Barranca Pkwy						Threshold 4.14-10
SR-133 NB Off-Ramp at Trabuco Rd						Threshold 4.14-9
SR-133 SB On-Ramp at Trabuco Rd					Threshold 4.14-10	
<i>Caltrans Freeway Mainline Segments</i>						
I-5 NB (Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp)	Threshold 4.14-67					
I-5 SB (Jeffrey Rd Off-Ramp)	Threshold 4.14-67					
I-5 SB (Jeffrey Rd to SR-133 NB)	Threshold 4.14-68					
I-5 SB (SR-133 SB to Alton Pkwy)	Threshold 4.14-67					
I-405 NB (Jeffrey Rd Slip On-Ramp)	Threshold 4.14-68					
I-405 SB (SR-133 Off-Ramp)	Threshold 4.14-67					
I-5 SB (Sand Canyon Ave Off-Ramp)					Threshold 4.14-68	Threshold 4.14-68
I-405 SB (Sand Canyon Ave Off-Ramp)	Threshold 4.14-68					

**TABLE 4.14-34
IMPACT SUMMARY**

	Existing Plus Project	Year 2017	Year 2035	Post-2035	Cumulative Impacts	
					Year 2035 (With Pending Projects) ^a	Post-2035 (with Pending Projects)
I-5 NB (SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp)						Threshold 4.14-68
<p>I: Interstate; NB: Northbound; SB: Southbound; SR: State Route; Caltrans: California Department of Transportation</p> <p>^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 TIA also evaluates a Year 2017 Plus Pending Projects. The impact assessment is included in this table for informational purposes.</p> <p>Source: Fehr & Peers 2015.</p>						

**TABLE 4.14-35
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						
Sand Canyon Ave and I-5 NB		Free NBR (0.89/D, 0.87/D)	Free NBR, EBR ovl, 3rd WBL (0.89/D, 0.87/D)	<i>Free NBR, EBR ovl. (0.90/D, 0.88/D)</i>	<i>Free NBR, EBR ovl, 3rd WBL (0.89/D, 0.88/D)</i>	Irvine
Sand Canyon Ave and Oak Canyon/Laguna Canyon		Install westbound right turn overlap phase (0.83/D)	Install westbound right turn overlap phase (0.88/D)	<i>Install westbound right turn overlap phase (0.83/D)</i>	<i>Install westbound right turn overlap phase (0.88/D)</i>	Irvine
Sand Canyon Ave and Alton Pkwy			Signal timing (overlap phases) (0.90/D)		<i>Signal timing (overlap phases) (0.90/D)</i>	Irvine
SR-133 NB/Gateway and Pacifica			Restripe NB right turn lane to shared through-right lane. (0.76/C)		<i>Restripe NB right turn lane to shared through-right lane. (0.76/C)</i>	Irvine
Sand Canyon Ave and Burt Rd			4th SB through lane and 4th NB through lane (0.77/C, 0.73/C)		<i>4th SB through lane and 4th NB through lane (0.78/C, 0.74/C)</i>	Irvine
Browning and Irvine Blvd				<i>Buildout configuration: 3rd WBT and 3rd EBT (0.75/C)</i>		Tustin
Jeffrey Rd and Alton Pkwy				<i>Signal timing (EBR ovl) (0.86/D)</i>		Irvine
Culver Dr and I-405 NB Ramps					<i>2nd WBL lane (0.77/C)</i>	Irvine
Marine Wy and "O" St/Ridge Valley					<i>2nd EBL lane (0.82/D)</i>	Irvine

**TABLE 4.14-35
MITIGATION MEASURES AND POST-MITIGATION LOS**

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
Caltrans Intersections						
Jeffrey Rd and I-5 NB	Add WBR lane (27.5/C)	Add WBR lane (23.3/C)		Add WBR lane (22.8/C)		Caltrans
Jeffrey Rd and Walnut Ave	Signal timing adjustments (65.9/E, >80/F)	Signal timing adjustments (67.8/E, 86.4/F)	Signal timing adjustments (WBR ovl) (>80.0/F)	Signal timing adjustments (66.8/E)		Caltrans
Sand Canyon Ave and I-5 NB	Signal timing adjustments (32.7/C)	Free NBR (57.1/E, 56.5/E)	Free NBR, EBR ovl, 3rd WBL (>80.0/F, 61.2/E)	Signal timing adjustments (>80.0/F, 56.9/E)	Signal timing adjustments (>80.0/F, 64.2/E)	Caltrans
Jeffrey Rd and I-405 NB		Signal timing adjustments (32.5/C)				Caltrans
Sand Canyon Ave and I-5 SB		Signal timing adjustments (39.1/D)	Restripe NB right turn lane to shared through-right lane. (26.1/C)	Signal timing adjustments (39.8/D)	Restripe NB right turn lane to shared through-right lane. (27.1/C)	Caltrans
Sand Canyon Ave and I-405 SB		Additional EBR lane (24.0/C)	Additional EBR lane (62.2/E)	Signal timing adjustments (53.5/D)	Signal timing adjustments (64.0/E)	Caltrans
Fortune Dr/I-5 SB and Enterprise Dr		Second EBL (33.9/C)	Second EBL (25.0/C)	Second EBL (35.3/C)	Second EBL (35.5/D)	Caltrans
Bake Pkwy/I-5 SB		Additional NBR (40.8/D)	Additional NBR (47.8/D)	Additional NBR (39.5/D)	Additional NBR (40.2/D)	Caltrans
Trabuco Rd and SR-133 SB		Signal timing adjustments (59.7/E)	Signal timing adjustments (39.5/D)	Signal timing adjustments (65.4/E)		Caltrans

**TABLE 4.14-35
MITIGATION MEASURES AND POST-MITIGATION LOS**

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
Trabuco Rd and SR-133 NB		Signal timing adjustments (49.7/D)	Signal timing adjustments (66.0/E, 62.2/E)	<i>Signal timing adjustments (>80.0/F)</i>	<i>Signal timing adjustments (41.3/D, 72.4/E)</i>	Caltrans
Portola Parkway and SR-241 NB			Traffic signal installation (17.3/B)		<i>Traffic signal installation (25.8/C)</i>	Caltrans
Portola Parkway and SR-241 SB			Traffic signal installation (16.7/B, 13.3/B)		<i>Traffic signal installation (32.8/C, 30.2/C)</i>	Caltrans
Alton Pkwy and I-5 NB Ramps			Signal timing adjustments (35.0/C)		<i>Signal timing adjustments (37.1/D)</i>	Caltrans
SR-133 SB and Irvine Blvd				<i>Signal timing adjustments (39.0/D)</i>		Caltrans
Freeway Ramps						
I-5 SB On Ramp at Jeffrey Rd		Convert HOV preferential lane at the meter to a mixed-flow lane. (0.78/C)				Caltrans
I-5 SB Off Ramp at Sand Canyon Ave		Convert to a two-lane off-ramp with one auxiliary lane. (0.74/C)	Convert to a two-lane off-ramp with one auxiliary lane. (0.78/C)	<i>Convert to a two-lane off-ramp with one auxiliary lane. (0.74/C)</i>	<i>Convert to a two-lane off-ramp with one auxiliary lane. (0.78/C)</i>	Caltrans
I-5 SB Off Ramp at Alton Pkwy		Add a second auxiliary lane from the I-5 to the off ramp. (0.79/C)	Add a second auxiliary lane from the I-5 to the off ramp. (0.84/D)	<i>Add a second auxiliary lane from the I-5 to the off ramp. (0.79/C)</i>	<i>Add a second auxiliary lane from the I-5 to the off ramp. (0.84/D)</i>	Caltrans

**TABLE 4.14-35
MITIGATION MEASURES AND POST-MITIGATION LOS**

	Year 2017	Year 2035	Post-2035	Cumulative Scenarios		Jurisdiction
				Year 2035 (Approved + Pending)	Post-2035 (Approved + Pending)	
I-405 NB Direct On Ramp at Sand Canyon Ave		Convert to a two-lane metered on ramp with two mixed-flow lanes at the meter (0.84/D)	Convert to a two-lane on ramp that tapers to one merge lane (0.89/D)	<i>Convert to a two-lane metered on ramp with two mixed-flow lanes at the meter. (0.84/D)</i>	<i>Convert to a two-lane on ramp that tapers to one merge lane (0.89/D)</i>	Caltrans
I-405 SB Off Ramp at Sand Canyon Ave		Add a second drop lane. (0.60/A)		<i>Add a second drop lane. (0.60/A)</i>		Caltrans
SR-133 NB On Ramp at Barranca Pkwy			Convert the HOV preferential lane at the meter to a mixed-flow lane. (0.96/E)		<i>Convert the HOV preferential lane at the meter to a mixed-flow lane. (0.96/E)</i>	Caltrans
SR-133 SB On Ramp at Barranca Pkwy					<i>Convert HOV preferential lane at the meter to a mixed-flow lane. (0.84/D)</i>	Caltrans
SR-133 NB Off Ramp at Trabuco Rd					<i>Convert to a two-lane off-ramp with one auxiliary lane. (0.68/B)</i>	Caltrans
SR-133 SB On Ramp at Trabuco Rd				<i>Convert to a two-lane on ramp that tapers to one merge lane (0.74/C)</i>		Caltrans

**TABLE 4.14-35
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-5 NB (SR-133 NB On Ramp to Sand Canyon Off-Ramp)					<i>Additional travel lanes</i>	Caltrans
I-5 SB (Sand Canyon Off-Ramp)				<i>Additional travel lanes</i>		Caltrans
<p>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 <i>Italics</i> – Cumulative Impacts Bold – Direct Impacts Red text denotes mitigation measures that require right-of-way acquisition and/or design exceptions.</p> <div style="display: flex; align-items: center;"> <div style="width: 20px; height: 20px; background-color: #90EE90; margin-right: 5px;"></div> Signal Timing and/or Restriping </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 20px; height: 20px; background-color: #FFD700; margin-right: 5px;"></div> Physical Improvements </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <div style="width: 20px; height: 20px; background-color: #00BFFF; margin-right: 5px;"></div> Mitigations measures already committed in NITM Program </div>						
Source: Fehr & Peers 2015.						

City of Irvine

- Threshold 4.14-1** 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 4.14-2** In the City of Irvine not addressed by Threshold 4.14-1, 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 4.14-3** 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 by 0.02 or more at a study intersection operating at LOS E or F under baseline conditions.
- Threshold 4.14-4** In the City of Irvine outside those intersections identified by Threshold 4.14-3, 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 4.14-5** In the City of Irvine outside PA 33 (Irvine Spectrum Area) and PA 36 (IBC), the addition of Project-generated trips increases the 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 4.14-6** In the City of Irvine in PA 33 (Irvine Spectrum Area) and PA 36 (IBC), 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 E or better to LOS F.
- Threshold 4.14-7** In the City of Irvine outside PA 33 (Irvine Spectrum Area) and PA 36 (IBC), 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 4.14-8** In the City of Irvine in PA 33 (Irvine Spectrum Area) and PA 36 (IBC), 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 F.
- Threshold 4.14-9** 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 4.14-10 In the City of Irvine, the addition of Project-generated trips increases the V/C ratio 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

In Year 2035, the following deficiencies were identified as Project-related impacts based on the City of Irvine thresholds of significance. In addition to the City intersections, there were impacts to 10 Caltrans freeway ramp locations based on the application of the Caltrans thresholds of significance (Thresholds 4.14-65 and 4.14-66). These locations are addressed under Caltrans.

The intersection of Sand Canyon Avenue and I-5 Northbound would be significantly impacted under the proposed Project Year 2035 conditions in the AM and PM peak hours, because the addition of Project traffic would cause the intersection LOS to degrade from LOS C to LOS E in the AM and PM peak hours (Threshold 4.14-1). This impact is a direct impact as the addition of Project traffic causes the intersection to degrade from acceptable to unacceptable levels.

The intersection of Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road would be significantly impacted under the proposed Project Year 2035 conditions in the PM peak hour. This impact would occur due to an increase in the V/C ratio by more than 0.02 at an intersection that operates at LOS E prior to the addition of Project trips (Threshold 4.14-3). This intersection already operates at an unacceptable LOS, and the addition of Project-related traffic would cause an increase in delay at this location.

The I-5 Southbound On-Ramp at Jeffery Road would be significantly impacted under the proposed Project Year 2035 conditions in the AM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

The I-5 Southbound Off-Ramp at Sand Canyon Avenue would be significantly impacted under the Proposed Project conditions in the AM peak hour. This impact is a direct impact which occurs as the result of additional Project traffic increases the V/C ratio by more than 0.02 and causes the freeway ramp segment to change from an acceptable LOS E or better to LOS F (Threshold 4.14-9).

The I-5 Southbound Off-Ramp at Alton Parkway would be significantly impacted under the proposed Project Year 2035 conditions in the AM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

The I-405 Northbound Direct On-Ramp at Sand Canyon Avenue would be significantly impacted under the proposed Project Year 2035 conditions in the PM Peak Hour. This impact is a direct impact which occurs as the result of additional Project traffic increases the V/C ratio by more than 0.02 and causes the freeway ramp segment to change from an acceptable LOS E or better to LOS F (Threshold 4.14-9).

The I-405 Southbound Off-Ramp at Sand Canyon Avenue would be significantly impacted under the proposed Project Year 2035 Conditions in the AM Peak Hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

Post-2035

In Year Post-2035 the following deficiencies were identified as Project-related impacts (i.e., direct Project impacts) based on the City of Irvine thresholds of significance.

The intersection of Sand Canyon Avenue and I-5 Northbound would be significantly impacted under the proposed Project Post-2035 conditions in the AM and PM peak hours. This impact is a direct impact as the addition of Project-related traffic increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road would be significantly impacted under the proposed Project Post-2035 conditions in the PM peak hour. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic would cause an increase in delay at this location (Threshold 4.14-3).

The intersection of Sand Canyon Avenue and Alton Parkway would be significantly impacted under the proposed Project Post-2035 conditions in the PM peak hour. This impact is a direct impact as the addition of Project-related traffic increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of SR-133 Northbound/Gateway Boulevard and Pacifica would be significantly impacted under the proposed Project Post-2035 conditions in the PM peak hour. This impact is a direct impact as the addition of Project-related traffic increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-2).

The intersection of Sand Canyon Avenue and Burt Road would be significantly impacted under the proposed Project Post-2035 conditions in the AM and PM peak hours. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic would cause an increase in delay at this location (Threshold 4.14-3).

The I-5 Southbound Off-Ramp at Sand Canyon Avenue would be significantly impacted under the proposed Project Post-2035 conditions in the AM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

The I-5 Southbound Off-Ramp at Alton Parkway would be significantly impacted under the proposed Project Post-2035 conditions in the AM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

The I-405 Northbound Direct On-Ramp at Sand Canyon Avenue would be significantly impacted under the proposed Project Post-2035 conditions in the PM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

The SR-133 Northbound On-Ramp at Barranca Parkway would be significantly impacted under the proposed Project Post-2035 conditions in the PM peak hour. The addition of Project-generated trips increases the V/C ratio by more than 0.02 on a freeway ramp segment already operating at LOS F (Threshold 4.14-10).

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 4.14-1 through 4.14-10) in the Existing Plus Project and 2017 Plus Project scenarios.*

Significant impacts would occur in Year 2035 Plus Project and Post-2035 Plus Project scenarios pursuant to Thresholds 4.14-1 through 4.14-3 and 4.14-9, and 4.14-10. While potential mitigation has been recommended and imposed that would reduce impacts to less than significant for the impacts pursuant to Thresholds 4.14-1 through 4.14-3, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable. Impacts associated with the freeway mainline and ramps (Thresholds 4.14-9 and 4.14-10) would be significant and unavoidable (see Section 4.14.8, Mitigation Program for a discussion of the mitigation approach.).

City of Tustin

Threshold 4.14-11 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 4.14-12 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 4.14-13 In the City of Tustin, 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 4.14-14 In the City of Tustin, 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 4.14-15 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 4.14-16 In the City of Tustin, the addition of Project-generated trips increases the V/C ratio 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 4.14-11 through 4.14-16) 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 4.14-17 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 4.14-18** 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 4.14-19** In the City of Laguna Beach, 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 4.14-20** In the City of Laguna Beach, 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 4.14-21** In the City of Laguna Beach, 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 4.14-22** In the City of Laguna Beach, 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 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 4.14-17 through 4.14-22) 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 4.14-23 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 4.14-24 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 4.14-25 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 4.14-26 In the City of Lake Forest, 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 4.14-27 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 4.14-28 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 4.14-23 through 4.14-28) 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 4.14-29 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 4.14-30 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 4.14-31 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 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.

Threshold 4.14-32 In the City of Laguna Hills, 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 4.14-33 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 4.14-34 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 4.14-29 through 4.14-34) 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 4.14-35 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 4.14-36 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 4.14-37 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 4.14-38 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 4.14-39 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 4.14-40 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 4.14-35 through 4.14-40) 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 4.14-41 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 4.14-42 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 4.14-43 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 4.14-44 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 4.14-45 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 4.14-46 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 4.14-41 through 4.14-46) 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 4.14-47 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 4.14-48 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 4.14-49 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 4.14-50 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 4.14-51 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 4.14-52 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 4.14-47 through 4.14-52) 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 4.14-53 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 4.14-54 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 4.14-55 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 4.14-56 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 4.14-57 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 4.14-58 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 4.14-53 through 4.14-58) 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 4.14-59 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 4.14-60 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 4.14-61 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 4.14-62 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 4.14-63 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 4.14-64 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 4.14-59 through 4.14-64) 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

Threshold 4.14-65 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 4.14-66 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 4.14-67 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 4.14-68 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

California Department of Transportation Intersections

The Jeffrey Road and I-5 Northbound intersection would be impacted under this Project scenario in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Jeffrey Road and Walnut Avenue intersection would be significantly impacted under the proposed Project in the AM peak hour. This intersection already operates at an unacceptable LOS, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Northbound -Marine Way intersection would be significantly impacted by the additional trips associated with the Project in both the AM and PM peak hours. For the AM peak hour, this impact is a direct impact that would occur as the result of additional Project traffic causing the intersection to degrade from acceptable to unacceptable conditions based on the application of the HCM Methodology (Threshold 4.14-65). In the PM peak hour, this intersection already operates at an unacceptable LOS and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-405 Southbound intersection would be impacted under this Project scenario in the AM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Fortune Drive and I-5 Southbound/Enterprise Drive intersection would be impacted under this Project scenario in the PM peak hour. This impact is a direct impact that would occur as the result of additional Project traffic causing the intersection to degrade from acceptable to unacceptable conditions based on the application of the HCM Methodology (Threshold 4.14-65).

The Bake Parkway and I-5 Southbound intersection would be impacted under this Project scenario in the AM peak hour. This impact is a direct impact that would occur as the result of additional Project traffic causing the intersection to degrade from acceptable to unacceptable conditions based on the application of the HCM Methodology (Threshold 4.14-65).

California Department of Transportation 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 a freeway mainline 3 percent or more, and causes the LOS at this freeway segment to degrade to LOS F under Existing Plus Project conditions (Threshold 4.14-67).

I-5 Southbound at the Jeffrey Road Off-Ramp would be significantly impacted with the Project in the PM peak hour because the additional Project trips would increase the traffic on a freeway mainline 3 percent or more, and causes the LOS to degrade on the freeway from an acceptable to unacceptable LOS (Threshold 4.14-67).

I-5 Southbound from Jeffrey Road to SR-133 Northbound would be significantly impacted with the Project in the AM peak hour because the Project would increase the traffic on a freeway mainline by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.14-68).

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 on a freeway mainline by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.14-68). In the PM peak hour because the volume of additional Project traffic being added at this location would increase the traffic on a freeway mainline 3 percent or more, and causes the LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-67).

I-405 Northbound at the Jeffrey Road Slip On-Ramp would be significantly impacted with the Project in the AM peak hour because the Project would increase the traffic on a freeway mainline by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.14-68).

I-405 Southbound at Sand Canyon Off-Ramp would be significantly impacted with the Project in the AM peak hour because the Project would increase the traffic on a freeway mainline by 3 percent or more on a facility operating at LOS F prior to the addition of Project traffic (Threshold 4.14-68). I-405 Southbound at the SR-133 Off-Ramp would be significantly impacted with the Project Conditions in the AM peak hour because the volume of additional Project traffic being added at this location would increase the traffic on a freeway mainline 3 percent or more, and causes the LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-67).

2017 Plus Proposed Project

California Department of Transportation Intersections

The Jeffrey Road and I-5 Northbound intersection would be impacted under the proposed Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Jeffrey Road and Walnut Avenue 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-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Northbound intersection would be significantly impacted under the proposed Project in the PM peak hour. This impact is a direct impact that would occur as the result of additional Project traffic causing the intersection to degrade from

acceptable to unacceptable conditions based on the application of the HCM Methodology (Threshold 4.14-65).

California Department of Transportation Mainline Freeway Facilities

No freeway mainline impacts were identified for the Year 2017 scenario based on the Caltrans thresholds of significance (Thresholds 4.14-67 and 4.14-68).

Year 2035

It should be noted that, in addition to the Caltrans intersections and freeway mainline impacts, there were impacts to five freeway ramp locations based on the application of the City of Irvine thresholds of significance (Thresholds 4.14-9 and 4.14-10). These locations are addressed under the City of Irvine.

California Department of Transportation Intersections

The Jeffrey Road and I-5 Northbound intersection would be significantly impacted with the Project in the PM peak hour. This impact is a direct impact that would occur as the result of additional Project traffic causing an intersection to degrade from acceptable to unacceptable conditions (Threshold 4.14-65).

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, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Jeffrey Road and I-405 Northbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Northbound intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Southbound intersection would be significantly impacted with the Project in the AM hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-405 Southbound intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Fortune Drive/I-5 Southbound and Enterprise Drive intersection would be significantly impacted under the proposed Project in the PM peak hour. This intersection already operates

at an unacceptable LOS, and the Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Bake Parkway and I-5 Southbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Trabuco Road and SR-133 Southbound intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Trabuco Road and SR-133 Northbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

California Department of Transportation Mainline Freeway Facilities

No freeway mainline impacts were identified for the Year 2035 scenario based on Caltrans thresholds of significance (Thresholds 4.14-67 and 4.14-68).

Post-2035

It should be noted that, in addition to the Caltrans intersections and freeway mainline impacts, there were impacts to five freeway ramp locations based on the application of the City of Irvine thresholds of significance (Thresholds 4.14-9 and 4.14-10). These locations are addressed under the City of Irvine.

California Department of Transportation Intersections

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, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Northbound intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Southbound intersection would be significantly impacted with the Project in the AM hour. This would be a direct impact that would occur as the result of additional Project traffic causing an intersection to degrade from acceptable to unacceptable conditions based on the application of the HCM Methodology (Threshold 4.14-65).

The Sand Canyon Avenue and I-405 Southbound intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable

LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Portola Parkway and SR-241 Northbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Portola Parkway and SR-241 Southbound intersection would be significantly impacted with the Project in the AM and PM peak hours. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Alton Parkway and I-5 Northbound intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Fortune Drive/I-5 Southbound and Enterprise Drive intersection would be significantly impacted under the proposed Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Bake Parkway and I-5 Southbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Trabuco Road and SR-133 Southbound intersection would be significantly impacted with the Project in the AM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

The Trabuco Road and SR-133 Northbound intersection would be significantly impacted with the Project in the PM peak hour. This intersection already operates at an unacceptable LOS, and Project-related traffic would cause an increase in delay at this location as a result of Project trips (Threshold 4.14-66).

California Department of Transportation Mainline Freeway Facilities

No freeway mainline impacts were identified for the Post-2035 scenario based on the Caltrans thresholds of significance (Thresholds 4.14-67 and 4.14-68).

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, the proposed Project would result in significant impacts pursuant to Caltrans of significance (Thresholds 4.14-66 through 4.14-68) in the Existing Plus Project scenario. For this scenario six intersections (Threshold 4.14-66) and seven mainline freeway segments (Thresholds 4.14-67 and 4.14-68) would have significant impacts. Two of the impacted intersections are associated*

with SR-241. DR TRAN-1 identifies the requirement to pay applicable fees to the Major Thoroughfare and Bridge Fee Program, specifically for the Foothill/Eastern Transportation Corridor (i.e., SR-241).

For the Year 2017 Plus Project scenario, there would be significant impacts at three intersections under Thresholds 4.14-65 and 4.14-66. There would be no impacts to mainline freeway segments (Thresholds 4.14-67 and 4.14-68).

For the Year 2035 Plus Project and Post-2035 Plus Project scenarios, there would be impacts to 10 and 11 intersections, respectively, pursuant to Thresholds 4.14-65 and 4.14-66. There would be no impacts to mainline freeway segments (Thresholds 4.14-67 and 4.14-68).

While potential mitigation has 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 (see Section 4.14.8, Mitigation Program for a discussion of the mitigation approach).

Orange County Transportation Authority Congestion Management Program

Threshold 4.14-69 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 4.14-70 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 4.14-71 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 4.14-36, 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 4.14-36
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	0.83	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-261 SB Ramps/Irvine Blvd	Irvine	0.57	A	0.53	A	0.57	A	0.53	A
160	SR-261 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	0.62	B	0.52	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	0.46	A	0.51	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	0.75	C
396	El Toro Rd/Avenida Carlota	Laguna Hills	0.61	B	0.78	C	0.61	B	0.78	C
398	El Toro Rd/Moulton Pkwy	Laguna Woods	0.54	A	0.49	A	0.54	A	0.49	A
400	El Toro Rd/SR-73 NB Ramps	Laguna Beach	0.69	B	0.70	B	0.70	B	0.70	B
401	El Toro Rd/SR-73 SB Ramps	Laguna Beach	0.46	A	0.69	B	0.46	A	0.68	B
418	El Toro Rd/Trabuco Rd	Lake Forest	0.67	B	0.74	C	0.67	B	0.74	C

NB: Northbound; SB: Southbound
 Intersections operating below acceptable standards are noted in **bold**.
 Source: Fehr & Peers 2015.

Impact Conclusion: Pursuant to Thresholds 4.14-69 through 4.14-71, 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 4.14-72 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 Marine Way were analyzed by Fehr & Peers to determine if there is adequate distance between signals and to determine if traffic operations would be adversely impacted. Exhibit 4.14-3 depicts the Project Recommended Access Points and Controls.

As the Project will connect to external roadways (i.e., Marine Way), the City Traffic Study Guidelines require the inclusion of the City of Irvine *Transportation Design Procedures* (TDP) (February 2007) in the *Traffic Impact Analysis* and layout specific procedures and processes to comply with City requirements. Detailed analysis demonstrating compliance with the TDPs is provided in the *Traffic Impact Analysis* (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 4.14.8, Mitigation Program), potential impacts associated with signalized access points and Project driveways along Marine Way and other applicable roadways 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 (see DR TRAN-4). 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 4.9, 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 site that would conflict with the surrounding existing and planned uses. The site is generally surrounded by existing and planned sports, recreational, cultural, residential, mixed-use, and commercial uses, which are all compatible with the proposed Project uses. There is agricultural land to the north of the site, east of SR-133 and west of Ridge Valley; however, the agricultural site cannot be accessed from Ridge Valley or other areas where the Project will make transportation improvements. Therefore, due to the nature of the uses and the design of the Project, activities at the Project site would not result in compatibility issues that would substantially increase hazards. No impacts would occur.

Impact Conclusion: *With implementation of DR TRAN-4 and DR TRAN-5, 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 4.14-72 and no mitigation is required.*

Threshold 4.14-73 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 proposed Project is developed as a grid system, and all properties would have appropriate emergency access, with two different points of ingress/egress. Individual projects 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 (the standards vary depending on the type of development, i.e., residential, commercial, etc.). Since access depends on the exact nature of the proposed future development, DR FIRE-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 the realigned and extended Marine Way, which will be improved as a four-lane Primary Highway. Ridge Valley, classified as a Secondary Highway, is also proposed to be extended south of Marine Way, consistent with the *City of Irvine General Plan* and will provide access to the Project site. Future Marine Way will connect Sand Canyon Avenue to the northwest of the Project site to Alton, Barranca and Bake Parkways to the southeast. Marine Way is planned to be constructed in multiple phases. The phased extension of Marine Way is a City improvement and will occur in accordance with City design standards. 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. In addition, DR FIRE-2 in Section 4.12, Public Services ensures adequate emergency fire access. Pursuant to Threshold 4.14-73, impacts would be less than significant and no mitigation is required.*

Threshold 4.14-74 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 circulation network that would be pedestrian friendly and encourages incorporation of alternative modes of transportation. Examples include, but are not limited to, wide sidewalk on the central spine street to enhance the pedestrian experience; the trail located in the "Park within the Park"; and a Class III Bike Route along the central spine street (see DR TRAN-2).

As discussed in Section 4.2, Air Quality, a number of mitigation measures are recommended that would further promote alternative transportation modes. The Development Plan encourages opportunities for bike sharing programs. The proposed Project would encourage bicycling and walking by providing showering and changing facilities at non-residential buildings (MM AQ-2), and bicycle parking facilities at residential buildings, parking lots, and parking structures (MM AQ-3 and MM AQ-4). The transportation options, as described in the Development Plan, would reduce traffic congestion and dependence on the automobile. To encourage the use of transit, the proposed Project would require operators of residential and non-residential facilities to post Metrolink and Amtrak schedules in conspicuous places and, where feasible, configure employee work schedules around train schedules (MM AQ-5 and MM AQ-6).

The City of Irvine plans propose a Class II bike lane in each direction along Marine Way and a Class I bike trail at the northerly edge of the right-of-way. The Development Plan roadway designs for Marine Way reflects those improvements. Additionally, the extension of Ridge Valley south of Marine Way would accommodate a bike lane in each direction. Internal streets in the Development Plan area would also include bike lanes. 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 Class I and III bike paths/routes, easy and direct access for non-vehicular commuting between Residential, Mixed-Use, and Commercial Districts, and sidewalks on at least one side of all streets. Those Guidelines also encourage provision and use of shared community bicycles, bicycle and pedestrian amenities, neighborhood electric vehicles (NEV), fee-based EV charging stations within common parking structures, connections to off-site public transportation options, and accommodating public transportation access within the community.

There are several OCTA bus lines that serve the general vicinity surrounding the Project site. 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 for a transit route along Marine Way adjacent to the Project site providing potential future service to the Irvine Station to the south. In fact, the Project's mix of uses and proposed intensity of development would support efforts to bring additional public transit service along Marine Way and elsewhere in the Project vicinity. See Section 4.13, Recreation for a full discussion of local and regional trails and bikeways.

Impact Conclusion: *Pursuant to Threshold 4.14-74, 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-modal 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. Additionally, MM AQ-2 through MM AQ-6 (identified in Section 4.2) are measures to encourage use of multi-modal*

transportation. Impacts would be less than significant and no mitigation is required.

4.14.6 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 project 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.¹¹ 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 4.14.5.

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.

Year 2035 and Post-2035 Average Daily Traffic Volumes Proposed Project with Pending Projects

Tables 4.14-37 and 4.14-38 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 48 segment locations in the Year 2035 With Pending Projects and 44 segment locations in Post-2035 With Pending Projects that are projected to operate at a deficient level.

An analysis of the mid-block peak hour roadway segments in the NITM area was conducted for the cumulative scenario using the ADT V/C performance criteria and impact thresholds; there are eleven roadway segments in the Year 2035 and ten roadway segments in Post-2035 in the study area that were identified for mid-block peak hour analysis with the proposed Project in the cumulative scenario, as listed below.

¹¹ It should be noted that the TIA also evaluates 2017 conditions with the Partially-Developed Project and 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. The year 2017 with pending project scenarios is provided in Appendix L.

**TABLE 4.14-37
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
Alicia (I-5 to Paseo de Valencia)	Laguna Hills	51.1	0.91	E	51.1	0.91	E
Alicia (Jeronimo to Muirlands)	Mission Viejo	60.0	1.07	F	60.0	1.07	F
Alicia (Muirlands to I-5)	Mission Viejo	60.7	1.08	F	60.8	1.08	F
Alton (E. Yale Loop to Jeffrey)	Irvine	31.9	1.00	E	32.1	1.00	F
Alton (Rancho to Commercentre)	Lake Forest	54.0	0.96	E	54.3	0.96	E
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	32.2	1.29	F	32.2	1.29	F
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	38.0	1.01	F	37.9	1.01	F
Bake (Irvine/Trabuco to Toledo)	Irvine	57.4	1.06	F	57.3	1.06	F
Bake (Jeronimo to Muirlands)	Irvine	67.4	1.25	F	67.3	1.25	F
Bake (Rockfield to I-5)	Irvine	85.3	1.19	F	88.3	1.23	F
Bake (Toledo to Jeronimo)	Irvine	60.5	1.12	F	60.4	1.12	F
Barranca (Creek to E Yale Loop)	Irvine	29.1	0.91	E	29.6	0.93	E
Barranca (Culver to W. Yale Loop)	Irvine	34.8	1.09	F	34.6	1.08	F
Barranca (E. Yale Loop to Jeffrey)	Irvine	31.2	0.98	E	31.6	0.99	E
Barranca (W Yale Loop to Lake)	Irvine	31.6	0.99	E	31.5	0.98	E
Culver (Alton to Main)	Irvine	49.6	0.92	E	49.5	0.92	E
Culver (Barranca to Alton)	Irvine	49.9	0.92	E	49.9	0.92	E
Culver (Main to I-405)	Irvine	56.5	1.05	F	56.4	1.04	F
El Toro (Aliso Creek to SR-73)	Laguna Beach	41.5	1.11	F	41.5	1.11	F
El Toro (Muirlands to Rockfield)	Lake Forest	51.0	0.91	E	50.9	0.90	E
El Toro (Rockfield to I-5)	Lake Forest	66.0	1.17	F	66.3	1.18	F
El Toro (south of SR-73)	Laguna Beach	17.2	1.38	F	17.2	1.38	F
G (Marine to E)	Irvine	11.4	0.88	D	12.5	0.96	E
Irvine (A-02 to Alton)	Irvine	58.9	1.09	F	59.3	1.10	F
Irvine (Browning to Tustin Ranch)	Tustin	42.7	1.14	F	42.9	1.14	F
Irvine (Newport to Red Hill)	Tustin	51.9	0.92	E	52.1	0.93	E
Irvine (Red Hill to Browning)	Tustin	48.4	1.29	F	48.6	1.30	F
Jeffrey (Alton to I-405)	Irvine	53.0	0.98	E	54.1	1.00	F
Lake Forest (Laguna Canyon to Bake)	Irvine	31.4	0.98	E	31.4	0.98	E
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	76.2	1.35	F
LQ (east of LY)	Irvine	12.4	0.95	E	13.0	1.00	E
Marine (east of B)	Irvine	19.2	0.60	A	30.9	0.97	E
Marine (east of O)	Irvine	23.2	0.72	C	35.9	1.12	F
Marine (east of Sand Canyon)	Irvine	30.6	0.96	E	47.4	1.48	F
Marine (north of Barranca)	Irvine	22.7	0.71	C	33.8	1.06	F
Marine (west of B)	Irvine	21.6	0.68	B	33.5	1.05	F
Modjeska (Portola Springs to Irvine)	Irvine	15.0	1.15	F	14.9	1.15	F
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.1	1.09	F	14.0	1.08	F
Portola (Rancho to El Toro)	Lake Forest	62.0	1.10	F	62.0	1.10	F

**TABLE 4.14-37
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
Roosevelt (Nimitz to Jeffrey)	Irvine	12.5	0.96	E	12.5	0.96	E
Sand Canyon (Alton to I-405)	Irvine	44.5	1.39	F	44.7	1.40	F
SR-133 (Laguna Canyon to Lake Forest)	Irvine	51.5	0.95	E	51.4	0.95	E
SR-133 (Lake Forest to SR-73)	Irvine	47.6	1.49	F	47.4	1.48	F
Trabuco (east of O)	Irvine	20.5	1.58	F	21.0	1.62	F
Trabuco (east of Culver)	Irvine	30.7	0.96	E	30.9	0.97	E
Trabuco (east of Sand Canyon)	Irvine	40.9	1.28	F	43.7	1.37	F
University (south of I-405)	Irvine	62.1	1.15	F	62.6	1.16	F

ADT: average daily traffic; V/C: Volume to Capacity ratio; LOS: level of service
Locations where there is a Project-related impact are shaded.

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: Fehr & Peers 2015 (see Table A9.32-1 for complete data).

**TABLE 4.14-38
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
Alicia (Jeronimo to Muirlands)	Mission Viejo	59.2	1.05	F	59.2	1.05	F
Alicia (Muirlands to I-5)	Mission Viejo	59.8	1.06	F	59.9	1.06	F
Alton (E. Yale Loop to Jeffrey)	Irvine	29.6	0.93	E	29.8	0.93	E
Avd Carlota (Paseo de Valencia to El Toro)	Laguna Hills	30.1	1.20	F	30.1	1.20	F
Bake (Commercentre to Irvine/Trabuco)	Lake Forest	37.0	0.99	E	37.2	0.99	E
Bake (Irvine/Trabuco to Toledo)	Irvine	55.9	1.04	F	55.8	1.03	F
Bake (Jeronimo to Muirlands)	Irvine	66.3	1.23	F	66.2	1.23	F
Bake (Rockfield to I-5)	Irvine	86.8	1.21	F	91.0	1.26	F
Bake (Toledo to Jeronimo)	Irvine	59.1	1.09	F	59.0	1.09	F
Barranca (Culver to W. Yale Loop)	Irvine	33.1	1.03	F	33.2	1.04	F
Barranca (E. Yale Loop to Jeffrey)	Irvine	29.2	0.91	E	29.6	0.93	E
Barranca (W Yale Loop to Lake)	Irvine	29.6	0.93	E	29.7	0.93	E
Culver (Alton to Main)	Irvine	50.8	0.94	E	50.9	0.94	E
Culver (Barranca to Alton)	Irvine	51.9	0.96	E	52.0	0.96	E
Culver (Main to I-405)	Irvine	56.8	1.05	F	56.7	1.05	F
El Toro (Rockfield to I-5)	Lake Forest	58.0	1.03	F	58.6	1.04	F

**TABLE 4.14-38
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
G (Marine to E)	Irvine	11.2	0.86	D	12.4	0.95	E
Irvine (A-02 to Alton)	Irvine	55.4	1.03	F	56.0	1.04	F
Irvine (Browning to Tustin Ranch)	Tustin	52.6	0.93	E	53.0	0.94	E
Irvine (Newport to Red Hill)	Tustin	57.4	1.02	F	57.8	1.03	F
Irvine (Red Hill to Browning)	Tustin	57.3	1.02	F	57.7	1.03	F
Jeffrey (Alton to I-405)	Irvine	51.6	0.96	E	52.1	0.97	E
Lake Forest (Laguna Canyon to Bake)	Irvine	32.1	1.00	F	32.1	1.00	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	69.0	1.23	F	69.7	1.24	F
LQ (east of LY)	Irvine	12.3	0.95	E	12.6	0.97	E
Marine (east of B)	Irvine	18.9	0.59	A	31.6	0.99	E
Marine (east of Ridge Valley)	Irvine	22.8	0.71	C	35.1	1.10	F
Marine (east of Sand Canyon)	Irvine	33.6	1.05	F	50.0	1.56	F
Marine (north of Barranca)	Irvine	22.5	0.70	C	34.5	1.08	F
Marine (west of B)	Irvine	21.0	0.66	B	33.1	1.03	F
Modjeska (Portola Springs to Irvine)	Irvine	14.8	1.14	F	14.8	1.14	F
Oak Canyon (Valley Oak to Sand Canyon)	Irvine	14.1	1.09	F	14.2	1.09	F
Portola (Lake Forest to Glenn Ranch)	Lake Forest	52.0	0.92	E	52.1	0.93	E
Portola (Portola Springs to SR-241)	Irvine	30.5	0.95	E	30.8	0.96	E
Portola (Rancho to El Toro)	Lake Forest	55.0	0.98	E	55.1	0.98	E
Roosevelt (Nimitz to Jeffrey)	Irvine	13.0	1.00	E	13.0	1.00	E
Sand Canyon (Alton to I-405)	Irvine	48.0	0.89	D	49.1	0.91	E
SR-133 (Laguna Canyon to Lake Forest)	Irvine	54.1	1.00	F	54.1	1.00	F
SR-133 (Lake Forest to SR-73)	Irvine	50.0	1.56	F	49.9	1.56	F
Trabuco (east of O)	Irvine	21.0	1.62	F	21.2	1.63	F
Trabuco (east of Culver)	Irvine	31.2	0.98	E	31.3	0.98	E
Trabuco (east of Sand Canyon)	Irvine	41.1	1.28	F	43.6	1.36	F
University (south of I-405)	Irvine	59.5	1.10	F	59.8	1.11	F

ADT: average daily traffic; V/C: Volume to Capacity ratio; LOS: level of service
Locations where there is a Project-related impact are shaded.
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: Fehr & Peers 2015 (see Table A9.32-2 for complete data).

Based on the ADT V/C performance criteria and impact thresholds, the following roadway segments in the study area were evaluated for potential impacts by the proposed Project for the Year 2035 and Post-2035 cumulative scenarios:

Year 2035

- Jeffrey Rd. (between Alton and I-405)
- Bake Pkwy. (between Rockfield and I-5)
- Trabuco Rd. (east of Sand Canyon)
- Marine Way (east of Sand Canyon)
- "LQ" Street (east of "LY" Street)
- Trabuco Road (east of Ridge Valley Street)
- Marine Way (east of Ridge Valley Street)
- Marine Way (west of "B" Street)
- Marine Way (east of "B" Street)
- Marine Way (north of Barranca Parkway)
- "G" Street (between Marine and "E" Street)

Post-2035

- Sand Canyon Avenue (between Alton Parkway and I-405)
- Bake Parkway (between Rockfield Boulevard and I-5)
- Trabuco Road (east of Sand Canyon Avenue)
- Marine Way (east of Sand Canyon Avenue)
- "LQ" Street (east of "LY" Street)
- Marine Way (east of Ridge Valley)
- Marine Way (west of "B" Street)
- Marine Way (east of "B" Street)
- Marine Way (north of Barranca Parkway)
- "G" Street (Marine Way to "E" Street)

Based on the peak hour LOS, these segments would all operate at LOS A or B in the Year 2035 and at LOS A or B, with the exception of Marine Way east of Sand Canyon Avenue, which would operate at LOS C, in Post-2035.¹²

¹² See Table 9-5 and 9-10 in the TIA for the detailed data on the highest peak volume, V/C ratio, and LOS. Additionally, Year 2035 and Post-2035 Without Project and With Pending Projects ADT and V/C ratios are shown on Figures 9-5, 9-6, 9-9, and 9-10. The Year 2035 and Post-2035 With Project and With Pending Projects ADT and V/C ratios are shown on Figures 9-7, 9-8, 9-11, and 9-12.

