

**DRAFT
ENVIRONMENTAL IMPACT REPORT (EIR No. 628)
FOR THE
BREA BOULEVARD CORRIDOR IMPROVEMENT PROJECT
SCH # 2017051005**

VOLUME 1 OF 4

Prepared for:

Orange County Public Works
601 N. Ross Street
Santa Ana, CA 92701
Austin Morgan, P.E., Project Management

Prepared by:

AECOM
999 Town & Country Road
Orange, CA 92868
Jerry Flores, Project Manager

November 2022

This page intentionally left blank.

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
GLOSSARY OF ACRONYMS AND ABBREVIATIONS	ix
1.0 EXECUTIVE SUMMARY	1-1
1.1 Description of the Project	1-1
1.1.1 Project Background and Location	1-1
1.1.2 Environmental Setting and Existing Conditions	1-1
1.1.3 Project Purpose, Need, and Benefits	1-1
1.1.4 Project Objectives	1-2
1.1.5 Description of the Project.....	1-2
1.2 Summary of Impacts.....	1-8
1.3 Alternatives	1-8
1.3.1 Summary of Alternatives	1-8
1.3.2 Environmentally Superior Alternative	1-33
1.3.3 Summary of the Alternatives’ Ability To Meet the Project Objectives	1-33
1.4 Areas of Known Controversy.....	1-35
2.0 INTRODUCTION	2-1
2.1 Purpose of this Draft EIR.....	2-1
2.1.1 Authority	2-1
2.1.2 Preparation of the Draft EIR	2-1
2.1.3 Incorporation by Reference.....	2-1
2.1.4 Intended Uses of the EIR	2-2
2.1.5 Agencies Having Jurisdiction/Potential Discretionary Actions	2-3
2.1.6 Availability of the Draft EIR.....	2-3
2.2 Methodology.....	2-4
2.2.1 Existing Conditions.....	2-4
2.2.2 Thresholds of Significance.....	2-4
2.2.3 Methodology Related to Each Environmental Parameter	2-4
2.2.4 Environmental Impact Analysis	2-4
2.2.5 Mitigation Measures.....	2-4
2.2.6 Level of Significance After Mitigation	2-5
2.3 Background.....	2-5
2.3.1 Notice of Preparation and Public Scoping	2-5
3.0 PROJECT DESCRIPTION.....	3-1
3.1 Project Background and Location.....	3-1
3.2 Environmental Setting and Existing Conditions.....	3-1
3.3 Project Purpose, Need, and Benefits	3-4
3.4 Project Objectives	3-4
3.5 Description of the Project	3-5
3.5.1 Roadway Widening.....	3-5
3.5.2 Bridge Replacement, Vertical Alignment, and Culvert Crossing Modifications	3-5
3.5.3 Horizontal Alignment, Superelevation, and Slope Cut	3-7
3.5.4 Wildlife Movement Enhancements.....	3-7
3.5.5 Right-of-Way Acquisition, Driveway Access, and Utility Relocations.....	3-8

3.5.6 Intersection Signalization, Open Graded Asphalt Concrete, Striping, and Signage 3-9

3.5.7 Construction 3-9

3.5.8 Operation, Maintenance, and Best Management Practices 3-10

3.5.9 Permits, Regulatory Approvals, and Agencies Expected To Use This Draft EIR 3-11

4.0 EFFECTS FOUND NOT TO BE SIGNIFICANT 4-1

4.1 Agriculture and Forestry Resources 4-1

4.2 Air Quality 4-2

4.3 Biological Resources 4-3

4.4 Geology and Soils 4-3

4.5 Hazards and Hazardous Materials 4-3

4.6 Hydrology and Water Quality 4-4

4.7 Land Use and Planning..... 4-4

4.8 Mineral Resources..... 4-5

4.9 Noise 4-5

4.10 Population and Housing 4-5

4.11 Public Services 4-6

4.12 Recreation 4-7

4.13 Utilities and Service Systems 4-7

5.0 EXISTING CONDITIONS, IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION 5.1-1

5.1 Aesthetics 5.1-1

5.1.1 Existing Conditions..... 5.1-1

5.1.2 Thresholds of Significance..... 5.1-5

5.1.3 Methodology Related To Aesthetics 5.1-5

5.1.4 Potential Impacts 5.1-6

5.1.5 Mitigation Measures..... 5.1-11

5.1.6 Level of Significance After Mitigation 5.1-11

5.2 Air Quality 5.2-1

5.2.1 Existing Conditions..... 5.2-1

5.2.2 Thresholds of Significance..... 5.2-11

5.2.3 Methodology Related To Air Quality 5.2-13

5.2.4 Potential Impacts..... 5.2-15

5.2.5 Mitigation Measures..... 5.2-19

5.2.6 Level of Significance After Mitigation 5.2-20

5.3 Biological Resources 5.3-1

5.3.1 Existing Conditions..... 5.3-1

5.3.2 Thresholds of Significance..... 5.3-27

5.3.3 Methodology Related To Biological Resources..... 5.3-28

5.3.4 Potential Impacts 5.3-29

5.3.5 Mitigation Measures..... 5.3-51

5.3.6 Level of Significance After Mitigation 5.3-57

5.4 Cultural Resources 5.4-1

5.4.1 Existing Conditions..... 5.4-1

5.4.2 Thresholds of Significance..... 5.4-6

5.4.3 Methodology Related To Cultural Resources 5.4-6

5.4.4 Potential Impacts..... 5.4-8

5.4.5 Mitigation Measures..... 5.4-10

	5.4.6	Level of Significance After Mitigation	5.4-11
5.5		Geology and Soils	5.5-1
	5.5.1	Existing Conditions.....	5.5-1
	5.5.2	Thresholds of Significance.....	5.5-3
	5.5.3	Methodology Related To Geology and Soils	5.5-3
	5.5.4	Potential Impacts.....	5.5-4
	5.5.5	Mitigation Measures.....	5.5-7
	5.5.6	Level of Significance After Mitigation	5.5-7
5.6		Greenhouse Gas Emissions and Energy.....	5.6-1
	5.6.1	Existing Conditions.....	5.6-1
	5.6.2	Thresholds of Significance.....	5.6-10
	5.6.3	Methodology Related To GHG Emissions and Energy	5.6-11
	5.6.4	Potential Impacts.....	5.6-13
	5.6.5	Mitigation Measures.....	5.6-17
	5.6.6	Level of Significance After Mitigation	5.6-17
5.7		Hazards and Hazardous Materials	5.7-1
	5.7.1	Existing Conditions.....	5.7-1
	5.7.2	Thresholds of Significance.....	5.7-9
	5.7.3	Methodology Related To Hazards and Hazardous Materials.....	5.7-9
	5.7.4	Potential Impacts.....	5.7-10
	5.7.5	Mitigation Measures.....	5.7-11
	5.7.6	Level of Significance After Mitigation	5.7-13
5.8		Hydrology and Water Quality	5.8-1
	5.8.1	Existing Conditions.....	5.8-1
	5.8.2	Thresholds of Significance.....	5.8-5
	5.8.3	Methodology Related To Hydrology and Water Quality	5.8-6
	5.8.4	Potential Impacts.....	5.8-6
	5.8.5	Mitigation Measures.....	5.8-8
	5.8.6	Level of Significance After Mitigation	5.8-9
5.9		Land Use and Planning.....	5.9-1
	5.9.1	Existing Conditions.....	5.9-1
	5.9.2	Thresholds of Significance.....	5.9-4
	5.9.3	Methodology Related To Land Use and Planning	5.9-4
	5.9.4	Potential Impacts.....	5.9-5
	5.9.5	Mitigation Measures.....	5.9-20
	5.9.6	Level of Significance After Mitigation	5.9-20
5.10		Noise and Vibration.....	5.10-1
	5.10.1	Existing Conditions.....	5.10-1
	5.10.2	Thresholds of Significance.....	5.10-7
	5.10.3	Methodology Related To Noise and Vibration	5.10-11
	5.10.4	Potential Impacts.....	5.10-13
	5.10.5	Mitigation measures	5.10-18
	5.10.6	Level of Significance After Mitigation	5.10-18
5.11		Transportation and Traffic	5.11-1
	5.11.1	Existing Conditions.....	5.11-1
	5.11.2	Thresholds of Significance.....	5.11-6
	5.11.3	Methodology Related To Transportation and Traffic	5.11-6
	5.11.4	Potential Impacts.....	5.11-9
	5.11.5	Mitigation Measures.....	5.11-36
	5.11.6	Level of Significance After Mitigation	5.11-37

5.12 Tribal Cultural Resources 5.12-1
 5.12.1 Existing Conditions..... 5.12-1
 5.12.2 Thresholds of Significance..... 5.12-2
 5.12.3 Methodology Related To Tribal Cultural Resources 5.12-3
 5.12.4 Potential Impacts..... 5.12-4
 5.12.5 Mitigation Measures..... 5.12-6
 5.12.6 Level of Significance After Mitigation 5.12-6
 5.13 Wildfire..... 5.13-1
 5.13.1 Existing Conditions..... 5.13-1
 5.13.2 Thresholds of Significance..... 5.13-8
 5.13.3 Methodology Related To Wildfire 5.13-8
 5.13.4 Potential Impacts..... 5.13-8
 5.13.5 Mitigation Measures..... 5.13-10
 5.13.6 Level of Significance After Mitigation 5.13-12
 6.0 ALTERNATIVES TO THE PROJECT 6-1
 6.1 Overview 6-1
 6.2 Project Objectives 6-1
 6.3 Alternatives Considered 6-2
 6.4 Alternative 1 – No Project (No Build)..... 6-2
 6.4.1 Description of Alternative 1 6-2
 6.4.2 Impacts of Alternative 1 6-3
 6.4.3 Summary of Alternative 1 6-5
 6.5 Alternative 2 – Standard Primary Arterial 4-Lane Divided Highway 6-6
 6.5.1 Description of Alternative 2..... 6-6
 6.5.2 Impacts of Alternative 2..... 6-6
 6.5.3 Summary of Alternative 2 6-12
 6.6 Alternative 3 – 4-Phase Project Construction Approach Timeline 6-13
 6.6.1 Description of Alternative 3 6-13
 6.6.2 Impacts of Alternative 3 6-14
 6.6.3 Summary of Alternative 3 6-16
 6.7 Environmentally Superior Alternative 6-17
 6.8 Summary of the Alternatives’ Ability to Meet the Project Objectives..... 6-19
 6.9 Alternatives Considered and Withdrawn from Further Consideration..... 6-19
 7.0 GROWTH INDUCING IMPACTS 7-1
 7.1 Introduction..... 7-1
 7.2 Growth Inducing Impacts Related to the Proposed Project 7-1
 8.0 CUMULATIVE IMPACTS..... 8-1
 8.1 Introduction..... 8-1
 8.2 Cumulative Projects..... 8-1
 8.3 Cumulative Impacts Analysis..... 8-2
 8.3.1 Cumulative Impacts Related To Aesthetics 8-2
 8.3.2 Cumulative Impacts Related To Air Quality..... 8-12
 8.3.3 Cumulative Impacts Related To Biological Resources 8-12
 8.3.4 Cumulative Impacts Related To Cultural Resources 8-13
 8.3.5 Cumulative Impacts Related To Geology and Soils 8-14
 8.3.6 Cumulative Impacts Related To Greenhouse Gas Emissions and Energy 8-14
 8.3.7 Cumulative Impacts Related To Hazards and Hazardous Materials 8-15
 8.3.8 Cumulative Impacts Related To Hydrology and Water Quality 8-15

8.3.9 Cumulative Impacts Related To Land Use and Planning..... 8-16

8.3.10 Cumulative Impacts Related To Noise..... 8-16

8.3.11 Cumulative Impacts Related To Transportation 8-17

8.3.12 Cumulative Impacts Related To Tribal Cultural Resources..... 8-19

8.3.13 Cumulative Impacts Related To Wildfire 8-19

9.0 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES.....9-1

10.0 UNAVOIDABLE ADVERSE IMPACTS..... 10-1

10.1 Aesthetics 10-1

10.2 Noise and Vibration..... 10-2

10.3 Transportation and Traffic 10-3

11.0 LIST OF PREPARERS..... 11-1

11.1 OC Public Works 11-1

11.2 AECOM..... 11-1

12.0 REFERENCES 12-1

APPENDICES (Volume 2 of 4)

- A 2017 Notice Of Preparation (NOP), Initial Study, and Distribution List
- B 2017 NOP/IS Written Comments Letters and Cards
- C 2019 Updated Notice Of Preparation (NOP), Initial Study, and Distribution List
- D 2019 Updated NOP/IS Written Comments Letters and Cards
- E Air Quality and Greenhouse Gas Emissions Technical Report
- F Biological Technical Report
- G Aquatic Resource Delineation Report
- H Wildlife Movement Study
- I Cultural, Historical, and Paleontological Resources Assessment

APPENDICES (Volume 3 of 4)

- J Geotechnical Engineering Reports

APPENDICES (Volume 4 of 4)

- K Energy Impact Analysis
- L Hazardous Materials Assessment
- M Final Design Hydraulic Study
- N Noise Impact Analysis
- O Traffic Impact Analysis Report
- P Alternatives Analysis Memos

LIST OF FIGURES

<u>Figure</u>	<u>Page</u>
3-1	Regional Map 3-2
3-2	Vicinity Map 3-3
3-3	Proposed Project 3-6
5.1-1	Key View Simulation Locations 5.1-2
5.1-2	Key View Simulation 1: Retaining Wall 5.1-9
5.1-3	Key View Simulation 2: Land Bridge 5.1-10
5.3-1a	Vegetation Communities (Existing Conditions) 5.3-5
5.3-1b	Vegetation Communities (Existing Conditions) 5.3-6
5.3-1c	Vegetation Communities (Existing Conditions) 5.3-7
5.3-1d	Vegetation Communities (Existing Conditions) 5.3-8
5.3-2	The Missing Middle of the Puente-Chino Hills Wildlife Corridor 5.3-16
5.3-3	USFWS-Designated Critical Habitat 5.3-25
5.3-4	Jurisdictional Delineation (Existing Conditions) 5.3-26
5.3-5a	Vegetation Communities (Proposed Project) 5.3-31
5.3-5b	Vegetation Communities (Proposed Project) 5.3-32
5.3-5c	Vegetation Communities (Proposed Project) 5.3-33
5.3-5d	Vegetation Communities (Proposed Project) 5.3-34
5.3-6a	Jurisdictional Delineation (Proposed Project) 5.3-45
5.3-6b	Jurisdictional Delineation (Proposed Project) 5.3-46
5.3-6c	Jurisdictional Delineation (Proposed Project) 5.3-47
5.3-6d	Jurisdictional Delineation (Proposed Project) 5.3-48
5.3-6e	Jurisdictional Delineation (Proposed Project) 5.3-49
5.7-1a	Grid Map 106 of Environmental Record Search 5.7-3
5.7-1b	Grid Map 107 of Environmental Record Search 5.7-4
5.7-1c	Grid Map 110 of Environmental Record Search 5.7-5
5.7-1d	Grid Map 111 of Environmental Record Search 5.7-6
5.9-1	Surrounding General Plan Land Use 5.9-2
5.9-2	Surrounding Zoning Designations 5.9-3
5.10-1	City of Brea Noise/Land Use Compatibility Matrix 5.10-4
5.10-2	Noise Measurement Locations 5.10-8
5.10-3	Modeled Receiver Locations 5.10-9
5.11-1	Project Location and Study Area Intersections 5.11-2
5.13-1	Fire Responsibility Areas 5.13-4
5.13-2	Fire Hazard Severity Zones 5.13-5
8-1	Cumulative Projects 8-11

LIST OF TABLES

<u>Table</u>	<u>Page</u>
1-1	Summary of Impacts, Mitigation Measures and Level of Significance After Mitigation1-9
1-2	Comparison of the Environmental Impacts of All Project Alternatives1-34
2-1	List of Potential Responsible Agencies or Agencies Who Will Issue Permits or Approvals.....2-2
2-2	Summary of Written Comments in Response to the 2017 NOP/IS And Public Scoping Meetings2-6
2-3	Summary of Written Comments in Response to the 2019 Updated NOP/IS and Public Scoping Meeting.....2-19
5.2-1	California and National Ambient Air Quality Standards.....5.2-4
5.2-2	Ambient Air Quality Summary5.2-6
5.2-3	South Coast Air Basin Attainment Designations.....5.2-7
5.2-4	SCAQMD Air Quality Significance Thresholds5.2-12
5.2-5	SCAQMD Localized Significance Thresholds.....5.2-13
5.2-6	Maximum Daily Unmitigated Construction-Related Emissions5.2-17
5.2-7	Localized Construction-Related Emissions5.2-17
5.3-1	Vegetation Communities and Land Cover Types in the BSA5.3-4
5.3-2	Waters of the U.S. Within the BSA5.3-24
5.3-3	Waters of the State Within the BSA5.3-27
5.3-4	Permanent and Temporary Impacts To Vegetation Communities and Land Cover Types in the Project Limits.....5.3-29
5.3-5	Permanent and Temporary Impacts To Sensitive Natural Vegetation Communities5.3-39
5.3-6	Potential Impacts To Waters of the United States5.3-42
5.3-7	Potential Impacts To Waters of the State and CDFW Streambed and Riparian Habitat5.3-43
5.6-1	Construction Fuel Consumption5.6-14
5.6-2	Fuel Consumption Total and Amortized Over 30 Years5.6-15
5.6-3	Construction Fuel Consumption5.6-15
5.9-1	Project Consistency With City of Brea and County of Orange General Plans5.9-5
5.9-2	Acquisition By APN, Owner, and Type and amount of acquisition.....5.9-16
5.9-3	Utility and Oil Field Equipment Relocations5.9-20
5.10-1	Relationship Between Noise Level Change and Perceived Change5.10-1
5.10-2	Vibration Annoyance Criteria.....5.10-2
5.10-3	Vibration Damage Potential Threshold Criteria5.10-3
5.10-4	Noise Measurement Summary5.10-6
5.10-5	Predicted Existing Noise Levels (L _{eq} , dBA)5.10-10
5.10-6	Recommended Noise and Vibration Impact Thresholds5.10-11
5.10-7	Traffic Noise Model Validation Summary5.10-12
5.10-8	Modeled Roadway Configurations5.10-12
5.10-9	Construction Equipment Reference Vibration Levels5.10-13
5.10-10	Construction Equipment and Typical Noise Levels5.10-14
5.10-11	Predicted Noise Levels (L _{eq} , dBA).....5.10-16
5.10-12	Noise Measurement Summary.....5.10-17
5.11-1	2019 (Existing) Intersection Conditions5.11-5
5.11-2	2019 (Existing) Roadway Segment Conditions.....5.11-6
5.11-3	Intersection Los Descriptions5.11-8
5.11-4	Arterial Highways MPAH Capacity Values5.11-9
5.11-5	No Project Construction (2028) Intersection Conditions5.11-11

**LIST OF TABLES
(Continued)**

<u>Table</u>	<u>Page</u>
5.11-6 No Project Construction (2028) Roadway Segment Conditions	5.11-12
5.11-7 Project Construction Trip Generation Summary	5.11-13
5.11-8 Project Construction (2028) Without Detour Intersection Conditions	5.11-15
5.11-9 Project Construction (2028) Without Detour Roadway Segment Conditions	5.11-16
5.11-10 Project Construction (2028) With Detour Intersection Conditions	5.11-18
5.11-11 Project Construction (2028) With Detour Roadway Segment Conditions	5.11-20
5.11-12 2019 Plus Project Intersection Conditions.....	5.11-23
5.11-13 2019 Plus Project Roadway Segment Conditions.....	5.11-24
5.11-14 Future Buildout (2045) No Project Intersection Conditions.....	5.11-25
5.11-15 Future Buildout (2045) No Project Roadway Segment Conditions.....	5.11-26
5.11-16 Future Buildout (2045) Plus Project Intersection Conditions.....	5.11-27
5.11-17 Future Buildout (2045) Plus Project Roadway Segment Conditions	5.11-31
5.11-18 Project Construction Trip Generation Summary	5.11-33
6-1 Comparison of the Environmental Impacts of All Project Alternatives	6-18
8-1 Summary of Cumulative Projects Located Approximately 2-Miles of the Project.....	8-3

GLOSSARY OF ACRONYMS AND ABBREVIATIONS

A1 (O)	General Agricultural with Oil Production Overlay
AADT	Annual Average Daily Traffic
AAI	All Appropriate Inquiry
AASHTO	American Association of State Highway and Transportation Officials
AASHTO LRFD	American Association of State Highway and Transportation Officials Load and Resistance Factor Design
AB	Assembly Bill
AC	asphalt-concrete
ADT	Average Daily Traffic
AELUPs	Airport Land Use Plan
AFY	acre-feet per year
Amsl	above mean sea level
APE	area of potential effects
APN	assessor parcel number
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
ASTM	American Society for Testing and Materials
ATCMs	Airborne Toxic Control Measures
AZTEC	AZTEC Engineering Group
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BSA	Biological Study Area
BMPs	Best Management Practices
Btu	British thermal units
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalGEM	California Geologic Energy Management Division
CalOSHA	California Division of Occupational Safety and Health
Caltrans	California Department of Transportation
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CGP	Construction General Permit
CGS	California Geological Survey
CH ₄	methane
CHRIS	California Historic Resources Information System
CIP	cast-in-place
CIDH	cast-in-drilled-hole
CMP	Congestion Management Program
CNDDB	California Natural Diversity Data Base
CNEL	Community Noise Equivalent Level

CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	CO ₂ -equivalent
CPT	Cone Penetrometer Test
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CTR	California Toxics Rule
CWA	Clean Water Act
CY	Cubic Yards
dB	decibels
dBA	decibels on the “A”-weight scale
Delineation Report	Aquatic Resource Delineation Report
Draft EIR	Draft Environmental Impact Report
DWR	California Department of Water Resources
EIR	Environmental Impact Report
Emergency Plan	Construction Emergency Access/Response and Fire Prevention Plan
EO	Executive Order
EPA	United States Environmental Protection Agency
ERS	Environmental Record Search
°F	Fahrenheit
FEMA	Federal Emergency Management Agency
FESA	federal Endangered Species Act
FDP	Fugitive Dust Plan
FHWA	Federal Highway Administration
GHG	greenhouse gas
GMP	Growth Management Plan
gpm	gallons per minute
GSA	Groundwater Sustainability Agency
GWP	Global Warming Potential
HCM	Highway Capacity Manual
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HMA	Hazardous Materials Assessment
HMMP	Habitat Mitigation and Monitoring Plan
ICU	Intersection Capacity Utilization
IS	Initial Study
ISHBs	invasive shot hole borers (includes Polyphagous and Kuroshio)
LCFS	low carbon fuel standard
L _{eq}	equivalent sound level
L _{eq} (1-hour)	1-hour equivalent sound level (the sound energy averaged over a continuous 1-hour period)
LHMP	local hazard mitigation plan
LID	Low Impact Development

L _{max}	Maximum Noise Level
LOS	Level of Service
LSAA	Lake and Streambed Alteration Agreement
LSTs	localized significant thresholds
LUST	Leaking Underground Storage Tank
MATES	Multiple Air Toxics Exposure Study
MBTA	Migratory Bird Treaty Act
MCV	The Manual of California Vegetation
mg/m ³	milligrams per cubic meter
MLD	Most Likely Descendant
MMBtu	Million British thermal units
MMT	million metric tons
MPAH	Master Plan of Arterial Highways
MPH	miles per hour
MRZ-3	Mineral Resource Zone 3
MS4	Municipal Separate Storm Sewer System
MSAA	Master Streambed Alteration Agreement
MT	metric tons
MUN	Municipal and Domestic Supply
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NCCP	Natural Communities Conservation Plan
NHTSA	National Highway Traffic Safety Administration
NO _x	nitrogen oxides
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historical Places
OCFA	Orange County Fire Authority
OCFCD	Orange County Flood Control District
OC Public Works	Orange County Public Works
OCTA	Orange County Transportation Authority
OCTAM	Orange County Traffic Analysis Model
OCWD	Orange County Water District
OEHHA	Office of Environmental Health Hazard Assessment
OGAC	open graded asphalt concrete
OGW-CA	California Oil and Gas Wells
OPR	California Office of Planning and Research
P-D	Precise Development
PCC	Portland Cement Concrete
PFCs	perfluorocarbons
PM _{2.5}	particulate matter less than 2.5 microns in diameter
PM ₁₀	particulate matter less than 10 microns in diameter
ppb	parts per billion
ppm	parts per million
PPV	peak particle velocity
PRC	Public Resources Code
Project	Brea Boulevard Corridor Improvement Project

RCRA	Resource Conservation and Recovery Act
RECs	recognized environmental conditions
Reporting Rule	Greenhouse Gas Reporting Rule
ROGs	reactive organic gases
RPS	Renewables Portfolio Standard
RTP	Regional Transportation Plan
R/W	right-of-way
RWQCB	Regional Water Quality Control Board
SAFE Rule	Safer Affordable Fuel-Efficient Vehicles Rule
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCH	State Clearinghouse
Scoping Plan	Climate Change Scoping Plan
SCS	Sustainable Community Strategies
SF	square feet
SF ₆	sulfur hexafluoride
SGMA	California Sustainable Groundwater Management Act
SIP	State Implementation Plan
SLF	Sacred Lands File
SLM	sound level meter
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	sulfur dioxide
SoCalGas	Southern California Gas Company
SO _x	sulfur oxide
SR-57	State Route 57
SSC	Species of Special Concern
study area	traffic impact study area
s/veh	seconds per vehicle
SWPPP	Stormwater Pollution and Prevention Plan
SWRCB	State Water Resources Control Board
TACs	toxic air contaminants
THSP	Tonner Hills Community and Area Plan (Tonner Hills Specific Plan)
TNM	Traffic Noise Model
µg/m ³	micrograms per cubic meter
U.S.	United States
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
V/C	volume to capacity
VMT	vehicle miles traveled
vpd	vehicles per day
vph	vehicles per hour

WFZ	Whittier Fault Zone
WPCP	Water Pollution Control Program
WQMP	Water Quality Management Plan

This page intentionally left blank.

1.0 EXECUTIVE SUMMARY

1.1 DESCRIPTION OF THE PROJECT

1.1.1 PROJECT BACKGROUND AND LOCATION

Orange County Public Works (OC Public Works) has identified the need to widen Brea Boulevard consistent with the Orange County Transportation Authority (OCTA) Master Plan of Arterial Highways (MPAH) (OCTA 2020). The Brea Boulevard Corridor Improvement Project (Project) is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”).

1.1.2 ENVIRONMENTAL SETTING AND EXISTING CONDITIONS

Brea Boulevard is a 30-foot-wide, two-lane, undivided highway (one lane in each direction) with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. Other portions of the roadway are improved with curb, gutter, and sidewalk. The posted speed limit is 55 miles per hour (MPH) in the unincorporated portion of the corridor, and 45 MPH in the City of Brea at the southern end of the corridor. Brea Boulevard has remained unchanged since the roadway was realigned to its present configuration between 1928 and 1930 with right-of-way (R/W) width that varies between 60 to 100 feet.

There are three bridges crossing Brea Creek within the corridor: a two-span reinforced concrete slab bridge constructed circa 1920 and widened circa 1929 (Bridge 1 [#55C0121]), a two-span reinforced concrete T-beam bridge constructed circa 1930 (Bridge 2 [#55C0122]), and a three-span reinforced concrete T-beam bridge constructed circa 1939 (Bridge 3 [#55C0123]). In addition to the three bridges there are approximately thirteen existing culvert crossings (for drainage or utilities or both).

The following land uses surround the corridor:

- North of the corridor is an active oil field and natural open space within unincorporated Orange County. Much of this area is property owned by Cal Resources LLC and Brea Hills LLC. North of the eastern end of the corridor on property owned by Cal Resources LLC is a commercial vehicle storage facility for several lessees.
- East of the corridor is SR-57 and Tonner Canyon Road.
- South and west of the corridor is the City of Brea and associated residential areas, with general commercial and public facility land uses. Immediately south of the middle stretch of the corridor are steep slopes containing additional oil field activity and the Humble Reservoir.

1.1.3 PROJECT PURPOSE, NEED, AND BENEFITS

Brea Boulevard presently meets the classification for a Collector Arterial Highway in the Orange County General Plan Transportation Element (2020), which should accommodate between 7,500 to 10,000 Average Daily Traffic (ADT, is the number of vehicles two-way passing a specific point in a 24-hour period). With traffic volumes for Brea Boulevard between 17,000 to 22,000 ADT as of November 4, 2019, the roadway should match the OCTA MPAH designation for a Primary Arterial Highway which can accommodate 20,000 to 30,000 ADT.

The three bridges within the corridor are functionally obsolete, meaning they have exceeded their design lives, do not have the adequate geometry to accommodate the proposed corridor improvements, and should be replaced. Replacing the bridges will present an opportunity to increase the flood conveyance under the bridges to current design standards and avoid emergency response delays during larger storm events.

The Project is located along the southern perimeter of a regional wildlife corridor, Puente Hills-Chino Hills Wildlife Corridor, that connects the Santa Ana Mountains in the southeast to the Whittier Hills area to the northwest. Enhancing wildlife movement will conserve and provide greater connectivity for wildlife while potentially reducing the risk for wildlife collisions with traffic.

Throughout the corridor, sight distance (the distance a driver can see unobstructed) does not meet current design standards and the Project provides an opportunity to enhance driver sight distance.

Currently, there are multiple driveways throughout the corridor that serve as access for the adjacent active oil field. There is an opportunity with the Project to improve and enhance the ingress and egress to limit potential traffic delays from large, specialized equipment accessing the field.

The intersection of Brea Boulevard and Tonner Canyon Road is an unsignalized, three-way T-intersection with stop control on Tonner Canyon Road. Motorists on Tonner Canyon Road suffer undue delay at Brea Boulevard, and traffic control features will be added to improve traffic flow at this intersection as part of the Project.

1.1.4 PROJECT OBJECTIVES

Project objectives include the following:

- Improve Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the MPAH;
- Replace three functionally obsolete bridges over Brea Creek with bridges that meet current design standards;
- Increase flood conveyance of Brea Creek under the three bridges;
- Enhance safe wildlife movement across the roadway within the corridor;
- Improve roadway to meet current design standards;
- Redesign the Brea Boulevard/Tonner Canyon Road intersection;
- Minimize impacts to the surrounding habitat and wildlife; and
- Minimize impacts to above/underground utilities.

1.1.5 DESCRIPTION OF THE PROJECT

The Project involves widening Brea Boulevard from two to four lanes (two lanes each direction) between Canyondale Drive and the northern end of the corridor (approximately 1.5 miles), replacing and widening three functionally obsolete bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge, adding open graded asphalt concrete paving (OGAC) at the southern end of the corridor, and providing striping and installing new signage. Construction of these improvements would be conducted within permanent and temporary limits of disturbance along the corridor (i.e., the project limits).

The Project's main elements are described below. Please refer to Section 3.0 (Project Description) of this Draft EIR for additional detailed descriptions of the design features.

1.1.5.1 Roadway Widening

Brea Boulevard will be widened from two to four lanes (two lanes each direction) with 12 feet wide lanes, shoulders that will vary from 6 feet to 10 feet wide, and a median that is either 12 feet wide raised with limited landscaping, 6 feet wide with a concrete barrier, or striped of varying widths. Widening would occur between Canyondale Drive and the SR-57 southbound on-ramp, a total length of approximately 8,100 linear feet or 1.5 miles. In an effort to limit the footprint of the Project the design will utilize a modified Primary Arterial Highway per OC Public Works' Standard Plan 1103 for Standard Street Sections (OC Public Works 2018) which includes: R/W width less than 100 feet; reducing the median width to less than 14 feet; and no sidewalk throughout the limits within unincorporated County. Within the City of Brea, the roadway section will be a modified Primary Arterial Highway Section per City of Brea's Standard Plan 109-0 (City of Brea 2013a) to match the existing roadway configuration south of the corridor by reducing the shoulder width.

1.1.5.2 Bridge Replacement, Vertical Alignment, and Culvert Crossing Modifications

Road widening will require replacement of the three bridges within the corridor, all of which are over 80 years old and functionally obsolete. The creek underneath Bridge 2, and Bridge 3 will be converted from concrete to a natural soft bottom and Bridge 1 will remain a natural soft bottom. To increase the hydraulic capacity underneath the three bridges, the height and span of each bridge will increase. The new bridge sections are considered a modified Primary Arterial Highway Bridge Sections per OC Public Work's Standard Plan 1104 for Standard Street Sections (OC Public Works 2018) because the median width is increased but it will not include a sidewalk.

The vertical alignment (road elevation) of the road between Canyon Country Road to after Bridge 3 will increase by 5 feet or less to increase the elevation of the bridge decks which increases hydraulic capacity while not impacting Brea Creek, reduce the volume of exported material from cut slopes, and reduce the retaining wall height at the curve within the corridor.

There are approximately 13 culvert crossings (for drainage or utilities or both) that will need to be extended or reconfigured as part of the widening.

Bridge replacement and culvert work will require dewatering¹. Dewatering will consist of sand bag cofferdams to divert the water around the piers and abutments depending on phasing of the Project. Additionally, Bridges 1, 2, and 3 will each require abutment facing walls that will extend to 10 feet below the creek surface, which may result in the need to temporarily pump groundwater from the vicinity of the proposed walls during installation. Also, if a bridge requires full closure for construction, surface dewatering may consist of temporary pumping from upstream of bridge to downstream.

¹ For construction work within wet conditions (such as for culverts and bridges) water needs to be removed from the work area to avoid soil erosion and provide a safe workspace.

1.1.5.3 Horizontal Alignment, Superelevation, and Slope Cut

The horizontal alignment of the existing roadway will be modified to increase sight distance and minimize the footprint of the Project. The horizontal curves between Canyon Country Road and Bridge 3, will vary from the original alignment to increase the radius to soften the curve².

East of Bridge 3, two new horizontal curves will be added to slightly shift the roadway to the north to minimize the impact to utilities on the south. A third horizontal curve will shift the roadway back to its original alignment at the intersection of Brea Boulevard and Tonner Canyon Road.

Throughout the corridor, a superelevation (i.e., angle of roadway banking within the turn) will be implemented in accordance with applicable roadway design standards so that roadway users can comfortably navigate the roadway within unincorporated County at the design speed of 45 to 55 MPH.

Due to the steep topography of the area adjacent to the roadway, stability of roadway cut and fill will require approximately 16 retaining walls throughout the corridor. Typical wall heights vary from 8 feet to 32 feet with an average of approximately 20 feet along the corridor. One wall, located at the “bend”, will be approximately 60 feet tall.

1.1.5.4 Wildlife Movement Enhancements

To enhance wildlife movement across Brea Boulevard between Bridge 1 and Tonner Canyon Road, the three existing bridges (and their undercrossings) will be widened and a new wildlife overpass/land bridge would be constructed.

All three existing bridges will be enlarged/expanded, resulting in their openness ratios³ being increased. The existing bridge designs have two to three internal support walls that will be eliminated with the new bridge designs. Hence the openness ratio post-construction will be greatly improved for Bridges 1, 2, and 3. Because existing culverts will need to be lengthened commensurate with the wider roadway, their openness ratios will decrease if their cross sections are not also expanded. Widening of some culverts would occur where culverts have the potential to function for small animal passage, along with improvements such as using alternative erosion treatments (e.g., articulated hydraulic block) at culvert outlets in lieu of other more common treatments that limit wildlife passage such as rock rip-rap.

A new wildlife overpass/land bridge would be installed approximately 550 feet west of the Brea Boulevard/Tonner Canyon Road intersection, where the roadway is presently situated approximately 25 feet lower than the adjacent ridges on both sides. The wildlife overpass/land bridge structure will be a single-span cast-in-place (CIP) prestressed concrete box girder that is 85 feet long by 75 feet wide, spanning the full width of the widened roadway and matching the existing top of ridge on either side (with minimum vertical clearance of over 19 feet above the widened roadway). Three feet of earthen fill will be placed on top of the structure to preserve a natural appearance for wildlife and allow for growth of shallow-rooted vegetation. Cast-in-place parapet walls will be used to retain the fill and to provide a visual barrier for wildlife. Parapet mounted fencing is required to provide continuity with fences at the approaches to the bridge to guide animals to the crossing location. The structure will be supported by seat type abutments on cast-in-drilled-hole (CIDH) concrete piles with CIP fascia walls.

² Horizontal curves are defined as a circular transition between two straight lines that allow vehicles to negotiate turns at design speed. The radius of these circular transitions determines the sharpness or softness of the curve for motorists navigating the roadway. The shorter the radius is, the sharper the turn; increasing the radius of a horizontal curve will soften the curve.

³ Openness ratio is defined as the width of an undercrossing (horizontal distance between each wall) multiplied by the height, and divided by the length (the distance an animal has to travel to pass through the undercrossing). In general, the greater the openness ratio of an undercrossing, the more likely it is to be used by a variety of species, especially large herbivores.

To ensure effective use of existing bridge undercrossings, culverts, and the overpass/land bridge, and to promote motorist safety by preventing wildlife vehicle collisions, wildlife fencing (6.5 to 8 feet in height) will be constructed on both sides of the widened roadway throughout the corridor where concrete retaining walls (>8 feet in height) that supersede the need for fencing are not present. Wildlife fencing is a critical element that funnels animals to the overpass/land bridge and/or through underpasses (bridges and culverts) where below-grade crossings are unaffected by vehicular traffic that otherwise presents a barrier to at-grade crossings.

While an essential element, there are several considerations for erecting fences along the roadway. There are multiple driveway access roads along the corridor requiring control measures to prevent animal breaches of wildlife fencing. Control measures at these locations may include cattle guards/grates, swinging metal gates, or electrified mats imbedded into the pavement which safely deter wildlife entry. To address breaches of wildlife fencing, wildlife “jump-outs”/escape ramps will be provided to facilitate escape. Cost-effective and maintenance-free jump-outs (5.5–6 feet above the outside terrain) will be integrated at suitable retaining walls and bridge abutments. In order to provide at least two escape points (one on each side of the road) spaced along each 0.5 mile of roadway, engineered escape ramps will be integrated with fencing to provide elevated escapes where retaining walls and bridge abutments do not already provide for escape. The beginning and ending of the corridor, and at Tonner Canyon Road as it approaches SR-57 will include fence termination designs at structural, topographic, or other barriers to minimize wildlife entry.

1.1.5.5 Right-of-Way Acquisition, Driveway Access, and Utility Relocations

The Project will require road easements, retaining wall easements, slope easements, temporary construction easement, basin easements, and utility easements.

The Project will require permanent partial property acquisitions for road easements R/W, retaining wall easements, slope easements, and easements for water quality features from adjacent private properties. During construction, temporary construction easements are required from adjacent private properties. Overall, the Project will require approximately 114,000 square feet (SF) of road easement, approximately 123,000 SF of retaining wall easement, approximately 614,000 SF of temporary construction easement, approximately 68,000 SF of slope easement, and approximately 10,000 SF for water quality features.

There are many existing driveway access points to properties that front Brea Boulevard. Existing access points will be maintained, modified, relocated, consolidated and/or otherwise enhanced. In addition, the Project will require relocation of utilities and oilfield-related equipment which will require permits and/or agreements with the owners.

1.1.5.6 Intersection Signalization, Open Graded Asphalt Concrete, Striping, and Signage

The existing one-way stop-controlled T-intersection at Tonner Canyon Road and Brea Boulevard is proposed to be signalized to enhance safety by reducing potential conflicts between motorists attempting to merge in either direction onto Brea Boulevard. Tonner Canyon will be resurfaced and restriped to approximately 300 feet south of the intersection.

Installation of a new traffic signal approximately 1,200 feet north of Canyon Country Road will allow left turn movement onto Brea Boulevard for the oil field operator from their facility west of Brea Boulevard.

The existing traffic signal poles and equipment at Brea Boulevard and Canyon Country Road will be replaced to accommodate the road widening.

Additionally, to reduce the existing high traffic noise levels along Brea Boulevard, OGAC paving will be installed at the southern end of the corridor to minimize roadway surface noise in the City of Brea. OGAC will be added from Central Avenue/State College Boulevard north to the City/unincorporated County boundary (a total length of approximately 2,000 feet).

Striping and appropriate signage will be provided throughout the corridor and the Brea Boulevard design speed will vary from 45 MPH to 55 MPH.

1.1.5.7 Construction

Construction Schedule and General Activity

The Project is anticipated to be divided into two phases:

- Phase I will include utility relocations, the infrastructure necessary for utility companies to relocate their utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, associated temporary transition pavement, and associated grading; and
- Phase II will include the widening of the road, OGAC paving, the three intersections at Canyon Country Road, 1,200 feet north of Canyon Country Road, and at Tonner Canyon Road along with other associated roadway features.

Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026.

The normal hours of construction for the Project would be between 7:00 am and 7:00 pm, Monday through Saturday, consistent with the City of Brea Municipal Code, which does not regulate noise from construction activities that are limited to these daytime hours. However, due to bridge replacement-related work construction will require periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. During these times (up to a maximum 26 weekends with the full roadway closure), construction activities would occur outside the normal hours of construction, as crews will work extended hours, night shifts, and weekends. During night shifts and extended hours, construction lighting will be required. Access will remain for emergency responders and oil field operators.

A construction crew of approximately 40 construction workers (daily) will be in the project area during construction. For safety purposes, a temporary fence will be installed to secure the construction site and restrict public access while maintaining vehicular access to Brea Boulevard.

Construction Equipment

Major equipment to be used during construction will include, but not be limited to: crane, excavator, backhoes, scrapers, crane crawlers, truck cranes, hydraulic all-terrain and rough terrain cranes, loaders, concrete breaker, dump or haul trucks, pile driver/rotary drilling rig, asphalt-concrete (AC) paver, AC grinder, redi-mix truck/pumps, compactors (vibratory steel drum, padded drum, and sheepsfoot), dozers, motor grader, water tower, water truck, sweeper, concrete saw cutter, 50 lbs. hammer, handheld jackhammer, core drills, horizontal drill rig, compressors, welders, forklifts, portable lighting, and water pumps.

Construction Access and Construction Staging/Laydown

There are four potential construction staging/laydown areas for the Project:

- (1) Located west of Canyon Country Road on an unpaved strip next to the grass field of Kindred Hospital located on private property;
- (2) Located at an unpaved area 1,200 feet north of Canyon Country Road on the west side of Brea Boulevard located on private property;
- (3) Located at approximately the middle of the corridor on an unpaved strip containing an oil derrick on the south side of Brea Boulevard where the roadway is at a straightaway and aligned in an east/west direction; and
- (4) Located at an unpaved area on the east side of Tonner Canyon Road at its intersection with Brea Boulevard.

At time of construction if vacant office space is available in the nearby area, this may be considered for a field office.

All staging/laydown areas located on private property will require a written agreement between the contractor and property owner and/or oil field operator.

1.1.5.8 Operation, Maintenance, and Best Management Practices

Industry Standard best management practices (BMPs) will be employed during the construction period and during the long-term operational phase, such as those implemented in accordance with a Project-specific water quality management plan and all applicable standards. There will be routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge, and similar activities.

1.1.5.9 Permits, Regulatory Approvals, and Agencies Expected to Use this Draft EIR

The following permits and regulatory approvals are required for the Project.

- Clean Water Act Section 404 Permit from the United States Army Corps of Engineers (USACE)
- Section 1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB) – Santa Ana:
 - Federal Clean Water Act Section 401 Water Quality Certification
 - National Pollutant Discharge Elimination System (NPDES) Permit/Notification
 - Storm Water Pollution Prevention Plan (SWPPP)
- Encroachment Permit from Caltrans District 12
- California Division of Occupational Safety and Health (CalOSHA)– shoring and retaining walls safety approval
- Certification of the Final EIR and Project approval by the Orange County Board of Supervisors

- South Coast Air Quality Management District (SCAQMD):
 - Form 400A – Permit to Construct and Operate
 - Form 400CEQA – for Air Quality Impacts
 - Form 400E13 – for Internal Combustion Engines

1.2 SUMMARY OF IMPACTS

Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance After Mitigation) of this Draft EIR documents the technical analyses of the potential impacts of the Project related to aesthetics, air quality, biological resources, cultural resources, geology and soils, greenhouse gas emissions and energy, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, transportation and traffic, tribal cultural resources, and wildfire. The Alternatives that were considered are described in Section 6.0 (Alternatives to the Project) and are summarized below in Section 1.3 (Alternatives). Sections 7.0 (Growth Inducing Impacts) and 8.0 (Cumulative Impacts) describe the potential for the Project to result in growth inducing and cumulative impacts, respectively. Section 10.0 (Unavoidable Adverse Impacts) summarizes the potentially significant adverse impacts of the Project which cannot be avoided or mitigated to below a level of significance.

The potential for the Project to result in adverse impacts related to these environmental parameters is summarized in Table 1-1.

1.3 ALTERNATIVES

1.3.1 SUMMARY OF ALTERNATIVES

This Draft EIR analyzes three Alternatives to the Project, which includes the No Project (No Build) as required by the California Environmental Quality Act (CEQA). Alternatives considered in this analysis include the following:

- Alternative 1: No Project (No Build).
- Alternative 2: Standard Primary Arterial 4-Lane Divided Highway.
- Alternative 3: 4-Phase Project Construction Approach Timeline.

1.3.1.1 Alternative 1: No Project (No Build)

Under Alternative 1 – No Project (No Build), none of the improvements identified under the Project would be implemented. Brea Boulevard and the project limits would remain as they currently exist and the roadway would continue to not match OCTA’s MPAH.

1.3.1.2 Alternative 2: Standard Primary Arterial 4-Lane Divided Highway

Under Alternative 2 – Standard Primary Arterial 4-Lane Divided Highway, Brea Boulevard would be widened from two to four lanes (two lanes each direction). Alternative 2 would include a standard Primary Arterial Highway per OC Public Works’ Standard Plan 1103, which requires 100 feet of R/W, two 12-foot-wide lanes each direction, 11-foot-wide shoulders, 8-foot-wide parkways (left natural, not Portland Cement Concrete [PCC]) and a 14-foot-wide raised median. Similar to the Project, Alternative 2 would also replace three Brea Creek bridges, install traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, modify the existing signal at Canyon

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Summary of Impacts Related to Aesthetics		
<p>Implementation of the Project has the potential to result in a substantial adverse effect on a scenic vista.</p> <p>Implementation of the Project has the potential to result in substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway.</p> <p>Implementation of the Project has the potential to substantially degrade the existing visual character or quality of public views of the site and its surroundings.</p>	No feasible mitigation measures.	Significant and Unavoidable (applies to damage to scenic resources and visual elements within scenic view corridors as well as within view of an eligible State scenic highway [SR-57], and visual quality change as a result of the widening of the road, hillside reduction, vegetation and tree removal, and introduction of a large retaining wall).
Implementation of the Project would not result in significant adverse impacts related to creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	No mitigation required.	Less than Significant.
Summary of Impacts Related to Air Quality		
Implementation of the Project would not result in significant adverse impacts related to conflict with or obstruction of the implementation of the applicable air quality plan.	No mitigation required.	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Implementation of the Project would not result in significant adverse impacts related to a cumulatively considerable net increase of a criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to exposure of sensitive receptors to substantial pollutant concentrations.	No mitigation required.	Less than Significant.
Summary of Impacts Related to Biological Resources		
Implementation of the Project has the potential to result in a substantial adverse effect, either directly or through habitat modifications, on species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations or by CDFW or United States Fish and Wildlife Service (USFWS).	<p>BR-1 The clearance or disturbance of any vegetation during construction shall occur outside of the nesting bird season (February 1 through September 15). If vegetation removal/disturbance and other Project construction outside this time period are not feasible, the following additional measures shall be employed to avoid and minimize impacts to special-status bird species and nesting birds protected under the Migratory Bird Treaty Act and California Fish and Game Code:</p> <ol style="list-style-type: none"> 1. A pre-construction nesting bird survey shall be conducted by a qualified biologist (i.e., is familiar and experienced with the identification and life histories of wildlife and plant species in southern California) within 3 days (72 hours) prior to the start of construction activities to determine whether active nests are present within or directly adjacent to the construction zone. All nests found shall be recorded. 2. If construction activities must occur within 150 feet of an active nest of any passerine bird or within 300 feet of an active nest of any raptor, a qualified biologist shall monitor the nest on a weekly basis and the construction activity shall be postponed until the biologist determines that the nest is no longer active. 3. If the recommended nest avoidance zone is not feasible, the qualified biologist shall provide justification on a case-by-case basis if a buffer 	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>reduction is possible, taking into consideration the location of work and type of activity, distance of nest from work area, surrounding vegetation and line-of-sight between the nest and work areas, tolerance of species to disturbance and observations of the nesting bird’s reaction to Project activities. If the biologist determines nesting activities may fail as a result of work activities, all Project work shall cease (except access along established roadways) within the recommended no-disturbance buffer until the biologist determines the adults and young are no longer reliant on the nest site.</p> <ol style="list-style-type: none"> 4. Buffers shall be delineated (by or under the supervision of the qualified biologist) on-site with bright flagging, for easy identification by Project staff. The on-site construction supervisor and operator staff shall be notified of any nest(s) and the applicable buffer limits to ensure they are maintained. 5. The indirect impacts of night-time construction lighting on nesting birds outside the project limits shall be reduced by shielding or directing construction lighting to avoid light encroachment into adjacent habitats. 6. A summary of preconstruction surveys, monitoring efforts, and any no-disturbance buffers that were installed shall be documented in a report by the qualified biologist at the conclusion of each nesting season. <p>BR-2 Measures for coastal California gnatcatcher:</p> <ol style="list-style-type: none"> 1. Beginning 30 or more days prior to the removal or disturbance of any coastal sage scrub habitat or any habitats within 300 feet of coastal sage scrub habitat that will occur during the nesting bird season of February 1 through September 15, OC Public Works shall arrange for weekly bird surveys to detect the presence of coastal California gnatcatcher and other special-status upland bird species in the habitats to be removed or disturbed, and any other such habitat within 300 feet of the project limits. The surveys shall be conducted by a biologist with the necessary permits to survey for coastal California gnatcatcher. The surveys shall continue on a weekly basis, with the last survey being conducted no more than 3 days prior to the initiation of construction work. 	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<ol style="list-style-type: none"> 2. In the event that a coastal California gnatcatcher is observed in the habitats to be removed or disturbed or in other habitats within 300 feet of the project limits, OC Public Works has the option of delaying all construction work in the suitable habitat or within 300 feet of the suitable habitat until after September 15 or continuing the surveys in order to locate any nests. If an active nest is found, clearing and construction within 300 feet of a nest shall be postponed until the nest is vacated and juveniles have fledged, and when there is no evidence of a second attempt at nesting. No-disturbance buffers around suitable habitat or a nest site shall be established in the field with bright flagging by the qualified biologist and construction personnel shall be instructed on the ecological sensitivity of the area. 3. A qualified biologist shall conduct weekly surveys of the suitable habitat or nest site to determine status of coastal California gnatcatcher and check that flagging placed to delineate the no disturbance buffer is maintained and visible. 4. Locating and determining the status of a nest shall be performed in accordance with approved procedures by the USFWS and CDFW. Results of the surveys, including surveys to locate nests, shall be provided to the agencies no later than 5 days prior to construction. The results shall include a description of any nests located and measures to be implemented to avoid nest sites. Surveys for coastal California gnatcatcher shall be required even if work is completed outside of the nesting bird season (i.e., from September 16 through January 31) because this species overwinters in southern California. 5. If coastal California gnatcatcher are present and the avoidance measures identified above cannot be implemented, take may result. In such an instance, OC Public Works shall immediately discontinue construction at the location where coastal California gnatcatcher are found, maintain a 300-foot no-disturbance buffer around the suitable habitat, and immediately coordinate with USFWS regarding the need for take authorization for the species. 	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>BR-3 Measures for least Bell’s vireo:</p> <ol style="list-style-type: none"> 1. Beginning 30 or more days prior to the removal or disturbance of any riparian habitat or any habitats within 300 feet of riparian habitat that will occur during the nesting bird season of February 1 through September 15, OC Public Works shall arrange for weekly bird surveys to detect the presence of least Bell’s vireo in the habitats to be removed or disturbed, and any other such habitat within 300 feet of the project limits. The surveys shall be conducted by a qualified biologist familiar with the identification and life history of least Bell’s vireo. The surveys shall continue on a weekly basis, with the last survey being conducted no more than 3 days prior to the initiation of construction work. 2. In the event that a least Bell’s vireo or other special-status bird species is observed in the habitats to be removed or disturbed or in other habitats within 300 feet of the project limits, OC Public Works has the option of delaying all construction work in the suitable habitat or within 300 feet of the suitable habitat until after September 15 or continuing the surveys in order to locate any nests. If an active nest is found, clearing and construction within 300 feet of a nest shall be postponed until the nest is vacated and juveniles have fledged, and when there is no evidence of a second attempt at nesting. No-disturbance buffers around suitable habitat or a nest site shall be established in the field with bright flagging by the qualified biologist and construction personnel shall be instructed on the ecological sensitivity of the area. 3. A qualified biologist shall conduct weekly surveys of the suitable habitat or nest site to determine status of least Bell’s vireo and check that flagging placed to delineate the no-disturbance buffer is maintained and visible. 4. Locating and determining the status of a nest shall be performed in accordance with approved procedures by the USFWS and CDFW. Results of the surveys, including surveys to locate nests, shall be provided to the agencies no later than 5 days prior to construction. The results shall include a description of any nests located and measures to be implemented to avoid 	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>nest sites. No surveys shall be necessary if the work is completed outside of the nesting bird season, i.e., from September 16 through January 31.</p> <p>5. If least Bell's vireo are present and the avoidance measures identified above cannot be implemented, take may result. In such an instance, OC Public Works shall immediately discontinue construction at the location where least Bell's vireo are found, maintain a 300-foot no-disturbance buffer around the suitable habitat, and immediately coordinate with USFWS and CDFW regarding the need for take authorization for the species.</p> <p>BR-4 Brea Creek and riparian habitats shall be cleared of western pond turtle and any additional special-status reptiles or amphibian species which may occur (including western spadefoot), immediately before construction activities that would coincide with the creek and its riparian habitats is initiated, immediately before any equipment is moved into or through Brea Creek or riparian areas, and immediately before diverting any stream water, should diversions be required. The removal of western pond turtle, or any other reptile or amphibian species shall be conducted by a qualified biologist using procedures approved by CDFW, and with the appropriate collection and handling permits. Species shall be relocated to nearby suitable habitat areas that will not be disturbed by the Project. A Species Protection, Relocation, and Monitoring Plan including avoidance and minimization measures and relocation methods for western pond turtle shall be submitted to CDFW for review and approval prior to construction.</p> <p>BR-5 Prior to removal of any tree, and prior to construction during the bat maternity season (April 15 through August 31), a survey of trees to be removed and of the SR-57 bridge shall be conducted by a qualified bat biologist to determine the potential presence of colonial bat roosts. The surveys (as detailed below) shall consist of a visual inspection and/or one-night emergence survey utilizing acoustic recognition technology to determine if any maternity roosts are present.</p> <p>To avoid any impacts on roosting bats resulting from construction activities, the following shall be implemented:</p>	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p><u>At the SR-57 Bridge</u></p> <p>Prior to construction during the bat maternity season a visual inspection and/or one night emergence survey of the SR-57 bridge shall be completed utilizing acoustic recognition technology to determine if any maternity roosts are present. Should an active maternity roost be found, a determination (in coordination with the qualified bat biologist) shall be made whether indirect effects of construction-related activities (i.e., noise, vibration, construction lighting) could substantially disturb roosting bats and if exclusionary devices should be used to remove bats. This determination shall be based on baseline noise/vibration levels, anticipated noise levels associated with construction in the vicinity, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a maternity roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the qualified bat biologist.</p> <p><u>Trees To Be Removed</u></p> <p>All trees to be removed as part of the Project shall be evaluated for their potential to support bat roosts. In particular, any eucalyptus and palm trees which bats are known to utilize, shall be evaluated by a qualified bat biologist by conducting a one-night emergence survey during acceptable weather conditions, or if conditions permit, physically examine the trees for presence or absence of bats (such as with lift equipment) before the start of construction/tree removal. The following measures shall apply to trees to be removed that are determined to provide potential bat roost habitat by the qualified bat biologist.</p> <ul style="list-style-type: none"> • If roosting bats are determined present during the maternity season (April 15 through August 31), the tree shall be avoided until after the maternity season when young are self-sufficient. <p>If roosting bats are determined present during the winter months when bats are in torpor, a state in which the bats have significantly lowered their</p>	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>physiological state, such as body temperature and metabolic rate, due to lowered food availability (October 31 through February 15, but is dependent on specific weather conditions), the tree shall be avoided until after the winter season when bats are once again active.</p> <ul style="list-style-type: none"> • Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and September 1 through October 30, or as determined by the qualified bat biologist) using a two-step tree trimming process that occurs over 2 consecutive days. <ul style="list-style-type: none"> ○ Day 1, Step 1: Under the supervision of the qualified bat biologist, tree branches and limbs with no cavities shall be removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately or, after emergence, will avoid returning to the roost. ○ Day 2, Step 2: Removal of the remainder of the tree under the supervision of the qualified bat biologist may occur on the following day. Trees that are only to be trimmed and not removed shall be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches shall be trimmed on Day 1 under supervision of a qualified bat biologist and then the limb with the potential roost shall be removed on Day 2. • Trees with foliage (and without colonial bat roost potential) that can support lasiurine bats shall have the two-step tree trimming process occur over one day under the supervision of the qualified bat biologist. Step 1 shall be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that will cause abandonment. Step 2 shall be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (a special-status bat species with Low potential to occur in the BSA), the two-step tree process shall be used over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal. 	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>The results of bat surveys, evaluations, and monitoring efforts that are undertaken shall be documented in a report by the qualified bat biologist at the conclusion of all bat-related activities.</p>	
<p>Implementation of the Project has the potential to result in a substantial adverse effect on riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFW or USFWS.</p>	<p>BR-6 The removal of any individual coast live oak tree associated with the coast live oak woodland sensitive natural vegetation community shall be replaced at a minimum of 1:1 ratio. OC Public Works shall have the option to incorporate this mitigation requirement in conjunction with the regulatory permit coordination for wetland/riparian vegetation impacts (and their associated example mitigation options identified in BR-10). For example, tree replacement could be implemented on site within suitable locations in the temporary disturbance limits, or as an adjacent component in connection with the wetland/riparian revegetation, as appropriate; or could be implemented off site at the upstream Soquel Mitigation Bank (in coordination and compliance with the mitigation bank owner’s requirements).</p> <p>BR-7 A qualified biologist familiar with the signs of invasive shot hole borers (ISHBs) shall survey trees within the project limits that are designated for removal or trimming. Surveys shall be conducted no more than 30 days prior to removal or trimming activities. If any tree is determined to be infested/infected by ISHBs, a control plan shall be prepared and submitted to CDFW for review and approval prior to tree disturbance. At a minimum, the control plan shall include methods of control, removal, and appropriate disposal techniques to prevent the spread of ISHBs (e.g., equipment disinfection, chipping potential host materials to less than 1 inch and solarization treatment prior to delivery to landfill or use as compost on site, solarization of cut logs and/or burning of potential host tree materials, etc.).</p> <p>BR-8 OC Public Works shall consult with USFWS regarding potential impacts of the Project on USFWS-designated critical habitat for coastal California gnatcatcher. Informal consultation pursuant to Section 7 or Section 10 of FESA, where USFWS would determine the appropriate mitigation actions</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	regarding critical coastal sage scrub habitat, could involve compensatory mitigation in the form of a Project-specific Habitat Mitigation and Monitoring Plan or development of a Habitat Conservation Plan, consistent with any requirements of applicable regulatory permits.	
Implementation of the Project has the potential to result in 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>BR-9 Prior to approval of the Project plans and specifications, OC Public Works shall obtain all applicable regulatory permits, including coverage under NWP 14 for Transportation projects from the USACE, a Water Quality Certification from RWQCB, and an LSAA from CDFW.</p> <p>BR-10 Regulatory permits obtained in coordination with the applicable regulatory agencies, as identified in BR-9, would include measures to mitigate all temporary and permanent impacts. Examples of the Options to mitigate for impacts associated with the Project may include some combination of the following:</p> <ol style="list-style-type: none"> 1. Treatment of non-native, invasive plant species (castor bean, tree tobacco, etc.) 2. On-site revegetation for temporary impacts to wetland/riparian vegetation 3. Obtaining credits from the Soquel Mitigation Bank, located upstream of the Project within the headwaters of Tonner Canyon Creek for permanent impacts to wetland/riparian vegetation 	Less than Significant.
Implementation of the Project has the potential to result in significant adverse impacts related to interference with the movement of wildlife.	<p>BR-11 Excavation and trenching activities shall include measures to prevent entrapment and injury to wildlife. For instance, steep-sided trenches may either be backfilled at the end of each work day, fenced, or include “escape ramps” for wildlife.</p> <p>BR-12 To ensure there is a dry place for bobcats to pass under Bridges 2 and 3, a wildlife ledge shall be installed under both bridges. The wildlife ledge shall be placed approximately 3 feet above the ground, above the ordinary high water mark of Brea Creek under both sides of Bridges 2 and 3. The wildlife ledge shall be wide enough to accommodate a bobcat, include a non-slip surface, and</p>	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<p>have a small ramp at both ends to allow wildlife easy access to the ledge. The final design and height above the ground shall be determined by bridge engineers in concert with a wildlife expert and hydrologist.</p>	
<p>Implementation of the Project has the potential to result in conflicts with the provisions of an approved local habitat conservation agreement.</p>	<p>BR-13 Prior to the start of construction OC Public Works shall coordinate with Tonner Hills SSP, LLC and the City of Brea, along with the Third-Party Beneficiaries (USFWS, USACE, and CDFW) of the Conservation Easement, to amend the Conservation Easement (via mutual written agreement) by adjusting the easement boundaries to include the existing Brea Boulevard right of way and necessary acquisitions (i.e., permanent road and retaining wall easements, temporary construction easement, etc.) associated with the Project, implement any need to transfer a portion of the Conserved Land and identify any subsequent compensatory actions or obligations pursuant to purposes of the Conservation Easement. The amendment shall be recorded in the official records of the County of Orange with conformed copies of the recorded amendment provided to all parties.</p>	<p>Less than Significant.</p>
Summary of Impacts Related to Cultural Resources		
<p>Implementation of the Project has the potential to result in significant adverse impacts related to causing a substantial adverse change in the significance of a historical resource pursuant to §15064.5.</p>	<p>CR-1 OC Public Works shall move the Brea Canyon Portola Monument to a nearby location to preserve its integrity of setting while still allowing cars to stop beside it. The new location of the monument shall be decided upon by OC Public Works in consultation with the Native Daughters of the Golden West Grace Parlor No. 242. OC Public Works shall retain qualified staff to safely package, store, and transfer the monument. As the concrete monument is nearly 90 years old and may be brittle; it must be properly protected against accidental breakage during this process. After the monument is moved, the new location shall be documented on an appropriate DPR 523 update form and the form filed with the South Central Coastal Information Center.</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<p>Implementation of the Project has the potential to result in significant adverse impacts related to causing a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.</p>	<p>CR-2 Archaeological monitoring shall be required during ground-disturbing activities in undisturbed younger quaternary alluvium. The archaeological monitor shall have the authority to redirect construction equipment in the event potential archaeological resources are encountered.</p> <p>CR-3 In the event archaeological resources are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by an Orange County Certified Archaeologist and in accordance with the provisions of CEQA Guidelines Section 15064.5. The Certified Archaeologist shall have experience in prehistoric archaeology in Southern California. Any archaeological materials recovered shall be prepared for and curated at an approved facility. If in the course of monitoring, the Orange County Certified Archaeologist determines that the sediment within the project area is disturbed, or work has extended in sediments that are otherwise not sensitive for cultural resources, then archaeological monitoring may be reduced or suspended at the discretion of the Certified Archaeologist.</p> <p>CR-4 Construction personnel and supervisory staff shall be given training on possible archaeological resources that may be present in the area to establish an understanding of what to look for during ground-disturbing activities.</p>	<p>Less than Significant.</p>
<p>Implementation of the Project has the potential to result in significant adverse impacts related to disturbance of any human remains, including those interred outside of dedicated cemeteries.</p>	<p>CR-5 In the event that human remains are discovered, work in the immediate vicinity of the discovery shall be suspended and the Orange County Coroner contacted. If the remains are deemed Native American in origin, the Coroner shall contact the Native American Heritage Commission (NAHC) and a Most Likely Descendant shall be identified pursuant to PRC Section 5097.98 and CEQA Guidelines Section 15064.5. Work may be resumed at the landowner’s discretion, with input from the Most Likely Descendant and Lead Agency, but will only resume after consultation and treatment have been concluded. Work may continue on other parts of the Project while consultation and treatment are conducted.</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Summary of Impacts Related to Geology and Soils		
Implementation of the Project would not result in significant adverse impacts related to directly or indirectly causing potential substantial adverse effects, including the risk of loss, injury, or death involving: <ul style="list-style-type: none"> • 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 upon on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. • Strong seismic grounding shaking. • Seismic-related ground failure, including liquefaction. • Landslides. 	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to substantial soil erosion or the loss of topsoil.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to being 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	No mitigation required.	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<p>landslide, lateral spreading, subsidence, liquefaction, or collapse.</p>		
<p>Implementation of the Project would not result in significant adverse impacts related to being located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial risks to life or property.</p>	<p>No mitigation required.</p>	<p>Less than Significant.</p>
<p>Implementation of the Project has the potential to result in significant adverse impacts related to directly or indirectly destroying a unique paleontological resource or site or unique geologic feature.</p>	<p>G-1 Paleontological monitoring shall be conducted for the hillside excavations, and for any deep (i.e., 6 feet or greater) excavations along the creek. An Orange County Certified Paleontologist shall oversee monitoring and decide where and how monitoring will take place and identify appropriate microfossil sampling techniques that should be used if necessary. The paleontological monitor shall also provide construction personnel and supervisory staff with training on possible paleontological resources that may be present in the area in order to establish an understanding of what to look for during ground-disturbing activities. The paleontological monitor will have the authority to redirect construction equipment in the event potential paleontological resources are encountered. In the event paleontological resources are encountered, work within 50 feet of the discovery will immediately halt until appropriate treatment of the resource is determined by a qualified paleontologist in accordance with the provisions of CEQA Guidelines Section 15064.5. Work may continue on other parts of the Project while consultation and treatment are conducted. Any paleontological materials recovered shall be prepared for and curated at an approved facility. Monitoring and reporting shall be conducted or overseen by an Orange County Certified Paleontologist. Fossils should be properly identified and processed for curation at an approved facility, such as the John D. Cooper Archaeological and Paleontological Center at California State University, Fullerton. If, in the course of monitoring, the Certified Paleontologist determines that the deposits are disturbed or otherwise not sensitive for paleontological resources, monitoring may be reduced or suspended at the Certified Paleontologist’s discretion.</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Summary of Impacts Related to Greenhouse Gas Emissions and Energy		
Implementation of the Project would not result in significant adverse impacts related to the generation of greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to conflicting with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to conflicting with or obstructing a state or local plan for renewable energy or energy efficiency.	No mitigation required.	Less than Significant.
Summary of Impacts Related to Hazards and Hazardous Materials		
Implementation of the Project has the potential to result in significant adverse impacts related to creation of a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	HHM-1 If previously undocumented wells are encountered during road excavation and construction activities, construction shall be redirected away from the well location until the site is assessed. OC Public Works and/or the contractor shall immediately notify the local office of the California Geologic Energy Management Division (CalGEM) (formerly known as the Division of Oil, Gas and Geothermal Resources, or DOGGR) and provide location coordinates to CalGEM. The well shall be inspected by a CalGEM representative, who shall establish an appropriate buffer distance for the continuation of construction activities in the vicinity, and the well shall be	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<p>Implementation of the Project has the potential to result in significant adverse impacts related to being located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.</p>	<p>plugged and tested in accordance with current CalGEM requirements, Orange County Oil Drilling and Production Regulations, and City of Brea requirements. In addition, the project team shall notify the Orange County Fire Authority (OCFA) and coordinate with OCFA to ensure that the road design conforms to all requirements for construction impermeable surfaces over abandoned wells in relationship to any existing structures or proposed future buildings near the well location (<i>OCFA Combustible Soil Gas Hazard Mitigation Guideline C-03</i>).</p> <p>HHM-2 If previously undocumented buried pipelines or other associated equipment are encountered during road excavation and construction activities, construction shall be redirected away from the pipeline location until the site is assessed. OC Public Works and/or the contractor shall establish the appropriate buffer distance for the continuation of construction activities in the vicinity, shall test the pipeline for potential contaminants and abandon the pipeline in accordance with state and local regulations.</p> <p>HHM-3 If previously potentially contaminated soils (discolored/stained soil or chemical odors) or liquid seeps are encountered during road excavation and construction activities, construction shall be redirected away from the location until the site is assessed. OC Public Works and/or the contractor shall establish the appropriate buffer distance for the continuation of construction activities in the vicinity, shall test the soil for potential contaminants, and, if applicable, manage the soil in accordance with applicable state and local regulations, including implementation of an approved SCAQMD Rule 1166 mitigation plan for volatile organic compound-contaminated soils.</p>	
<p>Implementation of the Project has the potential to result in significant adverse impacts related to impairing implementation of or physically interfering with an adopted emergency</p>	<p>HHM-4 Prior to the start of construction, the contractor shall prepare and have approved a Construction Emergency Access/Response and Fire Prevention Plan (Emergency Plan) by the Director of OC Public Works or designee, the local OCFA Division Chief, the local Orange County Sherriff Lieutenant, and the City of Brea Fire Services Department. The Emergency Plan shall</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<p>response plan or emergency evacuation plan/substantially impair an adopted emergency response plan or emergency evacuation plan.</p>	<p>detail emergency access and traffic control during construction-related road and lane closures and the implementation of fire safety measures during construction activities. The Emergency Plan shall include at a minimum the following requirements, restrictions, and measures, which are to be documented in the contractor’s construction plans and specifications to the satisfaction of the Director of OC Public Works or designee:</p> <ul style="list-style-type: none"> • Requirement for contractor to provide a detailed schedule of work activities at a pre-construction meeting, including start and end dates for work phases, calendared work day hours, temporary signal/flagman hours of operation, and after work hours emergency access solutions; • Detailed traffic control and detour plan that assures emergency access is maintained at all times and is not in conflict with the LHMP or City of Brea’s Emergency Response Plan; • Community communication/alert plan, including public notification activities via social media, changeable message signs, pre-construction updates, safety and emergency protocols, etc. Community communication shall involve disseminating information on OCFA’s Ready!, Set!, Go! Safety program and an emergency evacuation route map; • Protocols for ongoing contractor updates to local OCFA Division Chief, local Orange County Sheriff Lieutenant, City of Brea, and OC Public Works, beginning at the pre-construction meeting and continuing until the end of construction. • Inclusion of specific emergency operational procedures (i.e., response actions, communication protocols, hazardous condition/weather monitoring, etc.) for (a) flood emergencies, (b) wildland fires, (c) structure fires, (d) EMS emergencies, (e) red flag warning periods/days (e.g., no hot work), and (f) loss of power; • Immediate suspension of all construction activities in the event of a fire within the project limits and immediate construction crew use of onsite fire extinguishers and water truck, as well as 911 emergency call; 	

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	<ul style="list-style-type: none"> • Compliance with applicable subsections of Chapter 33 of the 20191 California Fire Code, the National Fire Protection Association Standard 51B, and the Section 4442 of the California Public Resources Code. • Compliance with the fire protection provisions contained in Caltrans Standard Specifications No. 7-1.02(m); • Details for coordinating with OCFA, Orange County Sheriff’s Department, City of Brea Fire Services Department and Police Department through their Incident Command System should a wildfire evacuation be necessary. 	
Summary of Impacts Related to Hydrology and Water Quality		
Implementation of the Project would not result in significant adverse impacts related to violation of any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to substantially decreasing groundwater supplies or interfering substantially with groundwater recharge such the project may impede sustainable groundwater management of the basin.	No mitigation required.	Less than Significant.
Implementation of the Project would not result in any significant adverse impacts related to substantially altering the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	No mitigation required.	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<ul style="list-style-type: none"> • Result in substantial erosion or siltation on- or off-site • Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site • Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or • Impede or redirect flood flows. 		
<p>Implementation of the Project would not result in significant adverse impacts related to conflicting with or obstructing implementation of a water quality control plan or sustainable groundwater management plan.</p>	<p>No mitigation required.</p>	<p>Less than Significant.</p>
Summary of Impacts Related to Land Use and Planning		
<p>Implementation of the Project would not result in significant adverse impacts related to conflicting with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.</p>	<p>No mitigation required.</p>	<p>Less than Significant.</p>
Summary of Impacts Related to Noise and Vibration		
<p>Implementation of the Project has the potential to result in significant adverse impacts related to the generation of substantial temporary or permanent increase in ambient noise levels in the</p>	<p>N-1 The construction contractor shall ensure that all motorized equipment includes original manufacturers noise control systems, including mufflers and shielding, in good working order and shall shut off idling equipment when not in use.</p> <p>N-2 Prior to any weekend construction at Bridges 1 or 2 that would occur between the hours of 7:00pm and 7:00am, and any time on Sunday, OC Public Works</p>	<p>Significant and Unavoidable (applies to infrequent construction-related noise occurring over the weekend)</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	shall retain the assistance of an experienced noise control engineer to consult with the construction contractor in identifying and determining appropriate and feasible noise barrier systems and their proper placement during construction. In order for acoustical noise barriers to be effective in reducing noise levels, they must be made of substantial construction (e.g., ½ inch thick plywood, proprietary/vendor supplied systems, etc.), with no gaps, and completely block line of sight between noise source and receptor. Because nearest noise-sensitive receptors are elevated relative to bridge locations, the experienced noise control engineer, in coordination with OC Public Works and the construction contractor, shall determine if a wall(s) of feasible height and placement can be effectively implemented at these locations; if effective implementation (i.e., continuous line of sight to residences blocked) is feasible, OC Public Works shall ensure the recommended temporary acoustical noise barrier(s) are installed. Additionally, prior to any weekend construction at Bridges 1 or 2 that would occur between the hours of 7:00pm and 7:00am, and any time on Sunday, OC Public Works shall notify all residences within 1,000 feet of the bridge(s) when noise during these times is scheduled to occur.	[between the hours of 7:00 pm and 7:00 am and on Sundays]].
Implementation of the Project would not result in significant adverse impacts related to the generation of excessive groundborne vibration or groundborne noise levels.	No mitigation required.	Less than Significant.
Summary of Impacts Related to Transportation and Traffic		
Implementation of the Project has the potential to result in significant adverse impacts related to conflicting with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.	<p>T-1 Prior to the start of construction, the contractor shall prepare and have approved a Ride Sharing Incentive Plan by the Director of OC Public Works or designee. The plan shall encourage ride sharing by offering incentives to the construction work force for carpooling to and from the construction site.</p> <p>T-2 Periodic full closures of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road shall be limited to between Friday at 8:00 pm to Monday at 5:00 am.</p> <p>See Mitigation Measure HHM-4.</p>	Significant and Unavoidable (applies to short-term delays and changes in level of service during construction resulting from road and lane closures).

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Implementation of the Project would not result in significant adverse impacts related to conflicting or being inconsistent with CEQA Guidelines section 15064.3, subdivision (b).	No mitigation required.	Less than Significant.
Implementation of the Project would not result in significant adverse impacts related to substantially increasing hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).	No mitigation required.	Less than Significant.
Implementation of the Project has the potential to result in significant adverse impacts related to inadequate emergency access.	See Mitigation Measure HHM-4.	Less than Significant.
Summary of Impacts Related to Tribal Cultural Resources		
<p>Implementation of the Project would not result in significant adverse impacts related to causing a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:</p> <ul style="list-style-type: none"> • Listed or eligible for listing in the California Register of Historical Resources, or in a local register of 	No mitigation required.	Less than Significant.

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
<p>historical resources as defined in PRC Section 5020.1(k).</p> <ul style="list-style-type: none"> • A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe. 		
Summary of Impacts Related to Wildfire		
<p>Implementation of the Project would have the potential to impair an adopted emergency response plan or emergency evacuation plan.</p>	<p>See Mitigation Measure HHM-4.</p>	<p>Less than Significant.</p>
<p>Implementation of the Project would not, due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.</p>	<p>No mitigation required.</p>	<p>Less than Significant.</p>
<p>Implementation of the Project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.</p>	<p>No mitigation required.</p>	<p>Less than Significant.</p>

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

POTENTIAL IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Implementation of the Project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.	No mitigation required.	Less than Significant.

Country Road, modify driveway ingress/egress, install a new wildlife overpass/land bridge, add OGAC paving at the southern end of the corridor, acquire R/W, significant utility relocations (power poles, oil lines, oil wells, telephone duct banks, etc.), striping and signing. Alternative 2 is included to provide a design that fully meets OC Public Works' standards for the MPAH designation of Brea Boulevard, which would be approximately 20 to 30 feet wider than what is proposed as part of the Project throughout the corridor.

1.3.1.3 Alternative 3: 4-Phase Project Construction Approach Timeline.

Under Alternative 3 – 4-Phase Project Construction Approach Timeline, the same Project described in Section 3.0 of this Draft EIR would be proposed, but the total construction timeline would be extended from five to ten years in order to account for the availability of Project funding sources. Active construction duration would remain at 5 years (and the same maximum intensity of construction activity identified for the Project would remain the same for Alternative 3 within any given year) but the 5 years of active construction could occur at any time within the 10-year timeframe (e.g., within the first five years, within the last five years, or at various combinations of years with periods of inactivity within the overall 10 years) depending on funding availability. Thus, the construction timeframe for this alternative would be extended from 2026-2030 to 2026-2035. Additionally, whereas the Project is divided into two phases of activities required for the entire corridor (i.e., Phase I: utility relocations, infrastructure for utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, and associated grading/pavement; and Phase II: road widening, sound reduction surface treatment [OGAC], and intersections), Alternative 3 would be divided into four phases corresponding to four separate segments along the corridor. The four phases under Alternative 3 are a segmentation of the project limits with each of the four phases including all of the improvements necessary for that segment (i.e., both the Phase I and Phase II activities identified for the Project that are applicable to the specific segment length). The four phases under Alternative 3 are the following:

- Phase I: All work from Central Avenue/State College Boulevard northeast to the City of Brea/County of Orange boundary. This phase would be inclusive of the sound reduction surface treatment (OGAC) and the replacement of the traffic signal at Brea Boulevard and Canyon Country Road.
- Phase II: All work from the City of Brea/County of Orange boundary, northeast past the “bend” (refer to Figure 3-2 in Section 3.0) to approximately 2,385 feet west of the Tonner Canyon Road intersection. This phase would be inclusive of the replacement of all three existing bridges, a number of slopes cuts, the largest slope cut/retaining wall at the “bend”, and installation of the new traffic signal approximately 1,200 feet north of Canyon Country Road.
- Phase III: All work from the end of Phase II, east to approximately 985 feet west of the Tonner Canyon Road intersection.
- Phase IV: All work from the end of Phase III, east-northeast to the end of the corridor (i.e., SR-57 southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road). This phase would be inclusive of the wildlife overpass/land bridge and installation of the new traffic signal at Brea Boulevard/Tonner Canyon Road.

The purpose of the four phases/segmentation is to identify discreet portions of the corridor that could be constructed, corresponding to different funding sources that become available; however, it should be noted that these phases are not necessarily sequential. The four phases can be constructed at any time within the 10-year construction window and with any grouping (for example Phases I and III could be constructed at the same time), but the intensity of construction would be no greater than considered for the Project as there would be no change to the number of daily construction workers, daily truck trips, frequency of lane

closures, etc. In order to account for a worst-case scenario of environmental effects under the variable timeline of this alternative, the construction timing assumptions that were the most conservative to each environmental resource/category were used. For example, the air quality and GHG emissions analysis assumed construction to occur within the first five years (same as the Project) because it is more conservative to assume emissions tied to earlier engine efficiencies/less stringent emissions regulatory environment than would be expected to occur in later years; whereas the traffic analysis assumed construction to occur within the last five years, when daily traffic volumes would be higher due to five additional years of forecast annual regional growth in the vicinity of the roadway.

1.3.2 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 1-2 shows a comparison of the environmental effects of the Project, the project alternatives, and Alternative 1 (the No Project [No Build]). Each of the build alternatives would result in environmental impacts greater than would occur under Alternative 1. Therefore, Alternative 1 is the environmentally superior alternative, although it would not attain the basic objectives of the Project as discussed in Section 1.3.3 below. Section 15126.6(e) of the CEQA Guidelines states that if the No Project Alternative is selected as the environmentally superior alternative, then the Environmental Impact Report (EIR) shall also identify an environmentally superior alternative among the other alternatives. A comparison of the remaining alternatives is provided below.

The Project and Alternatives 2 and 3 would include similar elements and would all be constructed and operated in a similar manner. Although impacts would be similar to the Project, the wider roadway and associated larger disturbance footprint/additional construction activity under Alternative 2 would result in greater impacts to aesthetics, air quality, biological resources, GHG emissions and energy, and land use and planning. Alternative 3 is the same development as the Project, but the possibility of an extended construction timeline would result in incrementally degraded LOS at all intersections and roadway segments during construction when compared to the Project, including two additional potentially significant (temporary) intersection impacts. The incremental degradation of LOS and new intersection impacts are all due to the additional area traffic from ambient growth (if the construction timeline were to be extended under Alternative 3). Therefore, taking all of these factors into consideration, the environmentally superior alternative is the Project, which proposes a Modified Primary Arterial Highway design intended to minimize environmental impacts, impacts to adjacent properties, and utility relocations.

1.3.3 SUMMARY OF THE ALTERNATIVES' ABILITY TO MEET THE PROJECT OBJECTIVES

The Project and Alternatives 2 and 3 meet all Project objectives. Alternative 1 would not attain the basic objectives of the Project. For example, under Alternative 1 Brea Boulevard would: not be improved consistent with the designated Primary Arterial Highway classification per the MPAH nor meet current design standards (e.g., sight distance); existing bridges would not be replaced and flood conveyance would remain the same as under current conditions; wildlife movement across the roadway would not be improved within the project limits; and intersections would remain as is (particularly the motorist safety enhancement signalization of the Brea Boulevard/Tonner Canyon Road intersection would not occur).

**TABLE 1-2
COMPARISON OF THE ENVIRONMENTAL IMPACTS
OF ALL PROJECT ALTERNATIVES**

ENVIRONMENTAL PARAMETER	PROJECT	ALTERNATIVE 1 - NO PROJECT (NO BUILD)	ALTERNATIVE 2 - STANDARD PRIMARY ARTERIAL 4- LANE DIVIDED HIGHWAY	ALTERNATIVE 3 - 4-PHASE PROJECT CONSTRUCTION APPROACH TIMELINE
Aesthetics	4	1	4 (Slightly Greater)	4 (Same)
Air Quality	2	2 (Slightly Greater)	2 (Slightly Greater)	2 (Same)
Biological Resources	3	1	3 (Slightly Greater)	3 (Same)
Cultural Resources	3	1	3 (Slightly Greater)	3 (Same)
Geology and Soils	3	1	3 (Slightly Greater)	3 (Same)
Greenhouse Gas Emissions and Energy	2	2 (Slightly Greater)	2 (Slightly Greater)	2 (Same)
Hazards and Hazardous Materials	3	1	3 (Slightly Greater)	3 (Same)
Hydrology and Water Quality	2	1	2 (Similar)	2 (Same)
Land Use and Planning	2	1	2 (Slightly Greater)	2 (Same)
Noise and Vibration	4	4 ¹ (Greater)	4 (Slightly Greater)	4 (Same)
Transportation and Traffic	4	4 ² (Greater)	4 (Slightly Greater)	4 (Slightly Greater)
Tribal Cultural Resources	2	1	2 (Slightly Greater)	2 (Same)
Wildfire	3	1	3 (Slightly Greater)	3 (Same)

Note:

¹As shown in the Noise and Vibration Impact Analysis Technical Memo (Appendix N of this Draft EIR), existing noise measurements taken in the City of Brea are as high as 66.8 dBA L_{eq}, which is in the ‘Normally Unacceptable’ range of the City of Brea’s Noise/Land Use Compatibility Matrix. In the absence of OGAC pavement under the No Project Alternative, the existing elevated noise levels would incrementally increase due to ambient traffic growth.

²Improvements to traffic flow or congestion would not occur. Brea Boulevard would remain as it currently exists (i.e., would not be improved consistent with the designated Primary Arterial Highway classification per the MPAH or meet current design standards) and commuter traffic would continue to experience delays.

Legend

1. No Impact.
2. Less than Significant Impact.
3. Less than Significant Impact After Mitigation.
4. Unavoidable Significant Impact.

NOTE: Refer to the individual resource-specific discussions of each alternative (Section 6.0 of this Draft EIR) for an explanation of impacts that are “slightly greater” or “greater” than the Project.

1.4 AREAS OF KNOWN CONTROVERSY

During the Notice of Preparation (NOP) process, including the 2017 NOP/Initial Study (IS) and public scoping meeting and the 2019 Updated NOP/IS and public scoping meeting, concerns were expressed regarding development of the Project. The purpose of the NOP and scoping meetings (as well as the public review period of this Draft EIR) was to seek input from public agencies and the general public regarding the environmental issues and concerns that may potentially result from the Project. The primary themes of controversy identified by the general public/agencies include the following potential issues:

- Increased traffic as a result of additional lanes (including potential for congestion from transition of proposed four lanes to two lanes at Los Angeles County line, neighborhood cut-through traffic, etc.)
- Existing, high noise levels from roadway noise that could be increased as a result of increased traffic
- Impacts to wildlife corridors/wildlife movement
- Concerns that the Project is intended to serve future development in the area
- Visual impacts and impacts to cultural resources

This page intentionally left blank.

2.0 INTRODUCTION

2.1 PURPOSE OF THIS DRAFT EIR

2.1.1 AUTHORITY

This Draft Environmental Impact Report (Draft EIR) was prepared in accordance with the California Environmental Quality Act (CEQA) (Public Resources Code §§ 21000, *et seq.*), the CEQA Guidelines (California Code of Regulations, Title 14, §§ 15000, *et seq.*), and the Orange County 2020 Local CEQA Procedures Manual. This Draft EIR assesses the potential impacts associated with the Brea Boulevard Corridor Improvement Project (Project). Orange County Public Works (OC Public Works) is the Lead Agency for the Project pursuant to CEQA.

As stated in Section 15121 of the CEQA Guidelines, an Environmental Impact Report (EIR) is an informational document which will inform decision-makers, public agencies, and the general public about the potential significant environmental effects of a project. It also identifies possible ways to minimize the significant adverse effects of the project and addresses reasonable alternatives to a project. CEQA requires that an EIR contain, at a minimum, the following elements:

- Executive Summary
- Project Description
- Environmental Settings, Impacts, and Mitigation Measures
- Alternatives to the Project
- Growth Inducing Impacts
- Cumulative Impacts
- Effects Not Found to be Significant
- List of Preparers

2.1.2 PREPARATION OF THE DRAFT EIR

This Draft EIR was prepared pursuant to Section 15161 of the CEQA Guidelines which states that a project EIR

“...examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all the phases of the project including planning, construction, and operation.”

This Draft EIR analyzes the reasonably foreseeable environmental consequences anticipated to occur from the construction and operation of the Project.

2.1.3 INCORPORATION BY REFERENCE

In its analysis, this Draft EIR relies upon previously adopted regional and statewide plans and programs, agency standards, and background studies such as the City of Brea General Plan, Municipal Code, and Noise Ordinance, Orange County General Plan, Municipal Code, and Noise Ordinance, and the South Coast Air Quality Management District’s (SCAQMD) CEQA Air Quality Handbook. Whenever existing environmental documentation or previously prepared documents and studies are used in the preparation of this Draft EIR, the information is summarized for the convenience of the reader and incorporated by reference. In addition, each section which relies upon previously adopted plans, programs, environmental

documentation, and background studies notes how it specifically relates to the Project and that the information has been reconfirmed. In accordance with the CEQA Guidelines, Section 15150(b), these documents in this Draft EIR will be made available to the public for inspection at OC Public Works. In addition, these documents and other sources used in preparation of this Draft EIR are identified in Section 12.0 (References) of this Draft EIR.

Technical studies and reports prepared for the Project are included in the Appendices of this Draft EIR and are considered part of the EIR.

2.1.4 INTENDED USES OF THE EIR

The EIR process is specifically designed to facilitate an objective evaluation of the significance of a project's direct, indirect, and cumulative impacts on the environment; provide an analysis of project alternatives; identify measures that would mitigate significant adverse impacts of a project; and provide implementation methods for such mitigation measures. Simply because the EIR addresses a particular issue does not mean that the issue causes a significant adverse impact to the environment. Impacts from the Project may not have a significant effect on the environment, but analysis regarding such matters is included to support the conclusions set forth in this Draft EIR.

This Draft EIR is intended to be used as the CEQA review for the approval and implementation of the Project, including the infrastructure and facilities described in Section 3.0 (Project Description) of this Draft EIR. See Table 2-1 below for a list of permitting agencies, some of whom may use this Draft EIR for their approvals.

**TABLE 2-1
LIST OF POTENTIAL RESPONSIBLE AGENCIES OR AGENCIES
WHO WILL ISSUE PERMITS OR APPROVALS**

AGENCY	APPROVAL/PERMIT
Federal Agencies	
United States Army Corps of Engineers (USACE)	<ul style="list-style-type: none"> • Clean Water Act, Section 404 permit
State Agencies	
California Department of Fish & Wildlife (CDFW)	<ul style="list-style-type: none"> • Section 1602 Streambed Alteration Agreement
Regional Water Quality Control Board (RWQCB) – Santa Ana	<ul style="list-style-type: none"> • Federal Clean Water Act Section 401 Water Quality Certification • National Pollutant Discharge Elimination System (NPDES) permit/notification • Storm Water Pollution Prevention Plan (SWPPP)
California Department of Transportation (Caltrans) District 12	<ul style="list-style-type: none"> • Encroachment Permit
California Division of Occupational Safety and Health (CalOSHA)	<ul style="list-style-type: none"> • Shoring and retaining walls safety approval
County Agencies	
Orange County Board of Supervisors	<ul style="list-style-type: none"> • Certification of the EIR • Project Approval
Regional and Local Agencies	
South Coast Air Quality Management District (SCAQMD)	<ul style="list-style-type: none"> • Form 400A – Permit to Construct and Operate • Form 400CEQA – for Air Quality Impacts • Form 400E13 – for Internal Combustion Engines

Source: AECOM 2022.

Note: As a federal agency, the USACE does not have a CEQA compliance obligation. But, this agency is expected to issue permits for the Project and may rely on the information in the EIR as part of their permit processes.

The Orange County Board of Supervisors acting as governing body of OC Public Works will be responsible for certification of the Final EIR.

2.1.5 AGENCIES HAVING JURISDICTION/POTENTIAL DISCRETIONARY ACTIONS

OC Public Works, as the Lead Agency for this Draft EIR, has discretionary authority over the Project approval. Other responsible agencies have also been identified, consistent with Section 15381 of the CEQA Guidelines, and are listed with their associated project permit/approval in Table 2-1. Responsible agencies are anticipated to use this Draft EIR in their decision making and permitting processes related to implementation of the Project.

2.1.6 AVAILABILITY OF THE DRAFT EIR

Agencies, organizations, and individuals wishing to comment on the information presented in this Draft EIR may do so during the 45-day public review period. All written comments on this Draft EIR will be addressed in the Responses to Comments Report to the extent required by CEQA. The Responses to Comments Report will also be part of the Final EIR and will be presented to the Orange County Board of Supervisors for its consideration of this Draft EIR and the Project.

A copy of this Draft EIR and relevant technical studies are available for review during regular business hours at the following locations:

- County Administrative South OC Public Works
601 N. Ross Street
Santa Ana, CA 92701
Service Hours:
Mon-Fri, 8:00 a.m. to 4:00 p.m.
(714) 667-8888
- Orange County Public Library
La Habra Library
221 E. La Habra Boulevard
La Habra, CA 90631
Service Hours:
Tue-Thurs, 11:00 a.m. to 7:00 p.m.
Fri-Sat, 9:00 a.m. to 5:00 p.m.
(714) 526-7728
- City of Brea
Community Development,
Planning Division
1 Civic Center Circle
Brea, CA 92821
Service Hours:
Mon-Thurs, 7:30 a.m. to 1:00 pm.
Friday, 8:00 a.m. to 1:00 p.m.
Closed every other Friday
(714) 990-7674
- Brea Chamber of Commerce
1 Civic Center Circle, 2nd Floor
Brea, CA 92821
Service Hours:
Mon-Thurs, 9:00 a.m. to 5:00 p.m.
Closed on Fridays
(714) 529-3660

This Draft EIR will be made available on OC Public Works' website. Project information will be available at this web address on an ongoing basis at: <https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/current-projects/4th-district/brea>

2.2 METHODOLOGY

Each environmental parameter discussed in Section 5.0 of this Draft EIR is organized and analyzed as discussed below.

2.2.1 EXISTING CONDITIONS

This section describes the existing environmental conditions for the project area. Normally, the existing conditions are described as they existed at the time the Notice of Preparation (NOP) was published and they constitute the baseline physical conditions against which OC Public Works (Lead Agency) determines whether an impact is considered significant and adverse. Lead agencies may elect to use a different baseline if there is a reasonable basis for doing so. As described in more detail in the individual sections, for some topics, such as traffic, biological resources, and air quality, the existing conditions rely in part on monitoring or counting that is conducted annually and thus reflects the most recent monitoring results. Wherever the environmental setting or existing conditions differ from the conditions at the time of the NOP, the reasons for the differences are summarized and/or described.

2.2.2 THRESHOLDS OF SIGNIFICANCE

Thresholds of significance which are the basis for determining the significance of the Project's impacts are presented in this section of this Draft EIR. With the exception of Transportation Vehicle Miles Travelled (VMT), the County of Orange has not adopted specific thresholds of significance and rather relies upon the specific questions relating to the topical environmental factors listed in Appendix G of the State CEQA Guidelines to assist in the determination of whether there is a potentially significant impact. The Orange County Board of Supervisors adopted County VMT guidelines at its November 17, 2020 meeting pursuant to Senate Bill (SB) 743, establishing VMT analysis methodology and thresholds to be used in CEQA analyses.

2.2.3 METHODOLOGY RELATED TO EACH ENVIRONMENTAL PARAMETER

The procedures and models used to analyze impacts of the Project on each environmental parameter are presented in each individual environmental topic in this Draft EIR. The appropriate scientific analyses and methods are described.

2.2.4 ENVIRONMENTAL IMPACT ANALYSIS

The environmental analysis for each environmental parameter for which the Project may or would result in potentially significant adverse impacts is contained in this section of this Draft EIR. These environmental parameters (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, transportation and traffic, tribal cultural resources, and wildfire) are based on the CEQA Guidelines Checklist (Appendix G), the scoping process, and responses to the NOP.

2.2.5 MITIGATION MEASURES

If the analysis contained in the environmental impacts section concludes that the Project will cause significant adverse impacts on the environment, mitigation measures are identified in this section to minimize or eliminate the significant adverse impacts. Mitigation measures are the mechanisms that reduce, avoid, minimize, or compensate for the potential impacts. Mitigation measures may include standard

conditions based on local, state, or federal regulations, or other additional measures specific to the circumstances of the project area.

2.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

This section identifies unavoidable significant adverse impacts which cannot be mitigated or that remain significant even after mitigation is incorporated in the Project. If significant unavoidable adverse impacts are identified, the Orange County Board of Supervisors acting as governing body of OC Public Works must determine if the benefits from implementing the Project outweigh and override the unavoidable adverse effects created by the Project. If so, the Orange County Board of Supervisors acting as governing body of OC Public Works must adopt a Statement of Overriding Considerations in order to approve the Project.

2.3 BACKGROUND

2.3.1 NOTICE OF PREPARATION AND PUBLIC SCOPING

2.3.1.1 2017 Notice of Preparation/Initial Study and Public Scoping

As required by CEQA, a NOP for the Project was prepared by OC Public Works. The NOP along with an Initial Study (IS) was released on May 2, 2017, for a 30-day public review period which concluded on June 2, 2017. The NOP/IS was distributed to the State Clearinghouse (SCH) Office of Planning and Research, public agencies, interested parties, residences/property owners, and service providers. A copy of the NOP/IS and the distribution list for the NOP/IS are provided in Appendix A of this Draft EIR. A public scoping meeting was held on May 24, 2017 from 6:00 p.m. to 8:00 p.m. at the Mariposa Elementary School Cafeteria located at 1111 West Mariposa Drive, Brea, California, 92821. A brief summary of the purpose of the meeting and purpose of the Project was given by OC Public Works staff. OC Public Works staff provided information on how the public might provide comments on the content and focus of the Draft EIR. In addition, Vintage Canyon Management requested that OC Public Works have another public scoping meeting at the nearby senior center since many of them could not attend the May 24th public scoping meeting due to transportation issues. OC Public Works had another public scoping meeting at the senior center clubhouse (9:00 a.m.) located at 855 N. Brea Boulevard, California, 92821 on May 26, 2017 as requested. A brief summary of the purpose of the meeting and purpose of the Project was given by OC Public Works staff.

OC Public Works received 45 written responses to the NOP/IS (including 16 comment cards from the public scoping meetings). Copies of these comment letters are provided in Appendix B of this Draft EIR. Written comments received during the public scoping meetings are summarized in Table 2-2 and are addressed in the appropriate sections of this Draft EIR, to the extent that the comment raises an issue to be addressed in this Draft EIR in accordance with CEQA.

2.3.1.2 2019 Updated Notice of Preparation/Initial Study and Public Scoping

Soon after the end of the 30-day public review period for the NOP, which concluded on June 2, 2017, the Project was placed on hold to allow the Project to be re-designed. Due to the extended period of time that has elapsed and the Project re-design, an updated NOP/IS was prepared. The updated NOP/IS was released on May 20, 2019, for a 30-day public review period, which concluded on June 19, 2019. Similar to the original NOP/IS, the updated NOP/IS was distributed to the SCH Office of Planning and Research, public agencies, interested parties, residences/property owners, and service providers. A copy of the updated NOP/IS and the distribution list for the updated NOP/IS are provided in Appendix C of this Draft EIR. A

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
State Clearinghouse (SCH) Office of Planning and Research (Letter Dated May 2, 2017)	Courtesy notice from the SCH with a reminder for agencies to comment in a timely manner regarding the NOP. SCH encouraged agencies to respond to this notice and express their concerns regarding the EIR for the Project.	Comment noted.
Native American Heritage Commission (NAHC) (Letter Dated May 4, 2017)	<p>CEQA states that a project that may cause a substantial adverse change in the significance of an historical resources is a project that may have a significant effect on the environment. In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect.</p> <p>CEQA was amended significantly in 2014 (Assembly Bill 52 [AB 52]) to create a separate category of cultural resources (Tribal Cultural Resources). A project with an effect that may cause substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. Public agencies shall, when feasible, avoid damaging effects of any tribal cultural resource. AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015. In addition, SB 18 also has tribal consultation requirements if your project involves the adoption of or amendment to a general plan or specific plan.</p> <p>NAHC recommends lead agencies consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area of the Project as early as possible to avoid inadvertent discovers of native American human remains and best protect tribal cultural resources. Summary of AB 52 and SB 18 are provided as well as the NAHC's recommendation for conducting cultural resource assessments.</p> <p>To adequately assess tribal cultural resources, the NAHC recommends the following actions:</p> <ol style="list-style-type: none"> 1. Contact the appropriate regional California Historic Resources Information System (CHRIS) center for an archaeological records search. 2. If an archaeological inventory is required, the final stage is the preparation of a professional report detailing the findings and recommendation of the records search and field survey. 	<p>Section 5.4 (Cultural Resources)</p> <p>Section 5.12 (Tribal Cultural Resources)</p> <p>Section 5.4 (Cultural Resources) Section 5.12 (Tribal Cultural Resources)</p> <p>Section 5.12 (Tribal Cultural Resources)</p>

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
NAHC (continued)	<ul style="list-style-type: none"> a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure. b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center. 3. Contact NAHC for Sacred Lands File (SLF) search and consult with the appropriate tribe from the Native American Tribal Consultation List concerning the project area and to assist in planning of avoidance, preservation in place, or, failing both, mitigation measures. 4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence. <ul style="list-style-type: none"> a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources. In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities. b. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans. c. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery. 	Section 5.12 (Tribal Cultural Resources)

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
<p>Hui Sung Choe (E-mail dated May 17, 2017)</p>	<p>Commenter expresses support regarding safety improvements to the roadway. The commenter proposes immediately reducing the posted speed limit and provides Federal Highway Authority speed guidelines. Additionally, the commenter proposes for OC Public Works to consider focusing on bicycle, pedestrian and residential friendly road improvements and designating the roadway as a scenic highway with reduced speeds.</p>	<p>Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)</p>
<p>Hui Sung Choe (E-mail dated May 18, 2017)</p>	<p>Commenter shared specific information associated with a traffic accident on Brea Boulevard on the morning of May 18, 2017 for use as an example at the scoping meeting.</p>	<p>Comment noted.</p>
<p>South Coast Air Quality Management District (SCAQMD) (Letter dated May 19, 2017)</p>	<p>Commenter requests a copy of the Draft EIR when it is available and offers the following recommendations regarding the analysis of potential air quality impacts from the Project that should be addressed as part of the Draft EIR:</p> <ul style="list-style-type: none"> • Use of SCAQMD’s 1993 Air Quality Handbook; • Use of CalEEMod land use emissions software; • Use of SCAQMD regional and localized air quality significance thresholds; • Identification of potential adverse air quality impacts that could occur from all phases of the Project and all air pollutant sources related to the Project (including construction and operation).; • Preparation of a mobile source Health Risk Assessment if the project generates or attracts vehicular trips, especially heavy-duty diesel-fueled trucks (recommend use of Health Risk Assessment Guidance); • Analysis of all toxic air contaminants; • Use of California Air Resource Board’s Air Quality and Land Use Handbook: A Community Health Perspective and Guidance to reduce air pollution exposure near high-volume roadways; • Identification of all feasible mitigation measures using resources identified in the comment letter; • Consideration and discussion of alternatives to the Project; and • Identification of SCAQMD as a responsible agency should the Project require a permit from SCAQMD. <p>Commenter also provides contact and webpage information.</p>	<p>Comment noted. Section 5.2 (Air Quality) Section 5.6 (Greenhouse Gas Emissions and Energy) Section 6.0 (Alternatives to the Project)</p>

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Department of Conservation, Division of Oil, Gas, and Geothermal Resources (Division) (Letter dated May 23, 2017)	Commenter indicates there are at least five oil and gas wells located within or in close proximity to the Project boundary and notes the following: <ul style="list-style-type: none"> • If any wells, including any plugged, abandoned or unrecorded wells, are damaged or uncovered during excavation or grading, remedial plugging operations may be required. If such damage or discovery occurs, the Division’s district office must be contacted to obtain information on the requirements and approval to perform remedial operations. • The possibility for future problems from oil and gas wells that have been plugged and abandoned, or reabandoned, to the Division’s current specifications are remote. However, the Division recommends that a diligent effort be made to avoid building over any plugged and abandoned well. Commenter requests OC Public Works contact the Construction Well Site Review Program for a well consultation and provides contact and webpage information.	Comment noted. Section 5.7 (Hazards and Hazardous Materials)
Robert Levering (Letter dated May 24, 2017)	Commenter expresses concerns regarding coordination with the County of Los Angeles related to traffic safety at the Orange/Los Angeles County line where the proposed four lanes would transition to two lanes, construction-related road closures, funding, increases in noise, and wildlife movement.	Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report
Susan Fujioka (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter states that a maximum weight limit needs to be set on Brea Boulevard and utility lines need to be undergrounded to reduce fire hazard. Commenter suggests a Project alternative involving a total of three lanes (two northbound and one southbound) with specific turning requirements at Canyon Country Road. The commenter also submitted an attachment regarding a Tonner Canyon Recreation and Facility Conceptual Plan, an article regarding a City of Industry plan for a reservoir, and an article regarding the City of Industry negotiations associated with a 2,500-acre parcel of land.	Comment noted. Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.11 (Transportation and Traffic) Section 5.13 (Wildfire) Section 6.0 (Alternatives to the Project)
Sean Thomas (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter states the Project is a waste of money and recommends Project funds be spent on State Route 57 (SR-57) Freeway.	Comment noted.

TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Ralph Richardson (Card #1) (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter expresses concern for contaminated soil and additional Project costs should contamination be encountered during construction.	Comment noted. Section 5.7 (Hazards and Hazardous Materials)
Ralph Richardson (Card #2) (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter considers Los Angeles County residents as the beneficiaries of the Project at Orange County residents' expense and that the Project would be growth inducing. Commenter is concerned with Project costs, noise, air pollutants, and aesthetics. Commenter considers the interchange at State Routes 57 and 60 to be the main problem affecting Brea.	Comment noted. Section 3.0 (Project Description) Section 5.1 (Aesthetics) Section 5.2 (Air Quality) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Section 7.0 (Growth Inducing Impacts)
Daniece Cicchelli (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter expresses concern regarding noise abatement and sound walls that could block views.	Section 5.10 (Noise)
Deana Provencher (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter expresses support for the Project, especially regarding safety.	Comment noted.
Claire Schlotterbeck (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter expresses concern for wildlife movement, citing Tonner Canyon Bridge underpass as a critical juncture that must be analyzed in detail. Commenter states that lighting would have a detrimental impact to wildlife movement and that noise impacts (with respect to wildlife movement) must also be analyzed.	Section 5.1 (Aesthetics) Section 5.3 (Biological Resources) Section 5.10 (Noise)
Mike Laybourn (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter requests bike lanes be added as part of the Project and that OC Public Works work with Los Angeles County to extend bike lanes northward along Brea Boulevard.	Comment noted. Section 3.0 (Project Description)
Susan Perlson (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter requests existing neighborhood cut-through traffic be addressed, that oil lines, wells, and equipment meet current safety standards, and that bike trails be made as safe as possible. Commenter is concerned with traffic safety at the Orange/Los Angeles County line where the proposed four lanes would transition to two lanes and suggests the EIR include traffic accident statistics.	Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Diana Engler (Public Scoping Meeting Comment Card from May 24, 2017)	Commenter asks where the retaining walls would be located and about the details of the signal replacement at Canyon Country Road/Brea Boulevard (noting that there are a number of residences needing access at this location.)	Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic)
California Department of Transportation (Caltrans) (Letter dated May 24, 2017)	<p>Commenter identifies Project description-related information from the NOP and states Caltrans' mission and responsibilities under the Local Development-Intergovernmental Review Program and that Caltrans is considered a commenting agency on the Project. Commenter offers the following comments/requests for consideration:</p> <ul style="list-style-type: none"> • Requests intersection analysis for Brea Boulevard and southbound SR-57 on ramp at an existing uncontrolled intersection. Intersection Control Evaluation Policy Directive (attached to the comment letter) can be referred to if there is a need to control the intersection; • A Traffic Management Plan would need to be developed to address impacts on SR-57 facilities during construction; and • An encroachment permit must be obtained for any encroachment into State highway rights of way. 	Comment noted. Section 5.11 (Transportation and Traffic)
Tom and Winnie Kwan (E-mail dated May 25, 2017)	Commenters anticipate the Project resulting in unavoidable adverse impacts and believe the Project should not be approved due to significant public health and safety concerns. The commenters describe existing traffic conditions on Brea Boulevard and believe the Project would not alleviate existing traffic concerns, but rather would increase traffic and the occurrence of accidents. The commenters also list general concerns regarding temporary road/lane and bike lane closures, impacts to recreational hikers and local flora and fauna, water quality in Brea Creek, and the proposed slope cut.	Comment noted. Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.3 (Biological Resources) Section 5.5 (Geology and Soils) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic) Section 10.0 (Unavoidable Adverse Impacts)
City of Brea (Letter dated May 25, 2017)	<p>Commenter lists the following items that should be analyzed and properly mitigated (if applicable):</p> <ul style="list-style-type: none"> • City of Brea traffic circulation, including streets and signalized intersections; • Growth inducing impacts; • City of Brea facilities and infrastructure, including water, sewer, and storm drains; and 	Comment noted. Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.9 (Land Use and Planning) Section 5.11 (Transportation and Traffic)

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<ul style="list-style-type: none"> Consistency with the Brea General Plan, specifically the goals, objectives, and policies and specific guidance for Brea Boulevard regarding design, lane configuration, and inclusion of a Class 1 (off street) bikeway. 	Section 7.0 (Growth Inducing Impacts)
Raymond Naples (E-mail dated May 25, 2017)	Commenter anticipates an increase in traffic due to cumulative development and believes a sound wall would be necessary along the east side of the roadway, north of Canyon Country Road. Commenter expresses concern regarding existing and future intersection safety at Canyon Country Road traffic signal, existing and future neighborhood cut-through traffic, and increased truck activity on Brea Boulevard.	Comment noted. Section 3.0 (Project Description) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)
Southern California Gas Company (SoCalGas) (Letter dated May 26, 2017)	<p>Commenter identifies Project description-related information from the NOP and offers the following comments/requests:</p> <ul style="list-style-type: none"> SoCalGas has distribution pipelines within City of Brea streets and recommends Underground Service Alert (811) be called at least two days prior to any excavation; and Requests SoCalGas be coordinated with should the Project require abandonment, relocation, or modification to any of SoCalGas facilities. <p>Commenter provides contact information.</p>	Comment noted.
Dolores Valenti (Public Scoping Meeting Comment Card from May 26, 2017)	Commenter indicates a preference of no Project and expresses concerns regarding existing street crossing safety.	Comment noted. Section 6.0 (Alternatives to the Project)
Jane Dage (Public Scoping Meeting Comment Card from May 26, 2017)	Commenter expresses concerns regarding existing noise levels, existing speeding motorists, and existing unsafe street crossing conditions. Commenter recommends widening the freeway, adding speedbumps, and asks about planned heavy equipment parking.	Section 3.0 (Project Description) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Orange County Fire Authority (OCFA) (Letter dated May 30, 2017)	Commenter expresses concern regarding the new raised roadway median and potential impediment of access to communities and businesses, and requests additional information displaying access points into communities and businesses.	Comment noted. Section 4.0 (Effects Found Not to be Significant) Section 5.7 (Hazards and Hazardous Materials) Section 5.13 (Wildfire)
Ken Crowder (Letter #1) (E-mail dated May 30, 2017)	Commenter expresses concerns regarding wildlife in general and wildlife movement with respect to the proposed roadway widening.	Comment noted. Section 5.3 (Biological Resources)
Ken Crowder (Letter #2) (E-mail dated May 30, 2017)	Commenter feels existing northbound traffic issues would not be improved since the roadway would transition from two to one lane at the Orange/Los Angeles County line and states opposition to the Project if the underlying purpose is to serve future development along the roadway. The commenter expresses concern that the Project would result in an increase in traffic, resulting in increased maintenance costs. The commenter recommends funds for the Project be considered for Highway 60 instead. Commenter notes that signalization would be needed at Tonner Canyon, which would result in additional traffic enforcement.	Comment noted. Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report
Metropolitan Water District of Southern California (Metropolitan) (Letter dated May 31, 2017)	Commenter identifies Project description-related information from the NOP and provides information identifying Metropolitan’s service area and mission. Commenter offers the following comments: <ul style="list-style-type: none"> • Metropolitan owns and operates the 36-inch Orange County Feeder pipeline, which is located parallel to Brea Boulevard in the project area and has the potential to be impacted by the Project; and • Metropolitan must be allowed to maintain its rights-of-way and unobstructed access to its facilities and requires any design plans for the Project be submitted to Metropolitan for their review and approval (and that they clearly identify Metropolitan’s facilities and rights-of-way). Commenter provides contact information for Metropolitan’s Substructures Team, a map of its facilities in the project area, and a copy of “Guidelines for Developments in the Area of Facilities, Fee Properties, and/or Easements of the Metropolitan Water District of Southern California.”	Comment noted.

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
California Department of Transportation (Caltrans) (Letter dated June 1, 2017)	<p>Commenter identifies Project description-related information from the NOP and states Caltrans' responsibilities under the Local Development-Intergovernmental Review Program. Commenter offers the following comments/requests for consideration:</p> <ul style="list-style-type: none"> • Requests intersection analysis for the Brea Boulevard and southbound SR-57 on ramp at an existing uncontrolled intersection. Intersection Control Evaluation Policy Directive (attached to the comment letter) can be referred to if there is a need to control the intersection; • A Traffic Management Plan would need to be developed to address impacts on SR-57 facilities during construction; and • An encroachment permit must be obtained for any encroachment into State highway rights of way; a weblink to the Encroachment Permits procedure is provided. 	Comment noted. Section 5.11 (Transportation and Traffic)
Orange County Transportation Authority (OCTA) (Letter dated June 1, 2017)	The commenter recommends a shoulder wider than eight feet be provided to allow for greater transportation options along Brea Boulevard, that the County of Orange Major Riding & Hiking Trails and Off-Road Paved Bikeways Map (March 2008) and the Brea Bike Plan (August 2003) be evaluated for consistency with local plans for bikeways, and that OCTA bus stops and routes within the Project vicinity be identified (specifically Route 129 along Brea Boulevard and Central Avenue).	Comment noted. Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.9 (Land Use and Planning) Section 5.11 (Transportation and Traffic)
Beth Naples (E-mail dated June 1, 2017)	Commenter does not support the Project and feels there are better options to address the roadway issues in the area. The commenter questions why OC Public Works would pay for these improvements to address peak-hour traffic, which the commenter believes are not associated with Brea or Orange County residents and who have access to the adjacent freeway. Commenter expresses concerns regarding increased traffic, traffic impacts at the Orange/Los Angeles County line, and roadway safety. Commenter recommends improving existing lighting, reducing speed limits, adding traffic signals, and adding medians in lieu of the Project as proposed. The commenter also feels the area should be better patrolled by law enforcement officers to deter certain motorist behaviors and increase safety. The commenter feels the Project would increase traffic noise.	Comment noted. Section 3.0 (Project Description) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
<p>California Department of Parks and Recreation (Letter dated June 2, 2017)</p>	<p>Commenter identifies the Inland Empire District of the Department of Parks and Recreation’s mission and stewardship responsibility of Chino Hills State Park. The Commenter expresses concern regarding wildlife movement and vehicle-wildlife collisions. The Commenter requests the Draft EIR include specific wildlife movement studies, including measures to reduce vehicle-wildlife collisions, such as wildlife fencing designed to funnel wildlife to safe passageways.</p>	<p>Comment noted. Section 5.3 (Biological Resources)</p>
<p>California Department of Fish and Wildlife (CDFW) (Letter dated June 2, 2017)</p>	<p>Commenter identifies Project description-related information from the NOP and states CDFW’s authority as a Trustee and a Responsible Agency. Commenter offers the following comments/recommendations for consideration:</p> <ul style="list-style-type: none"> • A minimum, no net loss of either wetland habitat values or acreage is required should the Project require conversion of wetlands to uplands (mitigation measures to compensate for impacts to mature riparian corridors and loss of function and value of a wildlife corridor must be included); • A jurisdictional delineation, conducted pursuant to the U.S. Fish and Wildlife Service wetland definition, should be included in the Draft EIR; • Impacts to stream or riparian resources (and appropriate mitigation) should be fully identified in the Draft EIR, and written notification to CDFW must be provided pursuant to section 1600 et seq. of the Fish and Game Code; • Impacts to species protected by the California Endangered Species Act (CESA) is prohibited, except as authorized, and any Project-related “take” of such species would require appropriate take authorization, in which early consultation is encouraged; • Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements of the CESA Incidental Take Permit; • The Draft EIR should contain a complete Project description discussion, including purpose and need, locations of staging areas and access routes during construction, and a range of feasible alternatives; • The Draft EIR should provide a complete assessment of the flora and fauna within and adjacent to the project area, including a species compendium undertaken at the appropriate time of year; • The Draft EIR should include regional setting information, a thorough, recent floristic-based assessment and mapping (using Sawyer <i>et al.</i> 2008) of special status plants and natural communities, evaluation of direct and indirect impacts, 	<p>Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 6.0 (Alternatives to the Project) Section 8.0 (Cumulative Impacts)</p>

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<p>current inventory of biological resources (using the California Natural Diversity Data Base), and inventory of rare, threatened, endangered, and other sensitive species on site and within the area that could be affected;</p> <ul style="list-style-type: none"> • The Draft EIR should provide a thorough discussion of direct, indirect, and cumulative impacts associated with lighting, noise, human activity, exotic species, and drainage (changes to drainage patterns, volume, velocity, water quality, soil erosion, sedimentation, groundwater, etc.), resources in nearby lands, wildlife corridor/movement area, increased wildlife-human interaction, etc.; • The Draft EIR should provide mitigation measures that fully mitigate all potential Project-related impacts to biological resources and provides specific information and recommendations regarding such measures; and • The Draft EIR should include a thorough discussion of Polyphagous and Kuoshio Shot Hole Borers (SHBs) that could occur from the potential spread of SHBs associated with the Project, figures that depict known occurrences or potentially sensitive or susceptible vegetation communities to SHBs, and mitigation describing best management practices associated with SHBs. 	
<p>Shute Mihaly & Weinberger LLP on behalf of Hills for Everyone (Letter dated June 2, 2017)</p>	<p>Commenter identifies the mission of Hills For Everyone and expresses concern regarding the Project’s potential to adversely impact wildlife and watershed resources. The commenter believes the NOP and Initial Study should have provided detailed biological and hydrological setting information and analysis of impacts and indicates that if the Draft EIR does not provide such information, it would be legally inadequate under CEQA. Commenter expresses specific concerns regarding critical wildlife corridors in the area, especially for movement between the Puente Hills and Chino Hills, and identifies Tonner Canyon as “the last viable opportunity to maintain and enhance a critical ecological linkage between the Puente and Chino Hills”. Other specific concerns identified by the commenter include dewatering, increased traffic, vehicle-wildlife collisions, lighting, and cumulative effects. The commenter states a detailed biological resources analysis must be prepared by a qualified, independent biologist with expertise in upland riparian habitats, and that it must be based on surveys and detailed field studies that are completed at appropriate times of the year for each species potentially occurring in the area. The commenter also states that the Draft EIR must analyze potential impacts to hydrology and water quality.</p> <p>The commenter requests that OC Public Works revise and recirculate the NOP to include detailed biological and hydrological setting information and analysis of impacts, and if OC Public Works chooses not to recirculate the NOP, the commenter requests to be informed</p>	<p>Comment noted.</p> <p>Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)</p>

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	of all notices, hearings, staff reports, briefings, meetings, and other events, including release of the Draft EIR, associated with the Project.	
John Bickel (E-mail dated June 2, 2017)	Commenter expresses concerns regarding encountering contaminated soil during Project construction from historic oil company activity and recommends proper environmental site assessment prior to construction, as well as testing of any imported soil. Commenter expresses concerns regarding historic resources and water quality associated with runoff and/or spills from the roadway.	Section 3.0 (Project Description) Section 5.4 (Cultural Resources) 5.7 (Hazards and Hazardous Materials) Section 5.8 (Hydrology and Water Quality)
Rick Clark (E-mail dated June 2, 2017)	Commenter requests information regarding the agency that made the decision to initiate the Project and what the goals, objectives, and benefits of the Project. Commenter questions if the stated Level of Service improvement (LOS F to LOS A) is achievable, and requests that the traffic model include the following cumulative development projects: Central Park Brea, La Floresta and Hines Brea Place, and the redesign of the SR-57/Lambert Road Interchange.	Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)
Susan Fujioka (E-mail dated June 2, 2017)	<p>Commenter suggests a number of improvements to Brea Boulevard, including removal of merge lanes, widening medians, reducing speed limits, limiting allowable truck weights, undergrounding utilities, adding street lights, limiting parking, adding traffic signals, etc. The commenter references proposals regarding reservoirs and residential development in the general Brea Canyon area and believes the Project is intended to accommodate this development. Commenter lists other cumulative development, such as “Brea Park Central” and “Hines” and questions if these will be considered as part of the traffic analysis.</p> <p>Commenter expresses concern regarding the Orange/Los Angeles County line where the proposed four lanes would transition to two lanes and suggests a Project alternative involving a total of three lanes (two northbound and one southbound).</p>	<p>Comment noted.</p> <p>Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project) Section 8.0 (Cumulative Impacts)</p>
Anthony Santos (E-mail dated June 2, 2017)	Commenter expresses concerns regarding increased traffic on State College as a result of the Project and requests sound walls be provided.	Section 5.10 (Noise) Section 5.11 (Transportation and Traffic)
Jeff and Nanci Hill (E-mail dated June 3, 2017)	Commenters are opposed to the Project, listing the following reasons: increased traffic through Brea (cut-through traffic); increased number of accidents; increased noise; increased undesirable activity from motorists (e.g., speeding, running red lights, cut-through, etc.). The commenters request Tonner Canyon exit be closed and that truck drivers not be allowed to park and sleep there. The commenters consider Los Angeles County residents and motorists associated with the “Hines Project” as the beneficiaries of the Project, not Brea or Orange County residents.	<p>Comment noted.</p> <p>Section 3.0 (Project Description) Section 5.10 (Noise) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)</p>

**TABLE 2-2
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2017 NOP/IS AND PUBLIC SCOPING MEETINGS**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Michelle Stephens (E-mail dated June 3, 2017)	Commenter feels the roadway was intended to be a small canyon road that is rural in nature. Commenter indicates a preference of no Project.	Section 3.0 (Project Description)
Dwight Manley (Public Scoping Meeting Comment Card Received by Mail, June 5, 2017)	Commenter lists items regarding: 8-foot shoulder; turnouts for wrecks; right turn only at Central Avenue; “Settlers Monument”; and lighting.	Comment noted. Section 3.0 (Project Description) Section 5.1 (Aesthetic) Section 5.4 (Cultural Resources) Section 5.11 (Transportation and Traffic)
Elaine Maloney (Public Scoping Meeting Comment Card Received by Mail, June 5, 2017)	Commenter indicates a preference of no Project (does not agree to any construction on the roadway) and feels it would add traffic and be unsafe.	Comment noted. Section 5.11 (Transportation and Traffic)
Jean Miller (Public Scoping Meeting Comment Card Received by Mail, June 5, 2017)	Commenter expresses concerns regarding crosswalk safety, especially at State College Street/Central Avenue, and lists items regarding cultural markers, removal of oil lines by oil company, contaminated soil, and cameras at signalized intersections.	Comment noted. Section 3.0 (Project Description) Section 5.4 (Cultural Resources) 5.7 (Hazards and Hazardous Materials) Section 5.11 (Transportation and Traffic)
Patricia Naylor (Public Scoping Meeting Comment Card Received by Mail, June 5, 2017)	Commenter requests consideration of a traffic signal at a left turn north from Central Avenue at Brea Boulevard.	Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)
Puente Hills Habitat Preservation Authority (Letter dated June 22, 2017)	Commenter identifies the Puente Hills Habitat Preservation Authority’s joint powers authority and mission, and expresses support for the comments on the NOP made by Shute, Mihaly & Weinberger representing Hills For Everyone. The commenter expresses concern for wildlife movement in the area and possible restriction of the Puente-Chino Hills Wildlife Corridor by the Project. The commenter recommends the Draft EIR examine improvements to facilitate safe wildlife passage “at this critical chokepoint”.	Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)

Source: AECOM 2022.

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Daniece Cicchelli (Public Scoping Meeting Comment Card from May 29, 2019)	Comment card is unreadable from scanned copy.	
Anonymous (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter recommends installation of retaining walls, coordinating with the County of Los Angeles, and leaving Brea Canyon as a two-lane road.	Comment noted. Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)
Gary Busted (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter expresses concern regarding traffic and that the Project will increase traffic in Diamond Bar. The commenter expresses concerns regarding bicycle safety, wildlife movement/crossings, downstream erosion from channel improvements, aesthetic impacts of road widening/retaining walls, and historical context of bridges. The commenter recommends the EIR to consider existing studies conducted on Puente Hills and that culverts are designed for wildlife crossing.	Comment noted. Section 3.0 (Project Description) 5.1 (Aesthetics) Section 5.3 (Biological Resources) Section 5.4 (Cultural Resources) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic)
William Connelly (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter suggests widening the road but maintaining two lanes with a wide shoulder until other improvements to SR-57 and 60 are made.	Comment noted. Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)
Gordon Greenbank (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter expresses concerns regarding increased traffic and recommends eliminating truck access on the road.	Comment noted. Section 5.11 (Transportation and Traffic)
William Hurley (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter recommends extending the road widening to SR- 57. The commenter states a preference for a two-lane road with a median and would like to preserve the Portola Monument. The commenter also recommends conducting construction during 9am-4pm to not intervene with daily rush hour, or overnight.	Comment noted. Section 5.4 (Cultural Resources) Section 5.11 (Transportation and Traffic)
Gabriel Linares (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter recommends protected bike lanes, that semi-trucks be prohibited on Brea Boulevard, and that landscaping be added. The commenter also mentions sight distance, light, and bridge widening.	Comment noted. Section 3.0 (Project Description) 5.1 (Aesthetics) Section 5.11 (Transportation and Traffic)

TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Rose and Fernando Sena (Public Scoping Meeting Comment Card from May 29, 2019)	Commenter is concerned with noise impacts from the Project and asks if sound walls will be implemented.	Comment noted. Section 5.10 (Noise and Vibration)
Lynne Shapiro (Public Scoping Meeting Comment Card from May 29, 2019)	The commenter states a concern regarding wildlife encroaching into housing development and need for vector control.	Comment noted. Section 5.3 (Biological Resources)
William (Bill) Connelly (E-mail dated May 21, 2019)	Commenter is concerned with increased traffic, noise, and vehicles speeds, as well as slope stability pertaining to the hillside slope cut and retaining wall associated with widening.	Section 5.5 (Geology and Soils) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic)
Lee Yates (E-mail dated May 21, 2019)	Commenter expresses concerns with conflicts with the Lambert/SR-57 Exchange Project (On-Ramp Project) and construction-related traffic near Brea Mall and Imperial Highway.	Comment noted. Section 5.11 (Transportation and Traffic)
Sprint (E-mail dated May 29, 2019)	Commenter provided e-mail and correct mailing list for future correspondence. Commenter believes the Project would not conflict with Sprint's facilities.	Comment noted
City of Diamond Bar, Public Works Department (E-mail dated May 30, 2019)	Commenter would like more information regarding Project, particularly regarding potential for cut-through traffic in City of Diamond Bar.	Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic)
Puente-Chino Hills Task Force of the Sierra Club (E-mail dated May 30, 2019)	Commenter requests the EIR analyze the following issues: <ul style="list-style-type: none"> • Growth inducing impacts of the Project • Wildlife movement in the Puente-Chino Wildlife Corridor • Traffic impacts to City of Brea • Project alternative that addresses road and channel improvements without road widening 	Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.3 (Biological Resources) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project) Section 7.0 Growth Inducing Impacts

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Bennet Perlson (E-mail dated May 30, 2019)	Commenter expresses support for the project; however, the commenter has concerns regarding noise and air quality. Commenter would like to be informed if there will be any sound walls or barriers. The commenter would also like to be informed regarding signal modifications.	Comment noted. Section 3.0 (Project Description) Section 5.2 (Air Quality) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic)
Carol Whitaker (E-mail dated May 30, 2019)	Commenter is concerned with traffic congestion at the transition from four to two lanes. Commenter also expresses concern regarding impacts to the visual character and history of the canyon.	Comment noted. Section 5.1 (Aesthetics) Section 5.4 (Cultural Resources) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report
Puente Hills Habitat Preservation Authority (Letter dated May 31, 2019)	Letter from the Puente Hills Habitat Preservation Authority noting discussions OC Public Works regarding a time extension for their comments on the NOP.	Comment noted.
Susan Perlson (E-mail dated May 31, 2019)	Commenter expresses support for the Project, but recognized concerns regarding noise and air quality. The comment suggests tree planting and sound wall installation as potential mitigation.	Comment noted. Section 5.2 (Air Quality) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic)
Brea Museum & Historical Society (E-mail dated June 1, 2019)	Commenter is concerned with increased traffic and does not believe that widening of the road would decrease traffic congestion. The commenter is also concerned with the proposed timing of construction and associated traffic diversions. The commenter proposed widening SR-57 instead. The commenter also notes that the Brea Museum & Historical Society has not been consulted regarding cultural resources and expresses concerns regarding the Portola Monument and the balustrade from the bridges. The Brea Museum & Historical Society would like to be advised of any plans regarding plans and work with the Cultural Resources Management firm.	Comment noted. Section 5.4 (Cultural Resources) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Greg Kerby (E-mail dated June 4, 2019)	The commenter is concerned with the level of coordination between OC Public Works and the County of Los Angeles/City of Diamond Bar and with traffic impacts resulting from the transition of the existing two-lane road to a proposed four-lane road. The commenter is concerned with existing and future safety and recommends a median crash rail for safety precautions.	Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report
Chris Wolfs (E-mail dated June 5, 2019)	Commenter expresses opposition to the Project. Commenter believes Brea Boulevard should be repaired only and is concerned with impacts related to traffic and visual character of the canyon and surrounding hills.	Comment noted. Section 5.1 (Aesthetics) Section 5.11 (Transportation and Traffic)
Gary Busted (E-mail dated June 6, 2019)	Commenter reiterates concerns from scoping meeting comment card regarding increased traffic in Diamond Bar, impacts to wildlife movement/crossings, bicycle safety, and justification of channel improvements related to flooding along Brea Boulevard. Commenter requests alternatives to identified channel improvements.	Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)
Lee Paulson (E-mail dated June 7, 2019)	The commenter believes congestion on Brea Boulevard will continue due to existing and continued congestion on SR-57 and expresses concern that the transition from the widened four-lane road to a two-lane road would create congestion due to merging. The commenter recommends fixing the SR-57 and State Route 60 interchange.	Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project) Appendix O, Traffic Impact Analysis Report
Native American Heritage Commission (Letter dated June 7, 2019)	CEQA states that a project that may cause a substantial adverse change in the significance of an historical resources is a project that may have a significant effect on the environment. In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect. CEQA was amended significantly in 2014 (AB 52) to create a separate category of cultural resources (Tribal Cultural Resources). A project with an effect that may cause substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. Public agencies shall, when feasible, avoid damaging	Section 5.4 (Cultural Resources) Section 5.12 (Tribal Cultural Resources)

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<p>effects of any tribal cultural resource. AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015. In addition, SB 18 also has tribal consultation requirements if your project involves the adoption of or amendment to a general plan or specific plan.</p> <p>NAHC recommends lead agencies consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area of the Project as early as possible to avoid inadvertent discovers of native American human remains and best protect tribal cultural resources. Summary of AB 52 and SB 18 are provided as well as the NAHC’s recommendation for conducting cultural resource assessments.</p> <p>To adequately assess tribal cultural resources, the NAHC recommends the following actions:</p> <ol style="list-style-type: none"> 1. Contact the appropriate regional California Historic Resources Information System (CHRIS) center for an archaeological records search. 2. If an archaeological inventory is required, the final stage is the preparation of a professional report detailing the findings and recommendation of the records search and field survey. <ol style="list-style-type: none"> a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure. b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center. 3. Contact NAHC for Sacred Lands File (SLF) search and consult with the appropriate tribe from the Native American Tribal Consultation List concerning the project area and to assist in planning of avoidance, preservation in place, or, failing both, mitigation measures. 4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence. <ol style="list-style-type: none"> a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources. In areas of identified archaeological sensitivity, a certified 	

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<p>archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.</p> <p>b. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.</p> <p>c. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.</p>	
Daniece Cicchelli (E-mail dated June 8, 2019)	Commenter is concerned with traffic congestion at the transition from four to two lanes and believes current speed limits are too high.	<p>Comment noted.</p> <p>Section 3.0 (Project Description)</p> <p>Section 5.11 (Transportation and Traffic)</p> <p>Appendix O, Traffic Impact Analysis Report</p>
Heather Lovejoy (E-mail dated June 8, 2019)	Commenter is concerned regarding construction-related detours and closures, overlapping construction schedules with other road construction projects, and associated safety issues.	<p>Comment noted.</p> <p>Section 5.11 (Transportation and Traffic)</p>
Phil Brigandi (E-mail dated June 9, 2019)	Commenter expresses concerns for Portola Monument. The commenter recommends mitigation for relocating the monument.	<p>Comment noted.</p> <p>Section 5.4 (Cultural Resources)</p>
Sherry Farley for Native Daughters of the Golden West (E-mail dated June 10, 2019)	Commenter expresses concerns regarding the preservation of Portola Monument and provides history and background of the Native Daughters of the Golden West and the monument. The commenter recommends relocation of the monument.	<p>Comment noted.</p> <p>Section 5.4 (Cultural Resources)</p>
The Drapkowski Family (Letter dated June 11, 2019)	Commenter expresses concerns regarding traffic at the transition from four to two lanes, noise, air quality, safety, historic/cultural resources, wildlife movement, aesthetics, and acquiring private property. The commenter recommends delaying construction until work is finished on the Lambert/SR-57 Exchange Project (On-Ramp Project), that all utilities are undergrounded, and that Brea Boulevard is closed during construction so that work finishes more quickly.	<p>Comment noted.</p> <p>Section 3.0 (Project Description)</p> <p>Section 4.14 (Utilities and Service Systems)</p> <p>Section 5.1 (Aesthetics)</p> <p>Section 5.2 (Air Quality)</p> <p>Section 5.3 (Biological Resources)</p> <p>Section 5.4 (Cultural Resources)</p>

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
		Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic) Appendix O, Traffic Impact Analysis Report
Peggie Boss (E-mail dated June 14, 2019)	Commenter is concerned with traffic impacts during construction, which could combine with other road construction/improvement projects, affecting navigation through the City of Brea. The commenter is also concerned with air quality, noise and effects to scenic beauty.	Comment noted. Section 5.1 (Aesthetics) Section 5.2 (Air Quality) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)
Ted DeWitt (E-mail dated June 14, 2019)	Commenter is opposed to the Project and is concerned with wildlife movement/conflicts and congestion tied to the transition from four to two lanes.	Comment noted. Section 5.3 (Biological Resources) Section 5.11 (Transportation and Traffic)
Jeff and Nanci Hill (E-mail dated June 16, 2019)	Commenters express concerns regarding the visual character and quality of the canyon, increased noise, increased traffic and safety concerns, and impacts to biological resources. Commenters are also concerned with traffic from development within Tonner Hills and construction-related overlap with the Lambert/SR-57 Exchange Project (On-Ramp Project).	Section 5.1 (Aesthetics) Section 5.3 (Biological Resources) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic)
Tom and Winnie Kwan (E-mail dated June 18, 2019)	Commenters anticipate the Project resulting in unavoidable adverse impacts and believe the Project should not be approved due to significant public health and safety concerns. The commenters describe existing traffic conditions on Brea Boulevard and believe the Project would not alleviate existing traffic concerns, but rather would increase traffic and the occurrence of accidents. The commenters also list general concerns regarding temporary road/lane and bike lane closures, impacts to recreational hikers and local flora and fauna, water quality in Brea Creek, and the proposed slope cut.	Section 4.0 (Effects Found Not to be Significant) Section 5.2 (Air Quality) Section 5.5 (Geology and Soils) Section 5.8 (Hydrology and Water Quality) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic) Section 10.0 (Unavoidable Adverse Impacts)
Friends of the Whittier Hills (Letter dated June 17, 2019)	Commenter expresses concerns regarding impacts to biological resources, specifically wildlife corridors. The commenter requests that an independent party evaluate the Biological Resources section of the EIR.	Section 5.3 (Biological Resources)

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
<p>Sierra Club, San Gabriel Valley Task Force (Letter dated June 17, 2019)</p>	<p>The commenter expresses concerns regarding the widening of Brea Boulevard in relation to the Puente-Chino Hills Wildlife Corridor. The commenter requests the following issues be addressed in the EIR:</p> <ul style="list-style-type: none"> • Interference of movement of any native species, including migratory patterns or that actions that impede the use of wildlife nursery sites. Appropriate avoidance strategies or mitigation must be included. • Impacts to protected species, including coastal California gnatcatcher and impacts to designated Critical Habitat for the coastal California gnatcatcher. • Impacts to riparian areas and wetlands. • Increase in traffic with the associated noise and light for impacts to wildlife and their movements. Evaluation of potential passageways under the highway and wildlife overpasses should be considered for mitigation. • Impacts of lighting, noise and activity at night, sundown and early morning on wildlife movement and offer appropriate avoidance strategies or mitigation. • Consideration of the impacts of staging areas on wildlife and natural vegetation during construction. • Cultural resources, including associated with the Portola Monument that passed through the area, and coordination with local tribal groups such as the Kizh and Tongva. • Growth inducement and in relation to adjacent development of the oil field property. 	<p>Comment noted. Section 4.0 (Effects Found Not to be Significant) Section 5.3 (Biological Resources) Section 5.4 (Cultural Resources) Section 5.11 (Transportation and Traffic) Section 7.0 (Growth Inducing Impacts) Section 8.0 (Cumulative Impacts)</p>
<p>Shute Mihaly and Weinberger LLP for the Hills for Everyone (Letter dated June 17, 2019)</p>	<p>Commenter identifies the mission of Hills For Everyone and expresses concern regarding the Project’s potential to adversely impact wildlife and watershed resources. The commenter believes the NOP and Initial Study should have provided detailed biological and hydrological setting information and analysis of impacts and indicates that if the Draft EIR does not provide such information, it would be legally inadequate under CEQA. Commenter expresses specific concerns regarding critical wildlife corridors in the area, especially for movement between the Puente Hills and Chino Hills, and identifies Tonner Canyon as “the last viable opportunity to maintain and enhance a critical ecological linkage between the Puente and Chino Hills”. Other specific concerns identified by the commenter include dewatering, increased traffic, vehicle-wildlife collisions, lighting, impacts to Brea Channel, cumulative effects, and alternatives. The commenter states a detailed biological resources analysis must be prepared by a qualified, independent biologist with expertise in upland riparian habitats, and that it must be based on surveys and detailed field studies that are completed at appropriate times of the year for each species potentially occurring in the</p>	<p>Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.8 (Hydrology and Water Quality) Section 6.0 (Alternatives to the Project) Section 8.0 (Cumulative Impacts)</p>

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<p>area. The commenter also states that the Draft EIR must analyze potential impacts to hydrology and water quality.</p> <p>The commenter requests that OC Public Works revise and recirculate the NOP to include detailed biological and hydrological setting information and analysis of impacts, and if OC Public Works chooses not to recirculate the NOP, the commenter requests to be informed of all notices, hearings, staff reports, briefings, meetings, and other events, including release of the Draft EIR, associated with the Project.</p>	
<p>The Metropolitan Water District of Southern California (Letter dated June 17, 2019)</p>	<p>Commenter identifies Project description-related information from the NOP and provides information identifying Metropolitan’s service area and mission. Commenter offers the following comments:</p> <ul style="list-style-type: none"> • Metropolitan owns and operates the 36-inch Orange County Feeder pipeline, which is located parallel to Brea Boulevard in the project area and has the potential to be impacted by the Project; and • Metropolitan must be allowed to maintain its rights-of-way and unobstructed access to its facilities and requires any design plans for the Project be submitted to Metropolitan for their review and approval (and that they clearly identify Metropolitan’s facilities and rights-of-way). <p>Commenter provides contact information for Metropolitan’s Substructures Team, a map of its facilities in the project area, and a copy of “Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan’s Facilities and Rights-of-Way” (July 2018).</p>	<p>Comment noted. Section 3.0 (Project Description)</p>
<p>Doug Barcon (E-mail dated June 18, 2019)</p>	<p>The commenter is concerned with wildlife movement related to raised concrete median barriers and is concerned with removal of vegetation. The commenter also expresses overall concern with adjacent development of the oil field property and associated increases in traffic congestion on Brea Boulevard.</p>	<p>Comment noted. Section 5.3 (Biological Resources) Section 5.11 (Transportation and Traffic) Section 8.0 (Cumulative Impacts)</p>
<p>Teresa Crescione (E-mail dated June 18, 2019)</p>	<p>Commenter opposes widening of Brea Boulevard and expresses concerns that it would create more traffic. Commenter recommends lowering the speed limit on the road and believes flooding is not an issue for the road.</p>	<p>Comment noted. Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic)</p>
<p>Kenny Vinh (E-mail dated June 18, 2019)</p>	<p>The commenter expresses support for the Project and recommends constructing sound walls for homes whose backyard faces the road.</p>	<p>Comment noted. Section 5.10 (Noise and Vibration)</p>

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
Matt Weidler (E-mail dated June 17, 2019)	Commenter expresses concerns regarding project construction conflicting with the Lambert/SR-57 Exchange Project (On-Ramp Project) construction.	Comment noted. Section 3.0 (Project Description)
Orange County Transportation Authority (Letter dated June 18, 2019)	OCTA would like clarification if a Class 1 (off street) bikeway is proposed. Additionally, the comment letter noted that the MPAH Guidance does not specify design speeds for the number of through lanes.	Comment noted. Section 3.0 (Project Description) Section 5.11 (Transportation and Traffic)
California Department of Conservation Division of Oil, Gas and Geothermal Resources (Letter dated June 19, 2019)	<p>Commenter indicates the presence of oil field production facilities and multiple active, idle, and plugged oil and gas wells within or near the road limits and notes the following:</p> <ul style="list-style-type: none"> • If any wells, including any plugged, abandoned or unrecorded wells, are damaged or uncovered during excavation or grading, remedial plugging operations may be required. If such damage or discovery occurs, the Division’s district office must be contacted to obtain information on the requirements and approval to perform remedial operations. • The possibility for future problems from oil and gas wells that have been plugged and abandoned, or re-abandoned, to the Division’s current specifications are remote. However, the Division recommends that a diligent effort be made to avoid building over any plugged and abandoned well. <p>Commenter requests OC Public Works contact the Construction Well Site Review Program for a well consultation and provides contact and webpage information.</p>	Comment noted. Section 5.7 (Hazards and Hazardous Materials)
California Department of Fish and Wildlife (Letter dated June 19, 2019)	<p>Commenter identifies Project description-related information from the NOP and states CDFW’s authority as a Trustee and a Responsible Agency. Commenter offers the following comments/recommendations for consideration in the EIR:</p> <ul style="list-style-type: none"> • Discuss, in specific terms, how the Project would avoid impacting lands covered by the Tonner Hills Conservation Easement Deed; • Utilize Wildlife Crossing Guidance Manual (Caltrans 2007) to develop mitigation measures related to wildlife corridors (particular concern is noted at Tonner Canyon between the Puente and Chino Hills); • A minimum, no net loss of either wetland habitat values or acreage is required should the Project require conversion of wetlands to uplands (mitigation measures to compensate for impacts to mature riparian corridors and loss of function and value of a wildlife corridor must be included); • A jurisdictional delineation, conducted pursuant to the U.S. Fish and Wildlife Service wetland definition, should be included in the Draft EIR; • Impacts to stream or riparian resources (and appropriate mitigation) should be fully identified in the Draft EIR, and written notification to CDFW must be provided pursuant 	Comment noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.9 (Land Use and Planning) Section 5.10 (Noise and Vibration) Section 6.0 (Alternatives to the Project) Section 8.0 (Cumulative Impacts)

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
	<p>to section 1600 et seq. of the Fish and Game Code;</p> <ul style="list-style-type: none"> • Impacts to species protected by the California Endangered Species Act (CESA) is prohibited, except as authorized, and any Project-related “take” of such species would require appropriate take authorization, in which early consultation is encouraged; • Biological mitigation monitoring and reporting proposals should be of enough detail and resolution to satisfy the requirements of the CESA Incidental Take Permit; • The Draft EIR should contain a complete Project description discussion, including purpose and need, locations of staging areas and access routes during construction, and a range of feasible alternatives; • The Draft EIR should provide a complete assessment of the flora and fauna within and adjacent to the project area, including a species compendium undertaken at the appropriate time of year; • The Draft EIR should include regional setting information, a thorough, recent floristic-based assessment and mapping (using Sawyer <i>et al.</i> 2008) of special status plants and natural communities, evaluation of direct and indirect impacts, current inventory of biological resources (using the California Natural Diversity Data Base), and inventory of rare, threatened, endangered, and other sensitive species on site and within the area that could be affected; • The Draft EIR should provide a thorough discussion of direct, indirect, and cumulative impacts associated with lighting, noise, human activity, exotic species, and drainage (changes to drainage patterns, volume, velocity, water quality, soil erosion, sedimentation, groundwater, etc.), resources in nearby lands, wildlife corridor/movement area, increased wildlife-human interaction, migratory birds/nesting birds, etc.; • The Draft EIR should provide mitigation measures that fully mitigate all potential Project-related impacts to biological resources and provides specific information and recommendations regarding such measures; and • The Draft EIR should include a thorough discussion of Polyphagous and Kuoshio invasive shot hole borers (ISHBs) that could be spread as a result of the Project, figures that depict known occurrences or potentially sensitive or susceptible vegetation communities to ISHBs, and mitigation describing best management practices associated with ISHBs. 	

TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
California Department of Transportation (Caltrans) (Letter received June 19, 2019)	<p>Commenter identifies Project description-related information from the NOP and offers the following comments/requests for consideration:</p> <ul style="list-style-type: none"> • Please provide the Traffic Impact Study for Caltrans to review and provide comments. • Recommend that a dedicated bicycle facility be developed for this Project, such as Class II lanes. This increases safety for bicyclists, considering that current posted speeds on the road are 55 mph. • Ensure that appropriate measures are taking to ensure the safety of bicyclists in the project area. These measures may include improved connections to existing bicycle facilities nearby. • Analyze Brea Boulevard intersection with the southbound SR-57 on-ramp at an uncontrolled intersection using the methodologies of the latest Highway Capacity Manual (2016). A Traffic Management Plan would need to be developed to address impacts on SR-57 facilities during construction. • Develop, implement, and maintain a Stormwater Pollution Prevention Plan (SWPPP), conforming to the requirements of the Caltrans Specification Section, “Water Pollution Control Program (WPCP)”, the Department Statewide NPDES Permit, the General NPDES Permit for Construction Activities, and the Storm Water Quality Handbooks “SWPPP and WPCP Preparation Manual”, and “Construction Site Best Management Practices (BMPs) Manual,” and subsequent revisions. In addition, the SWPPP must conform to the requirements of the State Water Resources Control Board (SWRCB) Resolution No. 2001-046, the Sampling and Analytical Procedures Plan. • Any work done in the Caltrans right-of-way (R/W) will require discretionary review and approval by Caltrans, and an encroachment permit will be required for any work within Caltrans R/W prior to construction. 	Section 3.0 (Project Description) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic)
Citizens for Open and Public Participation (E-mail dated June 19, 2019)	Commenter lists seismic considerations and recommends a geotechnical study be performed.	Section 5.5 (Geology and Soils)
Stephen Blagden (E-mail dated June 19, 2019)	Commenter recommends consideration of planned improvements at the SR-57/SR-60 interchange and how they would affect the need for the Project and recommends analyzing a range of alternatives. The commenter disagrees that there would be a less than significant impact to groundwater supplies and requests analysis of alteration to hydrology. The commenter would like growth inducement studied in the EIR as well.	Comment noted. Section 4.0 (Effects Found Not to be Significant) Section 5.8 (Hydrology and Water Quality) Section 5.11 (Transportation and Traffic)

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
		Section 6.0 (Alternatives to the Project) Section 7.0 (Growth Inducing Impacts) Section 8.0 (Cumulative Impacts)
Orange County Fire Authority (OCFA) (E-mail dated June 19, 2019)	Commenter has no comments.	Commented noted.
Orville Culp (Letter dated June 19, 2019)	Commenter has concerns for the Project regarding traffic, noise, and safety. Commenter recommends improvements involving: adding a signal at Tonner Canyon interchange, widening SR-57, adding a bike lane to Brea Boulevard, improving bridges to allow for wildlife passage, limit truck access, and sound walls. The commenter recommends construction of the Project not overlap with the Lambert/SR-57 Exchange Project (On-Ramp Project).	Commented noted. Section 3.0 (Project Description) Section 5.3 (Biological Resources) Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic)
Sierra Club, Diamond Bar – Pomona Valley Task Force (Letter dated June 19, 2019)	The commenter is concerned with impacts to the Puente-Chino Hills Wildlife Corridor/wildlife movement, impacts to riparian habitat and other sensitive natural communities, impacts to protected wildlife species, wildlife-vehicle conflicts, appropriate mitigation, and increased (induced) traffic. The commenter recommends the EIR provide vegetation mapping conducted in a non-drought year	Comment noted. Section 5.3 (Biological Resources) Section 5.11 (Transportation and Traffic)
Trang Phan (E-mail dated June 19, 2019)	The commenter expresses support for the Project and recommends constructing sound walls for homes whose backyard faces the road.	Comment noted. Section 5.10 (Noise and Vibration)
Puente Hills Habitat Preservation Authority (Letter dated June 20, 2019)	<p>Commenter identifies the Puente Hills Habitat Preservation Authority’s joint powers authority and mission. The commenter is concerned with impacts to the Puente-Chino Hills Wildlife Corridor, including wildlife movement, health of the ecosystem, and habitat and corridor fragmentation.</p> <p>Additional concerns identified include: protected species and species of special concern, critical habitat for California gnatcatcher, riparian habitat and sensitive natural communities, wetlands, nursery sites, appropriate design of bridges for wildlife movement/passage, lighting and noise, alternatives to less impacts to biological resources, historical and archaeological resources and human remains, accidental release of hazardous materials, population inducement/facilitation, and traffic (e.g., level of service, vehicle miles traveled, etc.).</p>	<p>Comment noted</p> <p>Section 3.0 (Project Description) Section 4.0 (Effects Found Not to be Significant) Section 5.1 (Aesthetics) Section 5.3 (Biological Resources) Section 5.4 Cultural Resources Section 5.10 (Noise and Vibration) Section 5.11 (Transportation and Traffic) Section 6.0 (Alternatives to the Project)</p>

**TABLE 2-3
SUMMARY OF WRITTEN COMMENTS IN RESPONSE TO THE 2019 UPDATED NOP/IS AND PUBLIC SCOPING MEETING**

RESPONDENT	SUMMARY OF COMMENTS	WHERE COMMENT IS ADDRESSED IN EIR
		Section 7.0 (Growth Inducing Impacts) Section 8.0 (Cumulative Impacts)
Ramon Xu (E-mail dated June 20,2019)	Commenter expresses concerns regarding increase in noise and requests consideration of mitigation measures for noise.	Section 5.10 (Noise and Vibration)

Source: AECOM 2022

public scoping meeting was held on May 29, 2019 from 6:00 p.m. to 7:30 p.m. at the Mariposa Elementary School Cafeteria located at 1111 West Mariposa Drive, Brea, California, 92821. A brief summary of the purpose of the meeting and purpose of the Project was given by OC Public Works staff. OC Public Works staff provided information on how the public might provide comments on the content and focus of the Draft EIR.

OC Public Works received 53 written responses to the updated NOP/IS (including nine comment cards from the public scoping meeting). Copies of the comment letters are provided in Appendix D of this Draft EIR. Table 2-3 summarizes the comment letters and indicates where in this Draft EIR each specific issue raised in these comment letters are addressed, to the extent that the comment raises an issue to be addressed in this Draft EIR in accordance with CEQA.

This page intentionally left blank.

3.0 PROJECT DESCRIPTION

3.1 PROJECT BACKGROUND AND LOCATION

Orange County Public Works (OC Public Works) has identified the need to widen Brea Boulevard consistent with the Orange County Transportation Authority (OCTA) Master Plan of Arterial Highways (MPAH) (OCTA 2020). The Brea Boulevard Corridor Improvement Project (Project) is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”); refer to Figure 3-1, Regional Map, and Figure 3-2, Vicinity Map.

3.2 ENVIRONMENTAL SETTING AND EXISTING CONDITIONS

Brea Boulevard is a 30-foot-wide, two-lane, undivided highway (one lane in each direction) with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. Other portions of the roadway are improved with curb, gutter, and sidewalk. The posted speed limit is 55 miles per hour (MPH) in the unincorporated portion of the corridor, and 45 MPH in the City of Brea at the southern end of the corridor. Brea Boulevard has remained unchanged since the roadway was realigned to its present configuration between 1928 and 1930 with right-of-way (R/W) width that varies between 60 to 100 feet.

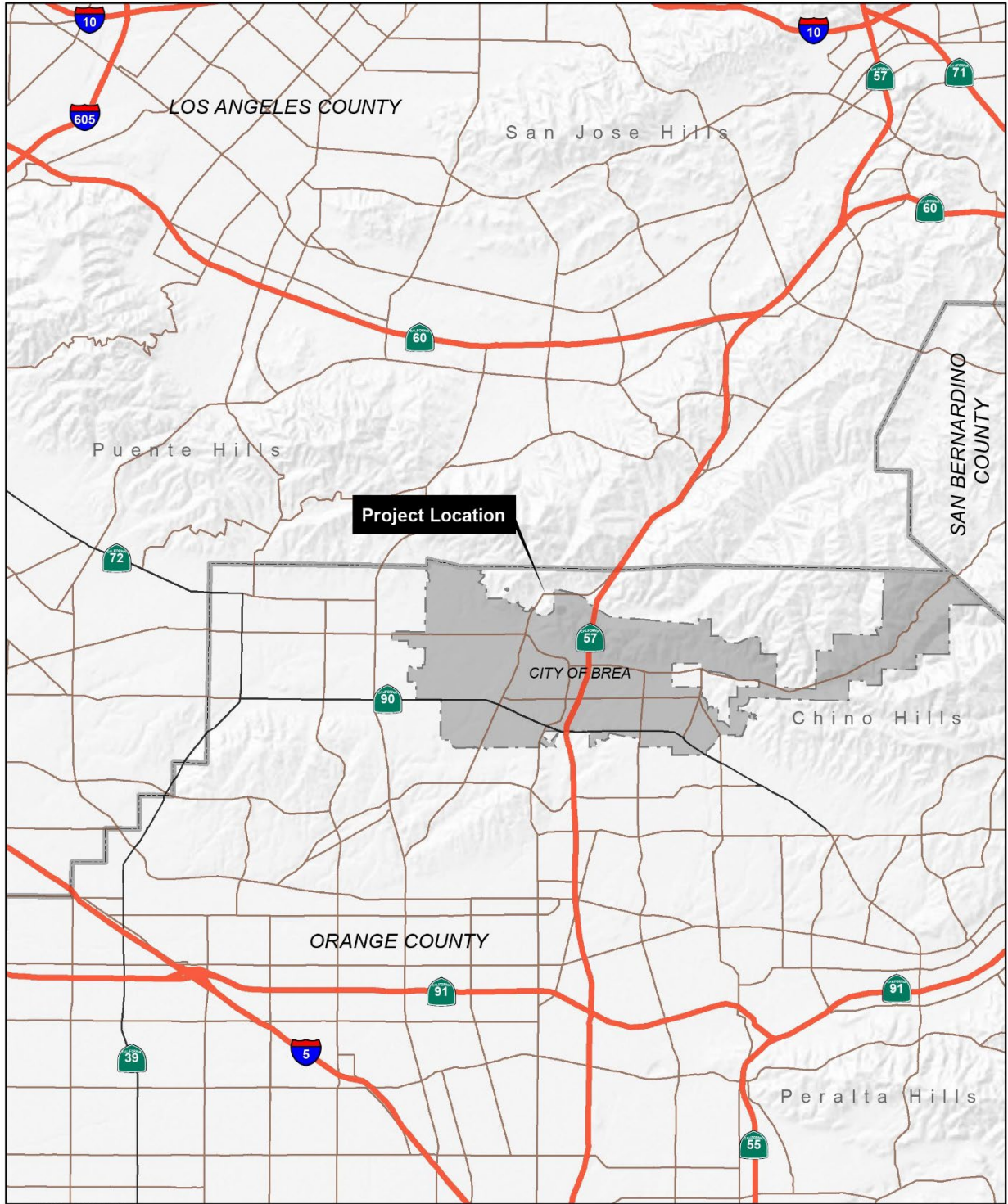


Source: AECOM 2020.



Source: AECOM 2020.

There are three bridges crossing Brea Creek within the corridor: a two-span reinforced concrete slab bridge constructed circa 1920 and widened circa 1929 (Bridge 1 [#55C0121]), a two-span reinforced concrete T-beam bridge constructed circa 1930 (Bridge 2 [#55C0122]), and a three-span reinforced concrete T-beam bridge constructed circa 1939 (Bridge 3 [#55C0123]). In addition to the three bridges there are approximately thirteen existing culvert crossings (for drainage or utilities or both).



Source: OPCW and AECOM (2022).



**Figure 3-1
Regional Map**

— Brea Boulevard Corridor Improvement Project



**Figure 3-2
Vicinity Map**

Brea Boulevard Corridor Improvement Project

The following land uses surround the corridor:

- North of the corridor is an active oil field and natural open space within unincorporated Orange County. Much of this area is property owned by Cal Resources LLC and Brea Hills LLC. North of the eastern end of the corridor on property owned by Cal Resources LLC is a commercial vehicle storage facility for several lessees.
- East of the corridor is SR-57 and Tonner Canyon Road.
- South and west of the corridor is the City of Brea and associated residential areas, with general commercial and public facility land uses. Immediately south of the middle stretch of the corridor are steep slopes containing additional oil field activity and the Humble Reservoir.

3.3 PROJECT PURPOSE, NEED, AND BENEFITS

Brea Boulevard presently meets the classification for a Collector Arterial Highway in the Orange County General Plan Transportation Element (2020), which should accommodate between 7,500 to 10,000 Average Daily Traffic (ADT, is the number of vehicles two-way passing a specific point in a 24-hour period). With traffic volumes for Brea Boulevard between 17,000 to 22,000 ADT as of November 4, 2019, the roadway should match the OCTA MPAH designation for a Primary Arterial Highway which can accommodate 20,000 to 30,000 ADT.

The three bridges within the corridor are functionally obsolete, meaning they have exceeded their design lives, do not have the adequate geometry to accommodate the proposed corridor improvements, and should be replaced. Replacing the bridges will present an opportunity to increase the flood conveyance under the bridges to current design standards and avoid emergency response delays during larger storm events.

The Project is located along the southern perimeter of a regional wildlife corridor, Puente Hills-Chino Hills Wildlife Corridor, that connects the Santa Ana Mountains in the southeast to the Whittier Hills area to the northwest. Enhancing wildlife movement will conserve and provide greater connectivity for wildlife while potentially reducing the risk for wildlife collisions with traffic.

Throughout the corridor, sight distance (the distance a driver can see unobstructed) does not meet current design standards and the Project provides an opportunity to enhance driver sight distance.

Currently, there are multiple driveways throughout the corridor that serve as access for the adjacent active oil field. There is an opportunity with the Project to improve and enhance the ingress and egress to limit potential traffic delays from large, specialized equipment accessing the field.

The intersection of Brea Boulevard and Tonner Canyon Road is an unsignalized, three-way T-intersection with stop control on Tonner Canyon Road. Motorists on Tonner Canyon Road suffer undue delay at Brea Boulevard, and traffic control features will be added to improve traffic flow at this intersection as part of the Project.

3.4 PROJECT OBJECTIVES

Project objectives include the following:

- Improve Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the MPAH;

- Replace three functionally obsolete bridges over Brea Creek with bridges that meet current design standards;
- Increase flood conveyance of Brea Creek under the three bridges;
- Enhance safe wildlife movement across the roadway within the corridor;
- Improve roadway to meet current design standards;
- Redesign the Brea Boulevard/Tonner Canyon Road intersection;
- Minimize impacts to the surrounding habitat and wildlife; and
- Minimize impacts to above/underground utilities.

3.5 DESCRIPTION OF THE PROJECT

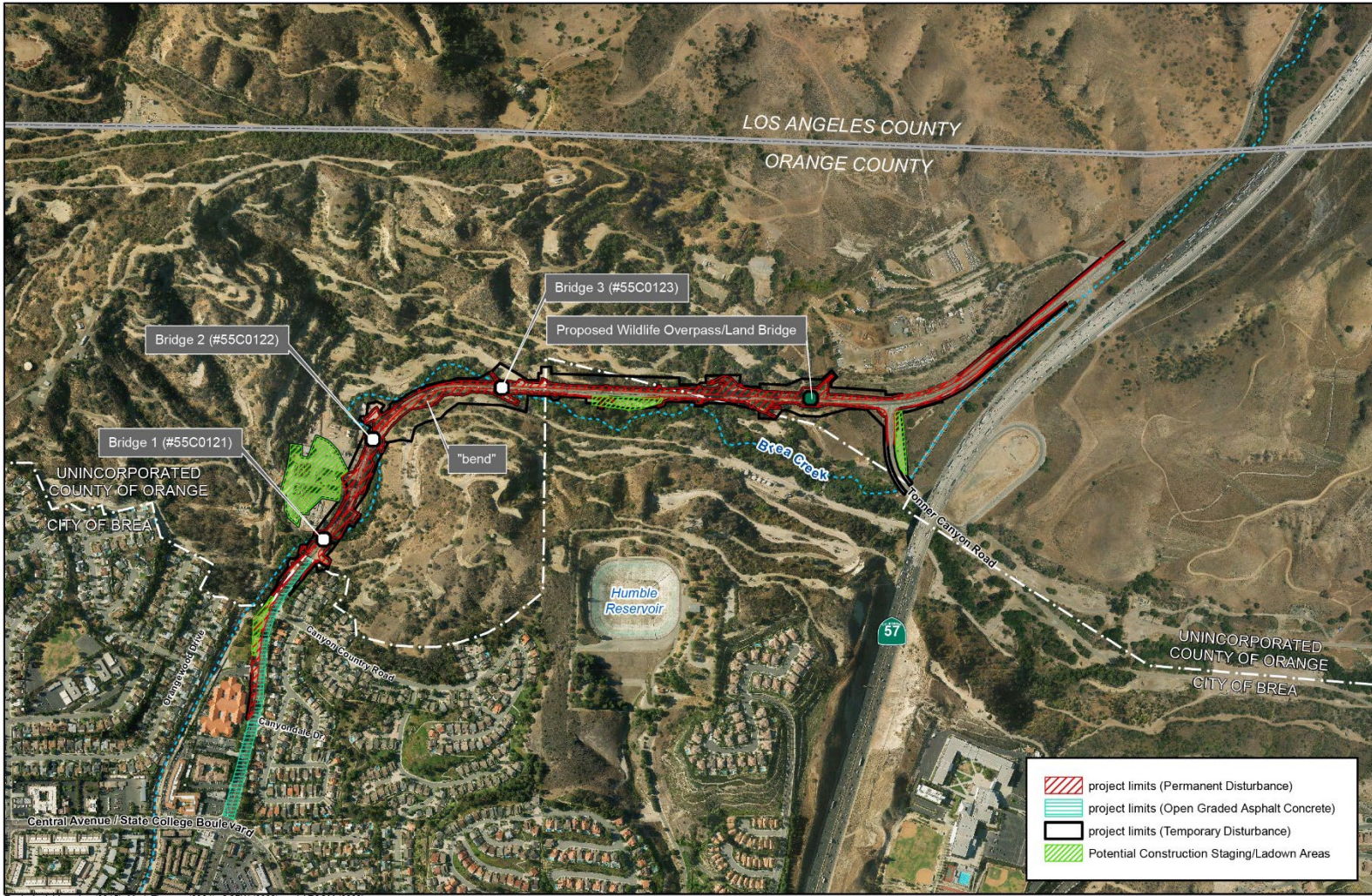
The Project involves widening Brea Boulevard from two to four lanes (two lanes each direction) between Canyondale Drive and the northern end of the corridor (approximately 1.5 miles), replacing and widening three functionally obsolete bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge, adding open graded asphalt concrete paving (OGAC) at the southern end of the corridor, and providing striping and installing new signage. Construction of these improvements would be conducted within permanent and temporary limits of disturbance along the corridor (i.e., the project limits; refer to Figure 3-3, Proposed Project). The Project's main elements are described below.

3.5.1 ROADWAY WIDENING

Brea Boulevard will be widened from two to four lanes (two lanes each direction) with 12 feet wide lanes, shoulders that will vary from 6 feet to 10 feet wide, and a median that is either 12 feet wide raised with limited landscaping, 6 feet wide with a concrete barrier, or striped of varying widths. Widening would occur between Canyondale Drive and the SR-57 southbound on-ramp, a total length of approximately 8,100 linear feet or 1.5 miles. In an effort to limit the footprint of the Project the design will utilize a modified Primary Arterial Highway per OC Public Works' Standard Plan 1103 for Standard Street Sections (OC Public Works 2018) which includes: R/W width less than 100 feet; reducing the median width to less than 14 feet; and no sidewalk throughout the limits within unincorporated County. Within the City of Brea, the roadway section will be a modified Primary Arterial Highway Section per City of Brea's Standard Plan 109-0 (City of Brea 2013a) to match the existing roadway configuration south of the corridor by reducing the shoulder width.

3.5.2 BRIDGE REPLACEMENT, VERTICAL ALIGNMENT, AND CULVERT CROSSING MODIFICATIONS

Road widening will require replacement of the three bridges within the corridor, all of which are over 80 years old and functionally obsolete. The creek underneath Bridge 2, and Bridge 3 will be converted from concrete to a natural soft bottom and Bridge 1 will remain a natural soft bottom. To increase the hydraulic capacity underneath the three bridges, the height and span of each bridge will increase. The new bridge sections are considered a modified Primary Arterial Highway Bridge Sections per OC Public Works' Standard Plan 1104 for Standard Street Sections (OC Public Works 2018) because the median width is increased but it will not include a sidewalk.