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 4.14-39 and 4.14-40 identify those intersections that would operate at a deficient LOS in the Year 2035 and Post-2035, respectively. There would be 21 intersection locations in the Year 2035 and 21 intersections in Post-2035 that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, four intersections in the Year 2035 and seven intersections in Post-2035, listed below, are forecasted to have Project-related cumulative impacts based on the adopted thresholds. 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 ICU 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

- Browning and Irvine Boulevard (AM)
- Jeffrey Road and Alton Parkway (PM)
- San Canyon Avenue and I-5 NB Ramps/Marine Way (AM and PM)
- San Canyon Avenue and Oak Canyon/Laguna Canyon Road (PM)

Post-2035

- Culver Drive and I-405 NB Ramps (PM)
- Sand Canyon Avenue and I-5 NB/Marine Way (AM and PM)
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon (PM)
- Sand Canyon Avenue and Alton Parkway (PM)
- SR-133 NB/Gateway Boulevard and Pacifica (PM)
- Sand Canyon Avenue and Burt Road (AM and PM)
- Marine Way and Ridge Valley (PM)

**TABLE 4.14-39
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
54	Browning Ave and Irvine Blvd	Tustin	0.98	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	1.06	F
136	Jamboree Rd and Barranca Pkwy	Irvine	0.89	D	0.95	E	0.89	D	0.96	E
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	0.93	E	0.87	D	0.94	E
224	Culver Dr and Walnut Ave	Irvine	0.77	C	0.92	E	0.77	C	0.93	E
229	Culver Dr and Alton Pkwy	Irvine	0.85	D	0.94	E	0.85	D	0.94	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	0.97	E	0.89	D	0.98	E	0.91	E
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	0.84	D	0.78	C	0.97	E	0.93	E
306	Sand Canyon Ave and Oak Cyn/Laguna Cyn Rd	Irvine	0.77	C	0.92	E	0.78	C	0.95	E
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.63	B	0.90	E	0.63	B	0.90	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	0.80	D	0.91	E	0.81	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	0.91	E	0.84	D	0.92	E	0.88	D
465	SR-241/SR-261 NB Ramps and Chapman Ave	Orange	0.78	C	0.94	E	0.79	C	0.95	E
514	Alton Pkwy and Rancho Pkwy	Lake Forest	0.91	E	0.74	C	0.93	E	0.74	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	0.73	C	1.22	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.

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 4.14-40
PENDING POST-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
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	1.06	F	0.56	A	1.07	F
136	Jamboree Rd and Barranca Pkwy	Irvine	0.84	D	0.93	E	0.84	D	0.93	E
220	Culver Dr and Irvine Blvd	Irvine	0.87	D	0.94	E	0.87	D	0.94	E
229	Culver Dr and Alton Pkwy	Irvine	0.80	C	0.94	E	0.79	C	0.94	E
232	Culver Dr and I-405 NB Ramps	Irvine	0.97	E	1.00	E	0.96	E	1.02	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	0.96	E	0.92	E	0.97	E	0.93	E
303	Sand Canyon Ave and I-5 NB Ramps/Marine Way	Irvine	0.86	D	0.83	D	1.08	F	1.08	F
306	Sand Canyon Ave and Oak Cyn/Laguna Cyn Rd	Irvine	0.84	D	0.98	E	0.86	D	1.01	F
310	Sand Canyon Ave and Alton Pkwy	Irvine	0.70	B	0.89	D	0.72	C	0.93	E
334	SR-133 NB Ramps/Gateway Blvd and Pacifica*	Irvine	0.83	D	0.98	E	0.83	D	1.02	F
361	Bake Pkwy and Portola Pkwy	Lake Forest	0.69	B	1.00	E	0.69	B	1.00	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	0.88	D	0.95	E	0.89	D
444	Sand Canyon Ave and Burt Rd	Irvine	0.95	E	0.87	D	0.98	E	0.92	E
516	Lake Forest Dr and Rancho Pkwy	Lake Forest	0.86	D	1.00	F	0.86	D	1.01	F
517	Portola Pkwy and Rancho Pkwy	Lake Forest	0.73	C	1.09	F	0.73	C	1.10	F
560	Ridge Valley and Marine Way	Irvine	0.55	A	0.56	A	0.75	C	0.91	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.

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.

* City of Irvine has a goal of maintaining LOS E for this intersection.

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 4.14-41 and 4.14-42 identify those intersections that are projected to have a deficient LOS using the HCM methodology in the Year 2035 and Post-2035, respectively. There would be 10 intersection locations in the Year 2035 and 11 intersections in Post-2035 that are projected to operate at a deficient LOS without the Project. Based on the performance standards and impact threshold criteria, ten intersections in the Year 2035 and nine intersections in Post-2035, 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 & I-5 NB (PM)
- Jeffrey Road & Walnut Ave. (AM)
- Sand Canyon Ave. & I-5 NB/Marine Way (AM & PM)
- Sand Canyon Ave. & I-5 SB (AM)
- Sand Canyon Ave. & I-405 SB (AM)
- SR-133 SB & Irvine Bl. (AM)
- Fortune Dr./I-5 SB & Enterprise Dr. (PM)
- Bake Pkwy. & I-5 SB (PM)
- SR-133 SB & Trabuco Rd. (AM)
- SR-133 NB & Trabuco Rd. (PM)

Post-2035

- Sand Canyon Avenue and I-5 NB (AM and PM)
- Sand Canyon Avenue and I-5 SB (PM)
- Sand Canyon Avenue and I-405 SB (AM)
- Portola Parkway and SR-241 NB (PM)
- Portola Parkway and SR-241 SB (AM and PM)
- Alton Parkway and I-5 NB Ramps (AM)
- Fortune Drive/I-5 SB and Enterprise Drive (PM)
- Bake Parkway and I-5 SB (PM)
- Trabuco Road and SR-133 NB (AM and PM)

**TABLE 4.14-41
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
287	Jeffrey Rd and I-5 NB	Signal	AM	19.9	B	20.4	C
			PM	34.4	C	36.8	D
288	Jeffrey Rd and Walnut Ave	Signal	AM	68.7	E	69.1	E
			PM	89.8	F	87.3	F
303	Sand Canyon Ave and I-5 NB/Marine Way	Signal	AM	80.8	F	>120.0	F
			PM	58.8	E	>120.0	F
305	San Canyon Ave and I-5 SB	Signal	AM	39.8	D	40.3	D
			PM	25.9	C	27.3	C
312	Sand Canyon Ave and I-405 SB	Signal	AM	54.2	D	56.9	E
			PM	28.3	C	27.5	C
316	SR-133 SB and Irvine Blvd	Signal	AM	39.2	D	39.5	D
			PM	24.3	C	24.7	C
351	Fortune Dr and I-5 SB/Enterprise Dr	Signal	AM	30.5	C	29.6	C
			PM	55.3	E	59.8	E
368	Bake Pkwy and I-5 SB	Signal	AM	33.0	C	34.3	C
			PM	51.2	D	57.6	E
486	SR-133 SB and Trabuco Rd	Signal	AM	67.8	E	71.6	E
			PM	35.8	D	33.2	C
487	SR-133 NB and Trabuco Rd	Signal	AM	27.5	C	33.3	C
			PM	84.1	F	117.1	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 9-7 for complete data).

**TABLE 4.14-42
PENDING POST-2035 PLUS PROPOSED PROJECT CALIFORNIA DEPARTMENT
OF TRANSPORTATION RAMP INTERSECTION LOS SUMMARY
(HIGHWAY CAPACITY MANUAL METHODOLOGY)**

ID	Intersection	Control	Peak Hour	No Project		Plus Project	
				Delay (sec.)	LOS	Delay (sec.)	LOS
288	Jeffrey Rd and Walnut Ave	Signal	AM	85.1	F	84.2	F
			PM	113.3	F	89.5	F
303	Sand Canyon Ave and I-5 NB/Marine Way	Signal	AM	98.4	F	>120.0	F
			PM	67.3	E	>120.0	F
305	Sand Canyon Ave and I-5 SB	Signal	AM	52.4	D	51.5	D
			PM	29.6	C	45.5	D
312	Sand Canyon Ave and I-405 SB	Signal	AM	64.9	E	66.4	E
			PM	16.9	B	16.6	B
324	Portola Pkwy and SR-241 NB	SSSC	AM	0.0	A	0.0	A
			PM	>120	F	>120	F
325	Portola Pkwy and SR-241 SB	SSSC	AM	41.3	E	42.5	E
			PM	>120	F	>120	F
345	Alton Pkwy and I-5 NB	Signal	AM	39.0	D	47.2	D
			PM	8.5	A	8.6	A
351	Fortune Dr and I-5 SB/Enterprise Dr	Signal	AM	31.0	C	33.3	C
			PM	54.4	D	58.2	E
368	Bake Pkwy and I-5 SB	Signal	AM	33.4	C	34.7	C
			PM	49.9	D	53.6	D
486	SR-133 SB and Trabuco Rd	Signal	AM	83.3	F	81.8	F
			PM	41.0	D	40.0	D
487	SR-133 NB and Trabuco Rd	Signal	AM	44.2	D	49.5	D
			PM	75.9	E	102.1	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 4.14-43 and 4.14-44, eight freeway/toll road ramps in the Year 2035 with Pending Projects and eight 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, the following five freeway/highway ramps in the Year 2035 and six freeway/highway ramps in Post-2035 would have Project-related cumulative impacts at the specified time periods:

Year 2035

- I-5 SB Off-Ramp at San Canyon Avenue (AM)
- I-5 SB Off-Ramp at Alton Parkway (AM)
- I-405 NB Direct On-Ramp at San Canyon Avenue (PM)
- I-405 SB Off-Ramp at San Canyon Avenue (AM)
- SR-133 SB On-Ramp at Trabuco Road (AM)

Post-2035

- I-5 SB Off-Ramp at Sand Canyon Avenue (AM)
- I-5 SB Off-Ramp at Alton Parkway (AM)
- I-405 NB Direct On-Ramp at Sand Canyon Avenue (PM)
- SR-133 NB On-Ramp at Barranca Parkway (PM)
- SR-133 NB Off-Ramp at Trabuco Road (PM)
- SR-133 SB On-Ramp at Barranca Parkway (PM)

**TABLE 4.14-43
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 Rd	SB On	1	1,080	1124	1.04	F	992	0.92	E	1144	1.06	F	1000	0.93	E
I-5 at Sand Canyon	SB Off	1	1,500	1493	1.00	E	930	0.62	B	1670	1.00	F	969	0.65	B
I-5 at Alton Pkwy	SB Off	2	2,250	2309	1.03	F	1010	0.45	A	2380	1.06	F	1040	0.46	A
I-5 at Bake Pkwy	SB Off	2	3,000	3274	1.09	F	2304	0.77	C	3265	1.09	F	2286	0.76	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,500	1390	0.93	E	1440	0.96	E	1440	0.96	E	1510	1.01	F
	SB Off	1	1,500	1740	1.16	F	1084	0.72	C	1790	1.19	F	1121	0.75	C
I-405 at Irvine Center Dr	SB Off	2	2,250	2394	1.06	F	1785	0.79	C	2414	1.07	F	1774	0.79	C
SR-133 at Trabuco Rd	SB On	1	1,500	1624	1.08	F	1300	0.87	D	1654	1.10	F	1310	0.87	D
SR-133 at Barranca Pkwy	SB On	1	1,080	180	0.17	A	1280	1.19	F	200	0.19	A	1283	1.19	F
	NB On	1	1,080	778	0.72	C	1340	1.24	F	798	0.74	C	1347	1.25	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 4.14-44
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 Sand Canyon Ave	SB Off	1	1,500	1,611	1.07	F	1,029	0.69	B	1,757	1.17	F	1,142	0.76	C
I-5 at Alton Pkwy	SB Off	2	2,250	2,430	1.08	F	1,060	0.47	A	2,510	1.12	F	1,110	0.49	A
I-5 at Bake Pkwy	SB Off	2	3,000	3,363	1.12	F	2,380	0.79	C	3,362	1.12	F	2,369	0.79	C
I-405 at Sand Canyon Ave	NB Direct On	1	1,800	1,550	0.86	D	1,870	1.04	F	1,610	0.89	D	2,010	1.12	F
	SB Off	1	1,500	2,190	1.46	F	1,233	0.82	D	2,204	1.47	F	1,304	0.87	D
I-405 at Irvine Center Dr	SB Off	2	2,250	2,446	1.09	F	1,854	0.82	D	2,472	1.10	F	1,853	0.82	D
SR-133 at Trabuco Rd	SB On	1	1,500	1,780	1.19	F	1,410	0.94	E	1,800	1.20	F	1,440	0.96	E
	NB Off	1	1,500	996	0.66	B	1,465	0.98	E	1,035	0.69	B	1,536	1.02	F
SR-133 at Barranca Pkwy	SB On	1	1,080	130	0.12	A	1,229	1.14	F	160	0.15	A	1,259	1.17	F
	NB On	1	1,080	849	0.79	C	1,363	1.26	F	860	0.80	C	1,433	1.33	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 4.14-45 and 4.14-46, 38 freeway/toll road mainlines in the Year 2035 with Pending Projects and 46 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, the following one segment in the Year 2035 and two segments in Post-2035 would have Project-related cumulative impacts in the specified timeframes:

Year 2035

- I-5 SB (Sand Canyon Off-Ramp) (AM)

Post-2035

- I-5 Northbound (SR-133 Northbound On-Ramp to Sand Canyon Avenue Off-Ramp) (PM)
- I-5 Southbound (Sand Canyon Avenue Off-Ramp) (AM)

**TABLE 4.14-45
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 Pkwy On-Ramp	Basic	AM	0.81	-	F	0.78	-	F
			PM	0.64	-	F	0.64	-	F
	Collector-Distributor Rd On-Ramp	Basic	AM	0.88	-	F	0.87	-	F
			PM	0.77	-	F	0.77	-	F
	Alton Pkwy Off-Ramp	Diverge	AM	0.92	-	F	0.91	-	F
			PM	0.82	-	F	0.82	-	F
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.97	42.50	E	0.97	41.88	E
			PM	1.29	-	F	1.30	-	F
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	1.49	-	F	1.49	-	F
			PM	1.57	-	F	1.59	-	F
	SR-133 SB On-Ramp to Jeffrey Rd Off-Ramp	Weave	AM	0.88	-	F	0.88	-	F
			PM	0.79	33.03	D	0.80	33.50	D

**TABLE 4.14-45
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	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	0.98	43.26	E	0.99	43.61	E
			PM	1.07	-	F	1.08	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	0.99	41.00	E	1.00	41.08	E
			PM	1.14	-	F	1.14	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.78	-	F	0.79	-	F
			PM	0.91	41.26	E	0.91	41.46	E
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.03	-	F	1.07	-	F
			PM	0.92	37.49	E	0.92	37.64	E
	SR-133 SB to Alton Pkwy	Weave	AM	1.40	-	F	1.40	-	F
			PM	1.28	-	F	1.27	-	F
Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.78	29.31	D	0.77	29.07	D	
		PM	1.03	-	F	1.03	-	F	
I-405 On-Ramp	Basic	AM	0.56	20.34	C	0.56	20.18	C	
		PM	0.70	-	F	0.70	-	F	
I-405 NB	Jeffrey Rd Off-Ramp	Basic	AM	0.94	-	F	0.94	-	F
			PM	0.75	28.01	D	0.76	28.28	D
	Jeffrey Rd Off to On-Ramp	Basic	AM	1.02	-	F	1.02	-	F
			PM	0.75	27.84	D	0.75	28.11	D
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.99	-	F	0.98	-	F
			PM	0.64	26.44	C	0.65	26.61	C
Jeffrey Rd Slip On-Ramp	Merge	AM	1.26	-	F	1.25	-	F	
		PM	0.74	28.82	D	0.75	29.15	D	
I-405 SB	University Dr/Jeffrey Rd Off-Ramp	Diverge	AM	1.03	-	F	1.04	-	F
			PM	0.90	37.56	E	0.91	37.71	E
	Jeffrey Rd Loop On-Ramp	Merge	AM	0.86	32.89	D	0.88	-	F
			PM	0.75	28.96	D	0.75	29.24	D
	Jeffrey Rd Slip On-Ramp	Merge	AM	1.06	-	F	1.08	-	F
			PM	0.98	36.55	E	0.99	-	F
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	1.09	-	F	1.10	-	F
			PM	1.00	44.54	E	1.00	-	F
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.24	-	F	1.25	-	F
			PM	1.08	-	F	1.09	-	F
	Sand Canyon Ave Loop On-Ramp	Merge	AM	0.82	32.40	D	0.82	32.38	D
			PM	0.85	-	F	0.85	-	F
	Sand Canyon Ave to SR-133	Basic	AM	0.97	41.77	E	0.97	41.98	E
			PM	0.94	-	F	0.94	-	F
SR-133 Off-Ramp	Diverge	AM	1.12	-	F	1.12	-	F	
		PM	1.17	-	F	1.18	-	F	
Bake Pwky Off-Ramp	Basic	AM	0.66	-	F	0.66	-	F	
		PM	0.63	22.63	C	0.63	22.81	C	

**TABLE 4.14-45
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 NB	I-5 NB On-Ramp	Merge	AM	0.43	18.85	B	0.44	19.09	B
			PM	1.04	-	F	1.05	-	F
	I-5 NB to Lane Add	Basic	AM	0.42	15.35	B	0.43	15.60	B
			PM	1.02	-	F	1.03	-	F
	I-5 SB to Trabuco Rd	Weave	AM	0.46	-	F	0.45	-	F
			PM	1.04	-	F	1.07	-	F
Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.46	12.07	B	0.46	12.01	B	
		PM	1.30	-	F	1.30	-	F	
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.96	-	F	0.97	-	F
			PM	0.42	12.69	B	0.42	12.85	B
	Trabuco Rd to I-5 NB	Weave	AM	0.91	-	F	0.90	-	F
			PM	0.37	13.75	B	0.38	14.19	B
SR-241 NB	Portola Pkwy Off-Ramp	Diverge	AM	1.07	-	F	1.07	-	F
			PM	0.58	25.66	C	0.59	25.94	C
	Portola Pkwy to Toll Road	Basic	AM	1.05	-	F	1.05	-	F
			PM	0.53	19.34	C	0.54	19.56	C
	Toll Road Off-Ramp	Diverge	AM	1.12	-	F	1.12	-	F
			PM	0.49	12.62	B	0.50	12.84	B
Toll Road and Portola Pkwy On to SR-133 SB Off	Weave	AM	1.10	-	F	1.10	-	F	
		PM	0.47	17.12	B	0.48	17.34	B	
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	0.94	-	F	0.95	-	F
			PM	0.61	15.21	B	0.61	15.30	B
	SR-133 NB On to Toll Road Off	Weave	AM	0.37	13.47	B	0.37	13.68	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 9-9 for complete data).

**TABLE 4.14-46
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 Pkwy On-Ramp	Basic	AM	0.81	-	F	0.80	-	F
			PM	0.63	-	F	0.62	-	F
	Collector-Distributor 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	0.91	-	F
			PM	0.82	-	F	0.82	-	F
	Alton Pkwy Slip On-Ramp to SR-133 NB Off-Ramp	Weave	AM	0.96	41.68	E	0.97	41.78	E
			PM	1.28	-	F	1.30	-	F
	SR-133 NB On-Ramp to Sand Canyon Ave Off-Ramp	Weave	AM	1.50	-	F	1.53	-	F
			PM	1.60	-	F	1.63	-	F
SR-133 SB On-Ramp to Jeffrey Rd Off-Ramp	Weave	AM	0.90	-	F	0.90	-	F	
		PM	0.81	34.53	D	0.83	35.40	E	
Jeffrey Rd Slip On-Ramp	Merge	AM	0.92	-	F	0.92	-	F	
		PM	0.70	28.42	D	0.72	29.12	D	
I-5 SB	Culver Dr Off-Ramp to Jeffrey Rd On-Ramp	Basic	AM	1.07	-	F	1.07	-	F
			PM	1.13	-	F	1.13	-	F
	Jeffrey Rd Off-Ramp	Diverge	AM	1.09	-	F	1.09	-	F
			PM	1.19	-	F	1.20	-	F
	Jeffrey Rd Off- to On-Ramps	Basic	AM	1.00	-	F	1.00	-	F
			PM	1.03	-	F	1.03	-	F
	Jeffrey Rd to SR-133 NB	Weave	AM	0.83	-	F	0.84	-	F
			PM	0.94	-	F	0.94	-	F
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.09	-	F	1.12	-	F
			PM	0.96	39.10	E	0.98	39.86	E
	SR-133 SB to Alton Pkwy	Weave	AM	1.42	-	F	1.44	-	F
			PM	1.29	-	F	1.30	-	F
	Spectrum Center On-Ramp to I-405 On-Ramp	Basic	AM	0.80	30.44	D	0.80	30.60	D
			PM	1.05	-	F	1.04	-	F
I-405 Ave On-Ramp	Basic	AM	0.59	21.20	C	0.59	21.25	C	
		PM	0.73	-	F	0.73	-	F	

**TABLE 4.14-46
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 Ave Off-Ramp to Lane Drop	Basic	AM	0.85	-	F	0.84	-	F
			PM	0.67	24.40	C	0.67	24.25	C
	Lane Drop to Sand Canyon Ave On-Ramp/HOV Add Lane	Basic	AM	1.06	-	F	1.05	-	F
			PM	0.84	32.60	D	0.83	32.33	D
	Sand Canyon Ave Loop On-Ramp	Basic	AM	0.91	-	F	0.91	-	F
			PM	0.71	25.95	C	0.70	25.75	C
	Sand Canyon Ave Slip On-Ramp	Merge	AM	1.01	-	F	1.01	-	F
			PM	0.90	32.79	D	0.92	33.53	D
	Sand Canyon Slip On-Ramp to Jeffrey Rd Off-Ramp	Basic	AM	1.03	-	F	1.03	-	F
			PM	0.86	33.80	D	0.86	34.15	D
	Jeffrey Rd Off-Ramp	Basic	AM	1.03	-	F	1.03	-	F
			PM	0.86	33.80	D	0.86	34.15	D
	Jeffrey Rd Off to On-Ramp	Basic	AM	1.13	-	F	1.13	-	F
			PM	0.89	35.97	E	0.90	36.29	E
Jeffrey Rd Loop On-Ramp	Merge	AM	1.23	-	F	1.22	-	F	
		PM	0.77	31.08	D	0.78	31.22	D	
Jeffrey Rd Slip On-Ramp	Merge	AM	1.52	-	F	1.51	-	F	
		PM	0.88	33.83	D	0.89	34.12	D	
I-405 SB	University Dr/Jeffrey Rd Off-Ramp	Diverge	AM	1.23	-	F	1.25	-	F
			PM	1.00	41.09	E	1.00	-	F
	Jeffrey Rd to Loop On-Ramp	Basic	AM	1.08	-	F	1.09	-	F
			PM	0.91	37.44	E	0.92	38.13	E
	Jeffrey Rd Loop On-Ramp	Merge	AM	1.11	-	F	1.14	-	F
			PM	0.84	32.13	D	0.84	32.32	D
	Jeffrey Rd Slip On-Ramp	Merge	AM	1.31	-	F	1.34	-	F
			PM	1.05	-	F	1.07	-	F
	Jeffrey Rd to Sand Canyon Ave	Basic	AM	1.22	-	F	1.23	-	F
			PM	1.09	-	F	1.10	-	F
	Sand Canyon Ave Off-Ramp	Diverge	AM	1.40	-	F	1.41	-	F
			PM	1.19	-	F	1.20	-	F
	Sand Canyon Ave Off- to On-Ramps	Basic	AM	1.00	44.54	E	1.01	-	F
			PM	1.00	44.65	E	1.00	44.76	E
Sand Canyon Ave Loop On-Ramp	Merge	AM	0.97	-	F	0.99	-	F	
		PM	0.92	-	F	0.92	-	F	
Sand Canyon Ave Slip On-Ramp	Merge	AM	1.00	-	F	1.02	-	F	
		PM	0.94	-	F	0.94	-	F	
SR-133 Off-Ramp	Diverge	AM	1.23	-	F	1.24	-	F	
		PM	1.26	-	F	1.26	-	F	

**TABLE 4.14-46
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
	SR-133 On-Ramp to Irvine Center Dr Off-Ramp	Weave	AM	0.98	39.96	E	0.99	40.53	E
			PM	1.00	-	F	1.00	39.18	E
	Bake Pkwy Off-Ramp	Basic	AM	0.71	-	F	0.72	-	F
			PM	0.69	25.28	C	0.69	25.32	C
SR-133 NB	I-5 NB On-Ramp	Merge	AM	0.45	19.45	B	0.46	19.78	B
			PM	1.08	-	F	1.09	-	F
	I-5 NB to Add Lane	Basic	AM	0.44	15.94	B	0.45	16.27	B
			PM	1.06	-	F	1.07	-	F
	I-5 SB to Trabuco Rd	Weave	AM	0.49	-	F	0.49	-	F
			PM	1.05	-	F	1.06	-	F
	Irvine Blvd Slip On-Ramp to SR-241	Weave	AM	0.43	11.58	B	0.43	11.51	B
			PM	1.30	-	F	1.29	-	F
SR-133 SB	SR-241 to Irvine Center Dr	Weave	AM	0.94	-	F	0.96	-	F
			PM	0.38	11.23	B	0.38	11.23	B
	Trabuco Rd to I-5 NB	Weave	AM	0.94	-	F	0.94	-	F
			PM	0.38	14.23	B	0.39	14.60	B
	Toll Road Off-Ramp	Diverge	AM	1.04	-	F	1.03	-	F
			PM	0.43	9.99	A	0.43	10.16	B
Toll Road and Portola Pkwy On- to SR-133 SB Off-Ramp	Weave	AM	1.01	-	F	1.01	-	F	
		PM	0.41	14.19	B	0.41	14.36	B	
SR-241 SB	SR-133 SB Off-Ramp	Diverge	AM	0.91	-	F	0.93	-	F
			PM	0.55	13.03	B	0.55	13.08	B
	SR-133 NB On-Ramp to Toll Road Off-Ramp	Weave	AM	0.33	12.00	B	0.33	12.09	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.¹³

City of Irvine

Peak Hour Intersection LOS (ICU Methodology)

The intersection of Browning and Irvine Boulevard would be significantly impacted under the cumulative scenario in the AM 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, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of Jeffrey Road and Alton Parkway 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, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of Sand Canyon Avenue and I-5 Northbound would be significantly impacted under the cumulative scenario in the AM and PM peak hours for both the Year 2035 With Pending Projects and Post-2035 With Pending Projects. The addition of the Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Projects traffic, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road would be significantly impacted under the cumulative scenario in the PM peak hour for both the Year 2035 With Pending Projects and Post-2035 With Pending Projects. This intersection already operates at an unacceptable LOS and the addition of Project-related traffic, in conjunction with the Post-2035 and pending projects traffic, increases the ICU by 0.02 or more and would cause an increase in delay at this location (Threshold 4.14-3).

The intersection of Sand Canyon Avenue and Alton Parkway would be significantly impacted under the cumulative scenario in the PM peak hour. The addition of Project-related traffic, in conjunction with the Post-2035 and pending projects traffic, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

The intersection of SR-133 Northbound/Gateway Boulevard and Pacifica would be significantly impacted under the cumulative scenario in the PM peak hour. Project-related traffic, in

¹³ 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 (Jeffrey Road and the I-5 Northbound ramps) under Threshold 4.14-66.

conjunction with Post-2035 and pending projects traffic, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-2).

The intersection of Sand Canyon Avenue and Burt Road would be significantly impacted under the 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 and pending projects traffic, increases the ICU by 0.02 or more and would cause an increase in delay at this location (Threshold 4.14-3).

The Culver Drive and I-405 Northbound Ramp intersection would be significantly impacted under the 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 the Post-2035 and pending projects traffic, increases the ICU by 0.02 or more and would cause an increase in delay at this location (Threshold 4.14-3).

The Marine Way and Ridge Valley intersection would be significantly impacted under the cumulative scenario in the PM peak hour. The addition of Project-related traffic, in conjunction with the Post-2035 and pending projects traffic, increases the ICU by 0.02 or more and would cause the intersection LOS to degrade from acceptable to unacceptable levels (Threshold 4.14-1).

Freeway/Toll Road Ramp LOS

The I-405 Southbound Off-Ramp at Sand Canyon Avenue would be significantly impacted under the cumulative scenario in the AM peak hour for the Year 2035 With Pending Projects. This ramp already operates at an unacceptable LOS and the addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F (Threshold 4.14-10).

The SR-133 Southbound On-Ramp at Trabuco Road would be significantly impacted under the cumulative scenario in the AM peak hour. The addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F (Threshold 4.14-9).

The I-5 Southbound Off-Ramp at Sand Canyon Avenue would be significantly impacted under the cumulative scenario in the AM peak hour for both the Year 2035 With Pending Projects and Post-2035 With Pending Projects. This ramp already operates at an unacceptable LOS. The addition of the Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS E in the Year 2035 With Pending Projects and LOS F in Post-2035 With Pending Projects (Threshold 4.14-10).

The I-5 Southbound Off-Ramp at Alton Parkway would be significantly impacted under the cumulative scenario in the AM peak hour for both the Year 2035 With Pending Projects and Post-2035 With Pending Projects. This ramp already operates at an unacceptable LOS. The addition of Project-related traffic, in conjunction with the Year 2035 With Pending Projects and Post-2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a

freeway ramp segment operating at LOS F in both the Year 2035 With Pending Projects and Post-2035 With Pending Projects (Threshold 4.14-10).

The I-405 Northbound direct On-Ramp at Sand Canyon Avenue would be significantly impacted under the cumulative scenario in the PM peak hour for both the Year 2035 With Pending Projects and Post-2035 With Pending Projects. This ramp 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 Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS E in the Year 2035 With Pending Projects and LOS F in Post-2035 With Pending Projects (Threshold 4.14-10).

The SR-133 Northbound On-Ramp at Barranca Parkway would be significantly impacted under the cumulative scenario in the PM peak hour. This ramp already operates at an unacceptable LOS. The addition of Project-related traffic in conjunction with Post-2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F (Threshold 4.14-10).

The SR-133 Southbound On-Ramp at Barranca Parkway would be significantly impacted under the cumulative scenario in the PM peak hour. This ramp already operates at an unacceptable LOS. The addition of Project-related traffic, in conjunction with the Post-2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02 on a freeway ramp segment operating at LOS F (Threshold 4.14-10).

The SR-133 Northbound Off-Ramp at Trabuco Road would be significantly impacted under the cumulative scenario in the PM peak hour. The addition of Project-related traffic, in conjunction with Post-2035 With Pending Projects traffic, increases the V/C ratio by more than 0.02, causing the freeway ramp segment to change from an acceptable LOS to LOS F (Threshold 4.14-9).

California Department of Transportation

Caltrans Ramp Intersection LOS (HCM Methodology)

The Sand Canyon Avenue and I-5 Northbound intersection would be significantly impacted under the 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 the Post-2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Sand Canyon Avenue and I-5 Southbound intersection would be significantly impacted under the cumulative scenario in the AM peak hour. The addition of Project-related traffic, in conjunction with Post-2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Sand Canyon Avenue and I-405 Southbound intersection would be significantly impacted under the 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 Post-2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Portola Parkway and SR-241 Northbound intersection would be significantly impacted under the 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 intersection (Threshold 4.14-66).

The Portola Parkway and SR-241 Southbound intersection would be significantly impacted under the 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 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Alton Parkway and I-5 Northbound intersection would be significantly impacted under the 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 Post-2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Fortune Drive/I-5 Southbound and Enterprise Drive intersection would be significantly impacted under the 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 intersection (Threshold 4.14-66).

The Bake Parkway and I-5 Southbound intersection would be significantly impacted under the 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 the Post-2035 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

The Trabuco Road and SR-133 Northbound intersection would be significantly impacted under the 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 and pending traffic, would cause an increase in delay at this intersection (Threshold 4.14-66).

Freeway/Toll Road Mainline LOS

The I-5 Northbound mainline between the SR-133 Northbound On-Ramp and the Sand Canyon Avenue Off-Ramp would be significantly impacted under the cumulative scenario in the PM peak hour because Project-related traffic, in conjunction with the Post-2035 and pending traffic, increases traffic by more than three percent on a segment that would already be performing at LOS F (Threshold 4.14-68).

The I-5 Southbound mainline at the Sand Canyon Avenue Off-Ramp would be significantly impacted under the cumulative scenario in the AM peak hour because Project-related traffic, in conjunction with Post-2035 and pending traffic, would increase traffic by more than three percent on a segment that would already be performing at LOS F (Threshold 4.14-68).

Impact Conclusion: *Based on the traffic data analysis and the threshold evaluations above, there would be cumulative impacts associated with the Year 2035 Plus Project With Pending Projects and Post-2035 Plus Project With Pending Projects scenarios. Impacts would be pursuant to Thresholds 4.14-1*

through 4.14-3, and 4.14-9 and 4.14-10 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 4.14-1 through 4.14-3, the feasibility of the mitigation is uncertain and outside the control of the County of Orange; therefore, the impacts would remain significant and unavoidable. Impacts associated with the freeway mainline and ramps (Thresholds 4.14-9 and 4.14-10) would be significant and unavoidable.

There would also be significant cumulative impacts pursuant to Thresholds 4.14-65, 4.14-66, and 4.14-68. While potential mitigation has been recommended and imposed to reduce Project impact 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 4.14-34, 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.

4.14.7 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 4.14-35, provide the LOS information after implementation of the mitigation measure. These measures can generally be grouped into one of six 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 Avenue¹⁴

Caltrans

- Sand Canyon Avenue and I-5 Northbound
- Jeffrey Road and I-405 Northbound
- Sand Canyon Avenue and I-5 Southbound
- Trabuco Road and SR-133 Southbound
- Trabuco Road and SR-133 Northbound
- Sand Canyon Avenue and I-405 Southbound
- Alton Parkway and I-5 Northbound

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 not agree to the optimal signal timing adjustments, the County would be unable to implement these measures because they are located outside of 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—Improvement Currently Identified in the NITM Program.

The City of Irvine maintains a sub-regional transportation impact fee program referred to as the NITM Program, which was established in 2003. This program identifies proposed mitigation measures which are needed to accommodate projected growth within the North Irvine Area, which generally extends from SR-241 to the north, Jamboree Road to the west, I-5/I-405 to the south, and Alicia Parkway to the east. The NITM Program is regularly updated as new development proposals are processed by the City of Irvine. The voting members of the NITM Program includes the City of Irvine, Heritage Fields, El Toro, and the Irvine Company. These updates identify needed improvements, determine their physical feasibility, develop cost estimates, and then apportion out fair-share costs of these improvements to various sub-areas within the NITM study area. This most recent updated was completed in October 2014.

¹⁴ 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.

As the County of Orange is not currently a member of the NITM Program, there are two potential options for the County to participate in the implementation of these mitigation measures. The first option would be for the County to join the NITM Program as a fourth party. This option would allow the County to actively participate in updates to the NITM Program, which may include the improvements required to reflect the impacts associated with the Project. This update would establish the County's fair share contribution in funding these mitigation measures. The second option would be for the County to not join the NITM Program but instead to pay its fair share contribution, as established by subsequent updates of the NITM Program, through an alternative mechanism such as a formal agreement by the County and the City relating to the payment of any applicable fees and other costs between the two agencies.

The following Project-related impacts would be reduced to less than significant with the implementation of improvements identified in the most recent NITM update. Since these improvements have already been vetted by the City of Irvine as part of the NITM Program they have been deemed feasible. The County would contribute to these improvements on a fair share basis.

- I-5 Southbound On-Ramp at Jeffrey Road: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane.
- I-5 Southbound Off-Ramp at Alton Parkway: Impacts to this ramp can be mitigated by adding a second auxiliary lane from the I-5 to the Off-Ramp.
- I-405 Southbound Off-Ramp at Sand Canyon Avenue: Impacts to this ramp can be mitigated by adding a second drop lane.
- SR-133 Southbound On-Ramp at Barranca Parkway: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane.

The County's participation in the NITM Program or alternative funding mechanism for implementing these improvements is identified as MM TRAN-3. For those improvements identified in the NITM Program the City of Irvine has vetted the feasibility of the improvements. The Category 2 improvements required to mitigate the Project impacts are modification of existing freeway ramps and would require minimal to no additional right-of-way. Therefore, environmental impacts associated with implementation of the improvements are expected to be less than significant. The lead agency responsible for implementing the improvements will determine the appropriate CEQA documentation at the time mitigation design is developed.

Should the County be unable to participate in 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 these measures because they are located outside of County jurisdiction. Therefore, the Project's impacts at these locations would remain significant and unavoidable, at least on a short-term basis until such time as the NITM Program improvements are implemented.

Category 3—Improvement at Locations in the NITM Area but not Identified as NITM Improvements

Since its inception in 2003, the NITM Program has evolved as additional development has occurred within the NITM area. Regular updates to the program have occurred over this 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 improvements were determined to be feasible mitigation for the identified impacts:

- Sand Canyon Avenue and Oak Canyon/Laguna Canyon: Impacts to this intersection can be mitigated by a signal upgrade that provides a westbound right turn overlap phase. This would allow the intersection to operate at an adequate LOS for all scenarios. No environmental impacts would be associated with this measure.
- Sand Canyon Avenue and Burt Road: Impacts to this intersection can be mitigated by adding an additional northbound and southbound through lane. To the north of the intersection, lane additions would be within existing right-of-way. Sufficient right-of-way exists to the south of the intersection to accommodate the northbound lane, with the relocation of the sidewalk and some loss of landscape area. The southbound improvement would necessitate that three southbound lanes (through the intersection) be merged back to two lanes prior to the new railroad undercrossing. This would require a design exception from the City of Irvine for a substandard merge section to avoid the need to move the abutment to the recently constructed (2015) railroad bridge. Modification of the railroad bridge was deemed to be not reasonable as mitigation for an individual project.
- Jeffrey Road and Walnut Avenue: Impacts to this intersection can be mitigated with signal upgrade and a westbound right turn overlap phase of the signal.
- Sand Canyon Avenue and Alton Parkway: Impacts to this intersection can be mitigated with signal upgrade and a right turn overlap phases for all movements.

Though these improvements have not been identified in the NITM Program, MM TRAN-3 would be applicable to these improvements. These improvements have not been formally vetted by the City of Irvine for feasibility or an assessment of impacts.

Similar to Category 2 improvements, 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 these measures because they are located outside of 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 4—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:

- State-Route 133 Northbound/Gateway and Pacifica Intersection: Impacts to this intersection can be mitigated by restriping the current northbound right-turn lane to a shared through-right lane.
- Sand Canyon Avenue and I-405 Southbound Intersection: Impacts to this intersection can be mitigated by adding an additional eastbound right-turn lane at this intersection. This may require limited right-of-way but there are no structures in this location. Environmental impacts are anticipated to be less than significant.
- 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.
- Jeffrey Road and I-5 Northbound Intersection: Impacts to this intersection can be mitigated with an additional westbound right turn lane. It is anticipated that this improvement could be accommodated within the existing right-of-way and have minimal environmental impacts.
- I-5 Southbound Off-Ramp at Sand Canyon Avenue: Impacts to this intersection can be mitigated by converting the Off-Ramp to a two-lane ramp with one auxiliary lane added in place of the existing shoulder lane. This improvement was determined to be physically feasible since the conversion would occur within the existing right-of-way and environmental impacts are anticipated to be less than significant. However, the resulting lane and shoulder widths may be sub-standard and require a design exemption from Caltrans. Consequently, this impact was determined to be significant because the design exemption is not a certainty.
- I-405 Northbound Direct On-Ramp at Sand Canyon Avenue: Impacts to this ramp can be mitigated by converting it to a two-lane On-Ramp that tapers to one merge lane. It is anticipated that this improvement could be accommodated within the existing or minimal right-of-way acquisition and have minimal environmental impacts.

- SR-133 Northbound On-Ramp at Barranca Parkway: Impacts to this ramp can be mitigated by restriping the current lane and signal change. It is anticipated that this improvement could be accommodated within the existing right-of-way and have minimal environmental impacts.
- SR-133 Northbound Off-Ramp at Trabuco Road: Impacts to this ramp can be mitigated by converting the Ramp to a two-lane Off-Ramp with one auxiliary lane. It is anticipated that this improvement could be accommodated within the no or limited right-of-way acquisition and have minimal environmental impacts.
- Bake Parkway and I-5 Southbound Intersection: Impacts to this intersection can be mitigated with the addition of a 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.
- Sand Canyon Avenue and I-5 Southbound: Impacts to this intersection can be mitigated by converting the outer northbound through lane to a shared through-right lane.
- Sand Canyon Avenue and I-5 Northbound/Marine Way Intersection: Impacts to this intersection can be mitigated by converting the northbound right-turn lane to a free right-turn lane, adding an eastbound right turn overlap signal phase, and adding a third westbound left-turn lane. Implementation of this mitigation would require significant right-of-way acquisition. Right-of-way would need to be acquired at the intersection's southeastern quadrant to accommodate the recommended free northbound right turn lane by the Year 2035 scenario. Additionally, right-of-way would need to be acquired at the intersection's northeastern quadrant to accommodate the recommended third westbound left turn lane by the Post-2035 scenario.