Eagle Aerial Imaging (2015), Mark Thomas (2021), OCPW (2022), and AECOM (2022).

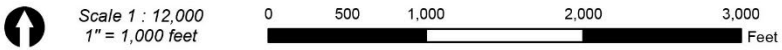


Figure 3-3
Proposed Project

Brea Boulevard Corridor Improvement Project

The vertical alignment (road elevation) of the road between Canyon Country Road to after Bridge 3 will increase by 5 feet or less to increase the elevation of the bridge decks which increases hydraulic capacity while not impacting Brea Creek, reduce the volume of exported material from cut slopes, and reduces the retaining wall height at the curve within the corridor (i.e., the “bend” as seen in Figure 3-3).

There are approximately 13 culvert crossings (for drainage or utilities or both) that will need to be extended or reconfigured as part of the widening.

Bridge replacement and culvert work will require dewatering⁴. Dewatering will consist of sand bag cofferdams to divert the water around the piers and abutments depending on phasing of the Project. Additionally, Bridges 1, 2, and 3 will each require abutment facing walls that will extend to 10 feet below the creek surface, which may result in the need to temporarily pump groundwater from the vicinity of the proposed walls during installation. Also, if a bridge requires full closure for construction, surface dewatering may consist of temporary pumping from upstream of bridge to downstream.

3.5.3 HORIZONTAL ALIGNMENT, SUPERELEVATION, AND SLOPE CUT

The horizontal alignment of the existing roadway will be modified to increase sight distance and minimize the footprint of the Project. The horizontal curves between Canyon Country Road and Bridge 3 will vary from the original alignment to increase the radius to soften the curve⁵.

East of Bridge 3, two new horizontal curves will be added to slightly shift the roadway to the north to minimize the impact to utilities on the south. A third horizontal curve will shift the roadway back to its original alignment at the intersection of Brea Boulevard and Tonner Canyon Road.

Throughout the corridor, a superelevation (i.e., angle of roadway banking within the turn) will be implemented in accordance with applicable roadway design standards so that roadway users can comfortably navigate the roadway within unincorporated County at the design speed of 45 to 55 MPH.

Due to the steep topography of the area adjacent to the roadway, stability of roadway cut and fill will require approximately 16 retaining walls throughout the corridor. Typical wall heights vary from 8 feet to 32 feet with an average of approximately 20 feet along the corridor. One wall, located at the “bend”, will be approximately 60 feet tall.

3.5.4 WILDLIFE MOVEMENT ENHANCEMENTS

To enhance wildlife movement across Brea Boulevard between Bridge 1 and Tonner Canyon Road, the three existing bridges (and their undercrossings) will be widened and a new wildlife overpass/land bridge would be constructed.

All three existing bridges will be enlarged/expanded, resulting in their openness ratios⁶ being increased. The existing bridge designs have two to three internal support walls that will be eliminated with the new bridge designs. Hence the openness ratio post-construction will be greatly improved for Bridges 1, 2, and

⁴ For construction work within wet conditions (such as for culverts and bridges) water needs to be removed from the work area to avoid soil erosion and provide a safe workspace.

⁵ Horizontal curves are defined as a circular transition between two straight lines that allow vehicles to negotiate turns at design speed. The radius of these circular transitions determines the sharpness or softness of the curve for motorists navigating the roadway. The shorter the radius is, the sharper the turn; increasing the radius of a horizontal curve will soften the curve.

⁶ Openness ratio is defined as the width of an undercrossing (horizontal distance between each wall) multiplied by the height, and divided by the length (the distance an animal has to travel to pass through the undercrossing). In general, the greater the openness ratio of an undercrossing, the more likely it is to be used by a variety of species, especially large herbivores.

3. Because existing culverts will need to be lengthened commensurate with the wider roadway, their openness ratios will decrease if their cross sections are not also expanded. Widening of some culverts would occur where culverts have the potential to function for small animal passage, along with improvements such as using alternative erosion treatments (e.g., articulated hydraulic block) at culvert outlets in lieu of other more common treatments that limit wildlife passage such as rock rip-rap.

A new wildlife overpass/land bridge would be installed approximately 550 feet west of the Brea Boulevard/Tonner Canyon Road intersection, where the roadway is presently situated approximately 25 feet lower than the adjacent ridges on both sides. The wildlife overpass/land bridge structure will be a single-span cast-in-place (CIP) prestressed concrete box girder that is 85 feet long by 75 feet wide, spanning the full width of the widened roadway and matching the existing top of ridge on either side (with minimum vertical clearance of over 19 feet above the widened roadway). Three feet of earthen fill will be placed on top of the structure to preserve a natural appearance for wildlife and allow for growth of shallow-rooted vegetation. Cast-in-place parapet walls will be used to retain the fill and to provide a visual barrier for wildlife. Parapet mounted fencing is required to provide continuity with fences at the approaches to the bridge to guide animals to the crossing location. The structure will be supported by seat type abutments on cast-in-drilled-hole (CIDH) concrete piles with CIP fascia walls.

To ensure effective use of existing bridge undercrossings, culverts, and the overpass/land bridge, and to promote motorist safety by preventing wildlife vehicle collisions, wildlife fencing (6.5 to 8 feet in height) will be constructed on both sides of the widened roadway throughout the corridor where concrete retaining walls (>8 feet in height) that supersede the need for fencing are not present. Wildlife fencing is a critical element that funnels animals to the overpass/land bridge and/or through underpasses (bridges and culverts) where below-grade crossings are unaffected by vehicular traffic that otherwise presents a barrier to at-grade crossings.

While an essential element, there are several considerations for erecting fences along the roadway. There are multiple driveway access roads along the corridor requiring control measures to prevent animal breaches of wildlife fencing. Control measures at these locations may include cattle guards/grates, swinging metal gates, or electrified mats imbedded into the pavement which safely deter wildlife entry. To address breaches of wildlife fencing, wildlife “jump-outs”/escape ramps will be provided to facilitate escape. Cost-effective and maintenance-free jump-outs (5.5–6 feet above the outside terrain) will be integrated at suitable retaining walls and bridge abutments. In order to provide at least two escape points (one on each side of the road) spaced along each 0.5 mile of roadway, engineered escape ramps will be integrated with fencing to provide elevated escapes where retaining walls and bridge abutments do not already provide for escape. The beginning and ending of the corridor, and at Tonner Canyon Road as it approaches SR-57 will include fence termination designs at structural, topographic, or other barriers to minimize wildlife entry.

3.5.5 RIGHT-OF-WAY ACQUISITION, DRIVEWAY ACCESS, AND UTILITY RELOCATIONS

The Project will require road easements, retaining wall easements, slope easements, temporary construction easement, basin easements, and utility easements.

The Project will require permanent partial property acquisitions for road easements R/W, retaining wall easements, slope easements, and easements for water quality features from adjacent private properties. During construction, temporary construction easements are required from adjacent private properties. Overall, the Project will require approximately 114,000 square feet (SF) of road easement, approximately 123,000 SF of retaining wall easement, approximately 614,000 SF of temporary construction easement, approximately 68,000 SF of slope easement, and approximately 10,000 SF for water quality features.

There are many existing driveway access points to properties that front Brea Boulevard. Existing access points will be maintained, modified, relocated, consolidated and/or otherwise enhanced. In addition, the Project will require relocation of utilities and oilfield-related equipment which will require permits and/or agreements with the owners.

3.5.6 INTERSECTION SIGNALIZATION, OPEN GRADED ASPHALT CONCRETE, STRIPING, AND SIGNAGE

The existing one-way stop-controlled T-intersection at Tonner Canyon Road and Brea Boulevard is proposed to be signalized to enhance safety by reducing potential conflicts between motorists attempting to merge in either direction onto Brea Boulevard. Tonner Canyon will be resurfaced and restriped to approximately 300 feet south of the intersection.

Installation of a new traffic signal approximately 1,200 feet north of Canyon Country Road will allow left turn movement onto Brea Boulevard for the oil field operator from their facility west of Brea Boulevard.

The existing traffic signal poles and equipment at Brea Boulevard and Canyon Country Road will be replaced to accommodate the road widening.

Additionally, to reduce the existing high traffic noise levels along Brea Boulevard, OGAC paving will be installed at the southern end of the corridor to minimize roadway surface noise in the City of Brea. OGAC will be added from Central Avenue/State College Boulevard north to the City/unincorporated County boundary (a total length of approximately 2,000 feet). This surface treatment will provide a noise reduction.

Striping and appropriate signage will be provided throughout the corridor and the Brea Boulevard design speed will vary from 45 MPH to 55 MPH.

3.5.7 CONSTRUCTION

3.5.7.1 Construction Schedule and General Activity

The Project is anticipated to be divided into two phases:

- Phase I will include utility relocations, the infrastructure necessary for utility companies to relocate their utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, associated temporary transition pavement, and associated grading; and
- Phase II will include the widening of the road, OGAC paving, the three intersections at Canyon Country Road, 1,200 feet north of Canyon Country Road, and at Tonner Canyon Road, along with other associated roadway features.

Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026.

The normal hours of construction for the Project would be between 7:00 am and 7:00 pm, Monday through Saturday, consistent with the City of Brea Municipal Code, which does not regulate noise from construction activities that are limited to these daytime hours. However, due to bridge replacement-related work construction will require periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. During these times (up to a maximum 26 weekends with the full roadway closure), construction activities would occur outside the normal hours

of construction, as crews will work extended hours, night shifts, and weekends. During night shifts and extended hours, construction lighting will be required. Access will remain for emergency responders and oil field operators.

A construction crew of approximately 40 construction workers (daily) will be in the project area during construction. For safety purposes, a temporary fence will be installed to secure the construction site and restrict public access while maintaining vehicular access to Brea Boulevard.

3.5.7.2 Construction Equipment

Major equipment to be used during construction will include, but not be limited to: crane, excavator, backhoes, scrapers, crane crawlers, truck cranes, hydraulic all-terrain and rough terrain cranes, loaders, concrete breaker, dump or haul trucks, pile driver/rotary drilling rig, asphalt-concrete (AC) paver, AC grinder, redi-mix truck/pumps, compactors (vibratory steel drum, padded drum, and sheepsfoot), dozers, motor grader, water tower, water truck, sweeper, concrete saw cutter, 50 lbs. hammer, handheld jackhammer, core drills, horizontal drill rig, compressors, welders, forklifts, portable lighting, and water pumps.

3.5.7.3 Construction Access and Construction Staging/Laydown

There are four potential construction staging/laydown areas for the Project (refer to Figure 3-3) that can be used simultaneously:

- (1) Located west of Canyon Country Road on an unpaved strip next to the grass field of Kindred Hospital located on private property;
- (2) Located at an unpaved area 1,200 feet north of Canyon Country Road on the west side of Brea Boulevard located on private property;
- (3) Located at approximately the middle of the corridor on an unpaved strip containing an oil derrick on the south side of Brea Boulevard where the roadway is at a straightaway and aligned in an east/west direction; and
- (4) Located at an unpaved area on the east side of Tonner Canyon Road at its intersection with Brea Boulevard.

At time of construction if vacant office space is available in the nearby area, this may be considered for a field office.

All staging/laydown areas located on private property will require a written agreement between the contractor and property owner and/or oil field operator.

3.5.8 OPERATION, MAINTENANCE, AND BEST MANAGEMENT PRACTICES

Industry Standard best management practices (BMPs) will be employed during the construction period and during the long-term operational phase, such as those implemented in accordance with a Project-specific water quality management plan and all applicable standards. There will be routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge, and similar activities.

3.5.9 PERMITS, REGULATORY APPROVALS, AND AGENCIES EXPECTED TO USE THIS DRAFT EIR

The following permits and regulatory approvals are required for the Project:

- Clean Water Act Section 404 Permit from the United States Army Corps of Engineers (USACE)
- Section 1602 Streambed Alteration Agreement from the California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB) – Santa Ana:
 - Federal Clean Water Act Section 401 Water Quality Certification
 - National Pollutant Discharge Elimination System (NPDES) Permit/Notification
 - Storm Water Pollution Prevention Plan (SWPPP)
- Encroachment Permit from Caltrans District 12
- California Division of Occupational Safety and Health (CalOSHA) – shoring and retaining walls safety approval
- Certification of the Final EIR and Project approval by the Orange County Board of Supervisors
- South Coast Air Quality Management District (SCAQMD):
 - Form 400A – Permit to Construct and Operate
 - Form 400CEQA – for Air Quality Impacts
 - Form 400E13 – for Internal Combustion Engines

This page intentionally left blank.

4.0 EFFECTS FOUND NOT TO BE SIGNIFICANT

The 2019 updated Initial Study (IS) analysis determined that implementation of the Brea Boulevard Corridor Improvement Project (Project) would result in no impact or a less than significant impact related to specific environmental threshold questions on the IS Checklist. The updated 2019 IS is included as Appendix C of this Draft EIR. This section discusses the environmental questions and responses that were determined in the updated 2019 IS to result in no impact or a less than significant impact and therefore, are not analyzed further in this Draft Environmental Impact Report (Draft EIR). Section 5.0, Existing Conditions, Impacts, Mitigation Measures and Level of Significance after Mitigation, of this Draft EIR includes the environmental analysis for each environmental topic and IS Checklist question for which the Project may result in potentially significant adverse impacts. It should be noted that OC Public Works decided to analyze as part of the Draft EIR the environmental questions associated with Wildfire (see Section 5.13 of this Draft EIR) despite determining a less than significant impact related to Wildfire in the updated 2019 IS (Appendix C).

4.1 AGRICULTURE AND FORESTRY RESOURCES

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

The project limits and vicinity do not contain lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (California Department of Conservation 2020). Although the project site and surrounding area are zoned as General Agriculture by the County of Orange (County of Orange 2022), there are no agricultural resources or operations located in the Project limits or vicinity. The General Agriculture zoning designation by the County of Orange also includes an Oil Production Overlay (County of Orange 2022), which is what much of the surrounding area outside of the existing, active roadway is used for. Thus, the Project would not result in the conversion of designated farmlands, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Department of Conservation. No impact would occur.

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

As stated above, although the project limits and vicinity are zoned as General Agriculture by the County of Orange (County of Orange 2022), there are no agricultural resources or operations located in the Project limits or vicinity. In addition, as discussed above, the General Agriculture zoning designation by the County of Orange also includes an Oil Production Overlay (County of Orange 2022), which is what much of the surrounding area outside of the existing, active roadway is used for. There is no property that is subject to a Williamson Act contract within the Project limits. The Project would not conflict with existing zoning for agricultural use, or a Williamson Act contract. No impact would occur.

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

The Project limits are not located on forest land (as defined by Public Resources Code section 12220[g]), timberland (as defined in Public Resources Code section 4526), nor are the Project limits zoned as timberland (as defined by Government Code section 51104[g]). Implementation of the Project would not

involve any changes that could result in the conversion of timberland to non-timber uses. No impact related to forest resources would occur.

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

As described above, the Project limits are not located on forest land, nor would the Project involve the conversion of forest land to a non-forest use. No impact related to the loss or conversion of forest land would occur.

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

As discussed above, although the Project limits and vicinity are zoned as General Agriculture by the County of Orange (County of Orange 2022), there are no agricultural resources or operations located in the Project limits or vicinity. The Project involves widening an existing road and would not introduce any changes that would result in conversion of farmland to non-agricultural use. In addition, as stated above, the Project is not located on forest land and would therefore not result in the conversion of forest land to non-forest use. No impact would occur.

4.2 AIR QUALITY

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

The occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Projects with the potential to frequently expose individuals to objectionable odors are deemed to have a significant impact. Typical facilities that generate odors include wastewater treatment facilities, sanitary landfills, composting facilities, petroleum refineries, chemical manufacturing plants, and food processing facilities. Construction activities associated with the Project could result in short-term odor emissions from diesel exhaust associated with construction equipment. The Project would utilize typical construction techniques, and the odors would be typical of most construction sites and temporary in nature. However, odors from these sources would be localized and generally confined to the immediate area surrounding the project limits. Furthermore, construction activities would be conducted in stages along the 1.7-mile corridor and, therefore, diesel exhaust-emitting equipment would not be stationed at a single location for an extended period of time like would be typical of a site development project. In addition, the odorous compounds from diesel-fueled construction equipment and trucks have diffusive properties. For example, studies have shown that diesel particulate matter emissions can decrease substantially within 300 feet (ARB 2005; Zhu et al. 2002). Because of the amount and types of equipment, the temporary nature of these emissions, the linear nature of construction along the corridor, and the highly diffusive properties of diesel exhaust, Project construction would not result in odors adversely affecting a substantial number of people. After construction of the Project, all construction-related odors would cease. Operation of the Project would not be expected to add any new odor sources, as Brea Boulevard would continue to be used by a mix of motor vehicles that is not expected to change significantly from existing conditions. As a result, the Project would not create objectionable odors affecting a substantial number of people. Therefore, impacts related to odors would be less than significant.

4.3 BIOLOGICAL RESOURCES

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Implementation of the Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Orange County and the City of Brea do not have any policy or ordinance protecting biological resources, such as trees. No impact would occur.

4.4 GEOLOGY AND SOILS

Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?

The Project does not include septic tanks or alternative waste disposal systems. No impact would occur.

4.5 HAZARDS AND HAZARDOUS MATERIALS

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

The Project involves widening an existing road. Construction of the Project would require the use of hazardous materials. Hazardous materials that are used during construction (e.g., petroleum-based products, paints, solvents, sealers, etc.) would be transported, used, stored, and disposed of according to City, County, state, and federal regulations. Operation of the Project would not involve routine transport, use, or disposal of hazardous materials, or result in the release of hazardous materials into the environment. Therefore, hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials would be less than significant and no mitigation measures would be required.

Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Mariposa Elementary School, located at 1111 Mariposa Drive in the City of Brea, is located within one-quarter mile of the Project limits. However, as stated previously, operation of the Project would not involve routine transport, use, or disposal of hazardous materials, or result in the release of hazardous materials into the environment. Project construction would involve the use of some common construction-related substances classified as hazardous materials (e.g., petroleum-based products, paints, solvents, sealers, etc.) that would be transported, used, stored, and disposed of according to City, County, state, and federal regulations. No acutely hazardous materials or substances, or wastes would be handled or used as part of the Project's construction. Therefore, impacts associated with the emission or handling of hazardous materials within one-quarter mile of a school would be less than significant and no mitigation measures would be required.

For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

The Project limits are not located within 2 miles of a public airport or in the vicinity of a public airport or public use airport. The closest airport to the Project limits is the Fullerton Municipal Airport which is approximately 6.25 miles to the southwest. Therefore, implementation of the Project would not result in public safety impacts associated with airports. No impact would occur.

Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The Project is located within an area that is subject to wildland fires. However, the Project involves widening an existing road and would not expose people or structures to greater wildland fire-related hazards than currently exist at the Project site. No impact would occur.

4.6 HYDROLOGY AND WATER QUALITY

Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

The Project would not result in an increase in the demand for water production because the Project involves widening an existing road. No wells would be drilled or operated. The Project would not have the potential to directly change the rate or flow of groundwater because it would not interfere with any known aquifers. No improvements are proposed that would substantially interfere with groundwater recharge, as increases in impervious surfaces associated with the widened road would continue to drain to the adjacent Brea Creek. While Bridges 1, 2, and 3 will each require abutment facing walls that will extend to 10 feet below the creek surface, which may result in the need to temporarily pump groundwater from the vicinity of the proposed walls during installation, the pumping of groundwater would not be substantial nor would it interfere substantially with groundwater recharge. Therefore, impacts to groundwater supplies or recharge would be less than significant and no mitigation measures would be required.

Would the project in tsunami or seiche zones, risk release of pollutants due to project inundation?

Seiches are extensive wave actions on lakes, reservoirs, or other enclosed bodies of water caused by meteorological or seismic activity, such as earthquakes. Tsunamis are seismically-induced sea waves generated by offshore earthquake, submarine landslide, or volcanic activity. The Project limits are not located near a large body of water that would be subject to seiches or tsunamis. Therefore, no impacts related to inundation from seiche and tsunami would occur. The Project involves widening an existing road and does not include storage of materials or pollutants that would be at risk of release due to inundation. No impact would occur.

4.7 LAND USE AND PLANNING

Would the project physically divide an established community?

The Project involves widening an existing road and has no potential to divide an established community, as the existing community is presently developed around the existing roadway. All existing land uses near the Project limits would continue to be accessible via roadway and driveway, though it should be noted that some driveway access points would be reconfigured as right-in/right-out only, as no median breaks are proposed for maximum safety and unimpeded vehicular movement. No impact related to physically dividing an established community would occur.

4.8 MINERAL RESOURCES

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

The Project limits and majority of the surrounding area has been classified as Mineral Resource Zone 3 (MRZ-3), as shown on the California Division of Mines and Geology's Mineral Land Classification Maps for the La Habra and Yorba Linda U.S. Geological Survey 7.5-minute quadrangles (Plates 3.11 and 3.12, respectively) found in the *Special Report 143 – Mineral Land Classification of the Greater Los Angeles Area Part III – Classification of Sand and Gravel Resource Areas, Orange County-Temescal Valley Production-Consumption Region* (California Division of Mines and Geology 1981). MRZ-3 areas indicate locations that contain mineral deposits, the significance of which cannot be evaluated due to inadequate surface data on quality. While there is oil field activity in the vicinity of the Project limits, there are no current mining activities for aggregate and neither the City of Brea nor the County of Orange General Plans identify the Project limits as a mineral resource zone or recovery site. Furthermore, the Project involves the widening of an existing roadway, which would not result in the loss of or access to potential mineral resources. No impact would occur.

Would the project result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

As discussed above, neither the City of Brea nor the County of Orange General Plans identify the Project limits as a mineral resource zone or recovery site and the Project involves the widening of an existing roadway, which would not result in the loss of or access to potential mineral resources. No impact would occur.

4.9 NOISE

For a project located within the vicinity of private airport or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

The project limits are not located within the vicinity of a private airstrip. The project limits are not located within 2 miles of a public airport or in the vicinity of a public airport or public use airport, and are not within an area subject to an adopted airport land use plan. The closest airport to the project limits is the Fullerton Municipal Airport which is approximately 6.25 miles to the southwest. Therefore, implementation of the Project would not result in the exposure of people to excessive noise generated by a private airstrip or public airport. No impact would occur.

4.10 POPULATION AND HOUSING

Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

The Project involves widening an existing road and is intended to improve congestion, which already exists in the absence of the Project, and enhance safety. There is no proposed residential or commercial/business component that could result in substantial population growth in the area. Construction workers would either be existing County employees or come from the existing local labor pool. Implementation of the Project would not result in the generation of new permanent jobs and would not contribute to any substantial

population growth. Therefore, Project implementation would not induce growth, either directly or indirectly. No impact would occur.

Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The Project involves widening an existing road. The project limits do not contain residential structures. Therefore, implementation of the Project would not displace any existing people or housing. No impact would occur.

4.11 PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Fire protection?

The Project involves widening an existing road. Therefore, implementation of the Project would not create a potential fire hazard or result in an increase in the occurrence of fires. There would be no increase in the demand for fire protection that would result in the need for new or expanded fire protection facilities. No impact would occur.

Police protection?

The Project involves widening an existing road. Therefore, implementation of the Project would not result in an increase in the occurrence of crime, an increase in the demand for police protection, or the need for new or expanded police protection facilities. No impact would occur.

Schools?

The Project does not include new residential development and would not result in an increased demand for school services. As such, the Project would not result in the need to alter existing schools or construct new schools, the construction of which could result in significant impacts on the physical environment. Therefore, no impact related to schools would occur.

Parks?

The Project involves widening an existing road and does not include any residential units. Therefore, the Project would not result in an increased demand for additional park facilities. No impact would occur.

Other public facilities?

No other public services would be impacted by the Project. The Project is not expected to adversely affect any other existing governmental services in the area. Therefore, no impact related to other public facilities would occur.

4.12 RECREATION

Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Demand for recreational facilities is primarily generated by permanent residents. The Project involves widening an existing road and does not include residential or other development that would result in either direct or indirect impacts to existing regional parks or other recreational facilities. Therefore, the Project would not result in an increase in the use of local or regional parks or recreational facilities. No impact would occur.

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?

The Project involves widening an existing road. The Project does not include the development of new recreational facilities or require the construction or expansion of other recreational facilities which might have an adverse impact on the environment. No impact would occur.

4.13 UTILITIES AND SERVICE SYSTEMS

Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction of which could cause significant environmental effects?

The Project involves widening an existing road. Thus, the Project would not result in the generation of raw sewage, nor create a demand for sewer collection and/or treatment facilities. Likewise, the Project would not result in an increased demand for wastewater, water treatment, electric power, natural gas, or telecommunications facilities. No new or expanded wastewater or water treatment facilities would be required to accommodate the Project. No impact would occur.

The road widening would result in an increase in impervious surfaces; however, all runoff from the project limits would continue to drain to the adjacent Brea Creek. Certain elements of the Project, such as the new retaining wall, would require appropriate drainage design consideration; however, the Project would not require or result in the construction of substantial new stormwater drainage facilities or expansion of existing facilities. Therefore, impacts related to construction or expansion of stormwater drainage facilities would be less than significant and no mitigation measures would be required.

Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Construction and operation of the Project would not affect water supplies, as the Project involves widening an existing road. Construction activity would require minimal amounts of water which would be accommodated from existing water supplies and entitlements. Implementation of the Project would not result in the need to expand existing water facilities or construct new water facilities. No impact would occur.

Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

No development is proposed that would result in the generation of raw sewage. No impact would occur.

Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

The Project involves the widening of an existing road and associated improvements, including demolition and removal of three existing bridges, possible reconfiguration of some existing culverts, and a substantial slope cut requiring a retaining wall, all of which would generate some construction-related solid waste. Operation of the Project would not result in the generation of solid waste. It should be noted OC Public Works would ensure that at least 50 percent of construction and demolition waste from the Project is recycled per the OC Waste & Recycling Construction and Demolition Recycling and Reuse Program. The remaining waste would not be considered substantial and could be accommodated at local landfills. Impacts would be less than significant and no mitigation measures would be required.

Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

As indicated above, the quantity of solid waste would not be substantial and would be accommodated by local landfills. The Project would comply with all federal, state and local statutes and regulations related to the disposal of solid waste. Therefore, no impact related to compliance with statutes and regulations related to solid waste would occur.

5.0 EXISTING CONDITIONS, IMPACTS, MITIGATION MEASURES AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

5.1 AESTHETICS

This section describes existing aesthetic resources within the project area, potential impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of Project impacts after mitigation.

5.1.1 EXISTING CONDITIONS

5.1.1.1 Visual Character and Quality

As noted in Section 3.0, Project Description, of this Draft EIR, the Project is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard in the City of Brea to the SR-57 southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road in unincorporated Orange County, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”).

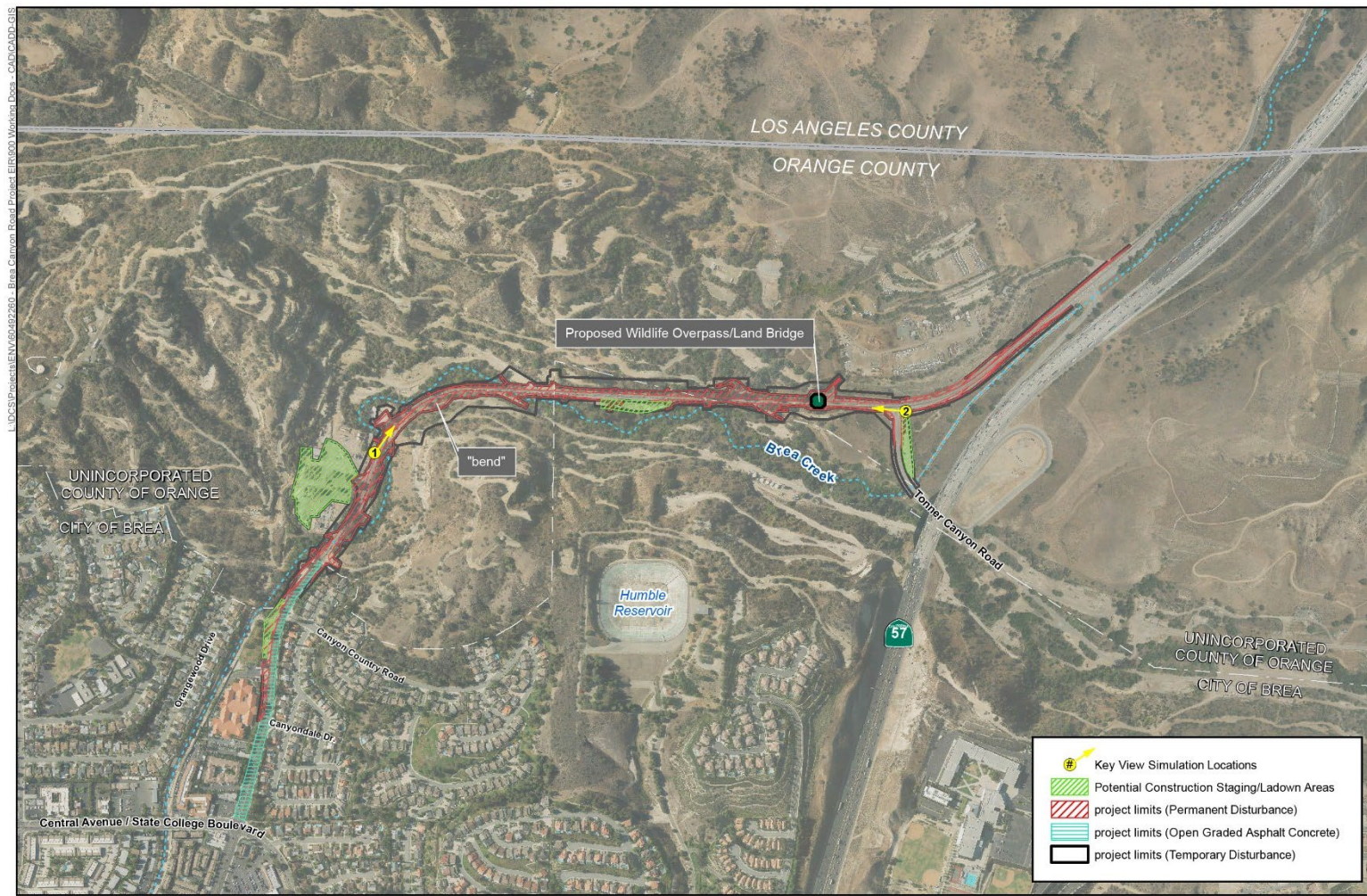
Brea Boulevard is a 30-foot-wide, two-lane, undivided highway (one lane in each direction) with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. Other portions of the roadway are improved with curb, gutter, and sidewalk. Brea Boulevard has essentially remained unchanged since the roadway was realigned to its present configuration between 1928 and 1930. The existing R/W width varies between 60 to 100 feet.

The following land uses surround the corridor:

- North of the corridor is an active oil field and natural open space within unincorporated Orange County (within the Tonner Hills Area Plan). Much of this area is property owned by Cal Resources LLC and Brea Hills LLC. North of the eastern end of the corridor on property owned by Cal Resources LLC is a commercial vehicle storage facility for several lessees.
- East of the corridor is SR-57 and Tonner Canyon.
- South and west of the corridor is the City of Brea and associated residential areas, with general commercial and public facility land uses. Immediately south of the middle stretch of the corridor are steep slopes containing additional oil field activity and the Humble Reservoir.

A majority of Brea Boulevard within the corridor is located within Brea Canyon, where the road generally follows the contours of the windy canyon, offering drivers glimpses of natural landscapes with vegetated valleys, riparian corridors, and steep topographical features (e.g., slopes and hillsides), in conjunction with views of abandoned and active oil wells. Thus, the surrounding existing visual character would generally be hillside residential/oil field/open space with a high scenic quality.

Figure 5.1-1 is an aerial photograph that shows the surrounding land uses and also shows numbered key view locations for visual simulations that are described later in Section 5.1.4, Impacts.



Eagle Aerial Imaging (2015), OCPW (2021), Mark Thomas (2021), and AECOM (2021).



Figure 5.1-1
Key View Simulation Locations

Brea Boulevard Corridor Improvement Project

5.1.1.2 Scenic Resources and Vistas

According to the County of Orange’s Scenic Highway Plan (2005), Brea Boulevard is not identified as a County designated scenic highway. It is also not located with the County’s Open Space/Conservation Areas per Figure VI-5, Open Space/Conservation Program Map, of the County’s General Plan – Resources Element (County of Orange 2015c). However, the Resources Element notes that scenic areas include ridgelines and hillsides; thus, the Project, surrounded by ridgelines and hillsides, would be located within a scenic area. There are no County designated scenic vistas in the project area.

Also, the California Department of Transportation (Caltrans)’s Scenic Highway System Map, SR-57, between Imperial Highway and SR-60, is considered eligible for the California State Scenic Highway Program (Caltrans 2021). As described previously, the northern boundary of the Project extends to the SR-57 southbound on-ramp, and thus would be visible from an eligible state scenic highway.

In addition, according to Figure CR-4, Scenic Resources, of the City of Brea’s General Plan – Community Resources Element (City of Brea 2003), the following scenic resources are identified along or adjacent to Brea Boulevard within the corridor (within the City limits and the City’s sphere of influence limits): view corridors, prominent ridgelines, and dedicated open space. Additionally, per the City’s General Plan – Community Resources Element, “stands of mature trees, particularly native species” are considered visual resources and are located adjacent to the roadway. Also, the City’s General Plan – Community Resources Element references the drive along Brea Boulevard as it traverses through Brea Canyon under the “Scenic Resources” subsection, noting that the “drive through Brea Canyon reminds a motorist of the region’s ranching and oil producing heritage and provides an easy transition into the urban environment” (City of Brea 2003). Thus, City’s General Plan – Community Resources Element emphasizes the importance of the scenic resources along Brea Boulevard. The view corridors would be considered scenic vistas.

Additionally, the Project is located within the Tonner Hills Planned Community and Area Plan (collectively referred to by the City of Brea as the “Tonner Hills Specific Plan [THSP]” or “Blackstone Planned Community”⁷), which shows the Project located within natural open space (Planning Area 11), which is considered a “visual buffer” between the continued oil uses located within the open space area and proposed residential uses of the THSP (County of Orange 2002a, 2002b, 2006; City of Brea 2019c). The major ridgelines in Tonner Hills that surround the Project are considered a scenic resource, which creates a unique backdrop to the area.

5.1.1.3 Light and Glare

There are limited existing sources of light and glare throughout most of the corridor, with the most sources occurring on the southern end within the City of Brea, including existing street lighting and development. Sources of light and glare in the remainder of the corridor would be from motorists utilizing Brea Boulevard, oil field equipment and activities, and the SR-57 at the northern end of the corridor.

⁷ The 2002 Tonner Hills Planned Community Program and the 2002 Tonner Hills Area Plan (amended in 2006) (County of Orange 2002a, 2002b, 2006) provide regulations for planning and development of the residential planning areas in the Tonner Hills Planned Community. These planning areas provide for a wide variety of residential and accessory uses that allow for a compatible relationship between residential uses and existing and future oil operations within the community boundary. Note that this master planned community, located in the City of Brea, was processed and approved by the County of Orange, with all construction activity overseen by the County. The City of Brea refers to the Tonner Hills Planned Community Program and Area Plan collectively as the “THSP” or “Blackstone Planned Community” (City of Brea 2021; City of Brea 2013b). Upon move in, the City of Brea will provide services to residents under an annexation arrangement (City of Brea 2019c). Refer to Section 5.9, Land Use and Planning, of this Draft EIR, for more information.

5.1.1.4 Applicable Local Plans/Policies

County of Orange General Plan

The County of Orange General Plan – Resources Element notes that at the County level, “hillsides and other landform resources (e.g. watercourses) are addressed through community and corridor planning activities” (County of Orange 2015c).

OC Public Works’ Standard Plans

Standard Plan 1103 of the Orange County Public Works’ (OC Public Works) Standard Plans provides the design standards primary highway typical sections in the County (OC Public Works 2018). Also, Standard Plan 1411 of the OC Public Works’ Standard Plans provides the design standards for street lighting (OC Public Works 2018).

City of Brea General Plan

According to the City of Brea’s General Plan – Community Resources Element (City of Brea 2003), the following goals and policies would be applicable to the Project:

The Hillsides (Policies for Creating a Sense of Place)

- Preserve the scenic beauty of Brea’s hillsides, and minimize the visual and environmental impact of development upon sensitive hillside areas.
- Prohibit the construction of dwellings or other structures on the most sensitive hillside areas. In particular, prominent ridgelines, drainage ways, and significant stands of mature vegetation should be left undisturbed.
- Require sensitive grading techniques and other design measures that minimize the visual impact of development and make dwellings unobtrusive.

Citywide

- Policy CD-1.10: Preserve open space wherever possible, especially in the hillside areas.

Open Space

- Goal CR-4: Preserve open space aggressively for diverse purposes – as a visual and scenic resource, for habitat conservation, to protect watersheds, and for recreation.
- Policy CR-4.1: Protect and preserve open space wherever possible.
- Policy CR-4.3: Work aggressively with the Orange County, Los Angeles County, State, and other appropriate public agencies, private entities, and landowners to conserve, protect, and enhance open spaces and natural resources, particularly within the sphere of influence.
- Goal CR-10: Pursue aggressively the preservation and protection of scenic resources.
- Policy CR-10.3: Manage stands of mature trees, particularly native species, as unique and visual resources.

- Policy CR-10.6: Work aggressively with Orange County, Los Angeles County, State, and other appropriate agencies, private entities and landowners to conserve, protect and enhance natural resources, particularly within the sphere of influence.

Brea Public Works' Standard Plans

Section 109-0, Primary Arterial Highway Section, provides the design standards for street improvements for primary arterial highways in the City (City of Brea 2013a).

THSP (Tonner Hills Community and Area Plan)

Relevant policies associated with the THSP (County of Orange 2002a, 2002b) include the following:

Tonner Hills Community Design Concept Statement

B. The preservation of major ridgelines which maintain the unique backdrop of Tonner Hills and is of benefit to the community as a whole.

C. Significant landforms are preserved and utilized to buffer the community and development areas from oil operations.

5.1.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant adverse impact related to aesthetics if it would:

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

5.1.3 METHODOLOGY RELATED TO AESTHETICS

To determine impacts to scenic vistas and scenic resources, the existing scenic vistas and scenic resources within and around the corridor were identified (per review of applicable General Plans, Community/Area Plans, and Caltrans Scenic Highway Program Map) and analyzed. Any changes to the scenic vistas or damage to scenic resources resulting from implementation of the Project were assessed to determine the degree of visual impact.

Also, to determine impacts to visual character and quality of the corridor and surrounding area, view simulations were developed. Two key view locations of the Project were selected as views where the most prominent visual elements of the Project (i.e., the 60-foot retaining wall at the “bend” and the new wildlife overpass/land bridge) would be most visible from Brea Boulevard within the corridor. Photographs from

these view locations were used to assess the visual effects of the Project. In order to complete this analysis, photographic simulations utilizing modeling software were performed to depict the before and after Project conditions.

The photographic view simulations were developed from a combination of color photographs and computer-generated modeling derived from preliminary Project plans to accurately depict the height, mass, and location of proposed structures onto a photograph of the existing Project area. Additional architectural details and landscaping of the Project were then added in order to more accurately depict the proposed view of the structures. The visual simulations are intended to be used for planning purposes only; they do not show actual approved or proposed development but rather what may be built if the Project is implemented. The intent of the visual simulations is to show the mass and scale of potential Brea Boulevard corridor improvements and to show potential changes to the existing visual character from the selected key view locations in order to determine the visual impact accordingly.

In addition, to determine the light and glare impacts, land uses sensitive to light and glare in the vicinity of the Project were identified and analyzed. These sensitive land uses include nearby residential uses. The existing sources and amounts of light and glare were compared with the amount of light and glare that would occur permanently with implementation of the Project.

5.1.4 POTENTIAL IMPACTS

The following visual impact analysis focuses on the following visual elements of the Project: widening Brea Boulevard from two to four lanes (two lanes each direction) between Canyondale Drive and the northern end of the corridor (approximately 1.5 miles), replacing and widening three bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge, adding open graded asphalt concrete paving at the southern end of the corridor, and providing striping and installing new signage. Construction of these improvements would be conducted within permanent and temporary limits of disturbance along the corridor (i.e., the project limits).

Brea Boulevard would be widened with 12 feet wide lanes, shoulders that will vary from 6 feet to 10 feet wide, and a median that is either 12 feet wide raised with landscaping, 6 feet wide with a concrete barrier, or striped of varying widths. In an effort to limit the footprint of the Project the design will utilize a modified Primary Arterial Highway per OC Public Works' Standard Plan 1103 for Standard Street Sections which includes: R/W width less than 100 feet, reducing the median width to less than 14 feet, and no sidewalk throughout the limits within unincorporated County. Within the City of Brea, the roadway section will be a modified Primary Arterial Highway Section per City of Brea's Standard Plan 109-0 to match the existing roadway configuration south of the corridor by reducing the shoulder width. Due to the steep topography of the area adjacent to the roadway, stability of roadway cut and fill will require approximately 16 retaining walls throughout the corridor. Typical wall heights vary from 8 feet to 32 feet with an average of approximately 20 feet along the corridor. One wall, located at the "bend", will be approximately 60 feet tall. Road widening would also require replacement of the three bridges within the corridor. The creek underneath Bridge 2 and Bridge 3 would be converted from concrete to a natural soft bottom, and Bridge 1 would remain a natural soft bottom. To increase the hydraulic capacity underneath the three bridges, the height and span of each bridge would increase.

Regarding the new wildlife overpass/land bridge, this bridge would be installed approximately 550 feet west of the Brea Boulevard/Tonner Canyon Road intersection, where the roadway is presently situated approximately 25 feet lower than the adjacent ridges on both sides. The wildlife overpass/land bridge structure will be a single-space cast-in-place (CIP) prestressed concrete box girder that is 85 feet long by

75 feet wide, spanning the full width of the widened roadway and matching the existing top of ridge on either side (with minimum vertical clearance of over 19 feet above the widened roadway). Three feet of earthen fill will be placed on top of the structure to preserve a natural appearance for wildlife and allow for growth of shallow-rooted vegetation. Cast-in-place parapet walls will be used to retain the fill and to provide a visual barrier for wildlife. Parapet mounted fencing is required to provide continuity with fences at the approaches to the bridge to guide animals to the crossing location. The structure will be supported by seat type abutments founded on cast-in-drilled-hole (CIDH) concrete piles with CIP fascia walls.

5.1.4.1 Scenic Vistas

As discussed previously, there are no County designated scenic vistas in the Project area. However, the City of Brea has identified view corridors as scenic vistas and resources (depicted as arrows oriented in a specific direction from roadways on Figure CR-4 of the City of Brea General Plan – Community Resources Element (City of Brea 2003)) within the Brea Boulevard Corridor (specifically, two view corridors are within the project limits – one at the intersection of Tonner Canyon Road and Brea Boulevard, and the other just north of the “bend” on Brea Boulevard; both of the view corridors are looking/oriented to the northwest). Within these two view corridors, construction activities associated with Brea Boulevard widening would be visible, including damage to scenic resources within the view corridor (e.g., roadway cut and fill into the adjacent vegetated hillside and removal of mature vegetation and stands of mature trees). Also, after construction is completed, the new wildlife overpass/land bridge near the intersection of Tonner Canyon Road and Brea Boulevard (which would span the full width of the widened road and include wildlife fencing on both sides of the road), and the 60-foot retaining wall at the bend would be visible changes to these view corridors. The Project grading would comply with OC Public Works’ and City of Brea’s Standard Plans, along with applying landscaping and architectural treatments (i.e., colored sculpted shotcrete for retaining walls), which would help reduce visual effects from the Project. However, the newly widened road along with the 60-foot retaining wall and new wildlife overpass/bridge would be noticeable changes to these view corridors. Given the permanent damage to the scenic resources and visual elements within these view corridors, the Project would result in a significant impact to scenic vistas.

5.1.4.2 Scenic Resources

As discussed previously, the Project would be visible from a nearby State eligible scenic highway (SR-57) (Caltrans 2021). Also, the following scenic resources are identified along or adjacent to Brea Boulevard within the project limits: view corridors, hillsides, stands of mature trees, mature vegetation, and dedicated open space (County of Orange 2015c; City of Brea 2003). Furthermore, the drive through Brea Canyon along Brea Boulevard is considered a scenic drive per the City of Brea’s General Plan – Community Resources Element (2003). Widening of the roadway would require removal of vegetation, including stands of mature trees and mature vegetation, and cut and fill into hillsides (with retaining walls) to address slope stability adjacent to the widened roadway. Approximately 16 retaining walls would be required throughout the corridor, with typical wall heights varying from 8 feet to 32 feet with an average of approximately 20 feet along the corridor. One wall, located at the “bend”, would be approximately 60 feet tall. The new wildlife overpass/bridge would span the full width of the widened road and would include wildlife fencing on both sides of the road. The Project would not only result in substantial adverse effects to the view corridors within the project limits (as discussed above), it would also result in permanent damage to other scenic resources (e.g., permanent cuts into vegetated hillsides and removal of mature vegetation and stands of mature trees) within the project limits, including near an eligible State scenic highway. Given this, implementation of the Project would substantially damage scenic resources, including within view of a State scenic highway; therefore, impacts would be significant.

5.1.4.3 Visual Character and Quality

The following section provides an analysis of the impacts to the visual character and quality of the corridor where the most prominent visual elements of the Project (i.e., the 60-foot retaining wall at the “bend” and the new wildlife overpass/land bridge) would be most visible from Brea Boulevard. Figure 5.1-1, shown earlier, provides a map of the key view locations of photographs for the visual simulations of the Project. Figures 5.1-2 and 5.1-3 provide the existing photographs and visual simulations of the Project from the key view locations.

Key View 1 provides a before-and-after view of the Project from the west side of Brea Boulevard, approximately 1,372 feet north/northeast of the intersection of Brea Boulevard and Canyon County Road (where the nearest residential uses are located), looking northeast. A curvilinear view of the paved two-lane Brea Boulevard with Bridge 2 (in a light gray color) with metal and concrete guard rail on either side of the road are located in the center foreground and middle ground of the view, surrounded by rolling vegetated hillsides (in shades of light brown, beige, gray, and green) that steeply rise up above the road and guard rail. Brown power poles line the west side of the road (on the left side of the view) but are partially obscured by stands of mature trees and vegetation. The rolling vegetated hills and ridgelines with scattering of additional power poles and oil operations are visible in the background of the view. The visual character can be described as roadway situated in a hillside/open space area with high scenic quality.

In the visual simulation of Key View 1, the widened Brea Boulevard (from two to four lanes) and replacement Bridge 2 with concrete median and rail are prominent features in the center foreground and middle ground of the view. The hillside to the right of the view has been noticeably cut back and the vegetation and trees lining the road have been replaced with the widened roadway and large 60-foot retaining wall. While the retaining wall has a natural rock appearance that blends with the existing hillside, it is a noticeable change, especially the reduction in the hillside and loss of vegetation and trees. In addition, the bend of the roadway is more visible in the bottom background of the view, though more of the background hills and slopes (with scattering of additional power poles and oil operations) rising above the road are visible with the foreground hillside reduction. This view would substantially change with the widening of the road, hillside reduction, vegetation and tree removal, and introduction of a large retaining wall. Given the change in view, including permanent damage to scenic resources (e.g., hillside, vegetation, and trees), implementation of the Project would substantially degrade the existing visual character and quality of the Project area from this view location. The visual impact from this view point would be significant.

Key View 2 provides a before-and-after view of the Project from the intersection of Tonner Canyon Road and Brea Boulevard (just west of SR-57), looking west. A view of the paved two-lane Brea Boulevard (in a light gray color, with white and yellow plastic road posts and metal street signs) along with the right-hand turn lane entering Tonner Canyon Road are located in the center foreground and middle ground of the view, surrounded by rolling vegetated hillsides (in shades of light brown, beige, gray, and green) that rise up above the road. Brown power poles line either side of the road with the connecting wires hanging above the road and adjacent to it. The rolling vegetated hills and ridgelines with scattering of additional power poles and oil operations are visible in the background of the view. The visual character can be described as roadway situated in a hillside/open space area with high scenic quality.

In the visual simulation of Key View 2, the widened Brea Boulevard (from two to four lanes with concrete median) and new wildlife overpass/land bridge (with retaining walls and fencing along either side the of the road) are prominent features in the center foreground and middle ground of the view. Part of the hillside has been reduced on either side of the road, along with removal of some vegetation, where the new wildlife overpass/land bridge spans across the road. Also, the new wildlife overpass/land bridge introduces a large

L:\DPS\Projects\ENV\0422260 - Brea Corridor Road Project EIR\00_Visuals Docs - CAD\CAD005.GIS



KEY VIEW SIMULATION LOCATION 1 (EXISTING)



KEY VIEW SIMULATION LOCATION 1 (PROPOSED)

OCPW (2021), Mark Thomas (2021), and AECOM (2021).

**Figure 5.1-2
Key View Simulation 1: Retaining Wall**

Brea Boulevard Corridor Improvement Project

L:\DCS\Projects\ENV\0422260 - Brea Canyon Road Project - EIR\0422260 - CAD\CADD-GIS



KEY VIEW SIMULATION LOCATION 2 (EXISTING)



KEY VIEW SIMULATION LOCATION 2 (PROPOSED)

OCPCW (2021), Mark Thomas (2021), AZTEC (2021), and AECOM (2021).

**Figure 5.1-3
Key View Simulation 2: Land Bridge**

Brea Boulevard Corridor Improvement Project

concrete feature which is a noticeable change that partially blocks the scenic views of the rolling vegetated hills and ridgelines in the middle ground and background of the view. While the retaining walls have a natural rock appearance that blend with the existing hillsides, it is a noticeable change, especially with the reduction in the hillside and loss of vegetation and trees. Also, while the roadway appears less cluttered with the removal of plastic white and yellow posts and road signs and smaller right turn lane, it has a more built appearance compared to existing conditions. In short, this view would substantially change with the widening of the road, hillside reduction, vegetation and tree removal, and introduction of a new wildlife overpass/land bridge. Given the change in view, including permanent damage to scenic resources (e.g., hillside, vegetation, and trees) within view of a nearby eligible State scenic highway, implementation of the Project would substantially degrade the existing visual character and quality of the project area from this view location. The visual impact from this view point would be significant.

5.1.4.4 Light and Glare

Construction of the Project will require periodic full closure of Brea Boulevard (from Friday at 8:00 pm to Monday at 5:00 am) due to bridge replacement-related work. During these times (up to a maximum 26 weekends with the full roadway closure), construction activities would occur outside the normal hours of construction, as crews will work extended hours, night shifts, and weekends. During night shifts and extended hours, construction lighting will be required. However, the construction lighting would be temporary, down-casted, and confined to the Project limits. In addition, the Project would include installation of a new traffic signal approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, where there are no existing traffic lights or street lighting at these locations. While the Project would create new sources of light and glare from the new traffic signals, it would not be substantial. Furthermore, the Project would be required to comply with OC Public Works' Standard Plans and City of Brea's Standard Plans related to lighting requirements which would help reduce light and glare effects. Given this, impacts would be less than significant and no mitigation measures are required.

5.1.5 MITIGATION MEASURES

Impacts to scenic vistas, scenic resources, and visual character and quality resulting from implementation of the Project would be significant and there are no feasible mitigation measures to reduce these impacts to below a level of significance.

As described previously, impacts to light and glare resulting from implementation of the Project would be less than significant. No mitigation measures are required.

5.1.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the Project would result in significant impacts to scenic vistas, scenic resources, and visual character and quality. There are no feasible mitigation measures to reduce these impacts to below a level of significance. The impacts would be significant and unavoidable.

This page intentionally left blank.

5.2 AIR QUALITY

This section describes the existing air quality conditions for the project area, potential environmental impacts, and recommended mitigation measures to help reduce or avoid impacts, and the significance determination after the incorporation of mitigation. The information and analysis in this section is summarized from the *Air Quality and Greenhouse Gas Emissions Technical Report Brea Boulevard Corridor Improvement Project, County of Orange, California* prepared by AECOM in September 2022, which is provided in Appendix E of this Draft EIR.

5.2.1 EXISTING CONDITIONS

5.2.1.1 Climate, Topography, and Meteorology

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions within the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

Climate, topography, and meteorology influence regional and local ambient air quality. Southern California is characterized as a semiarid climate, although it contains three distinct zones of rainfall that coincide with the coast, mountain, and desert. The corridor is located within the City of Brea and unincorporated Orange County, which is within the South Coast Air Basin (SCAB). The SCAB is bounded by the Pacific Ocean to the west; the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east; and the San Diego County line to the south.

The topography and climate of Southern California combine to make the SCAB an area of high air pollution potential. A warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cooler surface layer, which traps the pollutants near the ground. Light winds can further limit ventilation. Additionally, abundant sunlight triggers the photochemical reactions that produce ozone and the majority of particulate matter.

The normal annual precipitation in Orange County, which occurs primarily from October through April, is approximately 14 inches (NOAA 2018). Normal January temperatures range from an average minimum of 45 degrees Fahrenheit (°F) to an average maximum of 56°F, and August temperatures range from an average minimum of 65°F to an average maximum of 85°F.

5.2.1.2 Criteria Air Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (ARB) as being of concern on both nationwide and statewide levels: ozone; carbon monoxide (CO); nitrogen dioxide (NO₂); sulfur dioxide (SO₂); lead; and particulate matter (PM). PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM₁₀) and PM equal to or less than 2.5 micrometers in diameter (PM_{2.5}). Because the air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants."

Ozone. Ozone is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROGs) or volatile organic compounds (VOC), and nitrogen oxides (NO_x) in the presence of sunlight. ROG/VOC and NO_x are called precursors of ozone. NO_x includes various combinations of nitrogen and oxygen, including nitric oxide (NO), NO₂, and others. Significant ozone concentrations are usually produced only in the summer, when atmospheric inversions are greatest and temperatures are high. ROG/VOC and NO_x emissions are both considered critical in ozone formation.

Individuals exercising outdoors; children; and people with pre-existing lung disease, such as asthma and chronic pulmonary lung disease, are considered the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in sports and live in communities with high ozone levels.

Carbon Monoxide. CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily traveled roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called “hot spots,” which can be hazardous to human receptors adjacent to the intersections. Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport. Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Nitrogen Dioxide. NO₂ is a product of combustion and is generated in vehicles and in stationary sources, such as power plants and boilers. It is also formed when ozone reacts with NO in the atmosphere. As noted above, NO₂ is part of the NO_x family and is a principal contributor to ozone and smog generation. Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children, is associated with long-term exposure to NO₂ at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Airway contraction and increased resistance to air flow are observed after short-term exposure to NO₂ in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

Sulfur Dioxide. SO₂ is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO₂ is also a product of diesel engine combustion. SO₂ in the atmosphere contributes to the formation of acid rain. SO₂ can irritate lung tissue and increase the risk of acute and chronic respiratory disease. In asthmatics, increased resistance to air flow and a reduction in breathing capacity leading to severe breathing difficulties are observed after acute exposure to SO₂. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO₂. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO₂ levels. In these studies, efforts

to separate the effects of SO₂ from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

Lead. Lead is a highly toxic metal that may cause a range of human health effects. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere from mobile and industrial sources. EPA began working to reduce lead emissions soon after its inception, issuing the first reduction standards in 1973. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. EPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of EPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of lead on the respiratory system.

Particulate Matter. PM is a complex mixture of extremely small particles that consists of dry solid fragments, solid cores with liquid coatings, and small liquid droplets. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soot, and soil or dust particles. Natural sources of PM include windblown dust and ocean spray. The size of PM is directly linked to the potential for causing health problems. EPA is concerned about particles that are 10 micrometers in diameter or smaller, because these particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Health studies have shown a significant association between exposure to PM and premature death. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat. Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. A consistent correlation between elevated PM levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer. EPA groups PM into two categories, which are described below.

PM₁₀. PM₁₀ includes both fine and coarse dust particles; the fine particles are PM_{2.5} and are discussed in the following paragraph. Coarse particles, such as those found near roadways and dust-producing industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter and are referred to as PM₁₀. Sources of coarse particles include crushing or grinding operations and dust from paved or unpaved roads. Control of PM₁₀ is primarily achieved through the control of dust at construction and industrial sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

PM_{2.5}. Fine particles, such as those found in smoke and haze, are PM_{2.5} and are 2.5 micrometers or smaller. Sources of fine particles include all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. PM_{2.5} is also formed through reactions of gases, such as SO₂ and NO_x, in the atmosphere. PM_{2.5} is the major cause of reduced visibility (haze) in California.

5.2.1.3 Air Quality Standards and Existing Air Quality

Health-based air quality standards have been established for the criteria pollutants by EPA at the national level and by ARB at the state level. These standards were established to protect the public with a margin of

safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. Table 5.2-1 presents the California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS) established by ARB and the EPA, respectively.

**TABLE 5.2-1
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS (CONCENTRATION)	NATIONAL STANDARDS (PRIMARY)
Ozone	1 hour	0.09 ppm (180 µg/m ³)	--
Ozone	8 hours	0.070 ppm (137 µg/m ³)	0.070 ppm (137 µg/m ³)
Respirable particulate matter (PM ₁₀)	24 hours	50 µg/m ³	150 µg/m ³
Respirable particulate matter (PM ₁₀)	Annual arithmetic mean	20 µg/m ³	--
Fine particulate matter (PM _{2.5})	24 hours	--	35 µg/m ³
Fine particulate matter (PM _{2.5})	Annual arithmetic mean	12 µg/m ³	12 µg/m ³
Carbon monoxide (CO)	8 hours	9 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)
Carbon monoxide (CO)	1 hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)
Carbon monoxide (CO)	8 hours (Lake Tahoe)	6 ppm (7 mg/m ³)	--
Nitrogen dioxide (NO ₂)	Annual arithmetic mean	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)
Nitrogen dioxide (NO ₂)	1 hour	0.18 ppm (339 µg/m ³)	100 ppb (188 µg/m ³)
Sulfur dioxide (SO ₂)	Annual arithmetic mean	--	0.030 ppm (for certain areas)
Sulfur dioxide (SO ₂)	24 hours	0.04 ppm (105 µg/m ³)	0.14 ppm (for certain areas)
Sulfur dioxide (SO ₂)	1 hour	0.25 ppm (655 µg/m ³)	75 ppb (196 µg/m ³)
Lead	30-day average	1.5 µg/m ³	--
Lead	Calendar quarter	--	1.5 µg/m ³ (for certain areas)
Lead	Rolling 3-month average	--	0.15 µg/m ³
Visibility-reducing particles	8 hours	See footnote 1	--
Sulfates	24 hours	25 µg/m ³	--
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m ³)	--
Vinyl chloride	24 hours	0.01 ppm (26 µg/m ³)	--

Notes: mg/m³ = milligrams per cubic meter; ppb = parts per billion; ppm = parts per million; µg/m³ = micrograms per cubic meter; "--" = no applicable standard.

Refer to notes in Table 1 in Appendix E of this Draft EIR.

Source: Appendix E of this Draft EIR.

The South Coast Air Quality Management District (SCAQMD) is responsible for enforcing the rules and regulations (i.e., CAAQS, NAAQS, and rules set by SCAQMD) protecting air quality in the SCAB. Ambient air pollutant concentrations in the SCAB are measured at air quality monitoring stations operated by ARB and the SCAQMD. The closest SCAQMD air quality monitoring station to the project area is the La Habra monitoring station, located at 621 W. Lambert, La Habra, CA, approximately 3.5 miles west of the corridor. This station monitors ozone and NO₂ concentrations. Data for PM₁₀ and PM_{2.5} concentrations were obtained from the Anaheim-Pampas Lane monitoring station, located at 1630 W Pampas Lane, Anaheim, CA, approximately 7.5 miles southwest of the corridor. Air quality monitoring data for CO were obtained from the SCAQMD Historical Data by Year tables for the North Orange County source receptor area. Table 5.2-2 presents three years of the most recent information available, summarizing the exceedances of standards and the highest recorded pollutant concentrations. These concentrations represent the existing, or baseline conditions, for the project area, based on the most recent information that is available.

As shown in Table 5.2-2, ambient air concentrations of NO₂ did not exceed the NAAQS or CAAQS in 2017 through 2019. The 1-hour and 8-hour ozone standards were exceeded in 2017 through 2019. PM₁₀ and PM_{2.5} concentrations exceeded the standards between 2017 and 2019.

5.2.1.4 SCAB Attainment Status

Both EPA and ARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. An “attainment” designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or redesignated as attainment must develop and implement maintenance plans, which are designed to ensure continued compliance with the standard.

In contrast to attainment, a “nonattainment” designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme).

Finally, an unclassified designation indicates that insufficient data exist to determine attainment or nonattainment. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

As shown in Table 5.2-3, the SCAB currently meets the NAAQS for all criteria air pollutants except ozone and PM_{2.5} and meets the CAAQS for all criteria air pollutants except ozone, PM₁₀, and PM_{2.5}.

**TABLE 5.2-2
AMBIENT AIR QUALITY SUMMARY**

POLLUTANT	POLLUTANT STANDARDS	2017	2018	2019
Ozone	State maximum 1-hour concentration (ppm)	0.113	0.111	0.107
Ozone	National maximum 8-hour concentration (ppm)	0.086	0.077	0.094
Ozone	State maximum 8-hour concentration (ppm)	0.087	0.078	0.095
Ozone	Number of Days Standard Exceeded (CAAQS 1-hour [>0.09 ppm])	5	3	4
Ozone	Number of Days Standard Exceeded (CAAQS 8-hour [>0.70 ppm]/NAAQS 8-hour [>0.070 ppm])	12/12	4/4	6/6
Carbon Monoxide ^a	Maximum 8-hour concentration (ppm)	1.7	1.4	1.2
Carbon Monoxide ^a	Maximum 1-hour concentration (ppm)	3.8	3.0	2.6
Nitrogen Dioxide	State maximum 1-hour concentration (ppb)	76	67	59
Nitrogen Dioxide	Annual Average (ppb)	76.2	67.1	59.4
Nitrogen Dioxide	Number of Days Standard Exceeded (NAAQS 1-hour)	0	0	0
Nitrogen Dioxide	Number of Days Standard Exceeded (CAAQS 1-hour)	0	0	0
Particulate Matter (PM ₁₀)	National maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	95.7	94.6	127.6
Particulate Matter (PM ₁₀)	State maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	95.7	94.6	127.1
Particulate Matter (PM ₁₀)	State annual average concentration ($\mu\text{g}/\text{m}^3$)	26.9	27.7	24.4
Particulate Matter (PM ₁₀)	Measured Number of Days Standard Exceeded (NAAQS 24-hour [>150 $\mu\text{g}/\text{m}^3$])	0	0	0
Particulate Matter (PM ₁₀)	Measured Number of Days Standard Exceeded (CAAQS 24-hour [>50 $\mu\text{g}/\text{m}^3$])	5	2	4
Particulate Matter (PM _{2.5})	National maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	53.9	63.1	36.1
Particulate Matter (PM _{2.5})	State maximum 24-hour concentration ($\mu\text{g}/\text{m}^3$)	56.2	68.0	37.1
Particulate Matter (PM _{2.5})	National annual average concentration ($\mu\text{g}/\text{m}^3$)	*	11.4	9.3
Particulate Matter (PM _{2.5})	State annual average concentration ($\mu\text{g}/\text{m}^3$)	*	12.3	9.4
Particulate Matter (PM _{2.5})	Measured Number of Days Standard Exceeded (NAAQS 24-hour [>35 $\mu\text{g}/\text{m}^3$])	7	7	4

Notes: $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; ppb = parts per billion; ppm = parts per million

^a Data obtained from the SCAQMD Historical Data by Year.

*Insufficient data to determine the value.

Source: Appendix E of this Draft EIR.

**TABLE 5.2-3
SOUTH COAST AIR BASIN ATTAINMENT DESIGNATIONS**

POLLUTANT	STATE	FEDERAL
Ozone (1-hour)	Nonattainment	Nonattainment (Extreme) ^a
Ozone (8-hour)	Nonattainment	Nonattainment (Extreme)
Carbon Monoxide	Attainment	Attainment (Maintenance)
Nitrogen Dioxide	Attainment	Attainment (Maintenance)
Sulfur Dioxide	Attainment	Unclassified/Attainment
PM ₁₀	Nonattainment	Attainment (Maintenance)
PM _{2.5}	Nonattainment	Nonattainment (Serious)
Sulfates	Attainment	N/A
Hydrogen Sulfide	Attainment	N/A
Visibility Reducing Particles	Unclassified	N/A
Lead	Attainment	Nonattainment (Partial) ^b

Notes:

N/A = not applicable; no standard

PM₁₀ = suspended particulate matter; PM_{2.5} = fine particulate matter

^a The federal ozone (1-hour) standard of 12 ppm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because this benchmark is addressed in State Implementation Plans.

^b Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect redesignation to attainment based on current monitoring data.

Source: Appendix E of this Draft EIR.

5.2.1.5 Toxic Air Contaminants

In addition to criteria pollutants, both federal and state air quality regulations also focus on toxic air contaminants (TACs). TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to local air district permit requirements. The other, often more significant, sources of TAC emissions are motor vehicles on freeways, high-volume roadways, or other areas with high numbers of diesel vehicles, such as distribution centers. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

Particulate exhaust emissions from diesel-fueled engines (diesel PM) were identified as a TAC by ARB in 1998. Federal and state efforts to reduce diesel PM emissions have focused on the use of improved fuels, adding particulate filters to engines, and requiring the production of new technology engines that emit fewer exhaust particulates.

Diesel engines tend to produce a much higher ratio of fine particulates than other types of internal combustion engines. The fine particles that make up diesel PM tend to penetrate deep into the lungs and the rough surfaces of these particles makes it easy for them to bind with other toxins within the exhaust, thus increasing the hazards of particle inhalation. Long-term exposure to diesel PM is known to lead to

chronic, serious health problems, including cardiovascular disease, cardiopulmonary disease, and lung cancer.

In 2015, the SCAQMD published the Multiple Air Toxics Exposure Study IV (MATES IV), a monitoring and evaluation study conducted in the SCAB. The MATES IV consists of a monitoring program, an updated emissions inventory of TACs, and a modeling effort to characterize risk across the SCAB. The study focuses on the carcinogenic risk from exposure to air toxics. The MATES IV estimated population weighted risk in the SCAB is 897 per million, a decrease of about 57 percent compared to the previous study (MATES III). The study also showed that diesel exhaust emissions had declined by about 70 percent, but diesel PM continued to account for about two-thirds of the cancer risk from air toxics. MATES IV also extrapolated excess cancer risk levels throughout the SCAB by modeling specific grids. MATES IV estimates an excess cancer risk of 915 per million for the project area. SCAQMD has begun the MATES V, which will include an updated emissions inventory of TACs and updated modeling effort to characterize risk across the SCAB.

5.2.1.6 Sensitive 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. The SCAQMD considers a sensitive receptor to be a receptor such as residence, hospital, or convalescent facility where it is possible that an individual could remain for 24 hours.

Residential areas are considered sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to pollutants present. Recreational land uses are considered moderately sensitive to air pollution. Exercise places a high demand on respiratory functions, which can be impaired by air pollution even though exposure periods during exercise are generally short. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution because exposure periods are relatively short and intermittent as the majority of the workers tend to stay indoors most of the time.

The nearest sensitive receptors to the project limits are residences at the southern end of the corridor along Brea Boulevard between Central Avenue/State College Boulevard north to the City/unincorporated County boundary, including single family homes and the Vintage Canyon Senior Apartments that are located directly adjacent to the project limits. Additionally, the Kindred Hospital Brea (875 N Brea Blvd, Brea, CA 92821) is also located at this southern end of the corridor, adjacent to Brea Boulevard.

5.2.1.7 Regulatory Setting

Air quality in the SCAB is regulated by EPA, ARB, and the SCAQMD. Each of these agencies develops rules, regulations, or policies, and/or goals to attain the directives imposed through legislation. Although EPA regulation may not be superseded, both state and local regulations may be more stringent.

Federal Standards

EPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970 and amended in 1977 and 1990. The CAA requires EPA to establish the NAAQS and requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The SIP is not a single document, but a

compilation of new and previously submitted attainment plans, emissions reduction programs, district rules, state regulations, and federal controls.

The CAA Amendments also require that states and local air quality agencies develop a Title V Operating Permit Program, which requires all “major sources” of pollutants to obtain Title V permits. The program is designed to ensure compliance with all applicable requirements of the CAA and to enhance EPA’s ability to enforce the CAA. Air pollution sources subject to the program must obtain an operating permit; states must develop and implement the program; and EPA must issue permit program regulations, review each state’s proposed program, and oversee the state’s efforts to implement any approved program.

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, EPA established emission standards for hydrocarbons, NOX, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards have been adopted by EPA, as well as by ARB. Tier 1 emission standards became effective in 1996. The more stringent Tier 2 and Tier 3 emission standards became effective between 2001 and 2008, with the effective date dependent on engine horsepower. Tier 4 interim standards became effective between 2008 and 2012, and Tier 4 final standards became effective in 2014 and 2015. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

State Standards

ARB is the lead agency responsible for developing the SIP in California. Local air districts and other agencies prepare air quality attainment plans or air quality management plans, and submit them to ARB for review, approval, and incorporation into the applicable SIP.

ARB is also responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA). The CCAA was adopted in 1988 and requires ARB to establish CAAQS. In most cases, CAAQS are more stringent than NAAQS. Other ARB responsibilities include, but are not limited to, overseeing local air district compliance with state and federal laws; approving local air quality plans; submitting SIPs to EPA; monitoring air quality; determining and updating area designations and maps; and setting emission standards for new mobile sources, consumer products, small utility engines, off-road vehicles, and fuels. ARB maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by ARB to classify air basins as being in attainment or nonattainment with respect to each pollutant and to monitor progress in attaining air quality standards.

The CCAA requires that each area exceeding the CAAQS for ozone, CO, SO₂, and NO₂ develop a plan aimed at achieving those standards. California Health and Safety Code Section 40914 requires local air districts to design a plan that achieves an annual reduction in district-wide emissions of 5 percent or more, averaged every consecutive 3-year period. To satisfy this requirement, the local air districts have to develop and implement air pollution reduction measures, which are described in their air quality attainment plans, and outline strategies for achieving the CAAQS for any criteria pollutants for which the region is classified as nonattainment.

ARB has established emission standards for vehicles sold in California and for various types of equipment that emits air pollutants. California gasoline specifications are governed by both state and federal agencies. During the past decade, federal and state agencies have imposed numerous requirements on the production and sale of gasoline in California. ARB has also adopted control measures for diesel PM and more stringent

emissions standards for various on-road mobile sources of emissions, including transit buses and off-road diesel equipment (e.g., tractors, generators).

TACs in California are regulated primarily through the Tanner Air Toxics Act (Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act (Chapter 1252, Statutes of 1987). Assembly Bill (AB) 1807 sets forth a formal procedure for ARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before ARB can designate a substance as a TAC. The Air Toxics Hot Spots Information and Assessment Act requires that TAC emissions from stationary sources be quantified and compiled into an inventory according to criteria and guidelines developed by ARB, and if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

The ARB adopted a Diesel Risk Reduction Plan, which recommends control measures to achieve a diesel PM reduction of 85 percent by 2020 from year 2000 levels. Recent regulations and programs include the low-sulfur diesel fuel requirement and more stringent emission standards for heavy-duty diesel trucks and off-road in-use diesel equipment. As emissions are reduced, it is expected that the risks associated with exposure to the emissions will also be reduced.

The ARB has also developed the Air Quality and Land Use Handbook: A Community Health Perspective to provide guidance on land use compatibility with sources of TACs. These sources include freeways and high-traffic roads, commercial distribution centers, rail yards, refineries, dry cleaners, gasoline stations, and industrial facilities. The handbook is not a law or adopted policy, but offers advisory recommendations for the siting of sensitive receptors near uses associated with TACs. The handbook indicates that land use agencies have to balance other considerations, including housing and transportation needs, economic development priorities, and other quality of life issues. In response to new research demonstrating benefits of compact, infill development along transportation corridors, ARB released a technical supplement, Technical Advisory: Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways (Technical Advisory), to the 2005 Air Quality and Land Use Handbook. This Technical Advisory was developed to identify strategies that can be implemented to reduce exposure at specific developments or as recommendations for policy and planning documents. It is important to note that it is not intended as guidance for a specific project and does not discuss the feasibility of mitigation measures for the purposes of compliance with the California Environmental Quality Act (CEQA). Some of the strategies identified in the Technical Advisory include implementation of speed reduction mechanisms, including roundabouts, traffic signal management, speed limit reductions, design that promotes air flow and pollutant dispersion along street corridors, solid barriers, vegetation for pollutant dispersion, and indoor high efficiency filtration.

Regional and Local Standards

In Orange County, the SCAQMD is the agency responsible for protecting public health and welfare through the administration of federal and state air quality laws and policies. Included in the SCAQMD's tasks are monitoring of air pollution, preparation of air quality plans, and promulgation of rules and regulations.

Under the CCAA, the SCAQMD is required to develop an air quality attainment plan for nonattainment criteria pollutants within the air district. The most recent air quality plan developed by the SCAQMD is the 2016 Air Quality Management Plan (AQMP). The 2016 AQMP is the legally enforceable blueprint for how the region will meet and maintain compliance with the NAAQS and CAAQS. The 2016 AQMP identifies strategies and control measures needed to achieve attainment of the 8-hour ozone standard and federal annual and 24-hour standard for PM_{2.5} in the SCAB. The future emission forecasts are primarily based on demographic and economic growth projections provided by Southern California Association of Governments (SCAG).

SCAQMD rules that may be relevant to the Project include:

- Regulation IV: Prohibitions; Rule 401: Visible Emissions. Prohibits the generation of particulate matter emissions that exceed the visible emissions threshold.
- Regulation IV: Prohibitions; Rule 402: Nuisance. Prohibits the discharge, from any source, of such quantities of air contaminants or other materials that cause or have a tendency to cause injury, detriment, nuisance, annoyance to people and/or the public, or damage to any business or property.
- Regulation IV: Prohibitions; Rule 403: Fugitive Dust. Regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.
- Regulation IV: Prohibitions; Rule 403.2: Fugitive Dust from Large Roadway Projects. Regulates fugitive dust emissions from large roadway projects including aggregate crushing and grinding operations, material piles, grading activities, and unpaved road travel. Regulation XI: Source Specific Standards; Rule 1113: Architectural Coatings. Requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce volatile organic compound (VOC) emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories, including traffic coatings.

County of Orange General Plan

The County of Orange General Plan includes a Resources Element (County of Orange 2015c), which includes an Air Resources Component to improve air quality and reduce air pollutant emissions in the County. The following implementation program for the Air Resources Component is applicable to the Project.

Implementation Program #8: Traffic Flow Improvements

Action: Encourage the implementation of measures which seek to reduce emissions by improving transportation system efficiency.

City of Brea General Plan

The City of Brea General Plan includes an Air Quality Element (City of Brea 2003) with a goal to improve air quality in the City. The following policy from the Air Resources Element is applicable to the Project.

Goal CR-13: Improve air quality.

Policy CR-13.1 Implement City-wide traffic flow improvements.

5.2.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to air quality if it would:

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

- 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.
- Expose sensitive receptors to substantial pollutant concentrations.

5.2.2.1 Regional Thresholds

The SCAQMD has established recommended thresholds of significance for regional pollutant emissions, which were used to analyze the impacts of the Project. The significance thresholds are shown in Table 5.2-4.

This analysis does not directly evaluate lead because little to no quantifiable and foreseeable emissions of lead would be generated by the Project. Lead emissions have significantly decreased due to the near elimination of leaded fuel use.

**TABLE 5.2-4
SCAQMD AIR QUALITY SIGNIFICANCE THRESHOLDS**

POLLUTANT	MASS DAILY CONSTRUCTION EMISSIONS THRESHOLDS (LBS/DAY)
NO _x ¹	100
VOC	75
PM ₁₀	150
PM _{2.5}	55
SO _x	150
CO	550

Note: lbs/day = pounds per day; NO_x = nitrogen oxides; VOC = volatile organic compounds; CO = carbon monoxide; PM₁₀ = particulate matter less than 10 micrometers in diameter; PM_{2.5} = particulate matter less than 2.5 micrometers in diameter; SO_x = sulfur oxides
Source: Appendix E of this Draft EIR.

Ozone is a secondary pollutant (i.e., ozone is not directly emitted, but results from chemical reactions in atmosphere from precursor pollutants (NO_x and VOC). As such, air quality impacts associated with ozone are evaluated using thresholds identified for its precursor pollutants.

The regional thresholds of significance were designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards, which were established using health-based criteria to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution. Because regional air quality standards have been established for these criteria pollutants to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution, these thresholds of significance can also be used to assess Project emissions and used to evaluate the Project's impacts to regional air quality and health risks under CEQA. In addition, the SCAQMD has established localized thresholds of significance.

5.2.2.2 Localized Thresholds

Project-related criteria air pollutant emissions may have the potential to exceed the State and federal air quality standards in the project area and vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the SCAB. In order to assess local air quality impacts, the SCAQMD has developed Localized Significance Thresholds (LSTs) to assess Project-related emissions in the project area and vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO₂, CO, PM₁₀, and PM_{2.5}.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of a project site and distance to the nearest sensitive receptors. The Look-Up Tables provide thresholds for 1, 2, and 5-acre projects sites. The Project disturbance area (including the OGAC pavement, permanent disturbance, and existing roadway areas) is approximately 20 acres; however, the 5-acre project site threshold was utilized in order to provide a conservative analysis. The 5-acre project site threshold can be used as a conservative measure because it assumes daily emissions associated with the construction activities are emitted on a 5-acre site (and therefore concentrated over a smaller area with higher air pollutant concentrations to the surrounding receptors). Thus, if emissions are less than the LSTs developed by SCAQMD for a 5-acre project, then a more detailed evaluation for a larger project site is not required.

As detailed above, the project limits are located in the City of Brea and unincorporated County of Orange, within Source Receptor Area 16, North Orange County. The nearest off-site sensitive receptors to the project limits consist of residences and the Kindred Hospital Brea, located at the southern end of the corridor, immediately adjacent from the proposed roadway improvements. According to LST Methodology, any receptor located closer than 25 meters (82 feet) shall be based on the 25-meter thresholds. Table 5.2-5 below shows the LSTs for NO₂, CO, PM₁₀ and PM_{2.5} for construction emissions.

**TABLE 5.2-5
SCAQMD LOCALIZED SIGNIFICANCE THRESHOLDS**

POLLUTANT	LOCALIZED CONSTRUCTION EMISSIONS THRESHOLDS (LBS/DAY)¹
NO ₂	221
CO	1,311
PM ₁₀	11
PM _{2.5}	6

Note: lbs/day = pounds per day; NO_x = nitrogen oxides; CO = carbon monoxide; PM₁₀ = particulate matter less than 10 micrometers in diameter; PM_{2.5} = particulate matter less than 2.5 micrometers in diameter

¹ Based on a 5-acre project site threshold for Source Receptor Area 16 (North Orange County) for a 25-meter receptor distance.

Source: Appendix E of this Draft EIR.

The LSTs represent the maximum emissions from a project that would not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards and are developed based on the ambient concentrations of that pollutant for each source receptor area. Since the LSTs consider the ambient air quality, LSTs can also be used to identify those projects that would result in significant levels of air pollution and impact sensitive receptors.

5.2.3 METHODOLOGY RELATED TO AIR QUALITY

5.2.3.1 Construction

Construction-related activities are temporary, short-term sources of emissions. Sources of construction-related criteria air pollutant emissions include construction equipment exhaust; construction-related trips by workers, delivery and hauling truck trips; fugitive dust from site preparation activities; and off-gassing from traffic coating and paving activities.

Construction-related emissions were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 and Sacramento Metropolitan Air Quality Management District's

(SMAQMD) Road Construction Emissions Model, version 9.0⁸. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for quantifying potential criteria pollutant emissions from a variety of land use projects and allows the user to enter project-specific construction information, such as the construction schedule, the types and number of construction equipment, and the number and length of off-site motor vehicle trips. The SMAQMD Roadway Construction Emissions Model was utilized to identify the specific equipment by construction subphase (e.g., site preparation, grading, bridge construction, paving) and duration of subphases. Construction of the Project is anticipated to be divided into two phases:

- Phase I will include utility relocations, the infrastructure necessary for utility companies to relocate their utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, associated temporary transition pavement, and associated grading; and
- Phase II will include the widening of the road, OGAC paving, the intersections at Canyon Country Road, 1,200 feet north of Canyon Country Road, and at Tonner Canyon Road along with other miscellaneous features.

Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026. A construction crew of approximately 40 construction workers (daily) will be in the project area during construction. Major equipment to be used during construction will include, but not be limited to: crane, excavator, backhoes, scrapers, crane crawlers, truck cranes, hydraulic all-terrain and rough terrain cranes, loaders, concrete breaker, dump or haul trucks, pile driver/rotary drilling rig, asphalt-concrete (AC) paver, AC grinder, redi-mix truck/pumps, compactors (vibratory steel drum, padded drum, and sheepsfoot), dozers, motor grader, water tower, water truck, sweeper, concrete saw cutter, 50 lbs. hammer, handheld jackhammer, core drills, horizontal drill rig, compressors, welders, forklifts, portable lighting, and water pumps.

Construction of Phase I will begin in 2026 and is anticipated to be completed in 2030. The utility relocations during Phase I are anticipated to occur between June 2026 and 2027, while the major construction activities in Phase I (i.e., bridges/walls/grading) are anticipated to occur between 2028 and 2030. Construction of Phase II is anticipated to begin in 2029 and end in 2031. Additional modeling assumptions and details are provided in Appendix A (Construction Emission Estimates) of Appendix E (Air Quality and Greenhouse Gas Emissions Technical Report) of this Draft EIR.

It is anticipated that construction would require approximately 20,000 cubic yards (CY) of material export. Additionally, the Project would require approximately 25,830 CY of base, asphalt, concrete, and millings. The analysis assumed the haul trucks would have a capacity of 8-10 CY. The analysis also conservatively assumed that Project construction would require 3 daily general delivery truck trips. In summary, it is anticipated Project construction would require approximately 7,292 truck trips. In addition, Project construction is anticipated to generate approximately 60 tons of waste per year and it was assumed that waste haul trucks would have a 20-ton capacity, consistent with CalEEMod defaults. Additional modeling assumptions and details are provided in Appendix A (Construction Emission Estimates) of Appendix E (Air Quality and Greenhouse Gas Emissions Technical Report) of this Draft EIR.

5.2.3.2 Operations

Best management practices (BMPs) associated with roadway maintenance would be employed during the long-term operational phase. There would be routine cleaning of all storm drain facilities, removal of

⁸ Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model provides default data and quantification methodologies for construction emissions of linear projects and is widely accepted for estimating emissions throughout the state when site-specific information is not available.

graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, and similar activities. Further, as described in more detail in the Traffic Impact Analysis Report (Appendix O of this Draft EIR), the Project is strictly a transportation project, and it does not include any changes in land use for areas adjacent to the corridor or for any other areas. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the vehicle miles traveled (VMT) analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, which is inclusive of modeled forecast growth (i.e., approximately 1 percent increase per year over 2019 traffic volumes) within Orange County. Thus, implementation of the Project improvements on Brea Boulevard is anticipated to improve traffic flow and reduce congestion. Therefore, following construction, operational emissions are anticipated to be similar to or less than existing conditions and are analyzed qualitatively.

5.2.4 POTENTIAL IMPACTS

5.2.4.1 Conflict with or Obstruct Implementation of the Applicable Air Quality Plan

Construction

The most recent air quality plan is the 2016 AQMP prepared by the SCAQMD in partnership with ARB, EPA, and SCAG. The 2016 AQMP identifies strategies and control measures needed to achieve attainment of the 8-hour ozone standard and federal annual and 24-hour standard for PM_{2.5} in the SCAB. Consistency with the AQMP is determined through evaluation of whether the Project would exceed the estimated emissions used as the basis of the AQMP.

Construction of the Project would involve the use of off-road equipment, haul trucks, and worker commute trips. Assumptions for off-road equipment emissions in air quality plans are developed based on hours of activity and equipment population reported to ARB for rule compliance. The use of construction equipment in the AQMP is estimated for the region on an annual basis, and construction-related emissions are estimated as an aggregate in the AQMP. Since Project construction is limited to short-term activities and construction activities would not involve unusual characteristics that would necessitate the use of extensive off-road equipment usage, the Project would not increase the assumptions for off-road equipment use in the AQMP. Site preparation, grading, and traffic marking activities would also comply with the applicable SCAQMD rules and regulations, including Rule 401 (Visible Emissions), Rule 402 (Nuisance), Rule 403 (Fugitive Dust), Rule 403.2 (Fugitive Dust from Large Roadway Projects), and Rule 1113 (Architectural

Coatings [Traffic Coatings]) which are developed to implement AQMP control measures. In addition, the Project would result in emissions that would be below the SCAQMD regional and localized thresholds during construction (see Section 5.2.4.2, below). The thresholds were developed to assist the region in attaining the applicable state and federal ambient air quality standards; therefore, the Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards. As such, construction activities would not conflict with the applicable air quality plan.

Operations

Operational and maintenance activities would include routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge, and similar activities. The intensity and frequency of operational and maintenance activities would be similar to existing conditions. Further, as described above (Section 5.2.3.2) and in more detail in the Traffic Impact Analysis Report (Appendix O of this Draft EIR), the Project is strictly a transportation project and it does not include any changes in land use that would generate trips associated with a new use. Regional VMT within Orange County would decrease with the Project and intersections and road segments along Brea Boulevard would see improvements in level of service and delay (inclusive of modeled forecast growth within the region). As such, a reduction in VMT, improvement in traffic flow, and reduction in congestion is consistent with the goals of the SCAQMD AQMP, which include transportation system improvements that improve traffic flow or congestion conditions and measures to reduce VMT for the purpose of reducing motor vehicle emissions and consistent with the designated Primary Arterial Highway classification per the Master Plan of Arterial Highways (MPAH). Therefore, the Project would not cause an increase in population or vehicle trips beyond that considered in the 2016 AQMP. Thus, the intensity of operational emissions has been accounted for in the AQMP and would not exceed the current assumptions used to develop the AQMP. As such, operation of the Project would not conflict with or obstruct implementation of the applicable air quality plan.

Therefore, construction-related and operational impacts related to conflicts with an applicable air quality plan would be less than significant and no mitigation measures are required.

5.2.4.2 Result in a Cumulatively Considerable Net Increase of any Criteria Pollutant for which the Project Region is Nonattainment Under an Applicable Federal or State Ambient Air Quality Standard

Construction

Construction emissions are short term or temporary but have the potential to result in a significant impact on air quality. Construction activities for the Project would generate temporary emissions of precursors to ozone (VOC and NO_x), CO, PM₁₀, and PM_{2.5}. VOC, NO_x, and CO emissions are associated primarily with mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles. Fugitive PM dust emissions are associated primarily with site preparation and travel on roads and vary as a function of parameters such as soil silt content, soil moisture, wind speed, acreage of disturbance area, and miles traveled by construction vehicles. Earthmoving and material handling operations are the primary sources of fugitive PM dust emissions from construction activities. Table 5.2-6 below shows the construction emissions associated with the Project compared to the SCAQMD's regional thresholds of significance.

**TABLE 5.2-6
MAXIMUM DAILY UNMITIGATED CONSTRUCTION-RELATED EMISSIONS**

SOURCE	VOC	NOX	CO	SOX	PM ₁₀ ³	PM _{2.5} ³
Maximum Daily Emissions (lbs/day)¹	8.70	78.05	77.48	0.21	5.53	3.12
SCAQMD Regional Thresholds²	75	100	550	150	150	55
Exceed Regional Threshold?	No	No	No	No	No	No

Notes: Modeled by AECOM in 2021.

¹ The values shown are the maximum summer or winter daily emissions results from CalEEMod.

² Appendix E of this Draft EIR

³ PM₁₀ and PM_{2.5} emissions include reductions associated with implementation of SCAQMD rules and regulations (Rule 401, 402, and 403), including watering exposed areas at least twice per day and limiting vehicle speeds on unpaved roads to 15 miles per hour. Note that Rule 403.2 (Fugitive Dust from Large Roadway Projects) was adopted in June 2022, so this modeling does not consider Rule 403.2 in the emission estimates, which would serve to further reduce PM emissions.

C = volatile organic compounds; NOx = nitrogen oxides; CO = carbon monoxide; PM₁₀ = particulate matter less than 10 micrometers in diameter; PM_{2.5} = particulate matter less than 2.5 micrometers in diameter; lbs/day = pounds per day

As shown in Table 5.2-6, construction-related emissions would not exceed the SCAQMD maximum daily thresholds of significance for any criteria pollutants. It should be noted that the analysis considers a conservative equipment usage scenario in which the equipment associated with the various subphases is assumed to be simultaneously in use. It is more likely; however, that construction equipment is used intermittently and varies by construction activity and phase. Thus, the construction-related emissions associated with the Project are conservative. Consistent with SCAQMD Rule 403, the analysis assumed the Project would implement best management practices (BMPs) during construction, such as appropriate dust-abatement measures (watering exposed areas at least twice per day and limiting vehicle speeds to 15 miles per hour on unpaved roads) to comply with SCAQMD Rule 401 (Visible Emissions), Rule 402 (Nuisance), Rule 403 (Fugitive Dust). As such, construction impacts of the Project would not result in cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.

As described previously, the SCAQMD has also established LSTs to assess a project's local air quality impacts. SCAQMD LSTs only consider the amount of on-site emissions generated by construction activities; off-site emissions, such as haul trucks and worker commutes, are not included. Table 5.2-7 presents the maximum on-site emissions associated with construction activities for comparison to the SCAQMD LSTs.

**TABLE 5.2-7
LOCALIZED CONSTRUCTION-RELATED EMISSIONS**

DESCRIPTION	NO _x	CO	PM ₁₀ ¹	PM _{2.5} ¹
Construction-Related Localized Emissions (lbs/day)	76.90	75.56	4.37	2.83
SCAQMD Localized Thresholds	221	1,311	11	6
Exceed Regional Threshold?	No	No	No	No

Notes: Modeled by AECOM in 2021.

¹ PM₁₀ and PM_{2.5} emissions include reductions associated with implementation of SCAQMD rules and regulations (Rule 401, 402, and 403), including watering exposed areas at least twice per day and limiting vehicle speeds on unpaved roads to 15 miles per hour. Note that Rule 403.2 (Fugitive Dust from Large Roadway Projects) was adopted in June 2022, so this modeling does not consider Rule 403.2 in the emission estimates, which would serve to further reduce PM emissions.

NO_x = nitrogen oxides; CO = carbon monoxide; PM₁₀ = particulate matter less than 10 micrometers in diameter;

PM_{2.5} = particulate matter less than 2.5 micrometers in diameter; lbs/day = pounds per day

As shown in Table 5.2-7, the peak daily localized construction emissions would not exceed the SCAQMD LSTs. Since LSTs represent the maximum emissions from a project that are not expected to cause or

contribute to an exceedance of the most stringent applicable federal or state AAQS, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptors, Project construction would not generate a significant adverse localized air quality impact.

Operations

Operational and maintenance activities would include routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge, and similar activities. The intensity and frequency of operational and maintenance activities would be similar to existing conditions. Further, as described above (Section 5.2.3.2) and in more detail in the Traffic Impact Analysis Report (Appendix O of this Draft EIR), the Project is strictly a transportation project and it does not include any changes in land use that would generate trips associated with a new use. Regional VMT within Orange County would decrease with the Project, which would reduce mobile source emissions in the region, and intersections and road segments along Brea Boulevard would see improvements in level of service and delay thereby reducing emissions from idling vehicles. As such, operation of the Project would not result in cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.

Therefore, overall, construction and operation of the Project would not result in cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard. The impact would be less than significant and no mitigation measures are required.

5.2.4.3 Expose Sensitive Receptors to Substantial Pollutant Concentrations

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. Sensitive receptors for air pollution are generally considered children, elderly, athletes, and individuals with cardiovascular and chronic respiratory diseases. For the purposes of a CEQA analysis, the SCAQMD considers a sensitive receptor to be a receptor such as residence, hospital, or convalescent facility where it is possible that an individual could remain for 24 hours. The nearest sensitive receptors are residences along Brea Boulevard and the Kindred Hospital Brea located at the southern end of the corridor, adjacent to Brea Boulevard.

As shown in Table 5.2-6, construction-related activities would result in emissions of criteria air pollutants, but at levels that would not exceed the SCAQMD regional thresholds of significance. The regional thresholds of significance were designed to identify those projects that would result in significant levels of air pollution and to assist the region in attaining the applicable state and federal ambient air quality standards, which were established using health-based criteria to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution. In addition, the LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards and are developed based on the ambient concentrations of that pollutant for each source receptor area. As shown in Table 5.2-7, the localized emissions would also not exceed the SCAQMD LSTs. Because the thresholds were developed to assist the region in attaining the applicable CAAQS and NAAQS, which are established using health-based criteria, construction impacts related to exposing sensitive receptors to substantial pollutant concentrations would be less than significant.

Further, negative health effects associated with criteria pollutants are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, health history]). Moreover, ozone precursors

(ROG and NO_x) are pollutants that affect air quality on a regional scale. Because of the reaction time and other factors involved in ozone formation, ozone is considered a regional pollutant that is not linearly related to emissions (i.e., ozone impacts vary depending on the location of the emissions, the location of other precursor emissions, meteorology, and seasonal impacts). Therefore, health effects related to ozone are the product of emissions generated by numerous sources throughout a region. Existing models have limited sensitivity to small changes in criteria pollutant concentrations, and as such, translating project-generated criteria pollutants to specific health effects would not produce meaningful results. As cited in the amicus brief filed by the SCAQMD in *Sierra Club v. County of Fresno* (2014) 26 Cal.App.4th 704, it “takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels.” In other words, minor increases in regional air pollution from project-generated ROG/VOC and NO_x would have nominal or negligible impacts on human health.

In addition to criteria air pollutants, EPA and ARB regulate hazardous air pollutants, also known as TACs. The greatest potential for TAC emissions during construction would be related to diesel PM emissions associated with heavy-duty equipment operations. The Office of Environmental Health Hazard Assessment (OEHHA) developed a Guidance Manual for Preparation of Health Risk Assessments (OEHHA 2015). According to OEHHA methodology, health effects from carcinogenic TACs are usually described in terms of individual cancer risk, which is based on a 30-year lifetime exposure to TACs. Construction activities for the Project are anticipated to last approximately 5 years and consist of typical roadway improvement activities such as grading, trenching, and paving. Trenching and paving activities along the roadway would be completed in segments along the corridor. Due to the nature of these construction activities, similar to a moving assembly line, trucks and off-road equipment would move across the corridor and would not occur as a constant plume of emissions from the project area.

In addition, ARB has adopted Airborne Toxic Control Measures (ATCMs) (ARB 2004) to reduce air emissions from mobile sources. ARB has adopted an ATCM that limits diesel-fueled commercial motor vehicles idling. The rule applies to motor vehicles with gross vehicular weight ratings greater than 10,000 pounds that are licensed for on-road use and restricts vehicles from idling for more than five minutes at any location with exceptions for idling that may be necessary in the operation of the vehicle. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to ARB of their fleet’s usage and emissions. Due to the construction phasing schedule, dispersive nature of diesel PM emissions, compliance with ARB ATCMs, construction activities would not expose sensitive receptors to substantial pollutant concentrations.

As discussed previously, the Project is strictly a transportation project and it does not include any changes in land use that would generate trips associated with a new use. Regional VMT and the associated mobile source emissions within Orange County would decrease with the Project and intersections and road segments along Brea Boulevard would see improvements in level of service and delay (inclusive of modeled forecast growth for the region). As such, implementation of the Project would not result in the generation of additional truck trips or increase the vehicle hours traveled by diesel trucks. Therefore, the Project would not result in an increase in TAC emissions beyond existing conditions and the Project would not expose sensitive receptors to substantial pollutant concentrations. The impact would be less than significant and no mitigation measures are required.

5.2.5 MITIGATION MEASURES

No mitigation measures related to air quality are required.

5.2.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts related to air quality are below the level of significance and no mitigation measures are necessary.

5.3 BIOLOGICAL RESOURCES

This section describes the existing biological resources (including jurisdictional waters) in the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of those impacts after mitigation. The information and analysis in this section was summarized from the *Biological Technical Report - Brea Boulevard Corridor Improvement Project* prepared by AECOM in September 2022, the *Aquatic Resource Delineation Report - Brea Boulevard Corridor Improvement Project* prepared by AECOM in September 2022, and the *Brea Boulevard Corridor Improvement Project - Wildlife Movement Study* prepared by AECOM in July 2021, which are provided in Appendices F, G, and H, respectively, of this Draft EIR.

5.3.1 EXISTING CONDITIONS

5.3.1.1 Regulatory Setting

The following section discusses the federal and state laws and regulations that may be applicable to biological resources occurring within the project area.

Federal Regulations

Federal Endangered Species Act

Enacted in 1973, the federal Endangered Species Act (FESA) provides for the conservation of threatened and endangered species and their ecosystems (United States Code [U.S.C.] Title 16, Chapter 35, Sections 1531–1544). FESA prohibits the “take” of threatened and endangered species except under certain circumstances and only with authorization from the United States Fish and Wildlife Service (USFWS) through a permit under Section 7 or 10(a) of FESA. “Take” under FESA is defined as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct”, as well as has been interpreted to include the adverse modification of critical habitat.

Section 7 of FESA requires all federal agencies to use their authorities to conserve endangered and threatened species in consultation with USFWS. This is a ‘proactive conservation mandate’ identified in Section 7(a)(1) of FESA. Section 7(a)(2) directs all federal agencies to ensure that the actions they authorize, fund, or carry out do not jeopardize the continued existence of endangered or threatened species or destroy or adversely modify critical habitat.

Migratory Bird Treaty Act

Congress passed the Migratory Bird Treaty Act (MBTA) in 1918 to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA (U.S.C. Title 16, Chapter 7, Subchapter II, Sections 703–712). The prohibition applies to birds included in the respective international conventions between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and Russia.

Clean Water Act

Under Section 404 of the Clean Water Act (CWA), the United States Army Corps of Engineers (USACE) regulates the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 CFR 328.3 (Definitions) (U.S.C. Title 33, Chapter 26, Sections 101–607). Section 401 of the CWA requires a water quality certification from the state for all permits issued by the USACE under

Section 404 of the CWA. The Santa Ana Regional Water Quality Control Board (RWQCB) is the state agency in charge of issuing a CWA Section 401 water quality certification or waiver.

Due to a recent U.S. District Court ruling in August 2021, the U.S. Environmental Protection Agency (EPA) and USACE have halted implementation of the Navigable Waters Protection Rule and are interpreting waters of the U.S. (WoUS) consistent with the pre-2015 regulatory regime until further notice. In December 2021, EPA and USACE published a proposed rule in the Federal Register that proposed a change to the definition of WoUS. A final rule (with new definition) is expected later in 2022. Refer to Appendix G of this Draft EIR, which includes the applicable regulatory citations and text for the definition of WoUS as applied to Brea Creek.

State Regulations

California Fish and Game Code (CFGC)

The California Fish and Game Code (CFGC) regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as impacts to natural resources such as wetlands and waters of the state. It includes the California Endangered Species Act (CESA) (Sections 2050–2115) and Lake and Streambed Alteration Agreement (LSAA) regulations (Section 1600 et seq.).

Wildlife “take” is defined by the California Department of Fish and Wildlife (CDFW) as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” Protection extends to the animals, dead or alive, and all their body parts. Section 2081 of CESA allows CDFW to issue an incidental take permit for state-listed threatened or endangered species, should a project have the potential to “take” a state-listed species that has been detected within or adjacent to the Project. Certain criteria are required under CESA prior to the issuance of such a permit, including the requirement that impacts of the take are minimized and fully mitigated.

Porter-Cologne Water Quality Control Act

Under Section 13000 et seq., of the Porter-Cologne Act, the RWQCB is the agency that regulates discharges of waste and fill material within any region that could affect a water of the state (California Water Code [CWC] 13260[a]), (including wetlands and isolated waters) as defined by CWC Section 13050(e).

5.3.1.2 Project Setting and Biological Study Area

The Project is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”). It is situated along the southern edge of the Puente-Chino Hills in northern Orange County, and occurs on the La Habra and Yorba Linda, California U.S. Geological Survey (USGS) 7.5-minute quadrangle maps. Areas surrounding the corridor consist primarily of residential development at the southwestern end of the corridor, oil field development associated with the Brea-Olinda Oil Field at the middle portion of the corridor, and primarily undeveloped land from Tonner Canyon Road east and north to the county line.

A Biological Study Area (BSA) consisting of the project limits (i.e., the extent of temporary and permanent construction-related disturbance for the Project) and a 500-foot survey buffer⁹ around the project limits, was defined for biological resources analysis. Elevations in the BSA generally range from 370 feet above mean sea level (amsl) in the far southwestern portion of the BSA, to 750 feet amsl in the far northeastern portion of the BSA. The elevation of Brea Boulevard itself ranges from approximately 390 feet amsl at the southeastern end of the roadway to 520 feet amsl at the northeastern end of the roadway, at the county line.

AECOM biologists initiated field surveys within the BSA (as part of the Biological Technical Report [Appendix F of this Draft EIR]) to document existing conditions for vegetation communities, land cover types, and plant and wildlife species.

5.3.1.3 Vegetation Communities and Land Cover Types

Vegetation communities and land cover types observed within the BSA during the field surveys have generally been disturbed by past anthropogenic activities associated with roadway and oil field development. The BSA is comprised of varying densities of native and non-native vegetation, and developed areas, such as the oil fields, roadways, and residential development at the southwest end of the corridor. The Manual of California Vegetation (MCV), Second Edition was utilized to classify and describe vegetation communities occurring within the BSA. It should be noted that as a result of the disturbed and developed nature of much of the BSA, the vegetation communities and land cover types that are present do not always correspond directly with vegetation classifications typically used to describe vegetation communities.

Native vegetation communities such as California walnut, coast live oak, coastal sage scrub (although disturbed), and willow riparian habitats occurring in the BSA reflect coastal foothill and mountain habitats of southern California such as those in the nearby Puente Hills, Chino Hills, and Santa Ana Mountains. Non-native vegetation in the BSA consists of common ornamental species, primarily eucalyptus and pepper tree, and other non-native trees that were likely planted during development of the oil fields and have over time become naturalized within the BSA. No vegetation communities exist within the BSA that are unique from the surrounding area. The extent of vegetation communities and land cover types within the BSA are depicted in Figure 5.3-1a through 5.3-1d and acreages of each are provided in Table 5.3-1. A list of the plant species observed within the BSA during field surveys are provided in Table A of Appendix F.

⁹ A 500-foot buffer around the project limits was included to capture potential indirect effects to biological resources from implementation of the Project. Indirect effects could include elevated noise and dust levels, soil erosion, and increased human activity. A 500-foot survey buffer is standard for capturing potential indirect impacts from a project on biological resources.

Native, non-native, and aquatic and riparian communities and other land cover types occurring in the BSA are identified within Table 5.3-1 and described below.

**TABLE 5.3-1
VEGETATION COMMUNITIES AND LAND COVER TYPES IN THE BSA**

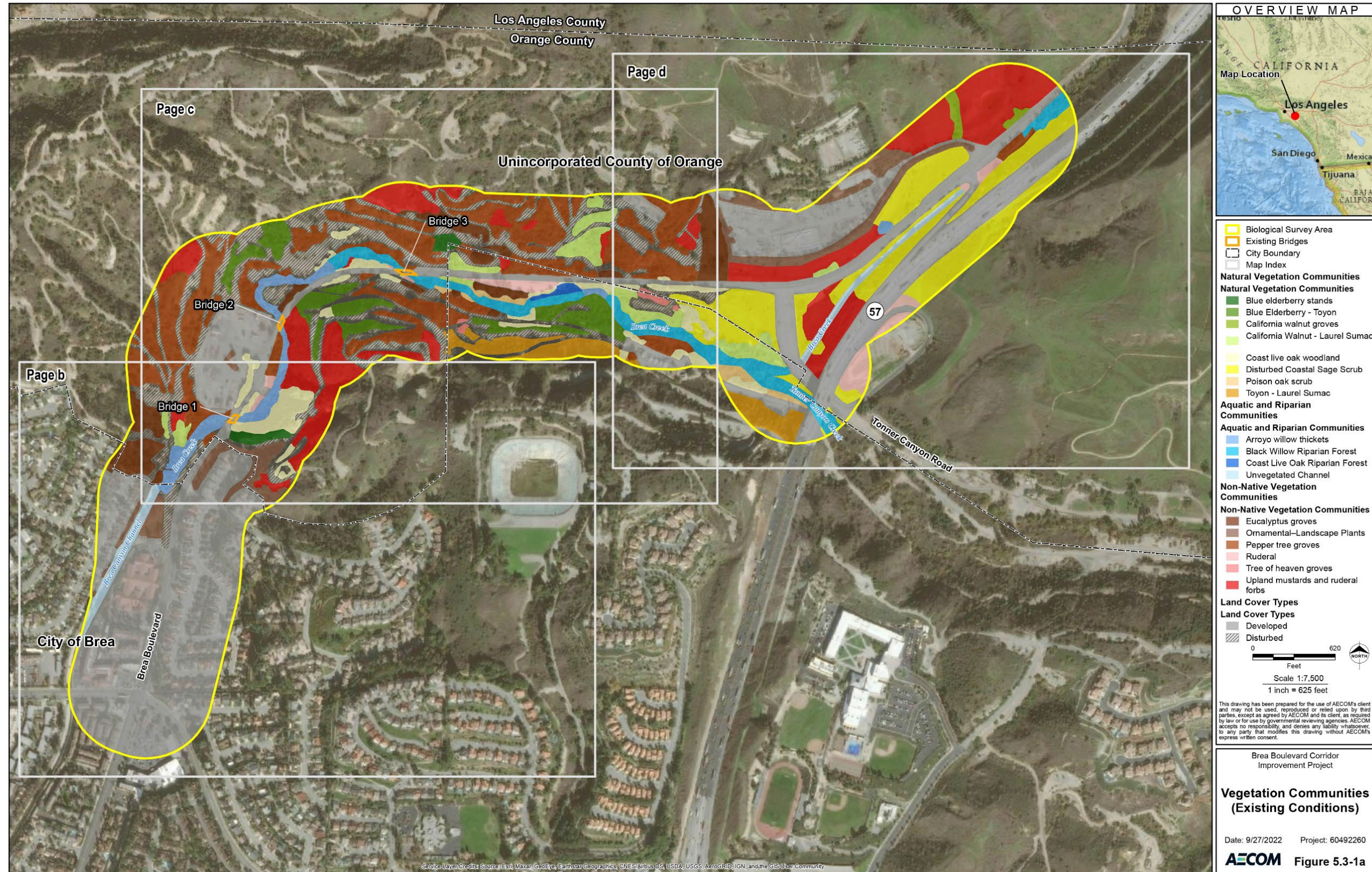
CATEGORY	VEGETATION COMMUNITIES/ LAND COVER TYPES	ACRES IN THE BSA
Native Vegetation Communities	Blue Elderberry Stands	1.27
Native Vegetation Communities	Blue Elderberry – Toyon	8.34
Native Vegetation Communities	California Walnut Groves	0.88
Native Vegetation Communities	California Walnut – Laurel Sumac	6.58
Native Vegetation Communities	Coast Live Oak Woodland	8.09
Native Vegetation Communities	Disturbed Coastal Sage Scrub	20.87
Native Vegetation Communities	Poison Oak Scrub	1.35
Native Vegetation Communities	Toyon – Laurel Sumac	6.09
<i>Native Vegetation Communities</i>	<i>Subtotal</i>	<i>53.47</i>
Non-Native Vegetation Communities	Eucalyptus Groves	9.18
Non-Native Vegetation Communities	Pepper Tree Groves	33.67
Non-Native Vegetation Communities	Tree of Heaven Groves	0.50
Non-Native Vegetation Communities	Upland Mustards and Ruderal Forbs	28.56
Non-Native Vegetation Communities	Ornamental–Landscape Plants	9.68
Non-Native Vegetation Communities	Ruderal	3.73
<i>Non-Native Vegetation Communities</i>	<i>Subtotal</i>	<i>85.32</i>
Aquatic and Riparian Communities	Arroyo Willow Thickets	4.84
Aquatic and Riparian Communities	Black Willow Riparian Forest	8.70
Aquatic and Riparian Communities	Coast Live Oak Riparian Forest	0.43
Aquatic and Riparian Communities	Unvegetated Channel	3.46
<i>Aquatic and Riparian Communities</i>	<i>Subtotal</i>	<i>17.43</i>
Land Cover Types	Developed	76.54
Land Cover Types	Disturbed	35.61
<i>Land Cover Types</i>	<i>Subtotal</i>	<i>112.15</i>
ALL	TOTAL	268.38

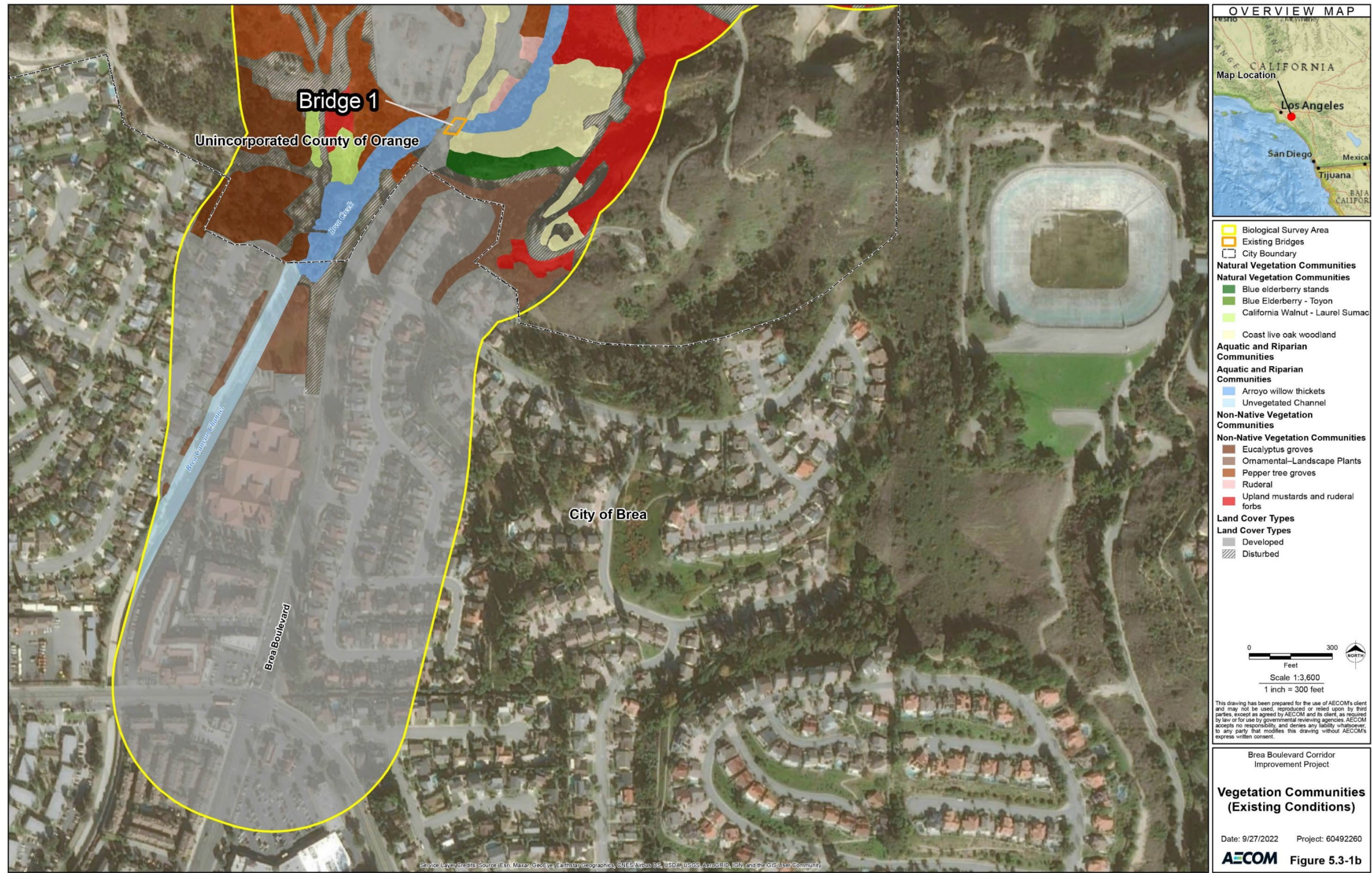
Source: Appendix F of this Draft EIR

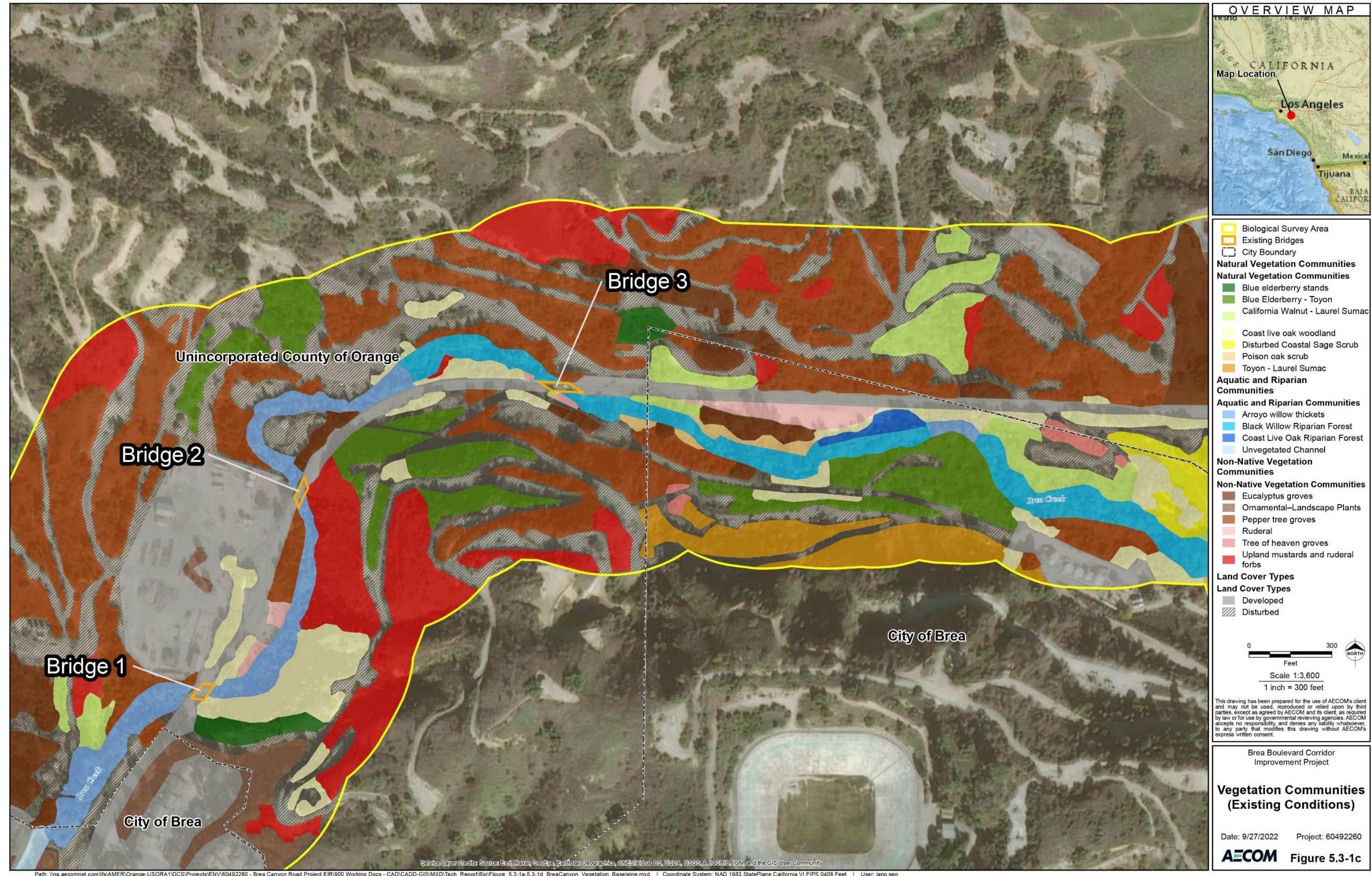
Note: Totals may not add up due to rounding.

Native Vegetation Communities

This category includes vegetation communities dominated by plant species native to California.









Blue Elderberry Stands

Blue elderberry (*Sambucus nigra*) is dominant in the shrub canopy of Blue Elderberry Stand, with a minimum 50 percent in shrub overstory. This community typically occurs along stream terraces and in bottomlands; however, the stands that occur within the BSA are localized and in a more upland setting. Elderberry Stands have a variable canopy that ranges from open to continuous, with a height that does not typically exceed 8 meters (approximately 26 feet) amsl. Upland mustards and ruderal forbs, as described below, are present within the understory of this community.

Only two small areas of Blue Elderberry Stand occur in the BSA, one northeast of Bridge 3 and a second south of Bridge 1, which total approximately 1.27 acres (Figure 5.3-1c).

Blue Elderberry-Toyon Stands

This community is an association of Blue Elderberry Stand. It is distinguished by the presence of a co-dominant, toyon (*Heteromeles arbutifolia*), in the shrub community. This community is more common in the BSA than Blue Elderberry Stands. It also includes a number of the native plants species that the MCV indicates are associated with stands of blue elderberry, such as California sagebrush (*Artemisia californica*), coyote brush (*Baccharis pilularis*), mulefat (*Baccharis salicifolia*), saw toothed goldenbush (*Hazardia squarrosa*), laurel sumac (*Malosma laurina*), willow thickets (*Salix spp.*), poison oak scrub (*Toxicodendron diversilobum*), and California grape (*Vitis californica*).

This community totals approximately 8.34 acres in the BSA and occurs primarily along stream terraces on the south side of Brea Creek, between Bridges 2 and 3, and as a significant stand approximately 1,500 feet west of Bridge 3 (Figure 5.3-1c).

California Walnut Groves

This community is dominated by a greater than 50 percent cover of California walnut (*Juglans californica*) trees and is found mostly on hillsides, but also in riparian corridors. Understory shrubs are sparse to intermittent and the herbaceous layer is also generally sparse, often consisting of grasses. In the BSA, blue elderberry shrubs were noted in association with California walnut trees and the understory consists of non-native short-pod mustard (*Hirshfeldia incana*), and non-native brome and wild oat (*Avena fatua*) grasses.

There are approximately 0.88 acres of California Walnut Grove within the BSA. Two walnut grove communities occur in the far northeastern corner of the BSA, on hillsides along the north side of Brea Boulevard (Figure 5.3-1d). Another walnut grove community occurs as a riparian community along the south side of Brea Creek (Figure 5.3-1c).

California Walnut-Laurel Sumac

This community is an association of California Walnut Groves. It is distinguished by the presence of a co-dominant, laurel sumac (*Malosma laurina*), in the shrub community and occurs in the same hillside and riparian habitats as the California Walnut Groves.

In the BSA, three remnant stands of this community totaling approximately 6.58 acres occur among stands of non-native tree groves that dominate hillside vegetation on the north side of Brea Boulevard (Figure 5.3-1c). A fourth community occurs in the riparian corridor on the northside of Brea Creek.

Coast Live Oak Woodland

This community is dominated by a greater than 50 percent cover of coast live oak (*Quercus agrifolia*) trees and is found mostly on canyon bottoms, slopes, and flats where soils are sandy or loamy with high organic matter.

This community covers approximately 8.09 acres within the BSA, occurring primarily adjacent to the riparian corridor along Brea Creek, and occasionally in upland communities that exist as stands isolated from the riparian corridor by oil field and roadway development (Figures 5.3-1b through 5.3-1d).

Coastal Sage Scrub (Disturbed)

Coastal sage scrub consists of a greater than 60 percent cover of California sagebrush and often contains other native associated species in the shrub layer. This community was considered disturbed due to a sparse cover of California sagebrush and other native shrubs, and predominance of non-native herbaceous species occurring between scattered native shrubs. Native shrubs scattered through this community include laurel sumac, blue elderberry, deerweed (*Acmispon glaber*), coastal goldenbush (*Isocoma menziesii*), lemonade berry (*Rhus integrifolia*), California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), and coyote brush. Non-native species that have colonized this community to varying degrees include brome and wild oat grasses, tocalote (*Centuarea melitensis*), milk thistle (*Silybum marianum*), Russian thistle (*Salsola tragus*), castor bean (*Ricinus communis*), and fennel (*Foeniculum vulgare*).

There are approximately 20.87 acres of disturbed coastal sage scrub within the BSA, all located in the eastern part of the project area, in the vicinity of the intersection of Brea Boulevard and Tonner Canyon Road, and on slopes along Brea Boulevard and SR-57 (Figure 5.3-1d).

Poison Oak Scrub

Poison Oak Scrub consists of a greater than 50 percent cover in the shrub layer of poison oak. This community is often associated with native upland coastal sage and chaparral scrub habitats but is also common as dense stands in riparian areas in southern California.

There are approximately 1.35 acres of poison oak scrub within the riparian corridor along Brea Canyon where the species has formed dense stands in association with Black Willow Riparian Forest that dominate the riparian corridor (Figures 5.3-1c and 5.3-1d).

Toyon-Laurel Sumac

This community is an association of the toyon shrub alliance and consists of co-dominants toyon and laurel sumac. This community often occurs on steep north-facing slopes and may include California walnut or coast live oak trees in low cover. The understory generally has a sparse cover of herbaceous species, often dominated by non-natives.

There are approximately 6.09 acres of this shrub association in the BSA, all occurring within the southern portion of the BSA (Figure 5.3-1c), in uplands on the south side of Brea Creek, west of Tonner Canyon Road. Stands of this community have been fragmented by existing dirt access roads and oil field infrastructure.

Non-Native Vegetation Communities

This category includes vegetation communities dominated by plant species not native to California and/or have become naturalized in California.

Eucalyptus Groves

This community is dominated by eucalyptus trees with greater than 80 percent cover in the tree layer, with sparse to intermittent shrub and herbaceous layers. Eucalyptus trees have a long history in California, having for over 100 years been planted as groves and windbreaks. The species has become naturalized, occurring on uplands or bottomlands, adjacent to streams or lakes. In the BSA, red gum (*Eucalyptus camaldulensis*) dominates this community. Peruvian pepper trees (*Schinus molle*) were also noted in association with eucalyptus trees in this community and were in some localized areas a co-dominant with eucalyptus trees.

There are approximately 9.18 acres of this community in the BSA, occurring both north and south of Brea Boulevard (Figures 5.3-1b and 5.3-1c). Eucalyptus groves in the BSA exist primarily as fragmented stands adjacent to developed areas of the oil fields.

Pepper Tree Groves

This community is dominated by Peruvian pepper trees with greater than 80 percent cover in the tree layer, with shrubs infrequent to common and a simple to diverse herbaceous layer. This community is common in coastal canyons, washes, slopes, riparian areas, roadsides, and within developed areas. Similar to eucalyptus, Peruvian pepper tree species have commonly been planted in California and have become naturalized in the BSA.

There are approximately 33.67 acres of pepper tree groves within the BSA, occurring both north and south of Brea Boulevard (Figures 5.3-1b through 5.3-1d). Laurel sumac shrubs are common in the shrub layer of this community, often nearly a co-dominant with Peruvian pepper trees. Similar to eucalyptus groves, pepper tree groves occur as fragmented stands in the oil fields.

Tree of Heaven Groves

This community is dominated by tree of heaven (*Ailanthus altissima*) with greater than 80 percent cover in the tree layer, with shrubs and herbaceous species sparse to intermittent in the understory. Similar to eucalyptus and pepper tree groves, this community has been planted as groves and windbreaks, and has become naturalized, occurring on uplands or often bottomlands adjacent to stream and lakes.

There are four small tree of heaven communities in the BSA south of Brea Boulevard (Figures 5.3-1c and 5.3-1d), totaling approximately 0.50-acre. Stands of tree of heaven were associated with stands of eucalyptus and pepper tree and distinguished from these communities by the occurrence and dominance of tree of heaven in the tree canopy.

Upland Mustards and Ruderal Forbs

This community is dominated by species of non-native mustards that comprise 80 percent or more cover of the herbaceous layer. Other non-native forbs are common in the community, often including non-native grasses, such as ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis* spp. *rubens*) and wild oat. This community is common along roadsides, often covering engineered slopes along freeways. The

community is also common on fallow fields, rangelands, grasslands, disturbed coastal sage scrub, and riparian areas, but is generally most common in areas that have experienced disturbance.

This community covers approximately 28.56 acres and is scattered across the BSA but is most prevalent in the eastern portion of the BSA on hillsides with California walnut (Figures 5.3-1b through 5.3-1d). In the BSA, this community is generally dominated by black mustard (*Brassica nigra*), wild mustard (*Hirschfeldia incana*), common mustard (*Brassica rapa*), and poison hemlock (*Conium maculatum*), and includes Russian thistle (*Salsola tragus*), wild radish (*Raphanus sativus*) and sporadic occurrences of castorbean (*Ricinus communis*) and tree tobacco (*Nicotiana glauca*).

Ornamental Landscape Plants

No habitat equivalent of this community is described in the MCV or Holland (1986) (another handbook for describing California vegetation communities). Areas of ornamental landscape plants are generally associated with developed areas where significant landscape plantings of non-native and/or native trees, shrubs, and herbaceous species that originate from a plant nursery occurs. The plant species in this community is wide-ranging and generally mirrors the ornamental species that are commonly used in landscape settings in the region.

Landscape ornamental plants total approximately 9.68 acres within the BSA, primarily occurring in the eastern portion of the BSA, north of the intersection of Brea Boulevard and Tonner Canyon Road as stands of planted non-native trees (primarily eucalyptus and pepper tree) around the commercial vehicle storage facility (Figure 5.3-1d). Ornamental landscape plantings including eucalyptus, pepper tree, elm (*Ulmus* sp.), and pine (*Pinus* sp.), were also mapped in the southwestern portion of the BSA in association with residential development (Figure 5.3-1b).

Ruderal

No habitat equivalent of this cover type is described in the MCV or Holland. Ruderal areas have often been altered by past anthropogenic activities where existing vegetative cover has been altered and ground disturbance may have occurred. Such areas often consist of bare ground or are colonized by invasive, non-native herbaceous plants.

Ruderal areas cover approximately 3.73 acres in the BSA and are associated with roadsides and other development where vegetative cover has been removed and areas of bare ground with sparse vegetation occur (Figures 5.3-1c and 5.3-1d). Vegetation common in ruderal areas of the BSA include non-native mustards, bromes, Russian thistle, castor bean, poison hemlock, and foxtail (*Hordeum* sp.).

Aquatic and Riparian Communities

This category includes vegetation communities dominated by native hydrophytic plant species adapted to growing in low-oxygen conditions associated with prolonged saturation or flooding.

Arroyo Willow Thickets

This community is dominated by an open to continuous canopy of arroyo willow (*Salix lasiolepis*) with a greater than 50 percent cover in the shrub or tree canopy and a variable herbaceous layer. This community occurs on stream banks and benches and seeps along drainages.

This community covers approximately 4.84 acres in the BSA along Brea Creek. It is most prevalent along the channel in the western portion of the BSA, growing along the channel in the vicinity of Bridges 2 and

3 (Figures 5.3-1b and 5.3-1c). The community includes native and non-native tree and shrub species interspersed throughout, reflecting a riparian corridor along the creek that has been disturbed over the years by roadway and oil field development. Trees observed within this community include eucalyptus, pepper tree, Fremont cottonwood (*Populus fremontii*) and Mexican fan palm (*Washington robusta*). Shrub species observed within this community include laurel sumac, blue elderberry, mulefat, and sugarbush shrubs (*Rhus ovata*).

Black Willow Riparian Forest

This community is dominated by an open to continuous canopy of black willow (*Salix gooddingii*) with a greater than 50 percent cover in the shrub or tree canopy and a variable herbaceous layer. This community occurs on terraces along large rivers, canyons, along floodplains of streams, seeps, springs, ditches, and lake edges where low-gradient depositions occur.

This community covers approximately 8.70 acres in the BSA along Brea Creek. Where arroyo willow was dominant in the western portion of the BSA along the creek, black willow dominates the creek around and east of Bridge 3 (Figure 5.3-1c and 5.3-1d). This community also includes native and non-native tree and shrub species interspersed throughout, similar to arroyo willow thicket above. Poison oak was also common in this community.

Coast Live Oak Riparian Forest

This community is an open to locally dense riparian community dominated by coast live oak with a greater than 50 percent tree canopy. It is generally associated with valley bottoms and outer floodplains along larger streams, in soils that are deep, and sandy or loamy with high organic matter.

The coast live oak riparian community within the BSA covers only approximately 0.43-acre and occurs along the north bank of Brea Creek, where a few mature coast live oak occur, adjacent to black willow riparian habitat that dominates along the creek east of Bridge 1 (Figure 5.3-1c). A few Mexican fan palms also occur in this community, which lies between the creek and Brea Boulevard.

Unvegetated Channel

Unvegetated channels occur where banks have been stabilized with rock or other materials inhibiting the growth of vegetation, where flows are persistent enough to keep vegetation from becoming established or conditions are otherwise inhospitable for the establishment of persistent vegetation, or where maintenance activities along a channel keep vegetative growth down.

Unvegetated channel in the BSA is represented by the approximately 3.46-acre rip-rapped Brea Canyon Channel (the name changes from Brea Creek to Brea Canyon Channel where the creek transitions to an engineered channel [Orange County Flood Control District Facility Number A04] within the City of Brea) that exists downstream of Bridge 1, in the far southwestern portion of the BSA (Figure 5.3-1b). This portion of the stream has been stabilized as its course enters the residential development area of the City of Brea that occurs in the far southwestern portion of the BSA.

Land Cover Types

This category includes non-vegetated or sparsely vegetated areas with species generally not native to California. Developed areas often include ornamental vegetation in landscaped areas.

Developed

No habitat equivalent of this cover type is described in the MCV or Holland. Developed lands are areas that have been altered by clearing and construction activities to support man-made structures such as buildings, roads, parking lots, and sidewalks, and often include associated ornamental landscaped areas.

Developed areas comprise the largest land cover type in the BSA, covering approximately 76.54 acres. Substantial areas mapped as development in the BSA include residential development in the southwestern portion of the BSA (Figure 5.3-1b), oil field development along the west side of Brea Boulevard between Bridges 1 and 2 (Figure 5.3-1b), and the commercial truck storage facility in the northeastern portion of the BSA (Figure 5.3-1d). A small area mapped as developed also coincides with oil field infrastructure on the south side of Brea Boulevard (Figure 5.3-1c)

Disturbed

No habitat equivalent of this cover type is described in the MCV or Holland. Disturbed areas include lands in an altered and often non-vegetated state that, due to man-made or natural disturbances have had their vegetative cover removed or altered from its original composition.

Disturbed areas are prevalent in the BSA, covering approximately 35.61 acres. Dirt roads and other areas of bare ground associated with the oil fields were mapped as disturbed (Figures 5.3-1b through 5.3-1d).

5.3.1.4 Wildlife Species

Wildlife species detected during general field surveys, protocol level surveys, and the wildlife movement study include 74 bird, 13 mammal, three reptile, and two amphibian species. No active nests or bird breeding behaviors were observed in the BSA, or in areas immediately adjacent to the BSA, during the surveys. All bird observations were of individuals that were resting or foraging on the ground in the BSA or flying overhead both inside and outside the BSA. A list of wildlife species detected during all biological surveys is included in Appendix F.

Two bird species listed under the CESA or FESA were detected during the field surveys, including coastal California gnatcatcher (federally threatened) and least Bell's vireo (state and federally endangered). Yellow-breasted chat (*Icteria virens*), yellow warbler (*Setophaga petechia*), and western pond turtle (*Emys marmorata*), CDFW Species of Special Concern, were also detected, as was Cooper's hawk (*Accipiter cooperii*), a CDFW Watch List species.

5.3.1.5 Wildlife Movement Corridors

A wildlife movement corridor can be defined as a linear landscape feature of sufficient width and buffer to allow animal movement between two comparatively undisturbed habitat fragments, or between a habitat fragment and some vital resource that encourages population growth and diversity. Habitat fragments are isolated patches of habitat separated by otherwise foreign or inhospitable areas, such as urban/suburban tracts, agricultural lands, or highways. Habitat fragments can isolate species populations by limiting migration, foraging, and breeding opportunities. Isolation of populations can have many harmful impacts and may contribute significantly to local species extinction.

Two types of wildlife movement corridors are (1) regional corridors, defined as those linking two or more large areas of natural open space, and (2) local corridors, defined as those allowing resident animals to access critical resources (food, cover, and water) in a smaller area that might otherwise be isolated by development. Wildlife movement corridors are essential in geographically diverse settings, and especially

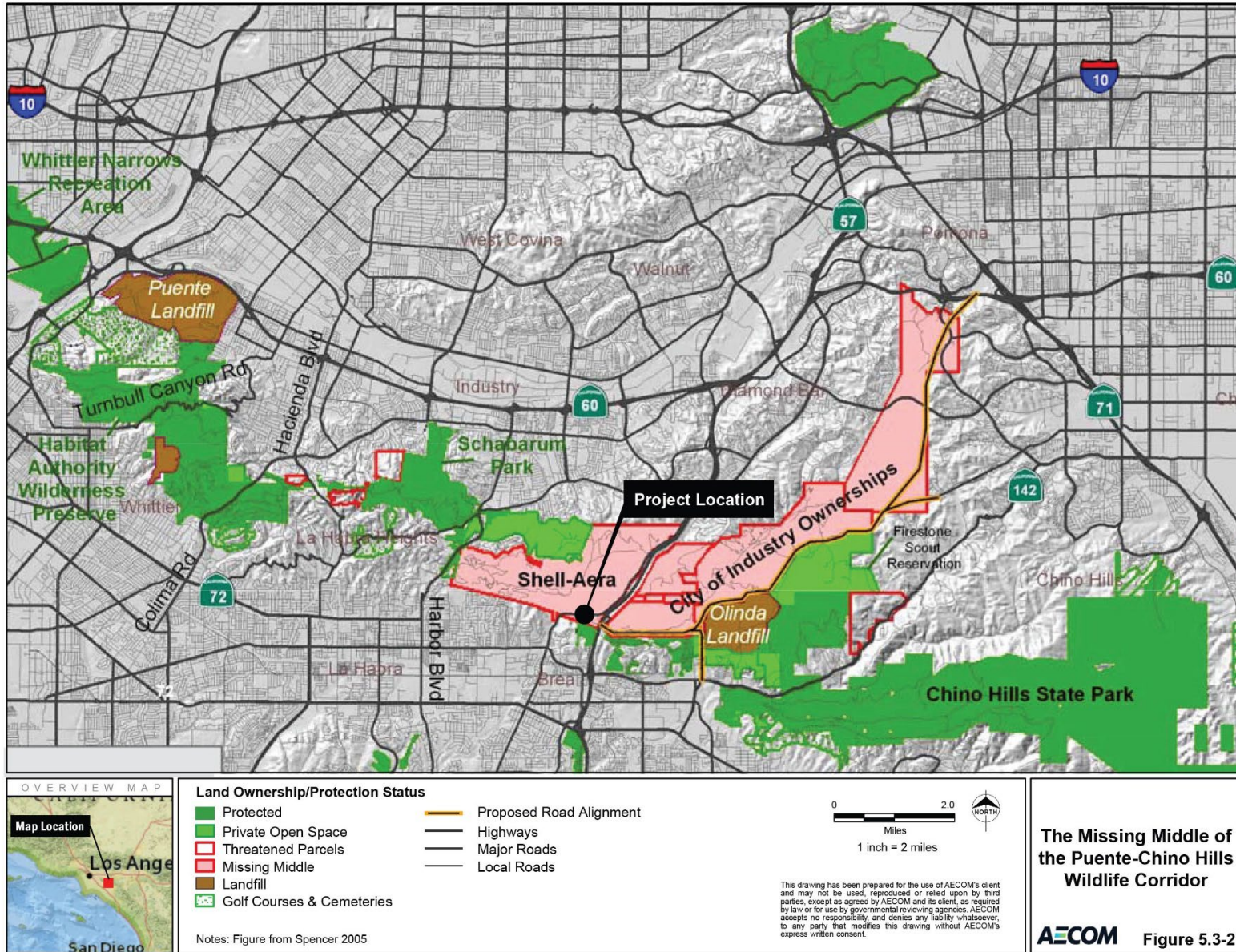
in urban settings, for the sustainability of healthy and diverse animal communities. At a minimum, corridors promote colonization of habitat and genetic variability by connecting fragments of like habitat and help sustain individual species distributed in and among habitat fragments. They are also important features for dispersal, seasonal migration, foraging, and breeding.

The Brea Boulevard Corridor is located along the southern perimeter of what is known as the Puente Hills-Chino Hills Wildlife Corridor. This wildlife corridor exists as a peninsula of mostly undeveloped hills reaching about 25-30 miles between the Cleveland National Forest in Orange County, west to the end of the Puente Hills above Whittier Narrows in Los Angeles County (Figure 3.5-2). The Puente-Chino Hills contain some of the last remaining stands of natural habitats that are declining in the Los Angeles Basin, including coastal sage scrub, walnut woodlands, riparian woodlands, and grasslands. Public interest in conserving open space has created a series of reserves and parks along most of this wildlife corridor's length; however, development and numerous busy roadways are viewed as having fragmented the corridor, creating hazards and in some cases barriers to wildlife movement. Of particular concern is degradation or even severing of the wildlife corridor by development within its so-called "Missing Middle", where it is not conserved or protected. The Brea Boulevard Corridor is located at the southern edge of the missing middle (Figure 5.3-2).

5.3.1.6 Special-Status Plants

Special-status plant species include those listed as Endangered, Threatened, Rare or those species proposed for listing by the USFWS under FESA and CDFW under CESA. Table 3.1 of the Biological Technical Report (Appendix F of this Draft EIR) provides information regarding special-status plants that may have potential to occur in the project area. These include California androsace (*Androsace elongata* ssp. *Acuta*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), Catalina mariposa-lily (*Calochortus catalinae*), Plummer's mariposa-lily (*Calochortus plummerae*), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*), lucky morning-glory (*Calystegia felix*), Lewis' evening-primrose (*Camissoniopsis lewisii*), southern tarplant (*Centromadia parryi* ssp. *Australis*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *Fernandina*), small-flowered morning-glory (*Convolvulus simulans*), paniculate tarplant (*Deinandra paniculate*), many-stemmed dudleya (*Dudleya multicaulis*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *Sanctorum*), mesa horkelia (*Horkelia cuneata* var. *puberula*), Southern California black walnut, Robinson's pepper grass (*Lepidium virginicum* var. *robinsonii*), mud nama (*Nama stenocarpa*), prostrate vernal pool navarretia (*Navarretia prostrata*), Hubby's phacelia (*Phacelia hubbyi*), south coast branching phacelia (*Phacelia ramosissima* var. *austrolitoralis*), Brand's star phacelia (*Phacelia stellaris*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Engelmann oak (*Quercus engelmannii*), Parish's gooseberry (*Ribes divaricatum* var. *parishii*), Coulter's matilija poppy (*Romneya coulteri*), chaparral ragwort (*Senecio aphanactis*), salt spring checkerbloom (*Sidalcea neomexicana*), and San Bernadino aster (*Symphyotrichum defoliatum*).

Of these, only one species (Southern California black walnut) has been recorded in the BSA, which was detected in the BSA during field surveys for the Project. Two of the special-status plant species have High potential (Robinson's pepper grass and intermediate mariposa-lily), one has Moderate potential (Plummer's mariposa-lily), while the remaining species are considered to have low potential of occurring within the BSA. Refer also to Table A in Appendix D of the Biological Technical Report (Appendix F of this Draft EIR) for a full list of the special-status plant species that were identified as having the potential to occur in the area in the database reviews, including those that are not expected in the BSA.



Plummer's Mariposa Lily

Plummer's mariposa lily is a California Native Plant Society (CNPS) California Rare Plant Rank (CRPR) 4.2 species (limited distribution, fairly endangered in California), in the Liliaceae (Lily) family. This species is a perennial bulbiferous herb that produces thin, branching stems and a few long curling leaves. On the stem is a lily bloom with long, pointed sepals and petals which may be up to 2 inches long. Petals are pink, lavender or white with a wide yellow band across the middle. The center contains large white or yellow anthers and the fruit is up to about 4 inches long. Plummer's mariposa lily blooms May through July and prefers granitic, rocky substrates in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grasslands between 100-1,700 meters (330-5,575 feet) amsl.

Eight regional records of this species were identified during the database review, with seven of these recorded in 2005 from the Puente Hills area, 5-7 miles northwest of the BSA. Although habitat suitable for this species is limited in the BSA, the presence of multiple recent records within 10 miles of the BSA results in this species having Moderate potential to occur within the BSA.

Intermediate Mariposa Lily

Intermediate mariposa lily is a CRPR 1B.2 species (Plants rare, threatened, or endangered in California and elsewhere, fairly endangered in California) in the Lily family. Related to Plummer's mariposa lily, this species is also a perennial bulbiferous herb that produces thin, branching stems and a few long curling leaves. On the stem is a lily bloom with long, pointed sepals and petals which may be up to 2 inches long. Petals are pink, lavender or white with a wide yellow band across the middle. The center contains large white or yellow anthers and the fruit is up to about 4 inches long. Intermediate mariposa lily blooms May through July and prefers rocky, calcareous substrates in chaparral, coastal sage scrub, and valley and foothill grasslands between 30 to 1,500 meters (approximately 100 to 4,920 feet) amsl.

Fifteen regional records of this species were identified during the database review, with 11 of these recorded since 2000, with the nearest reported occurrence located 3 miles east of the BSA in 2017. Habitat suitable for this species is present in the BSA and with multiple regional records within the past 20 years and some within close proximity and from recent years, this species has High potential to occur within the BSA.

Robinson's Pepper Grass

Robinson's pepper grass is a CRPR 4.3 species (Limited distribution in California, not very endangered in California) in the Brassicaceae (Mustard) family. This species is an annual herb that grows up to about 28 inches tall and has white flower petals. Its most identifiable characteristic is its cluster of flowers attached by short equal stalks at equal distances along the central stem, giving it the appearance of a bottlebrush. Robinson's pepper grass blooms January through July and prefers chaparral and coastal sage scrub habitats between 1 to 855 meters (3-2,805 feet) amsl.

Two regional records of this species were identified during the database review, with one of these recorded from 2010 from 5 miles northeast of the BSA. Additional records occur from 10 plus miles to the southeast in the Santa Ana Mountains. Habitat suitable for this species is present in the BSA and with a regional record from approximately 10 years ago, and with further records from the Santa Ana Mountains to the southeast, this species has High potential to occur within the BSA.

5.3.1.7 Sensitive Natural Vegetation Communities

Rare natural vegetation communities are given the highest inventory priority. Based on a review of CDFW's California Natural Diversity Data Base (CNDDDB), eight sensitive vegetative communities have been

recorded within the La Habra and surrounding eight quadrangles, including California Walnut Woodland, Riversidian Alluvial Fan Sage Scrub, Southern California Arroyo Chub/Santa Ana Sucker Stream, Southern Coast Live Oak Riparian Forest, Southern Coastal Salt Marsh, Southern Cottonwood Willow Riparian Forest, Southern Willow Scrub, and Walnut Forest. Although these sensitive natural communities are not recorded in the CNDDDB from the BSA, MCV -equivalent communities for two of CNDDDB communities were mapped within the BSA, including California Walnut Woodland (MCV=California Walnut Grove) and Southern California Coast Live Oak Riparian Forest (MCV=Coast Live Oak Riparian Forest).

According to the CDFW, funding for the natural community's portion of the CNDDDB program was halted in the mid-1990s. At the time, approximately 2,500 occurrences of 96 sensitive natural community types had been entered in the CNDDDB, all based on Holland's classification. No new occurrences have been added into the CNDDDB since then, and CDFW's focus is now on completing an updated statewide classification, element ranking, and map of natural vegetation communities. Once the entire state is classified and mapped, the CDFW will be able to review the existing occurrences in the CNDDDB and update them individually by existence, type, and global and state rarity ranking. CDFW will not remove these Holland-based elements from the CNDDDB before assessing them and reclassifying them in terms of the currently accepted state and national standards for vegetation classification. Based on the most-recent CDFW list of California Sensitive Natural Communities, the following sensitive natural communities occur within the BSA:

- Arroyo Willow Thickets
- Black Willow Thickets
- California Walnut Grove
- California Walnut-Laurel Sumac
- Coast Live Oak Woodland
- Coast Live Oak Riparian Forest

5.3.1.8 Special-Status Wildlife

Special-status wildlife species include those listed as Endangered, Threatened, or those species proposed for listing by the USFWS under FESA and CDFW under CESA. Additional species receive federal protection under the MBTA, and state protection under CFGC and CEQA Section 15380(d). Table 3.2 of the Biological Technical Report (Appendix F of this Draft EIR) provides information regarding special-status wildlife that may have potential to occur in the project area (one amphibian, five reptiles, thirteen birds, and six mammals). These include western spadefoot (*Spea hammondi*), southern California legless lizard (*Anniella stebbinsi*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), red-diamond rattlesnake (*Crotalus ruber ruber*), western pond turtle (*Emys marmorata*), coast horned lizard (*Phrynosoma blainvillii*), Cooper's hawk (*Accipiter cooperii*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), great blue heron (*Ardea Herodias*), long-eared owl (*Asio otus*), ferruginous hawk (*Buteo regalis*), white-tailed kite (*Elanus leucurus*), California horned lark (*Eremophila alpestris actia*), merlin (*Falco columbarius*), American peregrine falcon (*Falco peregrinus anatum*), yellow-breasted chat (*Icteria virens*), coastal California gnatcatcher (*Polioptila californica californica*), yellow warbler (*Dendroica petechia brewsteri*), least Bell's vireo (*Vireo bellii pusillus*), western mastiff bat (*Eumops perotis californicus*), western yellow bat (*Lasiurus xanthinus*), Yuma myotis (*Myotis yumanensis*), pocketed free-tailed bat (*Nyctinomops femorosaccus*), big free-tailed bat (*Nyctinomops macrotis*), and American badger (*Taxidea taxus*).

Of these, two federally and/or state-listed species (coastal California gnatcatcher and least Bell's vireo) were detected within the BSA during field surveys. Three CDFW species of special concern (SSC) were also observed (yellow-breasted chat, yellow warbler, and western pond turtle), as well as one CDFW watch

list (WL) species (Cooper's hawk). Two other special-status wildlife species have Moderate potential to occur within the BSA (great blue heron and California horned lark), while all other seventeen species have a Low potential to occur within the BSA. Table B in Appendix D of the Biological Technical Report (Appendix F of this Draft EIR) contains a full list of the special-status plant species that were identified as likely to occur in the region in the database reviews, including those that are not expected in the BSA.

Western Pond Turtle

Western pond turtle, a CDFW SSC, is uncommon to common in suitable aquatic habitat throughout California west of the Sierra Cascade Mountain Range and except for the Mojave River and tributaries, is absent from desert regions. Occurs in aquatic water bodies including flowing rivers and streams, permanent lakes, ponds, reservoirs, settling ponds, marshes and other wetlands. Semi-permanent water bodies such as stock ponds, vernal pools and seasonal wetlands can also be utilized by Western pond turtle on a temporary basis. Pond turtles require basking sites such as partially submerged logs, rocks, or open mud banks.

A focused visual survey for western pond turtles was conducted by AECOM on June 16, 2016 following USGS visual survey protocols for the Southcoast Ecoregion. Access to the entire reach of Brea Canyon occurring in the BSA, however, was not consistent at the time of this survey and as a result, not all reaches of Brea Canyon were surveyed during the time period prescribed by the USGS protocols. Biologists were able to survey stream reaches that were not accessible in June, September, and December 2016. No western pond turtle were detected during the 2016 visual surveys and none were incidentally observed during general biological resource surveys conducted in 2018. Western pond turtle was, however, incidentally observed by AECOM biologists along Brea Creek in 2019 and 2020 during the wildlife movement study. Additionally, a record of the species from 2013 near the confluence of Brea and Tonner Canyon creeks coincides with the BSA, and additional records are known from areas upstream of the BSA in both Brea and Tonner Canyon creeks. This species is considered present in the BSA.

Cooper's Hawk

Cooper's hawk is designated as a WL species by CDFW. This species is a breeding resident throughout most of the wooded portion of California, ranging in elevation from sea level to above 2,700 meters (approximately 8,860 feet) amsl. Outside of the breeding season, it disperses widely from southern Canada to northern Mexico and locally occurs less frequently in mountain areas than at lower elevations. In natural environments, Cooper's hawk nests primarily in oaks, eucalyptus, and riparian willows, where it builds high in trees, but beneath the canopy. It forages in broken woodland and habitat edges, hunting mammals, birds, amphibians, and reptiles. A study in Orange County, California, demonstrated that this species has successfully adapted to nesting and foraging in urban environments, where smaller birds are plentiful, and tall trees and buildings provide nesting sites.

Cooper's hawk was incidentally observed during general biological resource surveys in 2016 and during the wildlife movement study in 2020. Three CNDDDB records of this species from the La Habra and surrounding eight quadrangles were identified during the database review, with the nearest record from 2012 approximately 12 miles northeast of the BSA. Trees suitable for nesting Cooper's hawk occur within the BSA.

Great Blue Heron

Nesting colonies of great blue heron are tracked by CDFW in the CNDDDB. This species is fairly common throughout most of California in shallow estuaries and fresh and saline emergent wetlands. They are less common along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills. For nesting, great blue herons prefer secluded groves of tall trees near shallow-water feeding areas.

This species prefers nesting in tall trees, often utilizing eucalyptus trees. A nesting colony of this species has been recorded near Anaheim Lake approximately 6 miles south of the BSA. Tall mature eucalyptus and other trees suitable for nesting herons are present in the BSA, but no evidence of a nesting colony was observed during field surveys. However, this species has Moderate potential to occur in the BSA as a new or relocated nester or as a foraging individual along Brea Creek, due to the presence of potentially suitable habitat.

California Horned Lark

California horned lark, a CDFW WL species, is a ground-dwelling bird common in open, sparsely vegetated areas such as grasslands, deserts, and agricultural areas. They congregate in moderately sized flocks, feeding mostly on insects and other small invertebrates. California horned larks nest on the ground, building a small grass-lined cup in slight depressions in the open. They are year-round residents in much of California, though they are not found at high altitudes in the Sierra Nevada or in dense forests in the northwest of the state. They breed in open areas throughout their range.

This species was not observed during field surveys. One regional record of this species was identified during the database review, from approximately 3 miles east-northeast of the BSA in disturbed habitat with some non-native grass cover and adjacent to development, similar to conditions that also exist within the BSA. Although there is only one regional occurrence of this species, habitat in the BSA is suitable for this species and the regional record from the vicinity is from similar habitat within 3 miles of the BSA. As a result, this species has Moderate potential to occur within the BSA.

Yellow-Breasted Chat

Yellow-breasted chat, a CDFW SSC, is primarily found in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with a well-developed understory. Nesting areas are associated with streams, swampy ground, and the borders of small ponds. This species is known to breed in southern California mountain ranges and overwinters in the Imperial and Colorado River valleys.

This species was incidentally observed during protocol least Bell's vireo and southwestern willow flycatcher surveys conducted in 2016 and has been incidentally observed in the BSA during subsequent general biological field surveys. Eight regional records of this species, all from within the past 20 years were identified during database reviews, with the nearest occurrence from 2016 and approximately 5 miles to the east. This species is considered present in the BSA.

Yellow Warbler

Yellow warbler, a CDFW SSC, prefers wet riparian habitat but is also found in large cottonwoods in drier riparian areas. They breed in lowland and foothill riparian woodlands dominated by cottonwoods, alders, or willows and other small trees and shrubs typical of low, open-canopy riparian woodland.

This species was incidentally observed during protocol coastal California gnatcatcher and least Bell's vireo and southwestern willow flycatcher surveys conducted in 2016 and has been incidentally observed in the BSA during subsequent general biological field surveys. Six regional records of this species, all from within the past 20 years were identified during the database review, with the nearest occurrence from 2016 and approximately 5 miles to the east of the BSA. This species is considered present in the BSA.

Federal- and State-listed Species

Coastal California Gnatcatcher

Coastal California gnatcatcher is listed as threatened under FESA and is designated as a SSC by CDFW. In 2007, USFWS published a final rule designating revised Critical Habitat for the species. The BSA coincides with Critical Habitat for this species (see Section 5.3.1.6, below, for additional discussion). The coastal California gnatcatcher is a local and uncommon year-round resident of southern California, found in the six southern-most California counties located within the coastal plain (San Bernardino, Ventura, Los Angeles, Orange, San Diego, and Riverside). The species generally inhabits Diegan coastal sage scrub and Riversidian coastal sage scrub dominated by California sagebrush and California buckwheat, generally below 1,500 feet amsl along the coastal slope. When nesting, this species typically avoids slopes greater than 25 percent that include dense, tall vegetation.

Focused surveys following USFWS protocols were conducted in 2016 across two locations with habitat potentially suitable for the species. Surveys covered disturbed coastal sage scrub habitat southwest of the intersection of Brea Boulevard and Tonner Canyon Road and another area approximately 0.30-mile to the northeast, where disturbed coastal sage scrub occurs along the north side of Brea Boulevard. A pair of coastal California gnatcatcher were detected during all six protocol surveys in 2016 at the southwest corner of Brea Boulevard and Tonner Canyon Road. This pair was observed using the entire disturbed coastal sage scrub habitat at that location. During the sixth (last) survey conducted, on June 13, 2016, two juvenile gnatcatcher were observed flying into the area from the north side of Brea Boulevard. This family group of four remained in the sage brush habitat throughout the duration of the survey. No gnatcatchers were observed in the disturbed coastal sage scrub habitat located on the north side of Brea Boulevard to the northeast. Habitat at this location is only marginally suitable, with fewer native plant species observed in the survey area, compared to the location where the species was detected. Due to the observed presence of the species during the 2016 protocol surveys, this species is considered present within the BSA.

Least Bell's Vireo

Least Bell's vireo is listed as endangered under FESA and as endangered under CESA. USFWS designated Critical Habitat for the subspecies in 1994 and a draft recovery plan was prepared by USFWS and circulated for review in 1998. The BSA does not coincide with Critical Habitat for this species. The nearest Critical Habitat occurs approximately 15 miles east at Prado Dam in Riverside County.

Historically, this subspecies of Bell's vireo was a common summer visitor to riparian habitat throughout much of California. Currently, least Bell's vireo is found only in riparian woodlands in southern California, with the majority of breeding pairs in San Diego, Santa Barbara, and Riverside counties.

Least Bell's vireo is migratory and generally arrives in southern California in late March/early April; it leaves for its wintering grounds in September. The species primarily occupies riparian woodlands that include dense cover within 3 to 7 feet of the ground and a dense, stratified canopy. It inhabits low, dense riparian growth along water or along dry parts of intermittent streams. The understory is typically dominated by species of willow and mulefat. Overstory species typically include cottonwood (*Populus* sp.), western sycamore (*Platanus racemosa*), and mature willows. The subspecies typically builds nests in vegetation 3 to 4 feet above the ground where there is moderately open midstory cover with an overstory of willows, cottonwoods, sycamores, or coast live oaks. Nests are also often placed along internal or external edges of riparian thickets at an average of 3.3 feet above the ground. Riparian plant succession is an important factor in maintaining vireo habitat.

Focused surveys for least Bell's vireo were conducted in 2016 following current USFWS (2001) protocols across all riparian habitat in the BSA, regardless of quality. This included the primary riparian corridor that winds along Brea Boulevard through the middle of the BSA and a small riparian area in the northeastern portion of the BSA. Least Bell's vireo was not observed during protocol surveys, but a lone male was incidentally detected during protocol southwestern willow flycatcher surveys that were conducted across the same riparian habitat in 2016. A lone male was also incidentally detected in the same general location at Bridge 1 during general biological surveys conducted in 2016. Further incidental observations of least Bell's vireo were made in 2020 by biologists conducting field efforts associated with the wildlife movement study. No nesting least Bell's vireo were detected during any field surveys conducted by AECOM since 2016. Due to those incidental observations, this species is considered present within the BSA.

Southwestern Willow Flycatcher

Southwestern willow flycatcher, a subspecies of willow flycatcher (*Empidonax traillii*), was listed by CDFW as endangered in California in 1991 as part of the state endangered listing of the full species (willow flycatcher). Southwestern willow flycatcher was also federally listed as endangered in 1995. This subspecies can only be separated from other willow flycatcher subspecies in the field geographically by breeding range. Southwestern willow flycatcher breeds in New Mexico, Arizona, southern California, Nevada, Utah, and possibly west Texas (Rourke et al. 1999). In 2005, USFWS issued the final ruling to designate Critical Habitat for southwestern willow flycatcher, none of which coincides with the BSA. The nearest Critical Habitat for this species occurs nearly 30 miles to the east-northeast in Riverside County.

Southwestern willow flycatcher generally begin arriving on breeding territories in southern California in early May, but the northern subspecies (*E. t. brewsteri*) may migrate through southern breeding areas through mid-June. Both male and female migrant willow flycatchers frequently sing, and determining whether an individual is a resident (southwestern willow flycatcher) or a migrant (willow flycatcher) cannot be accomplished from a single detection.

Focused surveys for southwestern willow flycatcher were conducted in 2016 following protocols adopted by USFWS. Similar to least Bell's vireo surveys that were conducted, southwestern willow flycatcher protocol surveys covered all riparian habitat in the BSA, regardless of quality. No southwestern willow flycatcher were observed during any surveys. Riparian habitat in the BSA is narrow, disturbed, and includes significant non-native species. The combination of a narrow riparian corridor with significant disturbances, makes it unlikely that southwestern willow flycatcher could or would successfully breed within the BSA. Only one regional CNDDDB record was identified during database reviews and this record is from 1906 in the vicinity of the City of Pasadena in Los Angeles County. As a result of negative survey results in 2016, lack of potentially suitable habitat for the species, and lack of recent regional records, this species is not expected to occur within the BSA.

5.3.1.9 Critical Habitat

Critical Habitat areas are designated by USFWS for species listed under FESA as space for individual populations to grow and for normal behavior by the species. Critical Habitat areas provide cover, shelter, food, water, light, minerals and other nutritional or physiological requirements for survival of the species. Critical Habitats provide sites for breeding and rearing offspring and habitat that are protected from disturbances and are representative of the historical geographical distribution of the species.

USFWS-designated Critical Habitat for coastal California gnatcatcher coincides with the BSA, as depicted in Figure 5.3-3. The BSA lies within *Critical Habitat Unit 9: East Los Angeles County-Matrix NCCP Subregion of Orange County*, which stretches across the Montebello Hills, Puente-Chino Hills, and Western

Coyote Hills. Core populations of the species are known to occur along the south slopes of the Puente-Chino Hills from the City of Whittier east to the City of Yorba Linda, which generally includes the BSA.

Nearly all of the BSA coincides with Unit #9. An approximately 33 acres of developed land cover in the southwestern portion of the BSA and approximately one acre of upland ruderal vegetation in the far northeastern corner of the BSA fall outside Critical Habitat, leaving a total of approximately 232.36 acres of the BSA that coincide with coastal California gnatcatcher Critical Habitat. Of this, 20.78 acres of habitat preferred by this species in the form of disturbed coastal sage scrub occurs within the BSA. This community includes California sagebrush shrubs and other native shrubs; however, it also includes significant cover of non-native herbaceous species. A family group of gnatcatcher were found utilizing an approximately 5-acre area of disturbed coastal sage scrub habitat occurring at the southwest corner of the intersection of Brea Boulevard and Tonner Canyon Road. This was the only area of habitat that gnatcatchers were observed in during any of the surveys. Other areas of disturbed coastal sage scrub in the BSA where gnatcatchers were not detected have a greater component of non-native herbaceous cover and occur within close proximity of either Brea Boulevard or SR-57.

5.3.1.10 Habitat Conservation Plans

The BSA is within the Plan Area of the Orange County Transportation Authority Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) (i.e., comprising the entirety of the County of Orange), but is not located in its Matrix Area (i.e., the targeted subregions). Two subregion HCP/NCCP plans were developed for the Orange County Transportation Authority NCCP/HCP – the Central Coastal HCP/NCCP and the Southern Subregion NCCP/Master Streambed Alteration Agreement (MSAA)/HCP – both of which are located much further south and southeast of the project area.

However, a portion of the corridor is within land covered by a conservation easement deed (Conservation Easement) for approximately 449 acres of land (Conserved Lands) in the City of Brea as part of a Habitat Conservation Area for the Tonner Hills Planned Community¹⁰ by and between Tonner Hills SSP, LLC (grantor) and the County of Orange (grantee) (County of Orange and Tonner Hills 680, LLC 2007). The Conserved Lands provide mitigation for certain impacts identified in the Final EIR (State Clearinghouse No. 2001031137) for the Tonner Hills Planned Community, and the Conservation Easement is designed to satisfy, and was granted in satisfaction of, the USFWS Biological Opinion FWS-OR-2347.5, USACE Section 404 Permit 199916501-DPS and CDFW Streambed Alteration Agreement #R5-2002-0114 associated with the Tonner Hills Planned Community. As such, the USFWS, USACE, and CDFW are Third-Party Beneficiaries of the Conservation Easement. As noted in the Conservation Easement, “the Conserved Land currently provides some high quality habitat for the threatened California gnatcatcher as well as the opportunity for major habitat restoration and enhancement efforts that will benefit other species associated with coastal sage scrub, riparian, and walnut woodland communities. The Conserved Land will be enhanced to improve its habitat functions and values by removing low-quality non-native vegetation and replacing it with riparian vegetation of higher biological value consistent with the mitigation, monitoring, and management plans and agreements” (County of Orange and Tonner Hills 680, LLC 2007).

5.3.1.11 Jurisdictional Aquatic Features

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources that can fall under the jurisdiction of several regulatory agencies (i.e., USACE, CDFW, and RWQCB).

¹⁰ The Tonner Hills Planned Community is also referred to in this document as the Tonner Hills Specific Plan, or “Blackstone;” see Section 5.9, Land Use and Planning

Field surveys were conducted by AECOM to assess and map potential aquatic and riparian jurisdictional features in the BSA, subject to CWA and CFGC permitting. Surveys focused on Brea Creek and the location of the three bridges that will be replaced under the Project. An Aquatic Resource Delineation Report (Delineation Report; Appendix G of this Draft EIR) was prepared to present the methods, results, regulatory settings, and permitting implications associated with Project impacts to jurisdictional features at the bridge locations.

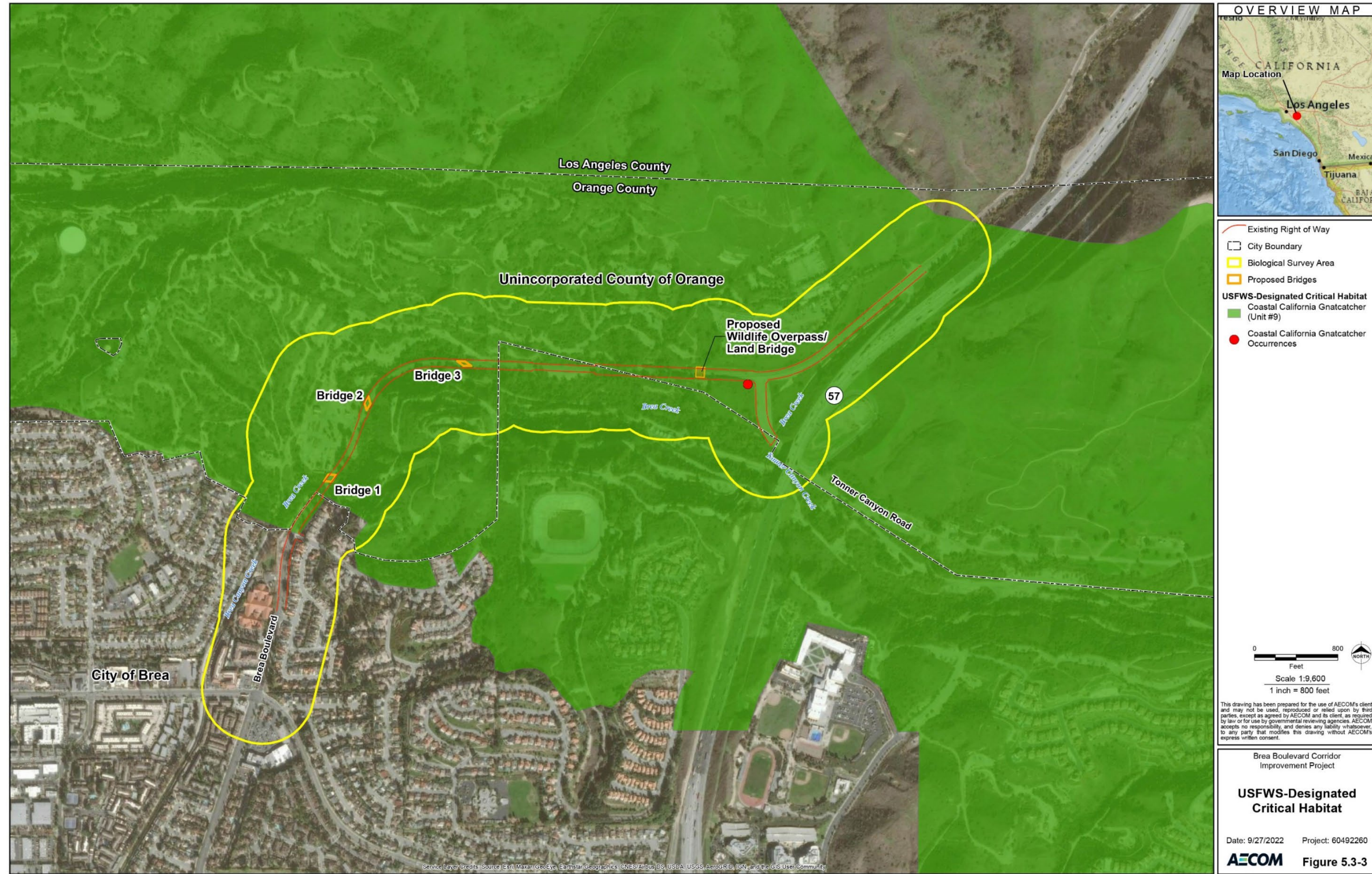
The BSA is located within the northeastern portion of the Coyote Creek watershed, which drains the City of Brea and neighboring Buena Park, Fullerton, La Habra, and La Palma. Coyote Creek is a principal tributary to the San Gabriel River, draining into Alamitos Bay and the Pacific Ocean. AECOM delineated approximately 6.52 acres of wetlands and other waters within the BSA, including 1.89 acres of wetland waters, subject to the federal CWA (Waters of the U.S. [WoUS]) and approximately 17.73 acres of stream and riparian habitats within the BSA subject to CFGC (Waters of the State [WoST]) regulations. Table 5.3-2 below presents WoUS, and Table 5.3-3 WoST, by feature type occurring within the BSA. Delineated resources are depicted in Figure 5.3-4.