A subcategory of Caltrans improvements were determined not to be technically feasible based on Caltrans standards. These include:

- Portola Parkway and SR-241 Northbound: Impacts to this intersection can be mitigated with the installation of a traffic signal; however, the intersection does not meet signal warrants.
- 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) has no present plans to construct the necessary improvements within the time frame 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 5—Project Causes or Contributes to a Cumulative Impact

There are eight locations where impacts have been identified only 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 exist 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 are three intersections (one City of Irvine intersection, one City of Tustin intersection, and one Caltrans intersection), two freeway ramps⁹, and one segment of the freeway mainline that have impacts in this cumulative scenario where the mitigation has not been previously discussed. Each of these locations are discussed below:

- **Browning Avenue and Irvine Boulevard Intersection (AM):** Impacts to this intersection, located in the City of Tustin, would require building out the intersection to reflect three westbound through lanes and three eastbound through lanes. Irvine Boulevard is designated as a Major Arterial Highway on the MPAH; therefore, the mitigation would reflect the full build-out consistent with the MPAH designation. This improvement would likely require substantial acquisition of right-of-way and acquisition of residences. Because there is insufficient right-of-way to accommodate the required improvement and the impacts would potentially be significant, this mitigation was determined to not be reasonably feasible to implement. Therefore, this impact, which is only associated with this scenario, would remain significant and unavoidable.
- **Jeffrey Road and Alton Parkway Intersection:** Impacts to this intersection, located in the City of Irvine, can be mitigated by signal upgrade and restriping. 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 3 mitigation measures, should the County be unable to join the NITM Program or a formal agreement cannot 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 County 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 Southbound and Irvine Boulevard Intersection:** Impacts to this intersection can be mitigated 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 County 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 Southbound On-Ramp at Trabuco Road:** Impacts to this ramp can be mitigated by converting it to a two-lane on-ramp that tapers to one merge lane. However, as

discussed under Category 4, Caltrans has no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is no 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.

- I-5 Southbound Off-Ramp at Sand Canyon Avenue: Impacts to this intersection can be mitigated by converting the Off-Ramp to a two-lane ramp with one auxiliary lane added in place of the existing shoulder lane. This improvement was determined to be physically feasible since the conversion would occur within the existing right-of-way and environmental impacts are anticipated to be less than significant. However, this mitigation measure would necessitate a design exception by Caltrans for the improvement's proposed reduced lane widths and non-standard shoulder width along the ramp. Additionally, as discussed under Category 4, Caltrans has no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is no 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.
- I-5 Southbound (Sand Canyon Avenue Off-Ramp) Freeway Segment: Impacts to this segment can be mitigated by adding a second drop lane to the Off-Ramp. This improvement is identified as part of the NITM Program; therefore, MM TRAN-3 would apply for this impact. Similar to the discussion for Category 2 improvements, should the County be unable to join the NITM Program or a formal agreement cannot 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 County 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 are two intersections (one City of Irvine intersection and one Caltrans intersection) and one freeway mainline segment that have impacts in this cumulative scenario where the mitigation has not been previously discussed. In addition, the I-5 Southbound (Sand Canyon Avenue Off-Ramp) location discussed above for the Year 2035 Plus Project and Pending Project scenario would also be impacted for the Post-2035 Plus Project and Pending Project scenario. The additional locations not previously addressed are discussed below:

- Culver Drive and I-405 Northbound Ramp Intersection: Impacts to this intersection can be mitigated by adding a second westbound left turn lane. However, as discussed under Category 4, Caltrans has no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is no 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.
- I-5 Northbound (SR-133 Northbound On-Ramp to Sand Canyon Avenue Off-Ramp) Freeway Segment: Mitigating the identified significant impact to this segment would

require reconstruction of this segment of the freeway, which is beyond the scope of any one Project. However, as discussed under Category 4, Caltrans has no mechanism by which the Project can contribute its fair-share towards the necessary improvements and, consequently, there is no 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 6—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 a long term, phased development like the Project, 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 4.14-36 there are theoretical impacts to six segments of the freeway mainline facilities that only have impacts in the Existing Plus Project scenario. These are:

- I-5 Northbound (Alton Parkway Slip On-Ramp to SR-133 Northbound Off-Ramp) (PM)
- I-5 Southbound (Jeffrey Road Off-Ramp) (PM)
- I-5 Southbound (Jeffrey Road to SR-133 Northbound) (AM)
- I-5 Southbound (SR-133 Southbound to Alton Parkway) (AM and PM)¹⁵
- I-405 Northbound (Jeffrey Road Slip On-Ramp) (AM)
- I-405 Southbound (SR-133 Off-Ramp) (AM)
- I-405 Southbound (Sand Canyon Avenue Off-Ramp) (AM)

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-5 Southbound 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

¹⁵ The required improvement to mitigate this impact is the addition of a second auxiliary lane from the I-5 to the off-ramp. It should be noted that this improvement can be included as a Category 2 (improvement in the NITM Program). However, it has been placed in this category because the impact is only associated with the Existing Plus Project Scenario.

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 an 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 are 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 and Marine Way 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, haul 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 Northbound
 - Sand Canyon Avenue and I-5 Northbound
 - Jeffrey Road and I-405 Northbound
 - Sand Canyon Avenue and I-5 Southbound
 - Trabuco Road and SR-133 Southbound
 - Trabuco Road and SR-133 Southbound
 - Sand Canyon Avenue and I-405 Southbound
 - Alton Parkway and I-5 Northbound

- Trabuco Road and SR-133 Southbound
- Trabuco Road and SR-133 Northbound

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.

- I-5 Southbound On-Ramp at Jeffrey Road: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane.
- I-5 Southbound Off-Ramp at Alton Parkway: Impacts to this ramp can be mitigated by adding a second auxiliary lane from the I-5 to the Off-Ramp.
- I-405 Southbound Off-Ramp at Sand Canyon Avenue: Impacts to this ramp can be mitigated by adding a second drop lane.
- SR-133 Southbound On-Ramp at Barranca Parkway: Impacts to this ramp can be mitigated by converting the HOV preferential lane at the meter to a mixed-flow lane.
- Sand Canyon Avenue and Oak Canyon/Laguna Canyon: Impacts to this intersection can be mitigated by a signal upgrade that provides a westbound right turn overlap phase. This would allow the intersection to operate at an adequate LOS for all scenarios. No environmental impacts would be associated with this measure.
- Sand Canyon Avenue and Burt Road: Impacts to this intersection can be mitigated by adding an additional northbound and southbound through lane. To the north of the intersection, lane additions would be within existing right-of-way. Sufficient right-of-way exists to the south of the intersection to accommodate the northbound lane, with the relocation of the sidewalk and some loss of landscape area. The southbound improvement would necessitate that three southbound lanes (through the intersection) be merged back to two lanes prior to the new railroad undercrossing. This would require a design exception from the City of Irvine for a substandard merge section to avoid the need to move the abutment to the recently constructed (2015) railroad bridge.

Modification of the railroad bridge was deemed to be not reasonable as mitigation for an individual project.

- Jeffrey Road and Walnut Avenue: Impacts to this intersection can be mitigated with signal upgrade and a westbound right turn overlap phase of the signal.
- Sand Canyon Avenue and Alton Parkway: Impacts to this intersection can be mitigated with signal upgrade and a right turn overlap phases for all movements.

4.14.8 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 cities of Irvine and Tustin), 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 4.14-36, 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 no 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.

4.14.9 REFERENCES

- California Department of Transportation (Caltrans). 2002. Guide for the Preparation of Traffic Impact Studies. Sacramento, CA: Caltrans.
- Fehr & Peers. 2015 (December). *El Toro 100-Acre Project Transportation Impact Analysis*. Anaheim, CA: Fehr & Peers (Appendix L).
- Irvine, City of. 2016 (September, access date). North Irvine Transportation Mitigation Committee. Irvine, CA: the City. http://legacy.cityofirvine.org/council/comms/north_irvine_transportation_mitigation_committee/default.asp.
- 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, Public Works Department. 2004. Traffic Impact Analysis Guidelines. Irvine, CA: the City.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Orange County Transportation Authority (OCTA). 2015a (November, adopted). *2015 Orange County Congestion Management Program*. Orange, CA: OCTA.
- . 2015b. Measure M2 Project Schedules. Accessed December 1, 2015. [http://www.octa.net/Projects-and-Programs/Measure-M/Measure-M2-\(2011-2041\)/Project-Schedules/](http://www.octa.net/Projects-and-Programs/Measure-M/Measure-M2-(2011-2041)/Project-Schedules/).
- . 2014. *2014 Long Range Transportation Plan*. Orange, CA: OCTA.
- South Coast Air Quality Management District (SCAQMD). 2013. California Emission Estimator Model (CalEEMod)TM Version 2013.2 Developed by Environ International Corporation in Collaboration with SCAQMD and other California Air Districts. Diamond Bar, CA: SCAQMD.

This page intentionally left blank

4.15 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 El Toro 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 (SAMP)* (IRWD 2011a). 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), 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 El Toro Development Plan* is also Attachment C to the Water Supply Verification. Analysis of storm drain facilities is provided in Section 4.8, Hydrology/Water Quality.

Per Appendix F, Energy Conservation, of the California Environmental Quality Act (CEQA) Guidelines, a discussion of the Project’s impacts on electricity and natural gas is included in Section 6.0, Long Term Implications of the Project, of this EIR.

4.15.1 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 more than 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 ten percent on or before December 31, 2015, and to achieve a 20 percent reduction by December 31, 2020. In their 2010 Urban Water Management Plans, 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, he 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 and 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 Plan.

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 cities and counties. 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 for the project.

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 City or County to deny approval of a tentative or parcel map if the City or County finds that the project does not have a sufficient, reliable water supply as defined in the bill.

California Integrated Waste Management Act (AB 939)

Sections 40050 to 40063 of the *California Public Resources Code* is the California Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939), 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 jurisdictions' 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 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 non-residential 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 non-residential 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 332,000 acre-feet per year (IRWD 2015a).

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 which 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 is 178 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.

Irvine Ranch Water District 2015 Urban Water Management Plan

The IRWD has adopted its 2015 UWMP (IRWD 2016c) in compliance with the Urban Water Management Planning Act. Adopted on June 27, 2016 by the IRWD Board of Directors, the

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).

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.

County

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 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. The Orange County Integrated Waste Management Plan (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 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 which 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.

4.15.2 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.

4.15.3 EXISTING CONDITIONS

The update to *Sub-Area Master Plan (SAMP) for Planning Areas 30 and 51*, which includes the County's 100-Acre Parcel was prepared by IRWD in 2011. The update addressed development changes associated with planned development projects located within IRWD designated Planning Areas 30 and 51. The SAMP and any updates to a 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. IRWD is currently updating the SAMP.

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 southcentral 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 PA 51. In the vicinity of the Project site, there is a 12-inch line in Ridge Valley and a 24-inch line that parallels a portion of the Project site's western boundary. There are two existing reservoirs located in the northeastern part of PA 51 that serve Zone 3.

With respect to nonpotable water, the proposed Project is located in Zone B of PA 51. In the vicinity of the Project site, there are 12-inch lines in Ridge Valley, Marine Way, and across the Project site to a connection about midpoint along the western Project boundary.

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 June 2016 (IRWD 2016c).

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 build out. 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 4.15-1 shows the IRWD’s existing water supply sources, which include a total of 99,086 acre-feet of potable water and 51,098 acre-feet of nonpotable water.

**TABLE 4.15-1
IRWD 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%
<i>Total</i>	<i>99,086</i>	<i>65.96%</i>
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%
<i>Total</i>	<i>51,098</i>	<i>34.0%</i>
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 acre-feet 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 State Water Project (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 Reclamation Plant (MWRP) and the Los Alisos

Water Reclamation Plant. This water is used for agricultural and non-agricultural 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 non-potable 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 acre-feet 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. In the vicinity of the Project site, there is a 12-inch sewer line in Ridge Valley, which travels to Technology Drive to the south and then ultimately to an existing 36-inch sewer main located to the south of Alton Parkway (IRWD Reach A). In addition, there is a 24-inch sewer line that bisects the site in a north-south direction and also travels to the south to Technology Drive (IRWD Reach B) where it also ultimately connects to the same 36-inch sewer main but at a different connection point.

The IRWD sewer system conveys wastewater to the MWRP in Irvine and the Los Alisos Water Recycling Plant (LARP) in Lake Forest. At the time the WSA was prepared in April 2015, the MWRP was permitted to treat 18.5 million gallons of wastewater per day (mgd). However, the MWRP has undergone an expansion and the permitted capacity was increased to 28 mgd at the end of 2015. The LARP has a primary treatment capacity of 5.5 mgd and has a permitted capacity of 7.5 mgd total with secondary treatment. Treated wastewater is used for agriculture and landscape irrigation (IRWD 2016a, 2016d).

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. 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.

Orange County (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 4.15-2, 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 4.15-2
OC 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 Canyon Access Road, 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 Avenue, 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 pick-up services in the City limits. Additionally, OC Waste & Recycling contracts with the major haulers in Orange County for waste pick-up 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 of 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 pick up, 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/resident/day 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 5 (I-5), less than 1.0 mile from the site at 6411 Oak Canyon Road.

4.15.4 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 4.15-1** Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Threshold 4.15-2** 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 4.15-3** 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 4.15-4** Have insufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.
- Threshold 4.15-5** 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 4.15-6** Be served by a landfill with insufficient permitted capacity to accommodate the project’s solid waste disposal needs.
- Threshold 4.15-7** Not comply with federal, state, and local statutes and regulations related to solid waste.

4.15.5 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 4.15.7, Mitigation Program because these measures will be tracked as part of the Mitigation Monitoring and Reporting Program.

Threshold 4.15-1

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 Regional Quality Control Board for the City of Irvine. The IRWD's treatment plant were 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 NPDES permit. The potential for the Project to exceed the treatment capacity of the IRWD facility is further addressed under Threshold 4.15-5. 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 4.15-1.*

Threshold 4.15-2

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 (Appendix M-2) and approved a Water Supply Verification on May 23, 2016 (Appendix M-3). The Project's estimated potable water demand, based on IRWD demand assumptions for typical usage based on current code requirements, is provided in Table 4.15-3 below. The estimated average daily water demand for future uses within the Project site is approximately 514,080 gallons per day (gpd).

**TABLE 4.15-3
ESTIMATED PROJECT AVERAGE DAY POTABLE WATER DEMAND**

Land Use	Proposed Size	Average Day Demand (gpm)	Average Day Demand (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
Mixed Use (Office)	1,876,000 sf	135,360	94	206	328
Residential	2,103 du	300,960	209	459	731
Community Commercial (Retail)	220,000 sf	38,880	27	59	94
Hotel	242 rooms	38,880	27	59	94
Total		514,080	357	783	1,247
gpd: gallons per day; gpm: gallons per minute; sf: square feet; du: dwelling units Source: Tait & Associates 2016 .					

The proposed Project would result in an estimated potable water demand of approximately 514,080 gpm on average or a maximum day demand of 783 gallons per minute (gpm). The peak hour demand is estimated at 1,247 gpm. The additional peak hour demand of 1,247 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

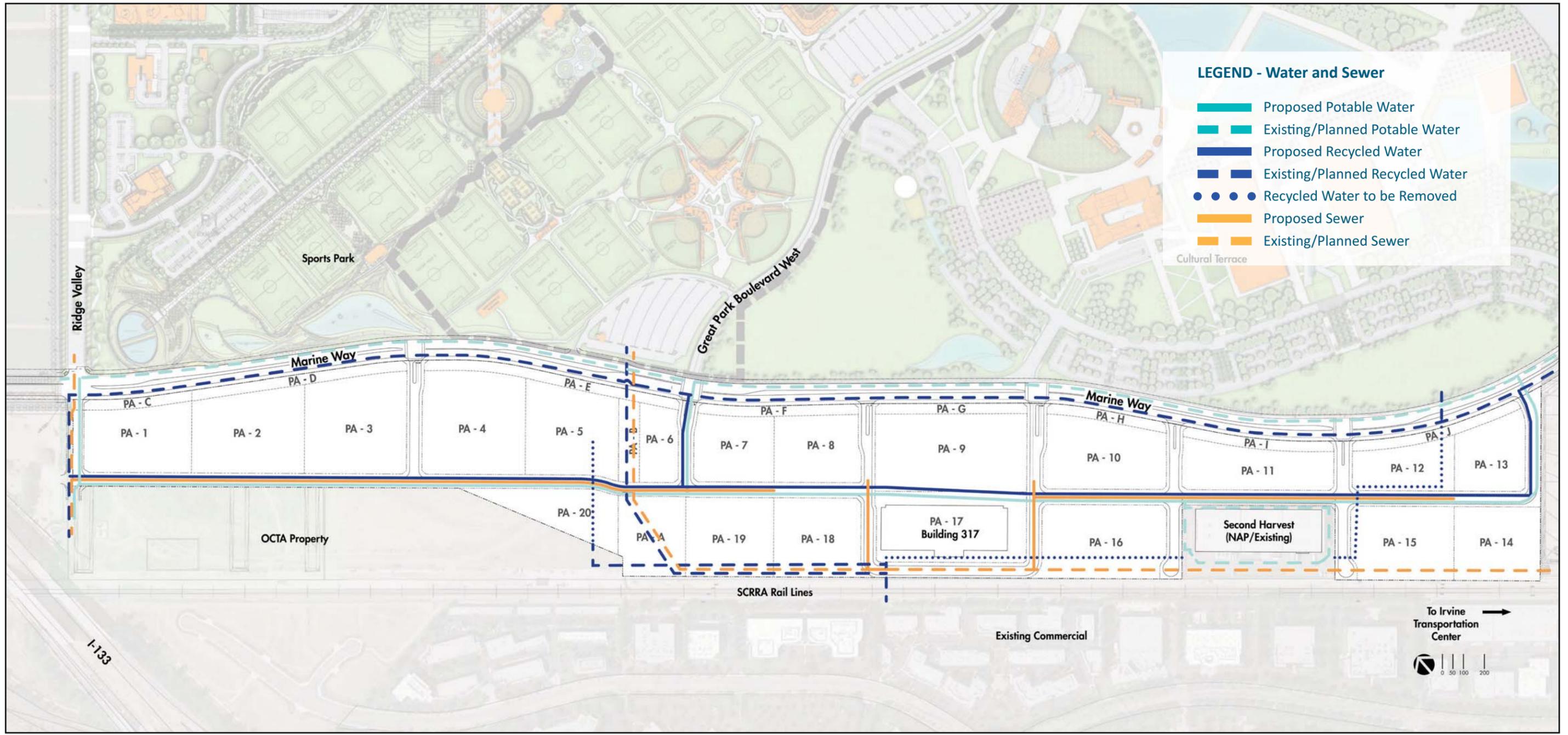
Water storage for the Project is divided into three categories: operational storage, fire flow storage, and emergency storage. The proposed Project would require an additional storage requirement of 0.84 -million gallons (MG), which would be met by the existing 6.4-MG surplus for Zone 3.

To accommodate the water consumption and fire flow demands of the proposed Project, the Project’s backbone domestic water network would consist of 8-inch and/or 10-inch water lines within the central spine street with looped connections to an IRWD domestic water line in Marine Way. The proposed Project’s conceptual potable water infrastructure is shown on Exhibit 4.15-1, Conceptual Water and Sewer Infrastructure. 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. IRWD as part of the WSA determined that 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.

Nonpotable Water

The Project would require nonpotable (recycled) water service from IRWD. The Project’s estimated recycled water demand is provided in Table 4.15-4 below. The estimated average daily water demand for future uses on the Project site is approximately 45 gpm.

² Water supplies under development includes 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.



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_water_sewer_20160324.ai

Source: TAIT, EPTDESIGN, KTG, City of Irvine, 2016

Conceptual Water and Sewer Infrastructure

Exhibit 4.15-1

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 4.15-4
ESTIMATED PROJECT AVERAGE DAY RECYCLED WATER DEMAND**

Land Use	Proposed Size (acres)	Average Day Demand (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
Mixed Use (Office)	24.63	9	23	47
Residential	33.58	13	35	72
Community Commercial (Retail)	15.34	7	20	41
Hotel	3.00	2	5	10
Park and Greenbelt	10.92	14	39	79
Roads (Private)	19.20	0	0	0
Total	106.67	45	122	249
gpd: gallons per day; gpm: gallons per minute; sf: square feet; du: dwelling units Source: Tait & Associates 2016				

Based on IRWD's irrigation water demand for each of the land use categories, the proposed Project would result in an estimated recycled water demand of approximately 45 gpm on average or a maximum day demand of 122 gpm. The peak hour demand is estimated at 249 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, the Project's backbone domestic water network would consist of 6-inch and 8-inch water lines within the central spine street with looped connections to an IRWD recycled water line in Marine Way. 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 4.15-1, Conceptual Water and Sewer Infrastructure. A public utility easement would be established for the IRWD recycled water lines. In addition, to minimize the demand on potable water during construction, non-potable water would be used for dust control measures (see Development Requirement [DR] UTIL-1). Existing facilities are located on the Project site to serve the construction demand for recycled water. 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 (IRWD 2015a).

Wastewater

The IRWD would provide wastewater service to the proposed Project, as identified in their December 17, 2015 Conditional Water and Sewer Will Serve Letter. The Project's estimated wastewater demand is provided in Table 4.15-5 below. The estimated average daily wastewater generated for future uses on the Project site is approximately 447,846 gpd.

**TABLE 4.15-5
ESTIMATED WASTEWATER GENERATION**

Land Use	Proposed Size	Average Day Generated (gpd)	Average Day Generated (cfs)	Peak Hour (cfs)
Mixed Use (Office)	1,876,000 sf	116,312	0.180	0.215
Residential	2,103 du	273,390	0.423	0.505
Community Commercial (Retail)	220,000 sf	31,524	0.049	0.058
Hotel	242 rooms	26,620	0.041	0.049
Total		447,846	0.693	0.827
gpd: gallons per day; cfs: cubic feet per second; sf: square feet; du: dwelling units				
Source: Tait & Associates 2016				

The proposed Project would result in an estimated wastewater generation of 447,846 gpd on average and an average day generation of 0.693 cubic feet per second (cfs). The peak hour wastewater generated is estimated at 0.827 cfs. Wastewater flows from the Project site would primarily drain to the southwest towards the intersection of I-5 and State Route (SR) 133 into two wastewater connections, also referred to as “Reaches”. Wastewater discharges from the Project would end up at the MWRP where it would be treated for reuse as non-potable recycled water. Per Water Code Section 1210, IRWD is required to supply its own reclaimed non-potable 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, the MWRP was in the process of expanding its treatment capacity and by the end of 2015, the permitted capacity expanded from 18 mgd to 28 mgd. Based on IRWD demands for nonpotable water in the year 2035, 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 Water Supply Assessment), 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 in order to satisfy IRWD’s estimated demands for delivery of nonpotable water to its customers.

To accommodate the wastewater generated by the proposed Project, the Project’s on-site backbone wastewater collection system would consist of sewer lines ranging from 8 inches to 12 inches within the central spine street with a connection point in Ridge Valley. The proposed Project’s conceptual sewer infrastructure is shown on Exhibit 4.15-1, Conceptual Water and Sewer Infrastructure. As currently planned, wastewater flow from the Project is being distributed to IRWD’s Reach A and Reach B sewer mains.

Reach A, an existing 12-inch sewer line, is the most southwesterly reach to an existing gravity sewer near the new terminus of Technology Drive. The IRWD has identified several potential deficiencies in Reach A with and without the Project and is planning on constructing phased improvements to Reach A independent of whether or not the Project proceeds. 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. For Reach B IRWD has also identified potential deficiencies with and

without the Project. To provide the required capacity to satisfy both the pre- and post-Project conditions, larger diameter pipes, parallel pipelines, and sewer flow diversion to serve their customers would need to be installed. The Project would use these improvements identified by IRWD for Reaches A and B. The existing SAMP identifies the improvements as being funded as capital improvements and paid for through the collection of fees as part of the District's Capital Improvement Program. These improvements are designed to address existing conditions and are planned improvements independent of whether or not the Project moves forward.

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 the 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 4.15-1 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 identified by IRWD with or without the Project exist in Reaches A and B. The Project would use improvements identified by IRWD for Reaches A and B and IRWD has committed to providing the necessary improvements required to provide service to the Project. These improvements 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 impact associated with those improvements would be addressed by IRWD pursuant to CEQA prior to these improvements being constructed. Based on the IRWD demands for nonpotable water in the year 2035, estimated to vary from approximately 25.9 MGD for a normal year supply and demand condition up to 29.7 MGD for an estimated a 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 in order 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 on-site and off-site to serve the Project; 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 4.15-2.

Threshold 4.15-3

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 to provide adequate drainage for the Project site. The conceptual drainage infrastructure is shown in Exhibit 3-8, Conceptual Drainage Infrastructure, in Section 3.0, Project Description. As discussed in Section 4.8, Hydrology and Water Quality, new storm drain facilities required of the proposed Project would not result in significant impacts or require mitigation measures. Development requirements identified in Section 4.8 would be applicable to the proposed Project. Project impacts would be less than significant.

Impact Conclusion: *As discussed in Section 4.8, 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 4.15-3. Development requirements identified in Section 4.8 would be applicable to the proposed Project.*

Threshold 4.15-4

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 4.15-6 and 4.15-7, below, which are summarized from the WSA, IRWD has sufficient capacity for both potable and non-potable water to accommodate the Project through 2035, based upon current water supplies and 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

³ Water supplies under development includes 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.

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’ nonpotable supply, native water captured in Irvine Lake, is reduced in single-dry and multiple-dry years.

**TABLE 4.15-6
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND
DEMAND FOR POTABLE WATER
(ACRE-FEET PER YEAR)**

	2015	2020	2025	2030	2035
Normal Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	92,217	101,427	110,311	110,311	110,311
<i>Demand</i>					
Baseline Demand	63,671	70,307	77,451	81,254	83,433
Demand with Project	63,671	70,527	78,001	81,804	83,983
WRMP Buildout Demand ^c	63,671	70,527	78,001	81,804	83,983
<i>Reserve Supply with Project</i>	<i>28,547</i>	<i>30,900</i>	<i>32,310</i>	<i>28,506</i>	<i>26,327</i>
Single-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	92,217	101,427	110,311	110,311	110,311
<i>Demand</i>					
Baseline Demand	68,128	75,229	82,872	86,942	89,274
Demand with Project	68,128	75,464	83,461	87,530	89,862
WRMP Buildout Demand ^c	68,128	75,464	83,461	87,530	89,862
<i>Reserve Supply with Project</i>	<i>24,090</i>	<i>25,963</i>	<i>26,850</i>	<i>22,780</i>	<i>20,448</i>
Multiple-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	92,217	101,427	110,311	110,311	110,311
<i>Demand</i>					
Baseline Demand	68,128	75,229	82,872	86,942	89,274
Demand with Project	68,128	75,464	83,461	87,530	89,862
Buildout Demand ^c	68,128	75,464	83,461	87,530	89,862
<i>Reserve Supply with Project</i>	<i>24,090</i>	<i>25,963</i>	<i>26,850</i>	<i>22,780</i>	<i>20,448</i>
WRMP: Water Resources Master Plan					
^a Includes current potable supplies and supplies under development. For MWD imported supplies, IRWD conservatively calculates how SWP could affect MWD supplies and calculates in a 16 percent reduction off of 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 4.15-7
IRVINE RANCH WATER DISTRICT BUILDOUT SUPPLY AND
DEMAND FOR NONPOTABLE WATER
(ACRE-FEET PER YEAR)**

	2015	2020	2025	2030	2035
Normal Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	42,997	50,097	50,097	50,097	50,097
<i>Demand</i>					
Baseline Demand	27,859	28,958	30,152	30,189	29,928
Demand with Project	27,859	28,989	30,229	30,267	30,005
WRMP Buildout Demand ^c	27,859	28,989	30,229	30,189	30,005
<i>Reserve Supply with Project</i>	<i>15,138</i>	<i>21,108</i>	<i>19,868</i>	<i>19,907</i>	<i>20,092</i>
Single-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	40,997	51,097	50,097	50,097	50,097
<i>Demand</i>					
Baseline Demand	29,809	30,985	32,262	32,303	32,023
Demand with Project	29,809	31,018	32,345	32,386	32,106
WRMP Buildout Demand ^c	29,809	31,018	32,345	32,303	32,106
<i>Reserve Supply with Project</i>	<i>11,187</i>	<i>20,079</i>	<i>17,752</i>	<i>17,711</i>	<i>17,991</i>
Multiple-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	40,997	51,097	50,097	50,097	50,097
<i>Demand</i>					
Baseline Demand	29,809	30,985	32,262	32,303	32,023
Demand with Project	29,809	31,018	32,345	32,386	32,106
WRMP Buildout Demand ^c	29,809	31,018	32,345	32,303	32,106
<i>Reserve Supply with Project</i>	<i>11,187</i>	<i>20,079</i>	<i>17,752</i>	<i>17,711</i>	<i>17,991</i>
WRMP: Water Resources Master Plan					
^a Includes current non-potable supplies and supplies under development. For MWD imported supplies, IRWD conservatively calculates how SWP could affect MWD supplies and calculates in a 16 percent reduction off of 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 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 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 4.15-8, 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 4.15-8
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					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	79,288	87,119	97,557	99,191	99,868
<i>Demand</i>					
Baseline Demand	63,671	70,307	77,451	81,254	83,433
Demand with Project	63,671	70,527	78,001	81,804	83,983
WRMP Buildout Demand ^c	63,671	70,527	78,001	81,804	83,983
<i>Reserve Supply with Project</i>	<i>15,617</i>	<i>16,592</i>	<i>19,556</i>	<i>17,387</i>	<i>15,884</i>
Single-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	79,288	85,643	96,126	97,806	99,571
<i>Demand</i>					
Baseline Demand	68,128	75,229	82,872	86,942	89,274
Demand with Project	68,128	75,464	83,461	87,530	89,862
WRMP Buildout Demand ^b	68,128	75,464	83,461	87,530	89,862
<i>Reserve Supply with Project</i>	<i>11,161</i>	<i>10,179</i>	<i>12,665</i>	<i>10,276</i>	<i>9,708</i>
Multiple-Dry Year					
<i>Supplies (Current and Under Development)</i>					
Maximum Supply Capability ^{a,b}	79,288	85,643	96,126	97,806	99,571
<i>Demand</i>					
Baseline Demand	68,128	75,229	82,872	86,942	89,274
Demand with Project	68,128	75,464	83,461	87,530	89,862
WRMP Buildout Demand ^c	68,128	75,464	83,461	87,530	89,862
<i>Reserve Supply with Project</i>	<i>11,161</i>	<i>10,179</i>	<i>12,665</i>	<i>10,276</i>	<i>9,708</i>
WRMP: Water Resources Master Plan					
^a Includes current non-potable supplies and supplies under development.					
^b A discussion of supplies under development, water rights, and water service contracts is provided in the WSA (refer to Appendix M-1).					
^c Full 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 provide by MWD. In addition to MWD's existing regional supply assessments; this WSA has considered MWD's recent actions on the 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 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% 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 build-out (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 non-potable) 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 supply for the Project. Therefore, impacts would be less than significant and no mitigation is required, pursuant to Threshold 4.15-4.*

Threshold 4.15-5

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 4.15-2, based on IRWD demands for nonpotable water in the year 2035, 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 Water Supply Assessment), 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 in order 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

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).

Project. Additionally, the draft SAMP is being currently updated by IRWD for PA 51, which include the Project site. Therefore, in light of the commitment from IRWD, the available capacity at the IRWD wastewater treatment plants, the update to the 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, estimated to vary from approximately 25.9 MGD for a normal year supply and demand condition up to 29.7 MGD for an estimated a maximum dry supply and demand condition (as identified in the Project's Water Supply Assessment), 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 in order 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 (as may be identified in the SAMP update) and necessary in-tract sewer mains. In addition, the Project would use future improvements identified by IRWD as part of their Capital Improvement Program. IRWD is updating the draft SAMP for PA 51, which includes the Project site. 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 4.15-5.*

Threshold 4.15-6

Would the Project be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?

With implementation of 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 3.89 pounds per square foot (lbs/sf) for non-residential uses and 4.38 lbs/sf for residential uses (USEPA 1998), construction of the proposed 220,000 square feet (sf) of retail use, 1,876,000 sf of office use, 169,400 sf of hotel use, and 2,103 residential units, as well as demolition of existing structures and pavement would generate solid waste over the construction period. Projects requiring any building, construction, or demolition permits would be required to comply with the 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-1 provides that the Project will comply with the the County of Orange C&D (Construction and Demolition) Program that requires a 50 percent diversion of all C&D wastes. In compliance with the County’s C&D Program, construction and demolition waste would be made available for deconstruction, salvage, and recovery prior to demolition, whereby a diversion rate of 50 percent of the total estimated debris must be recycled using a County-approved facility or franchise waste hauler. The Frank R. Bowerman Landfill has a remaining capacity of 190.1 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 4.15-9 below.

**TABLE 4.15-9
ESTIMATED SOLID WASTE GENERATION**

Land Use	Size	Waste Generation Factor*	Waste Generation (lbs/day)
Residential	2,103 units	12.23 lbs./household/day	25,720
Retail	220,000 sf	3.12 lbs./100 sf/day	6,864
Office	1,876,000 sf	0.084 lb./sf/day	157,584
Hotel	242 rooms	4 lbs./room/day	968
Total Waste Generation During Operation			191,136
lbs: pounds; sf: square feet; CalRecycle: California Department of Resources Recycling and Recovery			
* Based on waste generation factors from CalRecycle 2011.			

As shown in Table 4.15-9, the Project is estimated to generate approximately 191,136 pounds of solid waste per day; prior to required waste diversion requirements. This represents less than one percent of the permitted daily capacity of the Frank R. Bowerman 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 4.15-6.*

Threshold 4.15-7

Would the Project comply with federal, state, and local statutes and regulations related to solid waste?

The waste generation factors presented in Table 4.15-9 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 compliance with State and County solid waste regulations, including, but not limited to, AB 939, SB 1016, and CalGreen (*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 (Construction and Demolition) 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 4.15-7.*

4.15.6 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 build out (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 acre-feet 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, 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 4.15-2, 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 would occur within or 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 and updating SAMPs, the IRWD considers cumulative development projects in its planning. IRWD is updating the draft SAMP for PA 51, which includes the Project site. 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 LAW RP (a combined total of 33.5 MGD) would be able to accommodate all wastewater discharges in order to satisfy IRWD's estimated demands for delivery of nonpotable water to its customers. Therefore, the proposed Project's impacts with respect to provision of potable and nonpotable water would not be cumulatively considerable.

Wastewater

As discussed under Thresholds 4.15-2 and 4.15-5, 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 (as may be identified in the SAMP update) 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 and updating SAMPs, the IRWD considers cumulative development projects in its planning. IRWD is updating the draft SAMP for PA 51, which includes the Project site. 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 LAW RP (a combined total of 33.5 MGD) would be able to accommodate all wastewater discharges in order 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 4.15-2 which is based on correspondence with OC Waste & Recycling, the Orange County Landfill System has capacity in excess of 30 years at the Bowerman 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.

4.15.7 MITIGATION PROGRAM

Development Requirements

The development requirements, identified below, would be applicable to the proposed Project and would help to avoid or minimize Water, Wastewater, and Solid Waste impacts.

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 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 AB 939, 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.

4.15.8 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.

4.15.9 REFERENCES

- Arnau, J. 2015a (September 9). Personal communication. Email from J. Arnau, CEQA and Habitat Program Manager (OC Waste & Recycling) to J. Cho, Project Manager (BonTerra Psomas).
- . 2015b (September 8). Personal communication. Email from J. Arnau, CEQA and Habitat Program Manager (OC Waste & Recycling) to J. Cho, Project Manager (BonTerra Psomas).
- California Department of Resources Recycling and Recovery (CalRecycle). 2015a. SWIS Facility/Site Search. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/SWFacilities/Directory/Search.aspx>.
- . 2015b (October, last accessed). Countywide Regionwide, and Statewide Jurisdiction Diversion/Disposal Progress Report (Search for 2014, Orange County, Diversion Rates). Sacramento, CA: CalRecycle.
- . 2015c (June 25, last updated). Local Government Central: California's 2014 Per Capita Disposal Rate. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/lgcentral/goalmeasure/DisposalRate/MostRecent/default.htm>.
- . 2011 (December 21, last updated). Waste Characterization: Estimated Solid Waste Generation and Disposal Rates. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/wastechar/wastegenrates/>.

California Department of Water Resources (DWR). 2015. Drought Information – Governor’s Drought Declaration. Sacramento, CA: DWR. <http://www.water.ca.gov/waterconditions/declaration.cfm>.

Irvine Ranch Water District (IRWD). 2016a (March 16). Personal communication. Conference call with the following participants: J. Corey, Engineering Technician III (IRWD); K. Welch, Water Resources Manager (IRWD); Alia Hokuki, Senior Project Manager (BonTerra Psomas); and J. Cho, Project Manager (BonTerra Psomas).

———. 2016b (May 23). Verification of Sufficient Water Supply (for El Toro 100-Acre Parcel Development). Irvine, CA: IRWD.

———. 2016c (June 27). 2015 Urban Water Management Plan. Irvine, CA: IRWD.

———. 2016d (July, access date). MWRP Facility. Irvine, CA: IRWD. <http://www.irwd.com/construction/mwrp-facility>.

———. 2015a (April 15). Irvine Ranch Water District Assessment of Water Supply. Irvine, CA: IRWD.

———. 2015b (October, access date). Water Supply & Reliability. Irvine, CA: IRWD. <http://www.irwd.com/services/water>.

———. 2015c (December 17). Conditional Water and Sewer Will Serve Letter for The County of Orange known as 100-Acre Parcel Development on the former El Toro MCAS in Irvine, CA. Irvine, CA: IRWD.

———. 2013a (June). Irvine Ranch Water District Sewer System Management Plan. Irvine, CA: IRWD.

———. 2013b (June). Procedural Guidelines and General Design Requirements. Irvine, CA: IRWD.

———. 2011a (September). *Planning Areas 30 & 51 Great Park/Great Park Neighborhoods Sub Area Master Plan Update*. Irvine, CA: IRWD.

———. 2011b (June). 2010 Urban Water Management Plan. Irvine, CA: IRWD.

KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

Metropolitan Water District of Southern California (MWD). 2015 (October, access date). Sources of Supply. Los Angeles, CA: MWD. <http://www.mwdh2o.com/AboutYourWater/Sources%20of%20Supply/Pages/default.aspx>.

———. 2010 (November). The Regional Urban Water Management Plan. Los Angeles, CA: MWD. http://mwdh2o.com/PDF_About_Your_Water/2.4.2_Regional_Urban_Water_Management_Plan.pdf.

Municipal Water District of Orange County (MWDOC). 2011 (June). 2010 Regional Urban Water Management Plan. Fountain Valley, CA: MWDOC.

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.

———. 2006. Countywide Integrated Waste Management Plan. Santa Ana, CA: the County.

Orange County Integrated Waste Management Department and CH2M Hill (OCIWMD and CH2M Hill). 1995 (February). *County of Orange Countywide Siting Element*. Santa Ana, CA: OCIWMD.

Orange County Water District (OCWD). 2015a (February). *2013–2014 Engineer’s Report on Groundwater Conditions, Water Supply, and Basin Utilization in the Orange County Water District*. Fountain Valley, CA: OCWD.

———. 2015b (June 17). Orange County Water District Groundwater Management Plan 2015 Update. Fountain Valley, CA: OCWD.

Orange County Waste and Recycling (OC Waste & Recycling). 2007 (November). *Strategic Plan Update 2007*. Santa Ana, CA: OC Waste & Recycling.

———. 2001 (December). *Regional Landfill Options for Orange County – RELOOC Strategic Plan*. Santa Ana, CA: OC Waste & Recycling.

Tait & Associates, Inc. 2016 (February 24). Personal communication. Email from T. Schmieder, Senior Project Manager (Tait & Associates) to A. Hokuki, Senior Project Manager (BonTerra Psomas) with an attachment entitled “100AP and WAP – IRWD Demands from 80 percent SAMP 026-02-05.pdf”.

U.S. Environmental Protection Agency (USEPA). 1998 (June). *Characterization of Building-Related Construction and Demolition Debris in the United States* (Prepared by Franklin Associates and TechLaw, Inc.). Washington, D.C.: USEPA. <http://www3.epa.gov/epawaste/hazard/generation/sqg/cd-rpt.pdf>.

5.0 ALTERNATIVES

5.1 INTRODUCTION

Section 15126.6(a)-(b) of the 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:

- (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 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 project objectives; feasibility; and ability to eliminate or reduce significant impacts. Each of these are described below.

5.2.1 ABILITY TO ACHIEVE PROJECT OBJECTIVES

The ability of an alternative to meet most of the project 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 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. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City of Irvine.
2. Enhance the condition of the Project site so it is compatible with and enhances the quality of the viewshed from the Orange County Great Park (OCGP) and the adjacent land uses.
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.
6. Develop infill improvements that facilitate mixed-use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).

8. Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service, and residential uses.
9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent practical.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.
11. Provide public space within the Project to support community activities.

5.2.2 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, none of the alternatives could be potentially 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:

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).

5.2.3 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 4.15 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 potentially significant impacts associated with the proposed Project. The Project would result in potentially significant impacts in the following categories: Aesthetics, 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 laws, 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 Air Quality, Greenhouse Gas Emissions, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic areas.

5.3 ALTERNATIVE(S) CONSIDERED BUT NOT CARRIED FORWARD

Section 15126.6(c) of the State CEQA Guidelines provides the following:

EIR should also identify any alternatives that were considered by the Lead Agency but were rejected as infeasible during the scoping process and briefly explain the reasons underlying the Lead Agency's determination . . . Among the factors that may be used to eliminate alternatives from detailed consideration in an EIR are: (i) failure to meet most of the basic project objectives, (ii) infeasibility, or (iii) inability to avoid significant environmental impacts.

In furtherance of the disclosure objective, there is one alternative that was considered but not carried forward, which is discussed in this Section.

5.3.1 DEVELOPMENT OF THE SECOND HARVEST FOOD BANK WAREHOUSE AND 21-ACRE PARCELS

The Notice of Preparation (NOP) identified an alternative that proposed the development on the Second Harvest Food Bank warehouse parcel and the approximately 21-Acre Parcel located south of the Project site.¹ This Alternative assumed that the County would be able to obtain these parcels and incorporate them into the Development Plan and the overall Project. The precise amount and mix of development was to be determined upon completion of the technical analysis and determination of development potential of the parcels and the associated environmental impacts.