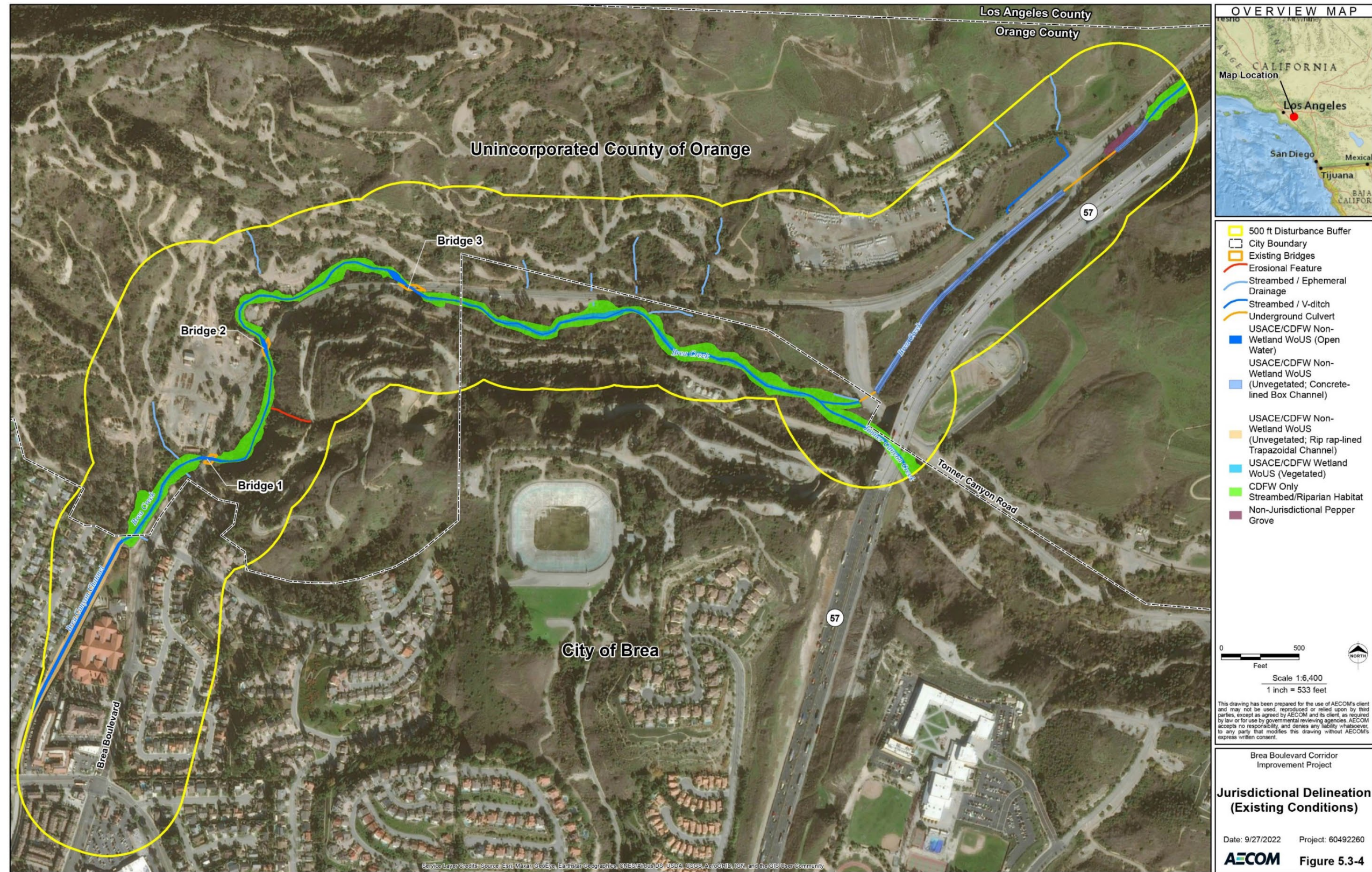
**TABLE 5.3-2
WATERS OF THE U.S. WITHIN THE BSA**

VEGETATED/ UNVEGETATED	JURISDICTIONAL AGENCIES: US ARMY CORPS OF ENGINEERS (USACE)/ REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)	(ACRES)	(LINEAR FEET)
Unvegetated	Streambed / Open Water Channel (Brea Creek)	2.14	10,798
Unvegetated	Tonner Canyon Creek	0.14	772
Unvegetated	Non-Wetland WoUS (Under Bridge 1)	0.02	n/a
Unvegetated	Non-Wetland WoUS (Under Bridge 2)	0.03	n/a
Unvegetated	Non-Wetland WoUS (Under Bridge 3)	0.02	n/a
Unvegetated	Non-Wetland WoUS (Unvegetated; Concrete-lined Box Channel)	1.52	1,760
Unvegetated	Non-Wetland WoUS (Unvegetated; Rip rap-lined Trapezoidal Channel)	0.60	1,237
Unvegetated	Non-Wetland WoUS (Unvegetated; Ephemeral Drainages ¹)	0.16	3,398
Vegetated	Wetland WoUS	1.89	n/a
Vegetated & Unvegetated	TOTAL USACE/RWQCB Jurisdiction	6.52	17,965

¹ The ephemeral drainages are jurisdictional to the USACE/RWQCB per Section 404/401, and these features would also be considered jurisdictional to RWQCB as WoST.

Source: Appendix G of this Draft EIR





**TABLE 5.3-3
WATERS OF THE STATE WITHIN THE BSA**

VEGETATED/ UNVEGETATED	JURISDICTIONAL AGENCY: CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE CDFW	(ACRES)	(LINEAR FEET)
Unvegetated	Streambed / Open Water Channel (Brea Creek)	2.14	10,798
Unvegetated	Tonner Canyon Creek	0.14	772
Unvegetated	Streambed (Under Bridge 1)	0.02	n/a
Unvegetated	Streambed (Under Bridge 2)	0.03	n/a
Unvegetated	Streambed (Under Bridge 3)	0.02	n/a
Unvegetated	Streambed (Unvegetated; Concrete-lined Box Channel)	1.52	1,760
Unvegetated	Streambed (Unvegetated; Rip rap-lined Trapezoidal Channel)	0.60	1,237
Unvegetated	Streambed (Unvegetated; Rip rap-lined Trapezoidal Banks)	1.09	n/a
Unvegetated	Streambed (Ephemeral Tributary Drainages) ¹	0.16	3,398
Vegetated	Streambed Wetlands (equivalent to USACE/RWQCB wetlands)	1.89	n/a
Vegetated	CDFW-Only Riparian Habitat (adjacent to "Streambed Wetlands")	10.12	n/a
Vegetated & Unvegetated	TOTAL CDFW Jurisdiction	17.73	17,965

¹The ephemeral drainages are jurisdictional to the USACE/RWQCB per Section 404/401, and these features would also be considered jurisdictional to RWQCB as WoST.

Source: Appendix G of this Draft EIR

5.3.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFW or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

5.3.3 METHODOLOGY RELATED TO BIOLOGICAL RESOURCES

5.3.3.1 Field Surveys and Database Reviews

Prior to conducting field surveys, CDFW, CNPS, and USFWS special-status species and sensitive community occurrence databases were reviewed for the Project vicinity.

The CNDDDB and the CNPS online Inventory of Rare and Endangered Plants of California (CNPS 2021) were initially reviewed in 2016, prior to the first field survey, for the most recent distribution information for regional special-status plant and wildlife species and sensitive natural communities within the La Habra quadrangle and the surrounding eight quadrangles including: El Monte, Baldwin Park, San Dimas, Whittier, Yorba Linda, Los Alamitos, Anaheim, and Orange. The USFWS Information for Planning and Conservation (IPaC) online database was also reviewed for special-status species, sensitive natural communities, and protected areas known for the Project vicinity. These databases have been periodically reviewed following the 2016 surveys to determine if additional special-status species and sensitive resources have been identified in the Project vicinity; this report presents and evaluates results of the most recent review conducted February 11, 2021.

Information on special-status plant and wildlife species was also compiled through a review of:

- State and Federally Listed Endangered, Threatened, and Rare Plants of California
- Special Vascular Plants, Bryophytes, and Lichens List
- State and Federally Listed Endangered and Threatened Animals of California
- Special Animals List

AECOM biologists initiated field surveys to document existing conditions within the BSA in May 2016. The initial survey did not include areas of the survey buffer occurring west of the intersection of Brea Boulevard and Tonner Canyon Road. These areas of the survey buffer were not accessible to biologists at the time. Field surveys of buffer areas north of Brea Boulevard were conducted later in 2016, as access to conduct surveys in these areas was agreed upon with the landowners. Further field surveys were conducted in 2018 to verify and confirm the findings made during 2016 field surveys and the wildlife movement corridor study was initiated in 2019 and completed in 2021.

During general biological surveys conducted in 2016 and subsequent visits to the BSA in 2018, vegetation communities and land cover types, and plant and wildlife species within the BSA were surveyed and noted. Protocol surveys were conducted in 2016 for coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher to determine presence or absence in the BSA. Surveys focusing for rare plants were conducted in both 2016 and 2018 and followed CDFW's Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities. Protocol wildlife surveys were performed by biologists permitted by FESA section 10(a)(1)(A), following Coastal California Gnatcatcher 1997 Presence/Absence Survey Protocol, Least Bell's Vireo Survey Guidelines, and A Natural History Summary and Survey Protocol for the Southwestern Willow Flycatcher. Coastal California gnatcatcher surveys consisted of six focused surveys spaced at one week intervals between March 15 and June 30. Least Bell's vireo surveys consisted of 8 surveys spaced at least 10 days apart between April 10 and July 31. Southwestern willow flycatcher surveys consisted of 5 surveys spaced at least 5 days apart between May 15 and July 17. Separate field surveys to delineate jurisdictional wetlands and other water resources in the BSA were also conducted. The survey dates, times, weather conditions, personnel, and purpose for all biological and jurisdictional resources are provided in Appendix A of Appendix F (Biological Technical Report) of this Draft EIR.

Additionally, in 2019, Orange County Public Works (OC Public Works) determined that a wildlife movement study should be conducted to determine if potential impacts would occur due to implementation of the Project. The goal of the wildlife movement study was to understand animal movement within the Brea Boulevard Corridor to evaluate potential impacts and identify possible Project design features that would maximize the permeability of the road to wildlife while minimizing wildlife-traffic interactions. Wildlife movement and mortality data were collected throughout the Brea Boulevard Corridor utilizing wildlife camera and roadkill surveys. Wildlife camera surveys were used to evaluate wildlife activity at potential crossing locations at the road grade or at undercrossings such as the bridges and culverts that occur below the road grade. Roadkill surveys were designed to document patterns of roadkill within the Brea Boulevard Corridor and potentially identify areas of high mortality. Additionally, the openings and length of each bridge and culvert crossing were measured to determine the openness ratio. All field work for the wildlife movement study was conducted between January 2020 and February 2021, beginning with an initial reconnaissance site visit conducted on January 17, 2020. Refer to Appendix H of this Draft EIR for more details regarding the wildlife movement study survey.

5.3.4 POTENTIAL IMPACTS

- 5.3.4.1 Have a Substantial Adverse Effect (directly/indirectly) on any Species Identified as a Candidate, Sensitive, or Special Status Species or Effect any Riparian Habitat or Other Sensitive Natural Community Identified in Local or Regional Plans, Policies, or Regulations, or by the CDFW or USFWS

Vegetation Communities

Project construction would impact primarily non-native vegetation communities and urban land cover types; however, native vegetation communities and aquatic habitats would also be impacted. The permanent and temporary impacts that would occur during Project construction are provided in Table 5.3-4 below and depicted in Figure 5.3-5a through 5.3-5d. Acreages of vegetation communities and land cover types in the BSA are also included as reference.

**TABLE 5.3-4
PERMANENT AND TEMPORARY IMPACTS TO VEGETATION COMMUNITIES AND
LAND COVER TYPES IN THE PROJECT LIMITS**

CATEGORY	VEGETATION COMMUNITIES/ LAND COVER TYPES	ACRES IN THE BSA	PERMANENT IMPACTS (ACRES)	TEMPORARY IMPACTS (ACRES)
Native Vegetation Communities	Blue Elderberry Stands	1.27	0.07	0.04
Native Vegetation Communities	Blue Elderberry – Toyon	8.34	0.30	0.81
Native Vegetation Communities	California Walnut Groves*	0.88	0	0
Native Vegetation Communities	California Walnut – Laurel Sumac*	6.58	0.27	0.49
Native Vegetation Communities	Coast Live Oak Woodland*	8.09	1.19	1.17
Native Vegetation Communities	Disturbed Coastal Sage Scrub	20.87	0.06	0.81

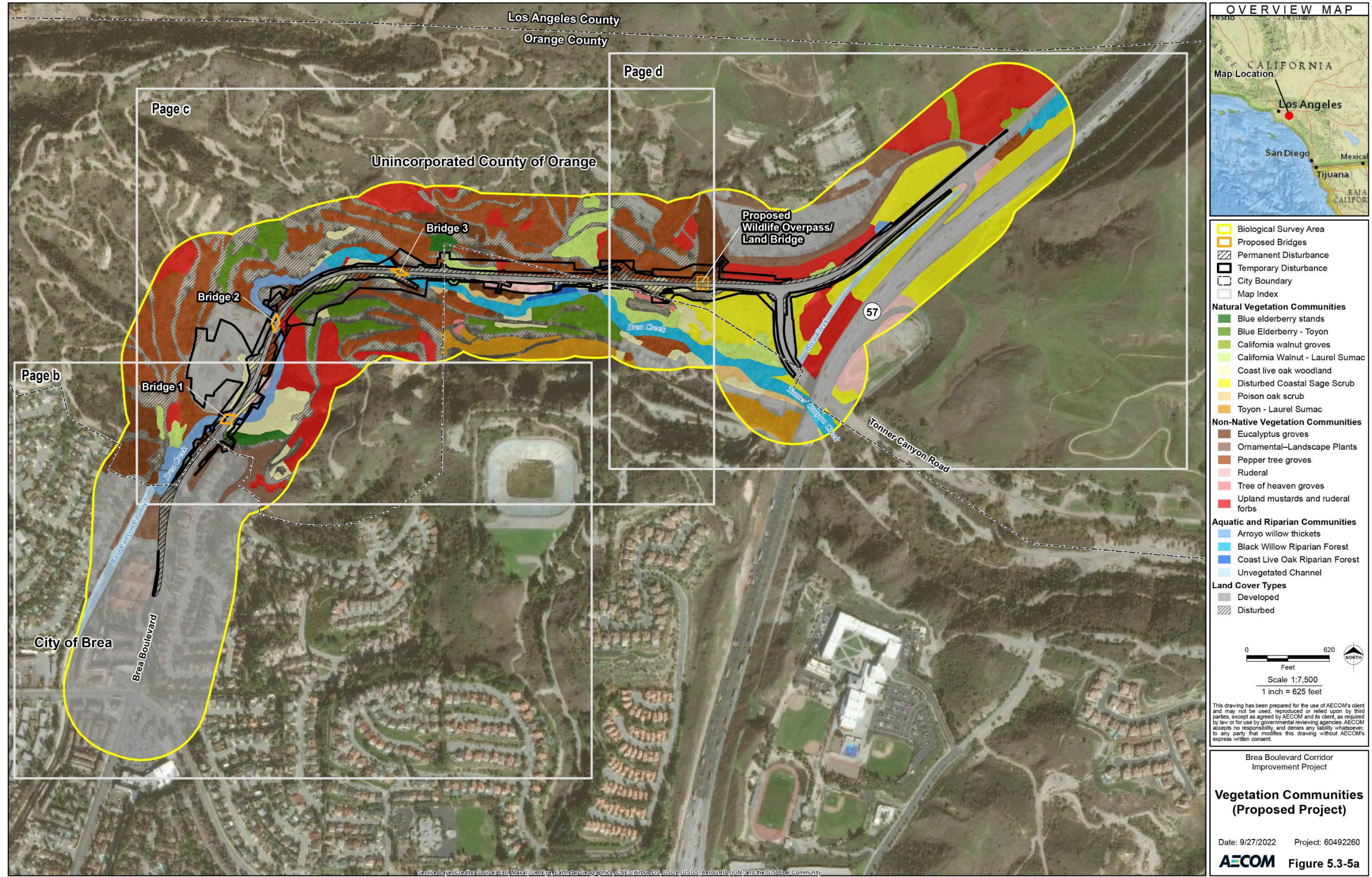
**TABLE 5.3-4
PERMANENT AND TEMPORARY IMPACTS TO VEGETATION COMMUNITIES AND
LAND COVER TYPES IN THE PROJECT LIMITS**

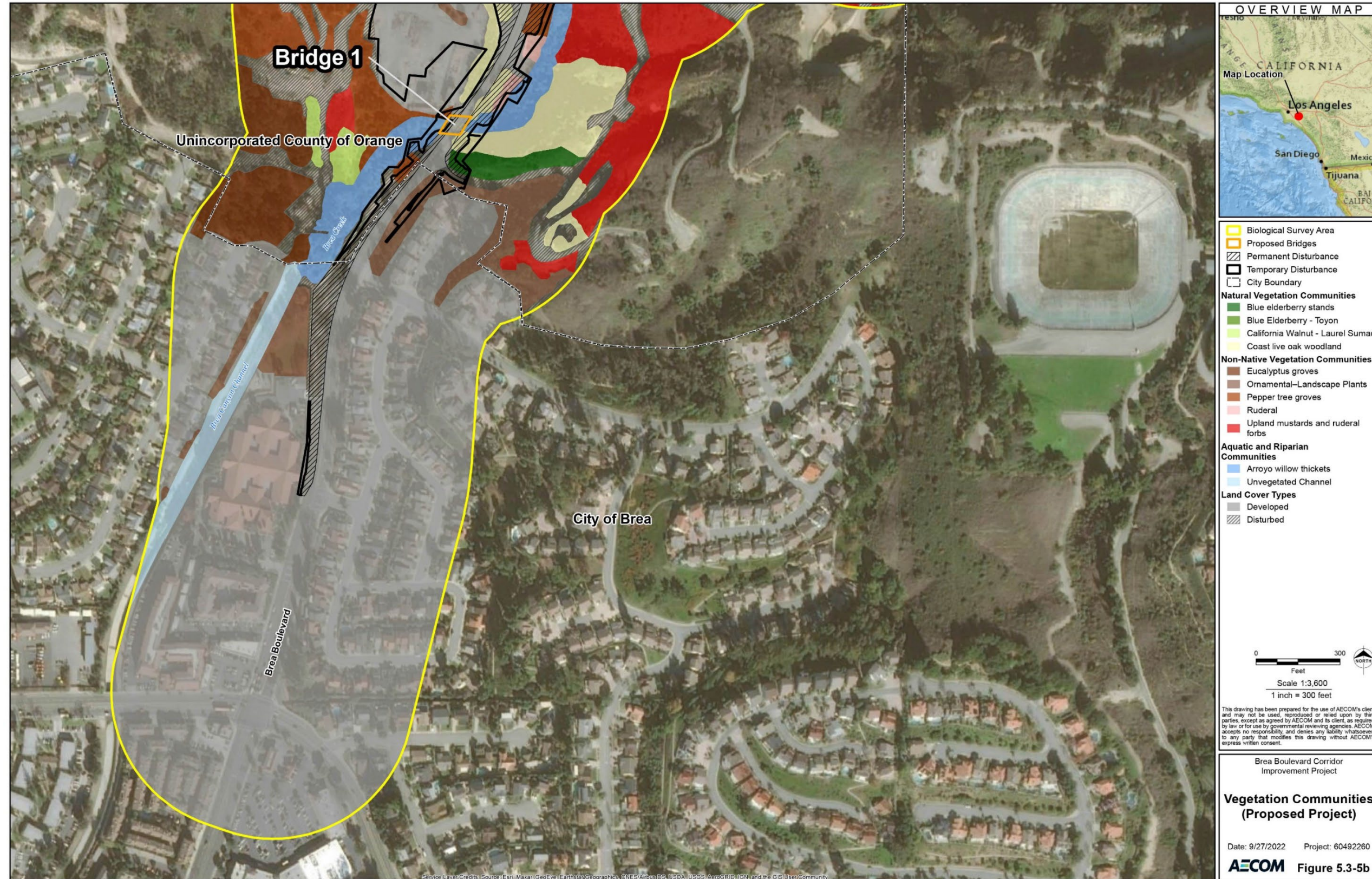
CATEGORY	VEGETATION COMMUNITIES/ LAND COVER TYPES	ACRES IN THE BSA	PERMANENT IMPACTS (ACRES)	TEMPORARY IMPACTS (ACRES)
Native Vegetation Communities	Poison Oak Scrub	1.35	0	0
Native Vegetation Communities	Toyon – Laurel Sumac	6.09	0	0
<i>Native Vegetation Communities</i>	<i>Subtotal</i>	<i>53.47</i>	<i>1.89</i>	<i>3.32</i>
Non-Native Vegetation Communities	Eucalyptus Groves	9.18	0.71	0.83
Non-Native Vegetation Communities	Pepper Tree Groves	33.67	0.02	0.37
Non-Native Vegetation Communities	Tree of Heaven Groves	0.50	1.46	2.04
Non-Native Vegetation Communities	Upland Mustards and Ruderal Forbs	28.56	0.33	0.67
Non-Native Vegetation Communities	Ornamental–Landscape Plants	9.68	0.03	0.13
Non-Native Vegetation Communities	Ruderal	3.73	0.38	0.89
<i>Non-Native Vegetation Communities</i>	<i>Subtotal</i>	<i>85.32</i>	<i>2.93</i>	<i>4.93</i>
Aquatic and Riparian Communities	Arroyo Willow Thickets*	4.84	0.24	0.50
Aquatic and Riparian Communities	Black Willow Riparian Forest*	8.70	0.13	0.30
Aquatic and Riparian Communities	Coast Live Oak Riparian Forest*	0.43	0.07	0.05
Aquatic and Riparian Communities	Unvegetated Channel	3.46	0	0
<i>Aquatic and Riparian Communities</i>	<i>Subtotal</i>	<i>17.43</i>	<i>0.44</i>	<i>0.85</i>
Land Cover Types	Developed	76.54	3.99	5.88
Land Cover Types	Disturbed	35.61	1.82	2.84
<i>Land Cover Types</i>	<i>Subtotal</i>	<i>112.15</i>	<i>5.81</i>	<i>8.72</i>
ALL	TOTAL	268.38	11.07	17.82

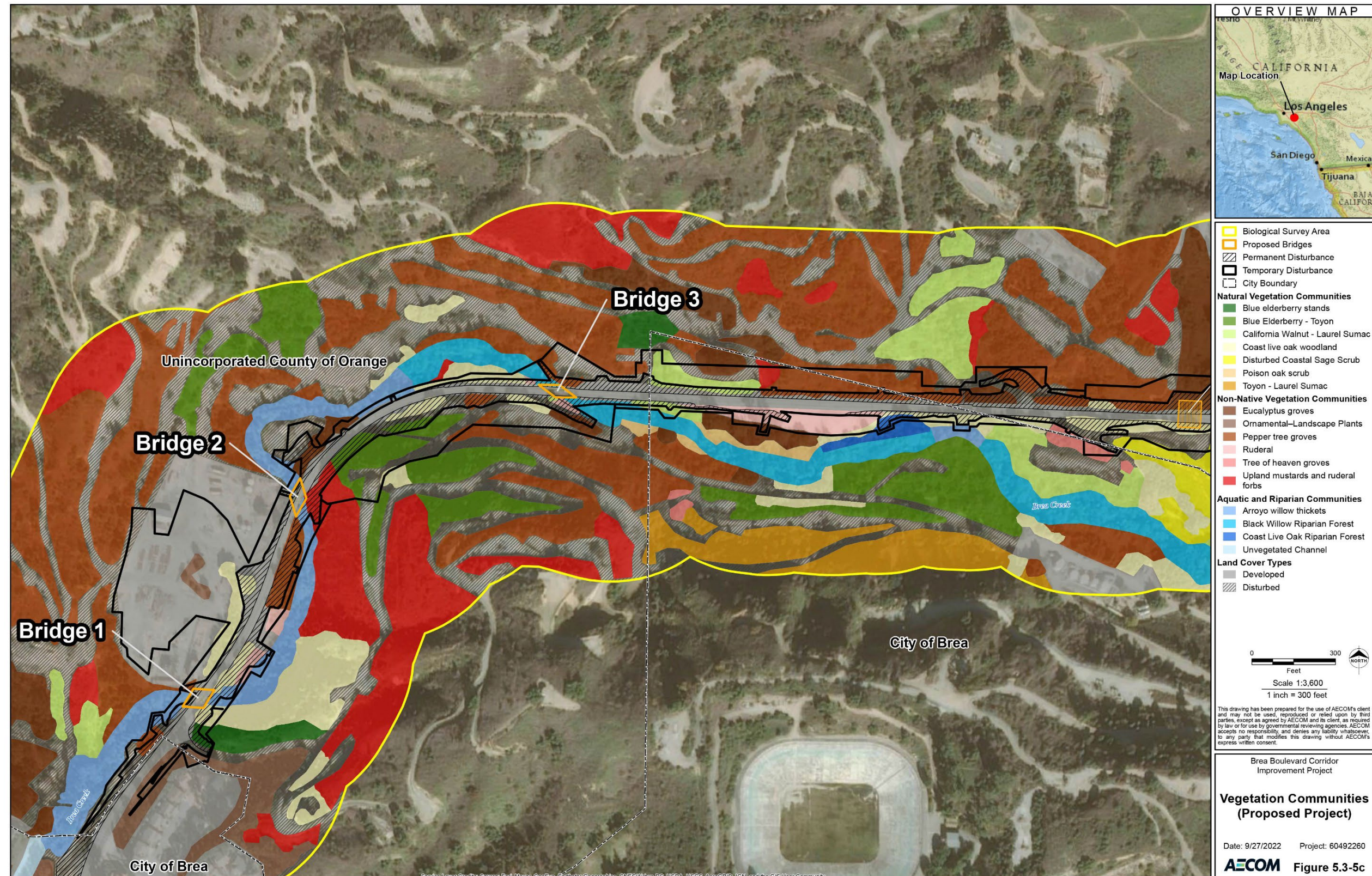
Source: Appendix F of this Draft EIR

Note: * Indicate sensitive natural communities; Totals may not add up due to rounding.

Permanent impacts would occur upon ground disturbing activities, including grading to widen Brea Boulevard, installation of new larger bridge spans, retaining walls, and the wildlife overpass, and during modifications and enhancements to driveways connecting to Brea Boulevard. Temporary impacts would occur at temporary work areas from which road widening and installation of new bridge spans, the retaining wall, and the wildlife overpass would occur. Temporary impacts due to the proposed construction staging areas where Project equipment and materials would be temporarily stored would occur in areas where past human disturbances have previously occurred.







Path: \\na.aecomnet.com\ifs\AMER\Orange-USORA\DCS\Projects\ENV\60492260 - Brea Canyon Road Project EIR\800 Working Docs - CAD\CADD-GIS\MXD\Tech_Report\Bio\Figure 5.3-5a-5.3-5d Vegetation_Communities_proposed.mxd | Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet | User: jang.seo



Path: \\na.aecomnet.com\is\AMER\Orange-USORA\DCS\Projects\ENV\60492260 - Brea Canyon Road Project EIR\900 Working Docs - CAD\CADD-GIS\MXD\Tech_Report\Bio\Figure 5.3-5a-5.3-5d Vegetation_Communities_proposed.mxd | Coordinate System: NAD 1983 StatePlane California VI FIPS 0406 Feet | User: jang.seo

Impacts to non-native vegetation communities and land cover types resulting from construction of the Project are not considered significant under CEQA; however, direct impacts to sensitive natural vegetation communities designated by CDFW may be considered a potentially significant impact under CEQA (discussed further below).

Indirect impacts to vegetation communities adjacent to the project limits could include the accumulation of fugitive dust, and the colonization of nonnative, invasive plant species. Other indirect impacts could include an increase in the amount of compacted or modified surfaces within the project limits that, if not controlled, could increase the potential for surface runoff, increased erosion, and sediment deposition within vegetation beyond the project limits. With implementation of standard construction biological resource-related best management practices (BMPs), shown below, and implementation of a Fugitive Dust Plan (FDP) to control dust, and a Stormwater Pollution Prevention Plan (SWPPP) to control erosion, runoff, and hazardous spills, indirect impacts to vegetation communities outside the project limits would be avoided and minimized, and not be considered significant.

Standard BMPs

1. Prior to the initiation of construction, a qualified biologist (i.e., is familiar and experienced with the identification and life histories of wildlife and plant species in southern California) shall be identified and approved by OC Public Works to conduct biological surveys, monitor construction activities, and advise construction personnel of the potential biological issues associated with Project construction.
 - a. The qualified biologist will be responsible for avoiding impacts to sensitive species to the fullest extent possible.
 - b. The qualified biologist shall be present on a daily basis to monitor construction activities and support impact avoidance and minimization measures detailed in permits and approvals obtained for the Project.
 - c. The qualified biologist shall attend weekly construction meetings and provide on-site direction for addressing habitat- or species-specific issues.
2. The qualified biologist shall present a Worker Environmental Awareness Program to all Project personnel discussing the biology of the habitats and species in the project area. Information about the distribution and habitat needs of any protected species that may be present, legal protections for those species, penalties for violations, and Project-specific protective measures will be included in the education program. Cards or fact sheets containing this information will be provided to all personnel and they will be required to sign a form stating they attended the program and understand the protective measures.
3. The qualified biologist shall ensure the project limits (including staging areas) are clearly delineated with fencing or other boundary markers prior to the start of construction. During construction, construction workers shall strictly limit their activities, vehicles, equipment, and construction materials to the designated project limits and staging areas.
4. The project limits shall be clearly marked on Project maps provided to the construction contractor(s) and areas outside of the project limits shall be designated as “environmentally sensitive areas.” A construction manager shall be present during all construction activities to ensure that work is limited to designated project limits.
5. During construction, the project limits shall be kept as clean of debris as possible to avoid attracting predators of sensitive wildlife. All food-related trash items shall be enclosed in sealed containers and removed daily from the construction work zone.

Special-Status Plant Species

If present, individual special-status plant species could be directly damaged or destroyed from crushing or trampling during construction activities. Species adjacent to the project limits could also be indirectly affected, including by the accumulation of fugitive dust, the colonization of nonnative, invasive plant species, and an increase in the amount of surface runoff, increased erosion, and sediment deposition beyond the project limits. However, no federal or State-listed plant species have previously been documented within the BSA and none were observed during field surveys. Habitat conditions within the project limits are generally disturbed and dominated by non-native species and are not suitable for listed special-status plants. One non-listed special-status species, California black walnut (CRPR 4.2), is present in the BSA but outside the project limits. As a result, direct impacts to special-status plant species are not anticipated. Further, with implementation of standard construction biological resource-related BMPs, discussed above, and implementation of an FDP to control dust and a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to special-status plant species would be avoided and minimized. Therefore, impacts to special-status plant species during construction would be less than significant and no mitigation measures would be required.

Operation and routine maintenance of the Project would be conducted within the road right-of-way (R/W), most of which would consist of paved surfaces and areas consisting of ruderal roadside vegetation or areas of bare ground. It is not anticipated that roadside areas within the R/W would provide suitable habitat for special-status plant species that may be affected by operation and maintenance of the new roadway. No special-status plant species are anticipated to occur within the R/W. Therefore, no impact to special-status plant species would occur during operation of the Project and no mitigation measures would be required.

Special-Status Wildlife Species

Two federally and/or State-listed wildlife species were identified during the field surveys in the BSA (coastal California gnatcatcher and least Bell's vireo). Additionally, four non-listed species (Cooper's hawk, yellow-breasted chat, yellow warbler, and western pond turtle) were detected in the BSA. A number of other special-status wildlife have some potential to occur within the BSA. In addition, birds protected by the MBTA and CFGC have the potential to nest within the BSA.

Birds

With implementation of standard construction biological resource-related BMPs, discussed above, and implementation of an FDP to control dust, impacts to special-status and protected bird species would be avoided or minimized. However, significant direct impacts to special-status bird species would occur if a bird or eggs were injured or killed during construction, or if vegetation suitable for nesting by special-status birds is removed. Indirect impacts to nesting birds within the vicinity of the project limits could occur as a result of dust, noise, vibrations, and increased human presence. Disturbances related to construction could result in changes in breeding behaviors which could decrease nesting attempts and/or increase nestling mortality due to nest abandonment or decreased feeding frequency. If such impacts were to occur, they would be considered significant.

Passerine and Non-Passerine Land Birds

Listed and non-listed special-status passerine and non-passerine land birds were detected in the BSA, or have some potential to occur within the BSA based on the presence of suitable habitat and recorded observations nearby. Mature trees, shrubs, and other vegetation present in the BSA is suitable for nesting by these species, and provide nearby foraging opportunities. Direct and indirect impacts to these species could occur during construction as described above. Therefore, the Project has a potential to cause a

significant impact related to listed (i.e., California gnatcatcher and least Bell's vireo) and non-listed passerine and non-passerine land birds, and nesting by common bird species protected under the MBTA and CDFW during construction (refer to Mitigation Measures BR-1 through BR-3).

Raptors

One non-listed special-status raptor, Cooper's hawk, was detected within the BSA. Common raptor species have also been detected within the BSA and an active red-tailed hawk nest was observed during field surveys. Although other regional special-status raptor species are not expected within the BSA or would likely occur only as a transient forager or migrant (see Table 3 in Appendix F of this Draft EIR), non-listed raptors and nesting by common raptor species protected under the MBTA and CDFW, are expected to occur in the BSA. Direct and indirect impacts to these species could occur during construction as described above. Therefore, the Project has a potential to cause a significant impact related to listed and non-listed raptor species and nesting by common raptors protected under the MBTA and CDFW during construction (refer to Mitigation Measure BR-1).

Reptiles

If present, individual special-status reptile species could be directly injured or killed from crushing or trampling during construction activities. Indirect impacts to reptiles occurring outside the project limits could occur during construction from increased noise, vibrations, accidental release of pollutants, excess sedimentation and erosion, and human intrusions into habitat outside the project limits that may affect habitat suitable for such species. However, no federal or State-listed reptile species were observed during field surveys and only green turtle, an ocean species, was identified from the database reviews as having a recorded occurrence within the region. One non-listed special-status reptile, western pond turtle, was detected in the BSA and four additional species have some potential to occur in the BSA (see Table 3 in Appendix F of this Draft EIR). With implementation of standard construction biological resource-related BMPs, discussed above, and implementation of a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to reptiles would be avoided or minimized.

However, because western pond turtle was detected in the BSA it is considered to be present and the Project has the potential to cause a significant impact to this species (and any additional special status-reptile species that may be present, although none are anticipated) during construction (refer to Mitigation Measure BR-4).

Invertebrates, Fish, and Amphibians

Special-status invertebrate and fish species are not anticipated to occur within the BSA and as a result, no impacts to such species would occur.

If present, individual special-status amphibian species could be directly injured or killed from crushing or trampling during construction activities. Indirect impacts to amphibians occurring outside the project limits could occur during construction from increased noise, vibrations, accidental release of pollutants, excess sedimentation and erosion, and human intrusions into habitat outside the project limits that may affect habitat suitable for such species. However, no federal or State-listed amphibian species were observed during field surveys and no regional records of listed amphibian species in the BSA were identified during the database reviews. Only western spadefoot (CDFW SSC), was identified and was determined to have Low potential to occur in the BSA. With implementation of standard construction biological resource-related BMPs, discussed above, and implementation of a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to amphibians would be avoided or minimized.

However, because western spadefoot was determined to have some potential to occur in the BSA, the Project has the potential to cause a significant impact to this species (and any additional special status-amphibian species that may be present, although none are anticipated) during construction (refer to Mitigation Measure BR-4).

Mammals

If present, individual special-status terrestrial mammal species (non-bats) could be directly injured or killed from crushing or trampling during construction activities, or the collapse of burrows of fossorial mammals (i.e. American badger). No federal or State-listed mammal species were identified during the database reviews or during field surveys and are not expected to occur due to a lack of potentially suitable habitat within the BSA; however, a number of non-listed species are known from the region and one special-status terrestrial mammal (American badger) has a Low potential to occur in the BSA due to habitat that is of marginal quality within the BSA.

Indirect impacts to terrestrial mammals occurring outside the project limits could occur during construction from increased noise, vibrations, accidental release of pollutants, excess sedimentation and erosion, and human intrusions into habitat outside the project limits that may affect habitat suitable for terrestrial mammals. With implementation of standard construction biological resource-related BMPs, discussed above, and implementation of a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to mammals would be avoided or minimized. Therefore, impacts to special-status terrestrial mammal species during construction would be less than significant and no mitigation measures would be required.

Bats

Bats could be directly injured or killed during construction, including during tree removal. Indirect impacts to bats could occur as a result of increased noise, vibrations, and human presence during construction. Such disturbances could result in displacement from daytime roosts. Night roosts are susceptible to indirect impacts from construction as well, particularly to construction lighting during night-work.

Five bat species could potentially occur in the BSA (western mastiff bat, western yellow bat, Yuma myotis, pocketed free-tailed bat, and big free-tailed bat). Mature trees and large structures may provide suitable crevice, cavity, and tree bark and foliage habitats that roosting bats utilize. Suitable habitat for maternity colonies generally include caves, cliff/rock crevices, and large suitable structures such as bridges or buildings, which are limited in the BSA. Onsite bridges and structures in the BSA are generally small; however, bat panels in place on the SR-57 bridge over Tonner Canyon Road may provide a suitable colonial roosting site, although colonial roosting was not observed beneath the bridge during field surveys. As a result, there is some potential for special-status and common bat species protected under CFGC Section 4150 to occur within the BSA. Therefore, the Project has a potential to cause a significant impact to special-status and/or roosting bat species during construction (refer to Mitigation Measure BR-5).

Operational Impacts to Special-Status Wildlife Species

No special-status wildlife species were identified during the wildlife movement study's camera and roadkill surveys and the R/W would not provide habitat suitable for special-status wildlife upon operation of the Project. Additionally, maintenance activities would generally be conducted from within paved surfaces or from ruderal roadside vegetation or bare ground within the R/W and would not encroach into adjacent habitats. As such, because special-status species are not expected to occur within the R/W no significant direct impacts to such species are anticipated during operation of the Project and no mitigation measures would be required.

Sensitive Natural Communities

Sensitive natural communities in the form of sensitive natural vegetation communities, USFWS- designated Critical Habitat for coastal California gnatcatcher, and aquatic resources under CWA and CFGC Section 1600 et seq. regulation occur within the BSA and are discussed below.

Sensitive Natural Vegetation Communities

Table 5.3-5 summarizes permanent direct impacts and temporary direct impacts to California Walnut Grove, California Walnut-Laurel Sumac, Coast Live Oak Woodland, Arroyo Willow Thickets, Black Willow Riparian Forest, and Coast Live Oak Riparian Forest.

**TABLE 5.3-5
PERMANENT AND TEMPORARY IMPACTS TO
SENSITIVE NATURAL VEGETATION COMMUNITIES**

SENSITIVE NATURAL VEGETATION COMMUNITY	PERMANENT DIRECT IMPACTS (ACRES AND [PERCENT OF TOTAL SENSITIVE VEGETATION COMMUNITY WITHIN THE BSA])	TEMPORARY DIRECT IMPACTS (ACRES AND [PERCENT OF TOTAL SENSITIVE VEGETATION WITHIN THE BSA])
California Walnut Grove	0	0
California Walnut-Laurel Sumac	0.27 (4%)	0.49 (7%)
Coast Live Oak Woodland	1.19 (15%)	1.17 (15%)
Arroyo Willow Thickets	0.24 (5%)	0.50 (10%)
Black Willow Riparian Forest	0.13 (2%)	0.30 (3%)
Coast Live Oak Riparian Forest	0.07 (16%)	0.05 (12%)

Arroyo willow thickets, black willow riparian forest, and coast live oak riparian forest habitats occurring within the project limits coincide with jurisdictional waters and riparian habitats subject to USACE and CDFW jurisdiction. Direct impacts to these communities would be addressed during coordination with regulatory agencies regarding CWA and CFGC Section 1600 et seq. permitting for impacts to WoUS and WoST, as described below in Section 5.3.4.2. The other two sensitive natural vegetation communities (i.e., California Walnut-Laurel Sumac and Coast Live Oak Woodland) occur adjacent to the riparian corridor along Brea Creek (particularly the Coast Live Oak Woodland) and in upland areas (particularly the California Walnut-Laurel Sumac that occurs on hillsides along the north side of Brea Boulevard). Direct temporary and permanent impacts to these two communities would be linear in nature, occurring along the fringe of the widened roadway (Figures 5.3-5c and 5.3-5d). Individual California black walnut trees were detected as part of surveys within the BSA but are outside the project limits and therefore not expected to occur due to unsuitable conditions. However, individual coast live oak trees may be present within the temporary and/or permanent project limits for the widened roadway, the removal of which would be considered a potentially significant impact (refer to Mitigation Measure BR-6).

Indirect impacts to sensitive natural vegetation communities during construction could include the accumulation of fugitive dust, increase of surface runoff, increase of erosion, and increase of sediment deposition within vegetation beyond the project limits. However, with implementation of standard construction biological resource-related BMPs, discussed previously, and implementation of an FDP to control dust and a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to sensitive natural communities would be avoided and minimized. Therefore, indirect impacts (from dust, runoff,

erosion, and sedimentation) to sensitive natural vegetation communities during construction would be less than significant and no mitigation measures would be required.

Operation and routine maintenance of the Project would be conducted within the R/W, consisting of paved surfaces and areas of ruderal roadside vegetation or areas of bare ground. Except at bridge locations where aquatic and/or riparian habitats may occur in the R/W (discussed below in 5.3.4.2), no sensitive natural vegetation communities occur within the R/W or would be impacted by operations or maintenance of the Project. As a result, impacts to sensitive natural vegetation communities during Project operation is not anticipated to occur and no mitigation measures would be required.

Invasive Species (Invasive Shot Hole Borers)

Polyphagous and Kuroshio shot hole borers (PSHB and KSHB, respectively) are invasive ambrosia beetles that introduce fungi and other pathogens into host trees, collectively referred to as invasive shot hole borers (ISHBs). The adult female tunnels galleries into the cambium of a wide variety of host trees, where it lays its eggs and propagates the *Fusarium* fungi species for the express purpose of feeding its young. These fungi cause *Fusarium* dieback disease, which interrupts the transport of water and nutrients and other impacts (e.g., branch dieback, canopy loss, tree mortality) in a number of tree species in Southern California, including commercial avocado groves, common landscape trees, and native species in urban and wildland environments (including palms, cottonwoods, maples, oaks, sycamores, and willows).

Documented ISHB occurrences in the Orange County/Los Angeles County area include Fullerton, the West Coyote Hills (along Brea Creek), La Habra, Hacienda Heights, throughout Puente Hills/Powder Canyon Open Space, Yorba Regional Park, Carbon Canyon Regional Park, and Craig Regional Park (UCANR 2021). The CNPS has identified (CNPS 2018) the following species (documented within the BSA) as reproductive hosts capable of supporting beetle reproduction and growth of *Fusarium* fungi: mulefat, western sycamore, Fremont cottonwood, coast live oak, and black, red, and arroyo willow, all of which occur within the project limits. Improper removal of an ISHB-infested/infected tree as part of the Project could result in the spread of ISHBs in the area, resulting in potentially significant impacts to other nearby trees, including trees associated with sensitive natural vegetation communities (refer to Mitigation Measure BR-7).

USFWS-Designated Critical Habitat

As shown in Table 5.3-4, approximately 20.87 acres of disturbed coastal sage scrub habitat in the BSA potentially suitable for coastal California gnatcatcher coincides with Critical Habitat for the species. Of this, an approximate 5-acre area at the southwest corner of the intersection of Brea Boulevard and Tonner Canyon Road was identified during protocol surveys as being utilized by California gnatcatcher and represents the most suitable area of coastal sage scrub habitat within the BSA (although it includes a substantial amount of non-native herbaceous cover). Project construction would result in approximately 0.06-acre of direct permanent impacts and approximately 0.81-acre of direct temporary impacts to coastal California gnatcatcher Critical Habitat at that location. These impacts would occur along the periphery of the disturbed coastal sage scrub habitat that occurs adjacent to the south side of Brea Boulevard (see Figure 5.3-5d); however, they would occur to habitat where coastal California gnatcatcher was detected during protocol surveys in 2016. Therefore, Project construction has a potential to cause a significant impact to USFWS-designated Critical Habitat that was documented as occupied in 2016. For impacts to Critical Habitat, OC Public Works would be required to consult with USFWS (refer to Mitigation Measure BR-8). Despite the disturbed nature of these areas and relatively small sizes of temporary and permanent impacts, OC Public Works' consultation with USFWS would determine the appropriate mitigation actions regarding the coastal sage scrub habitat, which could involve compensatory mitigation in the form of a Project-specific Habitat Mitigation and Monitoring Plan (HMMP) or a HCP. The applicable plan would be prepared

and approved by the regulatory agencies (consistent with any requirements of applicable regulatory permits).

Indirect impacts to Critical Habitat during construction would be similar to those described above. Similarly, with implementation of standard construction biological resource-related BMPs, discussed previously, and implementation of an FDP to control dust, and a SWPPP to control erosion, runoff, and hazardous spills, indirect impacts to Critical Habitat and wildlife utilizing this Critical Habitat would be avoided and minimized. Therefore, indirect impacts to Critical Habitat during construction would be less than significant and no mitigation measures would be required.

5.3.4.2 Have a Substantial Adverse Effect on Federally Protected Wetlands as Defined by Section 404 of the Clean Water Act Through Direct Removal, Filling, Hydrological Interruption, or Other Means

As shown below in Table 5.3-6, the Project will temporarily impact approximately 0.31 acre of WoUS and permanently impact approximately 0.15 acre of WoUS falling under USACE and RWQCB (i.e. CWA) jurisdiction.

The Project will temporarily impact approximately 0.90 acre and permanently impact approximately 0.50 acre of streambed/banks that would be subject to CFGC Sections 1600–1616 and under CDFW jurisdiction. Table 5.3-7 presents the proposed impacts by water type (Appendix G of this Draft EIR). Figures 5.3-6a through 5.3-6e depict the project limits over the jurisdictional delineation.

As presented in Tables 5.3-6 and 5.3-7, the Project will result in mostly temporary impacts, although some permanent impacts to CDFW-only riparian habitat may occur. Therefore, the Project has the potential to cause a significant impact to jurisdictional waters during construction (refer to Mitigation Measures BR-9 and BR-10).

Additionally, the Project is adjacent to portions of Brea Creek and, as such, remaining jurisdictional areas may be indirectly impacted by run-off from the road and increased trash and litter during construction. Edge effects during construction may include dust and soil erosion. However, with implementation of standard construction biological resource-related BMPs, previously discussed, and implementation of an FDP to control dust and a SWPPP to control erosion, runoff, and hazardous spills, along with implementation of any additional mitigation measures provided in waters permits obtained for the Project from the regulatory agencies, indirect impacts to jurisdictional waters would be less than significant.

Operation of the Project is not anticipated to impact jurisdictional waters and/or riparian areas under USACE, RWQCB, or CDFW jurisdiction. However, in the event that bridge maintenance or any other maintenance activity within the R/W encroaches into jurisdictional waters and/or riparian areas, OC Public Works would be required to obtain regulatory permits pursuant to the CWA and CFGC. By obtaining permits and satisfying mitigation requirements, direct and indirect impacts to jurisdictional waters during maintenance of the Project would be less than significant.

**TABLE 5.3-6
POTENTIAL IMPACTS TO WATERS OF THE UNITED STATES**

VEGETATED/ UNVEGETATED	JURISDICTIONAL AGENCIES: US ARMY CORPS OF ENGINEERS (USACE)/ REGIONAL WATER QUALITY CONTROL BOARD (RWQCB)	BSA (ACRES)	BSA (LINEAR FEET)	TEMP. IMPACT (ACRES)	TEMP. IMPACT (LINEAR FEET)	PERM. IMPACT (ACRES)	PERM. IMPACT (LINEAR FEET)
Unvegetated	Streambed / Open Water Channel (Brea Creek)	2.14	10,798	0.22	489	0.14	221
Unvegetated	Tonner Canyon Creek	0.14	772	0	0	0	0
Unvegetated	Non-Wetland WoUS (Under Bridge 1)	0.02	n/a	0.02	n/a	0	0
Unvegetated	Non-Wetland WoUS (Under Bridge 2)	0.03	n/a	0.03	n/a	0	0
Unvegetated	Non-Wetland WoUS (Under Bridge 3)	0.02	n/a	0.02	n/a	0	0
Unvegetated	Non-Wetland WoUS (Unvegetated; Concrete-lined Box Channel)	1.52	1,760	0	0	0	0
Unvegetated	Non-Wetland WoUS (Unvegetated; Rip rap-lined Trapezoidal Channel)	0.60	1,237	0	0	0	0
Unvegetated	Non-Wetland WoUS (Unvegetated, Ephemeral Drainages)	0.16	3,398	0.02	531	0.01	133
Vegetated	Wetland WoUS	1.89	n/a	0	n/a	0	n/a
Vegetated & Unvegetated	TOTAL USACE/RWQCB Jurisdiction	6.52	17,965	0.31	1,020	0.15	354

¹ Temporary impact acreage values may be considered a worst-case scenario. It is probable that many of the direct but temporary impacts to Brea Creek could be avoided.

² Essentially all impacts for this Project are temporary, and the bridge covering open water is assumed to not be a permanent impact, especially given that the channel bottom will change from being concrete-lined to soft bottom (for Bridges 2 and 3). A trace acreage of wetlands was located under the new, larger bridges. This could be considered a permanent loss, but due to the soft bottom and large bridge sizes, it is anticipated that any wetlands may persist with the presence of the proposed bridges.

³ Because the bridges allow for water and wildlife to freely move under the bridges (no culverts), the area of waters under the bridges is part of the overall calculation of surface waters. Culverts are viewed as a disruption in surface water area and linear feet, and thus are not counted as surface waters. A further discussion is provided in the Delineation Report [Appendix G of this Draft EIR].

**TABLE 5.3-7
POTENTIAL IMPACTS TO WATERS OF THE STATE AND CDFW STREAMBED AND RIPARIAN HABITAT**

VEGETATED/ UNVEGETATED	JURISDICTIONAL AGENCY: CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE CDFW	BSA (ACRES)	BSA (LINEAR FEET)	TEMP. IMPACT (ACRES)	TEMP. IMPACT (LINEAR FEET)	PERM. IMPACT (ACRES)	PERM. IMPACT (LINEAR FEET)
Unvegetated	Streambed / Open Water Channel (Brea Creek)	2.14	10,798	0.22	489	0.14	221
Unvegetated	Tonner Canyon Creek	0.14	772	0	0	0	0
Unvegetated	Streambed (Under Bridge 1)	0.02	n/a	0.02	n/a	0	0
Unvegetated	Streambed (Under Bridge 2)	0.03	n/a	0.03	n/a	0	0
Unvegetated	Streambed (Under Bridge 3)	0.02	n/a	0.02	n/a	0	0
Unvegetated	Streambed (Unvegetated; Concrete-lined Box Channel)	1.52	1,760	0	0	0	0
Unvegetated	Streambed (Unvegetated; Rip rap-lined Trapezoidal Channel)	0.60	1,237	0	0	0	0
Unvegetated	Streambed (Unvegetated; Rip rap-lined Trapezoidal Banks)	1.09	n/a	0	0	0	0
Unvegetated	Streambed (Ephemeral Tributary Drainages) ¹	0.16	3,398	0.02	531	0.01	133
Vegetated	Streambed Wetlands (equivalent to USACE/RWQCB wetlands)	1.89	n/a	0	n/a	0	n/a
Vegetated	CDFW-Only Riparian Habitat (adjacent to "Streambed Wetlands")	10.12	n/a	0.61	n/a	0.35	n/a
Vegetated & Unvegetated	TOTAL CDFW Jurisdiction	17.73	17,965	0.90	1,176	0.50	354

¹ Temporary impact acreage values may be considered a worst-case scenario. It is probable that many of the direct but temporary impacts to Brea Creek could be avoided.

² Essentially all impacts for this Project are temporary, and the bridge covering open water is assumed to not be a permanent impact, especially given that the channel bottom will change from being concrete-lined to soft bottom. A trace acreage of wetlands was located under the new, larger bridges. This could be considered a permanent loss, but due to the soft bottom and large bridge sizes, it is anticipated that any wetlands may persist with the presence of the proposed bridges.

³ Because the bridges allow for water and wildlife to freely move under the bridges (no culverts), the area of waters under the bridges is part of the overall calculation of surface waters. Culverts are viewed as a disruption in surface water area and linear feet, and thus are not counted as surface waters. A further discussion is provided in the Delineation Report [Appendix G of this Draft EIR].

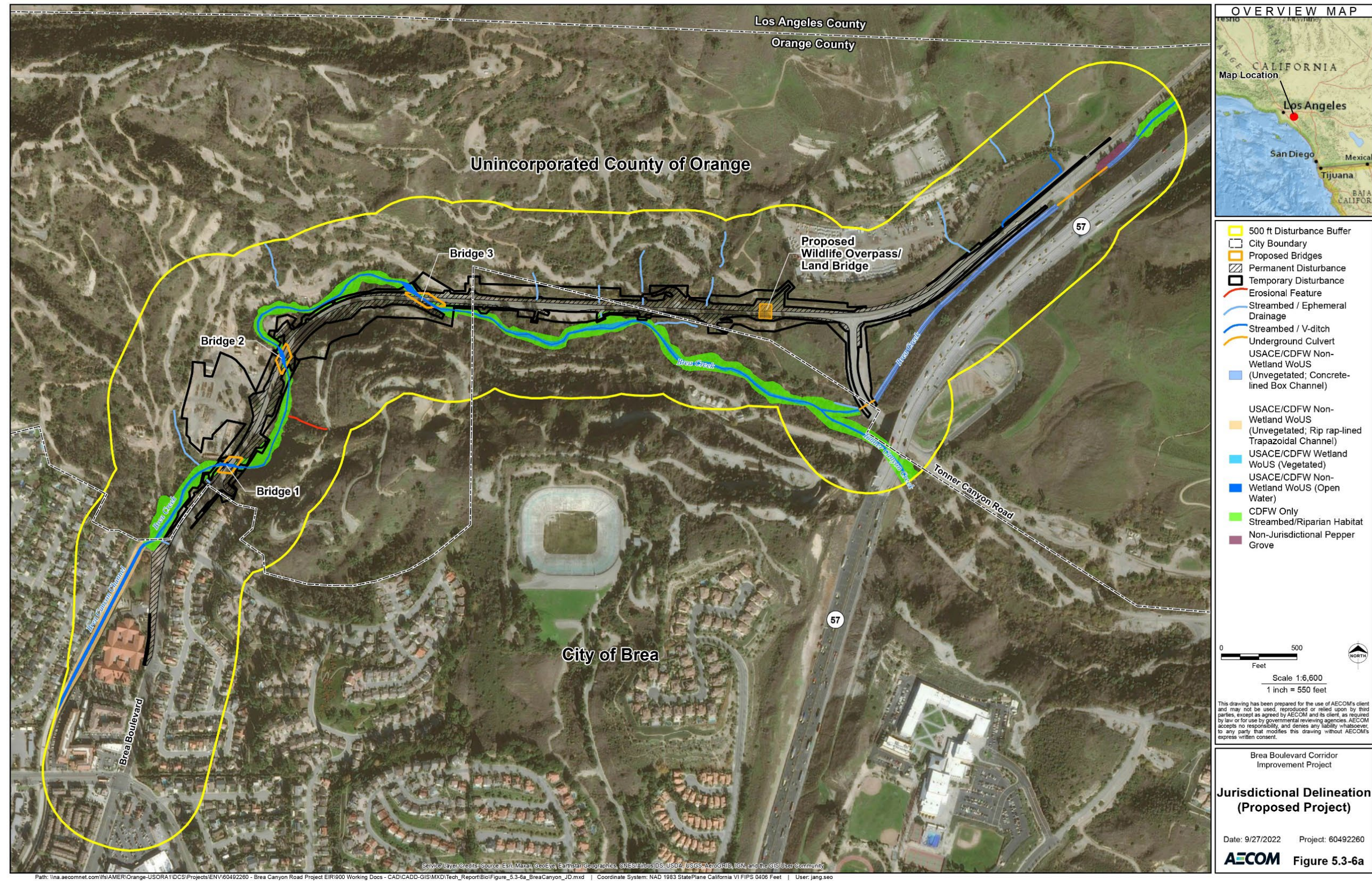
5.3.4.3 Interfere Substantially with the Movement of any Native Resident or Migratory Fish or Wildlife Species or with Established Native Resident or Migratory Wildlife Corridors, or Impede the Use of Native Wildlife Nursery Sites

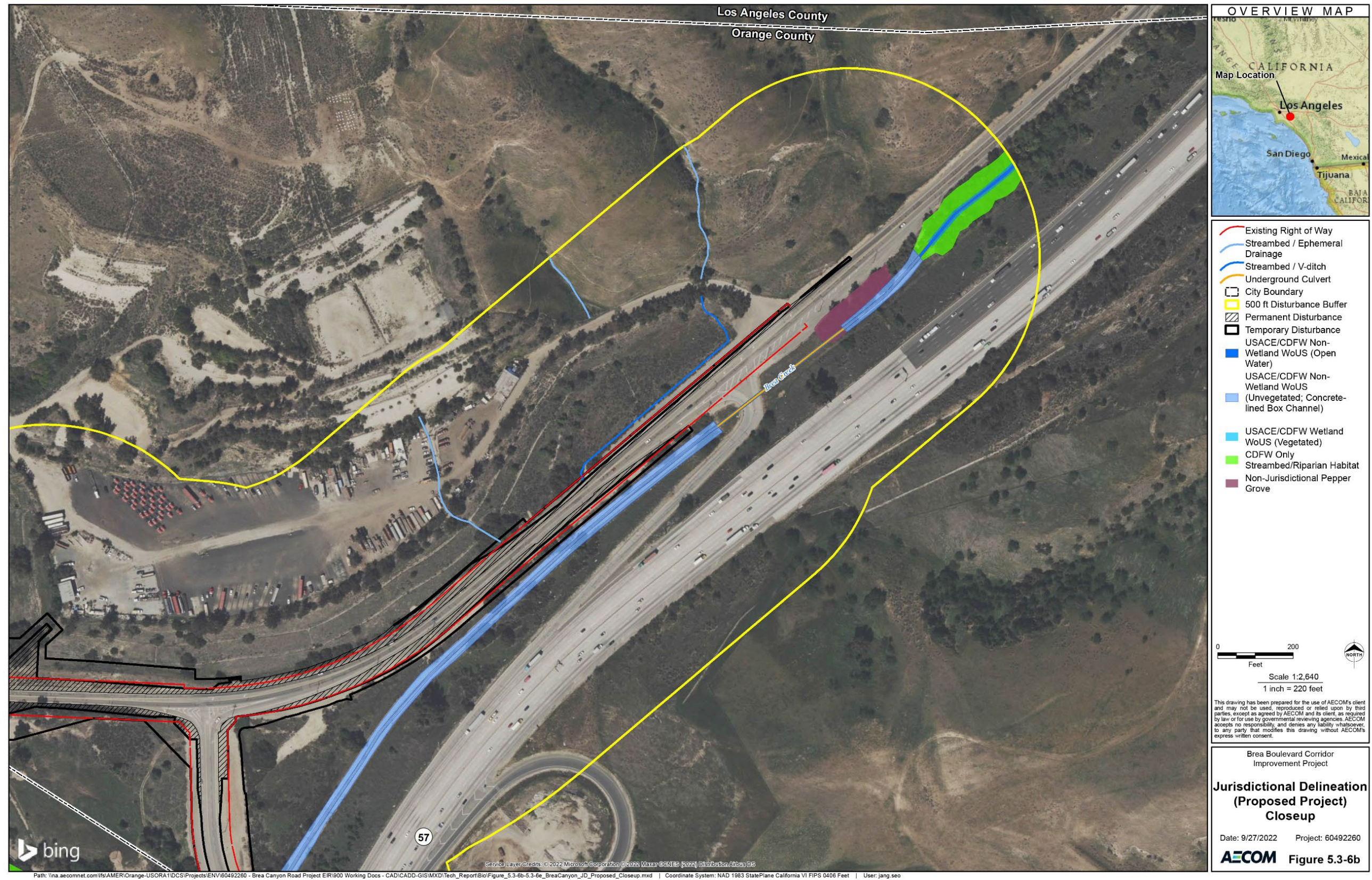
As described previously, the BSA is located along the southern perimeter of the Puente-Chino Hills Wildlife Corridor. A wildlife movement study conducted in 2020 and 2021 concluded that the existing Brea Boulevard Corridor currently functions as either a semi-permeable or highly permeable filter for wildlife, allowing them to pass over the road at grade, or below grade using existing undercrossings (bridges/culverts) (Appendix H of this Draft EIR).

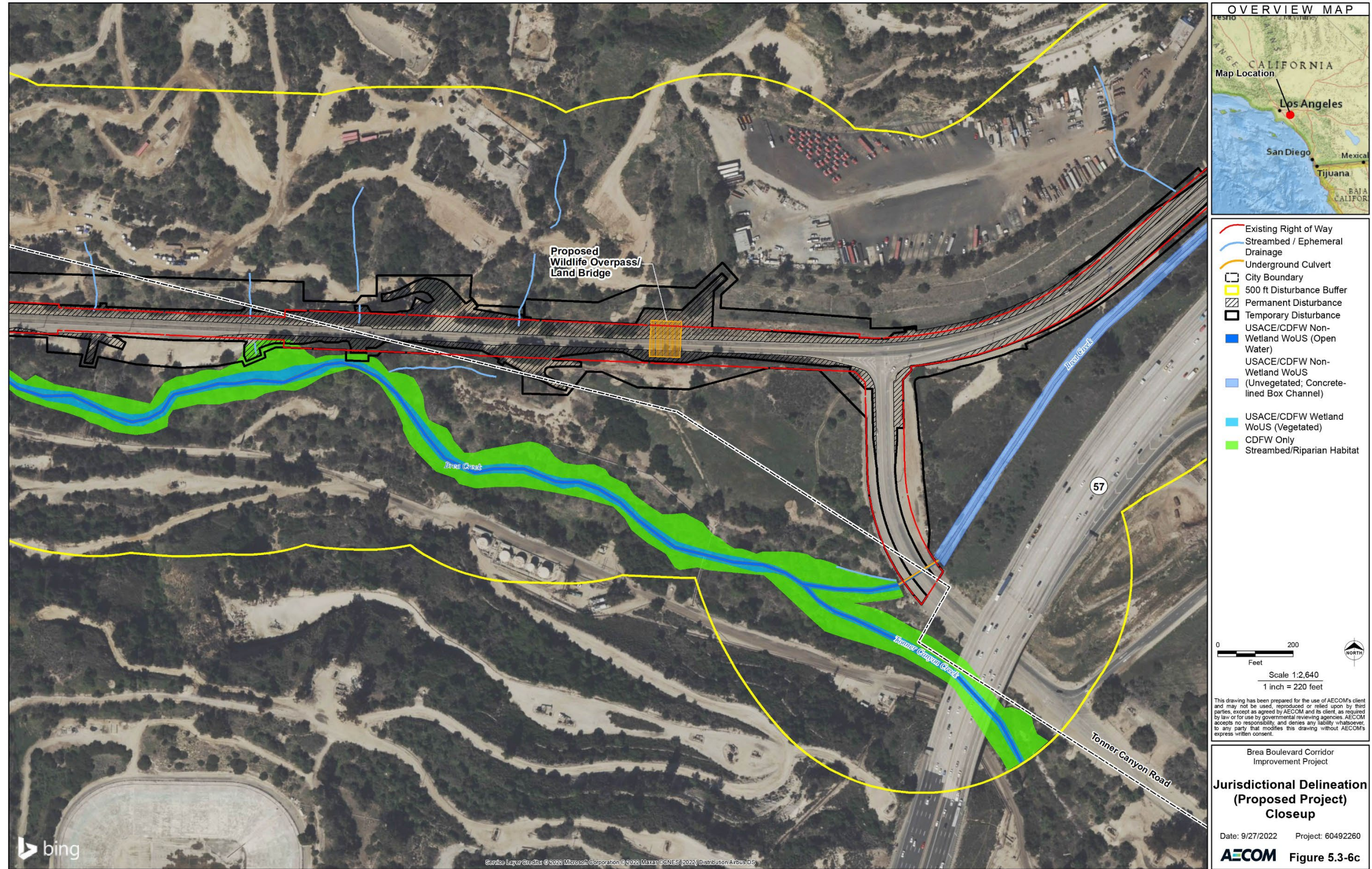
It is anticipated that wildlife may avoid the area during construction due to increased human presence, noise, vibrations, etc.; however, this would be temporary in nature and restricted to the construction period. Further, it is anticipated that wildlife would continue to move across Brea Boulevard Corridor during periods when construction is not occurring, such as at night time, when many wildlife were detected moving across the corridor. However, there is the potential for wildlife to become trapped or injured in open excavations or trenches associated with construction of the Project if left (e.g., overnight) in an unprotected manner. Therefore, construction of the Project has the potential to impact wildlife/wildlife movement (refer to Mitigation Measure BR-11).

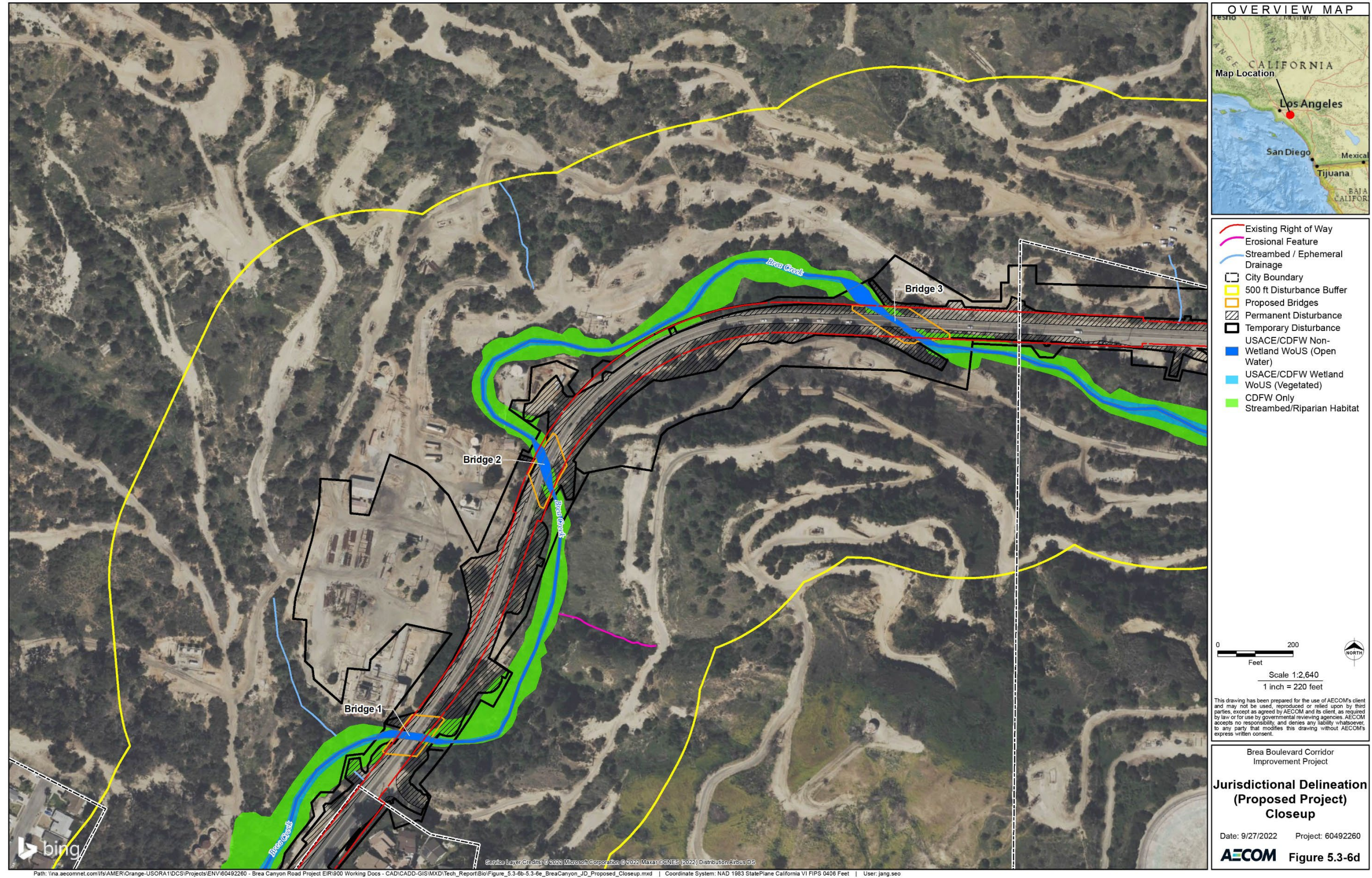
OC Public Works retained AZTEC Engineering Group (AZTEC) to provide Project design and construction recommendations in support of maintaining and enhancing wildlife movement across the Brea Boulevard Corridor. The major feature of design is the proposed land bridge located at the eastern end of the Brea Boulevard Corridor. At approximately 75 feet wide and 85 feet long, the land bridge would span all four lanes of the widened roadway to facilitate wildlife movement. The AZTEC report recommended directional wildlife fencing, jump-out/egress locations, escape ramps and a proposed land bridge. The report provides detail regarding the benefits of directional wildlife fencing with regularly-spaced jump-out locations. This design provides at least two escape points (one on each side of the road) spaced along each 0.5 mile of Brea Boulevard where directional fencing and retaining walls are proposed. The AZTEC report also contains details of lateral access driveway gates or grates to prevent wildlife ingress onto the road. AECOM provided further recommendations for the proposed land bridge at the conclusion of collecting wildlife movement data and their review of the AZTEC report, including: 1) planting native vegetation on the land bridge, 2) excluding regular human use on the land bridge, and 3) minimizing the potential for noise and light to deter wildlife from using the land bridge.

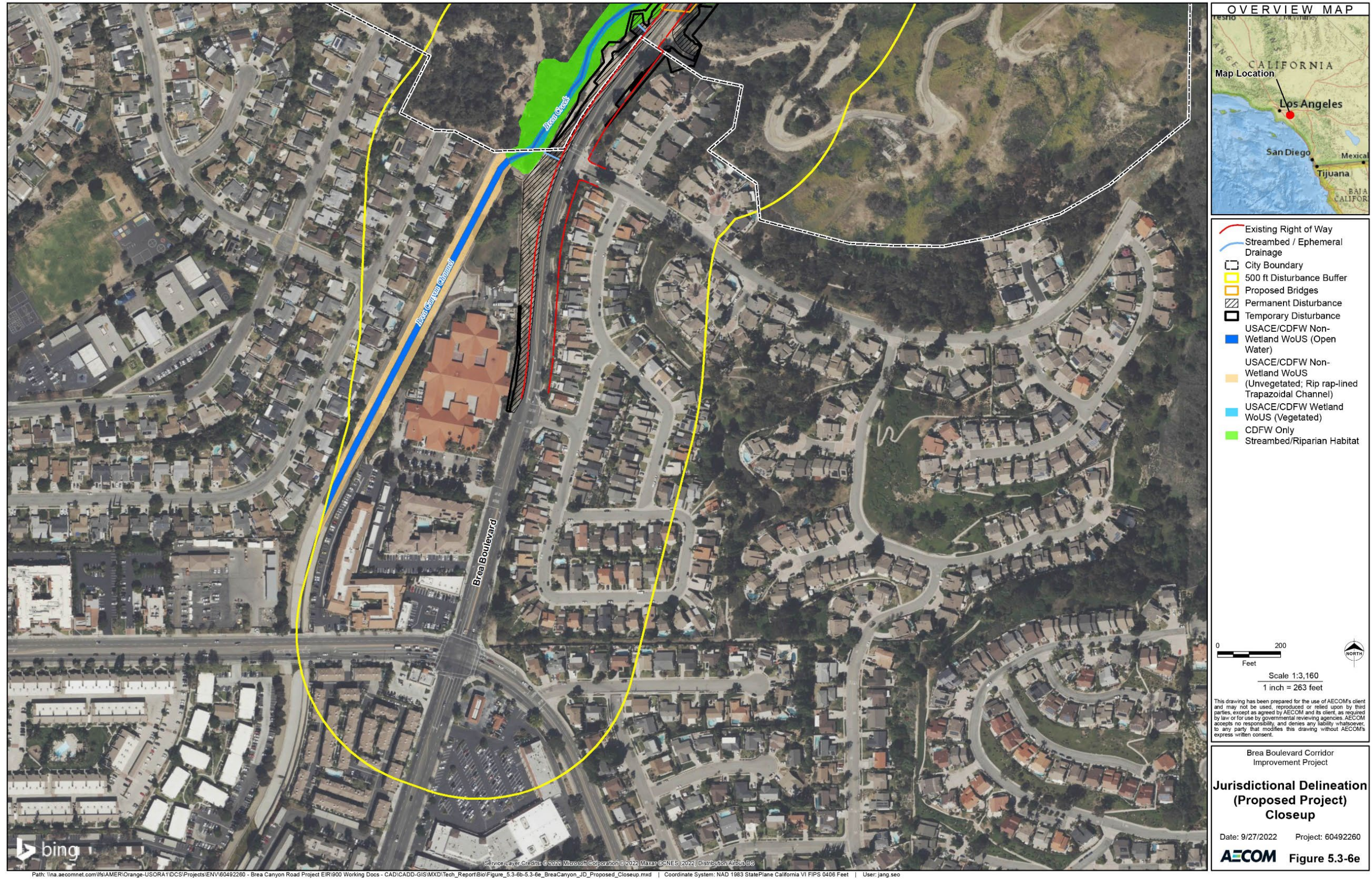
Overall, implementation of the Project would negatively affect existing at grade wildlife movement by widening the roadway (increasing the length of the crossing and vehicle capacity) and adding new physical barriers (concrete median barriers and retaining walls, fencing, etc.), which could increase the rate of vehicle-wildlife strikes or discourage wildlife from approaching the road, respectively. However, the inclusion of directional fencing along the extent of the roadway corridor should instead funnel wildlife towards the safer undercrossings (bridges and culverts) or to the proposed land bridge. Moreover, the addition of jump out/egress locations and escape ramps along the Brea Boulevard Corridor should provide wildlife a safe way to exit the road, should they enter it. The proposed reconstruction of bridges would improve their openness ratios (i.e., improve the likelihood to be used by a variety of species) and the new land bridge at the eastern end of the corridor near the confluence of Brea and Tonner Canyon creeks would offer a new, safe location for crossing Brea Boulevard. As such, the impacts of the components of the Project that would impede wildlife movement (i.e., traffic and physical barriers) are expected to be offset by the Project components designed to mitigate those impacts. The installment of wildlife fencing, in conjunction with proposed improvements to undercrossings and the addition of the land bridge, may provide a net benefit to wildlife movement in the vicinity of the Brea Boulevard Corridor. Maintaining the











This page intentionally left blank.

permeability of the Brea Boulevard Corridor is necessary to ensure continued wildlife movement along the southern edge of the wildlife corridor. It is anticipated that with implementation of the design and construction recommendations provided by AZTEC and AECOM, the potential for the Project to significantly impact wildlife movement across Brea Boulevard would be reduced to a level that is less than significant.

However, it should be noted the expansion of all three existing bridges may potentially influence the level and amount of water in Brea Creek flowing under the bridges. Bobcats prefer to pass through an undercrossing/bridge on dry ground and will avoid areas inundated with water. During the wildlife movement study, bobcats were rarely detected under Bridges 2 and 3, which contained flowing water in Brea Creek throughout most of the year. Because the Project will include wildlife fencing to prevent wildlife (including bobcats) from crossing at grade and directing them towards the bridges, the Project has the potential to result in significant impacts to bobcat permeability despite the inclusion of a land bridge (refer to Mitigation Measure BR-12).

5.3.4.4 Conflict with the Provisions of an Adopted Habitat Conservation Plan, Natural Community Conservation Plan, or Other Approved Local, Regional, or State Habitat Conservation Plan

As discussed previously, a portion of the corridor is within land covered by an approximately 449-acre Conservation Easement providing mitigation for impacts of the Tonner Hills Planned Community. Certain required mitigation improvements to the Conserved Land include aquatic resource mitigation sites, restored coastal sage scrub, and restored walnut woodland (which have since been completed). Oil operations areas, planning areas of the Tonner Hills Planned Community, and areas of authorized grading are identified within the Conserved Lands in Exhibit D of the Conservation Easement; however, the existing Brea Boulevard and County of Orange right-of-way for Brea Boulevard is not identified (County of Orange and Tonner Hills 680, LLC 2007). The area in which the existing Brea Boulevard and right-of-way, as well as areas of necessary acquisition for the Project (i.e., for permanent road and retaining wall easements, temporary construction easement, etc.) are/would be located within areas identified as “Conserved Lands” and “Oil Operations Area”. While the Project would not impact specific mitigation sites within the Conserved Lands, it would result in surface disturbance (both temporary and permanent) to areas identified as Conserved Lands. As such, the Project has the potential to result in a significant impact related to conflicting with the provisions of an approved local habitat conservation agreement; OC Public Works would be required to coordinate with Tonner Hills SSP, LLC and the City of Brea, along with the USFWS, USACE, and CDFW to amend the Conservation Agreement (refer to Mitigation Measure BR-13).

5.3.5 MITIGATION MEASURES

5.3.5.1 Mitigation Measures Related to Special-Status Wildlife Species

The following mitigation measures would reduce potentially significant impacts during construction to nesting birds protected under the MBTA and CFGC, coastal California gnatcatcher and least Bell’s vireo, western pond turtle, western spadefoot, and bats:

BR-1 The clearance or disturbance of any vegetation during construction shall occur outside of the nesting bird season (February 1 through September 15). If vegetation removal/disturbance and other Project construction outside this time period are not feasible, the following additional measures shall be employed to avoid and minimize impacts to special-status bird species and nesting birds protected under the MBTA and CFGC:

1. A pre-construction nesting bird survey shall be conducted by a qualified biologist (i.e., is familiar and experienced with the identification and life histories of wildlife and plant species in southern California) within 3 days (72 hours) prior to the start of construction activities to determine whether active nests are present within or directly adjacent to the construction zone. All nests found shall be recorded.
2. If construction activities must occur within 150 feet of an active nest of any passerine bird or within 300 feet of an active nest of any raptor, a qualified biologist shall monitor the nest on a weekly basis and the construction activity shall be postponed until the biologist determines that the nest is no longer active.
3. If the recommended nest avoidance zone is not feasible, the qualified biologist shall provide justification on a case-by-case basis if a buffer reduction is possible, taking into consideration the location of work and type of activity, distance of nest from work area, surrounding vegetation and line-of-sight between the nest and work areas, tolerance of species to disturbance and observations of the nesting bird's reaction to Project activities. If the biologist determines nesting activities may fail as a result of work activities, all Project work shall cease (except access along established roadways) within the recommended no-disturbance buffer until the biologist determines the adults and young are no longer reliant on the nest site.
4. Buffers shall be delineated (by or under the supervision of the qualified biologist) on-site with bright flagging, for easy identification by Project staff. The on-site construction supervisor and operator staff shall be notified of any nest(s) and the applicable buffer limits to ensure they are maintained.
5. The indirect impacts of night-time construction lighting on nesting birds outside the project limits shall be reduced by shielding or directing construction lighting to avoid light encroachment into adjacent habitats.
6. A summary of preconstruction surveys, monitoring efforts, and any no-disturbance buffers that were installed shall be documented in a report by the qualified biologist at the conclusion of each nesting season.

BR-2 Measures for coastal California gnatcatcher:

1. Beginning 30 or more days prior to the removal or disturbance of any coastal sage scrub habitat or any habitats within 300 feet of coastal sage scrub habitat that will occur during the nesting bird season of February 1 through September 15, OC Public Works shall arrange for weekly bird surveys to detect the presence of coastal California gnatcatcher and other special-status upland bird species in the habitats to be removed or disturbed, and any other such habitat within 300 feet of the project limits. The surveys shall be conducted by a biologist with the necessary permits to survey for coastal California gnatcatcher. The surveys shall continue on a weekly basis, with the last survey being conducted no more than 3 days prior to the initiation of construction work.
2. In the event that a coastal California gnatcatcher is observed in the habitats to be removed or disturbed or in other habitats within 300 feet of the project limits, OC Public Works has the option of delaying all construction work in the suitable habitat or within 300 feet of the suitable habitat until after September 15 or continuing the surveys in order to locate any nests. If an active nest is found, clearing and construction within 300 feet of a nest shall be postponed until the nest is vacated and juveniles have fledged, and when there is no evidence of a second attempt at nesting. No-disturbance buffers around suitable habitat or a nest site shall be established in the field with bright flagging by the qualified biologist and construction personnel shall be instructed on the ecological sensitivity of the area.