However, this Alternative was determined to be infeasible due to the fact that the Second Harvest Food Bank as well as the Orange County Transportation Authority (OCTA) were not willing to sell their parcels of land to the County of Orange. Second Harvest Food Bank's December 5, 2014 NOP comment letter indicates that while one of the alternatives shows its property included in the development, that alternative does not represent Second Harvest Food Bank's vision for the property and its operation in the new location. Additionally, OCTA in its December 8, 2014 NOP comment letter states that OCTA has exercised its option to

¹ The NOP identified the 21-acre parcel as a City of Irvine parcel. Subsequent to the issuance of the NOP, the OCTA acquired the 21-acre parcel from the City of Irvine for a future rail maintenance facility.

purchase the 21-acre parcel for future transit use. Therefore, the County of Orange could no longer consider this Alternative as viable, and this Alternative is not carried forward.

In light of the information above, and in accordance with Section 15126.6(c) of the State CEQA Guidelines, this EIR does not give further consideration to the Development on the Second Harvest Food Bank warehouse and 21-Acre Parcels Alternative.

5.3.2 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 “[a]n 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:

- (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 inability to meet many of the objectives established for the proposed Project.

The Project site is a more than 100-acre property that is presently owned by or contractually obligated to be conveyed to the County of Orange. The Project site offers an opportunity for an infill development on a former Marine Corps Air Station. The Project site gives the County the opportunity to convert a large, previously developed and currently underutilized property for purposes that will benefit the County and the larger region. The Project site also offers the potential to develop uses that will help meet the region’s current and long term needs for housing, commercial and other uses in a manner that recalls some of the military history of the Project site without requiring the disturbance of sensitive habitats. Further, the Project site is unique in its proximity to the existing and planned uses of a more urban nature, including without limitations the OCGP, the future Cultural Terraces development and the existing transit

station less than ½ mile away, that are compatible with the proposed Project. The existing and planned uses surrounding the Project site would benefit from and support the mix and intensity of the Project's proposed uses. Additionally, when taking the Project's objectives into consideration, notably, proximity to transit, other similar, compatible, and employment-generating uses—the County owns no other feasible alternative sites and is not aware of any other feasible alternative location that would avoid or substantially lessen the Project's potentially significant impacts. Further, the County cannot likely be expected to acquire, control, or have access to another site that could accommodate the proposed Project. The general area that would be conducive to the type and intensity of mixed-use development proposed by the Project is either developed (or planned to be developed in near future), and thus not available. 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.

The general area that would be conducive to the type and intensity of mixed-use development proposed by the Project is either developed or planned to be developed in near future, and thus is not available, or is not owned by and within the jurisdiction of the County.

5.4 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” alternative(s), which are 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.

CEQA requires the evaluation of the No Project Alternative. For this Project, two variations of the No Project Alternative are being considered— no development on the site (Alternative 1a) and an institutional development based on assumptions in the 2003 OCGP Program EIR and 2012 SSEIR (Alternative 1b).

The following alternatives are analyzed in this EIR:

- **Alternative 1a – No Project/No Development Alternative.** No new development; no demolition of existing structures and no active uses on site.
- **Alternative 1b – No Project/Institutional Entitlements Alternative.** Development of institutional uses not exceeding 436,000 square feet (sf); uses considered include emergency shelters, a transitional care shelter/facility, and law enforcement facilities.
- **Alternative 2 – Intensified Institutional Uses Alternative.** Development of institutional uses with more than 436,000 sf.
- **Alternative 3 – Reduced Intensity and Reduced Density Alternative.** Development of a reduced number of residential units and a reduced amount of overall square footage for non-residential uses.

In accordance with Section 15126.6(a) of the State CEQA Guidelines, the 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 also considered as part of the identification of the environmentally superior alternative, which is discussed in Section 5.5.

The existing environmental setting of the site would be the same for the proposed Project and alternatives. Additionally, unless specifically identified, it is assumed that the Mitigation Program identified for the Project would also be applicable for the alternatives. For the transportation and traffic, the alternatives would not result in impacts at all the same intersections, ramps, 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.

This page intentionally left blank

**TABLE 5-1
COMPATIBILITY COMPARISON OF ALTERNATIVES WITH PROJECT OBJECTIVES**

Project Objective	Proposed Project	Alternatives			
		Alternative 1a: No Project/No Development	Alternative 1b: No Project/Institutional Entitlements	Alternative 2: Intensified Institutional Uses	Alternative 3: Reduced Intensity and Reduced Density
1. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City of Irvine.	●	○	○	◐	◐
2. Enhance the condition of the Project site so it is compatible with and enhances the quality of the viewshed from the OCGP and the adjacent land uses.	●	○	◐	●	●
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.	●	○	●	●	●
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.	●	○	○	○	●
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.	●	○	○	◐	●
6. Develop infill improvements that facilitate mixed-use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.	●	○	○	○	●
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).	●	○	●	◐	●
8. Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service, and residential uses.	●	○	◐	◐	●
9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent practical.	●	○	●	●	●
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.	●	○	○	◐	●
11. Provide public space within the Project to support community activities.	●	○	○	○	●
sf: square feet Proposed Project – Development of 2,103 multi-family residential units; 220,000 sf of retail/commercial; 1,876,000 sf of office uses; and 242 hotel rooms with related meeting space. Alternative 1a: No Project/No Development Alternative – No new development; no demolition of existing structures and no active uses on site. Alternative 1b: No Project/Institutional Entitlements Alternative – Development of institutional uses not exceeding 436,000 sf; uses considered government offices, emergency shelter, law enforcement, maintenance and storage, RV/boat/vehicle storage, and warehouse. Alternative 2: Intensified Institutional Uses Alternative – Development of institutional uses for a total of 2,085,600 sf; uses considered include government offices, emergency shelters, law enforcement, equipment storage, and maintenance. Alternative 3: Reduced Intensity and Reduced Density Alternative – Development of reduced number of residential units and a reduced overall square footage of non-residential uses. Legend: ● = Fully Implements ◐ = Partially Implements ○ = Does Not Implement					

This page intentionally left blank

5.4.1 ALTERNATIVE 1A 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 or 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, such as 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 Project involves both a land use regulatory component and specific development proposals for the identifiable Project site. Thus, in the interest of informed decision making, this EIR includes both types of no project alternatives. The alternative described in this subsection of the EIR assumes the site would continue to remain in its existing state without demolition or active uses on site.

Under the No Project/No Development Alternative, as required by CEQA, the County would not submit a proposed General Plan Amendment (GPA) and Zone Change (ZC) to the City 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 Project 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 aesthetics impacts associated with the Project would occur. Additionally, as there would be no new development on the 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 condition with vacant and abandoned warehouses, dilapidated structures, and inactive rail spurs. As none of the Project’s aesthetic improvements would occur, the aesthetics of the Project site would remain poor while the rest of the surrounding area redevelops as part of the OCGP and other new developments, such as Great Park Neighborhood’s District 6, envisioned by the City. Therefore, the aesthetic impacts of this alternative are greater than 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 site. In the absence of construction activities and new traffic generation, this alternative would not result in any air quality impacts; SCAQMD thresholds for construction-related and long-term operational

emissions would not be exceeded. Therefore, this alternative would avoid significant, short-term, long-term, and cumulative unavoidable air quality impacts that would occur with implementation of the proposed Project. As such, the air quality impacts of this alternative would be less than those of the proposed Project.

Biological Resources

Under the No Project/No Development Alternative, the Project site would remain in its existing condition, which consists of previously utilized and now vacant land in the northwestern portion of the site, abandoned buildings and improvements, and inactive rail spurs that extend from the adjacent Southern California Regional Rail Authority (SCRRA) rail lines which served the warehouse structures at the southeastern portion of the site. This alternative would not disturb any of the ruderal vegetation that dominates the northwestern half of the site, as the site would remain vacant. No impact to active nests of migratory birds and/or raptors and suitable roosting habitat for structure-roosting and tree-roosting bat species would occur in the absence of site disturbing activities. Additionally, this alternative would not impact the approximately 1.24 acres of riparian habitat required for the proposed access road, and no permits would be required. Therefore, potential biological resources impacts identified for the proposed Project would be avoided by this alternative and thus less than those of the Project without mitigation. However, with implementation of the identified mitigation measures, the potential biological resources impacts are considered 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 without mitigation. However, the Project impacts are considered 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 are considered less than significant with mitigation.

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, mixed-use, and commercial uses (including new traffic generation), this alternative would not generate greenhouse gas (GHG) emissions. Thus, the No Project/No Build Development would have less GHG emissions compared to the proposed Project; however, the Project impacts are less than significant.

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. The existing structures would be left in their current state, and are expected to deteriorate over time. Even though the structures contain ACM and may contain other hazardous building materials such as PCB lighting ballasts and mercury-containing light tubes and thermostats, no short-term eminent release of these hazardous materials is anticipated. However, the exterior of Building 317 (and presumably others) is painted with LBP, which in certain locations is peeling. The No Project Alternative would not provide for abatement of the hazardous materials from the existing buildings unlike the Project.

Impacts due to hazardous building materials are considered to be greater under this alternative than under the proposed Project because development requirements under the proposed Project require testing and abatement of hazardous building materials prior to demolition. 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.

Hydrology and Water Quality

Under the 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 no increase in the amount and velocity of surface runoff because there would be no increase in impervious surfaces. With implementation of the development requirements in Section 4.8, Hydrology and Water Quality, the proposed Project would have a less than significant impact related to drainage and storm drain infrastructure. However, implementation of development requirements of the proposed Project would not be required, as this alternative would result in no change to the existing storm water hydrology.

Under this alternative, the existing hydrologic conditions including impacts to water quality from point and non-point sources from the former MCAS El Toro operations could continue, and the existing storm flow patterns and capacity would remain. The proposed Project would increase the amount of impervious surface on the site, potentially increasing the amount of pollutants carried by the storm water runoff. 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 4.8, Hydrology and Water Quality. The No Project/No Development Alternative would not change the amount of impervious surfaces on the site and would not increase the amount of pollutants in storm water runoff. However, since the No Project/No Development Alternative maintains the existing conditions, the existing impervious area may result in the transport of more silt and non-native plant materials to downstream receiving water ways and water bodies. Whereas under the proposed Project, the on-site storm water mitigation would minimize these impacts. Overall, hydrology and water quality impacts associated with this alternative would be greater than the 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 previously developed state, the County would not propose a GPA or ZC to the City and the County would not adopt the Development Plan to authorize the planned residential, mixed-use, and commercial 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 applicable goals of providing housing to meet regional growth. Additionally, the alternative would not be consistent with local and regional goals to provide housing near transit and major employment centers to reduce dependency on the motor vehicle and the amount of vehicle miles traveled. Thus, the land use impacts under the No Project/No Development Alternative would be greater than the proposed Project.

Noise

The No Project/No Development Alternative would not involve any 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 Project site, and no new population, housing, or employment would result. Therefore, the growth-related effects of this alternative would be less than the proposed Project. Additionally, this alternative would not contribute to jobs/housing imbalance in southeastern Orange County, unlike the proposed Project. Therefore, the population and housing impact of this alternative is considered reduced 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, with implementation of the identified development requirements, the Project impacts are less than significant.

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 for recreational facilities. However, with implementation of the identified development requirements, the proposed Project impacts are less than significant.

Transportation/Traffic

The proposed Project would generate a total of 46,746 average daily trips (ADT), including 3,065 during the AM peak hour and 3,680 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 4.14, 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 and Caltrans freeway ramp intersection and mainline segment impacts that would occur with the proposed Project under the Existing Plus Project; Interim Year 2017; Long Term Year 2035; General Plan Buildout Post-2035; and Post-2035 with Pending Projects conditions. The proposed Project would have significant and unavoidable traffic impacts. Therefore, in light this conclusion, 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 1a Avoid or Substantially Lessen the Significant Impacts, Compared to the Project?

The No Project/No Development Alternative would avoid potentially significant Air Quality, GHG, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic impacts, 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, and Utilities and Service Systems. The Project's impacts for these topics are less than significant. The No Project/No Development Alternative would have greater Aesthetics and Hydrology and Water Quality impacts than the proposed Project as it would not improve the existing condition of the Project site, which includes abandoned and dilapidated structures and substantial amounts of impervious surfaces.

Would Alternative 1a 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.

5.4.2 ALTERNATIVE 1B – NO PROJECT/ INSTITUTIONAL ENTITLEMENTS ALTERNATIVE

The Institutional Entitlements Alternative is a second No Project Alternative included in the EIR's analysis because this Alternative could be built without the need for a Development Plan or the processing of a General Plan Amendment or Zone Change. The development of institutional uses would be in accordance with the assumptions in the original City of Irvine 2003 OCGP Program EIR, including all supplements and addendums to the said EIR. However, similar to the proposed Project, Alternative 1b would be processed through the County. The institutional uses proposed on the site would not exceed a total of 436,000 sf, as contemplated by the 2003 OCGP Program EIR.

This Alternative proposes developing approximately 48 acres of the approximately 108-acre site; the remaining approximately 59 acres would be left vacant.² The proposed uses would be concentrated on the southeastern and southern half of site and would include government office, law enforcement, emergency shelter, maintenance and storage, recreational vehicle (RV)/boat/vehicle storage, and warehouse uses for homeless providers.³ Under this Alternative, existing structures on the southeastern portion of the site would be reused. The uses are shown in Table 5-2, Alternative 1b Land Use Summary, and are depicted on Exhibit 5-1, Alternative 1b: No Project/Institutional Entitlements Alternative – Conceptual Site Plan. Offsite improvements would be limited to intersection improvements at Marine Way and the extension of utilities.

² The Project site is approximately 108 acres; however, the proposed Project and Alternative 3 require an easement across the Second Harvest Food Bank warehouse property for improvements to the central spine roadway. The easement increases the property being used for the proposed Project and Alternatives 2 and 3 to approximately 108 acres.

³ Emergency Shelters are defined by the California Health and Safety Code (Section 50801(e)) "as housing with minimal supportive services for homeless persons that is limited to occupancy of six months or less by a homeless person. No individual or household may be denied emergency shelter because of an inability to pay."

Project Summary	
Government Office	78,000 square feet
Law Enforcement	61,900 square feet
Emergency Shelter	75,000 square feet
Maintenance and Storage	81,500 square feet
RV/Boat/Vehicle Storage	3,600 square feet
Warehouse	136,000 square feet
Vacant	59.3 acres

SPORTS PARK



D:\Projects\LowEri\0001\Graphics\EIR\EIToro\Ex_Alt1_20151106.ai

Source: KTG 2016

Alternative 1b: No Project/Existing Entitlements Alternative – Conceptual Site Plan

Exhibit 5-1

EI Toro, 100-Acre Parcel Development Plan EIR



**TABLE 5-2
ALTERNATIVE 1B LAND USE SUMMARY**

Land Use	Development Size
Government Office	78,000 square feet
Law Enforcement	61,900 square feet
Emergency Shelter	175 beds (75,000 square feet)
Maintenance and Storage	81,500 square feet
RV/Boat/Vehicle Storage	3,600 square feet
Warehousing	136,000 square feet
Vacant	59.3 acres
Source: KTG 2016.	

Anticipated actions required for the implementation of Alternative 1b would include the following:

- Runoff Management Plan(s)
- Water Quality Management Plan(s)
- Grading Permits
- Building Permits
- Encroachment Permits
- Acquisition and dedication of rights of entry, easements, and rights-of-way for off-site improvements

Impact Evaluation

Aesthetics

The proposed development under the No Project/Institutional Entitlements Alternative would change the visual quality of the southeastern portion of the site, but the northwestern portion would remain vacant. Short-term construction and infrastructure improvements would have reduced impacts compared to the proposed Project, as more than half of the site would not be developed. Under the No Project/ Institutional Entitlements Alternative, long-term changes to the visual setting would be different than the Project because more of the existing structures may remain; the proposed warehouse, equipment maintenance, and storage uses would be concentrated in the southeastern portion of the site; and the alternative's improvements would be of a lower intensity than the proposed Project. The proposed institutional uses would somewhat improve the existing condition of the abandoned and dilapidated buildings by reusing portions of them and incorporating them in the proposed development. Some buildings and portions of some buildings would remain vacant under this alternative. While the No Project/ Institutional Entitlements Alternative would improve the quality of a portion of the site, this alternative would not substantially transform the site and a substantial portion of the site would remain in its current condition that is inconsistent with the planned uses for the area. Thus, as the surrounding OCGP and associated neighborhoods develop, the institutional improvements in existing buildings, the other improvements associated with this alternative,

and the significant amount of land that would remain in its existing condition, may appear out of character with other development in the City of Irvine Planning Area (PA) 51. The “Park within a Park” under the proposed Project would not be applicable to the proposed Alternative 1b development, as Alternative 1b would not have a 50-foot-wide “Park within the Park” abutting Marine Way. Additionally, site landscaping would not be as extensive as what is envisioned for the proposed Project and would be more in character with standard government offices and other institutional uses. Neither the proposed Project nor Alternative 1b would degrade the visual character of the site. The aesthetics related impacts of this alternative would be similar or perhaps greater than the proposed Project, but both would be less than significant.

Proposed development under Alternative 1b would introduce new sources of light and glare that would increase lighting levels on the eastern and southeastern portions of the site only, as the northwestern portion would remain vacant. Thus, compared to the proposed Project, there would be reduced potential for light and glare impacts as there would be less development. Distance from existing and planned uses provided by parking lots in front of the proposed uses and landscape buffers adjacent to the Marine Way and existing developments would prevent light and glare spillover that would have a significant and adverse effect on views in the area. DR AES-1 and DR AES-2 would also apply to the Alternative 1b development. Impacts related to new sources of light and glare would be reduced compared to the proposed Project and would be less than significant.

Air Quality

Development under Alternative 1b would be in accordance with the institutional uses assumed in the 2003 OCGP Program EIR. The long-term pollutant emissions that would occur with development of Alternative 1b are anticipated in the current AQMP. The significant and unavoidable impacts associated with consistency with the AQMP that would occur with the proposed Project would not occur with Alternative 1b.

Alternative 1b would generate 6,916 ADT compared to 46,746 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be substantially reduced. The Project population and building area would also be much less than the proposed Project, resulting in reduced consumer products volatile organic compound (VOC) emissions. It is estimated that long-term criteria pollutant emissions would be less than the SCAQMD CEQA thresholds and the significant and unavoidable direct and cumulative impacts that would occur with the proposed Project would not occur with Alternative 1b. DRs AQ-1 through AQ-5 and MMs AQ-2, AQ-4, and AQ-6 would also be applicable to this alternative.

Maximum daily unmitigated construction NO_x emissions would be less than the proposed Project and less than significant. MM AQ-1, which would be required for the proposed Project would not be required for Alternative 1b. Similar to the proposed Project, construction emissions of pollutants other than NO_x, exposure of sensitive receptors to pollutants, and odor impacts would be less than significant with Alternative 1b. Overall, air quality impacts associated with this alternative would be less than the Project.

Biological Resources

Under Alternative 1b, the development footprint and the physical impact area would be reduced to less than half of the development area under the proposed Project. This alternative would not disturb most of the ruderal vegetation that dominates the northwestern half of the site, as that portion of the site would remain vacant. Similar to the proposed Project, this alternative would potentially impact active nests of migratory birds and/or raptors; however, with mitigation such as limiting construction activities to non-nesting season or by performance of a pre-construction nesting/bird survey and implementation of buffers around active nests, the impacts would be less than significant. Potential impacts to suitable roosting habitat for structure-roosting and tree-roosting bat species would be similar to the proposed Project and less than significant. Implementation of DR BIO-3 would still be applicable to development under Alternative 1b as a method of minimizing impacts on bat roosting sites.

This alternative reduces, but does not eliminate, impacts on the approximately 1.24 acres of riparian habitat as a result of a proposed access road. There would be no impact on waters under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and a permit from this agency would not be required. This alternative would impact a small amount of waters under the jurisdiction of the Regional Water Quality Control Board (RWQCB) and the California Department of Fish and Wildlife (CDFW); therefore, processing of agreements/certifications from these agencies would be required. With the exception of USACE permitting, DR BIO-4 would still apply to development under this alternative. The potential impacts under Alternative 1b would be reduced compared to the proposed Project.

Similar to the proposed Project, this alternative would not conflict with local ordinances or the provisions of the Central/Coastal Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP). Therefore, no impact would result.

Cultural Resources

Under Alternative 1b, the development footprint and the physical impact area would be reduced to less than half of the development area under the proposed Project. Therefore, potential impacts to unknown archaeological and paleontological resources as well as human remains would be reduced compared to the proposed Project. This alternative would require the same type of mitigation measures as the proposed Project to avoid and address any potential impacts that may arise during grading and soil disturbance activities in the southeastern portion of the site. However, with this alternative there would be less area graded because the uses would heavily rely on the existing structures and only half of the site would be developed. With implementation of the mitigation measures, the potential impacts would be similar to the proposed Project and less than significant.

Geology and Soils

The development footprint under this alternative would be less than half of the proposed Project. Therefore, the potential impacts would be reduced compared to the proposed Project; however, impacts associated with geology and soils are less than significant with 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 the conformance with 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. Similar to the proposed Project, no significant and unavoidable impacts would result under Alternative 1b.

Additionally, similar to the proposed Project, grading activities would increase the potential for soil erosion and loss of top soil. However, the amount and extent of grading under Alternative 1b would be far less compared to the proposed Project. With the incorporation of construction BMPs and implementation of development requirements, the potential impacts on soil erosion and loss of topsoil under Alternative 1b would be less than significant. However, more than half of the site would be not be developed or landscaped; therefore, there would be the potential for greater surface erosion with Alternative 1b. Similar to the proposed Project, no significant and unavoidable impacts would result. DR HWQ-8 through DR HWQ-10 in Section 4.8, Hydrology and Water Quality, related to storm water and erosion management plans, would be applicable.

Moreover, based on the Preliminary Geotechnical Investigation, a 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 and appropriate design measures would be recommended. Impacts associated with expansive soils would be less when compared to the proposed Project because the reuse of the existing buildings would reduce the amount of grading required and less than half of the site would be disturbed. Similar to the proposed Project, no significant and unavoidable impacts would result.

Overall, while the types of geology and soils impacts would be similar to the proposed Project, this alternative would have greater impacts in some areas and reduced impacts in others due to the reduced grading and development footprint.

Greenhouse Gas Emissions

Alternative 1b would generate 6,916 ADT compared to 46,746 ADT for the proposed Project and the building area would be substantially less than the proposed Project. All categories of GHG emissions (i.e., mobile, energy, water, solid waste, and construction) would be substantially less than the proposed Project. GHG emissions for Alternative 1b are estimated at approximately 7,000 metric tons of CO₂ equivalent per year (MTCO₂e/year) and would be substantially less than the proposed Project's estimated unmitigated GHG emissions of 49,272 MTCO₂e/year. As discussed in Section 4.6 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), called service population (SP). The SCAQMD has recommended efficiency thresholds for evaluating significant impact for years 2020 and 2035. As discussed in Section 4.6, at the time the SCAQMD established the 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. As regulations and plan to achieve the reductions contemplated by SB 32 do not yet exist, this EIR evaluates the Project and this alternative against the efficiency target developed by SCAQMD as of 2030, the compliance date established by SB 32. Therefore, the

2030 efficiency threshold used in this EIR for plans is 4.1 MTCO₂e/year per service population and an efficiency threshold at the project level is 3.0 MTCO₂e/year per service population.

Based on the efficiency thresholds an interpolated value was developed for 2026, which is the projected buildout for the Project. For the buildout analysis, a plan-level threshold of 5.60 MTCO₂e/year per service population and a 4.08 MTCO₂e/year per service population project-level threshold were established for the Project. It is estimated that the 2026 GHG emissions per service population under Alternative 1b would be approximately 6 MTCO₂e/year per service population, which would exceed both the plan-level and project-level thresholds. The GHG emissions would be potentially significant and mitigation measures (MM) similar to Project MM GHG-1 (renewable energy generation), GHG-2 (Energy Star appliances), and GHG-3 (high efficiency lighting) appropriate to the project size would be implemented. Alternative 1b MMs would reduce GHG emissions and may improve the Alternative 1b efficiency to less than the 5.60 MTCO₂e/year/SP plan-level threshold but would not improve the efficiency to less than the 4.08 MTCO₂e/year/SP plan-level threshold in 2026. For comparison, the Project's estimated 4.05 MTCO₂e/year/SP efficiency would not exceed either the plan-level or the project-level threshold in 2026. In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 1b because improvements in the infrastructure, 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. Therefore, similar to the proposed Project, Alternative 1b would have a significant and unavoidable impact associated with the generation of GHG emissions.

Similar to the proposed Project, Alternative 1b would be an infill development close to transit and would be consistent with State and Southern California Association of Governments (SCAG) goals and policies for reducing GHG emissions and therefore 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.

Alternative 1b would have a lower GHG service population metric compared to the Project and would generate substantially less total GHG emissions than the Project. However, similar to the proposed Project, Alternative 1b'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 1b may conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This would be a significant and unavoidable impact.

Hazards and Hazardous Materials

Alternative 1b proposes development of institutional uses on the southeastern portion of the site, which includes the existing abandoned structures. Because existing structures, IRP sites, and other LOCs are generally located on the southeastern portion of the site, despite a much smaller development footprint under Alternative 1b, impacts related to hazardous materials are similar to the proposed Project. Impacts that differ from the proposed Project are discussed below.

The identified institutional uses are generally consistent with commercial/industrial use. However, it should be noted that one of the identified institutional uses, namely “Emergency Shelters,” may house homeless persons for up to six months. While exposure routes are similar, durations of exposures for occupants in Emergency Shelters (i.e., a maximum of six months) are much shorter than those for commercial/industrial or residential use. Consequently, calculated human health risks under this use are expected to be less than those for commercial/industrial or residential use. Therefore, under institutional use, impacts at IRP Site 12 Unit would be reduced compared to the proposed Project, which currently proposes residential use. MM HAZ-4 and MM HAZ-5, which include an evaluation of previously collected data and potentially additional excavation, would not be necessary at Units 2, and 3, respectively. Similar to the proposed Project, hazards in Unit 4 are less than significant without mitigation. Unit 1 lies within the vacant portion of the site and outside of footprint of the development under Alternative 1b. Therefore, this particular impact would be reduced compared to the proposed Project.

Overall, this alternative would have similar impacts compared to the Project as it relates to hazards and hazardous materials.

Hydrology and Water Quality

The site is located on a County of Orange designated “Plume Protection Boundary”. Even though Alternative 1b would have a reduced footprint, this alternative would not avoid the Plume Protection Boundary. Therefore, similar to the proposed Project, as infiltration, evapotranspiration, and evaporation BMPs are not recommended options given the condition of the groundwater and lack of vast landscaped areas, water treatment would occur through use of proprietary Bio-Treatment BMPs. Like the proposed Project, this alternative would need to comply with applicable laws to avoid violations of waste discharge requirements, degradation of water quality standards, and a significant impact. Additionally, similar to the proposed Project, the alternative’s compliance with the Construction General Permit, including preparation of a Storm Water Pollution Prevention Plan (SWPPP) and General Waste Discharge Requirements, would ensure impacts to receiving waters from non-storm water flows during construction are less than significant.

Under Alternative 1b, west of Bee Canyon, the existing drainage pattern in the vacant portion of the site would be maintained. This condition would result in more sediment transport to the downstream water system compared to the proposed Project. Overall, under Alternative 1b, the drainage-related improvements and impacts in the southeastern portion of the site would be similar to the impacts under the proposed Project. However, the potential drainage impacts may be worse within the undeveloped vacant portion of the site under Alternative 1b compared to the proposed Project. Thus, this alternative may have greater impacts compared to the Project as it relates to hydrology and water quality.

Land Use and Planning

Similar to the proposed Project, this alternative would not conflict with the land use plan, policies, and regulations of 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) goals. Although not applicable, this alternative would be consistent with the plans, policies and regulations of the City of Irvine. Unlike the proposed Project, this alternative is in accordance with the existing land use designation for the site, and therefore,

the County would not propose a GPA or ZC. Overall, Alternative 1b would have less land use and planning impacts compared to the proposed Project.

Noise

Alternative 1b would generate 6,916 ADT compared to 46,746 ADT for the proposed Project, and the building area would be substantially less than the proposed Project. Construction noise levels would be less than what would be experienced with the proposed Project because Alternative 1b would reuse the existing buildings on site. For construction activities, such as road construction and parking lots, the noise characteristics would be the same as the Project but would be substantially shorter in duration. Project-generated direct and cumulative traffic noise level increases at off-site receptors would be less with Alternative 1b and, similar to the proposed Project, would be less than significant. The building that would be used for the emergency shelter may require retrofitting to avoid noise impacts. Similar to the proposed Project, all noise and vibration impacts would be less than significant. DR NOI-1 and MMs NOI-1, NOI-2, NOI-3, NOI-5, NOI-7, and NOI-9 would also be applicable to this alternative. Overall, Alternative 1b would have less noise impacts compared to the proposed Project.

Population and Housing

Alternative 1b would not introduce any permanent residents to the area, as no residential uses are proposed. By not introducing any residential uses, Alternative 1b would not directly contribute to population growth in the area. This would avoid the significant unavoidable impact under the proposed Project.

Additionally, using the OCTA land use conversation factors, Alternative 1b would generate approximately 1,029 jobs, which is less than the approximately 7,799 jobs generated under the proposed Project. Although not to the same magnitude as the Project, this alternative would further contribute to the jobs/housing imbalance in the area as it would add employment uses and no additional residential units. As Alternative 1b would provide fewer employment opportunities, its indirect contribution pressure for additional housing and the associated population growth would also be reduced and population and housing impacts would be less compared to the proposed Project.

Public Services

As discussed under Population and Housing for Alternative 1b, this alternative would not introduce any permanent residents to the area and would generate approximately 1,029 jobs compared to the proposed Project's estimated job creation of 7,799. Therefore, the associated demand for public services (fire, police, and libraries) would be reduced compared to the proposed Project. There would be no generated demand for schools due to the absence of proposed residential development under this alternative. Thus, like the proposed Project, impacts from Alternative 1b would be less than significant. Overall, Alternative 1b's impacts would be less compared to the proposed Project.

Recreation

Alternative 1b would not introduce any permanent residents to the area. Therefore, unlike the proposed Project, Alternative 1b would not increase demand for recreational facilities and amenities in the area. Additionally, this alternative, unlike the proposed Project, would not be required to provide parkland as it would not generate new permanent population in the area. Therefore, the potential impact from Alternative 1b associated with the provision of recreational facilities or degradation of existing facilities would be less than significant and less than those of the proposed Project.

Transportation/Traffic

Alternative 1b, No Project/Institutional Entitlements Alternative would result in reduced traffic-related impacts compared to the proposed Project. In comparison to the proposed Project's 46,746 ADT, this alternative would generate a total of 6,916 ADT. Because this level of entitlement is assumed in the General Plan, these trips are provided for in ITAM and the traffic analysis for the planning efforts for the OCGP.

The same methodology and scenarios evaluated for the proposed Project were used to analyze and identify potential transportation/traffic impacts under Alternative 1b. The same roadway network as the proposed Project, except for internal Project driveways and their intersections with Marine Way, was analyzed for this alternative, and same growth assumptions were utilized for the analysis. Table 5-3 identifies the number of locations that have direct and cumulative impacts with the proposed Project compared to Alternative 1b 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 1b. This is followed by an overview for each timeframe.

**TABLE 5-3
COMPARISON OF TRAFFIC IMPACT LOCATIONS FOR THE PROPOSED PROJECT
AND ALTERNATIVE 1B**

Scenarios	Number of Impact Locations with the Proposed Project	Number of Impact Locations with Alternative 1b
Existing Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	6	2
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	7	6
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	2
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0

**TABLE 5-3
COMPARISON OF TRAFFIC IMPACT LOCATIONS FOR THE PROPOSED PROJECT
AND ALTERNATIVE 1B**

Scenarios	Number of Impact Locations with the Proposed Project	Number of Impact Locations with Alternative 1b
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	2	0
Intersection Impacts with HCM Methodology	10	5
Impacts on Freeway Ramps	5	0
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	5	1
Intersection Impacts with HCM Methodology	11	10
Impacts on Freeway Ramps	4	6
Impacts on Freeway Mainline Segments	0	0
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	4	0
Intersection Impacts with HCM Methodology	10	4
Impacts on Freeway Ramps	5	1
Impacts on Freeway Mainline Segments	1	0
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	7	0
Intersection Impacts with HCM Methodology	9	10
Impacts on Freeway Ramps	6	4
Impacts on Freeway Mainline Segments	2	0
ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual Source: Fehr & Peers 2015		

Existing Plus Alternative 1b Analysis

Under Alternative 1b under the Existing Plus Alternative scenario, two freeway/highway intersections were found to exceed thresholds using the Highway Capacity Manual (HCM) methodology. Similar to the proposed Project, impacts at Jeffrey Road and Interstate (I) 5 northbound and Sand Canyon Avenue and I-405 southbound would exceed thresholds. However, under this alternative, the impact identified at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Fortune Drive/I-5 southbound and Enterprise Drive; and Bake Parkway and I-5 northbound intersections would no longer occur. Mitigation for all these impacts have been identified consistent with the mitigation approach for the proposed Project in Section 4.14 of this EIR. However, mitigation for this alternative would be proportional to the impact level. Given that mitigation for these freeway/highway ramp locations are outside the jurisdiction of the County of Orange, the impacts would remain significant.

Additionally, six freeway segments, compared to seven under the proposed Project, would exceed impact thresholds under this scenario for Alternative 1b. Similar to the proposed

Project, impacts at I-5 southbound (Jeffrey Road off-ramp); I-5 southbound (Jeffrey Road to State Route [SR] 133 northbound); I-5 southbound (SR-133 southbound to Alton Parkway); I-405 northbound (Jeffrey Road slip on-ramp); I-405 southbound (SR-133 off-ramp); and I-405 southbound (Sand Canyon off-ramp) freeway segments would exceed thresholds. For all the impacts other than the impact on I-5 southbound from SR-133 southbound to Alton Parkway, no feasible mitigation measures were identified. 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 would remain significant.

Unlike the proposed Project, this alternative would not impact I-5 northbound (Alton Parkway Slip on-ramp to SR-133 northbound off-ramp) segment.

Interim Year 2017 Plus Alternative 1b Analysis

The proposed development assumptions for Alternative 1b under this scenario include 224,500 square feet of institutional uses, 175 emergency shelter beds, and 136,000 square feet of warehouse. Under this alternative, two freeway/highway intersections, compared to three under the proposed Project, were found to exceed thresholds using HCM methodology. This alternative would impact Bake Parkway and I-5 southbound and Sand Canyon Avenue and I-5 northbound intersections. Unlike the Project, this alternative would not impact the Jeffrey Road and I-5 northbound and Jeffrey Road and Walnut Avenue intersections. Additionally, this alternative would not impact Sand Canyon Avenue and I-5 northbound intersection during AM peak hour. The required improvements for all impacts have been identified. 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.

Year 2035 Plus Alternative 1b Analysis

The No Project/Institutional Entitlements Alternative would have fewer traffic impacts than the proposed Project in the 2035 timeframe. Unlike the proposed Project, this alternative would not impact the Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road and Sand Canyon Avenue and I-5 northbound intersections. There would be no impacts at any intersections using the ICU methodology under this alternative. Under this alternative, five freeway/highway intersections using the HCM methodology were found to exceed thresholds, compared to the ten identified under the proposed Project. These intersections include Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-405 southbound; Fortune Drive/I-5 southbound and Enterprise Drive, Sand Canyon Avenue and I-5 northbound; and Bake Parkway/I-5 southbound. Unlike the proposed Project, impacts at Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue in the AM Peak Hours; Jeffrey Road and I-405 northbound; Sand Canyon Avenue and I-5 southbound; Trabuco Road and SR-133 southbound; and Trabuco Road and SR-133 northbound would not occur under this alternative. The required improvements for all impacts have been identified. Consistent with the mitigation approach for the proposed Project, these locations are outside the jurisdiction of the County of Orange and would remain significant.

Under this alternative, no impacts to freeway/highway ramps were identified, whereas the proposed Project would have impacts at five ramp locations.

Post-2035 Plus Alternative 1b Analysis (General Plan Buildout)

Under this alternative, one intersection, compared to five under the proposed Project, using the ICU methodology was found to exceed thresholds. Similar to the proposed Project, the impact at Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road intersection would exceed threshold. Mitigation for the impact has been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for this impact is outside the jurisdiction of the County of Orange, it would remain significant. Unlike the proposed Project, this alternative would not impact the Sand Canyon Avenue and Alton Parkway intersection; the SR-133 northbound/Gateway Boulevard and Pacifica Intersection; the Sand Canyon Avenue and I-5 northbound intersection; and the Sand Canyon Avenue and Burt Road intersection.

Under this alternative, 10 freeway/highway intersections, compared to 11 intersections under the proposed Project, using the HCM methodology were found to exceed impact thresholds. Similar to the proposed Project, impacts at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 southbound; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-405 southbound; Portola Parkway and SR-241 northbound; Portola Parkway and SR-241 southbound; Alton Parkway and I-5 northbound; Fortune Drive/I-5 southbound and Enterprise Drive; SR-133 northbound and Trabuco Road; and Bake Parkway and I-5 southbound freeway/highway intersections would exceed threshold. The required improvements for all impacts have been identified. Consistent with the mitigation approach for the proposed Project, these intersection locations are outside the jurisdiction of the County of Orange and would remain significant. Unlike the proposed Project, this alternative would not result in impact at the SR-133 southbound and Trabuco Road intersection.

Additionally, under this scenario, six freeway/highway ramps analyzed for Alternative 1b were found to exceed impact thresholds. This is compared to four freeway/highway ramps under the proposed Project. Similar to the proposed Project, impacts at the following intersections would exceed thresholds: I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; and I-405 northbound direct on-ramp at Sand Canyon Avenue. Alternative 1b would also impact the following ramps: I-5 southbound on-ramp at Jeffrey Road; SR-133 northbound off-ramp at Trabuco Road; and SR-133 southbound on-ramp at Barranca Parkway. Impact at SR-133 northbound on-ramp at Barranca Parkway would not occur under this alternative. Improvements for all impacts have been identified. Consistent with the mitigation approach for the proposed Project, these freeway/highway ramp locations are outside the jurisdiction of the County of Orange, and impacts would remain significant.

2035 Plus Alternative 1b and Pending Projects

Under this alternative, no impacts to intersections, compared to four under the proposed Project, using ICU methodology, would occur. This alternative would result in impacts at four intersections, compared to ten under the proposed Project, using HCM methodology. Similar to the proposed Project impacts at Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-405 southbound; and SR-133 northbound and Trabuco Road would exceed thresholds. Unlike the Project, impacts at Jeffrey Road and I-5 northbound; Sand Canyon Avenue and I-5 southbound, SR-133 southbound and Irvine Boulevard; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; and SR-133 southbound and Trabuco Road are no longer significant using the HCM methodology. Under this scenario for Alternative 1b, similar to the proposed Project, there would be an impact at I-5

southbound off-Ramp at San Canyon Avenue. However, unlike the proposed Project, impacts at I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; I-405 southbound off-ramp at Sand Canyon Avenue; and SR-133 southbound on-ramp at Trabuco Road would no longer occur under this alternative.

Under this alternative, no impacts would occur at freeway mainline segments.

Post-2035 With Alternative 1b and Pending Projects

Under the Post-2035 With Pending Projects, no impact would occur at Sand Canyon Avenue and Oak Canyon/Laguna Canyon using the ICU methodology. However, under the HCM intersection methodology, there would be a new impact at SR-133 southbound and Trabuco Road. 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.

Under this scenario for Alternative 1b, the previously identified Post-2035 impacts at Jeffrey Road and Walnut Avenue and SR-133 southbound and Trabuco Road under the HCM methodology would no longer occur. Additionally, Post-2035 With Pending Projects impacts at two freeway ramps would no longer occur (I-5 southbound on-ramp at Jeffrey Road and I-5 southbound off-ramp Alton Parkway). No mitigation would be required.

Utilities and Service Systems

Alternative 1b 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 this alternative. In addition, the proposed water and sewer demands for this alternative have been addressed in IRWD's current master planning activities for the Project area. New water, recycled water, and sewer infrastructure improvements and on-site storm drainage system improvements would be constructed as part of the development under this alternative. However, similar to the proposed Project, no new off-site water, recycled water, or storm drainage utilities are expected to be necessary and no off-site physical impacts would result, with the exception of connections to existing and planned facilities in roadways adjacent to the site.

As with the proposed Project, water supply and landfill capacity are available to serve future development on the site under this alternative, which would have less water and recycled water demand compared to the proposed Project and would generate less wastewater and solid waste. This alternative would also implement the same water and energy conservation measures required for the proposed Project. The impacts to utilities under the No Project/Institutional Entitlements Alternative and the proposed Project would be less than significant, but potential impacts under Alternative 1b would be reduced compared to the proposed Project. DR UTIL-1 through DR UTIL-3 would also apply to the development under Alternative 1b.

Conclusions

Would Alternative 1b Avoid or Substantially Lessen the Significant Impacts, as Compared to the Project?

Alternative 1b, the No Project/Institutional Entitlements Alternative, would avoid significant impacts to Air Quality, Land Use and Planning (interim), Population and Housing, and Recreation (short-term), which would occur with implementation of the proposed Project. These impacts are all linked to the fact that the proposed Project would exceed the land use intensity assumed in the General Plan, which has not been incorporated into the OCP-2014 and the regional planning programs. Once the City takes the required action and amends the General Plan and Zoning Ordinance and the regional planning programs are appropriately updated, the potential inconsistency impact would be less than significant.

The significant and unavoidable impacts for Transportation/Traffic would not be avoided with this alternative; however, it would be reduced (see Table 5-3). There would be substantially fewer trips generated than those associated with the proposed Project (6,916 ADT compared to 46,746 ADT).

Because the development footprint would be less than half of the proposed Project and the intensity is significantly reduced compared to the proposed Project, there would also be less impacts for the following environmental topics: Biological Resources, Cultural Resources, Geology and Soils, Hazardous and Hazardous Materials, Hydrology and Water Quality, Noise, Public Services, Recreation, and Utilities and Service Systems. This alternative would have greater significant and unavoidable impact related to GHG, because Alternative 1b's mitigated GHG emissions would exceed the SCAQMD-recommended project-level efficiency threshold under both the 2026 and 2030, whereas the proposed Project would only exceed the 2030 project-level efficiency threshold. The effect on the visual quality of the site is subjective. Some may feel that the impact is reduced because over half of the site is being left undeveloped, whereas others may feel that the impact is greater because some buildings and portions of other buildings would remain vacant and not blend well with the ultimate planned character of the site and area in general. Regardless, for these topical areas, both Alternative 1b's and the proposed Project's impacts are less than significant with mitigation and/or development requirements.

Would Alternative 1b Result in Attainment of Project Objectives, as Compared to the Project?

Alternative 1b is consistent with the assumed level of development identified in the 2003 OCGP Program EIR and has a footprint that is less than half of the site. However, this alternative would not meet most of the Project objectives and would only meet or partially meet some of the objectives. The following objectives would be met by this alternative:

3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).

9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent practical.

The No Project/Institutional Entitlements Alternative site is in proximity to the existing transit and transportation corridors. This alternative proposes uses that would generate approximately 1,029 jobs. The Irvine Station, in close proximity, and to the southwest of the site can be easily accessed by the future employees of the site once Marine Way is constructed. Additionally, the No Project/Institutional Entitlements Alternative would seek to adaptively reuse and repurpose the existing materials on the site and may use some structures with minor upgrades to meet safety and noise standards. These structures may accommodate the proposed uses, especially the warehouse and storage uses. Reuse of the existing materials and potential reuse of existing structures would promote and uphold the sustainability and environmental stewardship objectives of the Project.

The following objective would be partially met by the No Project/Existing Entitlements (Institutional) Alternative:

2. Enhance the condition of the Project site so it is compatible with the quality of the viewshed from the OCGP and the adjacent land uses.

This alternative would utilize the southeastern half of the site and improve the existing conditions by adaptively reusing and upgrading most of the existing structures to house the Institutional uses. Landscaping would be proposed to enhance the developed portion of the site. While the southeastern portion of the site would be improved, the northwestern half of the site would remain in its existing condition and vacant. Though not to the level that would be accomplished with the proposed Project, this alternative would enhance the visual condition of a portion of the Project site from adjacent locations. However, no improvements are proposed to upgrade the existing condition and aesthetically improve the northwestern portion of the Project site. For the reasons stated, the above two objectives are partially met by this alternative.

The following objectives would not be met by the No Project/Institutional Entitlements Alternative:

1. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City of Irvine.
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.
6. Develop infill improvements that facilitate mixed-use opportunities that can consume less land and energy per housing unit and square footage of development compared to a

conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.

8. Revitalize the underutilized Project site through the implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service, and residential uses.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.
11. Provide public space within the Project to support community activities.

This alternative would partially utilize the site. It would provide the County with new facilities, which may provide economic benefits of not having to lease other locations. However, it would not stimulate the economy or create sources of revenue because the development associated with this alternative would be Institutional and would serve government uses, which would not contribute to an increased tax base. Alternative 1b would not allow for any residential, commercial, retail, or recreational uses. No public space and no biking and walking trails are proposed under this alternative. Therefore, in light of these reasons, this alternative would not meet most of Project objectives.

5.4.3 ALTERNATIVE 2 – INTENSIFIED INSTITUTIONAL USES ALTERNATIVE

The Intensified Institutional Uses Alternative proposes development of institutional uses on the site, similar to Alternative 1b; however, the intensity of the proposed uses would exceed the 436,000 sf of Institutional uses assumed in the 2003 OCGP Program EIR for the site.

This alternative proposes developing the entire site, similar to the proposed Project. The uses would include government offices, emergency shelters, equipment storage areas, law enforcement facilities, and maintenance areas. The uses are shown in Table 5-4, Alternative 2 Land Use Summary and are depicted on Exhibit 5-2, Alternative 2: Intensified Institutional Uses Alternative – Conceptual Site Plan. This alternative would include off-site improvements, similar to the proposed Project. Although consistency with the General Plan is not required, for information disclosure purposes, this alternative would not conflict with the General Plan land use designation (Orange County Great Park) or the zoning designation (Institutional). Though not required, the County could submit a proposed General Plan Amendment to the City and zoning code amendment to update these documents with the increased intensity proposed by this alternative. While the County is exempt from City zoning, uses constructed under this alternative would reflect the uses identified and permitted in the City’s zoning designation for this site. This alternative would not involve the approval of a Development Plan for the Project site.

Project Summary	
Government Office	1,685,000 square feet
Emergency Shelter	164,600 square feet
Equipment Storage	30,000 square feet
Law Enforcement	54,000 square feet
Maintenance	152,000 square feet

SPORTS PARK



D:\Projects\LowEri\0001\Graphics\EIR\ElToro\Ex_Alt2_20151106.ai

Source: KTG 2016

Alternative 2: Intensified Institutional Uses Alternative - Conceptual Site Plan

Exhibit 5-2

El Toro, 100-Acre Parcel Development Plan EIR



**TABLE 5-4
ALTERNATIVE 2 LAND USE SUMMARY**

Land Use	Development Plan
Government Offices	1,685,000 square feet
Emergency Shelter	675 beds (164,600 square feet)
Equipment Storage	30,000 square feet
Law Enforcement	54,000 square feet
Maintenance	152,000 square feet
Source: KTG 2016.	

Anticipated actions required for the implementation of 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, as this alternative exceeds the assumptions in the 2003 OCGP Program EIR
- Runoff Management Plan(s)
- Water Quality Management Plan(s)
- Grading Permits
- Building Permits
- Encroachment Permits
- Acquisition and dedication of rights of entry, easements, and rights-of-way for off-site improvements

Impact Evaluation

Aesthetics

The proposed development under Alternative 2 would change the visual quality of the entire site, similar to the proposed Project. Short-term construction and infrastructure improvements would occur within the same general footprint as the proposed Project. While the intensity of the improvements would be reduced, the long-term changes to the visual setting would be similar compared to the Project. Under this alternative, buildings would be of varying heights and sizes. Also, similar to the proposed Project, the impacts would be less than significant. This alternative would improve visual quality of the site compared to existing conditions because it would remove the majority of the degraded buildings on site. As with the Project, a determination of impacts to visual character is relatively subjective. Changes to the visual quality are expected to be similar compared to the proposed Project because the overall site would be developed; however, Alternative 2 would not have a 50-foot-wide linear park abutting Marine Way.

Proposed development under Alternative 2 would introduce new sources of light and glare that would increase lighting levels on the entire site similar to the proposed Project. Distance from existing and planned uses and proposed landscaping would minimize light and glare spillover.

While this alternative would introduce an increased number of parking structures and surface parking lots with lights, due to the nature of this alternative, it is anticipated that with the exception for security lighting, much of the lighting would be reduced at the end of the work day. However, it should be noted that some of the uses, such as the law enforcement and emergency shelter would be 24-hour a day facilities. DR AES-1 and DR AES-2 would be applicable to the Alternative 2 development. Impacts related to new sources of light and glare would be less than the proposed Project and less than significant.

Air Quality

Although the City General Plan would not apply to this alternative, development under Alternative 2 would be in accordance with the General Plan's Institutional land use designation. However, the 2,085,600 square feet of proposed uses exceeds the 436,000 square feet of development assumed in the 2003 OCGP Program EIR. The long-term pollutant emissions that would occur with development of Alternative 2 would be greater than anticipated in the current AQMP, which is based on the General Plan assumptions. Thus, the significant and unavoidable conflict with the AQMP that would occur with the proposed Project would also occur with Alternative 2.

Alternative 2 would generate 45,138 ADT compared to 46,746 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be only slightly reduced. The Project population and building area would be less than the proposed Project, resulting in reduced consumer product VOC emissions. Long-term criteria pollutant emissions would be less than those calculated for the proposed Project, but would not be less than the SCAQMD CEQA thresholds. The significant and unavoidable direct and cumulative impacts that would occur with the proposed Project would also occur with Alternative 2. DRs AQ-1 through AQ-5 and MMs AQ-2, AQ-4, and AQ-6 would also be applicable to this alternative.

Although grading and phasing plans have not been developed for Alternative 2, it is reasonable to conclude that the peak year of concurrent building and grading activities analyzed for the proposed Project would also occur with Alternative 2 and unmitigated construction NOx emissions would be a potential significant impact. MM AQ-1, which would be required for the proposed Project, would also be required for Alternative 2. Unmitigated construction emissions of pollutants other than NOx, exposure of sensitive receptors to pollutants, and odor impacts would be similar to the proposed Project and less than significant with Alternative 2.

Biological Resources

Under Alternative 2, the development footprint and the physical impact area would be the same as the proposed Project. This alternative, similar to the proposed Project, would potentially impact active nests of migratory birds and/or raptors; however, with mitigation such as limiting construction activities to non-nesting season or by performing a pre-construction nesting/bird survey and implementing buffers around active nests, the impacts would be less than significant. Additionally, similar to the proposed Project, this alternative would impact approximately 1.24 acres of riparian habitat and the processing of permits/agreements/certification from the USACE, the RWQCB, and the CDFW and implementation of the permit requirements would reduce the impacts to less than significant levels. Thus, similar to the proposed Project, no significant and unavoidable impacts would result from this alternative.

This alternative would also impact approximately 0.004 acre, 0.721 acre, and 1.801 acres of waters under the jurisdiction of the USACE, the RWQCB, and the CDFW, respectively, which is similar to the proposed Project. Like the proposed Project, processing of permits/agreements/certifications from these agencies would provide the necessary mitigation for impacts on this resource. Therefore, the potential impact on jurisdictional waters would be less than significant with mitigation.

Similar to the proposed Project, this alternative would not conflict with local ordinances or the provisions of the Central/Coastal NCCP/HCP. Therefore, there would be no impact.

As with the proposed Project, no significant and unavoidable biological resources impacts would result with Alternative 2. DRs BIO-1 through BIO-4 would also be applicable to this alternative.

Overall, this alternative's impacts to biological resources would be the same as the proposed Project.

Cultural Resources

Under Alternative 2, the development footprint and the physical impact area would be the same as 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 same MMs CULT-1 through CULT-3, the potential impacts to cultural resources would be less than significant and the same as the proposed Project.

Geology and Soils

This alternative would have the same 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 standard construction practices 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.

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 2 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 Development Regulation 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, this alternative's potential geology and soil impacts would be similar to the proposed Project.

Greenhouse Gas Emissions

Alternative 2 would generate 45,138 ADT compared to 46,746 ADT for the proposed Project. GHG emissions for Alternative 2 are estimated at approximately 42,400 MTCO₂e/year and would be less than the proposed Project's estimated unmitigated GHG emissions of 49,272 MTCO₂e/year. The Alternative 2 service population (SP) is estimated at 7,053 compared with 11,753 for the proposed Project and it is estimated that the Alternative 2 GHG efficiency would be approximately 6 MTCO₂e/year/SP, which would exceed the both the 5.60 MTCO₂e/year/SP plan-level and 4.08 MTCO₂e/year/SP project-level thresholds. The GHG emissions would be potentially significant and mitigation measures similar to Project MM GHG-1 (renewable energy generation), GHG-2 (Energy Star Appliances), and GHG-3 (high efficiency lighting) appropriate to the Project size would be implemented. Alternative 2 MMs would reduce GHG emissions but would not improve the efficiency to less than either the 2026 plan-level or project-level thresholds. For comparison, the Project's estimated 4.05 MTCO₂e/year/SP efficiency would not exceed either the plan-level or the project-level threshold for the interpolated 2026 threshold.

In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 2 because improvements in the infrastructure, 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. 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 an infill development close to transit and would be consistent with State and SCAG goals and policies for reducing GHG emissions and therefore not conflict with those policies. Compliance with the applicable Title 24 Energy Efficiency Standards and CALGreen Code (DRs GHG-1 and GHG-2) would also be applicable to this alternative.

Alternative 2 would have a lower GHG service population metric compared to the Project and would generate approximately 15 percent less total GHG emissions than the Project. However, because Alternative 2's mitigated GHG emissions would exceed SCAQMD's plan-level and project-level thresholds, 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 GHG emissions impact would conflict with the provisions of applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases. This would be a significant and unavoidable impact. The impact would be more severe than the Project's because the Project is able to meet the 2026 efficiency threshold.

Hazards and Hazardous Materials

Alternative 2 proposes development of intensified institutional uses on the entire site; therefore, the footprint of this alternative would be similar to that of the proposed Project. Impacts related to hazardous materials under Alternative 2 would be similar to the proposed

Project. However, as was discussed under Alternative 1b, calculated human health risks for the Emergency Shelter use are expected to be less than those for commercial/industrial or residential use. Therefore, under institutional use, impacts at IRP Site 12 Units 1 and 2 would be reduced compared to the proposed Project, which proposes residential use. MM HAZ-4 and MM HAZ-5, which include an evaluation of previously collected data and potentially additional excavation, would not be necessary at Units 1, 2, and 3, respectively. Hazards in Unit 4 are less than significant without mitigation. Overall, this alternative would have similar impacts compared to the Project as it relates to hazards and hazardous materials.

Hydrology and Water Quality

As the development footprint is similar to the proposed Project, the Alternative 2 site would be located on a County of Orange designated “Plume Protection Boundary”. Therefore, similar to the proposed Project, as infiltration, evapotranspiration, and evaporation BMPs are not recommended options given the condition of the groundwater and lack of vast landscaped areas, water treatment would occur through use of proprietary Bio-Treatment BMPs. With the implementation of the recommended BMPs and the development requirements (DR HWQ-7 through DR HWQ-10), the Project water quality standards and waste discharge requirements would not be violated, nor would water quality be substantially degraded. The water quality-related impacts would be less than significant. Additionally, similar to the proposed Project, compliance with the Construction General Permit, including preparation of an SWPPP and General Waste Discharge Requirements (WDRs) would ensure impacts to receiving waters from non-storm water flows during construction are less than significant.

Similar to the proposed Project, the proposed improvements are designed to best maintain existing drainage runoff flow patterns, when feasible. However, the site topography and the proposed redevelopment for the Marine Corps Air Station (MCAS) El Toro would result in two small drainage area diversions, which would not have any significant effect on the downstream receiving water bodies (i.e., Marshburn, Bee Canyon, and Agua Chinon Channels), similar to the proposed Project. Therefore, no significant impacts would occur, and no mitigation beyond the development requirements (DRs HWQ-1 through HWQ-6) is required. During the final design of this alternative, additional drainage analysis would be conducted to determine maximum allowed discharge for the entire site and based on the Alternative 2 development plan and the backbone storm drain system for individual area. Overall, the hydrology and water quality impacts of this alternative would be similar to the proposed Project.

Land Use and Planning

Like the proposed Project, this alternative would not conflict with the land use plan and policies of the Irvine General Plan. Similar to the proposed Project, this alternative would not be subject to City’s land use plans, policies and regulations. The institutional use is consistent with the City’s land use designation, but the proposed intensity of development exceeds the assumptions in the 2003 OCGP Program EIR.

Similar to the proposed Project, the development levels envisioned by this alternative are not reflected in the RTP/SCS. MM LU-1 under the proposed Project would be applicable to this alternative for consistency with the regional planning programs. This alternative would be consistent with the policies of the RTP/SCS which promote placement of employment centers in proximity to transit and major transportation corridors. However, unlike the proposed

Project, this alternative does not provide a mixed-use component as envisioned by the RTP/SCS in line with the sustainability goals of the regional plan and as a means of reducing environmental impacts associated with growth in the region.

Alternative 2 would introduce a total of 2,085,600 sf of institutional uses, including government, warehouse, and emergency shelter uses. As a government center, the land uses would differ from those being built elsewhere in PA 51; however, they would not necessarily be incompatible land uses. The City's Zoning Code designates the Project site as Institutional (Irvine 2015a, 2015b); therefore, the types of uses proposed as part of Alternative 2 are consistent with the Zoning Code. As shown on Exhibit 5-2, the uses would be separated from the OCGP by Marine Way and could be developed as a cohesive facility potentially serving as a regional civic center. Though Alternative 2 does not provide the open space buffer "Park within the Park" proposed by the Project, the government/institutional uses would be community serving. Development of the governmental office uses would be similar, yet more intense, than the Irvine Technology Center development located across the railroad tracks from the site. As discussed above under Alternative 1b, the provision of an emergency shelter is consistent with the uses permitted in the Institutional district. Therefore, all the uses proposed by Alternative 2 are consistent and compatible with the existing land use designation. Overall, the potential impacts associated with land use and planning would be comparable with Alternative 2.

Noise

Alternative 2 would generate 45,138 ADT compared to 46,746 ADT for 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 off-site receptors would be less with Alternative 2 and, similar to the proposed Project, would be less than significant. Alternative 2 buildings would require the same design measures to avoid noise and vibration impacts as required for the proposed Project. Similar to the proposed Project, all noise and vibration impacts would be less than significant. DR NOI-1 and MMs NOI-1, NOI-2, NOI-3, NOI-5, NOI-7, and NOI-9 would also be applicable to this alternative. Overall, noise related impacts associated with this alternative would be less than the proposed Project.

Population and Housing

Alternative 2 would not introduce any permanent residents to the area, as no residential uses are proposed. In the absence of any residential uses, Alternative 2 would not directly contribute to population growth in the area. This would avoid the significant unavoidable impact under the proposed Project associated with exceeding the population projections for the area. However, the intensified institutional uses may potentially result in indirect population growth pressure by introducing a total of 6,942 jobs in the area, thereby increasing the pressure for additional housing opportunities. A direct comparison to the proposed Project is difficult because of two factors. First, at least some of the employees that would report to the new government offices are already residents of Orange County or commute from outside the County to their government positions. It is highly unlikely that these would all be new jobs. Secondly, while this alternative's contribution of jobs is less than the Project's 7,799 jobs, the proposed Project would contribute 2,103 new residential units to provide housing opportunities for employees of new jobs.

The proposed Project would alter the relationship between jobs and housing at the subregional, County, City, and Project levels. The proposed Project with a jobs/housing ratio of 3.5 would contribute to the imbalance of housing and jobs in the area. However, Alternative 2 with no residential uses and a total of 6,942 jobs would further exacerbate the jobs/housing imbalance, when compared to the proposed Project. Overall, this alternative would have less population and housing impacts compared to the proposed Project.

Public Services

Unlike the proposed Project, the Intensified Institutional Alternative would not introduce any permanent residents to the area and would generate approximately 6,942 jobs compared to the proposed Project's estimated job creation of 7,799. Therefore, the associated demand for public services (fire, police, and libraries) would be reduced compared to the proposed Project. There would be no generated demand for schools due to the absence of proposed residential development under this alternative. However, impacts from the proposed Project would be less than significant with adherence to development requirements (DR FIRE-1 through DR FIRE-4), which would also be required for this alternative. Overall, this alternative would have less public services impacts compared to the proposed Project.

Recreation

Alternative 2 would not introduce any permanent residents to the area, as no residential uses are proposed. Therefore, unlike the proposed Project, Alternative 2 would not increase demand for recreational facilities and amenities in the area. Additionally, this alternative unlike the proposed Project, would not provide parkland as it would not generate new population in the area. Therefore, the potential impact associated with the provision of recreational facilities or degradation of existing facilities would be less than the proposed Project and less than significant.

Transportation/Traffic

Alternative 2, Intensified Institutional Uses, would result in slightly reduced amount of total average daily trips compared to the proposed Project. In comparison to the proposed Project's 46,746 ADT, this alternative would generate a total of 45,138 ADT.

The same methodology used to evaluate the proposed Project was used to analyze and identify potential transportation/traffic impacts under Alternative 2. The same roadway network as the proposed Project, was analyzed for this alternative, and same growth assumptions were utilized for the analysis. Traffic impacts of Alternative 2 have been identified for existing traffic conditions, 2035, and Post-2035 future traffic conditions (Year 2017 conditions were not separately analyzed for Alternative 2 as it is reasonable to conclude that by the Year 2017 the amount of development under Alternative 2 would not exceed the 224,500 square feet of institutional uses, 175 emergency shelter units, and 136,000 square feet of warehouse contemplated for Year 2017 under Alternative 1b).

Table 5-5 identifies the number of locations that have direct and cumulative impacts with the proposed Project and with 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. A discussion of the impacts for each timeframe follows the table.

**TABLE 5-5
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	6	6
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	7	6
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	2
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	2	5
Intersection Impacts with HCM Methodology	10	11
Impacts on Freeway Ramps	5	5
Impacts on Freeway Mainline Segments	0	1
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	5	4
Intersection Impacts with HCM Methodology	11	11
Impacts on Freeway Ramps	4	5
Impacts on Freeway Mainline Segments	0	1
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	4	3
Intersection Impacts with HCM Methodology	10	9
Impacts on Freeway Ramps	5	6
Impacts on Freeway Mainline Segments	1	1
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	7	6
Intersection Impacts with HCM Methodology	9	10
Impacts on Freeway Ramps	6	7
Impacts on Freeway Mainline Segments	2	1
ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual Source: Fehr & Peers 2015		

Existing Plus Alternative 2 Analysis

Under the Existing Plus Alternative 2 scenario, six freeway/highway intersections were found to exceed thresholds using the Highway Capacity Manual (HCM) methodology. Similar to the proposed Project, impacts at Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-405 southbound; Fortune Drive/I-5 southbound and Enterprise Drive; and Bake Parkway and I-5 northbound would exceed thresholds. Mitigation for all these impacts have been identified consistent with the mitigation approach for the proposed Project in Section 4.14 of this EIR; however, given that mitigation for these freeway/highway intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant.

Additionally, six freeway segments would exceed impact thresholds under this scenario for Alternative 2, compared to seven segments under the proposed Project. Similar to the proposed Project, impacts at I-5 northbound (Alton slip on-ramp to SR-133 northbound off-ramp); I-5 southbound (Jeffrey Road off-ramp); I-5 southbound (Jeffrey Road to SR-133 northbound); I-5 southbound (SR-133 southbound to Alton Parkway); I-405 southbound (SR-133 off-ramp); and I-405 southbound (Sand Canyon off-ramp) freeway segments would exceed thresholds. The impacts at I-405 northbound (Jeffrey slip on-ramp) segment identified under the proposed Project would no longer occur under this alternative. 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 would remain significant. Overall, this alternative would have less impacts compared to the proposed Project under this scenario.

Year 2035 Plus Alternative 2 Analysis

For Alternative 2, five intersections were found to exceed thresholds using the ICU methodology. Similar to the proposed Project, traffic volumes for Alternative 2 would exceed thresholds at Sand Canyon Avenue and I-5 northbound Sand Canyon Avenue and Oak Canyon/Laguna Canyon. However, additional impacts would occur at three intersections of Jamboree Road and Barranca Parkway; Jeffrey Road and Alton Parkway; and Sand Canyon Avenue and Burt Road. Mitigation for all impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for these locations is outside the jurisdiction of the County of Orange, the impacts would remain significant.

Under Alternative 2, eleven freeway/highway intersections using the HCM methodology were found to exceed impact thresholds. Similar to the proposed Project, impacts at the following intersections would exceed thresholds: Jeffrey Road and I-5 northbound; 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; Sand Canyon Avenue and I-405 southbound; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway/I-5 southbound; Trabuco Road and SR-133 southbound; and Trabuco Road and SR-133 northbound. However, this alternative would result in an additional impact at the SR-133 southbound and Irvine Boulevard intersection. Mitigation for all impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for these freeway/highway

intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant.

Five freeway/highway ramps were found to exceed impact thresholds. Similar to the proposed Project, impacts at I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; and I-405 southbound off-ramp at Sand Canyon would exceed thresholds. However, this alternative would impact one additional freeway/highway ramp at SR-133 northbound on-ramp at Barranca Parkway ramp, and it would not impact the I-5 southbound on-ramp at Jeffrey Road ramp, which would occur with implementation of the proposed Project. Mitigation for all impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for these freeway/highway ramps locations are outside the jurisdiction of the County of Orange, the impacts would remain significant.

Unlike the proposed Project, one freeway segment at I-5 southbound (Sand Canyon Avenue off-ramp) would exceed the impact threshold. Mitigation has been identified consistent with the mitigation approach for the proposed Project; however, the impact would remain significant as the impacted location is outside of the County's jurisdiction. Overall, this alternative would have different and greater impacts compared to the proposed Project under this scenario.

Post-2035 Plus Alternative 2 Analysis (General Plan Buildout)

Four intersections using the ICU methodology were found to exceed thresholds. Similar to the proposed Project, impacts at Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road; and Sand Canyon Avenue and Alton Parkway would exceed thresholds. However, this alternative would result in an additional impact at Marine Way and Ridge Valley. Mitigation for all impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for these freeway/highway ramp locations are outside the jurisdiction of the County of Orange, the impacts would remain significant.

This alternative would not result in impacts at SR-133 northbound/Gateway Boulevard and Pacifica and Sand Canyon Avenue and Burt Road intersection.

Eleven freeway/highway intersections using the HCM methodology were found to exceed impact thresholds. Similar to the proposed Project, impacts at the following intersections would exceed thresholds: Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Sand Canyon Avenue and I-405 southbound; Portola Parkway and SR-241 northbound; Portola Parkway and SR-241 southbound; Alton Parkway and I-5 northbound Ramps; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway/I-5 southbound; Trabuco Road and SR-133 southbound; and Trabuco Road and SR-133 northbound. This alternative would result in one additional impact at the Jeffrey Road and I-5 northbound intersection. However, unlike the proposed Project, this alternative would not result in an impact at the Jeffrey Road and Walnut Avenue intersection.

Five freeway/highway ramps were found to exceed impact thresholds. Similar to the proposed Project, impacts at the following ramps would exceed thresholds: I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; and SR-133 northbound on-ramp at Barranca Parkway.

However, this alternative would result in an additional impact at I-5 southbound on-ramp at Jeffrey Road. One freeway segment would exceed impact thresholds at I-5 northbound (SR-133 northbound on-ramp to Sand Canyon off-ramp).

Mitigation for impacts associated with Alternative 2 would be consistent with the mitigation approach for the proposed Project. However, as stated with the proposed Project, Caltrans has no present plans to construct the necessary improvements within the timeframe necessary to mitigate the identified significant impacts and there is no mechanism by which the Project can contribute its fair-share towards the necessary improvements. Consequently, there is no 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 would be significant and unavoidable. Overall, this alternative would have similar impacts compared to the proposed Project under this scenario even though the impact locations differ in some areas.

2035 Plus Alternative 2 and Pending Projects

Under this alternative, three impacts to intersections, compared to four under the proposed Project, using ICU methodology, would occur. Similar to the proposed Project, impacts would occur at Jeffrey Road and Alton Parkway; Sand Canyon Avenue and I-5 northbound; and Sand Canyon Avenue and Oak Canyon/Laguna Canyon. The Project impact at Browning and Irvine Boulevard would not occur under this alternative.

This alternative would result in impacts at nine intersections, compared to ten under the proposed Project, using HCM methodology. Similar to the proposed Project impacts at Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-405 southbound; SR-133 southbound and Irvine Boulevard; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; SR-133 southbound and Trabuco Road; and SR-133 northbound and Trabuco Road would exceed thresholds. Unlike the Project, the Project impact at Sand Canyon Avenue and I-5 southbound would not occur under this alternative. Under this scenario for Alternative 2, similar to the proposed Project, there would be impacts at I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; and I-405 southbound off-ramp at Sand Canyon. However, unlike the proposed Project, impact at SR-133 southbound on-ramp at Trabuco Road would not occur under this alternative. This alternative would result in impacts at two additional freeway/tollway ramps at I-5 southbound on-ramp at Jeffrey Road and SR-133 northbound on-ramp at Barranca Parkway. Under this alternative, the Project's identified impact at I-5 southbound (Sand Canyon off-ramp) mainline would not occur; however, there would be an impact at I-5 southbound (Sand Canyon off-ramp) under this alternative.

Mitigation for all impacts has been identified consistent with the mitigation approach for the proposed Project. Though this alternative would generate incrementally fewer trips, similar to the proposed Project, given that mitigation for these freeway/highway ramps and intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant. Overall, this alternative would have less impacts compared to the proposed Project under this scenario even though one additional freeway ramp would be impacted under this alternative.

Post-2035 Plus Alternative 2 and Pending Projects

Under Post-2035 Plus Pending Projects six intersections would be impacted under the ICU methodology compared to seven intersections under the proposed Projects. Similar to the proposed Project Culver Drive and I-405 northbound; San Canyon Avenue and I-5 northbound; Sand Canyon Avenue and Oak Canyon/Laguna Canyon; San Canyon Avenue and Alton Parkway; Sand Canyon Avenue and Burt Road; and Marine Way and “O” Street would exceed thresholds. The impact identified at SR-133 northbound/Gateway and Pacific under the proposed Project would not occur under this alternative.

Under this alternative, ten intersections, compared to nine under the proposed Project, would be impacts using HCM methodology. Similar to the proposed Project Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Portola Parkway and SR-241 northbound; Portola Parkway and SR-241 southbound; Alton Parkway and I-5 northbound; Fortune Drive/I-5 and Enterprise Drive; Bake Parkway/I-5 southbound; and Trabuco Road and SR-133 northbound would exceed thresholds. With Pending Projects, the Project’s Post-2035 impact at Sand Canyon Avenue and I-405 southbound under the HCM methodology would not occur under this alternative. Additionally, with Pending Projects, two new significant impacts would occur at SR-133 southbound off-ramp at Trabuco Road and Jeffrey Road and I-5 northbound under this alternative.

Seven freeway/highway ramps were found to exceed impact thresholds compared to six under the proposed Project. Similar to the proposed Project, impacts at the following ramps would exceed thresholds: I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; SR-133 northbound off-ramp at Trabuco Road; SR-133 southbound on-ramp at Barranca Parkway; and SR-133 northbound on-ramp at Barranca Parkway. However, this alternative would result in an additional impact at I-5 southbound on-ramp at Jeffrey Road. Similar to the proposed Project, there would be an impact at I-5 northbound (SR-133 northbound on-ramp to Sand Canyon off-ramp) segment, but unlike the Project, this alternative would result in an additional impact at I-5 southbound (San Canyon off-ramp) segment.

Mitigation for all impacts has been identified consistent with the mitigation approach for the proposed Project. Though this alternative would generate incrementally fewer trips, similar to the proposed Project, given that mitigation for these freeway/highway ramps and intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant. Overall, this alternative would have similar impacts compared to the proposed Project under this scenario. While this alternative would result in less impacts to intersections and freeway/toll road mainline segments, it would have more impacts to freeway ramp intersections and ramp segments compared to the Project (see Table 5-5 for a comparison of the number of impact locations).

Utilities and Service Systems

The Intensified Institutional Uses Alternative would place increased demands on local and regional utilities and service systems; however, the demand would be less compared to the proposed Project due to the absence of residential, and hotel uses. New water, recycled water, sewer, and storm drainage systems would be constructed as part of this alternative. However, consistent with the proposed Project, no new off-site water, recycled water, sewer or storm

drainage utilities are expected to be necessary and no off-site physical impacts would result, with the exception of connections to existing and planned facilities in roadways adjacent to the site. Storm drain facilities are further discussed above under Hydrology and Water Quality. Sewage discharge from this alternative west of Bee Canyon Wash would also affect the sewer deficiency identified by IRWD downstream of the Project site but to a lesser degree compared to the Project. IRWD would still be required to implement downstream sewer system improvements to satisfy upstream users.

IRWD has identified a system deficiency for the downstream sewer system serving the area west of Bee Canyon Channel. The system deficiencies will require upgrades to IRWD's sewer line Reach "A", which may include replacement of existing sewer lines with larger diameter pipes or adding a second parallel sewer line to provide additional conveyance capacity or diversion to other sewer mains maintained by IRWD. These downstream improvements are the responsibility of IRWD, as system wide improvements are required to service IRWD's PA 51, which includes the Great Park Neighborhoods, the proposed Musick Jail Expansion, UC Regents potential residential development north of Irvine Boulevard, the Irvine Company's planned residential developments in the City of Irvine, OCTA's proposed approximately 21-acre rail maintenance yard, the Second Harvest Food Bank's existing warehouse, and the proposed Project.

As with the proposed Project, water supply and landfill capacity are available to serve future development on the site under this alternative, which would have less water and recycled water demand than the proposed Project, and would generate less wastewater and solid waste compared to the proposed Project.

Alternative 2 would also implement the same water and energy conservation measures required for the proposed Project. The impacts to utilities under the Intensified Institutional Alternative and the proposed Project would be less than significant, but potential impacts under Alternative 2 would be reduced compared to the proposed Project. DR UTIL-1 through DR UTIL-3 would also apply to the development under Alternative 2.

Conclusions

Would Alternative 2 Avoid or Substantially Lessen the Significant Impacts, as Compared to the Project

Although neither the City General Plan nor the City Zoning Code apply to this alternative, Alternative 2, Intensified Institutional Uses Alternative, proposes a use that conforms to the General Plan land use designation while proposing an intensity of development (2,085,600 sf of institutional uses) that would exceed the 436,000 sf assumed in the 2003 OCGP Program EIR. This alternative would avoid significant Population and Housing impacts associated with increased population beyond what is assumed in the OCP-2014 dataset. This alternative would also avoid the Project's significant and unavoidable impact associated with temporary shortage of parkland (Recreation), as this alternative would not provide permanent residents and would not be required to provide any parkland.⁴ The significant and unavoidable impacts for Air Quality, GHG, Land Use and Planning (interim), and Transportation/Traffic would not be

⁴ Under the proposed Project, if the full allocation of residential development occurs prior to completion of Marine Way, the full development of the "Park within the Park" would be delayed.

avoided with this alternative. For the following environmental topics the impacts would be reduced with Alternative 2 compared to the proposed Project: Aesthetics (light and glare), Noise, Public Services, Reaction, and Utilities and Service Systems. The impacts for these topics are less than significant with mitigation and/or development requirements. Impacts related to Aesthetics, Biological Resources, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, and Hydrology and Water Quality would be similar compared to the proposed Project. The GHG impacts for Alternative 2 would remain significant and unavoidable under this alternative and greater than the Project's due to the lower GHG efficiency in the absence of mixed-use, high density land uses. Overall, Alternative 2 would reduce or avoid some of the Project's potentially significant impacts and has greater impacts in some areas.

Would Alternative 2 Result in Attainment of Project Objectives, as Compared to the Project?

The footprint under this alternative is similar to the proposed Project. Of the 11 Project objectives, this alternative is able to fully meet 3 of the Project objectives and partially meet 5 objectives. Three Project objectives are not met by the Project.

The following objectives would be met by this alternative:

2. Enhance the condition of the Project site so it is compatible with and enhances the quality of the viewshed from the Orange County Great Park (OCGP) and the adjacent land uses.
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent practical.

The development under this alternative would utilize the site in its entirety for Institutional uses. Therefore, the entire site would be improved and enhanced with buildings, site improvements and landscaping. This would achieve the objective of enhancing the existing condition of the site by replacing dilapidated and abandoned structures. Moreover, the site is in proximity to the existing transit and transportation corridors and the Alternative 2 development could promote the linkages identified in the Project objectives. Additionally, this alternative meets objective 9 by re-purposing and adaptively reusing existing materials on the site.

The following objective would be partially met by the Intensified Institutional Uses Alternative:

1. Fully utilize this County real estate asset to generate new sources of revenue for the County and stimulate economic commerce in the City of Irvine.
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.

7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).
8. Revitalize the underutilized Project site through the implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service, and residential uses.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.

This alternative would partially meet Objective 1 as it would utilize an existing County real estate asset and the institutional uses would stimulate some economic commerce in the City of Irvine. However, Alternative 2 will not generate new sources of County revenue or stimulate economic commerce to the same extent as the Project. This alternative also only partially meets Objective 5, as it would be an infill development on a brownfield site in proximity to transit service and along transportation corridors, even though this alternative would not result in the type and intensity of mixed-use development that best supports transit, reduces vehicle miles traveled and preserves open spaces areas. This alternative would partially meet Objective 7 by resulting in uses that would generate employment in the area near amenities and services that would support the work force; however, while recreation and housing opportunities would be in proximity to the site, retail uses would not be readily accessible. Additionally, although Alternative 2 would revitalize a site that is in proximity to the Irvine Station (Objective 8), the more narrow range of uses under this alternative does not qualify as an innovative development that will contribute to meeting the regional demand for a broad array of employment, service and residential uses. Alternative 2 would also partially meet Objective 10 by connecting the site to surrounding uses via trails and walkways, but would not link the diversity of uses contemplated by Objective 10, and thereby promoting use of alternative modes of travel like the Project.

The following objectives would not be met by the Intensified Institutional Uses Alternative:

4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
6. Develop infill improvements that facilitate mixed-use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
11. Provide public space within the Project to support community activities.

Alternative 2 would utilize the full site to develop institutional uses that would accommodate a total of 6,942 jobs on site. This alternative would not promote sustainability through a mix of -uses that would include the range of compatible uses identified in Objective 4. Additionally, while this alternative is an infill development, it would not provide a mix of uses on the site that would consume less land and result in fewer impacts related to greenhouse gas emissions (Objective 6). Moreover, this alternative would not meet Objective 11, as this alternative does not propose any public space within the development that would support community activities for the institutional uses. Therefore, in light of these reasons, this alternative would not meet the above Project objectives.

5.4.4 ALTERNATIVE 3 – REDUCED INTENSITY AND REDUCED DENSITY ALTERNATIVE

This alternative assumes that the County would reduce the number of residential units and the overall square footage of commercial and mixed-uses that would be built on the site, while still meeting most of the Project Objectives, listed in Section 5.2.1, above.

This alternative proposes developing the entire approximately 108-acre site. The proposed uses would include similar uses as the proposed Project; however, the overall density and intensity of uses would be reduced. The uses would include corporate office, high density residential, retail, hotel/hospitality, and parks/open space/plaza. The lower intensity and density is achieved through reducing the number of residential units by a total of 105 units and non-residential uses by a total of 896,000 sf. The development standards and process outlined in the Development Plan would be applicable to the Reduced Intensity and Reduced Density Alternative.

This alternative would also include construction of off-site improvements, similar to the proposed Project. Development under this alternative would be in compliance with the provisions of the Development Plan, which would be modified to accommodate this alternative. The modified Development Plan would reflect the land uses, intensities and densities depicted in the Table 5-6, below. The proposed uses are shown in Table 5-6, Alternative 3 Land Use Summary, and are depicted on Exhibit 5-3, Alternative 3: Reduced Intensity and Reduced Density Alternative – Conceptual Site Plan.

**TABLE 5-6
ALTERNATIVE 3 LAND USE SUMMARY**

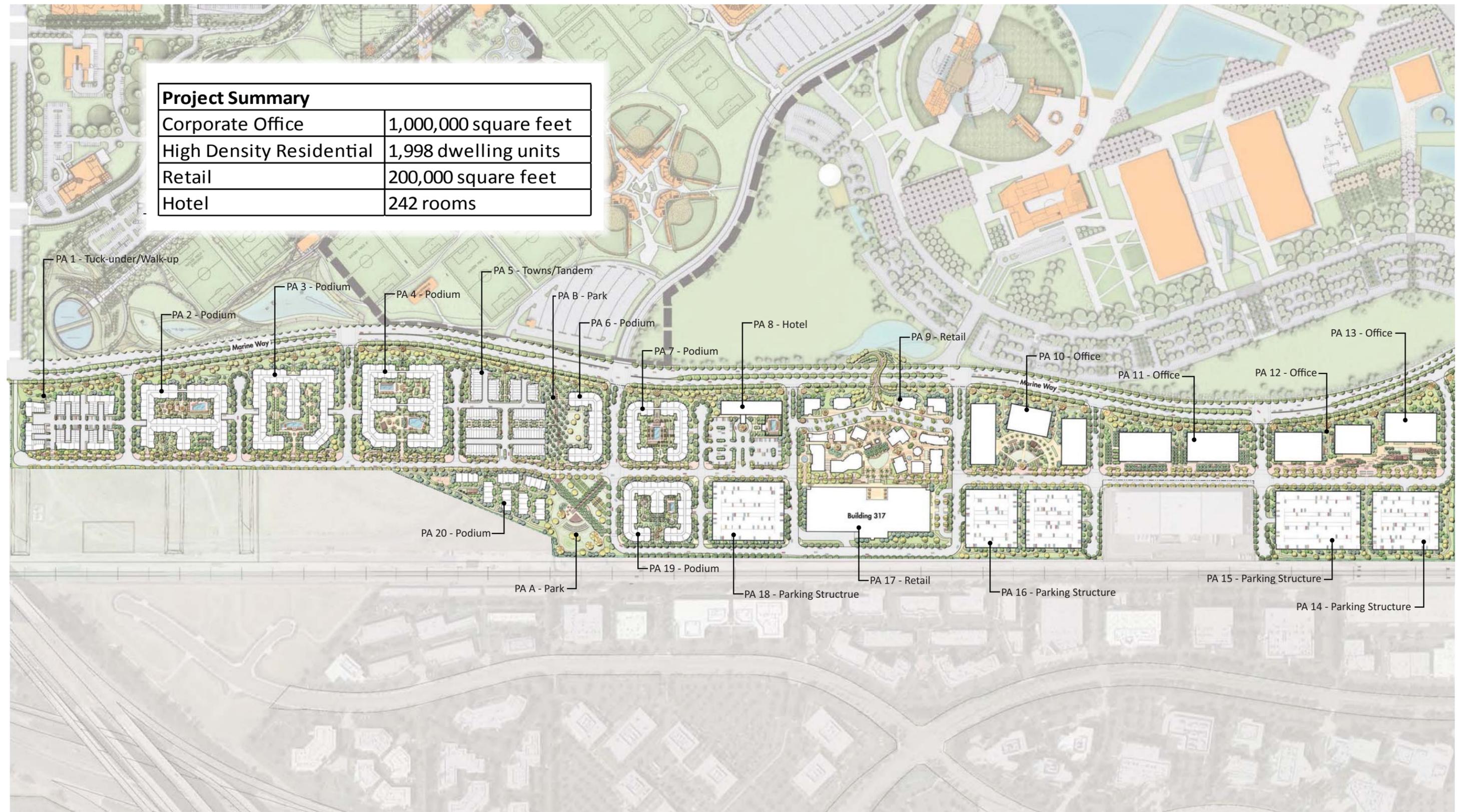
Land Use	Development Size
Corporate Office	1,000,000 square feet
High Density Residential	1,998 dwelling units ^a
Retail	200,000 square feet
Hotel ^b	242 rooms
^a Live/Work or Shopkeeper units are considered 1 dwelling unit. The work area within these units do not count toward retail or office square footage. ^b Includes up to 20,000 square feet of meeting space. Meeting space does not count towards the maximum allowable development identified in this table. Source: KTG 2016.	