3. A qualified biologist shall conduct weekly surveys of the suitable habitat or nest site to determine status of coastal California gnatcatcher and check that flagging placed to delineate the no-disturbance buffer is maintained and visible.
4. Locating and determining the status of a nest shall be performed in accordance with approved procedures by the USFWS and CDFW. Results of the surveys, including surveys to locate nests, shall be provided to the agencies no later than 5 days prior to construction. The results shall include a description of any nests located and measures to be implemented to avoid nest sites. Surveys for coastal California gnatcatcher shall be required even if work is completed outside of the nesting bird season (i.e., from September 16 through January 31) because this species overwinters in southern California.
5. If coastal California gnatcatcher are present and the avoidance measures identified above cannot be implemented, take may result. In such an instance, OC Public Works shall immediately discontinue construction at the location where coastal California gnatcatcher are found, maintain a 300-foot no-disturbance buffer around the suitable habitat, and immediately coordinate with USFWS regarding the need for take authorization for the species.

BR-3 Measures for least Bell's vireo:

1. Beginning 30 or more days prior to the removal or disturbance of any riparian habitat or any habitats within 300 feet of riparian habitat that will occur during the nesting bird season of February 1 through September 15, OC Public Works shall arrange for weekly bird surveys to detect the presence of least Bell's vireo in the habitats to be removed or disturbed, and any other such habitat within 300 feet of the project limits. The surveys shall be conducted by a qualified biologist familiar with the identification and life history of least Bell's vireo. The surveys shall continue on a weekly basis, with the last survey being conducted no more than 3 days prior to the initiation of construction work.
2. In the event that a least Bell's vireo or other special-status bird species is observed in the habitats to be removed or disturbed or in other habitats within 300 feet of the project limits, OC Public Works has the option of delaying all construction work in the suitable habitat or within 300 feet of the suitable habitat until after September 15 or continuing the surveys in order to locate any nests. If an active nest is found, clearing and construction within 300 feet of a nest shall be postponed until the nest is vacated and juveniles have fledged, and when there is no evidence of a second attempt at nesting. No-disturbance buffers around suitable habitat or a nest site shall be established in the field with bright flagging by the qualified biologist and construction personnel shall be instructed on the ecological sensitivity of the area.
3. A qualified biologist shall conduct weekly surveys of the suitable habitat or nest site to determine status of least Bell's vireo and check that flagging placed to delineate the no-disturbance buffer is maintained and visible.
4. Locating and determining the status of a nest shall be performed in accordance with approved procedures by the USFWS and CDFW. Results of the surveys, including surveys to locate nests, shall be provided to the agencies no later than 5 days prior to construction. The results shall include a description of any nests located and measures to be implemented to avoid nest sites. No surveys shall be necessary if the work is completed outside of the nesting bird season, i.e., from September 16 through January 31.
5. If least Bell's vireo are present and the avoidance measures identified above cannot be implemented, take may result. In such an instance, OC Public Works shall immediately discontinue construction at the location where least Bell's vireo are found, maintain a 300-foot no-disturbance buffer around the suitable habitat, and immediately coordinate with USFWS and CDFW regarding the need for take authorization for the species.

BR-4 Brea Creek and riparian habitats shall be cleared of western pond turtle and any additional special-status reptile or amphibian species which may occur (including western spadefoot), immediately before construction activities that would coincide with the creek and its riparian habitats is initiated, immediately before any equipment is moved into or through Brea Creek or riparian areas, and immediately before diverting any stream water, should diversions be required. The removal of western pond turtle, or any other reptile or amphibian species shall be conducted by a qualified biologist using procedures approved by CDFW, and with the appropriate collection and handling permits. Species shall be relocated to nearby suitable habitat areas that will not be disturbed by the Project. A Species Protection, Relocation, and Monitoring Plan including avoidance and minimization measures and relocation methods for western pond turtle shall be submitted to CDFW for review and approval prior to construction.

BR-5 Prior to removal of any tree, and prior to construction during the bat maternity season (April 15 through August 31), a survey of trees to be removed and of the SR-57 bridge, shall be conducted by a qualified bat biologist to determine the potential presence of colonial bat roosts. The surveys (as detailed below) shall consist of a visual inspection and/or one-night emergence survey utilizing acoustic recognition technology to determine if any maternity roosts are present.

To avoid any impacts on roosting bats resulting from construction activities, the following shall be implemented:

At the SR-57 Bridge

Prior to construction during the bat maternity season a visual inspection and/or one night emergence survey of the SR-57 bridge shall be completed utilizing acoustic recognition technology to determine if any maternity roosts are present. Should an active maternity roost be found, a determination (in coordination with the qualified bat biologist) shall be made whether indirect effects of construction-related activities (i.e., noise, vibration, construction lighting) could substantially disturb roosting bats and if exclusionary devices should be used to remove bats. This determination shall be based on baseline noise/vibration levels, anticipated noise levels associated with construction in the vicinity, and the sensitivity to noise-disturbances of the bat species present. If it is determined that noise could result in the temporary abandonment of a maternity roost, construction-related activities shall be scheduled to avoid the maternity season (April 15 through August 31), or as determined by the qualified bat biologist.

Trees To Be Removed

All trees to be removed as part of the Project shall be evaluated for their potential to support bat roosts. In particular, any eucalyptus and palm trees which bats are known to utilize, shall be evaluated by a qualified bat biologist by conducting a one-night emergence survey during acceptable weather conditions, or if conditions permit, physically examine the trees for presence or absence of bats (such as with lift equipment) before the start of construction/tree removal. The following measures shall apply to trees to be removed that are determined to provide potential bat roost habitat by the qualified bat biologist.

- If roosting bats are determined present during the maternity season (April 15 through August 31), the tree shall be avoided until after the maternity season when young are self-sufficient.

If roosting bats are determined present during the winter months when bats are in torpor, a state in which the bats have significantly lowered their physiological state, such as body temperature and metabolic rate, due to lowered food availability (October 31 through February 15, but is dependent on specific weather conditions), the tree shall be avoided until after the winter season when bats are once again active.

- Trees with potential colonial bat habitat can be removed outside of the maternity season and winter season (February 16 through April 14 and September 1 through October 30, or as determined by the qualified biologist) using a two-step tree trimming process that occurs over 2 consecutive days.
 - Day 1, Step 1: Under the supervision of the qualified bat biologist, tree branches and limbs with no cavities shall be removed by hand (e.g., using chainsaws). This will create a disturbance (noise and vibration) and physically alter the tree. Bats roosting in the tree will either abandon the roost immediately or, after emergence, will avoid returning to the roost.
 - Day 2, Step 2: Removal of the remainder of the tree under the supervision of the qualified bat biologist may occur on the following day. Trees that are only to be trimmed and not removed shall be processed in the same manner; if a branch with a potential roost must be removed, all surrounding branches shall be trimmed on Day 1 under supervision of the qualified bat biologist and then the limb with the potential roost shall be removed on Day 2.
- Trees with foliage (and without colonial bat roost potential) that can support lasiurine bats shall have the two-step tree trimming process occur over one day under the supervision of the qualified bat biologist. Step 1 shall be to remove adjacent, smaller, or non-habitat trees to create noise and vibration disturbance that will cause abandonment. Step 2 shall be to remove the remainder of tree on that same day. For palm trees that can support western yellow bat (a special-status bat species with Low potential to occur in the BSA), the two-step tree process shall be used over two days. Western yellow bats may move deeper within the dead fronds during disturbance. The two-day process will allow the bats to vacate the tree before removal.

The results of bat surveys, evaluations, and monitoring efforts that are undertaken shall be documented in a report by the qualified bat biologist at the conclusion of all bat-related activities.

5.3.5.2 Mitigation Measures Related to Sensitive Natural Vegetation Communities

The following mitigation measure would reduce potentially significant impacts during construction related to coast live oak trees:

- BR-6 The removal of any individual coast live oak tree associated with the coast live oak woodland sensitive natural vegetation community shall be replaced at a minimum of 1:1 ratio. OC Public Works shall have the option to incorporate this mitigation requirement in conjunction with the regulatory permit coordination for wetland/riparian vegetation impacts (and their associated example mitigation options identified in BR-10). For example, tree replacement could be implemented on site within suitable locations in the temporary disturbance limits, or as an adjacent component in connection with the wetland/riparian revegetation, as appropriate; or could be implemented off site at the upstream Soquel Mitigation Bank (in coordination and compliance with the mitigation bank owner's requirements).

The following mitigation measure would reduce potentially significant impacts during construction related to invasive pests:

- BR-7 A qualified biologist familiar with the signs of ISHBs shall survey trees within the project limits that are designated for removal or trimming. Surveys shall be conducted no more than 30 days prior to removal or trimming activities. If any tree is determined to be infested/infected by ISHBs, a control plan shall be prepared and submitted to CDFW for review and approval prior to tree disturbance. At a minimum, the control plan shall include methods of control, removal, and appropriate disposal techniques to prevent the spread of ISHBs (e.g., equipment disinfection, chipping potential host materials to less than 1 inch and solarization treatment prior to delivery to landfill or use as compost on site, solarization of cut logs and/or burning of potential host tree materials, etc.).

The following mitigation measure would reduce potentially significant impacts to critical habitat during construction:

- BR-8 OC Public Works shall consult with USFWS regarding potential impacts of the Project on USFWS-designated critical habitat for coastal California gnatcatcher. Informal consultation pursuant to Section 7 or Section 10 of FESA, where USFWS would determine the appropriate mitigation actions regarding critical coastal sage scrub habitat, could involve compensatory mitigation in the form of a Project-specific Habitat Mitigation and Monitoring Plan (HMMP) or development of a Habitat Conservation Plan (HCP), consistent with any requirements of applicable regulatory permits.

5.3.5.3 Mitigation Measures Related to Jurisdictional Waters

The following mitigation measures would reduce potentially significant impacts to jurisdictional waters:

- BR-9 Prior to approval of the Project plans and specifications, OC Public Works shall obtain all applicable regulatory permits, including coverage under NWP 14 for Transportation projects from the USACE, a Water Quality Certification from RWQCB, and an LSAA from CDFW.
- BR-10 Regulatory permits obtained in coordination with the applicable regulatory agencies, as identified in BR-9, would include measures to mitigate all temporary and permanent impacts. Examples of the Options to mitigate for impacts associated with the Project may include some combination of the following:
1. Treatment of non-native, invasive plant species (castor bean, tree tobacco, etc.)
 2. On-site revegetation for temporary impacts to wetland/riparian vegetation
 3. Obtaining credits from the Soquel Mitigation Bank, located upstream of the Project within the headwaters of Tonner Canyon Creek for permanent impacts to wetland/riparian vegetation

5.3.5.4 Mitigation Measure Related to Wildlife Movement

The following mitigation measure would reduce potentially significant impacts to wildlife movement during construction:

- BR-11 Excavation and trenching activities shall include measures to prevent entrapment and injury to wildlife. For instance, steep-sided trenches may either be backfilled at the end of each work day, fenced, or include “escape ramps” for wildlife.

The following mitigation measure would reduce potentially significant impacts to bobcat permeability during operations:

- BR-12 To ensure there is a dry place for bobcats to pass under Bridges 2 and 3, a wildlife ledge shall be installed under both bridges. The wildlife ledge shall be placed approximately 3 feet above the ground, above the ordinary high water mark of Brea Creek under both sides of Bridges 2 and 3. The wildlife ledge shall be wide enough to accommodate a bobcat, include a non-slip surface, and have a small ramp at both ends to allow wildlife easy access to the ledge. The final design and height above the ground shall be determined by bridge engineers in concert with a wildlife expert and hydrologist.

5.3.5.5 Mitigation Measures Related to Habitat Conservation Agreements

The following mitigation measure would reduce potentially significant impacts of the Project regarding conflicts with a local habitat conservation agreement.

- BR-13 Prior to the start of construction OC Public Works shall coordinate with Tonner Hills SSP, LLC and the City of Brea, along with the Third-Party Beneficiaries (USFWS, USACE, and CDFW) of the Conservation Easement, to amend the Conservation Easement (via mutual written agreement) by adjusting the easement boundaries to include the existing Brea Boulevard right of way and necessary acquisitions (i.e., permanent road and retaining wall easements, temporary construction easement, etc.) associated with the Project, implement any need to transfer a portion of the Conserved Land and identify any subsequent compensatory actions or obligations pursuant to purposes of the Conservation Easement. The amendment shall be recorded in the official records of the County of Orange with conformed copies of the recorded amendment provided to all parties.

5.3.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measures BR-1 through BR-13 would reduce potentially significant impacts related to biological resources to below a level of significance with mitigation incorporated.

This page intentionally left blank.

5.4 CULTURAL RESOURCES

This section describes the historical and archaeological resources known to exist in the Project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of Project impacts after mitigation. The information and analysis in this section was summarized from the *Cultural, Historical, and Paleontological Resources Assessment for the Brea Boulevard Corridor Improvement Project* prepared by AECOM in September 2022, which is provided in Appendix I of this Draft EIR. For a discussion regarding tribal cultural resources, please refer to Section 5.12, Tribal Cultural Resources, of this Draft EIR. Also, for a discussion regarding paleontological resources, please refer to Section 5.5, Geology and Soils, of this Draft EIR.

5.4.1 EXISTING CONDITIONS

5.4.1.1 Environmental and Geological Setting

The Project is located in Brea Canyon within Sections 2 and 12 of Township 3 South, Range 10 West of the La Habra (1964) U.S. Geological Survey (USGS) 7.5-minute quadrangle map, and Unsectioned Township 2 South, Range 9 West of the Yorba Linda (1981) 7.5-minute quadrangle map. Brea Canyon was created by tectonic activity of the Elsinore-Whittier Fault. More specifically, Brea Canyon is adjacent to the Tonner Fault. The local geology consists of steeply dipping sedimentary beds uplifted by the fault. Oil travels upward through permeable rock and up the faults from source rocks below. Tar seeps were visible on the surface in prehistoric and historic times. Refer to Section 5.5, Geology and Soils, of this Draft EIR for a complete description of the geological setting.

Vegetation in the project area includes chaparral, grasslands, and riparian forest. Coast live oak, California black walnut, and California sycamore are the dominant trees. Climatically, project area is generally Mediterranean and is characterized by mild winters and moderate, dry summers with occasional storms. The Santa Ana Canyon south of Brea Canyon forms a wind tunnel channeling that gives name to the strong Santa Ana winds that blow through the canyon annually.

5.4.1.2 Cultural Setting

The following is a focused discussion of the history of the project area. For a discussion of the current understanding of major prehistoric and historic developments in southern California as a framework for discussing the potential cultural resources that may exist in the project area, refer to Appendix I of this Draft EIR.

Gabrielino Occupation

According to material collected by Bernice Eastman Johnston, a Gabrielino village was located within Brea Canyon north of today's City of Brea. Johnston states that in the vicinity of "the present Brea Canyon cut-off road...was the home of an important village which was to give many a convert to the San Gabriel Mission, where it was listed as 'Pomoquin,' although the better known form of it was Pimocangna, and it was also recorded as Pumu'kingna. This was associated in the memory of one of J. P. Harrington's informants with the idea of sleeping outside of the house, as in the 'beginning of the world,' when the first people slept, naked and cold, not in houses but in the open." McCawley, however, citing a different passage in Harrington's notes, suggests that the village was further north, in Los Angeles County, in the vicinity of today's City of Walnut.

Portola Expedition and the Native Daughters of the Golden West

The Portola expedition passed through the approximate location of modern Brea Canyon. The locations of Portola's campsites are important. Historically significant themselves, many of Portola's campsites were also at or near the locations of Native American villages. The campsites and nearby villages are significant to history and may yield archaeological data important to history.

In 1906, the Native Daughters of the Golden West and the California Federation of Women's Clubs began research to map El Camino Real, the road which once connected the 21 Spanish missions and secular settlements such as Los Angeles. Each parlor of the Native Daughters of the Golden West has a History and Landmarks Committee which contributed to the effort. Work in the Brea area (which is today's City of Brea) was conducted by Grace Parlor No. 242, and at that time their committee was chaired by noted local philanthropist Carrie Earl McFadden Ford. The research was based on translations of Portola's diary as well as the diaries of Miguel Costanso and Juan Crespi, the two friars who traveled with Portola.

The committee came to the conclusion that Portola followed different routes during his northward journey and his return journey. They determined that the return journey's route became El Camino Real, and passed through modern day City of Fullerton. During Portola's initial, northward journey, the committee concluded he camped within what is now the project area. They identified a location within Brea Canyon north of the City of Brea where they believed Portola made his camp. There was a pool of water like that mentioned in the expedition diaries, and a stand of pepper trees provided shade. According to Past Grand President Sherry Farley, "I am told Indian and Spanish artifacts were also recovered from this location."

A short distance to the east of the location they identified, which was on private property, the Native Daughters erected a concrete monument to the expedition in the project area in Brea Canyon on June 2, 1932. June 2, 1932 was also the fifth anniversary of the establishment of the Grace Parlor of the Native Daughters. This monument states that Portola camped in the area on July 31, 1769.

However, this location may not be the location of any of Portola's camps. The monument testifies to a persistent local tradition, and is located at a site which may have been important in Native American as well as Spanish and Mexican times. But pepper trees are a species introduced to California by the Spanish. Both ranching and mining activities of men such as Juan Pacifico Ontiveros, described below, may have led to the planting of pepper trees in this vicinity long before 1932.

Most scholars agree that by July 31, 1769, the Portola expedition was already in today's Los Angeles County. On July 28, 1769, Portola and his men forded the Santa Ana River in the area of today's City of Yorba Linda. On July 29, 1769, Portola's company halted on a ridge or knoll overlooking a grassy valley, somewhere in today's Orange County. In the narrow canyon was a Native American village beside a small pool or several small pools. Missionary Father Crespi called the village "very large," with a population of over 70, but Portola himself identified only "about fifty inhabitants." The natives possessed some items of Spanish manufacture, which Crespi believed they obtained from Spanish New Mexico, possibly through trade with the Apaches. The water at this village was enough for the Native Americans and for Portola's men, but was not enough for the expedition's animals, who went without. Crespi named the place the Village of the Little Pool and the Valley of Santa Marta. Lieutenant Pedro Fages, who was also on the expedition and who later would be named Governor of Alta California, called the village Los Ojitos (The Little Pools). Portola's company spent just one night at the Village of the Little Pool, and by July 31 they had left the area and camped west of City of Alhambra in Los Angeles County. Most historians place Portola's camp of July 29 in the vicinity of Hillcrest Park in the City of Fullerton.

Herbert Eugene Bolton is one of the most prolific authors on the topic of the outskirts of Spain's empire in what is now the American Southwest. He famously retraced Anza's path on foot, mule, and Model T Ford,

setting the records straight on the route of Anza's journey, correcting many locations that had been misidentified by earlier scholars. However, in his translation of Crespi's diary, he notes only that Portola's company camped on July 29, 1769 in "La Brea Canyon, north of Fullerton." In early USGS maps, Brea Canyon is shown much farther south than it is shown today, along Brea Creek in the southern part of the City of Brea. The mouth of Brea Canyon was most likely where today's Brea Boulevard meets Harbor Boulevard, in the approximate location of the City of Fullerton's Hillcrest Park, when Bolton identified the location from Crespi's diary.

Orange County historian Don C. Meadows suggested that, on July 29, 1769, "Camp was established on the top of the ridge northeast of Hillcrest Park in Fullerton. The Indian village and the little pool were in Brea Canyon a short distance above Brea Dam."

Following on Meadows, Orange County historian and avocational archaeologist Helen C. Smith suggested three possible locations of the July 29, 1769 campsite:

- "at the intersection of Harbor Boulevard and Brea Canyon Road [Brea Boulevard] in lower Hillcrest Park"
- "in what is still 'a very green little valley' above Brea Dam"
- "or possibly closer to La Habra ... near which is a natural spring now developed as a City of Fullerton recreation area"

There are also geographical reasons that make it unlikely that Portola would have traveled to the location of the present monument. The expedition was marching towards Monterey from San Diego. They camped the night of July 28, 1769 on the east bank of the Santa Ana River, probably in the vicinity of modern Olive, an unincorporated parcel in the City of Orange. According to Crespi, after leaving the Santa Ana River they "followed the plain to the northwest" before turning west-northwest into the mountains. The Daughters of the Golden West marker, however, stands well within Brea Canyon, northeast of modern City of Brea, out of the way of the expedition's generally northwesterly route. The party would have had to journey out of its way to the northeast, proceed up the canyon in the direction of modern Pomona, realize their mistake, and turn back. Nothing like this is recorded in the diaries. Moreover, the expedition was preceded by guides who advised Portola on the best route to take. It is unlikely that the seasoned explorers would have made such a mistake.

In short, on July 29–30, 1769, the Portola Expedition likely passed slightly over 4 miles southwest of the project area, close to Hillcrest Park in what is today Fullerton. Portola and his men likely entered what is illustrated in early maps as Brea Canyon, but only at its southernmost reaches, south of what is today the City of Brea. They then proceeded northwest through modern day City of La Habra before leaving today's Orange County. The campsite and Native American villages described in the expedition diaries are probably not within the project limits. Nevertheless, the monument erected by the Native Daughters is itself historic, and was likely placed at a location which was important to Native Americans as well as the Spanish and Mexicans.

Ranchos and Farms

Although the project area was claimed first by Spain and then Mexico, and was within the area of influence of Mission San Gabriel, it lay outside the main areas of Spanish and Mexican interest, until Governor Jose Figueroa oversaw the initial secularization of the mission system and increased land grants. In 1833, Juan Pacifico Ontiveros requested Governor Figueroa grant him "the place that is vacant from the Canada Verde, as far as the Canada de la Brea." A variant of the name Brea Canyon, Canada de la Brea, therefore existed at least as early as 1833, although the term may have applied first to what is now known as Tonner Canyon.

Figueroa began the process of granting the land, but the land grant was never finalized. Ontiveros' descendants believed they owned the land, subdivided it, and resold it, leading to considerable confusion and lengthy court cases.

In 1834, Governor Figueroa granted Rancho Canon de Santa Ana, including modern day City of Brea and the western portion of the corridor, to Jose Antonio Yorba's son, Bernardo Yorba, in 1834. Bernardo Yorba constructed his adobe Hacienda Yorba in what is today's City of Yorba Linda. In 1841, Governor Juan Alvarado granted Rancho Rincon de la Brea, including most of the project limits, to Gil Maria Ybarra. The rancho is sometimes also known as Rancho de los Ybarras.

By 1860, the project area came into the possession of real estate speculator Abel Stearns. While Stearns platted and sold several town sites across Southern California, he retained possession of the Brea area until his death. Stearns, and then the Stearns Ranchos Company, leased the area around Brea area to Spanish and French Basque sheep herders.

These lands also proved productive for citrus growing, particularly as oil producers (described below) worked hand-in-hand with citrus growers to dig wells and irrigate the land. In 1910, the heirs of Domingo Bastanchury, one of the region's first Basque sheep ranchers, began growing citrus in the Brea area. Thousands of acres would be turned into citrus groves in the next few decades, and citrus farming remains important locally.

Oil and Tar

Brea area's natural tar deposits were gathered by Native Americans who used it for waterproofing, as adhesive for artistic shell inlay, and as a trade item. The same tar also drew the attention of the Mexican settlers. From the Spanish into the American period, settlers collected the tar for roofing, flooring, and fuel. In the relatively treeless area, the tar was cut in blocks and burned like peat. Although the tar was treated by some as common property, certain landowners such as Yorba specifically protected their ownership of the tar in land deeds. In 1869, the Los Angeles Gas Company bought the rights to dig the tar.

In 1865, there were attempts to drill for oil in Brea Canyon. The intent was to distill the oil for kerosene to fuel lamps. L. L. Robinson, Major Max Strobel, and the Santa Ana Petroleum Company bought the oil rights for the property from Stearns and brought a steam drill powered by a 10-horsepower engine from Coffey, Risdon & Company of San Francisco. Strobel noted: "The rope, for boring, is a 3/4 inch wire-rope, the first one, I believe, used in California for that purpose." The well was dug to a few hundred feet before the experiment abandoned.

Experimental oil drilling continued in the Brea area and the Puente Hills from the 1860s onwards, but oil production in the Project vicinity began in earnest in the 1880s. In 1883, Burdette Chandler and the Chandler Oil Company bought land and filed claims near where Tonner Canyon meets Brea Boulevard, but the oil had to be shipped to Los Angeles for refining, and the venture was not very profitable. Much of the land was sold, and the Brea Canon Oil Company was formed to exploit the fields. In 1894, the Union Oil Company purchased large swaths of Stearns Ranchos Company, including land along what is now Brea Boulevard in the Project vicinity, and began oil production on an industrial scale. By 1910, eight companies operated in and near Brea Canyon: the Brea Canyon Oil Company; the Fullerton Oil Company; the Menges Oil Company; the Union Oil Company; and the Santa Fe, Graham-Loftus, Columbia, and Puente Companies all had operations in the area.

The oil field came to be known as the Brea-Olinda Oil Field, after the two settlements that grew up to serve the oil workers. Brea area was first platted as Randolph in 1908 and renamed Brea in 1911. The City of

Brea was incorporated in 1917. Olinda was platted during a period of land speculation in 1887 and settled in the late 1880s and 1890s.

Brea Boulevard

Brea Canyon is a break in the Puente Hills connecting the Santa Ana River Valley to the San Gabriel River Valley. Native Americans no doubt used the passage as a way through the hills. A wagon road existed in the canyon at an early date. The earliest USGS maps, which date to the 1890s, show this road. The road was once known as the Spadra Road. The road connected the Santa Ana River drainage with Spadra; a town eventually annexed by modern day City of Pomona. The road was graded and oiled before World War I, but was not a major thoroughfare until the 1920s. The development of oil communities spurred the development of the road to today's City of Pomona, which was improved and paved by the counties of Orange and Los Angeles in 1920–1923.

Art in Public Places Program

The City of Brea's Art in Public Places Program was established by City Council Resolution in 1975. It is reportedly one of the first private art development programs established in the State of California. The measure was conceived by City Manager Wayne Wedin as an outgrowth of the City of Brea by Design initiative to maintain the City's small-town feel and aesthetic qualities despite the development boom of the late twentieth century. After a tour of Europe, Wedin noted: "It began to sink in to me that artwork in general—and sculpture in particular—had a very enriching quality to it." The intent of the program is to create a partnership between private developers and the City of Brea to beautify the City by integrating three-dimensional art into the city fabric. Subsequent ordinances have refined the program. Under the current ordinance, passed in 2013, the City of Brea requires developers whose project costs exceed \$1.5 million to allocate 1 percent of their total project building valuation to commissioning public art pieces. The art is commissioned by private developers and approved by a board created by the City. The art must be placed in locations where it can be viewed by the public, but is maintained by the developer. The artist must be recognized by both critics and peers as a "professional practitioner of the visual arts" who has already established a body of work.

5.4.1.3 Regulatory Setting

Cultural Resources Regulations

Cultural resources in California are protected by a number of federal, state, and local regulations, statutes, and ordinances. Cultural resources are protected from adverse effects if they meet standards of significance. The California Register of Historical Resources (CRHR) was created to identify resources deemed worthy of preservation on a state level and was modeled closely after the National Register of Historic Places (NRHP). The criteria are nearly identical to those of the NRHP but focus on resources of statewide, rather than national, significance. The determination of CRHR significance of a cultural resource is guided by specific legal context outlined in §15064.5 (b), 21083.2, and 21084.1 of the Public Resources Code (PRC), and the California Environmental Quality Act (CEQA) Guidelines (Code of California Regulations Title 14, §15064.5). A cultural resource may be eligible for listing in the CRHR if it:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of an important creative individual or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history.

A cultural resource determined to meet one or more of the above criteria is considered a historical resource under CEQA. In addition to meeting one or more of the above criteria, historical resources eligible for listing in the CRHR must retain enough of their historic character or appearance to be able to convey the reasons for their significance. Such integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association.

Human Remains Regulations

Human remains, including those interred both inside and outside of formal cemeteries, are protected by CEQA both as cultural resources that may be eligible for the CRHR and independently of their potential scientific significance. California Health and Safety Code § 7050.5 requires that, if human remains are discovered outside of a formal cemetery, excavations shall halt in the vicinity of the find, and the Coroner shall be notified. The Coroner will determine the nature of the remains.

If the Coroner determines the remains are Native American in origin, the Coroner will contact the Native American Heritage Commission (NAHC) and a Most Likely Descendant will be identified pursuant to PRC § 5097.98 and CEQA Guidelines § 15064.5, which requires that the concerns of a Most Likely Descendant (MLD) be considered in the treatment and final disposition of such remains.

5.4.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to cultural resources if it would:

- Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines §15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5.
- Disturb any human remains, including those interred outside of dedicated cemeteries.

5.4.3 METHODOLOGY RELATED TO CULTURAL RESOURCES

The cultural resources investigation for the Project involved archival research, a field survey, and consultation with interested parties, as discussed below.

5.4.3.1 Archival Research and Field Survey

Archival research for the Project was conducted by AECOM on March 21, 2018, at the South Central Coastal Information Center (SCCIC) housed at California State University, Fullerton. The research focused on the identification of previously recorded cultural resources within a 0.5-mile radius of the project limits. The archival research involved review of cultural resources site records, historic maps, and historic site and building inventories. The NRHP database and listings for the California State Historic Resources Inventory, and the California Historical Landmarks Register were examined to determine whether any resources in the 0.5-mile radius were listed in or had been determined eligible for these registers. The California Point of Historical Interest, the CRHR, and Riverside County Historic Landmarks also were reviewed for resources within or adjacent to the project limits.

In addition, a cultural resources field survey of the project limits was conducted by AECOM on May 29 and 30, 2018. The field survey consisted of a pedestrian survey within the project limits, with one exception. The private properties west of Brea Boulevard north of Bridge 3 are designated for temporary ground disturbance. These properties are graded and covered with imported gravels, so a pedestrian survey would be inconclusive in these areas, and accordingly did not include these areas. Approximately 24.6 acres of the 29.8-acre project limits (excluding surfaces to be paved with open graded asphalt concrete) was surveyed for archaeological and built environment historical resources. Specifically, the archaeological survey focused on the identification of any surface evidence of archaeological materials in the project limits. Transects were walked on either side of Brea Boulevard within the project limits at distances of 15 meters or less. Most of the project area, which was not previously paved or graded for the road surface or for oil pads and dirt roads, slopes away from the road and is densely overgrown. The built environment survey focused on documenting elements of the built environment which may be impacted by the Project. Structures and objects that exceed 45 years of age were documented on appropriate Department of Parks and Recreation (DPR) 523 forms. The DPR forms are included in Appendix E of Appendix I of this Draft EIR.

5.4.3.2 Interested Parties Consultation Program

AECOM conducted a Native American contact program on behalf of the OC Public Works, to inform interested parties of the Project and to address any concerns regarding Traditional Cultural Properties or other resources that might be affected by the Project. The program involved contacting Native American representatives provided by the Native American Heritage Commission (NAHC) to solicit comments and concerns regarding the Project. A letter was prepared and mailed to the NAHC on September 25, 2017. The letter requested that a Sacred Lands File (SLF) check be conducted for the Project and that contact information be provided for Native American groups or individuals that may have concerns about cultural resources within the project area.

Letters were mailed on October 10, 2017, to each group or individual provided on the NAHC contact list. As a result of the letter and follow-up calls, five Native Americans were contacted, and a total of four responses were received. One contact, Charles Alvarez of the Gabrielino-Tongva Tribe, called to state that he had no comment on the Project. The remaining three Native American representatives, including Chairperson Andrew Salas, Chairperson Anthony Morales, and Chairperson Robert Dorame all stated that the project area is sensitive for cultural resources, and that ground-disturbing activities should be monitored by a Native American monitor. Refer to Section 5.12, Tribal Cultural Resources, for further discussion of the Native American contact program and tribal cultural resources methodology and results.

In addition, another interested party that AECOM contacted was Mrs. Sherry Farley. Mrs. Farley is Past Grand President of the Native Daughters of the Golden West. She is also former President and current History and Landmarks Chair of Grace Parlor No. 242. She is the third generation of her family to belong to Grace Parlor, and many of her cousins also belong to the parlor. AECOM sent an e-mail to Mrs. Farley on June 15, 2018. Mrs. Farley responded in a voicemail and an e-mail on June 25, 2018. This was followed by a phone call and an additional email on June 27, 2018. In those calls and emails, Mrs. Farley provided AECOM with background information about, and historical photos of, the Brea Canyon Portola Monument erected by the Grace Parlor of the Native Daughters of the Golden West on June 2, 1932.

5.4.4 POTENTIAL IMPACTS

5.4.4.1 Cause a Substantial Adverse Change in the Significance of a Historical Resource

Based on the records search and field survey, there are four historic-in-age resources documented within or adjacent to the Project's Area of Potential Effects (APE). These include Brea Boulevard, artist Sergio O'Cadiz's *Sunburst* sculpture, the Brea Canyon Portola Monument, and the Brea-Olinda Oil Field (30-177012). These four resources are discussed further below.

Brea Boulevard

Brea Boulevard and its associated structures, including the abandoned weigh station, abandoned road segment, and abandoned bridge onto private property, were evaluated and found not eligible for listing in the CRHR. Thus, Brea Boulevard is not considered a significant historical resource. No impact would occur.

Sunburst Sculpture

The *Sunburst* sculpture, installed as part of the City of Brea Art in Public Places Program, was evaluated and found eligible for listing in the CRHR under Criterion 3 as the work of "an important creative individual." Moreover, this particular work of O'Cadiz also "possesses high artistic values," further qualifying it for inclusion under Criterion 3. The unique piece was probably cast in place using O'Cadiz's signature method of using ad hoc Styrofoam molds. The piece has achieved fame in California and listing in the Smithsonian American Art Museum's Art Inventories Catalog. The piece is remarkable for its allusions to traditional Mexican themes without directly copying ancient art.

Preservation of historical resources is always the preferred option under CEQA. The sculpture is on a slope within the corridor but is outside of the planned area of work (i.e., is outside the project limits). The sculpture, which is a little more than 25 feet from the edge of the existing sidewalk, would not be impacted by any construction activity, which would be restricted to the street-side of the sidewalk. Moreover, it would still be able to be appreciated in its existing context and therefore would not be indirectly impacted by the Project. The sculpture would be preserved-in-place. Therefore, Project activities would not cause a substantial adverse change in the significance of this historical resource, and impacts would be less than significant and no mitigation measures are required.

Brea Canyon Portola Monument

The Brea Canyon Portola Monument, a monument to the Portola Expedition privately erected in 1932, was evaluated and recommended eligible for inclusion in the CRHR under Criteria 1 and 2. The erection of the Brea Canyon Portola Monument was part of a statewide effort to preserve and commemorate California's past (Criterion 1); and the roles of the Native Daughters of the Golden West as a whole, Grace Parlor No. 242, and Carrie McFadden Ford in the 1930s statewide movement of historic preservation campaign commemorated California's past (Criterion 2). In addition, excavations in the vicinity of the monument have the potential to yield data which may also make the site eligible for inclusion under Criterion 4. The site is located where Native American and Spanish or Mexican period artifacts are rumored to have been found. At this time the resource does not appear to be eligible for inclusion in the CRHR under Criterion 4, but future excavations in the vicinity may change this assessment.

The Brea Canyon Portola Monument has been a focus of activity for the Native Daughters of the Golden West Grace Parlor No. 242, which visits the site at least annually as part of their Monument Search Scavenger Hunt. The Native Daughters of the Golden West Grace Parlor No. 242, who erected, maintain, and visit the monument, have indicated that, if it is necessary for the Project, they are open to seeing the

monument moved to a new, nearby location. The monument is located within the project limits (on the east side of Brea Boulevard, approximately halfway between bridges 1 and 2); specifically, widening of the road would require the removal of the road shoulder on which the monument is located. Thus, Project-related activities could cause a substantial adverse change in the significance of this historical resource. Therefore, potentially significant impacts to this historical resource could occur during construction of the Project (refer to Mitigation Measure CR-1).

Brea-Olinda Oil Field (30-177012)

The Brea-Olinda Oil Field (30-177012) has been documented and evaluated several times. One part of the field, Wildcatter's Park, was once considered eligible for listing in both the NRHP and the CRHR. However, that segment of the oil field has been destroyed and reevaluated; it is no longer considered eligible for inclusion in the NRHP or the CRHR. Another segment of the Brea-Olinda Oil Field was documented and evaluated for the Project, including portions of the oil field that were not previously documented. The segment of the oil field within the project area was evaluated and does not appear eligible for listing in the CRHR. Thus, the segment of the Brea-Olinda Oil Field within the project area is not considered a significant historical resource. No impact would occur.

5.4.4.2 Cause a Substantial Adverse Change in the Significance of an Archaeological Resource

No archaeological resources were identified within the project limits during the course of the background research and cultural resources field survey. However, potentially eligible buried archaeological resources may exist. Archaeological deposits can be buried with no surface indications of their existence, particularly in developed areas or in areas of alluvial deposits. The degree of archaeological deposit below the modern surface remains unknown. In addition, subsequent land use is an essential factor in whether archaeological remains have been preserved below the modern surface.

Brea Canyon lies in an area of abundant water that may have made this area desirable for human settlement and use during both the prehistoric and historic periods. The entire project area lies on the banks of Brea Creek in a place where it is geologically restricted in its movement. The project area is important for its water and for the access it provides between the San Gabriel and La Habra Valleys. Moreover, the area's tar deposits have drawn people to Brea Canyon from prehistoric times to today's oil workers. Although no archaeological sites have been formally recorded in the canyon, both Native American and Spanish or Mexican artifacts are rumored to have been found in the vicinity of the Brea Canyon Portola Monument, where a stand of pepper trees was planted which were already old in 1932. Thus, there is a potential to encounter archaeological resources during ground-disturbing activities in undisturbed younger quaternary alluvium which could cause a substantial adverse change in the significance of archaeological resources. Therefore, potentially significant impacts could occur during construction of the Project (refer to Mitigation Measures CR-2 through CR-4).

5.4.4.3 Disturb Human Remains

Map research did not indicate the presence of any formal cemeteries within the project area. Neither archival research nor the archaeological survey identified cremains or burials within the project area. Thus, the Project is not anticipated to disturb any human remains, including those interred outside of formal cemeteries. Although not anticipated, there is a potential for unknown human remains to be encountered during ground-disturbing activities. Therefore, potentially significant impacts could occur during Project construction (refer to Mitigation Measure CR-5).

5.4.5 MITIGATION MEASURES

The following mitigation measure was developed to help reduce or avoid potential impacts related to historical resources.

- CR-1 OC Public Works shall move the Brea Canyon Portola Monument to a nearby location to preserve its integrity of setting while still allowing cars to stop beside it. The new location of the monument shall be decided upon by OC Public Works in consultation with the Native Daughters of the Golden West Grace Parlor No. 242. OC Public Works shall retain qualified staff to safely package, store, and transfer the monument. As the concrete monument is nearly 90 years old and may be brittle; it must be properly protected against accidental breakage during this process. After the monument is moved, the new location shall be documented on an appropriate DPR 523 update form and the form filed with the South Central Coastal Information Center.

Also, the following mitigation measures were developed to help reduce or avoid potential impacts related to archaeological resources:

- CR-2 Archaeological monitoring shall be required during ground-disturbing activities in undisturbed younger quaternary alluvium. The archaeological monitor shall have the authority to redirect construction equipment in the event potential archaeological resources are encountered.
- CR-3 In the event archaeological resources are encountered, work in the vicinity of the discovery shall halt until appropriate treatment of the resource is determined by an Orange County Certified Archaeologist and in accordance with the provisions of CEQA Guidelines Section 15064.5. The Certified Archaeologist shall have experience in prehistoric archaeology in Southern California. Any archaeological materials recovered shall be prepared for and curated at an approved facility. If in the course of monitoring, the Orange County Certified Archaeologist determines that the sediment within the project area is disturbed, or work has extended in sediments that are otherwise not sensitive for cultural resources, then archaeological monitoring may be reduced or suspended at the discretion of the Certified Archaeologist.
- CR-4 Construction personnel and supervisory staff shall be given training on possible archaeological resources that may be present in the area to establish an understanding of what to look for during ground-disturbing activities.

In addition, the following mitigation measure was developed to help reduce or avoid potential impacts to human remains interred outside of dedicated cemeteries:

- CR-5 In the event that human remains are discovered, work in the immediate vicinity of the discovery shall be suspended and the Orange County Coroner contacted. If the remains are deemed Native American in origin, the Coroner shall contact the NAHC and a Most Likely Descendant shall be identified pursuant to PRC Section 5097.98 and CEQA Guidelines Section 15064.5. Work may be resumed at the landowner's discretion, with input from the MLD and Lead Agency, but will only resume after consultation and treatment have been concluded. Work may continue on other parts of the Project while consultation and treatment are conducted.

5.4.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measures CR-1 through CR-5 would reduce potentially significant impacts related to cultural resources to a level that is less than significant with mitigation incorporated.

This page intentionally left blank.

5.5 GEOLOGY AND SOILS

This section describes the existing geology and soils conditions, including paleontological resources, for the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of Project impacts after mitigation. Information in this section is based on: the *Cultural, Historical, and Paleontological Resources Assessment – Brea Boulevard Corridor Improvement Project, County of Orange, California* prepared by AECOM in September 2022, which is provided in Appendix I of this Draft EIR; and two geotechnical reports prepared by Leighton Consulting, Inc. (Leighton), which are provided in Appendix J of this Draft EIR: *Geotechnical Engineering Report, Proposed Earth Retention Systems and Roadway Pavement, Brea Boulevard Corridor Improvements, County of Orange, California* (January 28, 2022), and *Foundation Report, Proposed Bridge Structures, Brea Boulevard Corridor Improvements, County of Orange, California* (May 19, 2022).

5.5.1 EXISTING CONDITIONS

5.5.1.1 Regional and Local Geologic Setting

Brea Boulevard traverses the bottom of a distinct linear and relatively narrow west-northwest trending valley (Brea Canyon). From a regional perspective, Brea Boulevard lies within the Peninsular Ranges Geomorphic Province of southern California. This province has a regional expanse of approximately 900 miles that extends from the Santa Monica Mountains on the northwest to the tip of Baja California to the southeast. The province is composed of a northwest-trending series of mountain ridges and alternating sediment-filled valleys, bounded by fault zones. The faults tend to truncate, merge with, or terminate at the Transverse Ranges province to the northwest. The San Jacinto, Whittier-Elsinore, Palos Verdes, and Newport-Inglewood Fault Zones are most prominent within the province. Bedrock is generally composed of intrusive pre-cretaceous age igneous rocks ranging in composition from gabbro to granodiorite and Tonalite. These basement rocks are overlain by a sequence of uplifted, faulted and folded Cenozoic age sedimentary marine and non-marine formations.

Brea Canyon lies immediately northeast of the abrupt regional geographic boundary between the elevated Puente Hills block on the northwest and broad flat-lying alluvial plain of the Los Angeles Basin on the southeast.

The Puente Hills are an uplifted block of smoothly eroded hills underlain by Miocene to Pliocene age bedrock. This striking linear southwest margin on the hills are coincident with and formed by the Whittier Fault Zone (WFZ). The origins of Brea Canyon and its orientation parallel to the WFZ relate directly to the tectonic history of the region. Lateral movement along the faults has deflected the north-south axis of Brea Canyon a distance of approximately 4,000 to 5,000 feet to the west-northwest. This offset has also resulted in the juxtaposition of completely different rock formations on opposite sides of Brea Canyon. Brea Canyon is defined as a fault-valley; a valley subjected to and formed by past, currently inactive fault activity. Although some evidence of faulted older alluvium deposits is reportedly documented in Brea Canyon, no evidence exists for offset of any Holocene age alluvium.

5.5.1.2 Site Geologic Conditions

Site Topography

The portion of Brea Boulevard that is planned for widening is located on the U.S. Geologic Survey (USGS) Topographic Maps for the La Habra and Yorba Linda Quadrangles. The ephemeral, antecedent Brea Creek meanders from east to west through the canyon bottom, crossing beneath the alignment at three bridge

locations. The lower portions of the valley floor are manifest in stair-stepped topography exhibiting a series of flat-lying benches (terrace surfaces) bracketed by intermediate slopes ascending away from the modern creek channel. The terraces represent the remnants of former alluvial plains in the valley, now abandoned due to more recent stream entrenchment. It is common for the morphology and elevation of the terrace surfaces to mirror each other on opposite sides of the canyon/creek. The roadway variably spans both older and younger age alluvial terraces through the valley. From west to east along the corridor, the existing roadway gradient ascends from approximate elevation of 390 feet above mean sea level to an elevation of 512 feet, with a total rise of around 122 feet in vertical elevation.

The bounding walls of Brea Canyon ascend south and north from alluvial terrace areas and manifest in moderate to steep hummocky topographic relief. Several unimproved access roads transect hillside areas, providing access to abandoned and active oil wells on leveled cut/fill pads. Hilltop elevations south and east of the roadway reach elevations of approximately 770 feet. Canyon terrain on the north rises at least 450 feet higher than the south, achieving elevations of approximately 1,228 feet.

Faults and Seismicity

Presently-active faults are mapped as transecting the hills a short distance north of Brea Canyon, within the boundaries of the Alquist-Priolo Earthquake Fault Hazard Map for the WFZ published by the California Geologic Survey (CGS). A portion of the Project (specifically, the segment heading east/northeast just north of the intersection of Tonner Canyon Road and Brea Boulevard] to the eastern project limit) is within the Alquist-Priolo Fault Zone for the Elsinore-Whittier Fault Zone (specifically, WFZ). Other nearby faults include the Puente Hills (Coyote Hills) Fault (over 3 miles southwest of the project corridor) and the Chino Fault (over 10 miles northeast of the project corridor).

In addition, according to the CGS' Earthquake Zones of Required Investigation for the La Habra Quadrangle, portions of the roadway alignment are located within mapped earthquake-induced liquefaction and landslide seismic hazard zones (CGS 1998).

Soils

The corridor is largely underlain at the surface by deposits of Pleistocene to Holocene age alluvium. The alluvium predominantly consists of weak to moderately consolidated sands and gravels. In and around the existing bridge abutments and along the roadway are localized deposits of undocumented artificial fill of variable thicknesses. The alluvium and fill are underlain by Tertiary age marine and non-marine (terrestrial) bedrock formations. North of the active WFZ, the bedrock consists of the Soquel Sandstone and Siltstone Yorba Shale, which are each members of the Monterey Formation. South of the active WFZ, within Brea Canyon, are sandstone and claystone facies assigned to the Pliocene age Fernando Formation.

According to the geotechnical report prepared for the Project, groundwater was typically encountered in the deeper test borings at depths approximately coincident with the elevation of the creek channel. Specifically, the depth to groundwater ranged from 14.5 to 42.5 feet.

5.5.1.3 Paleontological Resources

As described in the cultural, historical, and paleontological resources assessment prepared for the Project (Appendix I of this Draft EIR), no paleontological resources were identified within the project limits. However, potentially significant buried paleontological resources may exist in the project area. Exposures of the fossiliferous Fernando and Puente Formations exist in the project area.

Surficial deposits in the central project area are limited to younger Quaternary alluvium. Because of their age (less than 10,000 years old), these deposits are unlikely to contain fossils. However, at varying depths beneath the surface, these deposits may overlie older Quaternary alluvium. Older Quaternary alluvial deposits have been recorded to contain significant fossils. In addition, fossiliferous deposits of the Fernando Formation likely exist beneath the alluvium in the project area.

5.5.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant adverse impact on the environment related to geology and soils if it would:

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:
 - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based upon on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
 - Strong seismic ground shaking.
 - Seismic-related ground failure, including liquefaction.
 - Landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on-or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Be located on expansive soil as defined in Table 18-1-B of the Uniform Building Code (1994) creating substantial risks to life or property.
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

5.5.3 METHODOLOGY RELATED TO GEOLOGY AND SOILS

The assessment of potential impacts concerning faulting, seismic hazards, and geohazards were based on the two geotechnical reports completed by Leighton for the Project (see Appendix J of this Draft EIR). As described in the geotechnical reports, the analyses included: literature review; subsurface exploration consisting of borings and Cone Penetrometer Test (CPT) soundings; geophysical survey and geologic mapping; and evaluation of the collected data.

The assessment of potential impacts to paleontological resources was based on the cultural, historical, and paleontological resources assessment prepared for the Project by AECOM (see Appendix I of this Draft EIR). As described in this assessment, a paleontological records search was requested from the Natural History Museum of Los Angeles County on September 22, 2017, to determine the level of paleontological sensitivity within the project area. The request was accompanied by a description of the Project and a map of the project area.

5.5.4 POTENTIAL IMPACTS

5.5.4.1 Faulting and Seismic Hazards: Fault Rupture, Strong Seismic Ground Shaking, Seismic-Related Ground Failure, and Landslides

Fault Rupture and Strong Seismic Ground Shaking

As discussed previously, a portion of the Project (specifically, the segment heading east/northeast [just north of the intersection of Tonner Canyon Road and Brea Boulevard] to the eastern project limit) is within the Alquist-Priolo Fault Zone for the Elsinore-Whittier Fault Zone (specifically, WFZ). Other nearby faults include the Puente Hills (Coyote Hills) Fault (over 3 miles southwest of the corridor) and the Chino Fault (over 10 miles northeast of the corridor). As discussed in the geotechnical reports prepared for the Project, the principal seismic hazard that could affect the roadway, south of the intersection of Tonner Canyon Road and Brea Boulevard, is ground shaking resulting from an earthquake occurring along one of several major active or potentially active faults in southern California. The shaking hazard is similar for the roadway north of the intersection of Tonner Canyon Road and Brea Boulevard; however, the potential for surface fault rupture is an added hazard, where the active strands cross the road. No bridge structures or retaining walls are proposed north of the intersection of Tonner Canyon Road and Brea Boulevard. However, the Project would be designed and constructed in accordance with the geotechnical recommendations provided in the Project's geotechnical reports. The Project would also comply with the requirements of applicable design standards such as: American Association of State Highway and Transportation Officials (AASHTO) Load and Resistance Factor Design (LRFD) Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Given this, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving the rupture of a known earthwork or strong seismic ground shaking. Therefore, impacts would be less than significant and no mitigation measures are required.

Seismic-Related Ground Failure

Additionally, as discussed previously, according to the CGS' Earthquake Zones of Required Investigation for the La Habra Quadrangle, portions of the roadway alignment are located within a mapped earthquake-induced liquefaction seismic hazard zone (CGS 1998). Liquefaction is associated primarily with loose (low density), saturated, fine- to medium-grained, cohesionless soils. Liquefaction occurs when three general conditions exist: 1) shallow groundwater; 2) low density sandy soils; and 3) high-intensity ground motion. The two geotechnical reports prepared for the Project evaluated the potential for liquefaction to occur within the project limits using the CPT and boring data collected from field exploration. Results of the analyses generally indicated the potential for liquefaction triggering was low and not a significant design consideration in the vicinity of Bridge 2 and east of retaining wall RW-11. However, the potential for liquefaction to be triggered and potentially lead to settlement, strength reduction, and lateral spread/displacement, was identified in proximity to Bridge 1, Bridge 3, and four retaining walls (RW-1, RW-2, RW-4, and RW-9). The geotechnical reports provide recommendations, such as implementing ground improvement technologies, which would avoid the potentially adverse effects of liquefaction, such as settlement, strength reduction, and lateral spread/displacement.

As discussed above, the Project would be designed and constructed in accordance with the geotechnical recommendations provided in the Project's geotechnical reports. Furthermore, the Project would also comply with the requirements of applicable design standards which provide for design components that protect against seismically-induced ground failure. Applicable design standards would include, but not be

limited to, the following: American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Given this, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure. Therefore, impacts would be less than significant and no mitigation measures are required.

Landslides

Also, as discussed previously, according to the CGS' Earthquake Zones of Required Investigation for the La Habra Quadrangle, portions of the roadway alignment are located within a mapped landslide seismic hazard zone (CGS 1998) and thus the Project could be subject to earthquake-induced landslides. A landslide is defined as the movement of a mass of rock, debris, or earth down a slope (USGS 2020). Landslides are a type of "mass wasting," which denotes any down-slope movement of soil and rock under the direct influence of gravity. Slope movement occurs when forces acting down-slope (mainly due to gravity) exceed the strength of the earth materials that compose the slope. However, as discussed above, the Project would be designed and constructed in accordance with the geotechnical recommendations provided in the Project's geotechnical reports. The Project would also comply with the requirements of applicable design standards such as: AASHTO LRFD Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Given this, the Project would not directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving landslides. Therefore, impacts would be less than significant and no mitigation measures are required.

5.5.4.2 Geohazards: Subsidence, Unstable Geologic Unit or Soil, Erosion, and Expansive Soils

Subsidence

Subsidence is a general term for the slow, long-term regional lowering of the ground surface with respect to sea level. Subsidence of the land surface often occurs as a result of extraction of underground fluids such as petroleum or groundwater. No petroleum extraction would be required for the Project. Although bridge replacement, culvert work, and cast-in-drilled-hole pile abutment installation would require dewatering, the dewatering would be temporary and would not cause lowering of the ground surface. For example, dewatering would consist of sand bag cofferdams to divert the water around the piers and abutments depending on phasing of the Project. Additionally, Bridges 1 and 3 will each require abutment facing walls that will extend to 10 feet below the creek surface, which may result in the need to temporarily pump groundwater from the vicinity of the proposed walls during installation. Also, if a bridge requires full closure for construction, surface dewatering may consist of temporary pumping from upstream of bridge to downstream. Therefore, no impact would occur related to subsidence and no mitigation measures are required.

Unstable Geologic Unit or Soil

The Project would not be located on an unstable geologic unit or soil; the geologic unit and soil that the Project is located on would also not become unstable as a result of the Project. As discussed previously, the roadway alignment is largely underlain at the surface by deposits of Pleistocene to Holocene age alluvium. The alluvium predominantly consists of weak to moderately consolidated sands and gravels. In and around the existing bridge abutments and along the roadway are localized deposits of undocumented artificial fill

of variable thicknesses. The alluvium and fill are underlain by Tertiary age marine and non-marine (terrestrial) bedrock formations. Any seismic hazards that could cause potential geologic unit or soil instability would be reduced with the Project's implementation of the geotechnical recommendations provided in the Project's geotechnical reports, and compliance with requirements of applicable design standards such as AASHTO LRFD Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Therefore, impacts related to being located on or causing unstable geologic unit or soil would be less than significant and no mitigation measures are required.

Soil Erosion and Loss of Topsoil

Soils throughout the project area are sensitive to disturbance during construction activities. Grading and slope cutting activities during construction would expose soils to potential erosion and could result in the loss of topsoil. However, as described in Section 5.8 (Hydrology and Water Quality) of this Draft EIR, the Project would be required to adhere to the requirements of a construction-related National Pollutant Discharge Elimination System (NPDES) permit, which would specify best management practices (BMPs) to prevent erosion and loss of topsoil. The Project would adhere to the requirements of the required NPDES permit and would reduce impacts related to erosion and loss of topsoil to a level that is less than significant. Therefore, impacts would be less than significant and no mitigation measures are required.

5.5.4.3 Expansive Soils

Expansive soils are primarily clay-rich soils subject to changes in volume with changes in moisture content. The resultant shrinking and swelling of such soils can cause damage to fixed structures, utilities, and roadways by causing stress to their foundations. As discussed in the geotechnical report, the expansion index for the soils on the Project would be 20 or less, indicating that it would have a very low potential for expansion. Furthermore, the geotechnical report indicates that soils excavated as part of subgrade preparation are anticipated to be suitable for use as structural compacted backfill to support the Project's foundations. Any soils considered to be unsuitable for foundation support, if exposed at the removal bottom, will be further removed to a stable subgrade. Fill soils would be compacted to at least 90 percent of the Modified Proctor (ASTM D1557) test method at moisture contents of 1 to 2 percent above optimum moisture content. In addition, the Project would be designed and constructed in accordance with the geotechnical recommendations provided in the Project's geotechnical reports. The Project would also comply with the requirements of applicable design standards such as: AASHTO LRFD Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Given this, the Project would not directly or indirectly cause substantial risk to life or property as it relates to expansive soils. Therefore, impacts would be less than significant and no mitigation measures are required.

5.5.4.4 Directly or Indirectly Destroy a Unique Paleontological Resource or Site or Unique Geologic Feature

As discussed previously, no paleontological resources were identified within the project limits during the course of the background research and cultural resources field survey performed for the Project, and the Project would not directly or indirectly destroy a known unique paleontological resource or site or unique geologic feature. However, potentially significant buried paleontological resources may exist in the project area. Exposures of the fossiliferous Fernando and Puente Formations exist in the project area, and additional

exposures could occur as part of the Project. Notably, the road widening would require a roadside cut of up to 60 feet in height, which would require the removal of quantities of potentially fossiliferous rock.

Surficial deposits in the central project area are limited to younger Quaternary alluvium. Because of their age (less than 10,000 years old), these deposits are unlikely to contain fossils. However, at varying depths beneath the surface, these deposits may overlie older Quaternary alluvium. Older Quaternary alluvial deposits have been recorded to contain significant fossils. In addition, fossiliferous deposits of the Fernando Formation likely exist beneath the alluvium in the project area.

Therefore, implementation of the Project has the potential to impact paleontological resources (refer to Mitigation Measure G-1).

5.5.5 MITIGATION MEASURES

The following mitigation measure was developed to help reduce or avoid potential impacts related to paleontological resources.

G-1 Paleontological monitoring shall be conducted for the hillside excavations, and for any deep (i.e., 6 feet or greater) excavations along the creek. An Orange County Certified Paleontologist shall oversee monitoring and decide where and how monitoring will take place and identify appropriate microfossil sampling techniques that should be used if necessary. The paleontological monitor shall also provide construction personnel and supervisory staff with training on possible paleontological resources that may be present in the area in order to establish an understanding of what to look for during ground-disturbing activities. The paleontological monitor will have the authority to redirect construction equipment in the event potential paleontological resources are encountered. In the event paleontological resources are encountered, work within 50 feet of the discovery will immediately halt until appropriate treatment of the resource is determined by a qualified paleontologist in accordance with the provisions of CEQA Guidelines Section 15064.5. Work may continue on other parts of the Project while consultation and treatment are conducted. Any paleontological materials recovered shall be prepared for and curated at an approved facility. Monitoring and reporting shall be conducted or overseen by an Orange County Certified Paleontologist. Fossils should be properly identified and processed for curation at an approved facility, such as the John D. Cooper Archaeological and Paleontological Center at California State University, Fullerton. If, in the course of monitoring, the Certified Paleontologist determines that the deposits are disturbed or otherwise not sensitive for paleontological resources, monitoring may be reduced or suspended at the Certified Paleontologist's discretion.

5.5.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measure G-1 would reduce potentially significant impacts related to paleontological resources to a level that is less than significant with mitigation incorporated.

This page intentionally left blank.

5.6 GREENHOUSE GAS EMISSIONS AND ENERGY

This section describes the existing greenhouse gas emissions (GHGs) for the project area, potential environmental impacts of the Project, and recommended mitigation measures to help reduce or avoid those impacts, and the significance determination for those impacts after the incorporation of mitigation. The information and analysis in this section was summarized from the *Air Quality and Greenhouse Gas Emissions Technical Report Brea Boulevard Corridor Improvement Project, County of Orange, California* prepared by AECOM in September 2022, which is provided in Appendix E of this Draft EIR and the *Energy Impact Analysis for the Brea Boulevard Corridor Improvement Project* prepared by AECOM dated September 9, 2022, which is provided in Appendix K of this Draft EIR.

5.6.1 EXISTING CONDITIONS

5.6.1.1 Scientific Basis of Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels, waste treatment, and agricultural processes. The following are GHGs that are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO₂)
- Methane (CH₄)
- Nitrous oxide (N₂O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF₆)

The majority of anthropogenic CO₂ emissions are byproducts of fossil fuel combustion. CH₄ is the main component of natural gas and is associated with agricultural practices and landfills. N₂O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices. HFCs are synthetic chemicals used as a substitute for chlorofluorocarbons in automobile air conditioners and refrigerants. PFCs are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors. SF₆ is an inorganic, odorless, colorless, nontoxic, nonflammable GHG used for insulation in electric power transmission and distribution equipment, and in semiconductor manufacturing. The primary GHGs that would be emitted during construction and operation of the Project are CO₂, CH₄, and N₂O.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO₂. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in

the atmosphere (“atmospheric lifetime”). The reference gas for GWP is CO₂; therefore, CO₂ has a GWP of 1. The other main GHGs that have been attributed to human activity include CH₄, which has a GWP of 28, and N₂O, which has a GWP of 265. For example, 1 ton of CH₄ has the same contribution to the greenhouse effect as approximately 28 tons of CO₂. GHGs with lower emissions rates than CO₂ may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO₂ (i.e., high GWP). The concept of CO₂-equivalents (CO₂e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Although the exact lifetime of any particular GHG molecule is dependent on multiple variables, it is understood by scientists who study atmospheric chemistry that more CO₂ is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. GHG emissions related to human activities have been determined as “extremely likely” to be responsible (indicating 95 percent certainty) for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth’s atmosphere and oceans, with corresponding effects on global circulation patterns and climate. The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; however, no single project is expected to measurably contribute to a noticeable incremental change in the global average temperature, or to a global, local, or micro climate.

5.6.1.2 GHG Inventories

GHG emissions contributing to global climate change are attributable in large part to human activities associated with the transportation, industrial/manufacturing, electric utility, residential, commercial, and agricultural categories. Emissions of CO₂ are byproducts of fossil fuel combustion and CH₄ is the primary component in natural gas and is associated with agricultural practices and landfills. N₂O is also largely attributable to agricultural practices and soil management.

California

The California Air Resources Board (ARB) performs an annual GHG inventory for emissions and sinks of the six major GHGs. California produced 424.1 million metric tons (MMT) of CO₂e in 2017. Combustion of fossil fuel in the transportation category was the single largest source of California’s GHG emissions in 2017, accounting for 41 percent of total GHG emissions in the state. The transportation category was followed by the industrial and electric power (including in-state and out-of-state sources) categories, which account for 24 and 15 percent of the state’s total GHG emissions, respectively.

City of Brea

The City of Brea Sustainability Plan: Leadership in Energy Efficiency was prepared in November 2012. The City of Brea produced approximately 540,908 metric tons (MT) CO₂e in 2010. Transportation (combustion of fuels used to power vehicles operating within City limits) is the largest emissions source, accounting for approximately 60 percent of the total emissions. Commercial and Industrial Building sources are the next largest sources of emissions accounting for approximately 24 percent of the total, collectively.

5.6.1.3 Energy Background

In 2019, California generated a total of 277,704 gigawatt-hours¹¹ of electricity, of which approximately 200,475 gigawatt-hours were generated in-state. The total non-residential and residential electricity consumption for Orange County in 2019 was estimated to be approximately 19,460 gigawatt-hours.

¹¹ Gigawatt hour is a unit of energy equal to 1000 Megawatt hours, or 1 million kilowatt-hours (1 kilowatt-hour is equal to 3,412 British thermal units (EIA 2021a).

Total natural gas consumption in 2018 in California was estimated to be 2,207 trillion British thermal units (Btu).¹² The total non-residential and residential natural gas consumption for Orange County in 2018 was estimated to be approximately 575 million therms.¹³

Electric and natural gas services in the project area are provided by Southern California Edison (SCE) and Southern California Gas Company (SoCalGas), respectively. SCE serves approximately 15 million people in a 50,000 square-mile area, within central, coastal, and southern California, including Orange County. In 2018, SCE's primary power sources are eligible renewables (36 percent), large hydroelectric (4 percent), natural gas (17 percent), nuclear (6 percent), and unspecified sources of power (37 percent). SoCalGas is the nation's largest natural gas distribution utility, delivering energy to 21.8 million consumers across 24,000 square miles. Most of the natural gas used in California - more than 90 percent - is produced out of state from basins in Texas and New Mexico and stored at various storage facilities in Southern California.

5.6.1.4 Energy Use for Transportation

Transportation is the largest energy-consuming sector in California, accounting for approximately 39 percent of all energy use in the state (EIA 2020a). More motor vehicles are registered in California than in any other state, and commute times in California are among the longest in the country (EIA 2020b). Types of transportation fuel have diversified in California and elsewhere. Historically gasoline and diesel fuel accounted for nearly all demand; now, however, numerous options are available, including ethanol, natural gas, electricity, and hydrogen. Despite advancements in alternative fuels and clean-vehicle technologies, gasoline and diesel remain the primary fuels used for transportation in California, with 15.1 billion gallons of gasoline and 4.2 billion gallons of diesel consumed in 2015 (CEC 2020a, 2020b).

5.6.1.5 Regulatory Setting

The following section provides a summary of the federal, State, and local policies concerning GHG emissions, global climate change, and energy.

Federal Standards

The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for implementing the federal Clean Air Act (CAA). The Supreme Court of the United States ruled on April 2, 2007, that CO₂ is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

Greenhouse Gas Findings under the Federal Clean Air Act

On December 7, 2009, EPA signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- **Endangerment Finding:** The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆—in the atmosphere threaten the public health and welfare of current and future generations.

¹² A British thermal unit (Btu) is a measure of the heat content of fuels or energy sources. It is the quantity of heat required to raise the temperature of one pound of liquid water by 1 degree Fahrenheit at the temperature that water has its greatest density (approximately 39 degrees Fahrenheit).

¹³ One therm equals 100,000 Btu, or 0.10 million Btu.

- 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.

Although these findings did not themselves impose any requirements on industries or other entities, this action was a prerequisite to finalizing EPA's *Proposed Greenhouse Gas Emission Standards for Light-Duty Vehicles*. On May 7, 2010, the final *Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards* were published in the Federal Register. Phase 1 of the emissions standards required model year 2012 through 2016 vehicles to meet an estimated combined average emissions level of 250 grams of CO₂ per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO₂ level solely through fuel economy improvements.

On August 28, 2012, the U.S. Department of Transportation (USDOT) and EPA issued a joint Final Rulemaking requiring additional federal GHG and fuel economy standards for Phase 2 of the emissions standards for model year 2017 through 2025 passenger cars and light-duty trucks. The standards would require these vehicles to meet an estimated combined average emissions level of 163 grams of CO₂ per mile in model year 2025, which is equivalent to 54.5 miles per gallon if the improvements were made solely through fuel efficiency. However, on April 2, 2018, EPA issued a Mid-term Evaluation Final Determination, which finds that the model year 2022 through 2025 emissions standards are not appropriate and should be revised. This Mid-term Evaluation is not a final agency action; rather, this determination led to the rule making of the Safer Affordable Fuel Efficient (SAFE) Vehicles Rule, discussed below.

In addition to the standards for light-duty vehicles, USDOT and EPA adopted complementary standards to reduce GHG emissions and improve the fuel efficiency of heavy-duty trucks and buses on September 15, 2011. The Phase 1 standards together form a comprehensive heavy-duty national program for all on-road vehicles rated at a gross vehicle weight at or above 8,500 pounds for model years 2014 through 2018. The standards were phased in with increasing stringency in each model year from 2014 through 2018. The EPA standards adopted for 2018 represent an average per-vehicle reduction in GHG emissions of 17 percent for diesel vehicles and 12 percent for gasoline vehicles. Building on the success of the Phase 1 standards, EPA and the National Highway Traffic Safety Administration (NHTSA) finalized Phase 2 standards for medium- and heavy-duty vehicles through model year 2027. The Phase 2 standards are expected to lower CO₂ emissions by a total of approximately 1.1 billion MT over the lifetime of the vehicles sold under the program. On November 16, 2017, EPA released a proposed rule to repeal the emission standards for heavy-duty glider vehicles, glider engines, and glider kits.

Safer Affordable Fuel Efficient Vehicles Rule

On March 31, 2020, the NHTSA and EPA finalized the Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule (SAFE Rule) for Model Years 2021-2026. The SAFE Rule revokes California's authority and vehicle waiver to set its own emissions standards and set zero emission vehicle mandates in California for passenger cars and light trucks and establishes new standards covering model years 2021 through 2026. The final rule will increase stringency of CO₂ emissions standards by 1.5 percent each year through model year 2026, as compared with the CO₂ standards issued in 2012, which would have required increases of about 5 percent per year. On January 20, 2021, President Biden signed an Executive Order directing consideration of labor unions, States, and industry views to propose suspension, revision, or rescindment of the SAFE Rule. On December 21, 2021, the NHTSA published its Corporate Average Fuel Economy (CAFE) Preemption rule, which finalized its repeal of the 2019 SAFE Rule Part One.

Mandatory GHG Reporting Rule

On September 22, 2009, EPA published the Final Mandatory Greenhouse Gas Reporting Rule (Reporting Rule) in the Federal Register. The Reporting Rule requires reporting of GHG data and other relevant information from fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 MT or more of CO₂e per year. Facility owners are required to submit an annual report with detailed calculations of facility GHG emissions on March 31 for emissions from the previous calendar year. The Reporting Rule also mandates recordkeeping and administrative requirements to enable EPA to verify the annual GHG emissions reports.

Energy Policy and Conservation Act of 1975

The Energy Policy and Conservation Act of 1975 established the first fuel economy standards for on-road motor vehicles sold in the United States. The NHTSA is responsible for establishing standards for vehicles and revising the existing standards. The Energy Policy and Conservation Act of 1975 also established the CAFE program, which was created to determine vehicle manufacturers' compliance with the fuel economy standards. EPA administers the testing program that generates fuel economy data.

National Energy Act of 1978

The National Energy Act of 1978 includes the Public Utility Regulatory Policies Act (Public Law 95-617), Energy Tax Act (Public Law 95-318), National Energy Conservation Policy Act (Public Law 95-619), Power Plant and Industrial Fuel Use Act (Public Law 95-620), and Natural Gas Policy Act (Public Law 95-621).

The intent of the National Energy Act was to promote greater use of renewable energy, provide residential consumers with energy conservation audits to encourage slower growth of electricity demand, and promote fuel efficiency. The Public Utility Regulatory Policies Act created a market for nonutility electric power producers to permit independent power producers to connect to their lines and to pay for the electricity that was delivered.

The Energy Tax Act promoted fuel efficiency and renewable energy through taxes and tax credits. The National Energy Conservation Policy Act required utilities to provide residential consumers with energy conservation audits and other services to encourage slower growth of electricity demand.

Energy Policy Acts of 1992 and 2005

The Energy Policy Act of 1992 was enacted to reduce dependence on imported petroleum and improve air quality by addressing all aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency. This law requires certain federal, state, and local government and private vehicle fleets to purchase alternative fuel vehicles. The act also defines "alternative fuels" to include fuels such as ethanol, natural gas, propane, hydrogen, electricity, and biodiesel.

The Energy Policy Act of 2005 was enacted on August 8, 2005. This law set federal energy management requirements for energy-efficient product procurement, energy savings performance contracts, building performance standards, renewable energy requirements, and use of alternative fuels. The Energy Policy Act of 2005 also amends existing regulations, including fuel economy testing procedures.

Energy Independence and Security Act of 2007

Signed into law in December 2007, the Energy Independence and Security Act was enacted to increase the production of clean renewable fuels; increase the efficiency of products, buildings, and vehicles; improve the federal government's energy performance; and increase U.S. energy security, develop renewable fuel production, and improve vehicle fuel economy. The Energy Independence and Security Act included the first increase in fuel economy standards for passenger cars since 1975. The act also included a new energy grant program for use by local governments in implementing energy-efficiency initiatives, as well as a variety of green building incentives and programs.

Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards

On May 7, 2010, the final Light-Duty Vehicle Greenhouse Gas Emissions Standards and CAFE Standards were published in the Federal Register. Phase 1 of the emissions standards required that model year 2012–2016 vehicles meet an estimated combined average emissions level of 250 grams of CO₂ per mile, which is equivalent to 35.5 miles per gallon if the automobile industry were to meet this CO₂ level solely through fuel economy improvements.

On August 28, 2012, the USDOT and EPA issued a joint final rulemaking requiring additional federal GHG and fuel economy standards for Phase 2 of the emissions standards for model year 2017–2025 passenger cars and light-duty trucks. The standards would require these vehicles to meet an estimated combined average emissions level of 163 grams of CO₂ per mile in model year 2025, which is equivalent to 54.5 miles per gallon if the improvements were made solely through fuel efficiency. However, on April 2, 2018, EPA issued a midterm evaluation final determination that found that the model year 2022–2025 emissions standards are not appropriate and should be revised. This midterm evaluation is not a final agency action; rather, this determination led to the initiation of rulemaking of the SAFE Rule, discussed above. However, as discussed above, in December 2021, NHTSA repealed the SAFE Rule: Part One, and on March 31, 2022, NHTSA finalized the CAFE Standards for model year 2024–2026 passenger cars and light-duty trucks. The final rule establishes standards that would require an industry-wide fleet average of approximately 49 miles per gallon for passenger cars and light trucks in model year 2026, by increasing fuel efficiency by 8 percent annually for model years 2024 and 2025, and 10 percent annually for model year 2026.

Executive Order 13834

Executive Order (EO) 13834, signed on May 17, 2018, directs federal agencies to manage their buildings, vehicles, and overall operations to optimize energy and environmental performance, reduce waste, and cut costs. EO 13834 includes requirements for federal agencies including but not limited to reducing building energy use annually and implementing cost-saving energy efficiency measures, ensure new construction and major renovations conform to building efficiency requirements and sustainable design principles, and meet statutory requirements for renewable energy and electricity consumption.

Renewable Fuel Standard Program

Created by the Energy Policy Act of 2005, which amended the CAA, the Renewable Fuel Standard Program established requirements to replace certain volumes of petroleum-based fuels with renewable fuels. The four renewable fuel types accepted as part of the Renewable Fuel Standard Program are biomass-based diesel, cellulosic biofuel, advanced biofuel, and total renewable fuel. The 2007 Energy Independence and Security Act expanded the program and its requirements to include long-term goals of using 36 billion gallons of renewable fuels and extending annual renewable-fuel volume requirements to year 2022. “Obligated parties” such as refiners and importers of gasoline or diesel fuel must meet specific blending requirements for the four renewable fuel types. EPA implements the program in consultation with

U.S. Departments of Agriculture and Energy. The obligated parties are required to demonstrate their compliance with the Renewable Fuel Standard Program.

State

ARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA).

Assembly Bill 1493

AB 1493, signed in July 2002, requires ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 through 2025.

Executive Order S-3-05

EO S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. EO S-3-05 declared that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emissions targets. Specifically, emissions were to be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below the 1990 levels by 2050. The statewide GHG emissions in 2000 were approximately 466 MMT CO₂e. In 2010, overall statewide GHG emissions were approximately 453 MMT CO₂e, exceeding the 2010 goal established by EO S-3-05.

Assembly Bill 32

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in EO S-3-05: reduce GHG emissions to 1990 levels by 2020. AB 32 also identifies ARB as the state agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target. AB 32 also established several programs to achieve GHG emission reductions, including the Low Carbon Fuel Standard and the Cap-and-Trade program. As of 2017, the state has reduced emissions below the revised AB 32 limit of 427 MMT CO₂e.

Senate Bill 32

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown. SB 32 establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030.

ARB Climate Change Scoping Plans

In December 2008, ARB adopted its Climate Change Scoping Plan (Scoping Plan). A Framework for Change Scoping Plan, which contains the main strategies California will implement to achieve the GHG reductions required by AB 32. The Scoping Plan also includes ARB-recommended GHG reductions for each emissions sector of California's GHG inventory. ARB further acknowledges that decisions about how

land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors.

ARB is required to update the Scoping Plan at least once every 5 years to evaluate progress and develop future inventories that may guide this process. ARB approved First Update to the Scoping Plan: Building on the Framework in June 2014. The 2014 Scoping Plan update includes a status of the 2008 Scoping Plan measures and other federal, state, and local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020.

In November 2017, ARB released the 2017 Scoping Plan, which establishes a framework of action for California to reduce statewide emissions by 40 percent by 2030, compared to 1990 levels. The 2017 Scoping Plan builds upon the framework established by the 2008 Scoping Plan and the 2014 Scoping Plan Update, while also identifying new, technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets.

Executive Order S-1-07

EO S-1-07, which was signed by Governor Arnold Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40 percent of statewide emissions. EO S-1-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. ARB adopted the low carbon fuel standard (LCFS) on April 23, 2009. In November 2015, the Office of Administrative Law approved re-adoption of the LCFS.

Executive Order B-30-15

In April 2015, Governor Edmund Brown issued EO B-30-15 establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's EO S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the EO aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

Senate Bills 1078 and 109, Executive Orders S-14-08 and S-21-09, and Senate Bills 350 and 100

California's Renewables Portfolio Standard (RPS) was established in 2002 under SB 1078 and accelerated in 2006 under SB 107, by requiring that 20 percent of electricity retail sales be served by renewable energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, Governor Arnold Schwarzenegger signed EO S-14-08 requiring retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. EO S-21-09 directs ARB, under its AB 32 authority, to enact regulations to help the state meet its RPS goal of 33 percent renewable energy by 2020. In April 2011, SB X1-2 codified EO S-14-08, setting the new RPS targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for all electricity retailers. In October 2015, Governor Edmund Brown signed SB 350, which extended the RPS target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030. This was followed by SB 100 in 2018, which further increased the RPS target to 60 percent by 2030 along with the requirement that all of the state's electricity come from carbon-free resources by 2045. These requirements reduce the carbon content of electricity generation and would reduce GHG emissions associated with both existing and new development.

Regional and Local

ARB also acknowledges that local governments have broad influence and, in some cases, exclusive jurisdiction over activities that contribute to significant direct and indirect GHG emissions through their planning and permitting processes, local ordinances, outreach and education efforts, and municipal operations.

Southern California Association of Governments

On September 23, 2020, the Southern California Association of Governments (SCAG) adopted Connect SoCal, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS). As a plan with the goal of accelerating the region's progress toward transportation and air quality, programs within the RTP/SCS focus on shifting travel to active transportation modes, reducing traffic congestion and making travel more efficient. The sustainable themes include relieving vehicular congestion and maximizing the safety and mobility of people and goods. Connect SoCal includes strategies aimed at reducing congestion and vehicle miles traveled, thereby reducing overall fuel use associated with transportation. The Project is included in the Transportation System Project List (ORA170001).

County of Orange

On July 28, 2020, the County of Orange adopted the Zoning Code Update to incorporate sustainable policies and best management practices titled "Orange is the New Green." The Zoning Code Update helps facilitate a new standard of sustainability and flexibility that will accommodate future technological advances. The County's Zoning Code sets forth land use regulations that apply to the unincorporated areas located throughout Orange County. These regulations are intended to protect the value and enjoyment of property by separating incompatible land uses and minimizing their impact on each other.

Waste & Recycling's Construction & Demolition Program

The County of Orange implemented a Waste & Recycling Construction & Demolition Program, which requires a 65% diversion requirement associated with applicable construction and demolition projects. Applicants can achieve diversion through reuse, recycling, and/or composting of construction and demolition materials at County-approved facilities or use of a County Franchised Waste Hauler.

General Plan

The County of Orange General Plan includes a Resources Element (County of Orange 2015c), which includes an Energy Resources Component to maximize the conservation and wise use of energy resources in all residences, businesses, public institutions, and industries in Orange County. The Energy Resources Component includes a transportation policy to provide incentives for transportation system management programs and support regional public transportation programs that reduce energy consumption.

City of Brea

In 2012, the City of Brea completed its 2012 Sustainability Plan: Leadership in Energy Efficiency. The 2012 Sustainability Plan presents resource efficiency goals, matched with policies and implementation steps to save energy, water, and other resources, while aligning City of Brea for AB 32 compliance.

5.6.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to GHG emissions if it would:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions.

Additionally, implementation of the Project would result in a significant adverse impact related to energy if it would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation.
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The analysis evaluated the Project's impacts related to energy in accordance with Appendix F of the CEQA Guidelines (Energy Conservation). Specifically, this analysis evaluates the project's energy requirements and its energy use efficiencies during construction and operation of the Project, the degree to which the Project complies with existing energy standards, the effect of the Project on energy resources, and the Project's projected transportation energy use requirements.

The geographic scope of consideration for GHG emissions is on a global scale as such emissions contribute, on a cumulative basis, to global climate change. Given the nature of environmental consequences from GHGs and global climate change, CEQA requires that lead agencies evaluate the cumulative impacts of GHGs, even relatively small additions, on a global basis. By their nature, GHG evaluations under CEQA are a cumulative study. (See *Center for Biological Diversity v. California Department of Fish and Wildlife* (2015) 62 Cal.4th 204.)

The CEQA Guidelines encourage but do not require lead agencies to adopt thresholds of significance (CEQA Guidelines, §15064.7). When developing these thresholds, and consistent with the December 2018 CEQA and Climate Change Advisory published by the California Office of Planning and Research (OPR 2018), the CEQA Guidelines allow lead agencies to develop their own significance threshold and/or to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, provided that the thresholds are supported by substantial evidence. Individual lead agencies may also undertake a case-by-case approach for the use of significance thresholds for projects consistent with available guidance and current CEQA practice.

As the County of Orange has not established screening thresholds for GHG emissions, this analysis reviews the applicable significance thresholds developed by the Southern California Air Quality Management District (SCAQMD). The SCAQMD has adopted a significance threshold of 10,000 MT of CO₂e per year for industrial (stationary source) projects. The GHG CEQA Significance Threshold Stakeholder Working Group also recommended options for evaluating non-industrial projects, including thresholds for residential and commercial projects. These draft thresholds include a threshold 3,000 MT CO₂e per year for residential and commercial projects.

The SCAQMD recommends that construction emissions associated with a project be amortized over the life of the project (typically assumed to be 30 years). Therefore, this analysis includes a quantification of the total modeled construction-related GHG emissions. Those emissions are then amortized and evaluated

over the life of the project (assumed to be 30 years). The project type for this Project is closest to an industrial project (i.e., doesn't include residential and commercial land uses) and emissions are primarily construction-related from the use of off-road and on-road equipment. The 10,000 MT CO₂e threshold was developed in 2008 and was intended to ensure at least 90 percent of new GHG emissions would be reviewed and assessed for mitigation, thereby contributing to GHG emissions reduction goals of AB 32. However, the Project would begin construction in 2026; thus, construction-related GHG emissions should also be analyzed in the SB 32 statewide framework (which established a 2030 GHG emissions reduction target of 40 percent below 1990 levels). However, the SCAQMD has not adopted a threshold of significance consistent with SB 32 goals. To provide this additional information to put the Project-generated GHG emissions in the appropriate statewide context, this analysis presumes that a 40 percent reduction in the SCAQMD's existing threshold (resulting in 6,000 MT CO₂e) is necessary to achieve the State's 2030 GHG reduction goal (which is a 40 percent reduction below 1990 GHG emissions levels). This analysis also reviewed guidelines used by other public agencies. For example, the Sacramento Metropolitan Air Quality Management District (SMAQMD) has identified an annual threshold of 1,100 MT CO₂e for the construction phase of projects. However, the SMAQMD recognizes that, although there is no known level of emissions that determines if a single project would substantially impact overall GHG emission levels in the atmosphere, a threshold must be set to trigger a review and assessment of the need to mitigate project GHG emissions. The threshold set by the SMAQMD was developed considering the AB 32 and SB 32 reduction goals. Therefore, this analysis utilizes the 1,100 MT CO₂e threshold developed by SMAQMD for the construction phase of all project types in order to provide a conservative analysis of the Project's potential GHG impacts.