Anticipated actions required for the implementation of Alternative 3 would include approval of:

- 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, as this alternative exceeds the assumptions in the 2003 OCGP Program EIR
- The Development Plan
- Runoff Management Plan(s)
- Water Quality Management Plan(s)

Project Summary

Corporate Office	1,000,000 square feet
High Density Residential	1,998 dwelling units
Retail	200,000 square feet
Hotel	242 rooms



D:\Projects\LowEri\0001\Graphics\EIR\EIToro\Ex_Alt3_20151106.ai

Source: KTG 2016

Alternative 3: Reduced Intensity and Reduced Density Alternative – Conceptual Site Plan

Exhibit 5-3

EI Toro, 100-Acre Parcel Development Plan EIR



- Level I, II, III Reviews
- Grading Permits
- Building Permits
- Encroachment Permits
- Acquisition and dedication of rights of entry, easements, and rights-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 3 would change the visual quality of the entire site. Alternative 3 would introduce similar uses as the proposed Project and would have the same development footprint, but with reduced density and intensity. Short-term construction and infrastructure improvements would have similar impacts compared to the proposed Project, as the entire site would be developed. Under Alternative 3, long-term visual impacts would be similar to the proposed Project because the maximum densities, building heights, and intensities provided in the Development Plan would still be allowed. However, given that Alternative 3 would include fewer residential units and substantially less office uses, the impacts would be slightly reduced because the overall net development would be less. The uses proposed under Alternative 3 would improve the visual quality of the site and be compatible with surrounding existing and planned land uses, similar to the proposed Project. Therefore, visual impacts under this alternative would be less than significant and less than the proposed Project due to the reduced development levels.

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. Similar to the proposed Project, the proposed buffers, existing developments, and existing and proposed trees and planting would 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. Overall, this alternative would have light and glare impacts similar to the proposed Project.

In terms of cumulative impacts, the site is located in an area that is slated for urbanization and has already undergone and continues to undergo rapid change resulting in a mix of land uses. The existing and future cumulative projects have changed and will continue to change the visual character of the area. Similar to the proposed Project, this alternative would not result in significant aesthetic impacts and would result in an improvement over the existing condition of the site. Additionally, similar to the proposed Project, this alternative 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. In terms of light and glare, this alternative in conjunction with other cumulative developments, could result in an increase in area-wide light and glare. However, given the planned developments in the area, higher levels of light and potential for glare would be expected. All cumulative development would be subject to lighting requirements that would reduce the amount of lighting emitted from

proposed uses. Similar to the proposed Project, the light and glare associated with this alternative, when combined with the cumulative projects, though increases over current levels, would be consistent with the lighting associated with an urban setting. Overall, the cumulative visual and light and glare impacts would be less than significant. Overall, this alternative would have similar cumulative aesthetic impacts compared to the proposed Project.

Air Quality

Although the City General Plan would not apply to this alternative, similar to the proposed Project, the intensity of development contemplated by Alternative 3 would exceed the intensity assumed in the *City of Irvine General Plan*. The long-term pollutant emissions that would occur with the development of Alternative 3 would be substantially greater than anticipated in the current AQMP, which is based on the General Plan assumptions. The significant and unavoidable conflict with the AQMP that would occur with the proposed Project would also occur with Alternative 3 as the County does not control whether the AQMP is amended to include this alternative.

Alternative 3 would generate 35,179 ADT compared to 46,746 ADT for the proposed Project. Thus, long-term mobile pollutant emissions would be substantially lessened as shown in Table 5-7.

**TABLE 5-7
PROPOSED PROJECT AND ALTERNATIVE 3
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS
(LBS/DAY)**

Source	VOC	NO_x	CO	SO_x	PM10	PM2.5
Proposed Project						
Area Sources ^a	191	2	174	<0.5	1	1
Energy Sources ^a	1	7	4	<0.5	1	1
Mobile Sources ^a	117	194	1,038	4	290	80
<i>Total Gross Operational Emissions^b</i>	<i>308</i>	<i>203</i>	<i>1,217</i>	<i>4</i>	<i>291</i>	<i>82</i>
Alternative 3						
Area Sources ^a	154	2	165	<0.5	1	1
Energy Sources ^a	1	5	3	<0.5	<0.5	<0.5
Mobile Sources ^a	90	147	789	3	218	60
<i>Total Gross Operational Emissions^b</i>	<i>245</i>	<i>154</i>	<i>958</i>	<i>3</i>	<i>219</i>	<i>62</i>
SCAQMD Thresholds (Table 4.2-4)	55	55	550	150	150	55
lbs/day: pounds per day; VOC: volatile organic compounds; NO _x : nitrogen oxides; CO: carbon monoxide; SO _x : 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 of either summer or winter emissions.						
^b Totals may not add due to rounding.						
Sources: SCAQMD 2015d (thresholds). Emissions calculations can be found in Appendix C						

The Project population and building area would be less than the proposed Project, resulting in reduced VOC emissions. Long-term operational criteria pollutant emissions would be 20 to 25 percent less than those calculated for the proposed Project; however, they would not be less than the SCAQMD CEQA thresholds. The significant and unavoidable direct and cumulative impacts that would occur with the proposed Project would also occur with Alternative 3. DRs AQ-1 through AQ-5 and MMs AQ-1 through AQ-6 would also be applicable to this alternative and the overall air quality impacts of the alternative would be substantially less.

Although grading and phasing plans have not been developed for Alternative 3, the Alternative 3 construction intensity would be similar to the proposed Project construction intensity and unmitigated, significant construction maximum daily NO_x emissions would occur. MM AQ-1, which would be required for the proposed Project, would also be required for Alternative 3. Unmitigated construction emissions of pollutants other than NO_x, exposure of sensitive receptors to pollutants, and odor impacts would be similar to the proposed Project and less than significant with Alternative 3.

Overall, this alternative would substantially lessen long-term air quality impacts compared to the Project as the alternative would develop at a materially lower intensity compared to the proposed Project.

Biological Resources

Under Alternative 3, the development footprint and the physical impact area would be the same as the proposed Project. This alternative, similar to the proposed Project, would potentially impact active nests of migratory birds and/or raptors; however, with mitigation such as limiting construction activities to non-nesting season or by performance of a pre-construction nesting/bird survey and implementation of buffers around active nests, the impacts would be less than significant. Additionally, similar to the proposed Project, this alternative would impact approximately 1.24 acres of riparian habitat; however, processing of permits/agreements/certification from the USACE, the RWQCB, and the CDFW and implementation of the permit requirements would reduce the potential impacts to less than significant levels.

This alternative would also impact approximately 0.004 acre, 0.721 acre, and 1.801 acres of waters under the jurisdiction of the USACE, the RWQCB, and the CDFW, respectively, similar to the proposed Project. However, processing of permits/agreements/certifications from these agencies and implementation of the same would mitigate for potential impacts on these resources. Therefore, the potential impact on jurisdictional waters would be less than significant with mitigation.

Similar to the proposed Project, this alternative would not conflict with local ordinances and the provisions of the NCCP/HCP. Therefore, this alternative would not have impacts with respect to those issues. Overall, this alternative would have similar biological resource impacts to the proposed Project. No significant and unavoidable biological resources impacts would result with Alternative 3, the Reduced Intensity and Reduced Density Alternative.

This alternative would also have similar and less than significant cumulative biological resources impacts compared to the proposed Project, as it shares the same geographic scope that includes the Orange County Central/Coastal NCCP/HCP Planning Area. The NCCP/HCP was prepared by the County of Orange, provides for the conservation of designated State- and federally listed and unlisted species and associated habitats found within the NCCP/HCP study area. 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. Both the Project and cumulative project sites are designated “development areas” under the NCCP/HCP. As such, any impacts to Covered Habitats, Identified Species and wildlife connections for such species are fully mitigated by the NCCP/HCP. As a result, cumulative biological impacts are mitigated to a level considered less than significant and would not be cumulatively considerable. Overall, this alternative would have similar cumulative biological resources impacts compared to the proposed Project.

Cultural Resources

Under Alternative 3, the development footprint and the physical impact area would be the same as 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 mitigation measures, the potential impacts would be the same as the proposed Project and less than significant. No significant and unavoidable impacts would result.

Similar to the proposed Project, this alternative would not result in significant cumulative impacts to cultural resources. Archaeological and paleontological resources as well as discovery of human remains impacts are site-specific. Impacts that may be considered cumulative simply relate to the loss of cultural resources in general over time throughout the region. This alternative, in conjunction with cumulative development, could lead to accelerated degradation of previously unknown cultural resources. However, cumulative development projects would undergo environmental review and would be subject to similar resource protection requirements as this alternative. Therefore, implementation of this alternative would have no significant cumulative impacts associated with archaeological and paleontological resources as well as human remains, and overall, this alternative would have similar cumulative cultural resources impacts compared to the proposed Project.

Geology and Soils

This alternative would have the same 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 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 3 would be less than significant. No significant and unavoidable impacts would result.

Moreover, based on the Preliminary Geotechnical Investigation, a medium expansion potential exists 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. Overall, this alternative would have similar geology and soils impacts compared to the proposed Project. No significant and unavoidable impacts would result.

With respect to cumulative impacts, potential geology and soils impacts are analyzed on a site-specific basis. Similar to the proposed Project, Alternative 3 would not directly affect the level of intensity at which a seismic event or geologic hazard on an adjacent site is experienced, but, like the Project, Alternative 3 and future development may expose more persons to seismic hazards. Alternative 3, and any other projects would be required to comply with the applicable State and local requirements, including, but not limited to, the California Building Code and the City's Grading Manual or County Grading Manual (for projects under County jurisdiction). Similarly, future development would also be required to have site-specific geotechnical investigations prepared. Compliance of individual projects with the recommendations of the applicable geotechnical investigation would prevent hazards associated with seismic conditions, unstable soils, landslide potential, lateral spreading, liquefaction, soil collapse, expansive soil, soil erosion, and other geologic issues. Therefore, this alternative's cumulative impacts are similar to the proposed Project and less than significant.

Greenhouse Gas Emissions

Alternative 3 would generate 35,179 ADT compared to 46,746 ADT for the proposed Project and the building square footage would be approximately 78 percent of the square footage planned for the proposed Project. Based on the Alternative 3 land use data in Table 5-6, the Alternative 3 trip generation forecast, and implementation of mitigation measures GHG-1 (renewable energy generation), GHG-2 (Energy Star appliances), and GHG-3 (high efficiency lighting), it is estimated that Alternative 3 GHG emissions would be approximately 35,799 MTCO₂e/year and would be less than the proposed Project's estimated mitigated GHG emissions of 47,651 MTCO₂e/year. Operational GHG emissions for the proposed Project and Alternative 3 are shown in Table 5-8.

**TABLE 5-8
PROPOSED PROJECT AND ALTERNATIVE 3 BUILDOUT (2026)
ESTIMATED OPERATIONAL ANNUAL GREENHOUSE GAS EMISSIONS**

Source	Emissions MTCO ₂ e/year	
	Proposed Project	Alternative 3
Area	42	40
Energy	9,702	6,881
Mobile	37,150	28,395
Solid Waste	1,202	955
Water	620	510
Annual GHG Emissions - Unmitigated	48,716	36,781
MM GHG-1 Renewable Energy Generation	-1,189	-1,189
MM GHG-2 Energy Star Appliances	-50	-47
MM GHG-3 High Efficiency Lighting	-391	-282
Annual GHG Emissions - Mitigated	47,086	35,263
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas(es)		
Note: Totals may not balance due to rounding		

The Alternative 3 service population (SP) is estimated at 7,998 compared with 11,753 for the proposed Project, and it is estimated that the Alternative 3 GHG efficiency would be approximately 4.43 MTCO₂e/year/SP, which would not exceed the plan-level threshold of 5.6 MTCO₂e/year/SP, but would exceed the project-level threshold of 4.08 MTCO₂e/year/SP. For comparison, the Project's estimated 4.05 MTCO₂e/year/SP efficiency would not exceed either the plan-level or the project-level threshold. Total GHG emissions and GHG efficiencies for the proposed Project and Alternative 3 in the 2026 buildout year are shown in Table 5-9.

**TABLE 5-9
PROPOSED PROJECT AND ALTERNATIVE 3 BUILDOUT (2026)
ESTIMATED TOTAL ANNUAL GREENHOUSE GAS EMISSIONS**

Source	Emissions MTCO ₂ e/year	
	Proposed Project	Alternative 3
Construction (amortized) (from Table 4.6-3)	565	536
Operations (from Table 4.6-6)	47,086	35,263
Total Annual GHG Emissions	47,651	35,799
Service population	11,753	7,998
GHG efficiency (MTCO₂e/SP/year)	4.05	4.48
Interpolated SCAQMD-recommended plan level threshold	5.6	5.6
Exceed threshold?	No	No
Interpolated SCAQMD-recommended project level threshold	4.08	4.08
Exceed threshold?	No	Yes
MTCO ₂ e/year: metric tons of carbon dioxide equivalent per year; GHG: greenhouse gas; SCAQMD: South Coast Air Quality Management District		

In 2030, similar to the proposed Project, there would be a slight reduction in GHG emissions associated with Alternative 3 compared to 2026 because improvements in the infrastructure, such as increase reliance on renewable energy, and cleaner vehicles. However, as with the proposed Project, this incremental reduction would not be sufficient to bring the alternative below the efficiency threshold the EIR is using for 2030. Therefore, similar to the proposed Project, Alternative 3 would have a significant and unavoidable impact associated with the generation of GHG emissions.

Section 4.6 of this PEIR includes an extensive discussion describing the incorporated design measures that would reduce GHG emissions and the State regulatory programs designed to reduce greenhouse gas emissions. Similar to the proposed Project, Alternative 3 would be located within walking and biking distance to employment, commercial business, recreation, cultural uses, and transportation. Alternative 3 would encourage bicycling and walking by providing showering and changing facilities at non-residential buildings (MM AQ-2), and bicycle parking facilities at residential buildings, parking lots, and parking structures (MM AQ-3 and MM AQ-4). Alternative 3 would require operators of residential and non-residential facilities to post Metrolink and Amtrak schedules in conspicuous places and, where feasible, configure employee work schedules around train schedules (MM AQ-5 and MM AQ-6). Alternative 3 buildings would be built in accordance with the current State energy efficiency standards (DR GHG-1) and CALGreen standards (DR GHG-2) to provide conservation of energy and water. However, similar to the proposed Project, 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 might conflict with the provisions with applicable regulations, policies and programs adopted for the purpose of reducing GHG emissions. This would be significant and unavoidable impact.

In summary, Alternative 3 would have a lower GHG service population metric compared to the Project and would generate less total GHG emissions than the Project. However, Alternative 3's mitigated GHG emissions would exceed the SCAQMD-recommended project-level threshold at buildout and the 2030 efficiency threshold, the Alternative 3 GHG emissions impact would be both greater than the Project and significant and unavoidable. Also, similar to the proposed Project, Alternative 3's impacts with respect to consistency with applicable regulations, policies and programs adopted for the purpose of reducing GHG cannot be considered a significant and unavoidable impact. The impact would be more severe than the Project's because the Project is able to meet the 2026 efficiency threshold

Hazards and Hazardous Materials

Alternative 3 proposes similar uses to the proposed Project, but at lower density and intensity. Because the development footprint of this alternative would be similar to that of the proposed Project and the same development requirements will apply to this alternative, impacts related to hazardous materials under Alternative 3 would be similar to the proposed Project. As the detailed analysis in Section 4.7 relating to hazardous materials is equally applicable to this alternative, overall, this alternative would have similar impacts compared to the Project as it relates to hazards and hazardous materials.

In terms of cumulative impacts, impacts associated with hazardous materials generally and specifically projects on the former MCAS El Toro, the environmental concerns associated with hazardous materials are site specific. Each project is required to address any issues related to

hazardous material or wastes. Federal, state, and local regulations require mitigation to protect against site contamination by hazardous materials. Therefore, cumulative hazardous materials impacts for this alternative would be similar to the proposed Project and less than significant.

Hydrology and Water Quality

As the development footprint is similar to the proposed Project, the Alternative 3 site would be located on the County of Orange designated “Plume Protection Boundary.” Therefore, similar to the proposed Project, as infiltration, evapotranspiration, and evaporation BMPs are not recommended options given the condition of the groundwater and the lack of vast landscaped areas, water treatment would occur through use of proprietary Bio-Treatment BMPs. With implementation of the recommended BMPs and development requirements (DR HWQ-7 through DR HWQ-10), the Project water quality standards and waste discharge requirements would not be violated, nor would water quality be substantially degraded. The water quality-related impacts would be the same as the proposed Project and less than significant. Additionally, similar to the proposed Project, compliance with the Construction General Permit, including preparation of an SWPPP and General WDRs would ensure impacts to receiving waters from non-storm water flows during construction are less than significant.

Similar to the proposed Project, the proposed improvements will be designed to best maintain existing drainage runoff flow patterns, when feasible. However, the site topography and the proposed redevelopment for MCAS El Toro would result in two small drainage area diversions, which would not have any significant effect on the downstream receiving water bodies (i.e., Marshburn, Bee Canyon, and Agua Chinon Channels), similar to the proposed Project. Therefore, no significant impacts would occur, and no mitigation beyond the development requirements (DR HWQ-1 through HWQ-5) is required. During the final design of this alternative, consistent with applicable law and the Development Plan, additional drainage analysis would be conducted to determine maximum allowed discharge for the entire site and would be based on the Alternative 3 development plan and the backbone storm drain system for individual area. Overall, hydrology and water quality impacts of this alternative would be the same as the proposed Project.

This alternative’s cumulative hydrology and water quality impacts would also be less than significant and similar to the proposed Project impacts. With implementation of this alternative, 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 receiving waters. Additionally, this alternative and other new developments anticipated in the area would result in changes to on-site land 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 would be subject to the City’s and the County of Orange’s hydrology/drainage related requirements. With adherence to the requirements and provision of drainage system improvements as a component of each individual project, including this alternative, the cumulative impacts would be less than significant and similar to the proposed Project.

Land Use and Planning

Like the proposed Project, this alternative is not subject to the land use plan and policies of Irvine General Plan or Zoning Code. Although this alternative's intensity of development is less than the Project, the types of land uses, the quality of the development and the overall layout, scale and nature of the future improvements are similar to the Project. Also similar to the Project, this alternative would be consistent with the intent of the goals and strategies of RTP/SCS. Like the Project, the population contemplated by this alternative is not included in the current RTP/SCS (see Tables 4.9-2 and 4.9-3). MM LU-1 would be applicable to this alternative as it relates to the alternative's consistency with regional planning programs. Although not required by CEQA or otherwise, in the interest of informed decision making, Section 4.9 analyzes the proposed Project for consistency with Irvine General Plan and Zoning Ordinance (see Table 4.9-1). The analysis for Alternative 3 is the same as the comparison done for the Project.

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). Overall, the land use and planning impacts of this alternative would be the same as the proposed Project.

This alternative's cumulative land use impacts would also be the same as the proposed Project. Past projects in the City of Irvine and general area have converted undeveloped, previously developed 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 impacts because this alternative 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 applicable local and regional jurisdictions' land use plans, policies, and regulations. Moreover, the conversion of previously developed or underdeveloped land to urban uses is anticipated in the applicable plans and policies. Overall, this alternative would have similar cumulative land use and planning impacts compared to the proposed Project.

Noise

Alternative 3 would generate 35,179 ADT compared to 46,746 ADT for the proposed Project and the building square footage would be approximately $\frac{3}{4}$ of the area planned for the proposed Project. Construction noise levels would be similar to the proposed Project, but would be shorter in duration. Project-generated traffic noise level increases at off-site receptors would be the same or less with Alternative 3 and, like the proposed Project, would be less than significant. The off-site traffic noise impacts are compared in Tables 5-10 through 5-13. For the 2017 scenario, the traffic generation and distribution assumptions are the same for both the proposed Project and Alternative 3; therefore, the off-site traffic noise impacts would be the same.

**TABLE 5-10
PROPOSED PROJECT AND ALTERNATIVE 3
2017 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN ONE DBA**

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)				
	No Project	Proposed Project		Alternative 3	
		With Project	Project Contribution	With Project	Project Contribution
Marine Way (east of Sand Canyon)	70.0	72.3	2.2	72.3	2.2
Marine Way (east of Ridge Valley)	68.9	71.1	2.2	71.1	2.2
Ridge Valley (north of "LV" St)	62.4	64.6	2.2	64.6	2.2
Ridge Valley (north of Marine Way)	64.6	65.8	1.1	65.8	1.1
"LY" St (north of "LQ" St)	54.6	55.9	1.2	55.9	1.2
CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels; -: less than one dBA Numbers may not add due to rounding.					

**TABLE 5-11
PROPOSED PROJECT AND ALTERNATIVE 3
2035 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN ONE DBA**

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)				
	No Project	Proposed Project		Alternative 3	
		With Project	Project Contribution	With Project	Project Contribution
"F" St ("B" St to "D" St)	50.3	53.4	3.1	52.5	2.3
Marine Way (east of "B" St)	72.9	74.9	2.1	74.5	1.6
Marine Way (west of "B" St)	73.4	75.3	1.9	74.9	1.5
Marine Way (east of Sand Canyon)	74.9	76.8	1.8	76.4	1.5
Marine Way (north of Barranca Pkwy)	73.6	75.3	1.7	74.9	1.3
Ridge Valley (north of "LV" St)	68.4	70.0	1.6	-	-
Marine Way (Barranca Pkwy to Alton Pkwy)	71.4	72.8	1.4	72.4	1.1
Astor (east of Fairbanks)	68.9	70.0	1.1	-	-
"F" St ("E" St to Irvine Blvd)	62.9	63.9	1.1	-	-
Marine Way (east of Ridge Valley)	73.7	-	-	75.9	2.2
CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels; -: less than one dBA Numbers may not add due to rounding.					

**TABLE 5-12
PROPOSED PROJECT AND ALTERNATIVE 3
POST-2035 OFF-SITE TRAFFIC NOISE INCREASES GREATER THAN ONE DBA**

Road/Segment	CNEL at 50 feet from roadway centerline (dBA)				
	No Project	Proposed Project		Alternative 3	
		With Project	Project Contribution	With Project	Project Contribution
"F" St ("B" St to "D" St)	51.2	53.3	2.1	53.3	2.1
Marine Way (east of "B" St)	73.0	75.0	2.1	74.6	1.6
Ridge Valley (north of "LV" St)	68.3	70.3	2.0	69.4	1.0
Marine Way (east of Ridge Valley)	73.6	75.5	1.9	75.8	2.2
Marine Way (west of "B" St)	73.4	75.2	1.8	74.8	1.4
Marine Way (east of Sand Canyon)	75.3	77.0	1.7	76.7	1.4
Marine Way (north of Barranca Pkwy)	73.7	75.4	1.7	75.0	1.3
Marine Way (Barranca Pkwy to Alton Pkwy)	72.2	73.8	1.6	73.4	1.2
Astor (east of Fairbanks)	69.9	71.0	1.1	-	-

CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels; -: less than one dBA
Numbers may not add due to rounding.

**TABLE 5-13
PROPOSED PROJECT AND ALTERNATIVE 3
POST-2035 PLUS PENDING PROJECTS CUMULATIVE OFF-SITE TRAFFIC NOISE
INCREASES GREATER THAN THREE A-WEIGHTED DECIBELS**

Road/Segment	Proposed Project		Alternative 3	
	Cumulative Increase dBA	Project Contribution ^a	Cumulative Increase dBA	Project Contribution ^a
Trabuco (east of Sand Canyon)	16.0	0.3	15.9	0.2
Portola (Portola Springs to SR-241)	15.0	0.0	15.0	0.0
Moulton (Ridge Route to Santa Maria)	9.5	0.0	9.5	0.0
Marine (east of Sand Canyon)	9.8	1.7	9.5	1.4
Modjeska (Portola Springs to Irvine)	6.5	0.0	6.5	0.0
Bake (Irvine Center to Lake Forest)	6.3	0.0	6.3	0.0
Tustin Ranch (Jamboree to Portola)	6.2	0.0	6.2	0.0
Lake Forest (Laguna Canyon to Bake)	5.7	0.0	5.7	0.0
Portola (west of Alton)	5.0	0.0	5.0	0.0
Lake Forest (Bake to Scientific)	4.7	0.0	4.7	0.0
Sand Canyon (I-5 to ICD)	4.3	0.4	4.2	0.3
Alton (Rancho to Commercentre)	4.1	0.1	4.1	0.1
Portola (Ridge Valley to Portola Springs)	4.1	0.1	4.1	0.1

**TABLE 5-13
PROPOSED PROJECT AND ALTERNATIVE 3
POST-2035 PLUS PENDING PROJECTS CUMULATIVE OFF-SITE TRAFFIC NOISE
INCREASES GREATER THAN THREE A-WEIGHTED DECIBELS**

Road/	Proposed Project		Alternative 3	
Portola Springs (Portola to Modjeska)	3.8	0.0	3.8	0.0
Oak Canyon (Valley Oak to Sand Canyon)	3.7	0.0	3.7	0.0
Trabuco (Yale to Jeffrey)	3.7	0.1	3.6	0.1
Research (Irvine Center to Hubble)	3.6	0.0	3.6	0.0
Rancho (east of Lake Forest)	3.3	0.0	3.3	0.0
Bake (Research to Irvine Center)	3.2	0.1	3.1	0.1
Jeffrey (Portola to Irvine)	3.1	0.0	3.1	0.0
Portola (Sand Canyon to Ridge Valley)	3.1	0.0	3.1	0.0
Ridge Valley (south of Portola)	3.0	0.5	-	-
Irvine (Alton to Bake)	-	-	3.1	0.1
Gateway (Alton to Fortune)	-	-	3.1	0.0
CNEL: Community Noise Equivalency Level; dBA: A-weighted decibels; -: less than 3 dBA				
^a A project contribution of 0.0 indicates that the contribution is less than 0.05 dBA				

Alternative 3 buildings would require the same design measures to avoid noise and vibration impacts as required for the proposed Project. Similar to the proposed Project, all noise and vibration impacts would be less than significant. DR NOI-1 and MMs NOI-1, through NOI-9 would also be applicable to this alternative. Overall, potential noise impacts of this alternative would be less than the proposed Project.

Population and Housing

Alternative 3 would introduce similar uses as the proposed Project in the area, but at reduced density and intensity. It would introduce a total residential population of 3,756 persons, which is less than the proposed Project. Thus, similar to the Project, this alternative would directly contribute to population growth in the area. This alternative would also result in the introduction of 4,576 jobs in the area compared to the 7,799 jobs associated with the proposed Project. Therefore, this alternative's contribution to population growth in the area is less compared to the proposed Project.

Overall, potential impacts to population and housing are less under this alternative compared to the proposed Project. However, like the Project, impacts for this alternative would be significant and unavoidable.

Similar to the proposed Project, 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. Though the proposed Project or this alternative's growth would not have been considered at the time the OCP-2014 numbers were developed, they would represent a negligible amount of the future growth forecasts in the County. This alternative similar to the proposed Project would contribute to the intensification of development in the region. 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, especially around transit stations is encouraged to minimize overall environmental impacts. Therefore, cumulative impacts would be similar to the proposed Project and less than significant.

Public Services

The Reduced Intensity and Reduced Density Alternative would introduce a permanent residential population of 3,756 persons to the area and would generate approximately 4,576 jobs compared to the Project's estimated population of 3,954 persons and creation of 7,799 jobs. Because Alternative 3 would introduce 198 fewer persons to the area and would generate 3,223 fewer jobs, the associated demand for public services (fire, police, schools, and libraries) would be less compared to the proposed Project.

Similar to the proposed Project, Fire Stations 20, 38, and 51 are within two miles of the Project site and would generally allow OCFA to meet response time objectives when responding to an emergency call. The OCFA does not anticipate major changes in the demand for fire protection services with the Project; therefore, Alternative 3, which proposes less development would be able to be serviced by existing and the future permanent Fire Station 20. Overall, the potential impact on fire protection services would be less than compared to the proposed Project and DR FIRE-1 through DR-FIRE 5 would apply to this alternative.

Based on correspondence with the Irvine Police Department (IPD), the IPD is anticipating that there could be up to an additional 5,000 calls for service per year to meet all law enforcement needs of the proposed development (Mahoney 2015). The IPD has indicated that the Project would require approximately 4 sworn officers, 1.4 non-sworn full time professional staff and 1 non-sworn part-time staff member. Because Alternative 3 would introduce 198 fewer persons to the area and would generate 3,223 fewer jobs, it is anticipated Alternative 3 would require fewer additional personnel compared to the proposed Project. As with the proposed Project, the demand for additional personnel and equipment associated with Alternative 3 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. As with the proposed Project, Alternative 3 would be required to comply with DR FIRE-4 (refer to Section 4.12, Public Services) which would further ensure that adequate police protection response times are provided.

Alternative 3 would generate approximately 182 additional students to the Saddleback Valley Unified School District which is 7 fewer students than the proposed Project (refer to Table 5-14 below).

**TABLE 5-14
STUDENTS GENERATED BY ALTERNATIVE 3**

Dwelling Unit Type	Units	K-6	7-8	9-12	Total
High Density Attached Student Generation Rate		0.058	0.012	0.021	0.090*
High Density Residential	1,998	116	24	42	182
* Totals may not add up due to rounding. Source: Generation factors provided by JCJ 2015.					

According to the Schools Report (JCJ 2015), the three nearest schools to the Project site are able to accommodate the students generated by the proposed Project. Therefore, it is anticipated that these schools would have the capacity to accommodate the students generated by Alternative 3. Alternative 3 would also be required to pay State-mandated school fees and would be required to pay the Measure B General Obligation bond taxes. The impacts of Alternative 3 would be similar though less than the proposed Project.

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. The OCPL has indicated that the trend in library usage is towards a heavier reliance on electronic materials and less on physical volumes. For that reason and because 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, the construction of which would cause significant environmental impacts, Alternative 3 would not, in and of itself, trigger the construction of new or expanded library facilities. Overall, the impacts on library facilities would be similar though less than the proposed Project.

With respect to cumulative impacts for public services, similar to the proposed Project, Alternative 3 would also increase the population in the area and would result in demand for public services. However, because of planned future facilities for fire protection and police protection and where required, compliance with funding requirements for these facilities, cumulative impacts for police and fire protection would be similar to the proposed Project and less than significant. The SVUSD has existing excess capacity and has experienced significant decline in enrollment while trends in library usage include incorporating more electronic materials and less physical volumes and print materials. Therefore, cumulative impacts for schools and library services would be less compared to the proposed Project and, like the proposed Project, less than significant.

Recreation

Alternative 3 would introduce a total of 3,756 permanent residents to the area. Similar to the proposed Project, Alternative 3 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 2.5 acres of parkland per 1,000 residents, which equates to approximately 9.39 acres of parkland; this is less than the proposed Project's requirement of 9.88 acres. With provision of parkland required by the Development Plan, the potential impacts would be less than the proposed Project and, like the proposed Project, less than significant.

The development under Alternative 3, similar to the proposed Project, would include recreational facilities and amenities, including passive and active parks, plazas, and open space gathering areas. Due to the provision of parks and recreational amenities on site, this alternative would not require construction and expansion of recreation facilities that would have adverse environmental impacts. Overall, the potential impacts related to recreation and parks would be less than the proposed Project.

DR REC-1 under the proposed Project would be applicable to development under Alternative 3, as this alternative would provide parkland per Section 7-9-502(g) of the County of Orange Local Park Code. Overall, this alternative would have less recreation impacts compared to the proposed Project.

Cumulatively, Alternative 3 along with other projects in the area would result in increased demand for recreational uses due to the increase in population and 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. As cumulative projects provide for the construction or expansion of recreational facilities, the potential impacts associated with development of the facilities would be addressed. Therefore, this alternative's contribution to the cumulative physical impact on local and regional recreational facilities would be similar to the proposed Project and less than significant.

Transportation/Traffic

Overall, Alternative 3's traffic impacts would be less than the proposed Project. In comparison to the proposed Project's 46,746 ADT, this alternative would generate a total of 35,179 ADT.

The same methodology used for the evaluation of the proposed Project was used in analyzing and identifying potential transportation/traffic impacts under Alternative 3. The same roadway network as the proposed Project, except for the lack of Ridge Valley extending south of Marine Way, was analyzed for this alternative, and the same growth assumptions were utilized for the analysis. Traffic impacts of Alternative 3 have been identified for existing traffic condition, 2035, and Post-2035 future traffic conditions (Year 2017 conditions were not analyzed separately for Alternative 3 as it is reasonable to conclude that Year 2017 development intensity under Alternative 3 would be identical to the 1,546 residential units anticipated in Year 2017 for the Project).

Table 5-15 identifies the number of locations that have direct and cumulative 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. A discussion of the impacts for each timeframe follows the table.

**TABLE 5-15
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	6	5
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	7	7
Year 2017 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	0	0
Intersection Impacts with HCM Methodology	3	3
Impacts on Freeway Ramps	0	0
Impacts on Freeway Mainline Segments	0	0
Year 2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	2	1
Intersection Impacts with HCM Methodology	10	9
Impacts on Freeway Ramps	5	4
Impacts on Freeway Mainline Segments	0	0
Post-2035 Plus Project/Alternative		
Intersection Impacts with ICU Methodology	5	4
Intersection Impacts with HCM Methodology	11	10
Impacts on Freeway Ramps	4	4
Impacts on Freeway Mainline Segments	0	0
Cumulative Impact Scenarios		
Year 2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	4	3
Intersection Impacts with HCM Methodology	10	10
Impacts on Freeway Ramps	5	3
Impacts on Freeway Mainline Segments	1	0
Post-2035 Plus Project/Alternative Plus Pending Projects		
Intersection Impacts with ICU Methodology	7	4
Intersection Impacts with HCM Methodology	9	10
Impacts on Freeway Ramps	6	6
Impacts on Freeway Mainline Segments	2	0
ICU: Intersection Capacity Utilization; HCM: Highway Capacity Manual Source: Fehr & Peers 2015		

Existing Plus Alternative 3 Analysis

Under the Existing Plus Alternative 3 scenario, five freeway/highway intersections were found to exceed thresholds using the Highway Capacity Manual (HCM) methodology. Similar to the proposed Project, impacts at Jeffrey Road and I-5 northbound; Jeffrey Road and Walnut Avenue; Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-405 southbound; and Bake Parkway and I-5 northbound would exceed thresholds. Mitigation for all these impacts have been identified consistent with the mitigation approach for the proposed Project in Section 4.14 of this EIR; however, given that mitigation for these freeway/highway intersection locations are outside the jurisdiction of the County of Orange, the impacts would remain significant. Under this alternative, the impact at Fortune Drive/I-5 southbound and Enterprise Drive that would occur with the proposed Project would not occur.

Additionally, seven freeway segments would exceed impact thresholds under this scenario for Alternative 3, compared to seven segments under the proposed Project. Similar to the proposed Project, impacts I-5 northbound (Alton slip on-ramp to SR-133 northbound off-ramp); at I-5 southbound (Jeffrey Road off-ramp); I-5 southbound (Jeffrey Road to SR-133 northbound); I-5 southbound (SR-133 southbound to Alton Parkway); I-405 northbound (Jeffrey slip on-ramp); I-405 southbound (Sand Canyon off-ramp); and I-405 southbound (SR-133 off-ramp) freeway segments would exceed thresholds. 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 would remain significant. Overall, this alternative would have less impacts compared to the proposed Project under this scenario.

Year 2035 Plus Alternative 3 Analysis

Under this alternative, one intersection using the ICU methodology was found to exceed thresholds. Similar to the proposed Project, traffic volumes for Alternative 3 would exceed thresholds at Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road. Mitigation for this impact has been identified consistent with the mitigation approach for the proposed Project; however, given that implementation for this impact is outside the jurisdiction of the County of Orange, the impact would remain significant. The impact identified at Sand Canyon Avenue and I-5 northbound under the proposed Project would no longer occur under this alternative.

Nine freeway/highway intersections using the HCM methodology were found to exceed impact thresholds. Similar to the proposed Project, impacts would exceed thresholds at the following intersections: at 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; Sand Canyon Avenue and I-405 southbound; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway and I-5 southbound; Trabuco Road and SR-133 southbound; and Trabuco Road and SR-133 northbound. Under this alternative, no impact would occur at Jeffrey Road and I-5 northbound intersection. Mitigation for these impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that implementation for these impacts are outside the jurisdiction of the County of Orange, the impacts would remain significant.

Under this alternative, impacts would exceed thresholds for the following four freeway/highway ramps: I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; and I-405 northbound direct on-ramp at Sand Canyon Avenue. Mitigation for these impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that implementation for these impacts are outside the jurisdiction of the County of Orange, the impacts would remain significant. Overall, traffic impacts under this alternative for this scenario would be less than the proposed Project.

Post-2035 Plus Alternative 3 Analysis (General Plan Buildout)

Under this alternative, four intersections using the ICU methodology were found to exceed thresholds. Similar to the proposed Project, impacts at the following intersections would exceed thresholds: Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and Oak Canyon/Laguna Canyon Road; Sand Canyon Avenue and Alton Parkway; and Sand Canyon Avenue and Burt Road. Mitigation for these impacts has been identified consistent with the mitigation approach for the proposed Project; however, given that implementation for these impacts is outside the jurisdiction of the County of Orange, the impacts would remain significant. Unlike the proposed Project, this alternative would not result in an impact at SR-133 northbound/Gateway Boulevard and Pacifica intersection; Culver Drive and I-405 northbound ramps; and Marine Way and "O" Street.

Ten freeway/highway intersections using the HCM methodology were found to exceed impact thresholds compared to nine intersections under the proposed Project. Similar to the proposed Project, impacts at the following intersections would exceed thresholds: Sand Canyon Avenue and I-5 northbound; Sand Canyon Avenue and I-5 southbound; Sand Canyon Avenue and I-405 southbound; Portola Parkway and SR-241 northbound; Portola Parkway and SR-241 southbound; Alton Parkway and I-5 northbound; Fortune Drive/I-5 southbound and Enterprise Drive; Bake Parkway/I-5 southbound; and SR-133 northbound and Trabuco Road. Unlike the Project, this alternative would result in an impact at SR-133 southbound and Trabuco Road.

Under this alternative, impacts at the following four freeway/highway ramps would exceed thresholds: at I-5 southbound off-ramp at Sand Canyon Avenue; I-5 southbound off-ramp at Alton Parkway; I-405 northbound direct on-ramp at Sand Canyon Avenue; and SR-133 northbound on-ramp at Barranca Parkway. Though Alternative 3 would result in fewer trips, the number of freeway ramps impacted under this alternative for this scenario would be the same as for the proposed Project.

2035 Plus Alternative 3 and Pending Projects

Under the Year 2035 Plus Alternative 3 and Pending Projects, using ICU methodology, similar to the proposed Project impacts would occur at Browning and Irvine Boulevard; Jeffrey Road and Alton Parkway; and Sand Canyon Avenue and Oak Canyon/Laguna Canyon. Unlike the Project, there would be no impact at Sand Canyon Avenue and I-5 northbound.

Under the HCM methodology, unlike the Project, impacts at Sand Canyon Avenue and I-405 southbound would not be significant. However, there would be an impact at Jeffrey Road and I-405 northbound with Alternative 3 that does not exist with the Project. Additionally, similar

to the proposed Project, this alternative would result in impacts at Jeffrey Road and I05 northbound; 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; Fortune Drive/I-5 southbound and Enterprise Drive; Baker Parkway and I-5 southbound; SR-133 southbound and Trabuco Road; and Sr-133 northbound and Trabuco Road.

Under this alternative, similar to the proposed Project there would be impacts at I-5 southbound off-ramp at Sand Canyon Avenue and I-5 off-ramp at Alton Parkway freeway/tollway ramps. But unlike the Project, there would be an impact at SR-133 northbound on-ramp at Barranca parkway with this alternative. The identified Project impacts at I-405 northbound direct on-ramp at Sand Canyon Avenue; I-405 southbound off-ramp at Sand Canyon Avenue; and SR-133 southbound on-ramp at Trabuco Road would not occur with Alternative 3. Under this alternative, no impacts to mainline segments would occur, compared to one impacts under the proposed Project.

Mitigation for all impacts has been identified consistent with the mitigation approach for the proposed Project. Though this alternative would generate fewer trips, similar to the proposed Project, impacts would remain significant for the freeway/highway ramps and intersection locations as implementation of the proposed mitigation is outside the jurisdiction and control of the County.

Post-2035 Plus Alternative 3 and Pending Projects

Under Post-2035 Plus Alternative 3 and Pending Projects, the previously identified Post-2035 Project impact at SR-133 southbound and Trabuco Road under the HCM methodology would not occur. However, like the proposed Project, Fortune Drive and I-5 southbound/Enterprise Drive and SR-133 northbound and Trabuco Road both exceed significance thresholds under this alternative. Additionally, there would be two new significant impacts with this alternative at freeway ramps; SR-133 northbound Off-Ramp and southbound On-Ramp at Trabuco Road. Mitigation for all impacts have been identified consistent with the mitigation approach for the proposed Project; however, given that mitigation for these freeway/highway ramp locations are outside the jurisdiction and control of the County, the impacts would remain significant. Overall, traffic impacts under this alternative for this scenario would be similar to the proposed Project.

Utilities and Service Systems

The Reduced Intensity and Reduced Density Alternative would place increased demands on local and regional utilities and service systems; however, because Alternative 3 would introduce 198 fewer persons to the area and would generate 3,223 fewer jobs, the demand would be less than the proposed Project. New on-site water, recycled water, sewer, and storm drainage systems would be constructed as part of this alternative. Consistent with the proposed Project, no new off-site water, recycled water, or storm drainage utilities are expected to be necessary and no off-site physical impacts would result, with the exception of connections to existing and planned facilities in roadways adjacent to the Project site. Storm drain facilities required by this alternative and the Project are separately discussed above under Hydrology and Water Quality. Sewage discharge from this alternative west of Bee Canyon Wash would also affect the sewer deficiency identified by IRWD downstream of the

Project site but to a lesser degree compared to the Project. IRWD would still be required to implement downstream sewer system improvements to satisfy upstream users.