It is not the intent of this CEQA document to cause the adoption of these thresholds as mass emissions limits for this or other projects, but rather to provide this additional information to put the Project-generated GHG emissions in the appropriate statewide context.

5.6.3 METHODOLOGY RELATED TO GHG EMISSIONS AND ENERGY

5.6.3.1 Construction

Construction-related activities are temporary, short-term sources of emissions. Sources of construction-related GHG emissions include construction equipment exhaust; construction-related trips by workers, delivery and hauling truck trips; fugitive dust from site preparation activities; and off-gassing from traffic coating and paving activities.

Construction-related emissions for the Project were estimated using the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 and SMAQMD's Roadway Construction Emissions Model, version 9.0. CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for quantifying potential GHG emissions from a variety of land use projects and allows the user to enter project-specific construction information, such as the construction schedule, the types and number of construction equipment, and the number and length of off-site motor vehicle trips. The SMAQMD Roadway Construction Emissions Model was utilized to identify the specific equipment by construction subphase (e.g., site preparation, grading, bridge construction, paving) and duration of subphases. Construction of the Project is anticipated to be divided into two phases:

- Phase I will include utility relocations, the infrastructure necessary for utility companies to relocate their utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, associated temporary transition pavement, and associated grading; and

- Phase II will include the widening of the road, OGAC paving, the intersections at Canyon Country Road, 1,200 feet north of Canyon Country Road, and at Tonner Canyon Road along with other miscellaneous features.

Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026. A construction crew of approximately 40 construction workers (daily) will be in the project area during construction. Major equipment to be used during construction will include, but not be limited to: crane, excavator, backhoes, scrapers, crane crawlers, truck cranes, hydraulic all-terrain and rough terrain cranes, loaders, concrete breaker, dump or haul trucks, pile driver/rotary drilling rig, asphalt-concrete (AC) paver, AC grinder, redi-mix truck/pumps, compactors (vibratory steel drum, padded drum, and sheepsfoot), dozers, motor grader, water tower, water truck, sweeper, concrete saw cutter, 50 lbs. hammer, handheld jackhammer, core drills, horizontal drill rig, compressors, welders, forklifts, portable lighting, and water pumps.

Construction of Phase I will begin in 2026 and is anticipated to be completed in 2030. The utility relocations during Phase I are anticipated to occur between June 2026 and 2027, while the major construction activities in Phase I (i.e., bridges/walls/grading) are anticipated to occur between 2028 and 2030. Construction of Phase II is anticipated to begin in 2029 and end in 2031. Additional modeling assumptions and details are provided in Appendix A (Construction Emission Estimates) of Appendix E (Air Quality and Greenhouse Gas Emissions Technical Report) of this Draft EIR.

It is anticipated that construction would require approximately 20,000 cubic yards (CY) of material export. Additionally, the Project would require approximately 25,830 CY of base, asphalt, concrete, and millings. The analysis assumed the haul trucks would have a capacity of 8-10 CY. The analysis also conservatively assumed that Project construction would require 3 daily general delivery truck trips. In summary, it is anticipated Project construction would require approximately 7,292 truck trips total. In addition, Project construction is anticipated to generate approximately 60 tons of waste per year and it was assumed that waste haul trucks would have a 20-ton capacity, consistent with CalEEMod defaults. Additional modeling assumptions and details are provided in Appendix A of Appendix E of this Draft EIR.

5.6.3.2 Operations

Typical best management practices (BMPs) would be employed during the construction period and during the long-term operational phase of the Project. There would be routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, and similar activities. Further, as described in more detail in the Traffic Impact Analysis Report (Appendix O of this Draft EIR), the Project is not a land use development proposal that could generate trips associated with a new use. Additionally, implementation of the Project improvements on Brea Boulevard is anticipated to improve traffic flow, reduce congestion, and increase the flood conveyance under the bridges to current design standards to improve emergency response. Therefore, following construction, operational emissions are anticipated to be similar or less than existing conditions and are analyzed qualitatively.

5.6.4 POTENTIAL IMPACTS

5.6.4.1 Generate GHG Emissions, Either Directly or Indirectly, That May Have a Significant Impact on the Environment

Construction

Heavy-duty off-road equipment, materials transport, and worker commutes during construction of the Project would result in exhaust-related GHG emissions. Total GHG emissions associated with construction of the Project would be approximately 7,008 MT CO₂e. Amortized over the 30-year life of the Project, annual construction emissions would be approximately 234 MT CO₂e per year. As such, the amortized construction-related emissions of the Project would not exceed SCAQMD's adopted significance threshold of 10,000 MT CO₂e per year, the adjusted SB 32 threshold of 6,000 MT CO₂e per year, nor the SMAQMD threshold of 1,100 MT CO₂e. It should be noted that the analysis considers a conservative equipment usage scenario in which the equipment associated with the various subphases is assumed to be simultaneously in use. It is more likely; however, that construction equipment is used intermittently and varies by construction activity and phase. Thus, the construction-related emissions associated with the Project are conservative, and actual emissions are likely to be lower than these estimates and vary by construction activity and phase. Therefore, construction of the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The impact would be less than significant and no mitigation measures are required.

Operations

The intensity and frequency of operational and maintenance activities would be similar to existing conditions. Further, as described in more detail in the Traffic Impact Analysis Report (Appendix O of this Draft EIR), the Project is strictly a transportation project and it does not include any changes in land use that would generate trips associated with a new use. Regional vehicle miles traveled (VMT) within Orange County would decrease with the Project (approximately 0.23 percent lower with the Project), which would reduce mobile source emissions of GHGs in the region, and intersections and road segments along Brea Boulevard would see improvements in level of service and delay; thereby, reducing emissions from idling vehicles. Therefore, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The impact would be less than significant and no mitigation measures are required.

5.6.4.2 Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing GHG Emissions

In response to AB 32 and SB 32, ARB has approved a series of Scoping Plan updates. While the Scoping Plan updates do include measures that would indirectly address GHG emissions associated with construction and operational activities, including the phasing in of cleaner technology for diesel engine fleets (including construction equipment) and LCFS, successful implementation of these measures predominantly depends on the development of laws and policies at the state level. As such, none of these statewide plans or policies constitutes a regulation to adopt or implement a regional or local plan for reduction or mitigation of GHG emissions. Thus, it is assumed that any requirements or policies formulated under the mandate of AB 32 and SB 32 that would be applicable to the Project, either directly or indirectly, would be implemented consistent with statewide policies and laws.

Consistent with the County of Orange General Plan, the Project would implement measures which seek to reduce emissions by improving transportation system efficiency (Implementation Program #8 of the

Resources Element) of Brea Boulevard consistent with its designated classification in the MPAH. Similarly, the Project would be consistent with the goals of the SCAQMD AQMP which include transportation system improvements that reduce VMT and improve traffic flow or congestion conditions for the purpose of reducing motor vehicle emissions. Additionally, the Project would also be consistent with the GHG emission reduction strategies in the SCAG RTP/SCS. The SCAG RTP/SCS, Connect SoCal, is a plan that integrates land use and transportation planning and uses in an effort to guide the region in sustainable growth. The sustainable themes include measures to reduce VMT, relieving vehicular congestion, and maximizing the safety and mobility of people and goods. Project objectives include improving the roadway and replacing three functionally obsolete bridges over Brea Creek with bridges that meet current design standards, all of which are consistent with the SCAG RTP/SCS. In addition, the Project is included in the Transportation System Project List (ORA170001) for the SCAG RTP/SCS. Thus, the Project would not conflict with AB 32 and SB 32 Scoping Plans; or any other relevant plans, policies, or regulations for the purpose of reducing GHG emissions. Therefore, the Project's contribution to cumulatively significant impacts to global climate change would not be considerable. The impact would be less than significant and no mitigation measures are required.

5.6.4.3 Result in Potentially Significant Environmental Impact Due to Wasteful, Inefficient, or Unnecessary Consumption of Energy Resources, During Project Construction or Operation

Construction

Implementing the Project would increase energy consumption during construction in the form of electricity, natural gas, and fossil fuels (e.g., gasoline, diesel fuel). The primary energy demands during construction would be associated with construction equipment and vehicle fueling for on-road and off-road vehicles. Energy in the form of fuel and electricity would be consumed by construction vehicles and equipment operating on-site, haul trucks moving equipment and materials to and from the site, and construction workers driving to and from the site.

Tables 5.6-1 and 5.6-2 present the total fuel consumption anticipated for proposed construction activities. The information in these tables is based on the CalEEMod emissions calculations for proposed construction activities and application of the U.S. Energy Information Administration's CO₂ emissions coefficients to estimate fuel consumption for construction activities.

**TABLE 5.6-1
CONSTRUCTION FUEL CONSUMPTION**

SOURCE	MT CO ₂ E	FUEL TYPE	FACTOR (MT CO ₂ / GALLON)	GALLONS/ PHASE
Off-Road Equipment	6,233	Diesel	0.01016	613,459
Haul Trucks	236	Diesel	0.01016	23,186
Vendor Trucks	173	Diesel	0.01016	16,983
Worker Vehicles	367	Gasoline	0.008887	41,315

Notes:

CO₂ = carbon dioxide; CO₂e = carbon dioxide equivalent; MT = metric tons

Source: Modeled by AECOM in 2021.

**TABLE 5.6-2
FUEL CONSUMPTION TOTAL AND AMORTIZED OVER 30 YEARS**

TOTAL
Total Diesel (Gallons) 653,627
Total Gasoline (Gallons) 41,315
Amortized Demands (over 30 years) Diesel: 21,788
Amortized Demands (over 30 years) Gasoline: 1,377

Notes:

Assumed amortization period is 30 years, based on the typically assumed Project lifetime. Air districts in California (e.g., Sacramento Metropolitan Air Quality Management District, South Coast Air Quality Management District, and San Luis Obispo County Air Pollution Control District) recommend amortizing GHG emissions from construction activities over a Project's operational lifetime.

Source: Modeled by AECOM in 2021.

During the anticipated 5-year construction period, the Project would require a total of approximately 653,627 gallons of diesel and 41,315 gallons of gasoline. When amortized over an assumed Project lifetime of 30 years, fuel consumption would equal approximately 21,788 gallons of diesel and 1,377 gallons of gasoline per year. It should be noted that the analysis considers a conservative equipment usage scenario in which all equipment associated with the various subphases is assumed to be simultaneously in use. It is more likely; however, that construction equipment will be used intermittently and vary by construction activity and phase, as is typical for this type of construction. Thus, the construction-related emissions and associated energy consumption shown in Tables 5.6-1 and 5.6-2 are conservative. Generally, bridges and roadways today are designed to a 75-year lifespan under the American Association of State Highway and Transportation Officials design manuals; thus, amortization over a 30-year Project lifetime is also conservative. Table 5.6-3 presents the annual energy consumption as a result of the fuel used during construction.

**TABLE 5.6-3
CONSTRUCTION FUEL CONSUMPTION**

PHASE	ENERGY REQUIREMENT	UNIT	ANNUAL ENERGY CONSUMPTION (MMBTU)
Construction (amortized over 30 years) Diesel	21,788	gallons/year	3,009
Construction (amortized over 30 years) Gasoline	1,377	gallons/year	172

Notes:

CO₂ = carbon dioxide; CO_{2e} = carbon dioxide equivalent; MT = metric tons

Source: Modeled by AECOM in 2021.

The total annual energy consumption associated with construction of the Project (including transportation fuel use by off-road equipment, worker vehicle trips, and material delivery trips) would be approximately 3,181 million British thermal units (MMBTU). The Project does not include unusual characteristics that would necessitate the use of less energy-efficient construction equipment than at comparable construction sites, although, as noted previously, the assumptions used for this analysis are conservative, and would tend to overestimate impacts. In addition, the Project would be required to comply with the County of Orange Construction & Demolition Program which has a 65 percent diversion requirement. Therefore, it is expected that fuel consumption associated with construction of the Project would not be any more inefficient, wasteful, or unnecessary than fuel consumption at other construction sites in the region.

Operations

As described previously, there are no anticipated traffic increases or increases in VMT associated with Project improvements. The Project is strictly a transportation project, and it does not include any changes in land use for areas adjacent to the corridor or for any other areas. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the VMT analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, thereby reducing idling activity and the associated fuel consumption and emissions.

Therefore, implementation of the Project would not result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources. The impact would be less than significant and no mitigation measures are required.

5.6.4.4 Conflict with or Obstruct a State or Local Plan for Renewable Energy or Energy Efficiency

The 2017 ARB Scoping Plan identifies the transportation sustainability sector to be a key area for fossil fuel consumption reduction strategies. ARB calls for reducing congestion throughout California, and this Project is intended to help in reducing congestion. In addition, consistent with the County of Orange General Plan Transportation Policy (4) included in the Energy Resources Component, the Project would result in a regional reduction in VMT and improve transportation system efficiency along the corridor by improving traffic flow and reducing the associated energy consumption.

Additionally, the SCAG RTP/SCS is a plan that integrates land use and transportation planning and uses in an effort to guide the region in sustainable growth. The sustainable themes include measures to reduce VMT, relieving vehicular congestion, and maximizing the safety and mobility of people and goods. Project objectives include improving the roadway and replacing three functionally obsolete bridges over Brea Creek with bridges that meet current design standards, which is consistent with the SCAG RTP/SCS. The Project is included in the Transportation System Project List (ORA170001) for the SCAG RTP/SCS. As such, the Project would also be consistent with the energy conservation strategies in the SCAG RTP/SCS. Therefore, the Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. The impact would be less than significant and no mitigation measures are required.

5.6.5 MITIGATION MEASURES

No mitigation measures related to GHG emissions and energy are required.

5.6.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts related to GHG emissions and energy are below the level of significance and no mitigation measures are necessary.

This page intentionally left blank.

5.7 HAZARDS AND HAZARDOUS MATERIALS

This section describes the existing hazards and hazardous materials conditions for the project area, potential environmental impacts of the Project, recommended mitigation measures to help reduce or avoid those impacts, and the level of significance of Project impacts after mitigation. The information and analysis provided in this section is largely derived from the *Hazardous Materials Assessment (HMA)* prepared by OC Public Works, OC Environmental Resources dated January 8, 2020, which is provided in Appendix L of this Draft EIR.

5.7.1 EXISTING CONDITIONS

A hazardous material may be defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or the environment if released into the work place or the environment; or any material that is required to have a Safety Data Sheet according to Title 8, Section 339 of the California Code of Regulations. Hazardous materials may already be present on a site before implementation of a plan or a project (and hence be classified as part of the existing conditions), may become present on a site during development (a potential construction-related impact), or become present as the result of the operation of the completed project (-long-term impact).

As noted in Section 3.0, Project Description, of this Draft EIR, the Project is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”). Construction of the Project would be conducted within permanent and temporary limits of disturbance along the corridor (i.e., the project limits¹⁴). Potential hazardous materials concerns with regard to existing conditions may include either a known release of hazardous materials (such as a leaking underground storage tank [LUST]) or simply the presence of hazardous materials without a known or threatened release (such as a hazardous-waste generator). To assess the presence of hazardous materials on and adjacent to the project limits under existing conditions, an HMA was prepared and is described below.

5.7.1.1 Hazardous Materials Assessment

The HMA was prepared to identify any recognized environmental conditions (RECs) which indicated the presence or likely presence of any hazardous substances or petroleum products in, on, or at the project limits: (1) due to any release to the environment; or (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. The scope of work completed for the HMA involved (1) a review of historical documents, (2) a regulatory agency database search, (3) a Project inspection and area reconnaissance, and (4) interview activities including a review of a User Questionnaire.

History of Project Limits

The history of the project limits and adjoining sites was developed from a review of United States Geological Survey (USGS) quadrangles and aerial photographs (see Appendix B of Appendix L of this Draft EIR). In addition, historical city directories and fire insurance maps were researched to supplement the document review (see Appendix E of Appendix L of this Draft EIR). The history of the project limits was evaluated to provide insight into past land use practices and to obtain information regarding the

¹⁴ It should be noted that the HMA refers to the project limits as the “Project property.”

environmental condition of the project limits. A review of historical topographic maps and aerial photographs did not find RECs for the project limits.

Regulatory Agency Database Report

A *RecCheck* report prepared by Environmental Record Search (ERS) (dated August 31, 2019) containing regulatory agency database listings was reviewed as part of the HMA investigation (see Appendix E of Appendix L of this Draft EIR). The ERS report searches regulatory agency databases for sites within an American Society for Testing and Materials (ASTM) designated search radius around a target property (generally within one mile). This search covers federal, state and local regulatory registers of contaminated sites, Superfund sites, LUSTs, landfills, military reservations, contaminated surface and subsurface waters, hazardous waste generators and other databases of potential environmental concerns.

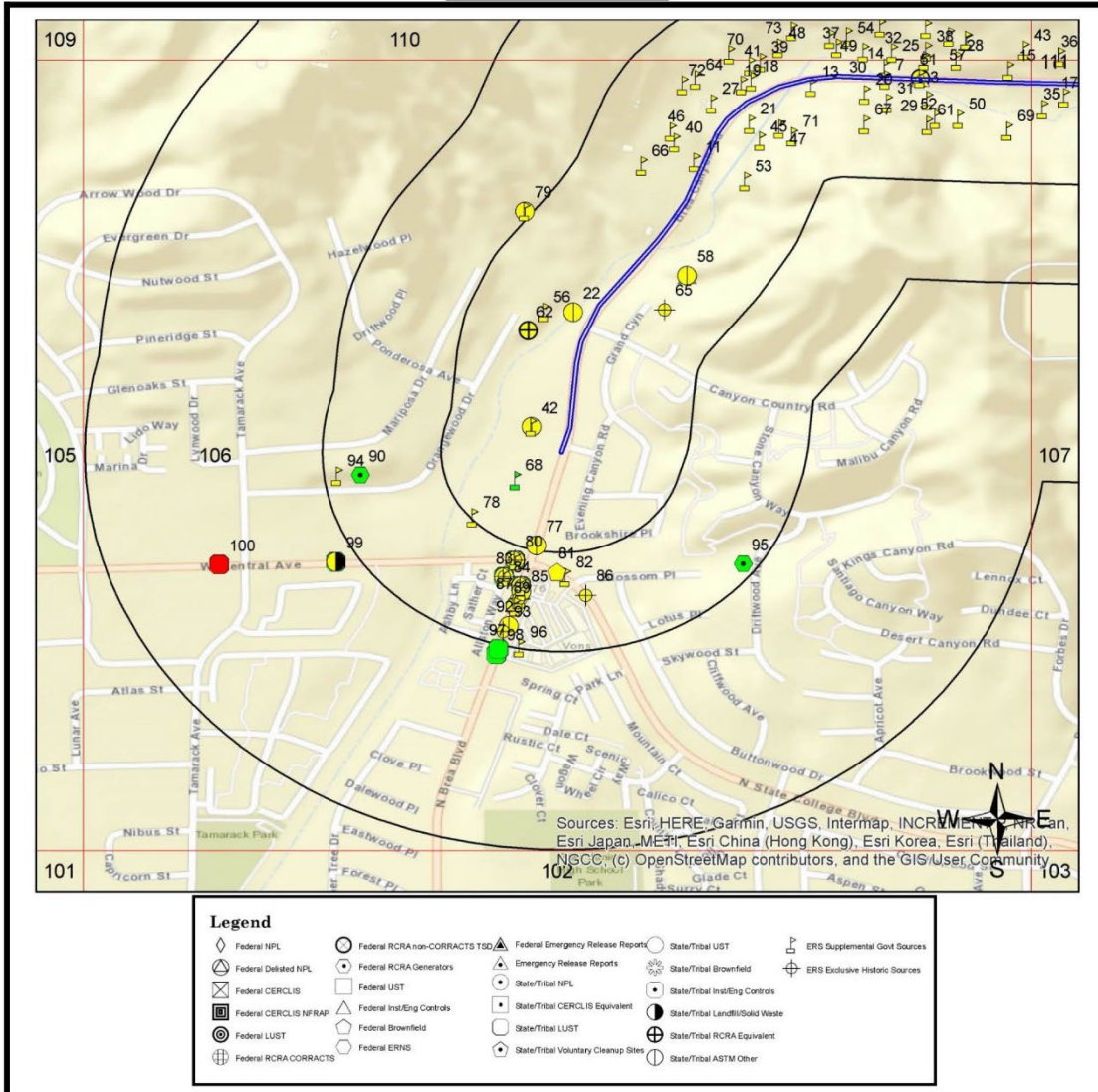
Evaluating the potential impact(s) a listed site may have on the project limits involves classifying the listing into one of two categories: low potential for impacting the project limits or potential for impacting the project limits. The following criteria are used for site categorization:

- *Low potential for impacting the project limits:* Sites are categorized as having a low potential for impacting the project limits if they are too distant to have an environmental impact (greater than 0.25 mile from the project limits); have been remediated to the satisfaction of the lead regulatory agency; are listed as requiring no further action; or are listed solely as a hazardous waste generator. Sites having a low potential for impacting the project limits are not studied further.
- *Potential for impacting the project limits:* Sites are categorized as having a potential for impacting the project limits if they are listed on the National Priority List; are violators on the Resource Conservation and Recovery Act (RCRA) treatment/storage/disposal facilities database; and/or do not meet the previous definition. Sites having a potential for impacting the project limits are evaluated further by reviewing available regulatory agency records and contacting regulatory agency personnel.

A total of 100 mapped sites (consolidated from 228 listings) were identified within a one-mile radius of the project limits, including six mapped sites occurring within the project limits (see Appendix E of Appendix L of this Draft EIR). The relevant grid maps from Appendix E of Appendix L are depicted in Figure 5.7-1a through 5.7-1d. One of the mapped sites located within the project limits (Champion Chemicals, Inc.) was listed on the State of California's LUST-Closed database. The LUST-Closed database contains an inventory of reported leaking underground storage tank incidents, which can be further researched on the State Water Resources Control Board's GeoTracker website. Upon further investigation, Champion Chemicals, Inc., reported a heating/fuel oil detection in 1987 for the soil only. Subsequently, case closure was granted by the Santa Ana Regional Water Quality Control Board (RWQCB) in 1987. In addition to Champion Chemicals, Inc., three other mapped sites, located less than 0.25 mile from the project limits, were listed on the State of California's LUST-Closed database. However, upon further investigation each of these listed LUST-Closed sites was found to have received regulatory closure from either the Santa Ana RWQCB or local regulatory agency. Additionally, 57 California Oil and Gas Wells (OGW-CA) were detected within 0.25 mile of the project limits in the database search; 7 of these wells are reported as active. The remaining wells identified on the database search report as either, pulled, plugged, or idle. The remaining mapped sites were listed as a small quantity generator of hazardous waste. The ERS report did not identify any orphan listings with poor or inadequate mapping information in the regulatory database search. No RECs were identified for the project limits during the review of the regulatory agency database report prepared by ERS.



GRID MAP 106



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. A actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in **RED** are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in **YELLOW** have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in **GREEN** are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

Source: Appendix E of Hazardous Materials Assessment, OC Environmental Resources (2020).

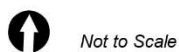
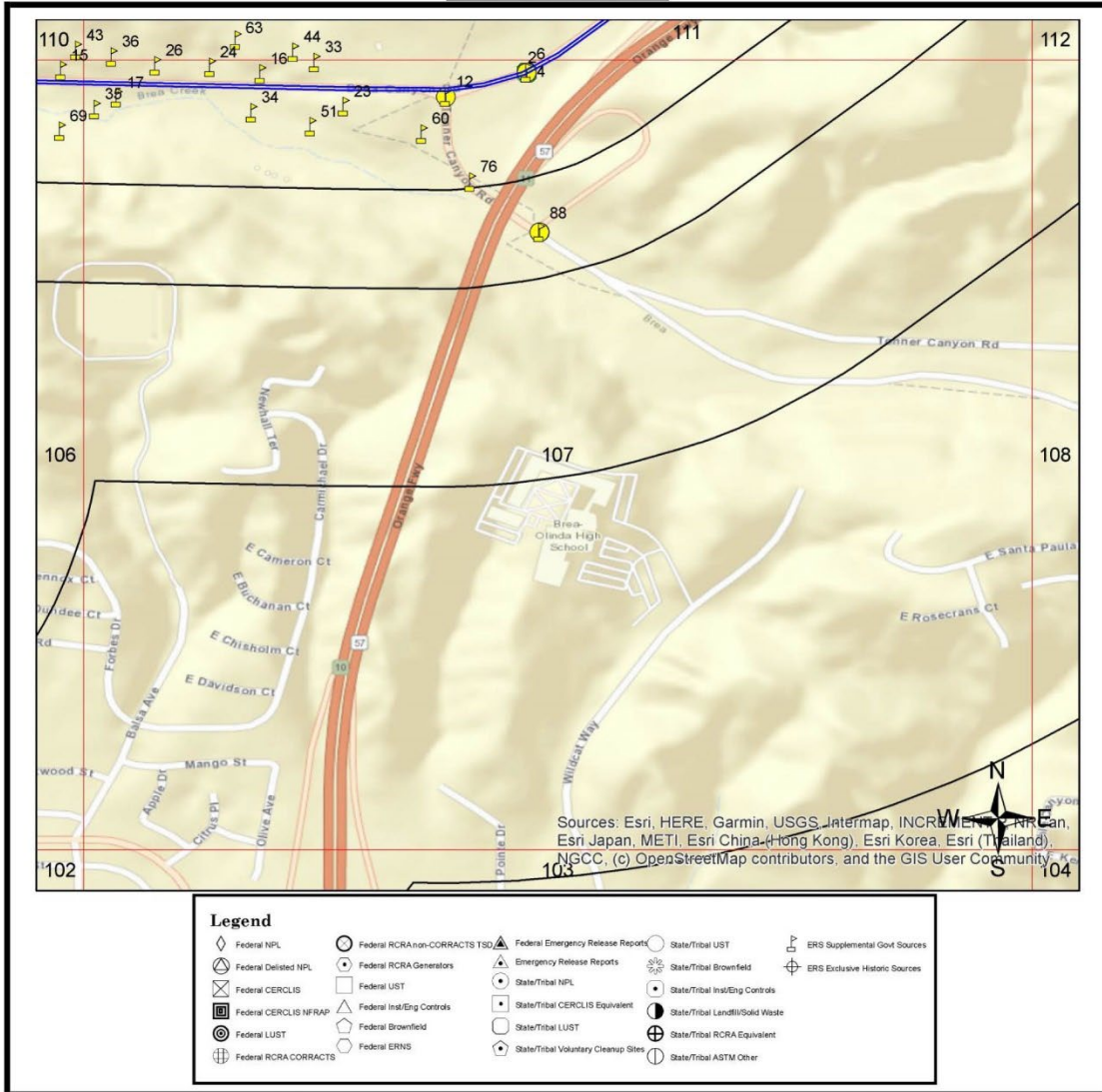


Figure 5.7-1a
Grid Map 106 of Environmental Record Search

Brea Boulevard Corridor Improvement Project



GRID MAP 107



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in RED are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in YELLOW have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in GREEN are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

Source: Appendix E of Hazardous Materials Assessment, OC Environmental Resources (2020).

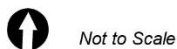
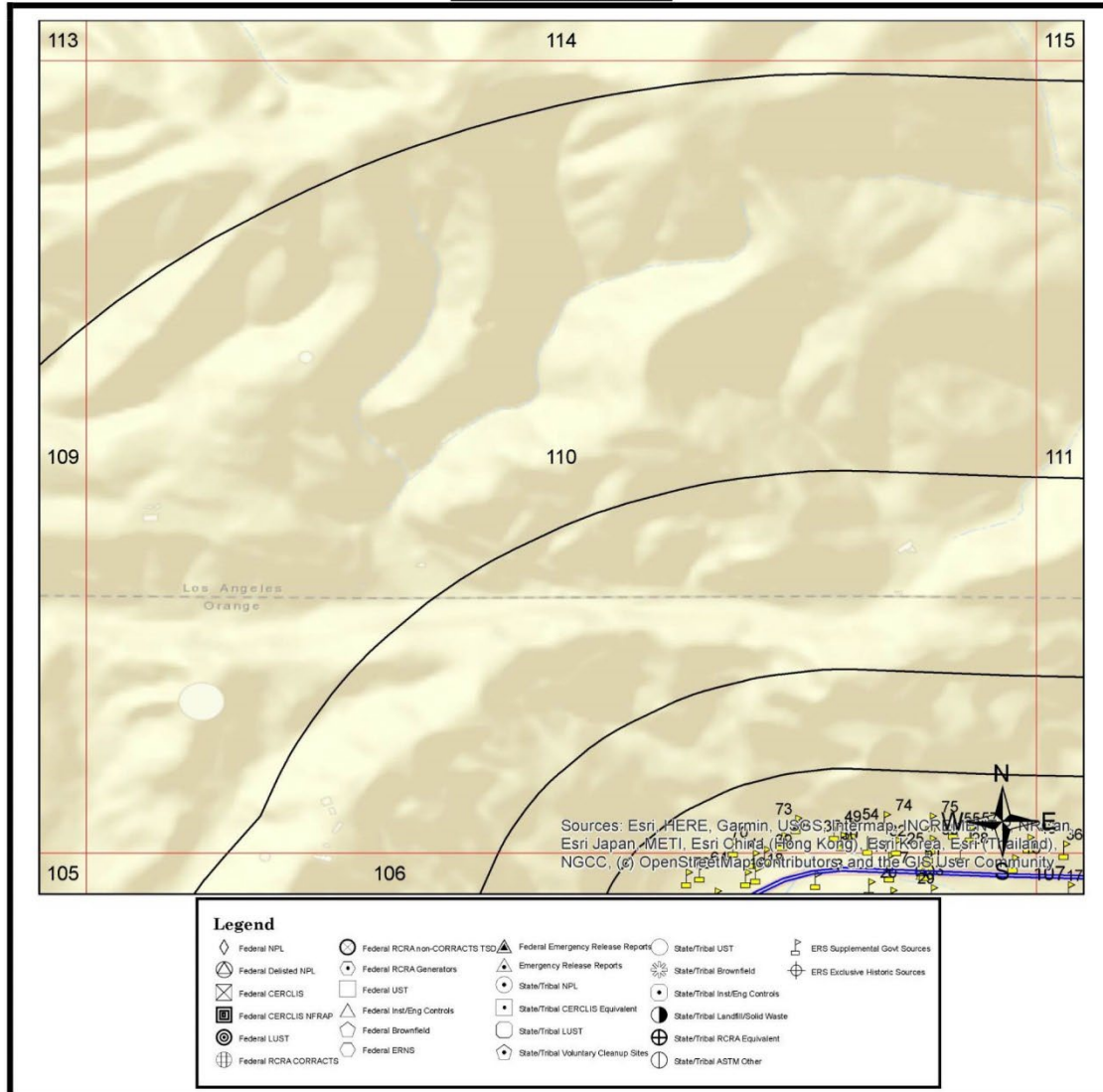


Figure 5.7-1b
Grid Map 107 of Environmental Record Search

Brea Boulevard Corridor Improvement Project



GRID MAP 110



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. Actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in RED are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in YELLOW have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in GREEN are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

Source: Appendix E of Hazardous Materials Assessment, OC Environmental Resources (2020).

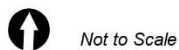
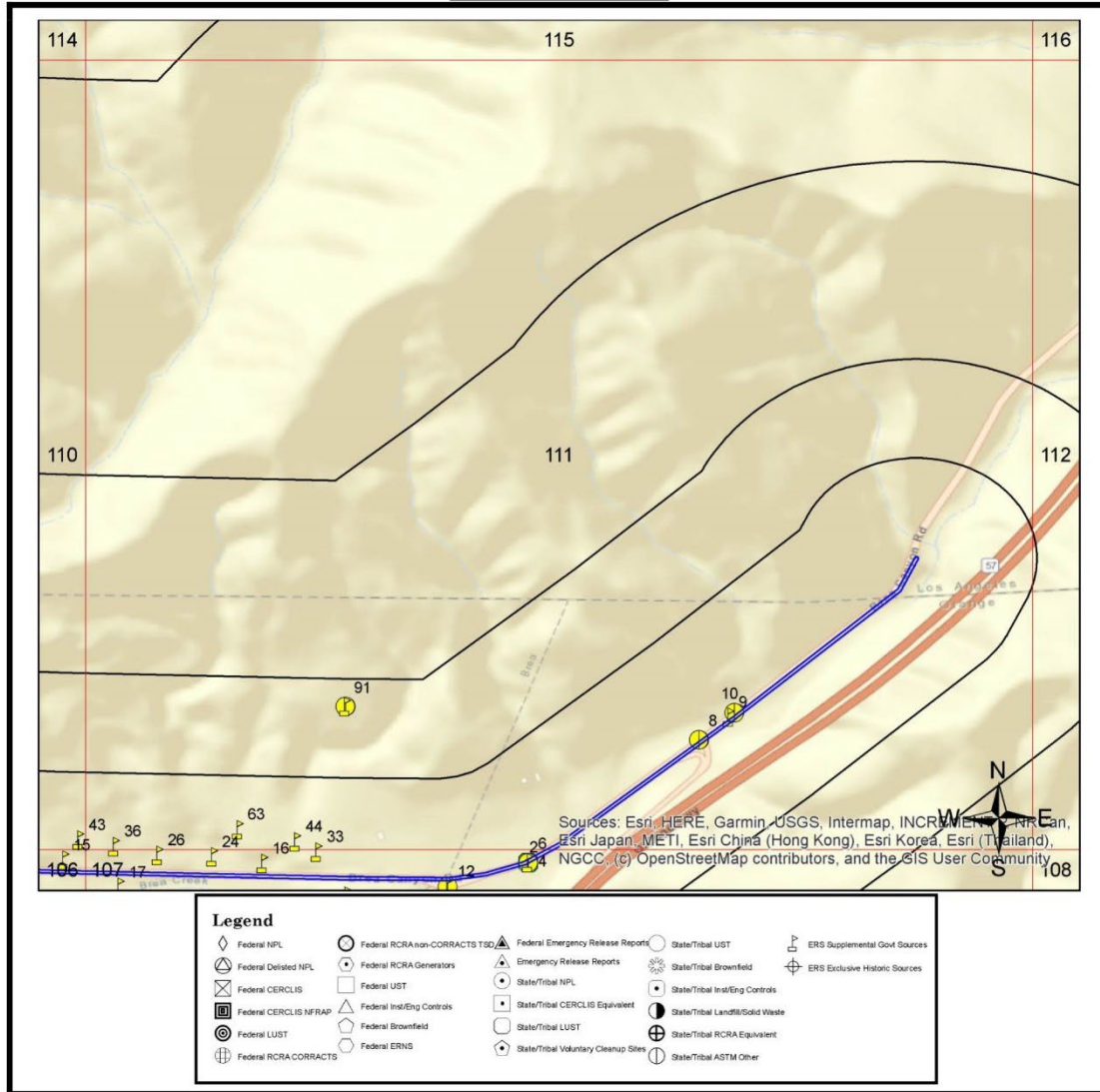


Figure 5.7-1c
Grid Map 110 of Environmental Record Search

Brea Boulevard Corridor Improvement Project



GRID MAP 111



All plotted occurrences represent approximate locations based on geographic information provided by the respective agency. A actual locations may vary due to numerous reasons such as: the size of the property, accuracy of the provided location, accuracy of the software used to determine the location, etc. Occurrences are shown in three colors to give a visual indication of the potential risk of the listed occurrence based on the type of list and the current status of the occurrence. Occurrences shown in RED are locations with known contamination that have not received a "case closed" or "no further action" status. Occurrences shown in YELLOW have been listed by the respective agency, but do not always represent an environmental risk. The detailed status information and description of the listing should be reviewed for further information. Occurrences shown in GREEN are occurrences that have active permits or have had contamination in the past but have received a "case closed" or "no further action" status and therefore, do not likely present an environmental risk.

Source: Appendix E of Hazardous Materials Assessment, OC Environmental Resources (2020).

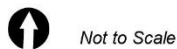


Figure 5.7-1d
Grid Map 111 of Environmental Record Search

Brea Boulevard Corridor Improvement Project

Inspection of Project Limits

An inspection of the project limits was conducted on August 29, 2019 and January 8, 2020 by ER to observe existing conditions and activities that may have resulted in contamination within the project limits. Potential issues of environmental liability associated with the project limits are illicit disposal of hazardous waste; off-site contamination that may impact the project limits; and land use activities resulting in contamination of the project limits.

Prior uncontrolled land usage/activities and illicit disposal of hazardous waste have the potential for impacting the project limits. Evidence of uncontrolled land usage/activities includes, but is not limited to, abandoned water wells, cisterns, debris, soil mounds, ground depressions, surface impoundments, aboveground structures other than buildings, and electrical transformers. The search for evidence of illicit disposal of hazardous waste includes, but is not limited to, stained soils, stressed vegetation, dead wildlife, chemical odors, and the presence of containers (pails and drums).

The project limits inspection involved a walking reconnaissance of the project limits. These areas included undeveloped open space along Brea Boulevard, segments of the shoulder along Brea Boulevard, an entrance way to a corporate yard for an oil company, portions of a residential area land use near Canyon Country Road, and a portion of a hospital near Canyon Drive. Signs of illicit disposal and environmental impact, such as stained soils or stressed vegetation, were not observed during the site visit. No RECs were identified for the project limits during the site reconnaissance. Photographs of the project limits are provided in Appendix C of Appendix L of this Draft EIR.

Area Reconnaissance

The purpose of the area reconnaissance is to identify potential off-site environmental conditions on nearby sites that may impact a subject property. Some specific items that are looked for during an area reconnaissance are undocumented storage tanks, dry cleaning operations, cemeteries, old/abandoned structures, embankments, heavy equipment, monitoring wells, mines/quarries, gas/oil wells and the mismanagement of chemicals, pesticides, and herbicides. Mismanagement of chemicals includes improper chemical storage and chemical releases. Evidence includes surface staining, stressed vegetation, and emanating odors.

On August 28, 2019, ER conducted an area reconnaissance within approximately 0.25 mile of the project limits. The area surrounding the project limits consists primarily of open land use, oil well production, a freeway and residential land use. No evidence of mismanagement or improper handling of chemicals was noted during the area reconnaissance. No RECs were identified for the project limits as a result of the area reconnaissance. Photographs of the surrounding properties are provided in Appendix C of Appendix L of this Draft EIR.

In addition, oil and tar seeps, which are likely to be naturally occurring crude oil, have been reported in the general area. In the early 1990s, studies were conducted by ER on reported oil droplet discharges, which confirmed sources as natural seepages. While prevalent in the area, tar seeps are infrequent and highly localized. It should be noted, ASTM E1527-13 Naturally-Occurring Substances Exclusion applies to releases of a substance from a location where the substance is naturally found; this exclusion would apply to oil and tar seeps occurring on or adjacent to the project limits. Upon further research via the USGS oil and gas seep map index, five seeps were identified within 0.25 mile of the project limits. No seeps were observed to have impacted the project limits at the time of the area reconnaissance. Based on this information, tar seeps are considered to have a low potential for impacting the project limits.

Interview Activities and Transfer Disclosure Statement Review

On September 10, 2019, Orange County Public Works (OC Public Works) provided general information regarding the project limits for the completion of the User Questionnaire (see Appendix D of Appendix L of this Draft EIR). Based on this submittal, ER has compiled the following information to meet ASTM and All Appropriate Inquiry (AAI) requirements related to the following issues:

- *Environmental Cleanup Liens:* No known environmental cleanup liens are associated with the project limits.
- *Activity and Land Use Limitations:* No known activity or land use limitations from environmental contamination issues were identified for the project limits.
- *Specialized Knowledge of the Project Limits:* OC Public Works has no specialized knowledge of the project limits other than its current use.
- *Relationship of the Purchase Price to the Fair Market Value:* The purchase price represents the fair market value of the property(ies) within the project limits.
- *Commonly Known or Reasonably Ascertainable Information:* Oil production and public roadway were listed as a known past use of the project limits. Oil was listed as a chemical once present within the project limits. Oil was listed as a known spill to have taken place within the project limits.
- *The Degree of Obviousness of the Presence of Contamination:* Naturally occurring oil seepage was listed. While prevalent in the area, tar seeps are infrequent and highly localized. In the event of an oil seep, oil seeps would be captured under ASTM E1527-13 Naturally-Occurring Substance Exclusion (where the release occurs from a location where the substance is naturally found). Based on this information, tar seeps are considered to have a low potential for impacting the project limits.

Due to the nature of the project limits as an existing roadway, no on-site contacts were available for interview purposes.

5.7.1.2 Emergency Response or Emergency Evacuation Plans

County of Orange and Orange County Fire Authority Local Hazard Mitigation Plan

The local hazard mitigation plan (LHMP) for the County of Orange is a multi-jurisdiction plan developed jointly between the County of Orange, a local government, and the OCFA, a joint powers authority, and was approved by the Federal Emergency Management Agency (FEMA) in December 2021 (County of Orange and OCFA 2021). The focus of the LHMP is mitigating all natural hazards impacting unincorporated areas of the County along with facilities owned by the County and OCFA. This LHMP was developed via participation from County agencies as well as the OCFA who formed the Orange County Hazard Mitigation Planning Task Force, the County Emergency Management Council, the County Emergency Management Council Subcommittee, and the Orange County Emergency Management Organization. It should be noted that the City of Brea is a member of the Orange County Emergency Management Organization, which is a standing subcommittee of the Orange County Operational Executive Board, tasked with developing and reviewing plans across the County to ensure consistency with the LHMP.

City of Brea's Emergency Preparedness Regulations and Program

Title 8, Health, Safety, and Welfare, of the City of Brea Municipal Code provides for, among other things, the preparation and carrying out of plans for the protection of people and property in the event of an emergency (City of Brea 2019b).

In addition, the City of Brea has an active Emergency Preparedness Program coordinated by a professional emergency manager (City of Brea 2020). Public programs available range from those provided upon the request of an organization or group to the more structured Brea Community Emergency Response Team classes offered periodically. This program consists of the following five elements:

- Development and maintenance of the City's Emergency Response Plan
- Development and maintenance of the City's Emergency Operations Center
- Coordination of preparedness, training and exercises for city staff to be sure they are ready to respond to any emergency
- Public education and outreach to the residents and businesses of Brea
- Fund recovery following disasters

5.7.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to hazards and hazardous materials if it would:

- 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.
- 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.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

5.7.3 METHODOLOGY RELATED TO HAZARDS AND HAZARDOUS MATERIALS

To assess the potential environmental conditions and hazards associated with the project limits, the following activities were performed:

1. Records review including:
 - a. Historical aerial photographs and topographic maps to ascertain prior land use information;
 - b. Available city directories and fire insurance maps;
 - c. A regulatory agency database report containing sites within a one-mile search radius of the project limits that are either known to be contaminated or registered as using hazardous materials/waste. The database report is evaluated to assess potential environmental impacts from these sites to the project limits.
2. Reconnaissance of the project limits and its vicinity to evaluate land use, environmental conditions, and potential environmental degradation, which may negatively impact the project limits.

3. Interviews with personnel familiar with the project limits.
4. Evaluation of the findings and preparation of an HMA report. *Standard Practice for Environmental Site Assessment: Phase I Environmental Site Assessment Process ASTM E 1527-13* was used as a guide for terminology and procedures in performing the HMA.

To assess potential impairment or interference with emergency response or evacuation plans, the following activities were performed:

1. Review of County of Orange's and City of Brea's Emergency Response and Emergency Evacuations Plans

5.7.4 POTENTIAL IMPACTS

5.7.4.1 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

Incidents of spills or other localized contamination may occur during refueling or operation of construction-related equipment. In addition, during construction of the Project, paints, solvents, and other materials (wood and cement sealers, etc.) may be used. The release and/or spillage of these materials could result in potentially significant impacts. However, the Project would be subject to compliance with a number of spill prevention, containment, and cleanup measures identified within permits issued by the Santa Ana RWQCB. All construction activity that requires a grading permit must be undertaken in accordance with any conditions and requirements (including BMPs) established by a NPDES Permit. BMPs specified in the NPDES permit include stormwater prevention measures included in a Stormwater Pollution Prevention Plan (SWPPP), and protocols for the procedures for the storage, usage, and disposal of hazardous materials. Adherence to the BMPs would be required for all phases of construction. Compliance with the SWPPP and the implementation of standard BMPs during construction would reduce the potential for hazardous materials spills.

As described previously, the regulatory database search identified 100 mapped sites within a one-mile radius of the project limits. Also as discussed, the four identified LUST sites on or within 0.25 mile of the project limits have been granted closure from the relevant regulatory agencies. Out of 57 OGW-CA, 50 wells have been identified as either pulled, plugged, or idle and are considered to have a low potential for impacting the project limits; and 7 wells, which were reported as active, are considered to have a low potential for impacting the project limits when properly maintained and operated. The remaining mapped sites were found to have a low potential for impacting the project limits based on their being listed solely as a small quantity generator of hazardous waste, respective regulatory status, distance, and/or location down gradient from the project limits. However, a review of aerial imagery indicates that portions of the adjacent properties have been used for decades to produce and store crude oil and other petroleum products, and undocumented wells, pipelines, and other oil field-related appurtenances could be unexpectedly encountered during construction of the Project. In addition, oil and tar seeps, which are likely to be naturally occurring crude oil, have been reported in the general area. As such, implementation of the Project has the potential to release hazardous materials into the environment during construction due to unknown hazardous materials within the project limits. Therefore, the Project has the potential to create a significant hazard to the public or environment through a reasonably foreseeable upset or accident condition involving release of a hazardous material to the environment (refer to Mitigation Measures HHM-1 through HHM-3).

5.7.4.2 Be Located on a Site Which Is Included on a List of Hazardous Materials Sites Complied Pursuant to Government Code §65962.5 and, as a Result, Create a Significant Hazard to the Public or the Environment

As described previously, an HMA was performed in conformance with the scope and limitations of the ASTM Practice E 1527-13 for the Project. Based on the HMA, six mapped sites occur within the project limits out of a total of 100 mapped sites identified within a one-mile radius. One of the sites within the project limits and three sites within 0.25 mile of the project limits appear on the State of California's LUST-closed database. Further investigation of each of these sites found all had a low potential for impacting the Project. No orphan sites (i.e., a contaminated property where no one is willing or able to provide adequate clean up) with poor or inadequate mapping information were provided in the database search and no RECs (i.e., the presence or likely presence of any hazardous substances or petroleum products in, on, or within the project limits) were identified as part of the record search, review of historical documents, inspection and reconnaissance, or interview. Overall, no evidence of environmental degradation to the project limits from hazardous materials contamination was identified. However, a review of aerial imagery indicates that portions of the adjacent properties have been used for decades to produce and store crude oil and other petroleum products, and undocumented wells, pipelines, and other oil field-related appurtenances could be unexpectedly encountered during construction of the Project. In addition, oil and tar seeps, which are likely to be naturally occurring crude oil, have been reported in the general area. As such, the Project has the potential to be located on a site that could create a significant hazard to the public or environment (refer to Mitigation Measures HHM-1 through HHM-3).

5.7.4.3 Impair Implementation of or Physically Interfere with an Adopted Emergency Response Plan or Emergency Evacuation Plan

As mentioned previously, the County of Orange and OCFA have implemented a LHMP to mitigate all natural hazards impacting unincorporated areas of the County along with facilities owned by the County of Orange and OCFA. The City of Brea is a participating entity under the LHMP, who helps develop and review plans across the County to ensure consistency with the LHMP. The City of Brea also has Emergency Preparedness regulations (Title 8 of the Brea Municipal Code) and program, which includes development and maintenance of the City's Emergency Response Plan. Construction of the Project would result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 p.m. to Monday at 5:00 a.m. During construction, access would remain for emergency responders and oil field operators but there is the potential to impair or interfere with the LHMP and City of Brea's Emergency Response Plan. As such, the Project has the potential to result in significant impacts to emergency response during construction (refer to Mitigation Measure HHM-4).

5.7.5 MITIGATION MEASURES

The following mitigation measures were developed to help reduce or avoid potential impacts related to encountering undocumented conditions during construction:

- HHM-1 If previously undocumented wells are encountered during road excavation and construction activities, construction shall be redirected away from the well location until the site is assessed. OC Public Works and/or the contractor shall immediately notify the local office of the California Geologic Energy Management Division (CalGEM) (formerly known as the Division of Oil, Gas and Geothermal Resources, or DOGGR) and provide location coordinates to CalGEM. The well shall be inspected by a CalGEM representative, who shall establish an appropriate buffer distance for the continuation of construction activities in the vicinity, and the well shall be plugged and tested in accordance with current CalGEM requirements, Orange

County Oil Drilling and Production Regulations, and City of Brea requirements. In addition, the Project team shall notify the OCFA and coordinate with OCFA to ensure that the road design conforms to all requirements for construction impermeable surfaces over abandoned wells in relationship to any existing structures or proposed future buildings near the well location (*OCFA Combustible Soil Gas Hazard Mitigation Guideline C-03*).

- HHM-2 If previously undocumented buried pipelines or other associated equipment are encountered during road excavation and construction activities, construction shall be redirected away from the pipeline location until the site is assessed. OC Public Works and/or the contractor shall establish the appropriate buffer distance for the continuation of construction activities in the vicinity, shall test the pipeline for potential contaminants, and abandon the pipeline in accordance with state and local regulations.
- HHM-3 If potentially contaminated soils (discolored/stained soil or chemical odors) or liquid seeps are encountered during road excavation and construction activities, construction shall be redirected away from the location until the site is assessed. OC Public Works and/or the contractor shall establish the appropriate buffer distance for the continuation of construction activities in the vicinity, shall test the soil for potential contaminants, and, if applicable, manage the soil in accordance with applicable state and local regulations, including implementation of an approved SCAQMD Rule 1166 mitigation plan for volatile organic compound-contaminated soils.

The following mitigation measure was developed to help reduce or avoid potential impacts related to emergency/fire response during construction:

- HHM-4 Prior to the start of construction, the contractor shall prepare and have approved a Construction Emergency Access/Response and Fire Prevention Plan (Emergency Plan) by the Director of OC Public Works or designee, the local OCFA Division Chief, the local Orange County Sheriff Lieutenant, and the City of Brea Fire Services Department. The Emergency Plan shall detail emergency access and traffic control during construction-related road and lane closures and the implementation of fire safety measures during construction activities. The Emergency Plan shall include at a minimum the following requirements, restrictions, and measures, which are to be documented in the contractor's construction plans and specifications to the satisfaction of the Director of OC Public Works or designee:
- Requirement for contractor to provide a detailed schedule of work activities at a pre-construction meeting, including start and end dates for work phases, calendared work day hours, temporary signal/flagman hours of operation, and after work hours emergency access solutions;
 - Detailed traffic control and detour plan that assures emergency access is maintained at all times and is not in conflict with the LHMP or City of Brea's Emergency Response Plan;
 - Community communication/alert plan, including public notification activities via social media, changeable message signs, pre-construction updates, safety and emergency protocols, etc. Community communication shall involve disseminating information on OCFA's Ready!, Set!, Go! Safety program and an emergency evacuation route map;

- Protocols for ongoing contractor updates to local OCFA Division Chief, local Orange County Sheriff Lieutenant, City of Brea, and OC Public Works, beginning at the pre-construction meeting and continuing until the end of construction.
- Inclusion of specific emergency operational procedures (i.e., response actions, communication protocols, hazardous condition/weather monitoring, etc.) for (a) flood emergencies, (b) wildland fires, (c) structure fires, (d) Emergency Medical Service emergencies, (e) red flag warning periods/days (e.g., no hot work), and (f) loss of power;
- Immediate suspension of all construction activities in the event of a fire within the project limits and immediate construction crew use of onsite fire extinguishers and water truck, as well as 911 emergency call;
- Compliance with applicable subsections of Chapter 33 of the 2019 California Fire Code, the National Fire Protection Association Standard 51B, and Section 4442 of the California Public Resources Code.
- Compliance with the fire protection provisions contained in Caltrans Standard Specifications No. 7-1.02(m);
- Details for coordinating with OCFA, Orange County Sheriff's Department, City of Brea Fire Services Department and Police Department through their Incident Command System should a wildfire evacuation be necessary.

5.7.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measures HHM-1 through HHM-4 would reduce potentially significant impacts related to hazards and hazardous materials during construction to a level that is less than significant with mitigation incorporated.

This page intentionally left blank.

5.8 HYDROLOGY AND WATER QUALITY

This section describes the existing hydrology and water quality of the project area, potential environmental impacts of the Project, recommended mitigation measures to help reduce or avoid those impacts, and the level of significance of Project impacts after mitigation. The information and analysis provided in this section are largely derived from the *Final Design Hydraulic Study – Brea Canyon Blvd. Bridges at Brea Canyon Creek* prepared by Avila & Associates dated October 8, 2021, and the *Aquatic Resource Delineation Report - Brea Boulevard Corridor Improvement Project* prepared by AECOM in September 2022, which are provided in Appendices M and G, respectively, of this Draft EIR.

5.8.1 EXISTING CONDITIONS

5.8.1.1 Surface Water

The project area is located within the Santa Ana Regional Water Quality Board's (RWQCB) jurisdictional area, within the northeastern extent of the Coyote Creek Watershed. The Coyote Creek Watershed drains approximately 165 square miles of densely populated areas of residential, commercial, and industrial areas as well as areas of open space (Orange County Water District [OCWD] et al. 2017). Coyote Creek is a tributary to the San Gabriel River. Creeks within the watershed are: Coyote Creek, Brea Creek, Fullerton Creek, Carbon Creek, Moody Creek, and Los Alamitos Channel. Coyote Creek, Brea Creek, and La Mirada Creek all flow into and drain out of the La Habra Valley. The total drainage area of these three creeks within the valley is approximately 12,950 acres (OCWD et al. 2017).

Brea Creek flows southwesterly through the project area and drains an approximate 18.4 square miles of land upgradient of Brea Creek at the Brea Boulevard bridges within the project limits. There are three bridges crossing Brea Creek within the project limits: a two-span reinforced concrete slab bridge constructed circa 1920 and widened circa 1929 (Bridge 1 [#55C0121]), a two-span reinforced concrete T-beam bridge constructed circa 1930 (Bridge 2 [#55C0122]), and a three-span reinforced concrete T-beam bridge constructed circa 1939 (Bridge 3 [#55C0123]). In addition to the three bridges, there are approximately thirteen existing culvert crossings (for drainage or utilities or both).

5.8.1.2 Groundwater

The project area is located within the Coyote Creek Watershed, which contains the La Habra Groundwater Basin. The geologic structure of the La Habra Groundwater Basin is dominated by the La Habra Syncline, a northwest trending, U-shaped down-fold. The syncline is deepest in the Brea area and becomes increasingly shallower the west and is bounded by the Whittier Fault within the Puente Hills to the north and the Coyote Hills to the south (OCWD et al. 2017). The La Habra Syncline produces the La Habra Valley, a naturally-occurring valley, where significant amounts of groundwater have accumulated over the past 150,000 years (OCWD et al. 2017).

Groundwater within the La Habra Groundwater Basin generally flows from the Puente Hills in a south or southwesterly direction (OCWD et al. 2017). Subsurface flow out of the basin occurs near Coyote and La Mirada Creeks into the Coastal Plain of Los Angeles and at the gap between the East and West Coyote Hills into the Coastal Plain of Orange County.

Groundwater production in the La Habra Groundwater Basin has ranged from approximately 2,000 acre-feet per year (AFY) to 4,200 AFY between 2011 and 2015 (OCWD et al. 2017). The City of La Habra pumps local groundwater from the La Habra Groundwater Basin from three production wells: the La Bonita Well, the Portola Well, and the Idaho Street Well. The capacity of La Bonita Well and Portola Well is 850

gallons per minute (gpm) and 1,200 gpm, respectively. The Idaho Street Well has a capacity of 2,000 gpm but is regulated at 1,500 gpm. The City of Brea owns and operates one non-potable groundwater well from the La Habra Groundwater Basin used for irrigation at Brea Creek Golf Course (OCWD et al. 2017). The maximum capacity of this well is 450 gpm. Neither of these City of La Habra nor City of Brea groundwater wells are located within the project limits.

5.8.1.3 Rainfall

Approximately 30 percent of the runoff available in an average rainfall year percolates to the aquifers underlying the La Habra Valley (OCWD et al. 2017). Within the La Habra Valley, direct percolation of precipitation also occurs.

Based on data from the nearest weather station to the Project (i.e., Santa Ana Fire Station Weather Station), the average precipitation within the project area over the past 20 years was approximately 13.9 inches. The majority of rain occurred between October through May. During the winter and spring months of 2019, approximately 19.6 inches of rainfall occurred in the project area.

5.8.1.4 Water Quality

The nearest receiving water in the project area is Brea Creek (State Water Resources Control Board [SWRCB] 2019). However, Brea Creek is not considered an impaired waterbody per the latest Clean Water Act (CWA) Section 303(d) List of Impaired Water Bodies (i.e., the 2020-2022 CWA Section 303(d) List) (SWRCB 2022a).

5.8.1.5 Regulatory Setting

Water Quality

Regulatory Background

Stormwater discharges are regulated by the U.S. Environmental Protection Agency (EPA) through the CWA. The CWA includes a framework for regulating municipal and industrial stormwater discharges under the National Pollutant Discharge Elimination System (NPDES). The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Point sources are discrete conveyances such as pipes or man-made ditches. Individual residences that are connected to a municipal system, use a septic system, or do not have a surface discharge, do not require a NPDES permit. However, industrial, municipal, and other facilities must obtain permits if their discharges are conveyed directly to surface waters. In Orange County, the NPDES permit program is administered by the Santa Ana RWQCB. The NPDES General Permit No. CAS000002 for Stormwater Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ (Construction General Permit [CGP]) is required for sites with a total disturbed area of one acre or more (SWRCB 2022b). The CGP is administered by the SWRCB and implemented by its nine RWQCBs. The CGP requires development of a Stormwater Pollution Prevention Plan (SWPPP) that identifies structural and non-structural BMPs to reduce impacts to surface water associated with sediment and other construction-related pollutants. In addition, the CGP requires projects that are located within an area covered by a Phase I or II Municipal Separate Storm Sewer System (MS4) Permit to comply with the requirements of the MS4 permittee's post-construction requirements for water quality and flow.

The Santa Ana RWQCB has ordered Waste Discharge Requirements for the County of Orange, Orange County Flood Control District (OCFCD), and incorporated cities of Orange County in the Phase I MS4 Permit (Santa Ana RWQCB 2010). The Phase I MS4 Permit is based on the following plans:

- CWA
- Porter-Cologne Water Quality Act
- All applicable provisions of statewide Water Quality Control Plans (WQMPs) and Policies adopted by the SWRCB
- Water Quality Control Plan for the Santa Ana River Basin (Basin Plan)¹⁵
- California Toxics Rule (CTR)
- California Toxics Rule Implementation Plan

Together, these plans define the requirements for maintaining and, where possible, enhancing the water quality of lakes, streams, creek and channel segments, groundwater, tidal prisms, enclosed bays, estuaries, and oceans for the Santa Ana Region, which includes the project area. Several of these bodies are listed in the Basin Plan as receiving waters having beneficial uses, including Brea Creek.

The Santa Ana RWQCB's intent of the Phase I MS4 Permit is to require the implementation of BMPs to reduce to the maximum extent practicable, the discharge of pollutants in urban stormwater to support the attainment of water quality standards (Santa Ana RWQCB 2010). The water quality standards are based on numerical effluent limitations specified in the CWA and the CTR, and numerical and narrative water quality objectives defined for beneficial uses of the receiving waters.

Construction-related dewatering waste and other non-stormwater/de minimis discharges to surface waters (e.g., wastes associated with well installation and aquifer testing waste) for the County of Orange, OCFCD, and the incorporated cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff are covered by the General Waste Discharge Requirements for Discharges to Surface Waters That Pose an Insignificant (De Minimis) Threat to Water Quality, Order No. R8-2020-0006, NPDES No. CAG998001, (De Minimis Surface Water Discharge Permit) (SWRCB 2020). Operational waste discharge requirements for the County of Orange, OCFCD, and the incorporated cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff are covered by Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-0062 (Orange County Municipal Separate Storm Sewer System [MS4] Permit).

Water Quality Standards

The applicable receiving water in the project area, as defined in the Basin Plan, is Brea Creek. As listed in the Basin Plan, Brea Creek has the following intermittent, existing or potential beneficial uses:

¹⁵ Each of the nine RWQCBs adopts a Water Quality Control Plan, or Basin Plan, which recognizes and reflects regional differences in existing water quality, the beneficial uses of the region's ground and surface waters, and local water quality conditions and problems (SWRCB 2019). The Water Quality Control Plan for the Santa Ana River Basin is the Basin Plan for the Santa Ana Region, which covers parts of southwestern San Bernardino County, western Riverside County, and northwestern Orange County, including the project area (SWRCB 2019). In very broad terms, the Santa Ana Region is a group of connected inland basins (including the La Habra Groundwater Basin described previously in Section 5.8.1.2) and open coastal basins drained by surface streams flowing generally southwestward to the Pacific Ocean (SWRCB 2019). The Santa Ana Region includes the upper and lower Santa Ana River watersheds, the San Jacinto River watershed, and several other small drainage areas, such as the San Gabriel River drainage area which includes Brea Creek (SWRCB 2019).

- MUN – Municipal and Domestic Supply (Intermittent Beneficial Use)
- REC1 – Water Contact Recreation (Intermittent Beneficial Use)
- REC2 – Non-Water Contact Recreation (Existing or Potential Beneficial Use)
- WARM – Warm Freshwater Habitat (Intermittent Beneficial Use)
- WILD – Wildlife Habitat (Existing or Potential Beneficial Use)
- RARE – Rare, Threatened or Endangered Species (Existing or Potential Beneficial Use)

Narrative water quality objectives are listed in the Basin Plan for these beneficial uses. Additional numeric water quality objectives are provided in the CWA and CTR for toxic chemicals. The waterbody type, as defined in Chapter 4, Water Quality Objectives, of the Basin Plan, considered to be applicable to the project area is inland surface stream, because the Basin drains to this waterbody type.

The Basin Plan lists numeric criteria for coliform bacteria, residual chlorine, and pH; and it lists narrative objectives for algae, color, floatables, oil and grease, dissolved oxygen, radioactivity, suspended and settleable solids, sulfides, surfactants (surface-active agents), taste and odor, temperature, toxic substances, and turbidity. The CWA and CTR list numeric criteria for a number of chemicals including metals, phenols, volatile organic compounds (VOCs), and pesticides.

Section 303(d) Impaired Waterbodies and Total Maximum Daily Loads

The CWA 303(d) List identifies receiving waters that are known to be impacted with certain pollutants, and the proposed completion date for a total maximum daily load directive to be implemented for each pollutant. As mentioned previously, Brea Creek is not included in the current CWA Section 303(d) List (SWRCB 2022a).

New Development/Significant Redevelopment Project Implications

The Project is classified as a New Development/Significant Redevelopment project as described in the Phase I MS4 Permit (Santa Ana RWQCB 2010). Under the Orange County MS4 Permit, WQMPs are required for projects that meet certain criteria, including:

- Streets, roads, highways and freeways of 5,000 square feet or more of paved surface

WQMPs set the Low Impact Development (LID) and BMP requirements for operation of a project. LID is the management of surface water through land development strategies that reduce the impacts of development on the quality, volume, and intensity of stormwater runoff. These impacts can be reduced through the implementation of engineered BMPs that return the site to predevelopment hydrologic conditions. Examples of LID BMPs include treatment systems, retention and infiltration basins, and minimization of impervious surfaces.

Construction Dewatering

Regulation of construction discharges are covered under the NPDES program. As such, these activities are required to comply with relevant sections of the CGP.

Groundwater Management Plans

The OCWD adopted its first Groundwater Management Plan in 1989. The latest update was completed in 2015 (OCWD 2020). This plan sets forth basin management goals and objectives and describes how the basin is managed. This includes description of basin hydrogeology, water supply monitoring programs,

management and operation of recharge facilities, water quality protection and management, and natural resource and collaborative watershed programs. Basin management goals are (1) to protect and enhance groundwater quality, (2) to protect and increase the sustainable yield of the basin in a cost-effective manner, and (3) to increase the efficiency of OCWD operations.

In 2014, the California Sustainable Groundwater Management Act (SGMA) was passed. The law provides authority for agencies to develop and implement groundwater sustainability plans or alternative plans that demonstrate the basin is being managed sustainably. On January 1, 2017, OCWD, City of La Habra (on behalf of both the cities of La Habra and Brea), and Irvine Ranch Water District submitted the Basin 8-1 Alternative – La Habra-Brea Management Area (hereafter referred to as “Basin 8-1 Alternative Plan”) to the California Department of Water Resources (DWR) per compliance with SGMA. The La Habra-Brea Management Area refers to the northwestern portion of DWR’s Basin 8-1 overlying the La Habra Groundwater Basin (located within the project area). This management area is outside of the jurisdiction of OCWD. Pursuant to SGMA, the City of La Habra adopted a resolution establishing it as a Groundwater Sustainability Agency (GSA), under a memorandum of agreement with the City of Brea, for management of the La Habra Groundwater Basin underlying the two cities. The City of La Habra adopted a second resolution to establish the La Habra Groundwater Basin as a separate basin from Basin 8-1. OCWD adopted a resolution to support the City’s establishment of the La Habra Groundwater Basin. In 2019, the DWR approved the Basin 8-1 Alternative Plan (OCWD 2019) and the City of La Habra’s management of the La Habra Groundwater Basin in accordance with the Basin 8-1 Alternative Plan, which went into effect on January 2020 (OCWD et al. 2017). Thus, the La Habra Groundwater Basin is now considered a separate basin from Basin 8-1 and is being managed in accordance with the adopted Basin 8-1 Alternative Plan.

5.8.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant adverse impact on the environment related to hydrology and water quality if it would:

- Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality.
- Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the Project may impede sustainable groundwater management of the basin.
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
 - result in substantial erosion or siltation on- or off-site;
 - substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;
 - create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
 - impede or redirect flood flows.
- In flood hazard zone, risk release of pollutants due to project inundation
- Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.

5.8.3 METHODOLOGY RELATED TO HYDROLOGY AND WATER QUALITY

The assessment of impacts to hydrology and water quality was based primarily on the following documents:

- *Final Design Hydraulic Study – Brea Canyon Blvd. Bridges at Brea Canyon Creek* (Avila & Associates, October 8, 2021; Appendix M of this Draft EIR).
- *Aquatic Resource Delineation Report - Brea Boulevard Corridor Improvement Project* (AECOM, September 2022; Appendix G of this Draft EIR).

Final Design Hydraulic Study – Brea Canyon Blvd. Bridges at Brea Canyon Creek utilized 50-year and 100-year 24-hour Expected Value runoff hydrographs for Brea Creek provided by Orange County Public Works (OC Public Works) for the analysis. Hydraulic parameters (water surface elevations and velocity) were obtained from the U.S. Army Corps of Engineers (USACE)'s Hydraulic Engineering Center River Analysis System version 5.0.7 model based on survey information provided by Mark Thomas and LiDAR information provided by OC Public Works.

The analysis presented in the *Aquatic Resource Delineation Report - Brea Boulevard Corridor Improvement Project* was based on two components: desktop review and field assessment. Specifically, a desktop review was conducted to determine the existing conditions and historical uses of the project area and the surrounding area prior to the field assessment. The field assessment then occurred on various dates over several years (i.e., on May 31, 2016; June 2, 2016, December 29, 2016; May 29 and 31, 2018; and October 1 and 2, 2019) to delineate aquatic resources for the Project. The delineation field methods were conducted within the project limits and a surrounding 500-foot buffer (the study area). Areas outside of the Project's potential impact areas were mapped with more of a planning-level approach, and within the ROW and potential impact areas, AECOM mapped with more detail.

Lastly, the assessment of impacts to hydrology and water quality included an evaluation of the defined beneficial uses discussed in the Basin Plan for Brea Creek as well as a consistency evaluation with the Basin 8-1 Alternative Plan.

5.8.4 POTENTIAL IMPACTS

5.8.4.1 Impacts Related to Violation of Water Quality Standards and/or Waste Discharge Requirements or Otherwise Substantially Degrade Surface or Ground Water Quality

Project construction activities would involve road widening construction (including the construction of retaining walls), removal and replacement of three bridges and associated dewatering activities, extension or reconfiguration of 13 culvert crossings (for drainage or utilities or both), a new wildlife overpass/land bridge, and related staging and grading activities. The proposed bridges would be installed along the same alignment as the existing bridges and would be single-span precast/prestressed concrete girder bridges. Bridge 1 and Bridge 3 would be supported by 4-foot-diameter cast-in-drilled hole (CIDH) piles and Bridge 2 would be supported by secant piles with 3-foot diameter CIDH primary pile and 3-foot-diameter CIDH secondary pile. The wildlife overpass/land bridge would be a single-span cast-in-place (CIP) prestressed concrete box girder that is 85 feet long by 75 feet wide, spanning the full width of the widened roadway and matching the existing top of ridge on either side (with minimum vertical clearance of over 19 feet above the widened roadway). Construction activities could introduce pollutants to the creek if not properly managed. Grading activities could potentially result in sediment runoff into river and ultimately, downstream receiving waters during runoff events, as well as sediment tracking from construction truck trips leaving the project area. However, typical BMPs (e.g., temporary fiber rolls, check dams, drainage inlet protections, sediment barriers, gravel sand berms, hydroseed, and dust control plan, etc.) would be

employed during the construction period and during the long-term operational phase. There would be routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, and similar activities.

Furthermore, construction of the Project would be subject to the CGP because it would disturb more than one acre of soil. As such, the OC Public Works would be required to prepare and implement a SWPPP and a WQMP which meet the requirements of the CGP and Orange County's MS4 Permit, respectively. The required SWPPP will include BMPs to specifically address erosion control issues that may result during construction activities. BMPs such as silt curtains, erosion control fiber mats, silt fences, sandbag barriers, and sediment traps would be implemented to capture sediment, stabilize slopes, and prevent runoff and sediment from entering receiving waters. Adherence to the required SWPPP and the implementation of standard BMPs during construction would reduce the potential for increased siltation, erosion, including hazardous materials spills. Furthermore, any necessary construction dewatering activities would also require compliance with the CGP, so as not to degrade surface water quality. Adherence to the provisions of the Orange County MS4 Permit, the De Minimis Surface Water Discharge Permit, and the SWPPP as part of compliance with the CGP would reduce construction-related impacts associated with water quality. Therefore, impacts would be less than significant and no mitigation measures are required.

In addition, the WQMP would include BMPs to address potential post-construction impacts to surface water quality, including sediment transport, trash and debris, nitrates, and bacteria. BMPs such as revegetation to stabilize disturbed soils, grading design that increases stormwater retention and infiltration, and maintenance programs to remove trash, debris, and waste would be implemented to reduce the potential for impacts to surface water runoff. Adherence to the provisions of the WQMP would reduce operation-related impacts associated with water quality. Therefore, impacts would be less than significant and no mitigation measures are required.

5.8.4.2 Impacts Related to Substantially Decreasing Groundwater Supplies or Interfering Substantially with Groundwater Recharge

As discussed previously, the Project would not impact any groundwater wells as there are no groundwater wells within the project limits. In addition, while Bridges 1, 2, and 3 will each require abutment facing walls that will extend to 10 feet below the creek surface, which may result in the need to temporarily pump groundwater from the vicinity of the proposed walls during installation, the pumping of groundwater would not be substantial nor would it interfere substantially with groundwater recharge. Furthermore, the bridge replacements would improve the hydraulics of the channel by removing the piers and opening the waterway, thus reducing the likelihood of debris capture. Thus, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Therefore, impacts would be less than significant and no mitigation measures are required.

5.8.4.3 Impacts Related to Substantially Altering the Existing Drainage Pattern of the Site or Area and Flood Hazard Zone

Construction of the Project would occur adjacent to and within Brea Creek. However, as discussed previously, these activities would be temporary and typical BMPs (e.g., temporary fiber rolls, check dams, drainage inlet protections, sediment barriers, gravel sand berms, hydroseed, and dust control plan, etc.) would be employed during the construction period. Furthermore, as discussed above, construction would be performed in compliance with the Santa Ana RWQCB requirements, including preparation of a SWPPP and WQMP, which would include implementation of BMPs to minimize erosion, siltation, runoff, and flooding. Therefore, adherence to NPDES-related provisions would prevent the risk of release of pollutants

and ensure impacts associated with alteration of the existing drainage pattern during construction would be less than significant. No mitigation measures would be required.

Operation of the Project (e.g., the widened and reconfigured Brea Boulevard, three replacement bridges, extended or reconfigured 13 culvert crossings, and a new wildlife overpass/land bridge) has the potential to result in changes to the existing drainage pattern of the area. However, the Project would be designed per the applicable design standards such as: American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Compliance with the applicable design standards and Santa Ana RWQCB requirements would ensure the operation of the Project would not substantially alter the existing drainage pattern of the area. Furthermore, as discussed above, per the hydraulic study completed for the bridges, it was determined that the operation of the proposed bridges would improve the hydraulics of the channel by removing the piers and opening the waterway, thus reducing the likelihood of debris capture. Given this, the Project would not substantially alter the existing drainage pattern of the site or area nor would the Project result in the risk of release of pollutants due to project inundation.

Thus, because implementation of the Project would not substantially alter the existing drainage pattern of the site or area nor result in the risk of release of pollutants due to project inundation for all of the reasons stated above, it would not result in substantial erosion or siltation on- or off-site, or an impediment or redirection of flood flows. The widened roadway would not substantially increase stormwater runoff, as localized stormwater runoff would continue to flow directly into the adjacent Brea Creek as it does under existing conditions. Thus, the Project would not result in a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site, or the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. Therefore, impacts would be less than significant and no mitigation measures are required.

5.8.4.4 Impacts Related to Conflicting with or Obstructing Implementation of a Water Quality Control Plan or Sustainable Groundwater Management Plan

As discussed above, potential impacts to water quality would be less than significant with the Project's adherence with the requirements of the CGP and Orange County MS4 Permit as well as the provisions of the WQMP. In addition, as discussed above, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge because there are no groundwater wells within the project limits and construction-related dewatering activities would be temporary, would not be substantial, and would not interfere substantially with groundwater recharge. Given this, the Project would not conflict with or obstruct implementation of the Basin Plan or the Basin 8-1 Alternative Plan. Therefore, impacts would be less than significant and no mitigation measures are required.

5.8.5 MITIGATION MEASURES

No mitigation measures related to hydrology and water quality are required.

5.8.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Compliance with the CGP and Orange County MS4 Permit requirements, Santa Ana RWQCB requirements, provisions of the WQMP, and applicable design standards requirements would reduce impacts related to hydrology and water quality to a level that is less than significant. No mitigation measures are necessary.

This page intentionally left blank.

5.9 LAND USE AND PLANNING

This section describes the existing land use conditions for the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of Project impacts after mitigation.

5.9.1 EXISTING CONDITIONS

As noted in Section 3.0, Project Description, of this Draft EIR, the Project is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles (the Brea Boulevard Corridor, or “corridor”).

Brea Boulevard is a 30-foot-wide, two-lane, undivided highway (one lane in each direction) with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. Other portions of the roadway are improved with curb, gutter, and sidewalk. Brea Boulevard has essentially remained unchanged since the roadway was realigned to its present configuration between 1928 and 1930. The existing right-of-way (R/W) width varies between 60 to 100 feet.

5.9.1.1 Existing Surrounding Land Uses and Land Ownership

The following land uses surround the corridor:

- North of the corridor is an active oil field and natural open space within unincorporated Orange County. Much of this area is property owned by Cal Resources LLC and Brea Hills LLC. North of the eastern end of the corridor on property owned by Cal Resources LLC is a commercial vehicle storage facility for several lessees.
- East of the corridor is SR-57 and Tonner Canyon.
- South and west of the corridor is the City of Brea and associated residential areas, with general commercial and public facility land uses. Immediately south of the middle stretch of the corridor are steep slopes containing additional oil field activity and the Humble Reservoir.

5.9.1.2 General Plan and Zoning Designations

City of Brea

The City of Brea General Plan Land Use Policy Map (2003) designates the project limits (i.e., the permanent and temporary limits of Project construction) that are located within the City of Brea as Low Density Residential and High Density Residential. Hillside Residential and Natural Open Space (City of Brea 2003) are located outside the City of Brea and within the City’s Sphere of Influence. Figure 5.9-1 provides a map of the surrounding General Plan land uses in relation to the project limits. The City of Brea Interactive Zoning Map (2019) designates the project limits as HR (Hillside Residential), R-1-H (Single -Family Residential-Hillside), R-2 and R-3 (Multi-Family Residential) with specific zone regulations of “precise development (P-D),” and THSP (Tonner Hills Specific Plan) associated with the existing Tonner Hills Planned Community (also referred to as “Blackstone”) (City of Brea 2019a). Figure 5.9-2 provides a map of the surrounding zoning designations in relation to the project limits.

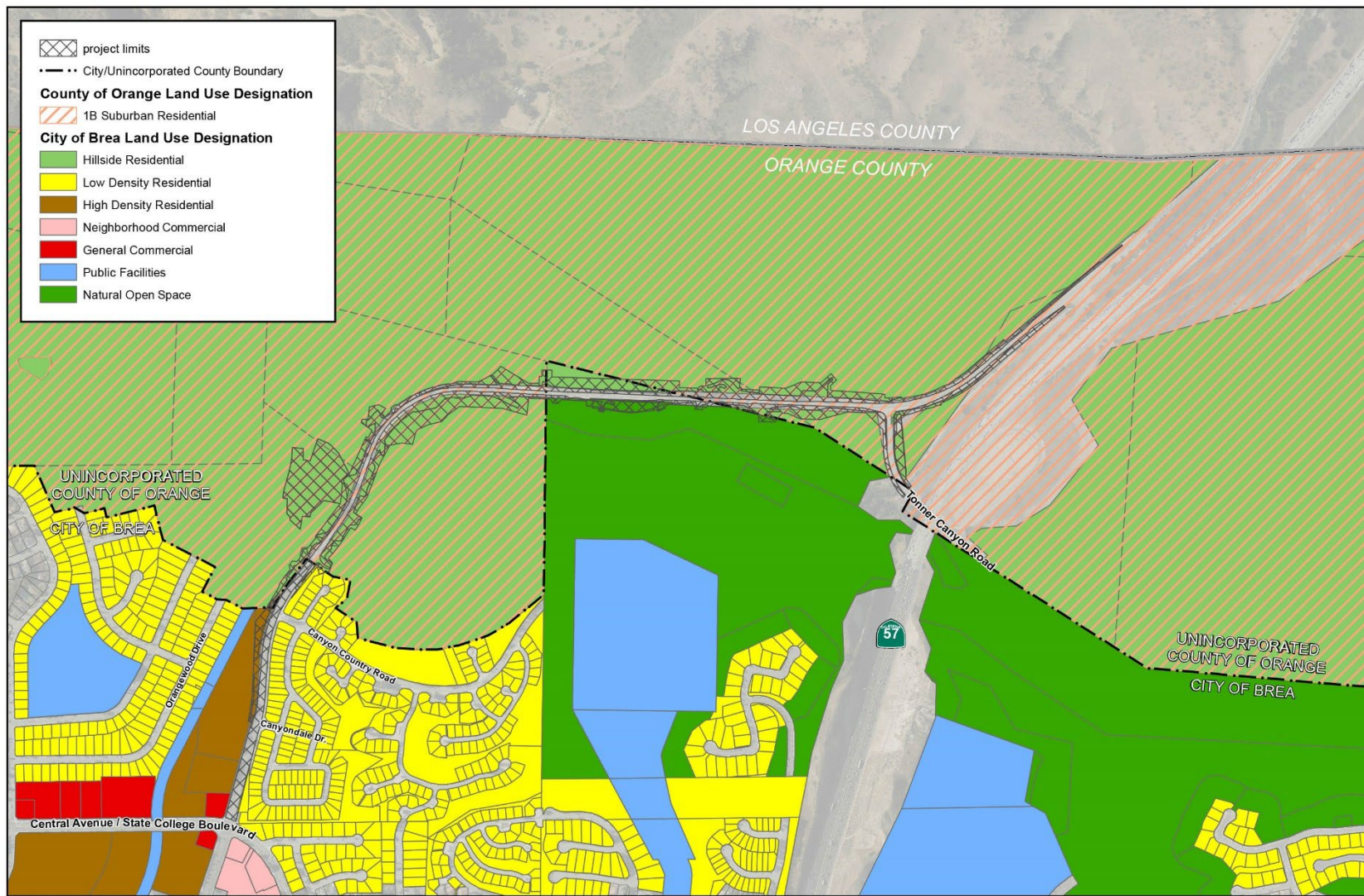


Figure 5.9-1
Surrounding General Plan Land Use



Brea Boulevard Corridor Improvement Project

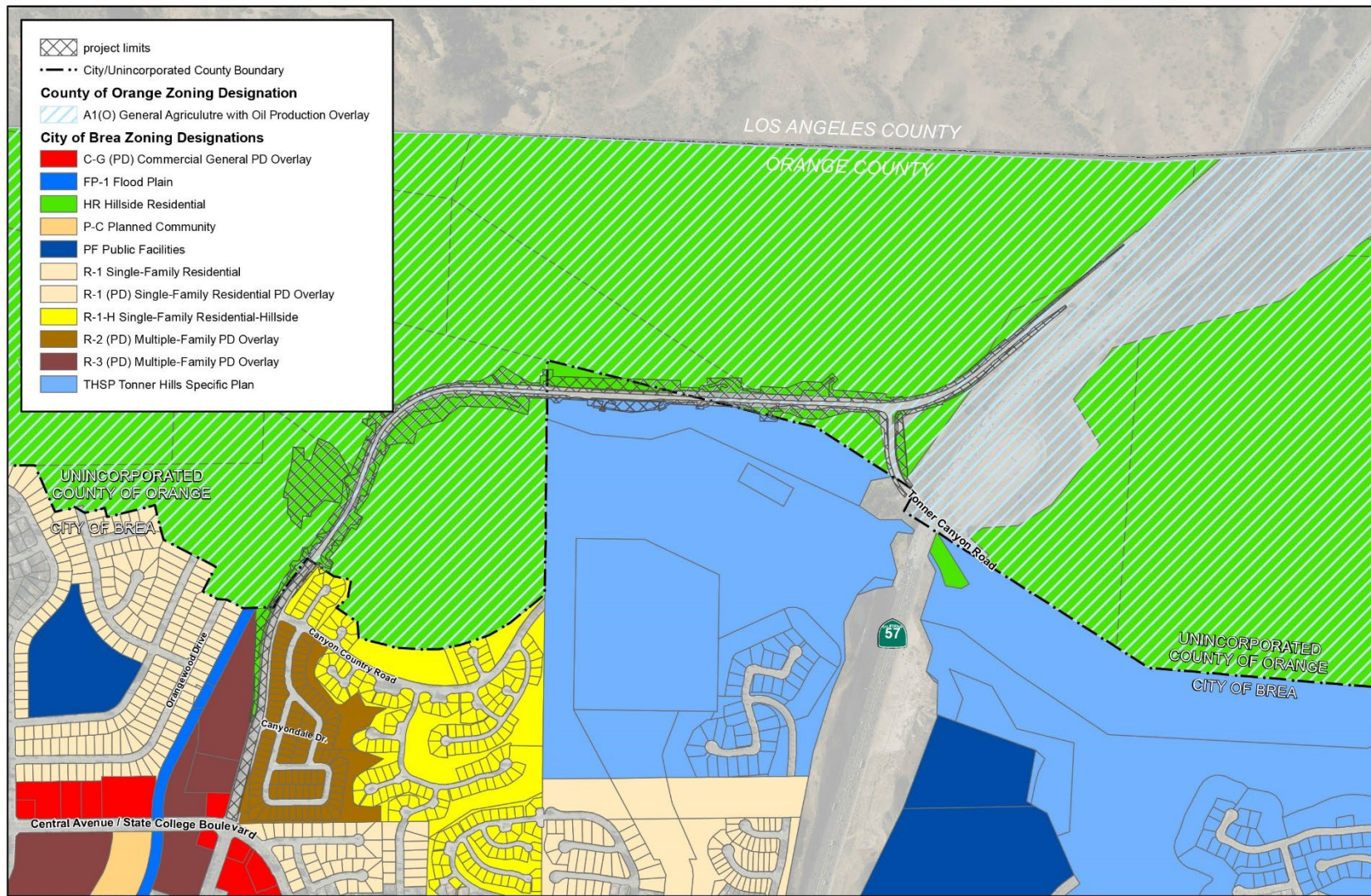


Figure 5.9-2
Surrounding Zoning Designations

Brea Boulevard Corridor Improvement Project

According to the City of Brea Municipal Code, areas zoned P-D shall be subject to compliance with an approved precise plan of development including any conditions established thereon by the City of Brea Planning Commission (City of Brea 2019b). Development of land in a P-D zone for any specific use shall be subject to the issuance of a certificate of use. All procedures regarding a certificate of use of land in a P-D zone, or the revocation or modification thereof, shall be governed by provisions establishing procedures related to conditional use permits as amended from time to time.