IRWD has identified a system deficiency for the downstream sewer system serving the area west of Bee Canyon Channel. For this alternative, similar to the Project, the system deficiencies will require upgrades to IRWD's sewer line Reach "A", which may include replacement of existing sewer lines with larger diameter pipes or adding a second parallel sewer line to provide additional conveyance capacity or diversion to other sewer mains maintained by IRWD. These downstream improvements are the responsibility of IRWD, as system wide improvements are required to service IRWD's PA 51, which includes the Great Park Neighborhoods, the proposed Musick Jail Expansion, UC Regents potential residential development north of Irvine Boulevard, the Irvine Company's planned residential developments in the City of Irvine, OCTA's proposed approximately 21-acre rail maintenance yard, the Second Harvest Food Bank's existing warehouse, and the proposed Project.

As with the proposed Project, water supply and landfill capacity are available to serve future development on the site under this alternative, which would have reduced water and recycled water demand compared to the proposed Project, and would generate less wastewater and solid waste.

Alternative 3 would also implement the same water and energy conservation measures required for the proposed Project. Overall, the impacts to utilities and service systems under the Reduced Intensity and Reduced Density Alternative would be less than the proposed Project and less than significant. DR UTIL-1 through DR UTIL-3 would also apply to the development under Alternative 3.

With respect to cumulative impacts for utilities and service systems, similar to the proposed Project, Alternative 3 would increase the population in the area and would result in demand for utilities and service systems. However, through IRWD's WSA for the proposed Project and through its planning efforts, including preparing and updating its SAMPs, adequate water supply would be available to service the cumulative demand in the area. This alternative's demand for utilities and service systems would be less compared to the proposed Project and, like the Project, the alternative's cumulative impacts would be less than significant. Additionally, the OC Landfill Systems has excess capacity of 30 years at Bowerman and Prima Deshecha landfills and future additional capacity at Olinda Alpha Landfill would extend its landfill life beyond the 2021 capacity date. Therefore, similar to the proposed Project, this alternative's impacts with respect to solid waste would not be cumulatively considerable.

Conclusions

Would Alternative 3 Avoid or Substantially Lessen the Significant Impacts, Compared to the Project?

Overall, Alternative 3, the Reduced Intensity and Reduced Density Alternative, would substantially lessen or avoid potentially significant impacts compared to the proposed Project. This alternative, similar to the proposed Project, would result in Air Quality, GHG, Land Use and Planning (interim), Population and Housing, Recreation (short-term), and Transportation/Traffic significant, unavoidable impacts. Since the impacts associated with the Air Quality, Land Use and Planning (interim), 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 substantially reduced with Alternative 3 compared to the proposed Project. For instance, long-term mobile pollutant emissions would be reduced compared to the proposed Project, as this alternative would result in 25 percent fewer ADTs (35,179 ADTs compared to 46,746 ADTs) than the proposed Project. Additionally, due to reduced population and building square footage, the alternative would emit less VOC emissions, and long-term criteria pollutants.

In terms of Transportation/Traffic impacts, this alternative would avoid impacts at Jeffrey Road and the I-5 northbound intersection under the Long-Term Year 2035 scenario. Additionally, under the Post-2035 Scenario, no impact would occur at the SR-133 northbound/Gateway Boulevard and Pacifica intersection. Under the same scenario, this alternative would also avoid an impact at the Jeffrey Road and Walnut Avenue intersection. Moreover, the impact at the I-5 northbound on-ramp at Sand Canyon Avenue ramp would be avoided with this alternative. Under Post-2035 Plus Alternative 3 and Pending Projects scenario, the previously identified Post-2035 impact at SR-133 southbound and Trabuco Road under the HCM methodology would no longer occur. However, there would be two new significant impacts at freeway ramps under this alternative. The SR-133 northbound off-ramp and southbound on-ramp at Trabuco Road exceed impact thresholds with the alternative.

Because the intensity of the development under Alternative 3 is reduced compared to the proposed Project, there would also be less or substantially less impacts for the following environmental topics: Aesthetics, 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. However, it should be noted, that while the overall GHG emissions for the proposed Project are higher than the Project's, Alternative 3's GHG impacts would be greater than the Project's although still significant and unavoidable like the Project. This increase in impacts is due to the lower service population proposed by Alternative 3's reduced density and intensity of land uses.

Would Alternative 3 Result in Attainment of Project Objectives, Compared to the Project?

Alternative 3 would meet most of the Project objectives, as follows:

2. Enhance the condition of the Project site so it is compatible with and enhances the quality of the viewshed from the Orange County Great Park (OCGP) and the adjacent land uses.
3. Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
4. Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.
5. Promote brown field development opportunities as a means of decreasing the region's dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use

development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.

6. Develop infill improvements that facilitate mixed-use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
7. Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).
8. Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will contribute to meeting the regional demand for employment, service, and residential uses.
9. Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent practical.
10. Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.
11. Provide public space within the Project to support community activities.

The Reduced Intensity and Reduced Density Alternative would have the same footprint as the proposed Project. This alternative proposes a total of 1,998 residential units and 1,200,000 sf of non-residential uses, including office and retail. Additionally, a 242-room hotel is proposed. Alternative 3 development would include parks, recreational amenities for use by the future residents and employees within the site and to support community activities. Additionally, the site is in close proximity to the existing transit and transportation corridors, as well as the Irvine Station to the southwest of the site. Linkages to the surrounding areas would be provided through bike trails and walkways. The high density residential component of this alternative coupled with the retail and office uses will support the regional work force and demand for employment, services and residential uses. The concentration of a mix of uses in one area on this brownfield site, with its linkages to the on-site and surrounding off-site uses, will contribute to a decrease in the region's dependence on automobiles, reduced air pollution and greenhouse gas emissions and preservation of natural open spaces. This development also promotes sustainability by re-purposing and adaptively reusing existing materials on the site, as feasible. Sustainability is further promoted by proposing alternative modes of travel (e.g., biking trails and walkways) that would link the proposed residential, parks, and retail uses.

The Reduced Intensity and Reduced Density Alternative is partially consistent with Objective 1. The office, retail, residential and hotel uses proposed under Alternative 3 would generate new sources of revenue for the City and the County, but likely at a lower level than the Project. Under this alternative, employment would increase compared to existing conditions as a total of 4,576 jobs would be created. However, compared to the proposed Project, this alternative results in fewer jobs, and therefore, this objective of fully utilizing the County real estate asset is only partially met. Overall, Alternative 3 meets most of the objectives of the proposed Project.

1. Fully utilize this County real estate asset to generate new sources of revenue for the County and simulate economic commerce in the City.

5.5 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 5-8 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 1a) and the No Project/Institutional Entitlements Alternative (Alternative 1b) would have the least impacts to the environment. Alternative 1a would not involve any construction or demolition activities, nor would it generate additional population. Alternative 1b would involve some construction and demolition activities, but it would utilize much less of the Project site and develop at a much lower intensity compared to the proposed Project. The No Project/No Development Alternative would have no significant and unavoidable impacts associated with Air Quality, GHG, Land Use and Planning (interim), Recreation (short-term), Population and Housing, Recreation (short-term), 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 many of the potentially significant impacts of the proposed Project, unlike the proposed Project, Alternative 1a would not reduce impacts in areas such as aesthetics and hydrology. Alternative 1a would also not meet any of the Project objectives.

Similarly, Alternative 1b would substantially lessen or avoid many of the potentially significant impacts compared to the proposed Project. This alternative would avoid the proposed Project's significant Air Quality, Land Use and Planning (interim), Population and Housing, and Recreation (short-term), which would occur with implementation of the proposed Project. This alternative would have a significant and unavoidable impact related to GHG, because Alternative 1b's mitigated GHG emissions would on a Service Population basis would exceed the Project's and be in excess of SCAQMD-recommended project-level efficiency threshold. While the significant and unavoidable impacts for Transportation/Traffic would not be avoided with this alternative, those impacts would be reduced when compared to the Project. Under this alternative, only two of the Project objectives (Objectives 3 and 9) would be met.

Consistent with the requirements of CEQA, the remaining two alternatives were compared to the proposed Project to determine whether either qualifies as an environmentally superior alternative. When evaluating the proposed Project compared to Alternative 2, Intensified Institutional Use, and Alternative 3, Reduced Intensity and Reduced Density, both would result in less environmental impacts than 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, they are 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 topical areas. Alternative 2 would reduce the overall trip generation by 1,608 ADT but the number of intersections and freeway ramps with direct impacts would be fairly comparable to the proposed Project. The number of intersections impacted by Alternative 2 would be greater using the ICU methodology but less using the HCM methodology. There would be greater

number of ramps impacted compared to the Project but fewer mainline segments. Comparatively, Alternative 3 would further reduce the trip generation to a total of 35,179 ADT compared to the proposed Project's 46,746 ADT (a reduction of 11,567 ADT or about a 25 percent reduction in trips generated with Alternative 3 when compared to the proposed Project).

Table 5-16 provides a comparison of each alternative to the proposed Project for all thresholds. As appropriate, Table 5-16 also highlights the differences between Alternative 2 and Alternative 3 with the intent to identify the environmentally superior alternative.

In addition to the greater reduction in environmental impacts, Alternative 3 would meet 10 of the 11 Project objectives. Alternative 2 also meets most of the Project objectives. However, Alternative 2 only fully meets 3, it partially meets 5 and it does not meet 3 of the Project objectives. Overall, when considering the alternatives relative to each other and the Project, Alternative 3 is the environmentally superior alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
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, which includes abandoned and dilapidated structures.	Same as the proposed Project – Would result in development on less than half of the site; land uses would be less intense; would improve existing condition and reuse existing structures.	Same as the proposed Project – Same footprint, but less intense overall compared to the Project and Alternative 3. While intensity would be less, landscaping and improvements would be reduced as well compared to the Project and Alternative 3 (i.e., this alternative would not include features such as the “Park within the Park” that would provide a buffer).	Less than the proposed Project – Same footprint and land uses, but less dense and less intense compared to the Project.
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.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Would result in development on less than half of the site; land uses would be less intense with reduced lighting.	Less than the proposed Project – Same footprint and there would be more parking structures and surface parking lots with lights. However, due to the nature of this alternative, it is anticipated that with the exception of security lighting, lighting would be less intense and visible and of shorter duration, compared to the Project and Alternative 3.	Same as the proposed Project – Same footprint, same lighting levels.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Air Quality					
Threshold 4.2-1 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.	Less than the proposed Project – No development proposed.	Less than the proposed Project – the long-term pollutant emissions anticipated with this alternative are in the current AQMP.	Same as the proposed Project – Significant and unavoidable conflict with the AQMP would occur due to higher square footage of development compared to the anticipated square footage in the City General Plan. Similar to the Project and Alternative 3, this alternative would conflict with regional air quality plans.	Same as the proposed Project – Significant and unavoidable conflict with the AQMP would occur, as long-term emissions associated with this alternative are not included in the regional air quality plans and would conflict with the current SCAQMD AQMP.
Threshold 4.2-2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation.	Construction: would exceed SCAQMD CEQA significance threshold, but less than significant impact with mitigation measures. Operation: significant and unavoidable. Mass operational emissions exceed SCAQMD CEQA thresholds for VOC, NO _x , CO, PM10, and PM2.5 due to mobile sources. CO emissions: less than significant impact – would not exceed applicable emissions.	Less than the proposed Project – No development proposed.	Less than the proposed Project – the population and building area would be reduced so emissions would be reduced and would be less than the SCAQMD CEQA thresholds.	Less than the proposed Project – there will be slightly reduced trips, so the emissions would be slightly reduced compared to the Project but would be more compared to Alternative 3. However, impacts would still be significant and unavoidable even with implementation of development requirements and mitigation measures, similar to the Project and Alternative 3.	Less than the proposed Project – there will be significantly reduced trips, so the emissions would be reduced compared to the Project. However, impacts would still be significant and unavoidable even with implementation of development requirements and mitigation measures.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Threshold 4.2-3 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).	Construction: less than significant impact – Mass construction emissions of nonattainment pollutants and precursors less than SCAQMD CEQA thresholds. Operations: significant and unavoidable impact – Mass operational emissions of nonattainment pollutants and precursors cumulatively considerable.	Less than the proposed Project – No development proposed.	Less than the proposed Project – the population and building area would be reduced so emissions would be reduced and would be less than the SCAQMD CEQA thresholds.	Less than the proposed Project – there will be slightly reduced trips, so the emissions would be reduced slightly, compared to the Project but would be more compared to Alternative 3. However, impacts would still be significant and unavoidable even with implementation of development requirements and mitigation measures similar to the Project and Alternative 3.	Less than the proposed Project – there will be slightly reduced ADT, so the emissions would be reduced. However, impacts would still be significant and unavoidable even with implementation of development requirements and mitigation measures.
Threshold 4.2-4 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.	Less than the proposed Project – Would result in development on less than half of the site; land uses would be less intense.	Less than the proposed Project – Same development footprint, but land uses would be less intense.	Less than the proposed Project – Same development footprint, but land uses would be less intense.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Biological Resources					
Threshold 4.3-1 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 – Project would have impact to suitable habitat for special status species; potential to impact bats and active nests of migratory birds and/or raptors.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced footprint would result in reduced impacts. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint and same level of impacts.	Same as the proposed Project – Same development footprint and same level of impacts.
Threshold 4.3-2 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.	Less than significant impact with development requirements – Project would have impact to riparian habitat.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced footprint would result in reduced impacts. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.
Threshold 4.3-3 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 processing of and compliance with permits/agreements/certifications – Project would impact to 0.004 acre, 0.721 acre, and 1.801 acres of waters under the jurisdiction of the USACE, the RWQCB, and the CDFW, respectively.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced footprint would result in reduced impacts. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Threshold 4.3-4 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 – Project May impact active nests of migratory birds and/or raptors. Project would not impact the planned regional wildlife movement corridor.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced footprint would result in reduced impacts. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.	Same as the proposed Project – Same development footprint. Proposed development requirements apply to this alternative.
Threshold 4.3-5 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 local ordinances.	Less than 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 4.3-6 Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.	No impact – Project would not conflict with provisions of the NCCP/HCP.	Less than the proposed Project – No development proposed.	Same as the proposed Project – No conflict with provisions of the NCCP/HCP.	Same as the proposed Project – No conflict with provisions of the NCCP/HCP.	Same as the proposed Project – No conflict with provisions of the NCCP/HCP.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<i>Cultural and Scientific Resources</i>					
Threshold 4.4-1 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 impact unknown archaeological resources.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced development footprint would result in lower potential impacts to unknown archaeological resources. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint; low potential to impact unknown archaeological resources. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint; low potential to impact unknown archaeological resources. Proposed mitigation applies to this alternative.
Threshold 4.4-2 Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	Less than significant impact with mitigation measure – Project would have moderate potential to impact non-renewable paleontological resources.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced development footprint would result in a lower potential impact to non-renewable paleontological resources. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint, and therefore moderate potential to impact non-renewable paleontological resources. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint, and therefore moderate potential to impact non-renewable paleontological resources. Proposed mitigation applies to this alternative.
Threshold 4.4-3 Disturb any human remains, including those interred outside of formal cemeteries.	Less than significant impact mitigation measure – Project would have low potential to disturb human remains.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced development footprint would result in lower potential to disturb human remains. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint; low potential to disturb human remains. Proposed mitigation applies to this alternative.	Same as the proposed Project – Same development footprint; low potential to disturb human remains. Proposed mitigation applies to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Geology and Soils					
<p>Threshold 4.5-1 Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:</p> <ul style="list-style-type: none"> (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. 	<p>Less than significant impact with development requirements – Project is not included in Alquist-Priolo Earthquake Fault Zone; no known active faults traversing the site. Project would have less than significant impacts related to fault rupture, liquefaction, settlement, lateral spreading, and subsidence.</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Less than the proposed Project – 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. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – 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. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – Not included in Alquist-Priolo Earthquake Fault Zone; no known active faults; less than significant impacts related to fault rupture, liquefaction, settlement, and lateral spreading, and subsidence. Proposed development requirements apply to this alternative.</p>
<p>Threshold 4.5-2 Result in substantial soil erosion or the loss of topsoil.</p>	<p>Less than significant impact with development requirements listed in Section 4.8, Hydrology and Water Quality and compliance with applicable laws – Project would have less than significant impact on soil erosion and loss of topsoil.</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Less than the proposed Project – Decreased potential for soil erosion and loss of topsoil; less than significant impact with development requirements in Section 4.8, Hydrology and Water Quality.</p>	<p>Same as the proposed Project – Increased potential for soil erosion and loss of topsoil; less than significant impact with development requirements in Section 4.8, Hydrology and Water Quality.</p>	<p>Same as the proposed Project – Increased potential for soil erosion and loss of topsoil; less than significant impact with development requirements in Section 4.8, Hydrology and Water Quality.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.5-3 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.</p>	<p>Less than significant impact with development requirement and compliance with regulations – Project is not located in an area with landslides and potential for collapse/subsidence, and soil corrosion. Development requirements would reduce potential impacts associated with unstable soils/site conditions, landslides, collapse/subsidence, corrosion, liquefaction, seismically induced settlement, and lateral spreading.</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Less than the proposed Project – Not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – Not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – Not located in an unstable unit susceptible to liquefaction, settlement, lateral spreading, and subsidence. Proposed development requirements apply to this alternative.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.5-4 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.</p>	<p>Less than significant impact with development requirement – Project would have medium expansion potential; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended.</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Less than the proposed Project – Medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – Medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Proposed development requirements apply to this alternative.</p>	<p>Same as the proposed Project – Medium expansion potential assumed; detailed evaluation of near-surface soils to be conducted and appropriate design measures recommended. Proposed development requirements apply to this alternative.</p>
Greenhouse Gas Emissions					
<p>Threshold 4.6-1 Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.</p>	<p>Potentially significant and unavoidable impact under the 2030 threshold even with implementation of development requirements and mitigation measures – the Project’s GHG emissions would be less than the SCAQMD-recommended plan-level efficiency threshold but would exceed the SCAQMD-recommended project-level efficiency threshold. The unmitigated emissions include the implementation of DR GHG-1 and DR GHG-2. Implementation of MM</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Greater than the proposed Project – This alternative’s total emissions would be substantially less than the proposed Project. But, this alternative has a lower GHG service population and would exceed the SCAQMD recommended project-level thresholds. Proposed development requirements apply to this alternative. The Alternative 1b GHG emissions impact would be significant and unavoidable, similar to the Project, Alternative 2 and Alternative 3.</p>	<p>Greater than the proposed Project – This alternative compared to the Project and would generate approximately 15 percent less total GHG emissions than the Project. However, because it would have a lower GHG service population compared to the Project, Alternative 2’s mitigated GHG emissions would exceed SCAQMD’s recommended plan-level and project-level thresholds. The Alternative 2 GHG emissions impact would be significant and unavoidable, similar to</p>	<p>Greater than the proposed Project – This alternative would generate less total GHG emissions than the Project. However, because it would have a lower GHG service population compared to the Project, Alternative 3’s mitigated GHG emissions would exceed the SCAQMD-recommended project-level thresholds. The Alternative 3 GHG emissions impact would be significant and unavoidable, similar to the proposed Project, Alternative 1b and</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	GHG-1 through MM GHG-3 would reduce the emissions to less than the interpolated efficiency threshold at Project buildout (2026); however, the 2030 project-level threshold would be exceeded. The Project’s mitigated GHG emissions would have a significant and unavoidable impact on the environment			the Project, Alternative 1b and Alternative 3.	Alternative 2.
Threshold 4.6-2 Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.	Potentially significant unavoidable—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 the provisions of all applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases because the 2030 efficiency threshold would be exceeded. Therefore, there is the potential that the Project	Less than the proposed Project – No development proposed.	Greater than the proposed Project – 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 1b may conflict applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases because the 2026 and 2030 efficiency threshold would be exceeded. The impacts would be greater than the proposed Project because the Project is	Greater than the proposed Project – 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 applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases because the 2026 and 2030 efficiency threshold would be exceeded. The impacts would be greater than the proposed Project because the Project is able to achieve the 2026	Greater than the proposed Project – 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 applicable plans, policies or regulations adopted for the purpose of reducing the emissions of greenhouse gases because the 2026 and 2030 efficiency threshold would be exceeded. The impacts would be greater than the proposed Project because the Project is able to achieve the 2026

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	would conflict with regulations and policies adopted for the purpose of reducing GHG emissions.		able to achieve the 2026 efficiency threshold.	efficiency threshold.	efficiency threshold.
Hazards and Hazardous Materials					
Threshold 4.7-1 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 with development requirements – Project would have impacts associated with hazardous building materials and railroad ties present or presumed to be present on site.	Greater than the proposed Project – No development proposed.	Less than the proposed Project – all potential impacts regarding upset and accident conditions involving hazardous materials release would be mitigated with implementation of development requirements and mitigation measures.	Same as the proposed Project – all potential impacts regarding upset and accident conditions involving hazardous materials release would be mitigated with implementation of development requirements and mitigation measures. However, compared to the Project and Alternative 3, calculated human health risks for the Emergency Shelter use are expected to be less than those for commercial/ industrial or residential use.	Same as the proposed Project – all potential impacts regarding upset and accident conditions involving hazardous materials release would be mitigated with implementation of development requirements and mitigation measures.
Threshold 4.7-2 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.	Less than significant with development requirements, mitigation measures and implementation of a Soils Management Plan - Project would have impacts associated with unknown soil and	Less than the proposed Project – No development proposed.	Same as the proposed Project – all potential impacts regarding hazardous materials sites would be mitigated with implementation of development requirements and mitigation measures.	Same as the proposed Project – all potential impacts regarding hazardous materials sites would be mitigated with implementation of development requirements and mitigation measures.	Same as the proposed Project – all potential impacts regarding hazardous materials sites would be mitigated with implementation of development requirements and mitigation measures.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	<p>hazardous materials and petroleum-hydrocarbon at each of the IRP sites and LOCs.</p> <p>Also, impacts associated with catch basins would be less than significant with a mitigation measure. Impacts associated with VOCs in soil gas within LIFO C would be less than significant with a mitigation measure. Impact associated with monitoring of groundwater plume would be reduced with a mitigation measure.</p>			<p>However, calculated human health risks for the Emergency Shelter use are expected to be less than those for commercial/industrial or residential use, and therefore, under Alternative 2, impacts at IRP Site 12 Units 1 and 2 would be reduced, compared to the Project and Alternative 3.</p>	

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Hydrology and Water Quality					
<p>Threshold 4.8-1 Violate any water quality standards or waste discharge requirements.</p> <p>Threshold 4.8-5 Otherwise substantially degrade water quality.</p>	Less than significant impact with development requirements – 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.	Less than the proposed Project – No development proposed.	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. Proposed development requirements 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. Proposed development requirements 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. Proposed development requirements apply to this alternative.
<p>Threshold 4.8-2 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.</p> <p>Threshold 4.8-3 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</p>	Less than significant impact with development requirements – Project would maintain existing flow patterns; the two drainage area diversions would not impact receiving water bodies. Project would not increase the amount and rate of runoff resulting in flooding. Project would not exceed the existing capacity of the stormwater drainage system and would not provide additional	Less than the proposed Project – No development proposed.	Greater than the proposed Project – Although west of Bee Canyon the existing drainage pattern in a vacant portion of the site would be maintained, this would result in an increase in sediment transport to downstream areas compared to the Project. Conditions in the southeastern portion of the site would be similar to the proposed Project, but the potential drainage impacts may be worse	Same as the proposed Project – Improvements are designed to maintain existing flow patterns; the two drainage area diversions would not impact receiving water bodies. Additional drainage analysis to be conducted during final design to determine maximum allowed discharge. Proposed development requirements would be applicable to this alternative.	Same as the proposed Project – Improvements are designed to maintain existing flow patterns; two drainage area diversions would not impact receiving water bodies. Additional drainage analysis to be conducted during final design to determine maximum allowed discharge. Proposed development requirements would be applicable to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>flooding on- or offsite.</p> <p>Threshold 4.8-4 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.</p>	sources of polluted runoff.		within the undeveloped portion of the site under this alternative. Proposed development requirements would be applicable to this alternative.		
Land Use and Planning					
<p>Threshold 4.9-1 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.</p>	<p>Project is not subject to the City of Irvine General Plan and Zoning Ordinance, and they are not applicable plans. Project would not conflict with City General Plan goals and policies.</p> <p>Project would be consistent with the goals and strategies of RTP/SCS. Project is not included in the OCP-2014 projection and is not included within the growth projections of regional planning programs like the RTP/SCS. With implementation of MM any potential land use planning inconsistency impact would be reduced to less than significant. However, in the interim,</p>	<p>Greater than the proposed Project – This alternative would be inconsistent with local and regional goals to provide housing near transit and major employment centers.</p>	<p>Less than the proposed Project – Development would be consistent with site entitlements, and no GPA or ZC would be required. This alternative would be consistent with policies and would generally be compatible with surrounding uses.</p>	<p>Same as the proposed Project – Unlike the Project and Alternative 3, this alternative would be consistent with site entitlements; however, the intensity exceeds the assumptions in the 2003 OCGP PEIR; a GPA and ZC would be required. This alternative would be consistent with policies of RTP/SCS but does not provide a mixed-use component, unlike the Project and Alternative 3, as envisioned by the RTP/SCS and the level of development would not be reflected in the RTP/SCS. The mitigation measure under the proposed Project would be applicable to this alternative for</p>	<p>Same as the proposed Project – Development would not conflict with land use plan and policies of Irvine General Plan, but would not be consistent with the regional planning consistent with site entitlements. The mitigation measure under the proposed Project would be applicable to this alternative for consistency with regional planning programs. Amendments to Irvine General Plan and Zoning would ensure consistency with local planning documents. This alternative would be compatible with surrounding uses.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	until these planning programs are amended, this impact would be significant and unavoidable. Project would not have an impact associated with compatibility with existing and planned land uses.			consistency with regional planning programs. The uses would not be incompatible with surrounding uses.	
Noise					
Threshold 4.10-1 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. Post 2035, traffic and train noise creating land use incompatibility impacts would be less than significant with mitigation measures.	Less than the proposed Project – No development proposed.	Same as the proposed Project – Construction noise would be consistent with County and City Noise Ordinances. Construction equipment would comply with mitigation measures. Post 2035, traffic and train noise could create noise-land use incompatibility, but mitigation measures would apply to reduce impacts.	Less than the proposed Project – This alternative would generate less trips compared to the Project (but more than Alternative 3). 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 off-site receptors would be less compared to the Project. Overall, noise related impacts associated with this alternative would be less than the proposed Project.	Less than the proposed Project – This alternative would generate significantly less trips compared to the Project. Construction noise levels would be similar to the proposed Project, but would be shorter in duration. Project-generated traffic noise level increases at off-site receptors would be the same or less compared to the Project. Similar to the proposed Project, all noise and vibration impacts would be less than significant. Overall, potential noise impacts of this alternative would be less than the proposed Project.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Threshold 4.10-2 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. Pile driving would be less than significant with mitigation measure.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Construction vibration would be the same but shorter in duration. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – Construction vibration would be the same but shorter in duration compared to the Project. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – Construction vibration would be the same but shorter in duration compared to the Project. Mitigation measures under the proposed Project would be applicable.
Threshold 4.10-3 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 would result in traffic noise increases at sensitive receptors. Ambient noise increases in the vicinity of site generated by on-site sources would be less than significant with mitigation measure.	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 than with the proposed Project. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – There would be reduced building area and a reduced ADT with this alternative than with the proposed Project. Impacts would be less compared to the Project. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – There would be reduced building square footage and a reduced ADT with this alternative than with the proposed Project. Impacts would be less compared to the Project. Mitigation measures under the proposed Project would be applicable.
Threshold 4.10-4 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 – Temporary increase in ambient noise due to construction, but would not impact off-site sensitive receptors due to distance and intervening buildings. Construction noise would not impact on-site residents, as most noise intensive construction activities would not be in proximity to residential uses.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Construction noise would be the same but shorter in duration. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – Construction noise would be the same but shorter in duration. Mitigation measures under the proposed Project would be applicable.	Less than the proposed Project – Construction noise would be the same but shorter in duration. Mitigation measures under the proposed Project would be applicable.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Population and Housing					
<p>Threshold 4.11-1 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).</p>	<p>Significant and unavoidable impact – Project would is not included in the long-range planning programs. Projected growth would exceed the regional planning numbers and induce substantial population growth in the area.</p>	<p>Less than the proposed Project – No development proposed.</p>	<p>Less than the proposed Project – No population growth was projected for the existing entitlement, so would not exceed the regional planning numbers. In terms of jobs/housing ratio, this alternative would create fewer jobs so the jobs/housing ratio would not be as imbalanced as with the proposed Project.</p>	<p>Less than the proposed Project – Unlike the Project and Alternative 3, this alternatives, with no residential uses proposed, would not directly contribute to population growth in the area and would avoid the significant and unavoidable impact. No population growth was projected for the existing entitlement, so would not exceed the regional planning numbers unlike the Project and Alternative 3. Alternative 2, compared to the Project and Alternative 3, would further exacerbate jobs/housing imbalance in the area by introducing employment generating uses and no residential uses.</p>	<p>Same as the proposed Project – No population growth was projected for the existing entitlement, so this alternative would exceed the regional planning numbers. The jobs/housing ratio for Alternative 3 would contribute to the imbalance of jobs/housing.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Public Services					
Threshold 4.12-1 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, commercial, office, and hotel developments, including structural fires; emergency medical and rescue services; and hazardous materials inspections and response.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential population. Proposed development requirements apply to this alternative.	Less than the proposed Project –Reduced demand for fire protection services due to lack of residential population and fewer jobs, compared to the Project and Alternative 3. Proposed development requirements apply to this alternative.	Less than the proposed Project – Reduced demand for fire protection services due to reduced population and fewer jobs generated compared to the proposed Project. Proposed development requirements apply to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
(ii) Police protection	Less than significant impact with development requirements – Project would increase demand for police protection services. But, the increase would not require new facilities.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential population and fewer jobs. Proposed development requirements apply to this alternative.	Less than the proposed Project –Reduced demand for police protection services due to lack of residential population and fewer jobs, compared to the Project and Alternative 3. Proposed development requirements apply to this alternative.	Less than the proposed Project – Reduced demand for police protection services due to reduced population and fewer jobs generated compared to the proposed Project. Proposed development requirements apply to this alternative.
(iii) Schools	Less than significant impact – Project would generate students in the SVUSD; SVUSD has capacity in schools. Project would also be required to comply with payment of State-mandated school fees and the Measure B General Obligation bond taxes.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential population and fewer jobs.	Less than the proposed Project – No demand for schools due to lack of residential population, compared to the Project and Alternative 3.	Less than the proposed Project – Reduced demand for schools due to reduced population generated compared to the proposed Project.
(iv) Other Public Facilities	Less than significant impact – Project would generate an additional demand on the OC Public Library, but it would not trigger construction of new or expanded library facilities.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential population and fewer jobs.	Less than the proposed Project –Reduced demand for other public services due to lack of residential population and fewer jobs, compared to the Project and Alternative 3.	Less compared to the proposed Project – Reduced demand for other public services due to reduced population generated and fewer jobs, compared to the proposed Project.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Recreation					
Threshold 4.13-1 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.	Less than significant impact with development requirements (long-term) –Project would meet County requirement of 2.5 acres of parkland per 1,000 residents. Project would result in a temporary shortage of parkland if the full allocation of residential development occurs prior to completion of Marine Way, as it would delay the full development of the “Park within the Park”. This is a significant and unavoidable impact.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand on parks and amenities and no requirement to provide parkland due to lack of residential population.	Less than the proposed Project – Reduced demand on parks and amenities and no requirement to provide parkland due to lack of residential population, compared to the Project and Alternative 3.	Less than the proposed Project – Reduced demand on parks and amenities due to reduced residential population. Due to reduced population, this Alternative would be required to dedicate less parkland. Proposed development requirements apply to this alternative.
Threshold 4.13-2 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 and users of the development. No expansion of existing recreational facilities would occur.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand on parks due to lack of residential population.	Less than the proposed Project –Reduced demand on parks due to lack of residential population, compared to the Project and Alternative 3.	Less than the proposed Project – Reduced demand on parks and amenities due to reduced residential population. Proposed development requirements apply to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Transportation/ Traffic					
<p>CITY OF IRVINE</p> <p>Threshold 4.14-1 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 southbound 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.</p> <p>Threshold 4.14-2 In the City of Irvine not addressed by Threshold 4.14-1, 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.</p> <p>Threshold 4.14-3 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</p>	<p>Less than significant impact – Under Existing Plus Project and 2017 Plus Project scenarios, no impacts at intersections (ICU).</p> <p>Significant and unavoidable impact – Under the Year 2035 Plus Project and Post-2035 Plus Project scenarios, impacts at two and five intersections (ICU), respectively.</p> <p>Significant and unavoidable impact – Under the Year 2035 Plus Project Plus Pending Projects and Post-2035 Plus Project Plus Pending Projects scenarios, impacts at four and seven intersections (ICU), respectively.</p> <p>Mitigation has been recommended, but feasibility is uncertain and outside the control of the County.</p>	<p>Less than the proposed Project. No impacts at roadway segments and intersections (ICU). Locations operating at deficient levels of service under the Existing Condition would also operate deficiently under this alternative.</p>	<p>Less than or comparable to the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, no impacts for this alternative and the proposed Project.</p> <p>Under the Year 2017 Plus Project/Alternative scenario, no impacts for this alternative and the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, no impact for this alternative compared to two impacts under the proposed Project.</p> <p>Under Post-2035 Plus Project/Alternative scenario, less impact at intersection (ICU) for this alternative compared to the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at one intersection (ICU) for this alternative compared to the proposed Project.</p> <p>Under the Post-2035 Plus</p>	<p>Less than or comparable to the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, no impacts for this alternative, compared to the Project and Alternative 3.</p> <p>Under the Year 2017 Plus Project/Alternative scenario, no impacts for this alternative, compared to the Project and Alternative 3.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, more impacts at three intersections (ICU) for this alternative compared to the proposed Project and four intersections compared to Alternative 3.</p> <p>Under Post-2035 Plus Project/Alternative scenario, less impact at one intersection (ICU) for this alternative compared to the proposed Project, and same impact as Alternative 3.</p> <p>Under the Year 2035 Plus</p>	<p>Less than the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, no impacts for this alternative and the proposed Project.</p> <p>Under the Year 2017 Plus Project/Alternative scenario, no impacts for this alternative and the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, less impacts at one intersection (ICU) for this alternative and the proposed Project.</p> <p>Under Post-2035 Plus Project/Alternative scenario, less impacts at one intersection (ICU) for this alternative and the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at one intersection (ICU) for this alternative compared to the proposed Project.</p> <p>Under the Post-2035 Plus</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>intersection, the Bake Parkway/Irvine Boulevard intersection, the Lake Forest/I-5 southbound 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.</p> <p>Threshold 4.14-4 In the City of Irvine outside those intersections identified by Threshold 4.14-3, 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.</p> <p>Threshold 4.14-5 In the City of Irvine outside PA 33 (Irvine Spectrum Area) and PA 36 (IBC), the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-6 In the City of Irvine in PA 33 (Irvine Spectrum Area) and PA 36 (IBC), the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment,</p>			<p>Project/Alternative Plus Pending Projects scenario less impacts at one intersection (ICU) for this alternative compared to the proposed Project.</p>	<p>Project/Alternative Plus Pending Projects scenario, less impacts at one intersection (ICU) for this alternative compared to the proposed Project, and same impact as Alternative 3.</p> <p>Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario less impacts at one intersection (ICU) for this alternative compared to the proposed Project, and more impacts at two intersections compared to Alternative 3.</p>	<p>Project/Alternative Plus Pending Projects scenario, less impacts at three intersections (ICU) for this alternative compared to the proposed Project.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>causing the roadway segment to change from an acceptable LOS E or better to LOS F.</p> <p>Threshold 4.14-7 In the City of Irvine outside PA 33 (Irvine Spectrum Area) and PA 36 (IBC), the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-8 In the City of Irvine in PA 33 (Irvine Spectrum Area) and PA 36 (IBC), the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS F.</p> <p>Threshold 4.14-9 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.</p> <p>Threshold 4.14-10 In the City of Irvine, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>CITY OF TUSTIN</p> <p>Threshold 4.14-11 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.</p> <p>Threshold 4.14-12 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.</p> <p>Threshold 4.14-13 In the City of Tustin, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-14 In the City of Tustin, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-15 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</p>	<p>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.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>Same as the proposed Project – No impact to City of Tustin thresholds of significance.</p>	<p>Same as the proposed Project – No impact to City of Tustin thresholds of significance.</p>	<p>Same as the proposed Project – No impact to City of Tustin thresholds of significance.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>the freeway ramp segment to change from an acceptable LOS E or better to LOS F.</p> <p>Threshold 4.14-16 In the City of Tustin, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF LAGUNA BEACH</p> <p>Threshold 4.14-17 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.</p> <p>Threshold 4.14-18 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.</p> <p>Threshold 4.14-19 In the City of Laguna Beach, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or</p>	<p>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.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>better to LOS E or F.</p> <p>Threshold 4.14-20 In the City of Laguna Beach, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-21 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.</p> <p>Threshold 4.14-22 In the City of Laguna Beach, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF LAKE FOREST</p> <p>Threshold 4.14-23 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.</p>	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.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.14-24 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.</p> <p>Threshold 4.14-25 In the City of Lake Forest, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-26 In the City of Lake Forest, the addition of Project-generated trips increases the V/C ratio on a roadway segment by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-27 In the City of Lake Forest, 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.</p> <p>Threshold 4.14-28 In the City of Lake Forest, the addition of Project-generated trips</p>					

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.					
<p>CITY OF LAGUNA HILLS</p> <p>Threshold 4.14-29 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.</p> <p>Threshold 4.14-30 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.</p> <p>Threshold 4.14-31 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 on a roadway segment, causing the roadway segment to change from an acceptable LOS D or better to LOS E or F.</p> <p>Threshold 4.14-32 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment</p>	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.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>operating at LOS E or F.</p> <p>Threshold 4.14-33 In the City of Laguna Hills, 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.</p> <p>Threshold 4.14-34 In the City of Laguna Hills, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF LAGUNA WOODS</p> <p>Threshold 4.14-35 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.</p> <p>Threshold 4.14-36 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.</p>	<p>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.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.14-37 In the City of Laguna Woods, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-38 In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-39 In the City of Laguna Woods, 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.</p> <p>Threshold 4.14-40 In the City of Laguna Woods, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF ALISO VIEJO</p> <p>Threshold 4.14-41 In the City of Aliso Viejo, the addition of Project-generated trips increases the ICU at a study</p>	No impact – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus Project, 2017 Plus	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	Same as the proposed Project – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus	Same as the proposed Project – No impact to City of Aliso Viejo thresholds of significance in the Existing Plus

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>intersection by 0.02 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.</p> <p>Threshold 4.14-42 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.</p> <p>Threshold 4.14-43 In the City of Aliso Viejo, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-44 In the City of Aliso Viejo, the addition of Project generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-45 In the City of Aliso Viejo, 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.</p>	<p>Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>		<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>	<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>	<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.14-46 In the City of Aliso Viejo, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.0, on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF MISSION VIEJO</p> <p>Threshold 4.14-47 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.</p> <p>Threshold 4.14-48 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.</p> <p>Threshold 4.14-49 In the City of Mission Viejo, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-50 In the City of Mission Viejo, the addition of Project-generated trips</p>	<p>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.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-51 In the City of Mission Viejo, 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.</p> <p>Threshold 4.14-52 In the City of Mission Viejo, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>CITY OF ORANGE</p> <p>Threshold 4.14-53 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.</p> <p>Threshold 4.14-54 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.</p>	<p>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 scenarios.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>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 Post-2035 Plus Project scenarios.</p>	<p>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 Post-2035 Plus Project scenarios.</p>	<p>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 Post-2035 Plus Project scenarios.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.14-55 In the City of Orange, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-56 In the City of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.02 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-57 In the City of Orange, 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.</p> <p>Threshold 4.14-58 In the City of Orange, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.02 on a freeway ramp segment operating at LOS F.</p>					
<p>COUNTY OF ORANGE</p> <p>Threshold 4.14-59 In the County of Orange, the addition of Project-generated trips increases the ICU at a study</p>	No impact – No impact to County of Orange thresholds of significance in the Existing Plus Project, 2017 Plus	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	Same as the proposed Project – No impact to County of Orange thresholds of significance in the Existing Plus	Same as the proposed Project – No impact to County of Orange thresholds of significance in the Existing Plus

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>intersection by 0.01 or more of capacity, causing the intersection to change from an acceptable LOS D to LOS E or LOS F.</p> <p>Threshold 4.14-60 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.</p> <p>Threshold 4.14-61 In the County of Orange, the addition of Project-generated trips increases the 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.</p> <p>Threshold 4.14-62 In the County of Orange, the addition of Project-generated trips increases the V/C ratio by more than 0.01 on a roadway segment operating at LOS E or F.</p> <p>Threshold 4.14-63 In the County of Orange, the addition of Project-generated trips increases the V/C ratio on a freeway ramp to increase by more than 0.01, causing the freeway ramp segment to change from an acceptable LOS E or better to LOS F.</p>	<p>Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>		<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>	<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>	<p>Project, 2017 Plus Project, Year 2035 Plus Project, and Post-2035 Plus Project scenarios.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>Threshold 4.14-64 In the County of Orange, the addition of Project-generated trips increases the V/C ratio to increase by more than 0.01 on a freeway ramp segment operating at LOS F.</p>					
<p>CALTRANS</p> <p>Threshold 4.14-65 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).</p> <p>Threshold 4.14-66 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.</p> <p>Threshold 4.14-67 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.</p> <p>Threshold 4.14-68 The addition of project-generated trips increases the V/C on a freeway</p>	<p>Significant and unavoidable impacts - Impacts pursuant to Caltrans thresholds of significance in the Existing Plus Project scenario; impacts at six intersections and seven mainline freeway segments.</p> <p>Year 2017 Plus Project: impact at three intersections (HCM). No impacts at freeway ramps and mainline segments.</p> <p>Year 2035 Plus Project and Post-2035 Plus Project: impacts at 10 and 11 intersections (HCM), respectively, and five and four freeway ramps, respectively. No impacts at mainline segments.</p> <p>Year 2035 Plus Project Plus Pending Projects and Post-2035 Plus Project Plus Pending Projects:</p>	<p>Less than the proposed Project. No impacts at intersections (HCM), freeway ramps, and freeway mainline segments. Locations operating at deficient levels of service under the Existing Condition would also operate deficiently under this alternative.</p>	<p>Overall, less than the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, less impacts at: four intersections (HCM) and one mainline segment for this alternative compared to the proposed Project; no impacts at freeway ramps.</p> <p>Under Year 2017 Plus Project/Alternative scenario, less impact at one intersection (HCM) for this alternative compared to the proposed Project; no impacts at freeway ramps and mainline segments.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, less impacts at five intersections (HMC) this alternative compared to the proposed Project; no impacts at freeway</p>	<p>Overall, comparable to the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, same impact at intersections (HCM); no impacts at freeway ramps; and less impact at one mainline segment for this alternative compared to the Project. No freeway ramp impact similar to Alternative 3; one more intersection impact compared to Alternative 3; and one less mainline segment impact compared to Alternative 3.</p> <p>Under Year 2017 Plus Project/Alternative scenario, less impact at one intersection (HCM) and no impacts at freeway ramps and mainline segments for this alternative compared to the Project. No freeway ramp and mainline</p>	<p>Overall, substantially less than the proposed Project.</p> <p>Under Existing Plus Project/Alternative scenario, less impact at one intersection (HCM); no impact at freeway ramps; and same impacts at mainline segments for this alternative compared to the proposed Project.</p> <p>Under Year 2017 Plus Project/ Alternative scenario, same impacts at intersections (HCM); freeway ramps; and mainline segment for this alternative compared to the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, less impacts at one intersection (HCM) and one freeway ramp; and no impact at mainline segments for this alternative compared to</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
mainline by more than 0.03 on a facility operating at LOS F prior to the addition of Project traffic.	impacts at 10 and 9 intersections (HCM), respectively; five and six freeway ramps, respectively; and one and two mainline segments, respectively.		<p>ramps and mainline segments.</p> <p>Under Post-2035 Plus Project/Alternative scenario, less impact at one intersection (HCM); more impacts at two freeway ramps; and no impacts at mainline segments for this alternative compared to the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at six intersections (HCM) and four freeway ramps and no impacts at mainline segments for this alternative compared to the proposed Project.</p> <p>Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, more impacts at one intersection (HCM); less impacts at two freeway ramps; and no impacts at mainline segments for this alternative compared to the proposed Project.</p>	<p>segments impacts similar to Alternative 3 and one less intersection impact compared to Alternative 3.</p> <p>Under the Year 2035 Plus Project/Alternative scenario, more impacts at one intersection (HCM) and one mainline segment; same impacts at freeway ramps for this alternatives compared to the proposed Project. Two more intersection impacts; one more freeway ramp impact; and no mainline segment impact compared to Alternative 3.</p> <p>Under Post-2035 Plus Project/Alternative scenario, same impacts at intersections (HCM); more impacts at one freeway ramp and one more mainline segment for this alternative compared to the proposed Project. One more intersection impact; one more freeway ramp impact; and no mainline segment impact compared to</p>	<p>the proposed Project.</p> <p>Under the Post-2035 Plus Project/Alternative scenario, less impacts at one intersection (HCM); same impacts at freeway ramps and mainline segments for this alternative compared to the proposed Project.</p> <p>Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at two freeway ramps and one mainline segment; same impacts at Caltrans intersection (HCM) for this alternative compared to the proposed Project.</p> <p>Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at two mainline segments; more impacts at one intersection (HCM); and same impacts at freeway ramps for this alternative compared to the proposed Project.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
				<p>Alternative 3.</p> <p>Under the Year 2035 Plus Project/Alternative Plus Pending Projects scenario, less impact at one intersection (HCM); more impact at one freeway ramp; and same impact at mainline segments for this alternative compared to the proposed Project. One less intersection impact; three more freeway ramp impacts; and no mainline segment impacts compared to Alternative 3.</p> <p>Under the Post-2035 Plus Project/Alternative Plus Pending Projects scenario, less impacts at one mainline segment; more impacts at one intersection (HCM) and one freeway ramp for this alternative compared to the proposed Project. Some intersection impacts; one more freeway ramp impact; and no mainline segment impact compared to Alternative 3.</p>	

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>OCTA CMP</p> <p>Threshold 4.14-69 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.</p> <p>Threshold 4.14-70 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.</p> <p>Threshold 4.14-71 The Project will not conflict with an applicable congestion management program, including, but not limited to level of service standard and travel demand measures, or other standards established by the County congestion management agency for designated roads or highways.</p>	<p>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.</p>	<p>Same as the proposed Project – No development proposed.</p>	<p>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.</p>	<p>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.</p>	<p>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.</p>

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
<p>CEQA THRESHOLDS</p> <p>Threshold 4.14-72 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).</p>	Less than significant impact with development requirements – Project traffic would not result in a significant hazards impact due to a design feature. Circulation system designed using the City of Irvine TDPs; additional Circulation Design Guidelines in the Development Plan would help reduce any potentially significant impacts.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Reduced development footprint. Project traffic would not result in a significant hazards impact due to a design feature. Circulation system designed using the City of Irvine TDPs; additional measures would help reduce significant impacts.	Same as the proposed Project – Same development footprint. Project traffic would not result in a significant hazards impact due to a design feature. Circulation system designed using the City of Irvine TDPs; additional measures would help reduce significant impacts.	Same as the proposed Project – Same development footprint. Project traffic would not result in a significant hazards impact due to a design feature. Circulation system designed using the City of Irvine TDPs; additional measures would help reduce significant impacts.
<p>Threshold 4.14-73 The Project will not result in inadequate emergency access.</p>	Less than significant impact – Project consistent with the City of Irvine and OCFA emergency access requirements.	Less than the proposed Project - No development proposed.	Less than the proposed Project – Reduced development footprint; consistent with the County of Orange, City of Irvine, and OCFA emergency access requirements.	Same as the proposed Project – Same development footprint; consistent with the County of Orange, City of Irvine, and OCFA emergency access requirements.	Same as the proposed Project – Same development footprint; consistent with the County of Orange, City of Irvine, and OCFA emergency access requirements.
<p>Threshold 4.14-74 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.</p>	Less than significant impact – No conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities or decrease performance or safety of such facilities.	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.	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.	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.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Utilities and Service Systems					
Threshold 4.15-1 Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.	Less than significant impact – the Project would be required to comply with all applicable wastewater discharge requirements as enforced by the Santa Ana Regional Water Quality Control Board, and it would not exceed wastewater treatment requirements.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential and hotel uses. Would not exceed regional requirements	Less than the proposed Project – Substantially reduced demand for wastewater treatment due to lack of residential and hotel uses, compared to the Project and Alternative 3. Would not exceed regional requirements	Less than the proposed Project – Reduced demand due to reduced residential population and reduced office uses. Would not exceed regional requirements
Threshold 4.15-2 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 with development requirements – Project demand for potable and nonpotable water could be met by existing infrastructure. Wastewater generated by Project would exceed the capacity of the IRWD Reaches A and B sewer lines, which IRWD has identified as having an existing deficiency. A Conditional Water and Sewer Will Serve letter has been issued by IRWD indicating IRWD has sufficient capacity and will provide required water and wastewater services. Additionally, the	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential, office, and hotel uses. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project – Substantially reduced demand due to lack of residential, office, and hotel uses, compared to the Project and Alternative 3. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project –Reduced demand due to reduced residential population and reduced office uses. Construction of new facilities is not required. Proposed development requirements apply to this alternative.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	deficiencies would be addressed by implementation of IRWD's Capital Improvement Program. Also, the Project would be required to construct sewer lines and local collection facilities, which have been discussed as part of the Project.				
Threshold 4.15-3 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 – Construction of new storm drain facilities would result in a less than significant impact. Development requirements in Section 4.8 would apply.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential, office, and hotel uses. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project – Substantially reduced demand due to lack of residential, office, and hotel uses, compared to the Project and Alternative 3. Construction of new facilities is not required. Proposed development requirements apply to this alternative.	Less than the proposed Project –Reduced demand due to reduced residential population and reduced office uses. Construction of new facilities is not required. Proposed development requirements apply to this alternative.
Threshold 4.15-4 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 Conditional Water and Sewer Will Serve letter	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential and hotel uses. Sufficient supplies exist to serve the development.	Less than the proposed Project – Substantially reduced demand due to lack of residential and hotel uses, compared to the Project and Alternative 3. Sufficient supplies exist to serve the development.	Less than the proposed Project –Reduced demand due to reduced residential population and reduced office uses. Sufficient supplies exist to serve the development.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
	has been issued by IRWD indicating IRWD has sufficient capacity and will provide required water and wastewater services.				
Threshold 4.15-5 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 mitigation measures – IRWD has indicated it 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.	Less than to the proposed Project – No development proposed.	Less compared to the proposed Project – Substantially reduced demand due to lack of residential and hotel uses. Sufficient capacity exists to serve the projected demand.	Less compared to the proposed Project – Substantially reduced demand due to lack of residential and hotel uses, compared to the Project and Alternative 3. Sufficient capacity exists to serve the projected demand.	Less compared to the proposed Project – Reduced demand due to reduced residential population and reduced office uses. Sufficient capacity exists to serve the projected demand.
Threshold 4.15-6 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 solid waste disposal needs.	Less than the proposed Project – No development proposed.	Less than the proposed Project – Substantially reduced demand due to lack of residential and hotel uses. Sufficient capacity exists to serve the development.	Less than the proposed Project – Substantially reduced demand due to lack of residential and hotel uses, compared to the Project and Alternative 3. Sufficient capacity exist to serve the development.	Less than the proposed Project –Reduced demand due to reduced residential population and reduced office uses. Sufficient capacity exist to serve the development.

**TABLE 5-16
COMPARISON OF PROJECT ALTERNATIVES IMPACTS TO PROPOSED PROJECT IMPACTS**

Impact Category	Proposed Project	Alternative 1		Alternative 2 Intensified Institutional Uses	Alternative 3 Reduced Density Alternative
		Alternative 1a No Project/No Development	Alternative 1b No Project/Institutional Entitlements		
Threshold 4.15-7 Not comply with federal, state, and local statutes and regulations related to solid waste.	Less than significant impact with development requirements – Project would comply with applicable solid waste statutes and regulations including waste diversion programs.	Less than the proposed Project – No development proposed.	Same as the propose Project – Would comply with the federal, State, and local statutes and regulations. Proposed development requirements apply to this alternative.	Same as the propose Project – Would comply with the federal, State, and local statutes and regulations similar to the Project and Alternative 3. Proposed development requirements apply to this alternative.	Same as the propose Project – Would comply with the federal, state, and local statutes and regulations. Proposed development requirements apply to this alternative.

5.6 REFERENCES

California Native Plant Society v. City of Santa Cruz (2009) 177 Cal.App.4th 957, 1001

Citizens of Goleta Valley v. Board of Supervisors (1990) 52 Cal.3d 553

Fehr & Peers. 2015 (December). *El Toro 100 Acre Project Transportation Impact Analysis*. Anaheim, CA: Fehr & Peers (Appendix L).

Irvine, City of. 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>.

———. 2012. *City of Irvine 2013–2021 Housing Element*. Irvine, CA: the City. <https://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=17622>.

———. 2003 (May, certified). *Final Environmental Impact Report, Orange County Great Park, Volume I*. Irvine, CA: the City.

KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.

Leighton and Associates, Inc. 2014 (September 19). *Preliminary Geotechnical Investigation, 100-Acre Parcel, Former El Toro Marine Corps Air Station, Irvine, California*. Irvine, CA: Leighton and Associates, Inc. (Appendix F).

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.

Save Our Residential Environment v. City of West Hollywood (1992) 9 Cal.App.4th 1745, 1753

6.0 LONG-TERM IMPLICATIONS OF THE PROJECT

6.1 SIGNIFICANT ENVIRONMENTAL EFFECTS THAT CANNOT BE MITIGATED

The environmental effects of the Proposed Project, Alternatives 1a, 1b, 2, and 3 are addressed in Sections 4.1 through 4.15 and Section 5.0 of this EIR. Implementation of the Project would result in potentially significant impacts for the following topical issues: Air Quality, Greenhouse Gas Emission (GHG), Land Use and Planning (interim), Population and Housing, Recreation (short-term), 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 4.15 of this EIR. Implementation of the proposed Project would convert existing previously developed land and developed land (with abandoned uses) to the proposed residential, mixed-use, and commercial 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 (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 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, identified in Section Guidelines Section 15126.2(d), are examined through analysis of the following questions:

- 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 3,954 residents within the residential component of the Development Plan. In addition to the direct population growth, the Project would result in a total of 7,799 jobs.

While the Project would have direct growth-inducing impacts, it is an in-fill development and surrounded by 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 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 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). The Project's proximity to the Irvine Station 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.

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 new residential population and other uses that would increase demand for public services. As discussed in Section 4.12, 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 4.11, Population and Housing, the proposed Project would provide 2,103 new dwelling units and approximately 7,799 new jobs, resulting in a 3.71 jobs/housing ratio upon completion. While the Project would exceed the jobs/housing ratios for the County and the City, the Project would contribute to the City's housing stock and provide new housing units located within a major employment concentration, in proximity to the Irvine Station and nearby Irvine Spectrum. The City of Irvine and

Regional Statistical Area (RSA) 44 currently exceeds and are projected to continue to exceed the recommended target jobs/housing ratio. The Project's jobs/housing ratio would further contribute to the imbalance of housing and jobs in the City and potentially increase pressure for additional housing. Should additional housing occur, dependent on the location, development of the additional housing may result in environmental impacts beyond those addressed in this EIR. However, that would be speculative as there are too many unknown variables to definitively make this determination. The area surrounding the Project site and most developable areas within Orange County are developed or are planned for urban development. A trend that has been increasing over the past decade in Orange County, and Irvine specifically, is an intensification of land uses as the population of the area grows and there are fewer opportunities for new development on previously undeveloped sites.

As new residential, mixed-use, and office uses are developed and occupied, residents and employees of the proposed development would seek shopping, entertainment, employment, home improvements, auto maintenance, and other economic opportunities in the surrounding area. While some of these needs would be met by the proposed uses on-site, others would rely on economic goods and services beyond the Project limits. However, the Project at build-out would represent a negligible amount of the future growth forecasts in the County (approximately 0.11 percent of the projected 2040 Orange County population; 0.17 percent of the dwelling units in 2040; and 0.38 percent of the employment forecasted for 2040). Additionally, the proposed Project is located in proximity to existing and planned employment and retail centers such as the Irvine Spectrum and Irvine Business Complex. Such areas would address the shopping and service needs of the future residents. Therefore, even though the Project would generate economic growth in the County and provide additional revenue for the local jurisdictions as a result of the increased development, given the urban context of Orange County 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.

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 mixed-use development in the City, on a site owned by the County and within an area that is compatible with the proposed development. The Project is a sustainable development due to the existing condition and location of the property. The in-fill location of the site and proximity to the Irvine Station provide an opportunity for mixed-use, transit-oriented development. The Project's proposed mix of uses, in combination with existing and planned uses in the Project vicinity, creates balanced land uses. As a sustainable, low-impact development, the Project would relieve pressure on greenfield sites at the edge of the City of Irvine and beyond. Its adjacency to existing transit, employment, recreational amenities, and use of sustainable resources supports smart growth.

Given the above description, the Project is unique and not subject to replication in its location, ownership, and processing. The County does not own any of the parcels of the same size, nature, and characteristics as the Project site within the City, and therefore,

the Project would not result in a precedent-setting action that could encourage and facilitate other activities that would significantly affect the environment. As noted in Section 4.0.1, Cumulative Impact Assumptions, the County is also processing a multi-family residential project known as the West Alton 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 location, density, and smart growth principles. The mixed-use and infill nature of the Project site and the Project’s location in proximity to existing employment opportunities, public transit, and recreational amenities of the OCGP is representative of the efficient land use development that would reduce vehicle trips and their associated energy use. As discussed in Section 3.3, Project Objectives, development of a sustainable development is fully integrated into the Project Objectives. The following are specific objectives which pertain to sustainability and would serve to reduce energy usage:

- Objective 3: Build a project using environmental stewardship and sustainability principles through measures that promote linkages to transportation and transit networks.
- Objective 4: Promote sustainability through the development of a mix of commercial, residential, and visitor-serving uses that are located in close proximity to existing residential and employment opportunities, public transit, and recreational amenities.

- Objective 5: Promote brown field development opportunities as a means of decreasing the region's over dependency on the automobile, reducing associated air pollution and greenhouse gas emissions, and preserving natural open space areas by locating the mixed-use development on a previously developed site in proximity to existing and planned employment-generating uses, recreational and cultural amenities, residences, transit service, and along transportation corridors.
- Objective 6: Develop infill improvements that facilitate mixed use opportunities that can consume less land and energy per housing unit and square footage of development compared to a conventional suburban development, and therefore result in fewer associated greenhouse gas emissions.
- Objective 7: Provide employment-generating uses near or with amenities and services that will support the work force (e.g., recreation, retail, and housing opportunities).
- Objective 8: Revitalize the underutilized Project site through implementation of an innovative development, near transit and compatible uses that will meet the regional demand for employment, service and residential uses.
- Objective 9: Promote sustainability by re-purposing and adaptively reusing the existing materials on the site to the extent feasible.
- Objective 10: Promote use of alternative modes of travel such as biking trails and walkways that link residential, parks, retail, and commercial areas.

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. While solar applications are not required by the Development Plan, the Project provides a number of potential solar sites. In addition to the roof-top solar zones, potential locations for solar PV panels include expanded solar zones on individual buildings, parking shade structures (atop parking structures or in surface lots), pool shading structures, picnic area shading and trellis features. The Development Plan also addresses heat island effect by providing the majority of parking in structures or below ground, significantly reducing the amount of paving on-site.

The analysis in this section utilizes the data from air quality and gas emissions (GHG) analyses evaluated in Section 4.2, Air Quality and Section 4.6, 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 demolition and the export and import of soil for grading.

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 water per day, totaling approximately 2.6 million gallons of water would be used during demolition, site preparation, and grading activities. For the building phases, it is estimated that 2,500 gallons of water per day, totaling 4.9 million gallons of water would be used.

As shown in Table 6-1, approximate totals of 862,000 gallons of diesel fuel, 530,516 gallons of gasoline, and 15.74 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-hrs	VMT	Diesel Fuel - gallons	Gasoline - gallons	MWh
Off-road Construction Equipment	13,573,556		678,678		
Worker commute		14,384,097		530,516	
Vendors		1,781,732	149,226		
On-road haul		194,220	34,096		
Water - dust control					15.74
Totals	13,573,556	16,360,049	862,000	530,516	15.74
HP-hrs: Horsepower hours; VMT: Vehicle miles traveled; MWh: Megawatt hours					
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 DR AQ-4, stated in detail in Section 4.2, 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 further discussed in Section 4.9, Land Use and Planning, the Southern California Association of Governments' (SCAG's) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the City of Irvine General Plan include goals and policies that encourage transit-oriented and mixed-use development to reduce daily vehicle trips and vehicle miles traveled (VMT). As identified in Section 3, Project Description, the Project proposes a mixed use development that would provide on-site residents with easy access to goods, services and places of employment and entertainment. This would promote walking and biking as alternatives to automobile use. In addition, the Project site is located approximately 0.5 mile northwest of the Irvine Transportation Center, which includes a Metrolink/Amtrak Station and bus facilities. Residents, employees, and visitors of future development on the Project site would be served by these transportation systems. Commercial goods, services, and jobs at the Project site would be readily accessible to on-site residents and others in the surrounding areas and in the region.

As further described in Section 3, Project Description, the overall circulation concept for the proposed Project is a multi-modal system that balances and optimizes the use of automobiles, pedestrian, bicycle, transit and low speed vehicles by providing facilities that improve safety and efficiency for all users. Exhibit 3-3, Conceptual Framework Plan, identifies conceptual pedestrian/transit promenade crossing through the center of the Project site, with pedestrian and bicycle linkages, private parks and public plazas at intervals along the promenade that would link the community and provide an active living environment. Some of the sidewalk and parkway widths for this central spine street would be increased from a more standard width of eight feet to help encourage a pedestrian friendly environment allowing for additional street trees and seating areas along with the pedestrian sidewalks. In addition, it is possible that a centrally-located pedestrian bridge would be developed as an option over Marine Way near the proposed Mixed Use District and that would provide a direct connection with the OCGP without vehicular interruptions.

Exhibit 3-7 identifies the circulation plan for the proposed Project. The circulation network internal to the Project site is based on a grid network layout of local collector streets with Marine Way serving as the Project site's northeastern boundary. The Circulation Plan includes a backbone roadway system to provide internal access and circulation within the Project site that connects to the existing off-site roadway system. The Project's proximity to the Irvine Station would result in increased transit use, which would lead to a reduction in the number and length of vehicle trips and an associated reduction in GHG emissions and an increase in energy conservation.

As described in Section 4.14, Transportation/Traffic, a Class II bike lane in each direction along Marine Way and a Class I bike trail at the northerly edge of the right-of-way are proposed by the City of Irvine. Additionally, the extension of Ridge Valley south of Marine Way would accommodate a bike lane in each direction. Internal streets in the Development Plan area would also include bike lanes (Class III Bikeways). The Project's Development Plan promotes

the use of alternative modes of travel to achieve the full vision of the multi-modal system, including encouraging connections to off-site public transportation options, shared community bicycles, electric bikes, and/or neighborhood electronic vehicles (NEVs).

There are several OCTA bus lines that serve the general vicinity surrounding the Project site. Although the provision of transit service is beyond the scope of the Project or jurisdiction of the County, the Project would not preclude future opportunities for a transit route along Marine Way adjacent to the Project site providing potential future service to the Irvine Station to the south. The Project's mix of uses and proposed intensity of development would support efforts to bring additional public transit service along Marine Way and elsewhere in the Project vicinity.

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 have been proposed to reduce vehicle emissions. MM AQ-1 requires preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles; changing/shower facilities; and electric vehicle (EV) charging facilities for some nonresidential buildings. MM AQ-2 and MM AQ-3 require EV charging facilities, preferential visitor parking for alternative-fueled vehicles and bicycle parking for residential buildings and parking facilities. MM AQ-4 and MM AQ-5 includes operational measures that would limit truck idling; affiliate with Spectrumotion or similar employee program or develop an in-house transportation management program to promote transportation alternatives; post transit schedules in conspicuous areas; and encourage implementing work schedules based on transit schedules.

When taking into consideration the location of the Project near transit, the density of the proposed residential uses, and the mixed use nature of the proposed Project, it is estimated that there would be an overall reduction in Project-generated VMT from approximately 119.8 million VMT/year to 107.8 million VMT/year. This represents a reduction of approximately 12 million VMT/year or 10 percent. Based on the annual VMT, gasoline and diesel consumption rates were calculated using estimated miles per gallon factors based on Orange County data for 2025 from EMFAC2014. It is estimated that the Project-generated traffic would use 727,000 gallons of diesel fuel, and 3.1 million gallons of gasoline per year. There would be additional reduced VMT and fossil fuel use with the implementation of MM AQ-1 through MM AQ-5 described above, but the effectiveness of these MMs 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 high-rise residential energy efficiency requirements. Based on the CalEEMod, the electricity demand from the Project would be approximately 43.3 million kilowatt hours per year (kWh/year) and the natural gas consumption would be approximately 25.2 billion British Thermal Units per year (BTU/year) or 252,000 therms per year. The electricity use associated with the Project water consumption is estimated to be approximately 2.2 million 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 0.21 percent of the existing (2014) electricity use in Orange County and natural gas use would be approximately 0.05 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 1,805 kWh per year per resident and 28.4 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 4.15, 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, public transit, and recreational amenities; 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.

6.5 REFERENCES

- California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*. Sacramento, CA: CAPCOA. <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.
- California Department of Finance (DOF). 2014 (January). Population and Housing Estimates, Series E-5. Sacramento, CA: DOF.
- California Energy Commission (CEC) 2016 (Accessed February 10). California Energy Consumption Database. <http://www.ecdms.energy.ca.gov/>
- . 2015 (October, access date). 2016 Building Energy Efficiency Standards, Frequently Asked Questions. http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf.
- California Planning Roundtable. 2008. Deconstructing Jobs-Housing Balance. Los Angeles, CA: California Planning Roundtable. http://www.cproundtable.org/media/uploads/pub_files/CPR-Jobs-Housing.pdf.
- California State Board of Equalization (BOE) 2015a (Accessed July 24). Net Taxable Gasoline Gallons (including Aviation Gasoline). http://www.boe.ca.gov/sptaxprog/reports/mvf_10_year_report.pdf
- . 2015b. (Accessed July 24). Taxable Diesel Gallons 10 Year Report Net of Refunds. http://www.boe.ca.gov/sptaxprog/reports/Diesel_10_Year_Report.pdf
- Center for Demographic Research (CDR). 2015 (September 11). Personal communication. Emails between D. Diep, Director (Center for Demographic Research) and J. Cho, Project Manager (BonTerra Psomas) regarding Employment Generation Factors with an attachment entitled "OCTA land use conversion.pdf".
- . 2014 (September, final approval). OCP-2014 Report Data (City and RSA Tabs) (an Excel Spreadsheet). Fullerton, CA: CDR.
- KTGY. 2016 (September). *El Toro, 100-Acre Parcel Development Plan*. Irvine, CA: KTGY.
- Southern California Association of Governments (SCAG). 2015 (March 16). What's New (5th Cycle Final Regional Housing Needs Assessment [RHNA] Allocation Plan, adopted by the Regional Council on October 4, 2012, and approved by the HCD on November 26, 2012). Los Angeles, CA: SCAG. <http://rtpsc.scag.ca.gov/Pages/Regional-Housing-Needs-Assessment.aspx>.
- . 2012 (April, adopted). Regional Transportation Plan 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (Growth Forecast Appendix).

Los Angeles, CA: SCAG.
http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf.

U.S. Census Bureau. 2015a (October, access date). American FactFinder: Population, Housing Units, Area, and Density: 2000 – County – County Subdivision and Place; Geography: Orange County, California. Washington, D.C.: U.S. Census Bureau.

Weitz, J. 2003. Jobs-Housing Balance. Planning Advisory Service No. 516. Chicago, IL: APA.

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, the Lowe Enterprises Project Team, and others. 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
COMMUNITY OUTREACH SUMMARY**

Meeting Date	Summary
1994 - Present	Restoration Advisory Board (RAB) Meetings: Restoration Advisory Board has met regularly since 1994 to provide the interested parties with updates on the status of environmental remediation throughout the former MCAS El Toro Base.
February 13, 2013	Meeting was held with representatives of the County Board of Supervisors, the City Council, the Irvine Company, and Five Point Communities to establish a program that would allow for the opening of a new Wild Rivers Water Park in the County's 100-Acre Parcel.
2013 (quarterly)	Former Marine Corps Air Station El Toro Reuse Forum: MCAS El Toro Stakeholders – which included Department of Navy, Heritage Fields, Orange County Great Park, City of Irvine, and County of Orange – met quarterly beginning in 2013 to provide updates on individual projects and future activities on-site.
November 2013– December 2015	Marine Way Stakeholders group—which includes the County, the City of Irvine, the Orange County Transportation Authority, Five Point Communities, Orange County Great Park, Second Harvest Food Bank, the Irvine Company, Caltrans, Irvine Unified School District, and the Irvine Community Church—has met regularly since November 2013 to coordinate planning for Marine Way from Sand Canyon Avenue to Bake Parkway.
January 2014	The Marine Way Policy Group convened and included senior staff and elected officials from the County of Orange, the City of Irvine, the Orange County Transportation Authority, and other participants of the Marine Way Stakeholders group.
April 2014 – December 2014	Great Park Meetings of Adjacent Land Owners: Great Park Adjacent Land Owners — which included the County, the City of Irvine, the Department of Navy, the Orange County Transportation Authority, Five Point Communities, Orange County Great Park, Second Harvest Food Bank, and the Irvine Company — met regularly between April 2014 and December 2014 to coordinate planning for projects at the former MCAS El Toro Base.
January 29, 2014	County formally announced assignment of Lowe Enterprises as the Developer for the County's El Toro parcels (notice published in <i>Orange County Register</i>).

**TABLE 7-1
COMMUNITY OUTREACH SUMMARY**

Meeting Date	Summary
February 27, 2014	City staff, County staff, and Lowe met to discuss the draft Memorandum of Understanding that the County had proposed regarding preparation of Master Land Use Plans for County Property. The attendees included the following: Eric Tolles (City of Irvine), Manuel 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 4, 2014	The County was invited to attend a City Coordination Meeting for the Marine Way Extension and the Heritage Fields Development. Attendees included representatives from the City, Five Point Communities, the Irvine Company, and the County.
May 12, 2014	The County and Lowe met with Mayor Pro Tem Jeffrey Lalloway to brief him on the 100-Acre Land Plan. The attendees included the following: Mike McNerney (Lowe), Rob Reitenour (Lowe), and James Campbell (County).
May 30, 2014	The County met with City staff to present the latest conceptual Master Land Use Plan for the County Property, commonly referred to as the '100-Acre Parcel'.
June 20, 2014	The County and Lowe met with Councilwoman Christina Shea to brief her on the 100-Acre Land Plan. The attendees included the following: Christina Shea, Scott Mayer (County of Orange), James Campbell (County of Orange), Mike McNerney (Lowe), Rob Reitenour (Lowe), Ken Ryan (KTGY), and Geoff Graney (KTGY).
	County staff and Lowe met with Five Point Communities to present the preliminary land use plan and discuss the Irvine Ranch Water District's Sub-Area Master Plan update, the Marine Way CDF fund timing, the anticipated schedule, and the planning status of the Cultural Terrace, and transit-oriented development. The attendees included the following: Brian Myers (Five Point Communities), 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), Ken Ryan (KTGY), Geoff Graney (KTGY), Todd Schmieder (Tait), and Kathleen Brady (BonTerra Psomas).
June 2014	City Coordination Meeting was held for the Extension of Marine Way and Heritage Fields development with representatives from the City, Five Points Communities, the Irvine Company, and the County.
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.
	The Ad Hoc Real Estate Committee, formed by 2 County Supervisors and 2 City Councilmembers, was officially disbanded by the City with a 5-0 vote without ever meeting.
July 25, 2014	County staff, Lowe, and the City of Irvine met to discuss City and County coordination on the 100-Acre 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).

**TABLE 7-1
COMMUNITY OUTREACH SUMMARY**

Meeting Date	Summary
August 4, 2014	A letter was sent 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 100-Acre Parcel and a corresponding schedule with estimated timeframes.
August 6, 2014	City Coordination Meeting was held for the Extension of Marine Way and Heritage Fields development with representatives from the City, Five Point Communities, the Irvine Company, and the County.
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.
August 25, 2014	The County and Lowe met with Councilmember Beth Krom to brief her on the 100-Acre Land Plan. Other attendees included the following: Mike McNerney (Lowe), Rob Reitenour (Lowe), and James Campbell (County of Orange).
August 28, 2014	The County and Lowe met with Mayor Steven Choi to brief him on the 100-Acre Land Plan. Other attendees include the following: Mike McNerney (Lowe), Rob Reitenour (Lowe), and James Campbell (County of Orange).
September 3, 2014	City Coordination Meeting was held for the Extension of Marine Way and the Heritage Fields development with representatives from the City, Five Point Communities, the Irvine Company, and the County.
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 100-Acre Parcel. The attendees included the following: Manuel 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 100-Acre 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 Charette. The attendees included the following: Emile Haddad (Five Point Communities), Jennifer Bohem (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 1, 2014	City Coordination Meeting was held for the Extension of Marine Way and Heritage Fields development with representatives from the City, Five Point Communities, the Irvine Company, and the County. This was the last Coordination Meeting the County was invited to attend.

**TABLE 7-1
COMMUNITY OUTREACH SUMMARY**

Meeting Date	Summary
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 100-Acre Parcel ahead of public release of the Draft EIR. 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).
	The County was invited to attend the initial Five Point Communities, City of Irvine, and Orange County Flood-Control District Coordination meeting regarding the realignment of Marine Way at its proposed crossing with Marshburn Channel.
November 13, 2014	County team, including Fehr & Peers and Lowe, met for the second time with City staff regarding 100-Acre Parcel access points. The City requested additional technical information and traffic modeling to support the identified access point for the 100-Acre Parcel. 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).
November 21, 2014	The County held the 100-Acre Parcel Notice of Preparation Public Scoping Meeting. Other attendees include Eric Tolles and Bill Jacobs from the City of Irvine.
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.
January 2015	The Marine Way Policy Group convened and included senior staff and elected officials from the County of Orange, the City of Irvine, the Orange County Transportation Authority, and other stakeholders.
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.
February 25, 2015	The second Orange County Flood Control District Marine Way Crossing of Marshburn Channel coordination meeting was held with attendees from the Orange County Flood Control District, Five Point Communities, the City of Irvine, and the County of Orange.

**TABLE 7-1
COMMUNITY OUTREACH SUMMARY**

Meeting Date	Summary
March 10, 2015	County staff, Fehr & Peers, and Lowe met with City staff to present traffic modeling information in support of the proposed 100-Acre Parcel access points. The attendees included the following: Barry Curtis (City of Irvine), Manuel Gomez (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).
July 2, 2015	The Irvine Ranch Water District held the Planning Area 51 Sub-Area Master Plan Update Stakeholder 75% Draft Status Meeting. The County of Orange, the City of Irvine, the Irvine Company, and Five Point Communities were present.
July 6-7, 2015	County staff, City Staff, and Lowe Enterprises and Five Point Communities met to discuss El Toro planning. The attendees included the following: Bob Lowe (Lowe), Rick Newman (Lowe), Mike Mc Nerney (Lowe), Rob Reitenour (Lowe), James Campbell (County of Orange), Scott Mayer (County of Orange), Frank Kim (Chief Executive Officer), Supervisor Todd Spitzer (3 rd District County Supervisor), Martha Campbell (Chief of Staff for Supervisor Spitzer), Martin Gardner (Policy Advisor to Supervisor Spitzer), Emile Haddad (Five Point Communities), Lynn Jochim (Five Point Communities), Patrick Strader (Five Point Communities), Councilmember Jeffrey Lalloway (City of Irvine), and Sean Joyce (City of Irvine).
August 25, 2015	County staff, the Irvine Company, Lowe Enterprises, and Fehr & Peers met to review the 100-Acre Parcel traffic sensitivity analysis and impacts. The attendees included the following: James Campbell (County of Orange), John Boslet (the Irvine Company), Rob Reitenour (Lowe), and Chris Gray (Fehr & Peers).
October 2, 2015	County staff, LSA Associates (representing Five Point Communities), Lowe, and Fehr & Peers met to review the 100-Acre Parcel traffic sensitivity analysis and impacts. The attendees included the following: James Campbell (County of Orange), Zoila Finch (County of Orange), Les Card (LSA Associates), Rob Reitenour (Lowe), Keri Dionizio (Lowe), Chris Gray (Fehr & Peers), and Michael Sahimi (Fehr & Peers).
October 23, 2015	The County held a dual Notice of Preparation scoping meeting for the 100-Acre Parcel and the West Alton Parcel. Lisa Thai, Tim Gehrich, and Susan Emery from the City of Irvine attend this meeting.
December 10, 2016	The County, Lowe, and Geosyntec met with the Department of Toxic Substances Control (DTSC) to present an overview of the proposed El Toro, 100-Acre Parcel Project in advance of the release of the Draft EIR. The attendees included the following: Zoila Finch (County of Orange), Rob Reitenour (Lowe Enterprise), Eric Smalstig (Geosyntec Consultants), J. Rich (DTSC), and M. Alonzo (DTSC).
December 11, 2015	The County, Lowe, and Geosyntec met with Santa Ana Regional Water Quality Control Board (SARWQCB) to present an overview of the proposed El Toro, 100-Acre Parcel Project in advance of the release of the Draft EIR. The attendees included the following: Zoila Finch (County of Orange), Rob Reitenour (Lowe Enterprise), Eric Smalstig (Geosyntec Consultants), Patricia Hannon (SARWQCB), and Cindy Li (SARWQCB).
January 19, 2016	The County, Lowe, and Geosyntec met with the Department of Navy (DoN) to present an overview of the proposed 100-Acre Parcel Project in advance of the release of the Draft DEIR. The attendees included the following: Zoila Finch (County of Orange), Rob Reitenour (Lowe Enterprise), Eric Smalstig (Geosyntec Consultants), and Scott Anderson (DoN).

7.2 AGENCY COORDINATION

7.2.1 DEPARTMENT OF THE NAVY

Tony Megliola.....Base Closure Manager
Diane Silva NARA Certified Command Records Manager
James Sullivan BRAC Environmental Coordinator

7.2.2 FEDERAL BUREAU OF INVESTIGATION

Thomas Brown..... Special Agent

7.2.3 CALIFORNIA DEPARTMENT OF TRANSPORTATION

Maureen El Harake..... Branch Chief, Local Development/Intergovernmental Review
Leila CarverAssociate Transportation Planner

7.2.4 COUNTY OF ORANGE

Martha Campbell.....Chief of Staff for Supervisor Spitzer
Martin GardnerPolicy Advisor to Supervisor Spitzer
Frank KimCounty Executive Officer
Shawn Nelson.....Supervisor, 4th District
Todd Spitzer.....Supervisor, 3rd District

7.2.5 ORANGE COUNTY TRANSPORTATION AUTHORITY

Kenneth PhippsDeputy Chief Executive Officer

7.2.6 CITY OF ALISO VIEJO

Michele Vernotico.....Planning Technician

7.2.7 CITY OF IRVINE

City Council Coordination

Steven Choi.....Mayor
Beth Krom..... City Council
Jeffrey Lalloway..... City Council
Christina Shea..... City Council

City Staff Coordination

Sean JoyceCity Manager
Eric Tolles Assistant City Manager for the Orange County Great Park
Susan EmeryDirector of Community Development
Manuel Gomez.....Director of Public Works
Tim Gehrich..... Deputy Director of Community Development
Shohreh Dupuis Deputy Director of Public Works
Mike Ellzey..... CEO for the Orange County Great Park (former)
Barry Curtis..... Manager of Planning and Development Services
Bill JacobsPrincipal Planner
Kerwin Lau Project Development Administrator
Matt Mahoney..... Commander, Portola Area Command
Sun-Sun Murillo..... Supervising Transportation Analyst
Steven Sherwood Senior Civil Engineer
Lisa ThaiSenior Transportation Analyst
Tran Tran, PE.....Senior Transportation Engineer

City Special Counsel

Jeff Melching.....Counsel to the City of Irvine, Rutan & Tucker, LLP

7.2.8 CITY OF LAGUNA BEACH

Ann Larson.....Assistant Director, Community Development
Scott DrapkinPrincipal Planner
Wendy Jung Senior Planner
Martina Speare..... Senior Planner
Anthony VieraAssistant Planner

7.2.9 CITY OF LAKE FOREST

Amanda LaufferAssistant Planner

7.2.10 IRVINE UNIFIED SCHOOL DISTRICT

Donna Jordan Facilities Technician

7.2.11 ORANGE COUNTY PUBLIC LIBRARY

Julia Butler Librarian, Heritage Park Library
Helen Fried County Librarian

7.2.12 ORANGE COUNTY WASTE AND RECYCLING

John Arnau CEQA and Habitat Program Manager

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 FIVE POINT COMMUNITIES

Mike Alvarado Chief Legal Officer
Jennifer Bohlen, PE Executive Vice President – Business Development
Emile Haddad Chief Executive Officer
Lynn Jochim Executive Vice President
Kory Lynch Director of Engineering
Tom Martin Vice President Planning and Product Development
Brian Myers Senior Vice President
Patrick Strader Executive Vice President of Starpointe Ventures

7.3.4 IRVINE COMPANY

John Boslet Vice President of Transportation

7.3.5 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

7.3.6 IN8 SPECIALISTS

John Leonard..... Principal Engineer

7.3.7 LSA ASSOCIATES

Les Card..... Chief Executive Officer

7.3.8 SECOND HARVEST FOOD BANK

J. Schoeningh..... Director of Public Affairs

7.3.9 SOUTHERN CALIFORNIA EDISON

John Morton, C.E.P.E., C.G.P. Offer Manager, Residential New Construction Energy Efficiency

7.3.10 STANTEC

Robert Reid..... Senior Associates

7.3.11 UNIVERSITY OF CALIFORNIA, DAVIS

Michael Siminovitch Professor, Department of Design, Rosenfeld Chair in Energy Efficiency,
Director – CLTC, Associate Director, Energy Efficiency Center

This page intentionally left blank

8.0 LIST OF PREPARERS

8.1 COUNTY OF ORANGE

8.1.1 CEO REAL ESTATE/LAND DEVELOPMENT

James Campbell Manager of Land Development

Scott Mayer Chief Real Estate Officer

Eric E. Hull, AICP Real Estate Manager

Zoila Finch Real Estate Manager

Channary Gould Real Estate Manager

Yasie Malek Staff Specialist

8.1.2 ORANGE COUNTY PUBLIC WORKS

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

Robert R. Reitenour Senior Vice President

Michael McNerney Senior Vice President

Keri Dionizio Assistant Project Manager

8.3 CONSULTANTS

8.3.1 BONTERRA PSOMAS

Kathleen Brady, AICP Principal

Alia Hokuki, AICP Senior Project Manager

James Kurtz Director, Air Quality, Noise, and Greenhouse Gases

Patrick Maxon, RPA Director, Cultural Resources

Amber Heredia Senior Project Manager

List of Preparers

Stacie Tennant..... Senior Project Manager
Steve Norton Senior Project Manager
Josephine Alido, AICP..... Project Manager
Julie A. Cho Project Manager
Alison Rudalevige Senior Biologist
Ian Cain..... Botanist
Megan Larum..... Environmental Planner
Daria Sarraf 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
Jennifer Chung..... 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

8.3.6 KTG GROUP, INC.

Ken Ryan..... Principal

John Moreland..... Project Manager

Geoff Graney..... Design Director

Johanna Crooker..... Senior Planner

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

This page intentionally left blank