Tonner Hills Planned Community (Blackstone)

The 2002 Tonner Hills Planned Community Program and the 2002 Tonner Hills Area Plan (County of Orange 2002a, 2002b) provide regulations for planning and development of the residential planning areas in the Tonner Hills Planned Community. These planning areas provide for a wide variety of residential and accessory uses that allow for a compatible relationship between residential uses and existing and future oil operations within the community boundary. This master planned community, located in the City of Brea, was processed and approved by the County of Orange, with all construction activity overseen by the County. Upon move in, the City of Brea will provide services to residents under an annexation arrangement (City of Brea 2019c).

According to the Tonner Hills Area Plan Development Plan Map (amended in 2006), the project limits do not occur within any of the residential planning areas of the Tonner Hills Planned Community, but do occur within a portion of Planning Area 11 that is designated by the Tonner Hills Area Plan as Natural Open Space (County of Orange 2006). The Tonner Hills Planned Community Program states that an Area Plan is not required for open space planning areas and lists roads and highways as principal permitted uses within such areas (County of Orange 2002b). Brea Boulevard is also identified on the development maps prepared for the Tonner Hills Planned Community Program and Area Plan.

County of Orange

The County of Orange General Plan Land Use Element Amendment designates the project limits that are located within the County of Orange as “1B,” Suburban Residential (County of Orange 2015b) (refer to Figure 5.9-1). The County of Orange Zoning Map (2016) designates the project limits as “A1 (O),” General Agriculture with Oil Production Overlay (County of Orange 2016) (refer to Figure 5.9-2). The oil production overlay allows for oil drilling and production of oil, gas, and other hydrocarbon substances, subject to the regulations of the Orange County Oil Code (County of Orange 2019).

5.9.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant impact on the environment related to land use if it would result in:

- Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

5.9.3 METHODOLOGY RELATED TO LAND USE AND PLANNING

To determine the potential for land use and planning impacts, the Project was evaluated for compatibility with the City of Brea General Plan, City of Brea Municipal Code, the County of Orange General Plan, the County of Orange Zoning Code, and for consistency with applicable General Plan goals, policies, and objectives.

5.9.4 POTENTIAL IMPACTS

5.9.4.1 Conflict with Any Applicable Land Use Plan, Policy, or Regulation Adopted for the Purpose of Avoiding or Mitigating an Environmental Effect

Consistency with General Plan Goals, Objectives, and Policies

As previously noted, the City of Brea General Plan designates the project limits that are located within the City of Brea as Low Density Residential and High Density Residential. Hillside Residential and Natural Open Space, are located outside the City of Brea and within the City’s Sphere of Influence and is zoned per the City of Brea Interactive Zoning Map as HR (Hillside Residential), R-1-H (Single-Family Residential-Hillside), R-2 and R-3 (Multi-Family Residential), and THSP (Tonner Hills Specific Plan). The County of Orange General Plan designates the project limits that are located within the County of Orange as “1B,” Suburban Residential, and is zoned per the County of Orange Zoning Map as “A1 (O),” General Agriculture with Oil Production Overlay.

Brea Boulevard is an existing 30-foot-wide, two-lane, undivided highway with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. The corridor experiences traffic congestion and does not meet current design standards (e.g., no median barrier, sight distance does not meet current design standards at a number of curves etc.). The Project involves widening Brea Boulevard from two to four lanes, replacing and widening three bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, modifying driveway ingress/egress, installing a new wildlife overpass/land bridge, and providing striping and installing new signage. The Project would not result in any changes to the existing City of Brea or Orange County zoning or General Plan land use designations.

The analysis provided in Table 5.9-1 evaluates the Project’s consistency with General Plan goals, objectives, and policies for the City of Brea and County of Orange.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
CITY OF BREA LAND USE ELEMENT		
Goal CD-1	Provide a balance of land uses to meet the present and future needs of all residents.	<u>Not Applicable</u> – It is the City’s responsibility to ensure a balance of land uses to meet residents’ needs. The Project is not proposing a new land use.
Goal CD-2	Preserve and enhance the character of neighborhoods in northwest Brea.	<u>Consistent</u> – The Project involves widening an existing road and has no potential to divide an established community. All existing land uses near the project limits would continue to be accessible via roadway and driveway, though it should be noted that some driveway access points would be reconfigured.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Policy CD-2.1	Ensure that the design of new residential developments is sensitive to the character of existing neighborhoods.	<u>Not Applicable</u> – No residential land uses are proposed.
Policy CD-2.2	Ensure that new developments are integrated with established neighborhoods through a network of street and pedestrian connections.	<u>Not Applicable</u> – No new development/land uses are proposed.
Policy CD-2.3	Pursue circulation improvements that promote safe vehicle speeds. Utilize creative methods to reduce speeds, and improve circulation such as timed traffic lights and traffic calming devices.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the Master Plan of Arterial Highways (MPAH). The Project would enhance safety by slightly flattening (i.e., increasing the radius) the “bend” (as well as improving the design of the other existing curves within the project limits), providing a superelevation (i.e., angle of roadway banking within the turn), installing a median barrier or raised median within the project limits, and installing new traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Tonner Canyon Road and Brea Boulevard.
Policy CD-2.4	Preserve existing neighborhood characteristics, including tree-lined streets, sidewalks, and building orientation.	<u>Not Applicable</u> – The Project would not change existing neighborhood characteristics and would not result in the removal of any trees within internal neighborhood streets. Although tree removal may occur along Brea Boulevard due to road widening.
Policy CD-2.5	Improve existing small, commercial centers to improve access, aesthetics, and business success.	<u>Not Applicable</u> – No commercial land uses are proposed.
Goal CD-3	Improve access to transportation, shopping, and community services throughout existing neighborhoods.	<u>Consistent</u> – The Project would improve access to transportation, shopping, and community services by addressing congestion and improving traffic flow.
Policy CD-3.1	Promote greater mobility through pedestrian improvements and improved transit access.	<u>Not Applicable</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH. It does not include pedestrian improvements or improved transit access.
Policy CD-3.2	Increase the number and variety of services, transportation access, and activity centers for seniors.	<u>Not Applicable</u> – It is the City’s responsibility to address the service, transportation access, and activity center needs for seniors.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Policy CD-3.4 <i>Please note that the General Plan skips 3.3.</i>	Encourage local retail businesses to serve the Northwest area.	<u>Not Applicable</u> – It is the City’s responsibility to encourage retail and business activity.
Policy CD-3.5	Provide visual links between the Northwest area Downtown Brea.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road.
Policy CD-3.6	Provide appropriate and accessible public transportation service to the Northwest neighborhoods.	<u>Not Applicable</u> – It is the City’s responsibility to plan for appropriate and accessible public transportation service.
Goal CD-4	Maintain and improve the vitality, economic strength, accessibility, and livability of Downtown.	<u>Not Applicable</u> – This goal and its associated policies are specifically focused on development occurring within the Downtown area of the City of Brea.
Goal CD-5	Preserve Brea’s unique historic and cultural resources and neighborhoods.	<u>Consistent</u> – Historical/cultural resources are considered as part of Project implementation and would be preserved appropriately (e.g., Sergio O’Cadiz’s <i>Sunburst</i> sculpture, the Brea Canyon Portola Monument, etc.).
Policy CD-5.1	Ensure new development is compatible with the style, theme, and design of established structures and neighborhoods.	<u>Not Applicable</u> – No new development/land uses are proposed.
Policy CD-5.2	Promote preservation of historic single-family homes by ensuring that General Plan and zoning designations reflect the single-family nature of specific neighborhoods, and by providing City resources or incentives that foster rehabilitation.	<u>Not Applicable</u> – No new development/land uses are proposed.
Policy CD-5.3	Provide landscaping and amenities that complement historic resources and neighborhoods.	<u>Not Applicable</u> – No new development/land uses involving substantial landscaping are proposed. The Project’s median barrier or raised median would include limited landscaping within the varying 6 to 12 feet median width.
Policy CD-5.4	Ensure that development within and surrounding City Hall Park respects and responds to this important resource.	<u>Not Applicable</u> – This policy is specifically focused on development occurring within the City Hall Park area of the City, which is not within the project limits.
Policy CD-5.5	Create an easily identifiable historic district in Brea that is closely linked with Downtown.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road.
Policy CD-5.6	Establish design guidelines of standards for commercial development on South Brea Boulevard that respect and complement the historic character of surrounding neighborhoods.	<u>Not Applicable</u> – It is the City’s responsibility to establish guidelines and standards for development; the Project does not include commercial development and involves widening and related improvements to an existing road.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Policy CD-5.7	Establish a program that would enable historic neighborhoods to be designated as either a landmark district or historic overlay zone.	<u>Not Applicable</u> – It is the City’s responsibility to establish such programs.
Goal CD-6	Provide for the revitalization of the South Brea Boulevard Core.	<u>Not Applicable</u> – This goal and its associated policies are specifically focused on development occurring within the South Brea Boulevard Core, which is not within the project limits.
Goal CD-7	Create an environment in Carbon Canyon that balances the community’s long-term housing needs with community open space, habitat conservation, and public safety goals.	<u>Not Applicable</u> – This goal and its associated policies are specifically focused on development occurring within Carbon Canyon, which is not within the project limits.
Goal CD-8	Minimize the extent of urban development in the hillsides, and mitigate any adverse consequences associated with urbanization.	<u>Not Applicable</u> – This goal and its associated policies are focused on new, urban development. No new urban development is proposed.
Goal CD-9	Create a dynamic, mixed-use urban village that integrates a range of housing types (including senior housing), moderate-intensity commercial uses, educational and public uses, and parks.	<u>Not Applicable</u> – This goal and its associated policies are specifically focused on development occurring within southeast Brea, which is not within the project limits.
CITY OF BREA CIRCULATION ELEMENT		
Goal CD-10	Maintain an effective regional transportation network.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH. The Project would enhance safety by slightly flattening (i.e., increasing the radius) the “bend” (as well as improving the design of the other existing curves within the project limits), providing a superelevation (i.e., angle of roadway banking within the turn), installing a median barrier or raised median within the project limits, and installing new traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Tonner Canyon Road and Brea Boulevard.
Policy CD-10.1	Work continually with Caltrans to improve access to and from State Route 57.	<u>Not Applicable</u> – It is the City’s responsibility to coordinate with Caltrans.
Policy CD-10.2	Support efforts to establish rail travel connections with a regional network.	<u>Not Applicable</u> – The Project does not include and would not affect any railroads or rail travel connections.
Policy CD-10.3	Cooperate with surrounding jurisdictions to ensure the efficient operation of the arterial network system.	<u>Consistent</u> – The Project involves cooperation between the City of Brea, County of Orange, and Orange County

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
		Transportation Authority to widen Brea Boulevard consistent with its MPAH designation.
Policy CD-10.4	Work with Caltrans, the Orange County Transportation Authority, and surrounding jurisdictions to provide adequate capacity on regional routes for through traffic and to minimize cut-through traffic on the local street system.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH which would provide adequate capacity.
Policy CD-10.5	Work with Orange County Transportation Authority to ensure that the County Master Plan of Arterial Highways is consistent with the City’s Master Plan of Roadways.	<u>Consistent</u> – The Project expressly relates to this policy, as the purpose of the Project is to widen Brea Boulevard consistent with its MPAH designation.
Policy CD-10.6	Recognize that Carbon Canyon Road will continue to serve high volumes of regional traffic despite its designation as a Modified Commuter. Thus, examine design solution alternatives that can improve the safety and efficiency of Carbon Canyon Road.	<u>Not Applicable</u> – This policy is specifically focused on Carbon Canyon Road, which is not part of the Project.
Policy CD-10.7	Continue to work with the Four Corners Group to explore regional solutions to the four-county area.	<u>Not Applicable</u> – It is the City’s responsibility to coordinate with the “Four Corners Group”.
Goal CD-11	Provide a safe and efficient circulation system that meets the needs of the community.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH. The Project would enhance safety by slightly flattening (i.e., increasing the radius) the “bend” (as well as improving the design of the other existing curves within the project limits), providing a superelevation (i.e., angle of roadway banking within the turn), installing a median barrier or raised median within the project limits, and installing new traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Tonner Canyon Road and Brea Boulevard.
Policy CD-11.1	Maintain a circulation system that is based upon and is in balance with the Land Use Element of the General Plan.	<u>Consistent</u> – The Project is consistent with the Land Use Element of the City of Brea General Plan.
Policy CD-11.2	Establish Level of Service goals for designated City streets, and ensure that new development maintains these service levels.	<u>Not Applicable</u> – It is the City’s responsibility to establish level of service goals. It should be noted that the Project includes widening the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Policy CD-11.3	Plan neighborhood streets, pedestrian walks, and bicycle paths as a system of fully connected routes throughout the City.	<u>Not Applicable</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH. It does not involve improvements to neighborhood streets, pedestrian walks, or bicycle paths, however, the roadway shoulders could still be used in the future for a Class II Bikeway in conjunction with other existing and/or planned bikeway facilities in proximity to the corridor.
Policy CD-11.4	Protect residential streets from arterial street traffic.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH, to accommodate existing levels of arterial street traffic, and does not involve any changes to residential streets.
Policy CD-11.5	Use traffic calming measures in residential neighborhoods where warranted and appropriate to enhance safety for pedestrians.	<u>Not Applicable</u> – It is the City’s responsibility to implement traffic calming measures within residential neighborhoods.
Policy CD-11.6	Utilize creative methods to reduce congestion and improve circulation.	<u>Not Applicable</u> – It is the City’s responsibility to develop and implement creative methods to reduce congestion and improve circulation. However, it should be noted the Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH, which would serve to reduce congestion and improve circulation.
Policy CD-11.7 <i>Please note that the General Plan skips 11.8.</i>	Maintain the existing width of streets and roads that serve Olinda Village.	<u>Not Applicable</u> – This policy is specifically focused on development occurring within Olinda Village, which is not within the project limits.
Policy CD-11.9	Consider establishing landscaped center medians on arterial streets such as Imperial Highway, Birch Street, and South Brea Boulevard.	<u>Not Applicable</u> – It is the responsibility of the City to consider landscaped center medians where applicable. Please note that the Project’s median barrier or raised median would include limited landscaping within the varying 6 to 12 feet median width.
Policy CD-11.10	Work with the Brea Olinda Unified School District to establish safe routes to all schools and to facilitate better circulation surrounding schools in the A.M. and P.M. peak traffic periods.	<u>Not Applicable</u> – It is the City’s responsibility to coordinate with Brea Olinda Unified School District.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Policy CD-11.11	Examine alternative methods such as traffic calming, landscaping, provision of bike/transit lanes to slow traffic, improve street capacity, and increase safety.	<u>Consistent</u> – The Project includes slightly flattening (i.e., increasing the radius) the “bend” (as well as improving the design of the other existing curves within the road limits), providing a superelevation (i.e., angle of roadway banking within the turn), installing a median barrier or raised median within the road limits, and installing new traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Tonner Canyon Road and Brea Boulevard to enhance circulation and safety.
Goal CD-12	Promote and support an efficient public transportation system.	<u>Not Applicable</u> – It is the City’s responsibility to promote and support an efficient public transportation system.
Goal CD-13	Provide for an extensive, integrated, and safe bicycle, hiking, and pedestrian network throughout the community, and make Brea a pedestrian-friendly community.	<u>Not Applicable</u> – The Project involves widening an existing road to be consistent with the designated Primary Arterial Highway classification per the MPAH. It does not include a bicycle, hiking, or pedestrian network, however, the roadway shoulders could still be used in the future for a Class II Bikeway in conjunction with other existing and/or planned bikeway facilities in proximity to the corridor.
Policy CD-13.1	Develop and maintain a comprehensive and integrated system of bikeways that promotes bicycling riding for commuting and recreation.	<u>Not Applicable</u> – The Project involves widening an existing road to be consistent with the designated Primary Arterial Highway classification per the MPAH. It does not include bikeways, however, the roadway shoulders could still be used in the future for a Class II Bikeway in conjunction with other existing and/or planned bikeway facilities in proximity to the corridor.
Policy CD-13.2	Provide for safe and convenient pedestrian connections to and from Downtown, other commercial districts, neighborhoods, and major activity centers within the City.	<u>Not Applicable</u> – This policy is specifically focused on Downtown Brea, which is not within the project limits.
Policy CD-13.3	Establish the Birch Street corridor between Downtown Brea and the Civic and Cultural Center/Brea Mall as a pedestrian and bicycle-friendly travel way.	<u>Not Applicable</u> – This policy is specifically focused on areas (the Birch Street corridor) that are not within the project limits.
Policy CD-13.4	Require new developments to provide for the use of alternative modes of transit via internal trails or travel ways – public or private – for pedestrians and vehicles other than cars. New developments shall include	<u>Not Applicable</u> – This policy is specifically focused on new development. The Project involves widening an existing road to be consistent with the designated Primary Arterial Highway classification per the

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
	such features as well-designed sidewalks and parkways, bike lanes and paths, and dedicated bus turn-outs.	MPAH, and does not involve new development.
COUNTY OF ORANGE LAND USE ELEMENT		
Policy 1	Balanced Land Use. To plan urban land uses with a balance of well-connected residential, industrial, commercial, and public land uses.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses.
Policy 2	Phased Development. To phase development consistent with the adequacy of public services and facilities within the capacity defined by the General Plan.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new development.
Policy 3	Infill and Transit-Oriented Development. To encourage infill and transit-oriented development through incentives, concentrating development close to transit stops and ensuring access by all travel modes.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new development.
Policy 4	Housing Densities. To provide a variety of residential densities which permit a mix of housing opportunities affordable to the county's labor force.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new residential development.
Policy 5	Land Use/Transportation. To plan an integrated land use and transportation system that accommodates travel demand for all modes of transit.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not involve any changes to land uses or the transit system.
Policy 6	Commercial and Industrial Centers/Transportation Access. To locate major commercial and industrial centers in areas that are easily accessible to existing or planned major transportation facilities.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses or development.
Policy 7	New Development Compatibility. To require new development to be compatible with adjacent areas.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses or development.
Policy 8	Creative Design Concepts. To encourage innovative concepts which contribute to the solution of land use problems.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses or development to which this Policy applies.
Policy 9	Enhancement of Environment. To guide development so that the quality of the physical environment is enhanced.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses or development to which this Policy applies.
Policy 10	Employment Development. To encourage development of employment land uses to achieve balanced phasing of development.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
		land uses or development to which this Policy applies.
Policy 11	Childcare Improvement. To encourage and facilitate provision of childcare facilities to address the growing County demand.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses or childcare facilities.
Policy 12	Hazardous Waste Management Facilities. To protect the health and welfare of the public and quality of the environment, while preserving the economic vitality of Orange County through a comprehensive countywide program and to ensure the safe and efficient management of hazardous wastes.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses that would involve hazardous waste.
Policy 13	Recycling/Materials Recovery. To encourage and facilitate establishment of recycling/materials recovery facilities to address the State mandate given through the California Integrated Waste Management Act of 1989 (AB 939).	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses that would involve solid waste.
Policy 14	Urban and Storm Runoff Regulations. To guide physical development within the County while protecting water quality through required compliance with urban and stormwater runoff regulations.	<u>Consistent</u> – The Project is designed in compliance with all required urban and stormwater runoff regulations.
Policy 15	Airport Land Use Plans. To ensure consistency between proposed development and Airport Environs Land Use Plans (AELUPs) for Orange County airports.	<u>Not Applicable</u> – The Project involves widening and related improvements to an existing road. It does not include any new land uses and is not located within an AELUP.
COUNTY OF ORANGE TRANSPORTATION ELEMENT – CIRCULATION PLAN		
Goal 1	Provide a circulation plan that supports land use policies of the County.	<u>Not Applicable</u> – This is a general County-wide circulation system goal with associated objectives aimed at achieving the overall County-wide goal.
Goal 2	Provide a circulation (arterial highway) plan that is integrated with that of adjacent jurisdictions.	<u>Consistent</u> – The Project involves cooperation between the City of Brea, County of Orange, and Orange County Transportation Authority to widen Brea Boulevard consistent with its MPAH designation.
Objective 2.1	Plan, develop and implement a circulation system in the unincorporated areas, which is consistent with the Master Plan of Arterial Highways and circulation plans of adjacent jurisdictions.	<u>Consistent</u> – The Project expressly relates to this policy, as the purpose of the Project is to widen Brea Boulevard consistent with its MPAH designation.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Goal 3	Provide a circulation plan that facilitates the safe, convenient and efficient movement of people and goods throughout unincorporated areas of the County.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH. The Project would enhance safety by slightly flattening (i.e., increasing the radius) the “bend” (as well as improving the design of the other existing curves within the project limits), providing a superelevation (i.e., angle of roadway banking within the turn), installing a median barrier or raised median within the project limits, and installing new traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Tonner Canyon Road and Brea Boulevard.
Objective 3.1	Establish minimum roadway specifications necessary to ensure safe and efficient movement of vehicles and other modes of transportation.	<u>Consistent</u> – Refer to response to Goal 3.
Objective 3.2	Provide for safe and efficient movement of traffic on smartstreets, 8-lane, 6-lane, 4-lane and 2-lane arterials so as to provide access to the regional circulation network.	<u>Consistent</u> – Refer to response to Goal 3.
Goal 4	Ensure that the circulation plan conforms to applicable environmental quality standards.	<u>Consistent</u> – The Project has been designed in accordance with applicable environmental quality standards as analyzed throughout this Draft EIR. Where appropriate, mitigation measures have been included to eliminate or reduce potential environmental impacts.
Objective 4.1	Ensure that development of the circulation plan is sensitive to the environmental character of communities and neighborhoods throughout the unincorporated areas of the County.	<u>Consistent</u> – The Project involves widening an existing road and has no potential to divide an established community. All existing land uses near and within the project limits would continue to be accessible via roadway and driveway, though it should be noted that some driveway access points would be reconfigured.
Objective 4.2	Plan and develop, through design and alignment studies, roads in a manner which minimizes impacts associated with crossing of flood plains or drainage courses; known earthquake fault zones, wildlife, unique geological, and resource conservation and open space areas and currently designated agricultural areas.	<u>Consistent</u> – The Project and alternatives were developed as part of a road widening Funding Study (OC Public Works 2013) and have been further developed and analyzed as part of this Draft EIR to meet the objectives of the Project while minimizing impacts to the environment.

**TABLE 5.9-1
PROJECT CONSISTENCY WITH CITY OF BREA AND COUNTY OF ORANGE GENERAL PLANS**

GENERAL PLAN GOAL, OBJECTIVE, OR POLICY NUMBER	APPLICABLE GOAL, OBJECTIVE, OR POLICY	CONSISTENCY ANALYSIS
Objective 4.3	Maintain a circulation system that is compatible with the physical environment, to the extent practical, and allows for the preservation of the natural resources of the County.	<u>Consistent</u> – Refer to responses to Goal 4 and Objective 4.2.
Goal 5	Manage peak hour traffic congestion to achieve an acceptable level of service (LOS) on existing and future circulation plan facilities in the unincorporated areas of the County.	<u>Consistent</u> – The Project would widen the existing roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH which would provide adequate capacity. As discussed in Section 5.11, Transportation and Traffic, of this Draft EIR, the Project would improve the LOS within the project limits.
Objective 5.1	Implement the circulation system in a manner which achieves the established Traffic Level of Service Policy pursuant to the applicable Growth Management Plan (GMP) Element. Appendix IV-1: GMP Transportation Implementation Manual contains traffic LOS policies applicable to County unincorporated areas.	<u>Consistent</u> – Refer to response to Goal 5. See also Section 5.11, Transportation and Traffic, for additional details.
Objective 5.2	Develop traffic forecasts for County unincorporated areas that are consistent with those of OCTA.	<u>Not Applicable</u> – The Project is a specific road improvement project and would not preclude development of any traffic forecasting. It should be noted the proposed improvements would match the OCTA MPAH designation for a Primary Arterial Highway.
Goal 6	Implement transportation demand management and transportation systems management strategies which reduce peak hour vehicle travel demand and minimize single-occupant vehicles and trip length on the unincorporated County roadway system.	<u>Not Applicable</u> – This is a general County-wide circulation system goal with associated objectives aimed at achieving the overall County-wide goal.

Sources: City of Brea 2003; County of Orange 2020 (Transportation Element) and 2015 (Land Use Element).

As noted above, the Project would be consistent with all applicable City of Brea and County of Orange General Plan goals, objectives, or policies. Therefore, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant and no mitigation measures are required.

R/W Acquisition, Driveway Access, and Utility Relocations

Road widening and re-alignment would require permanent partial property acquisitions for road easements R/W, retaining wall easements, slope easements, and easements for water quality features from adjacent private properties. During construction, temporary construction easements would be required from adjacent private properties. Overall, the Project would require approximately 114,000 square feet (SF) of road easement, approximately 123,000 SF of retaining wall easement, approximately 614,000 SF of temporary construction easement, approximately 68,000 SF of slope easement, and approximately 10,000 SF of basin/best management practice (BMP) (i.e., water quality features) easement. Table 5.9-2 provides the assessor's parcel number (APN), the owner, type of acquisition, and the amount of acquisition required (in SF) for all property acquisitions associated with the Project.

**TABLE 5.9-2
ACQUISITION BY APN, OWNER, AND TYPE AND AMOUNT OF ACQUISITION**

APN	OWNER	TYPE	CITY OF BREA (SF)	COUNTY OF ORANGE (SF)	TOTAL AREA (SF)
304-151-60/304-301-01	Brea Hills LLC	Road Easement	19,000	20,000	39,000
		Retaining Wall Easement	--	4,000	4,000
		Construction Easement	0	207,000	207,000
		Slope Easement	13,000	15,000	28,000
		Basin/BMP Easement	10,000	--	10,000
304-151-59	Brea Hills LLC	Road Easement	--	1,000	1,000
		Retaining Wall Easement	--	--	--
		Construction Easement	--	74,000	74,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
306-012-24	Brea Hills LLC	Road Easement	--	46,000	46,000
		Retaining Wall Easement	--	33,000	33,000
		Construction Easement	5,000	111,000	111,000
		Slope Easement	--	24,000	24,000
		Basin/BMP Easement	--	--	--

**TABLE 5.9-2
ACQUISITION BY APN, OWNER, AND TYPE AND AMOUNT OF ACQUISITION**

APN	OWNER	TYPE	CITY OF BREA (SF)	COUNTY OF ORANGE (SF)	TOTAL AREA (SF)
306-012-35	City of Brea	Road Easement	16,000	--	16,000
		Retaining Wall Easement	27,000	--	27,000
		Construction Easement	80,000	--	80,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
306-011-03	City of Brea	Road Easement	--	--	
		Retaining Wall Easement	--	11,000	11,000
		Construction Easement	--	19,000	19,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
306-012-13	Cal Resources LLC	Road Easement	--	--	--
		Retaining Wall Easement	--	--	--
		Construction Easement	--	21,000	21,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
304-171-03	Cal Resources LLC	Road Easement	--	4,000	4,000
		Retaining Wall Easement	--	4,000	4,000
		Construction Easement	--	53,000	53,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--

**TABLE 5.9-2
ACQUISITION BY APN, OWNER, AND TYPE AND AMOUNT OF ACQUISITION**

APN	OWNER	TYPE	CITY OF BREA (SF)	COUNTY OF ORANGE (SF)	TOTAL AREA (SF)
306-011-01	Cal Resources LLC	Road Easement	--	--	--
		Retaining Wall Easement	--	1,000	1,000
		Construction Easement	--	8,000	8,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
304-171-08	Cal Resources LLC	Road Easement	--	5,000	5,000
		Retaining Wall Easement	--	43,000	43,000
		Construction Easement	--	18,000	18,000
		Slope Easement	--	13,000	13,000
		Basin/BMP Easement	--	--	--
304-171-05	Tonner Canyon LLC	Road Easement	--	3,000	3,000
		Retaining Wall Easement	--	--	--
		Construction Easement	--	--	--
		Slope Easement	--	3,000	3,000
		Basin/BMP Easement	--	--	--
306-013-01	Cal Resources LLC	Road Easement	--	--	--
		Retaining Wall Easement	--	--	--
		Construction Easement	--	4,000	4,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--

**TABLE 5.9-2
ACQUISITION BY APN, OWNER, AND TYPE AND AMOUNT OF ACQUISITION**

APN	OWNER	TYPE	CITY OF BREA (SF)	COUNTY OF ORANGE (SF)	TOTAL AREA (SF)
--	Caltrans	Road Easement	--	--	--
		Retaining Wall Easement	--	--	--
		Construction Easement	--	14,000	14,000
		Slope Easement	--	--	--
		Basin/BMP Easement	--	--	--
TOTAL ROAD EASEMENT (PERMANENT)			35,000	79,000	114,000
TOTAL RETAINING WALL EASEMENT (PERMANENT)			27,000	96,000	123,000
TOTAL CONSTRUCTION EASEMENT (TEMPORARY)			85,000	529,000	614,000
TOTAL SLOPE EASEMENT¹			13,000	55,000	68,000
TOTAL BASIN/BMP EASEMENT			10,000	0	10,000

¹ Total Slope Easement includes areas for both Permanent Road Maintenance Easement and Permanent Slope Easement
Source: OC Public Works 2022.

There are several existing driveway access points to properties that front Brea Boulevard. Existing access points would be maintained, modified, relocated, consolidated and/or otherwise enhanced. In addition, the Project would require relocation of utilities and oilfield-related equipment which would require permits and/or agreements with the owners. Table 5.9-3 lists the facilities that would be relocated as part of the Project.

**TABLE 5.9-3
UTILITY AND OIL FIELD EQUIPMENT RELOCATIONS**

UTILITY OWNER	FACILITY TYPE	DISPOSITION
Verizon Telecom	Potential overhead and underground telephone lines	Relocate affected facilities, if any
AT&T	Overhead telephone lines and Underground telephone multi-duct bank	Relocate up to 31 utility poles (co-located with Southern California Edison distribution line poles), relocate telephone multi-duct bank on Bridge 3, and adjust telephone manholes
Time Warner	Potential overhead community antenna television	Relocate affected utility poles
Southern California Edison	Overhead power distribution lines and limited underground power service feed lines	Relocate up to 31 utility poles
Metropolitan Water District	36" water transmission line	Protect in place per special requirements when crossing line
Linn Western Operating, Inc.	Potential oil lines and well	Relocate conflicting lines, if any
Chevron Pipe Line Co.	Potential oil lines	Relocate conflicting lines, if any
Cooper and Brain, Inc.	Potential oil lines	Relocate conflicting lines, if any
Westcon c/o Vintage Productions	Potential oil lines	Relocate conflicting lines, if any
Caltrans	On-ramp lighting and meter	Protect in place
City of Brea	10" Sewer	Protect in place

Source: OC Public Works 2022.

As noted above, the Project includes property acquisitions to accommodate the re-alignment and widening of Brea Boulevard. These partial acquisitions would consist of small amounts of property fronting the existing road that would be acquired as part of the Project R/W. These partial property acquisitions would not change surrounding land uses because they only involve small portions of each subject property. Project-related acquisitions would be obtained "in fee" or easement through the payment of fair market value for the property. Therefore, the Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Impacts would be less than significant and no mitigation measures are required.

5.9.5 MITIGATION MEASURES

No mitigation measures related to land use and planning are required.

5.9.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts related to land use and planning are below the level of significance and no mitigation measures are necessary.

5.10 NOISE AND VIBRATION

This section describes the existing noise environment for the project area, potential environmental impacts, recommended mitigation measures to help reduce or avoid the impacts and the level of significance of Project impacts after mitigation. The information and analysis provided in this section is largely derived from the Noise and Vibration Impact Analysis Technical Memo (Appendix N of this Draft EIR).

5.10.1 EXISTING CONDITIONS

5.10.1.1 Noise and Vibration Overview

Background Information on Noise

Noise is most commonly described as unwanted sound, and both are measured and quantified in a similar manner. Sound levels are expressed on a logarithmic scale of “decibels” (dB), in which a change of 10 units on a decibel scale reflects a 10-fold increase in sound energy. A 10 dB increase (or decrease) in sound energy is generally experienced by most people as about a doubling, (or halving), of perceived loudness. Table 5.10-1 provides a summary of the relationship between changes in noise level in decibels and perceived change.

**TABLE 5.10-1
RELATIONSHIP BETWEEN NOISE LEVEL CHANGE AND PERCEIVED CHANGE**

NOISE LEVEL CHANGE (dBA)	CHANGE IN RELATIVE ENERGY	DESCRIPTION IN PERCEPTION
+20 dBA	100 x	Four times as loud
+10 dBA	10 x	Two times as loud
+5 dBA	3.16 x	Readily perceptible increase
+3 dBA	2.0 x	Barely perceptible increase
0 dBA	1 x	No change
-3 dBA	0.5 x	Barely perceptible decrease
-5 dBA	0.316 x	Readily perceptible decrease
-10 dBA	0.1 x	Half as loud
-20 dBA	0.01 x	One-quarter as loud

Source: Caltrans Technical Noise Supplement (2013).

In evaluating human response to sound, acousticians compensate for the response of the human ear to varying frequency, or pitch, of components of sound. The human ear is most sensitive to sounds in the middle frequency range of human speech and less sensitive to lower and higher pitched sounds. An “A” weighted scale was developed to account for this variable sensitivity. Therefore, most community noise standards are expressed in decibels on the “A”-weight scale (dBA). Zero on the decibel scale is set roughly at the lower threshold of human hearing. Sound levels of common sounds in the environment include office background noise at about 50 dBA; human conversation at 5 to 10 feet away at about 65-70 dBA; cars driving by at 50 feet away at 65-70 dBA; heavy trucks driving by at 50 feet away at 75-80 dBA; and aircraft fights directly overhead one mile away at about 90-100 dBA.

The equivalent sound level (L_{eq}) is used to describe the equivalent (or energy average) over a specific period of time (such as a second, minute, hour or day). The equivalent sound level over the period of 1 hour is described as $L_{eq(1-hour)}$. Another common metric for quantifying environmental noise is the Community Noise Equivalent Level, or CNEL, which is the 24-hour equivalent level with a 5 dBA penalty added for evening periods (7 to 10 pm), and a 10 dBA penalty added for nighttime periods (10 pm to 7 am), to account for higher sensitivity to noise during those periods.

Background Information on Vibration

Vibration is the periodic oscillation of a medium or object with respect to a given reference point. Sources of vibration include natural phenomena (e.g., earthquakes, volcanic eruptions, ocean waves, landslides, etc.) and those introduced by human activity (e.g., explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., operating factory machinery) or transient in nature (e.g., explosions). Vibration levels are depicted in terms of amplitude and frequency relative to displacement, velocity, or acceleration.

Vibration from heavy trucks on typical roadways is rarely perceptible beyond about 40 feet from the centerline of the closest lane (Caltrans Transportation and Construction Vibration Manual [2020]), but construction activity can generate higher vibration levels that can potentially produce human annoyance or even potential architectural or structural damage. The Caltrans guidance manual for construction and transportation vibration provides impact thresholds for both annoyance and potential damage from construction vibration, as shown in Tables 5.10-2 and 5.10-3 below, respectively. Both are expressed in term of Peak Particle Velocity (PPV) as measured in inches per second (in/sec).

**TABLE 5.10-2
VIBRATION ANNOYANCE CRITERIA**

HUMAN ANNOYANCE	MAXIMUM PPV (in/sec)	
	TRANSIENT SOURCE	CONTINUOUS SOURCE
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.1
Severe	2.0	0.4

Notes: 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 2020, Table 20.

**TABLE 5.10-3
VIBRATION DAMAGE POTENTIAL 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

Notes: 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 2020, Table 19.

5.10.1.2 Regulatory Setting

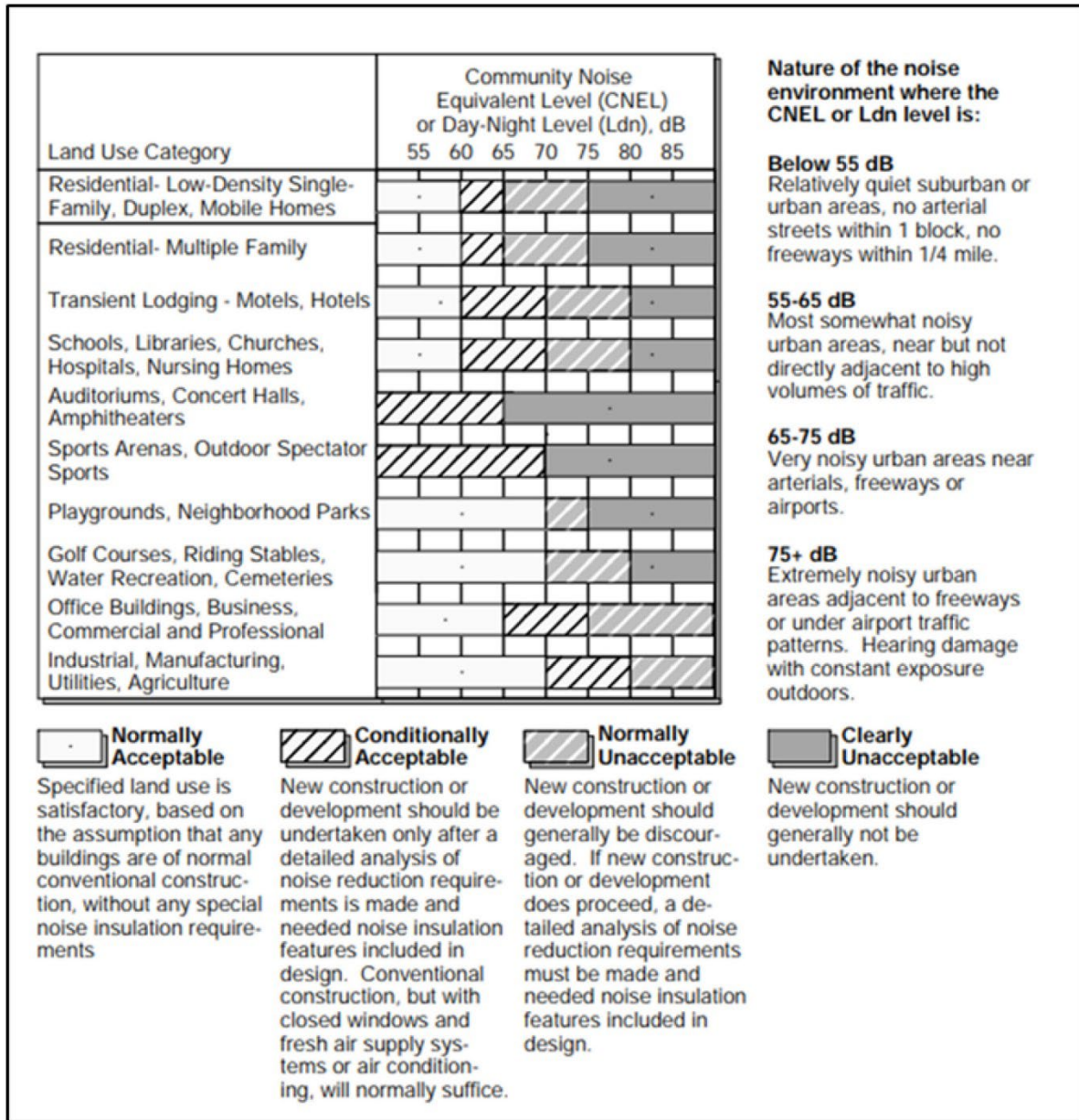
Federal Highway Administration and Caltrans Noise Policy

The Federal Highway Administration (FHWA) and Caltrans both have highway noise policies that define noise abatement criteria for proposed Federal or Federal-aid highway projects. These policies identify noise abatement criteria for various land uses based upon the future loudest hour of the day for the proposed Project. For residential land uses, for example, a loudest hour traffic noise level of 66 dBA L_{eq} or greater would be evaluated for potential noise abatement. However, since the Project is not a Federal or Federal-aid highway project these policies do not strictly apply.

City of Brea Noise Policy

The City of Brea General Plan has a section on noise under the Public Safety Chapter (Chapter 6, Public Safety, Brea General Plan; City of Brea 2003) which includes a noise/land use compatibility matrix, as shown in Figure 5.10-1 below. This matrix outlines acceptable noise levels for certain types of new construction, using the 24 hours noise metric CNEL and is used primarily for assessing appropriate noise levels for future developments.

L:\DCS\Projects\ENV\60492260 - Brea Canyon Road Project EIR\600 Working Docs - CAD\CADD\GIS



Source: Brea General Plan (2003), Noise, Figure PS-6, OCPW (2021), and AECOM (2021).

Figure 5.10-1
City of Brea Noise/Land Use Compatibility Matrix

Brea Boulevard Corridor Improvement Project

The City of Brea Municipal Code addresses construction noise in Chapter 8.20 - Noise Control. The exterior noise standard is provided under section 8.20.050, as shown below:

A. The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

City of Brea Exterior Noise Standard:

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m. – 10:00 p.m.
1	50 dB(A)	10:00 p.m. – 7:00 a.m.
<i>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).</i>		

B. It shall be unlawful for any person at any location within the city to create 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, to exceed:

- 1. The noise standard for a cumulative period of more than 30 minutes in any hour; or*
- 2. The noise standard plus five (5) dB(A) for a cumulative period of more than 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 standards 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.

Construction noise is specifically exempted under sub-section 8.20.070; part E, of the noise control code, as shown below:

The following activities shall be exempted from the provisions of this chapter:

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 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

As provided above, construction noise is exempt from City noise standards so long as construction activity is restricted to daytime hours on Weekdays and Saturday.

Neither the noise section of the City of Brea General Plan nor the Noise Chapter of the Municipal Code specifically offers potential noise impacts for traffic noise on existing land uses.

County of Orange Noise Policy

The County of Orange Noise Ordinance is provided under The Codified Ordinances of the County of Orange, Title 4, Division 6 – Noise Control. Section 4-6-5 of this code provides the Exterior Noise Standard

and Section 4-6-7 of this code provides the Special Provisions (and exemptions), which are essentially identical to both the exterior noise standard and construction noise exemption in the City of Brea Municipal Code. However, the County of Orange noise policy only applies to developed unincorporated areas of the County. All sensitive receptors (residences) are within the boundaries of the incorporated City of Brea.

5.10.1.3 Existing Noise Environment

Noise Study Area

The noise study area for this noise and vibration analysis focuses on the southern end of the corridor, as there are no identified noise-sensitive land uses along the corridor north of the City of Brea/County of Orange boundary (approximately 2,000 feet north of Central Avenue/State College Boulevard). North of this point is industrial property, oil and gas drilling and storage activity, vehicle storage facilities, or undeveloped land, which are not considered noise-sensitive uses.

The noise study area includes entirely single-family homes on the northbound (east) side of Brea Boulevard, with 37 first-row homes within about 200 feet of the existing roadway. On the southbound (west) side of Brea Boulevard is Kindred Hospital of Brea with an associated outdoor activity area, the Vintage Canyon senior apartment complex (with a few street-facing units), and the Brea Central commercial strip mall (no noise-sensitive activities). Other nearby receptors are the Brea Woods Senior Apartments complex adjacent to the southwestern boundary of the Vintage Canyon Senior Apartments.

Noise Measurements

Noise measurements were conducted in the noise study area on October 2, 2019. The purpose of the noise measurements was not to represent existing noise conditions, but rather to serve as a tool to validate the traffic noise model's accuracy. Table 5.10-4, below, presents a summary of the noise measurements conducted for the Project.

**TABLE 5.10-4
NOISE MEASUREMENT SUMMARY**

MEASUREMENT DATA, OCTOBER 2, 2019				CONCURRENT TRAFFIC COUNTS*	
ID	DESCRIPTION	TIME	L _{eq}	NORTHBOUND	SOUTHBOUND
LT-1	Kindred Hospital	09:52-13:32	61.2	--	--
ST-2	Northeast Corner of Brea Boulevard and Canyon Country Road	11:05-11:26	66.8	90/2/2	45/1/0
ST-3	Apartment Building Exterior	13:02-13:21	65.4	85/0/4	50/0/15

Notes:

* Traffic counts in autos and light trucks/medium trucks/heavy trucks. Concurrent traffic counts were completed for short-term noise measurements only.

Source: Appendix N of this Draft EIR.

A map showing the noise study area and noise measurement locations is provided in Figure 5.10-2.

Predicted Existing Traffic Noise

Traffic noise modeling was conducted using the FHWA Traffic Noise Model (TNM) version 2.5, which is the most current version available at the time of the analysis, and which remains the current version authorized for use by FHWA. Each of the roadway segments include roadway and traffic attributes

including roadway width and pavement type and hourly traffic volumes for autos, medium trucks, and heavy trucks with average vehicle speeds for each.

Existing modeled roadways included:

- South of Canyondale Drive (4 lanes);
- Canyondale Drive to Canyon Country Road (3 lanes); and
- North of Canyon Country Road (2 lanes)

The traffic noise model included modeled receiver locations for each first-row noise-sensitive land uses within the noise study area as shown in Figure 5.10-3, including each first-row home along the northbound (east) side of Brea Boulevard and along the southbound (west) side of Brea Boulevard. In addition to roadways and receivers, existing masonry walls between roadways and receivers were also included in the model, although less substantial privacy fences were not included in the model as these typically provide limited noise reduction. Predicted noise levels for existing (2019) conditions are provided below in Table 5.10-5. The predicted existing noise levels range from 58.2 to 69.1 dBA L_{eq} , with an average of 66.9 dBA L_{eq} .

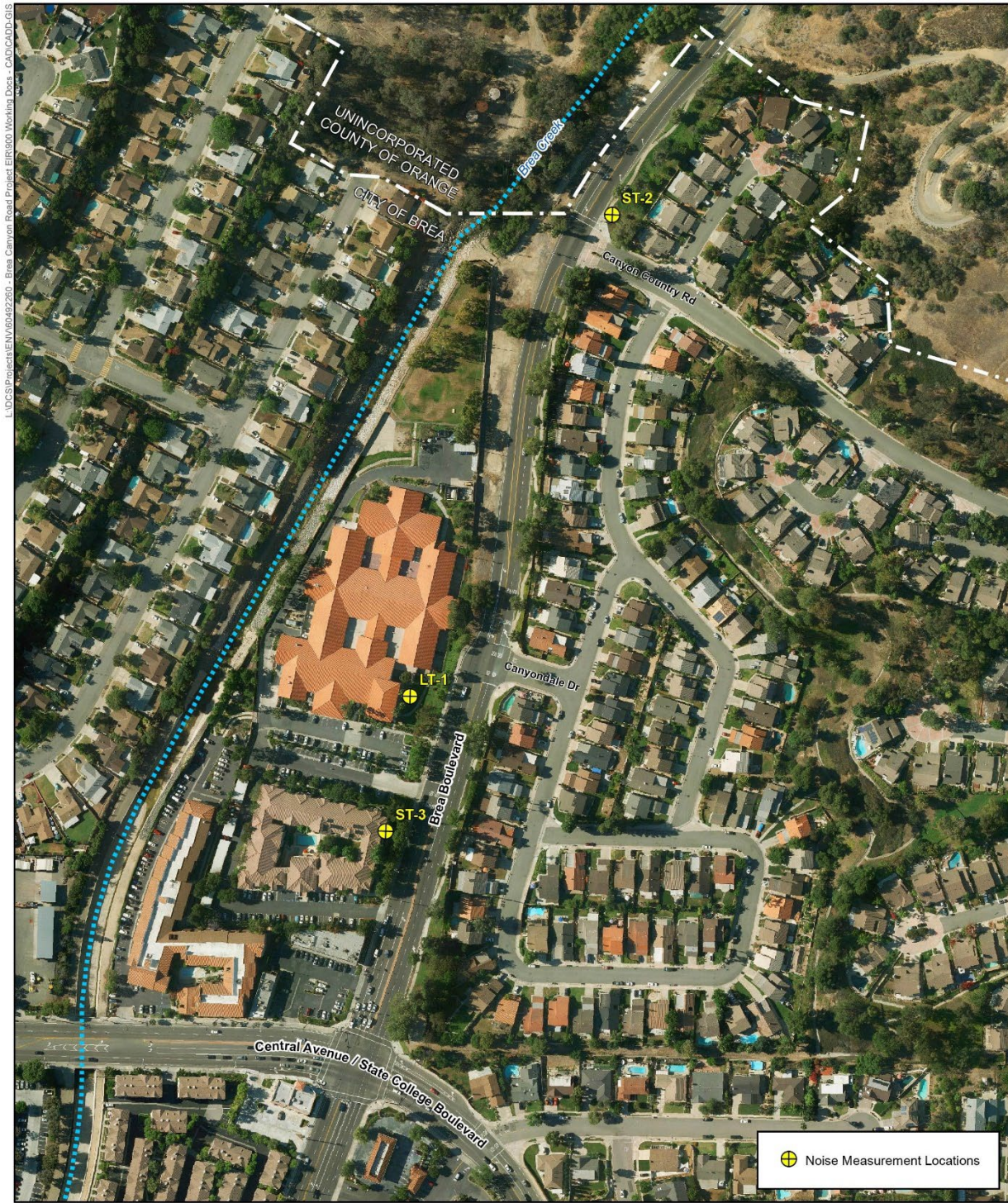
5.10.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant impact on the environment related to noise or vibration if it would result in:

- Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.
- Generation of excessive groundborne vibration or groundborne noise levels.

5.10.2.1 Project Noise Impact Thresholds of Significance

While neither FHWA/Caltrans noise abatement criteria nor City of Brea Land Use Compatibility guidance are directly applicable to this Project, it is recommended to recognize the Caltrans reference to the relationship between noise level change and perceived change in loudness (see Table 5.10-1), to establish a (barely perceptible) 3 dBA increase in noise level as a potential noise impact.



Source: OCPW (2022) and AECOM (2022).



Figure 5.10-2
Noise Measurement Locations

Brea Boulevard Corridor Improvement Project



Source: OCPW (2022) and AECOM (2022).



Figure 5.10-3
Modeled Receiver Locations

Brea Boulevard Corridor Improvement Project

**TABLE 5.10-5
PREDICTED EXISTING NOISE LEVELS (L_{EQ} , DBA)**

RECEIVER	LAND USE	EXISTING (2019)
R01	SFR	62.5
R02	SFR	66.7
R03	SFR	58.2
R04	SFR	67.1
R05	SFR	66.4
R06	SFR	66.5
R07	SFR	65.4
R08	SFR	65.8
R09	SFR	68.4
R10	SFR	68.4
R11	SFR	69.1
R12	SFR	68.0
R13	SFR	68.3
R14	SFR	68.3
R15	Park	66.8
R16	SFR	68.5
R17	Park	62.7
R18	SFR	68.0
R19	SFR	67.7
R20	SFR	67.3
R21	SFR	67.6
R22	SFR	67.6
R23	SFR	68.5
R24	SFR	68.3
R25	SFR	69.0
R26	SFR	64.3
R27	SFR	62.9
R28	SFR	64.1
R29	SFR	66.6
R30	SFR	65.0
R31	SFR	66.7
R32	SFR	66.2

**TABLE 5.10-5
PREDICTED EXISTING NOISE LEVELS (L_{EQ}, DBA)**

RECEIVER	LAND USE	EXISTING (2019)
R33	SFR	67.5
R34	SFR	66.6
R35	SFR	66.4
R36	SFR	65.6
R37	SFR	62.5
R38	Hospital	66.6
R39	MFR	68.7
Average	--	66.9

SFR = single-family residence; MFR = multi-family residence
Source: Appendix N of this Draft EIR.

The thresholds used in the noise and vibration analysis are summarized below in Table 5.10-6.

**TABLE 5.10-6
RECOMMENDED NOISE AND VIBRATION IMPACT THRESHOLDS**

NOISE SOURCE	IMPACT THRESHOLD	METRIC
Traffic Noise	>3 dBA increase in noise level for residential land uses and hospitals	L _{eq} (1 hour) for loudest hour
Construction Noise	None if conducted during daytime hours (7:00 am and 7:00 pm)	Not applicable
Construction Vibration	0.3 in/sec for potential Damage 0.1 in/sec for potential annoyance	Peak Particle Velocity (PPV), inches per second

Source: Appendix N of this Draft EIR.

5.10.3 METHODOLOGY RELATED TO NOISE AND VIBRATION

5.10.3.1 Equipment

An American National Standards Institute (ANSI) Type 1 precision sound level meter (SLM) within its manufacturer's recommended calibration period was used for all measurements and all typically recommended noise measurement field procedures were observed. These included mounting the SLM on a tripod clear of acoustically reflecting or shielding surfaces, noting extraneous events that could potentially contaminate noise measurement, conducting pre- and post-measurement field calibrations, and properly documenting the entire measurement event.

5.10.3.2 Noise Model Validation

Traffic noise model validation is the process of testing the accuracy of each modeled area by comparing the actual measured noise level to the predicted levels for traffic conditions observed during the noise

measurement (typically from traffic counts videotaped during the noise measurements). Traffic noise models are generally considered to be validated if the measured and predicted noise levels are within a 3 dBA margin error. All three noise measurement locations were modeled in TNM validation runs and each was validated within the acceptable 3 dBA margin of error, as summarized in Table 5.10-7.

**TABLE 5.10-7
TRAFFIC NOISE MODEL VALIDATION SUMMARY**

MEASUREMENT LOCATION	MEASURED (L_{eq}, dBA)	PREDICTED (L_{eq}, dBA)	PREDICTED – MEASURED	RESULT
LT-1	61.2	61.4	0.2	Validated
ST-2	66.8	64.8	2.0	Validated
ST-3	65.4	63.4	2.0	Validated

Source: Appendix N of this Draft EIR.

5.10.3.3 Project Traffic and Roadway Inputs for Traffic Prediction

Traffic data for the TNM data inputs were developed from Project traffic projections for peak hour traffic (the traffic volumes for the busiest hour of the day) to simulate loudest hour traffic levels, as provided in Appendix N. Peak traffic was developed for each of the three unique roadway segments within the noise study area: Brea Boulevard from Central Avenue/State College Boulevard to Canyondale Drive, Canyondale Drive to Canyon Country Road, and Canyon Country Road to Tonner Canyon Road, both for northbound and southbound, for the existing am and pm peak. Traffic was not modeled for Canyondale Drive or Canyon Country Road, as the traffic volumes for these roadways were much lower (2% to 4% of traffic volume on Brea Boulevard, respectively), and would not have made a substantial contribution to predicted noise levels.

TNM runs were developed for two scenarios, with varying traffic and roadway configurations for each, as noted below in Table 5.10-8.

**TABLE 5.10-8
MODELED ROADWAY CONFIGURATIONS**

MODELED ALTERNATIVE	ROADWAY CONFIGURATION	TRAFFIC INPUT
Existing/No-Build	Existing Roadways: South of Canyondale Drive, 4 lanes Canyondale Drive to Canyon Country Road, 3 lanes North of Canyon Country Road, 2 lanes Average pavement type	2019 Peak Hour
Future Build	Future Roadway: 4 lanes throughout Open Graded Asphalt Concrete (OGAC) pavement type	2045 Peak Hour

Source: Appendix N of this Draft EIR.

5.10.3.4 Construction Vibration

The types of vibration-generating construction equipment likely to be used on the Project, and their associated reference vibration levels (in peak particle velocity in inches/second) are listed in Table 5.10-9.

**TABLE 5.10-9
CONSTRUCTION EQUIPMENT REFERENCE VIBRATION LEVELS**

EQUIPMENT	REFERENCE PPV AT 25 FEET (IN/SEC)
Vibratory roller	0.210
Large bulldozer	0.089
Caisson drilling	0.089
Loaded trucks	0.076
Jackhammer	0.035
Small bulldozer	0.003

Source: Caltrans 2020, Table 18.

Predicted vibration levels at specific distance from the equipment listed in Table 5.10-9 can be calculated using the following equation:

$$PPV_{Equipment} = PPV_{Ref} (25/D)^n \text{ (in/sec)}$$

Where:

PPV_{Ref} = reference PPV at 25 ft.

D = distance from equipment to the receiver in ft.

n = 1.1 (the value related to the attenuation rate through ground)

5.10.4 POTENTIAL IMPACTS

5.10.4.1 Generation of a Substantial Temporary or Permanent Increase in Ambient Noise Levels in the Vicinity of the Project in Excess of Standards Established in the Local General Plan or Noise Ordinance, or Applicable Standards of Other Agencies

Construction Noise

Roadway construction activity is part of the Project and could last for as long as 5 years, although only a portion of that activity would take place in proximity to noise-sensitive receivers (i.e., in the City of Brea) in the noise study area. A variety of construction equipment would be used, as identified in Table 5.10-10, along with typical noise levels and duty cycles (percent of time during the workday that it is in use) for each. The actual noise level at any given receiver location would depend on the type and number of equipment being used that the construction task and the distance between the construction activity. There would also be four construction staging/laydown areas (refer to Figure 3-3 in Section 3.0, Project Description of this Draft EIR) where material and equipment would be stored, and other activities would take place. The southernmost of these staging areas would be located in the noise study area, in an unpaved area on the west side of Brea Boulevard, west of the existing traffic signal at Canyon Country Road.

**TABLE 5.10-10
CONSTRUCTION EQUIPMENT AND TYPICAL NOISE LEVELS**

CONSTRUCTION EQUIPMENT	MAX NOISE LEVEL L _{max} @ 50 FEET (dBA)	ACOUSTICAL USAGE FACTORS (%)	EQUIVALENT LEVEL L _{eq} @ 50 FEET (dBA)
Crane	81	16	73
Excavator	81	40	77
Backhoes	78	40	74
Concrete Breaker (jackhammer)	89	20	82
Dump or Haul Trucks	76	40	72
Pile Driver/Drill	101	20	94
Drill Rigs	80	20	73
Asphalt-Concrete (AC) Paver	77	50	74
AC Grinder (Concrete saw)	90	20	83
Redi-Mix Truck/Pumps	81	20	74
Compactors (Vibratory Steel Drum)	83	20	76
Dozer	82	40	78
Motor Grader	85	40	81
Water Truck (dump truck)	76	40	72
Concrete Saw Cutter	90	20	83
Handheld Jack Hammers	89	20	82
Core Drills (rock drills)	81	20	74
Water Pump	81	50	78

Source: FHWA Roadway Construction Noise Model, User Manual, Table 1 (Measured values).

Noise levels due to construction activity at most noise-sensitive receiver locations in the noise study area would range from the existing daytime ambient level (50-60 dBA) when not much construction activity is occurring nearby, to a temporary but substantially higher level (70-90 dBA) if multiple pieces of equipment were simultaneously operating in proximity to the receiver. Although, there would be no noise impacts associated with the construction activity if construction activity were limited to daytime periods between 7:00 am and 7:00 pm because construction activity is exempt from City noise standards City of Brea Municipal Code, Chapter 8.20 - Noise Control, subsection 8.20.070; part E).

Construction noise is not regulated by the City of Brea as long as it is limited to daytime hours of 7:00 am to 7:00 pm, Monday through Saturday. However, due to bridge replacement-related work construction will result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. During these times (up to a maximum 26 weekends with the full roadway closure), activities would occur outside the normal hours of construction, as crews will work extended hours, night shifts, and weekends. Two bridges are within a sufficient distance from noise-sensitive receivers in the City of Brea such that noise from activities occurring outside the normal hours of construction could be audible; these are Bridge 1 (approximately 200 feet from the nearest receiver locations [e.g., R01, R02, etc.]) and Bridge 2 (approximately 1,000 feet from the nearest receiver locations). The types of bridge-related construction activities that could occur outside the normal hours include: abutment excavation (requiring use of an excavator or backhoe); bridge demolition (requiring excavators, water trucks, loaders, and dump or haul trucks for debris); cast-in-drilled-hole (CIDH) installation for abutments and associated wingwalls (requiring use of drill rig, skid steer or small loader, crane, and concrete trucks/concrete pump trucks); etc. As mentioned above, the simultaneous operation of multiple pieces of equipment could likely result in temporary noise levels of 70-90 dBA at a distance of 50 feet. Using a

simple noise attenuation model (i.e., straight line, not taking into account any topographic features or vegetation, etc., that could provide natural shielding) of 6 dBA reduction per doubling of distance from a noise source, the noise level of 90 dBA at 50 feet would attenuate to approximately 78 dBA at 200 feet (representative of Bridge 1 construction to nearest receiver locations) or approximately 66 dBA at 800 feet. Thus, nighttime construction activities (particularly those occurring in the vicinity of Bridge 1) would be above the City's nighttime noise standard of 50 dBA for a number of noise-sensitive receivers in the City of Brea, as well as any construction activities on Sundays, and would represent a significant noise-related impact.

It should be noted that these instances would be infrequent (i.e., a maximum of 26 weekends, which is the total for work required at all three bridges) and would only be associated with certain activities tied to the bridge replacement-related work (e.g., abutment excavation, bridge demolition, CIDH installation, etc.). Other major bridge activities generating noise would occur during the daytime of the full closure, such as temporary shoring activities during initial bridge demolition phases (prior to opening to traffic) and the setting of precast concrete girders. The setting of the girders typically requires a larger hydraulic crane (220-ton to 300-ton) with outriggers. Nevertheless, the infrequent construction-related noise of the Project occurring over these weekends (between the hours of 7:00 pm and 7:00 am and on Sundays) would be considered a significant noise-related impact (refer to Mitigation Measures N-1 and N-2).

Operational Noise

Operation of the Project would not result in a substantial change to the existing noise levels within the project area. Although the widened roadway would increase the capacity of Brea Boulevard, the Project is strictly a transportation project and does not include any changes in land use that would generate trips associated with a new use. Traffic increases shown in the future (2045) conditions (Table 5.10-11) are tied to regional growth (modeled forecast) that would occur with or without the Project. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the vehicle miles traveled (VMT) analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service (LOS) analysis shows that intersections (and segments) along Brea Boulevard would see improvements in LOS and delay, which is inclusive of modeled forecast growth.

Additionally, because existing traffic-related noise levels along Brea Boulevard are high (average 66.9 dBA L_{eq}) and public comments regarding traffic noise were received during the public scoping meeting, Open Graded Asphalt Concrete (OGAC) paving is included as part of the Project at the southern end of the

corridor to minimize roadway surface noise in the City of Brea. OGAC would be added from Central Avenue/State College Boulevard north to the City/unincorporated County boundary, which would provide an immediate noise reduction compared to average pavement types. Predicted noise levels for future (2045) peak hour conditions with the TNM assuming OGAC pavement are provided in Table 5.10-11.

**TABLE 5.10-11
PREDICTED NOISE LEVELS (L_{EQ} , DBA)**

RECEIVER	LAND USE	EXISTING (2019)	FUTURE (2045)	INCREASE
R01	SFR	62.5	64.1	1.6
R02	SFR	66.7	67.4	0.7
R03	SFR	58.2	58.6	0.4
R04	SFR	67.1	67.2	0.1
R05	SFR	66.4	66.5	0.1
R06	SFR	66.5	66.7	0.2
R07	SFR	65.4	66.2	0.8
R08	SFR	65.8	66.6	0.8
R09	SFR	68.4	68.7	0.3
R10	SFR	68.4	68.7	0.3
R11	SFR	69.1	69.3	0.2
R12	SFR	68.0	68.1	0.1
R13	SFR	68.3	68.5	0.2
R14	SFR	68.3	68.4	0.1
R15	Park	66.8	66.5	-0.3
R16	SFR	68.5	68.6	0.1
R17	Park	62.7	62.5	-0.2
R18	SFR	68.0	68.0	0.0
R19	SFR	67.7	67.7	0.0
R20	SFR	67.3	67.3	0.0
R21	SFR	67.6	67.5	-0.1
R22	SFR	67.6	67.5	-0.1
R23	SFR	68.5	68.5	0.0
R24	SFR	68.3	68.3	0.0
R25	SFR	69.0	69.0	0.0
R26	SFR	64.3	64.6	0.3
R27	SFR	62.9	63.3	0.4
R28	SFR	64.1	64.4	0.3
R29	SFR	66.6	66.5	-0.1
R30	SFR	65.0	65.0	0.0
R31	SFR	66.7	66.6	-0.1
R32	SFR	66.2	66.2	0.0
R33	SFR	67.5	67.7	0.2
R34	SFR	66.6	66.8	0.2
R35	SFR	66.4	66.6	0.2
R36	SFR	65.6	65.9	0.3
R37	SFR	62.5	62.9	0.4
R38	Hospital	66.6	66.3	-0.3

**TABLE 5.10-11
PREDICTED NOISE LEVELS (L_{EQ} , DBA)**

RECEIVER	LAND USE	EXISTING (2019)	FUTURE (2045)	INCREASE
R39	MFR	68.7	68.4	-0.3
Average	--	66.9	67.1	0.2

Note:

SFR = single-family residence; MFR = multi-family residence

For Existing conditions TNM “average” pavement type was used.

For future (2045) conditions TNM OGAC pavement was assumed.

Source: Appendix N of this Draft EIR.

As shown, of all analyzed receptors, none are predicted to have future noise levels of 3 dBA or greater than existing noise levels, with predicted increases ranging from +1.6 to -0.3 dBA, with an average of 0.2 dBA increase.

Operational maintenance-related noise would be temporary and similar to that which occurs under existing conditions: routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, and similar activities. The new wildlife overpass/land bridge would also likely require periodic maintenance of the vegetation on top of the bridge, which would likewise have similar noise levels to existing maintenance activities that are temporary in nature.

Therefore, the Project would not result in the generation of a substantial permanent increase in ambient noise levels in the vicinity of the Project. Impacts would be less than significant and no mitigation measures are required.

5.10.4.2 Generation of Excessive Groundborne Vibration or Groundborne Noise Levels

PPV values were calculated for the closest structure in three different areas nearest to construction. Calculations were made assuming the use of a vibratory roller, which has the highest reference vibration value of the equipment listed in Table 5.10-9. The results of these calculations are presented in Table 5.10-12.

**TABLE 5.10-12
NOISE MEASUREMENT SUMMARY**

VIBRATION RECEPTORS	CLOSEST RECEPTOR DISTANCE (FEET)	REFERENCE PPV AT 25 FEET (IN/SEC)	CALCULATED PPV AT RECEPTOR (IN/SEC)	ANNOY THRESHOLD (IN/SEC)	DAMAGE THRESHOLD (IN/SEC) --	IMPACT
Hospital	60	0.21	0.080	0.1	0.3	none
Homes, Canyondale to Canyon Country, including Vintage Canyon senior apartment complex	60	0.21	0.080	0.1	0.3	none
Homes, north of Canyon Country	65	0.21	0.073	0.1	0.3	none

Notes:

* Traffic counts in autos and light trucks/medium trucks/heavy trucks.

Concurrent traffic counts were completed for short-term noise measurements only

Source: Appendix N of this Draft EIR.

Vibration from roadway traffic rarely results in perceptible vibration beyond about 40 feet and no sensitive receptors are within this distance.

Therefore, the Project would not result in the generation of excessive groundborne vibration or groundborne noise levels. Impacts would be less than significant and no mitigation measures are required.

5.10.5 MITIGATION MEASURES

The following mitigation measures were developed to help reduce construction-related noise:

- N-1 The construction contractor shall ensure that all motorized equipment includes original manufacturers noise control systems, including mufflers and shielding, in good working order and shall shut off idling equipment when not in use.
- N-2 Prior to any weekend construction at Bridges 1 or 2 that would occur between the hours of 7:00pm and 7:00am, and any time on Sunday, OC Public Works shall retain the assistance of an experienced noise control engineer to consult with the construction contractor in identifying and determining appropriate and feasible noise barrier systems and their proper placement during construction. In order for acoustical noise barriers to be effective in reducing noise levels, they must be made of substantial construction (e.g., ½ inch thick plywood, proprietary/vendor supplied systems, etc.), with no gaps, and completely block line of sight between noise source and receptor. Because nearest noise-sensitive receptors are elevated relative to bridge locations, the experienced noise control engineer, in coordination with OC Public Works and the construction contractor, shall determine if a wall(s) of feasible height and placement can be effectively implemented at these locations; if effective implementation (i.e., continuous line of sight to residences blocked) is feasible, OC Public Works shall ensure the recommended temporary acoustical noise barrier(s) are installed. Additionally, prior to any weekend construction at Bridges 1 or 2 that would occur between the hours of 7:00pm and 7:00am, and any time on Sunday, OC Public Works shall notify all residences within 1,000 feet of the bridge(s) when noise during these times is scheduled to occur.

5.10.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Construction noise is not regulated by the City of Brea as long as it is limited to daytime hours of 7:00 am to 7:00 pm Monday through Saturday. However, due to bridge replacement-related work, construction will require activities to occur outside these hours. Nighttime construction activities (particularly those occurring in the vicinity of Bridge 1) would be above the City's nighttime noise standard of 50 dBA for a number of noise-sensitive receivers in the City of Brea, as well as any construction activities on Sundays, and would represent a significant noise-related impact. Mitigation Measures N-1 and N-2 are included, which could result in noise reductions up to 5 to 10 dBA for some sound sources, but would not be sufficient to reduce noise levels to below City's nighttime noise standard of 50 dBA. Thus, the infrequent construction-related noise of the Project occurring over these weekends (between the hours of 7:00 pm and 7:00 am and on Sundays) would be considered an unavoidable significant impact.

5.11 TRANSPORTATION AND TRAFFIC

This section describes the existing traffic conditions in the project area, potential environmental impacts of the Project, recommended mitigation measures to reduce or avoid the impacts and the level of significance of Project impacts after mitigation. The information and analysis provided in this section is largely derived from the Traffic Impact Analysis Report prepared by AECOM in September 2022, which is provided in Appendix O of this Draft EIR.

The purpose of this analysis is to identify and document potential traffic impacts related to implementation of the Project within the context of Existing, Project Construction, and Future Buildout Conditions. This analysis considers Level of Service (LOS), Intersection Capacity Utilization (ICU), and Vehicles Miles Traveled (VMT).

5.11.1 EXISTING CONDITIONS

This section documents the existing traffic conditions within the project area. Specifically, this section focuses on key, nearby locations that could be affected by construction or operation of the Project.

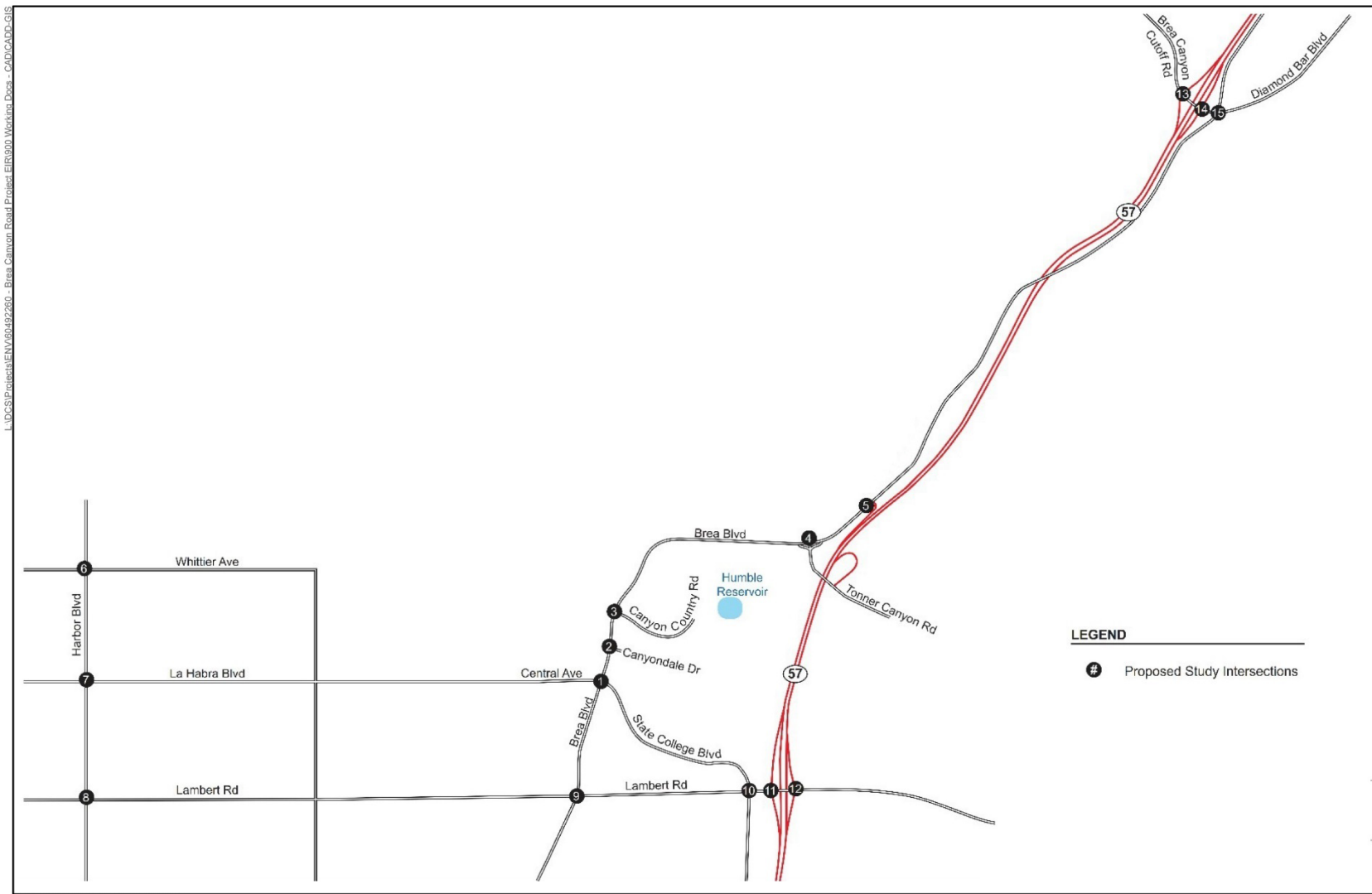
5.11.1.1 Traffic Impact Study Area

Figure 5.11-1 shows the traffic impact study area (study area) in the context of the regional circulation system, which was defined to encompass the 1.7-mile corridor and five key study intersections within the corridor:

1. Brea Boulevard/Central Avenue - N. State College Boulevard (City of Brea; Signalized)
2. Brea Boulevard/Canyondale Drive (City of Brea; Unsignalized)
3. Brea Boulevard/Canyon Country Road (City of Brea; Signalized)
4. Brea Boulevard/Tonner Canyon Road (County of Orange; Unsignalized)
5. Brea Boulevard/SR-57 Southbound On-Ramp (County of Orange; Unsignalized)

The study area also includes an additional ten intersections outside of the corridor, where there is potential for short-term traffic disruptions related to construction detours and associated shifts in travel demands due to Project construction. During Project construction, planned closures of Brea Boulevard will potentially result in through traffic seeking alternate travel routes. The two adjacent facilities that can provide alternate travel routes are Harbor Boulevard to the west and the SR-57 freeway to the east. The following ten additional intersections were evaluated for impact when short-duration and non-recurring detours are needed:

6. Harbor Boulevard / Whittier Avenue (City of La Habra, Signalized)
7. Harbor Boulevard / La Habra Boulevard (City of La Habra, Signalized)
8. Harbor Boulevard / Lambert Road (City of La Habra/City of Fullerton, Signalized)
9. Brea Boulevard / Lambert Road (City of Brea, Signalized)
10. State College Boulevard / Lambert Road (City of Brea, Signalized)
11. SR-57 Southbound Ramps / Lambert Road (City of Brea, Signalized)
12. SR-57 Northbound Ramps / Lambert Road (City of Brea, Signalized)
13. SR-57 Southbound Ramps / Brea Canyon Cutoff Road (City of Diamond Bar, Signalized)
14. SR-57 Northbound Ramps / S Diamond Bar Boulevard (City of Diamond Bar, Signalized)
15. Brea Boulevard / Diamond Bar Boulevard (City of Diamond Bar, Signalized)



Eagle OCPW (2022) and AECOM (2022).


 Not to Scale

Figure 5.11-1
Project Location and Study Area Intersections

Brea Boulevard Corridor Improvement Project

Additionally, the following seven roadway segments were analyzed:

1. Brea Boulevard between Central Avenue - N. State College Blvd and Canyondale Drive
2. Brea Boulevard between Canyon Country Road and Tonner Canyon Road
3. Brea Boulevard between Tonner Canyon Road and SR-57 Southbound On-Ramp
4. Brea Boulevard north of SR-57 Southbound On-Ramp
5. Tonner Canyon Road east of Brea Boulevard
6. Canyon Country Road east of Brea Boulevard
7. Canyondale Drive east of Brea Boulevard

The following three roadway segments were evaluated for impact when short-duration and non-recurring detours during construction are needed:

8. Lambert Road between Brea Boulevard and Harbor Boulevard
9. Harbor Boulevard between Lambert Road and La Habra Avenue
10. SR-57 between Lambert Road and S. Diamond Bar Boulevard

5.11.1.2 Existing Roadway Network

Several regionally and locally significant roadways traverse the project area. The key roadways in the vicinity of the corridor are discussed below.

- **Brea Boulevard:** Brea Boulevard is a two-lane, undivided highway (one lane in each direction) with portions of the roadway having no curb or gutter, and unpaved, earthen shoulders, and with other portions of the roadway improved with curb, gutter, and sidewalk. The posted speed limit is 55 miles per hour (MPH) in the unincorporated portion of the corridor, and 45 MPH in the City of Brea at the southern end of the corridor. The Average Daily Traffic (ADT) is 20,300 vehicles per day on the segment between Tonner Canyon Road and SR-57 Southbound On-Ramp, 16,700 vehicles per day between Canyon Country Road and Tonner Canyon Road, and 18,000 vehicles per day south of Canyon Country Road to Central Avenue-North State College Boulevard. ADT is adjusted from data, as necessary, to reflect average weekday traffic.
- **State Route (SR) 57:** The SR-57 begins near the City of Orange, where it meets the northwest-southeast Santa Ana Freeway and the east-west Garden Grove Freeway (SR 22). From the south SR-57 proceeds northbound and enters Brea Canyon, the gap between the Chino Hills and Puente Hills. The freeway segment over Tonner Canyon provides one High Occupancy Vehicle lane and 4 General Purpose lanes in each direction. The Annual Average Daily Traffic (AADT) volume on the segment by Tonner Canyon Road is 227,500 vehicles per day (vpd). AADT is the total amount of traffic in a year divided by 365 days. AADT is used on freeway facilities as there are many permanent count stations that collect traffic throughout the year. As such AADT averages weekend, holiday, and weekday traffic.
- **Tonner Canyon Road:** Tonner Canyon Road is a short east-west, two-lane local roadway that primarily serves as a connector of the northbound SR-57 Off Ramp to Brea Boulevard. There is no public access to the easterly segment of Tonner Canyon Road east of the northbound SR-57 Off Ramp. The ADT along Tonner Canyon Road is 3,350 vehicles per day.
- **Canyon Country Road:** Canyon Country Road, is an east-west, two-lane undivided local collector roadway that exclusively serves local residences on the east side of Brea Boulevard. There is an existing traffic signal at the T-intersection of Canyon Country Road and Brea Boulevard. The ADT is 1,250 vehicles per day on the roadway segment just east of Brea Boulevard.

- Canyondale Drive: Canyondale Drive, is a short (one block long) east-west, two-lane divided local collector roadway that connects Brea Boulevard from the west and N. Evening Canyon Road to the east. Both westbound and eastbound lanes are separated by a raised landscaped median. The existing T-intersection of Canyondale Drive and Brea Boulevard is currently stop-controlled at Canyondale Drive only and Brea Boulevard is uncontrolled. The ADT on the roadway segment just east of Brea Boulevard is 750 vehicles per day.

5.11.1.3 Existing Transit Service

Public transit service in the study area is operated by the Orange County Transportation Authority (OCTA).

OCTA Route 129: OCTA Route 129 (La Habra to Anaheim) passes the southern end of the corridor (the route uses Central Avenue and Brea Boulevard south of Central Avenue/State College Boulevard), but it does not enter the corridor (i.e., Brea Boulevard north of Central Avenue/State College Boulevard). Bus stops are available within the vicinity of Brea Boulevard/Central Avenue.

Overall, the project area has very low level of transit service, with no provisions of any major core transit services with high frequency or bus stops immediately adjacent to or providing direct access along or within the corridor.

5.11.1.4 Truck Routes

Brea Boulevard within the Brea city limits is a designated truck route for use by commercial vehicles exceeding a maximum gross weight of 6,000 pounds during all hours of the day.

5.11.1.5 Existing Bicycle and Pedestrian Facilities

Existing bicycle access is very limited overall within the corridor. Central Avenue/State College Boulevard, at the southern end of the corridor, is an existing Class II Bikeway (on-street striped and signed bicycle lane), but there is no bikeway within the corridor along Brea Boulevard. Some paved shoulders exist in locations along the roadway, but they are not continuous (or of the same width), with large portions of the roadway having no curb or gutter, and unpaved, earthen shoulders. The OCTA Orange County Bikeways Map lists the County of Orange portion of the corridor as ‘Existing/Planned Class I Off Road (Paved)’ and the 2020 County of Orange Bikeway Plan Map lists the unincorporated portion as ‘Proposed Class I (Off-street Paved Bikeways)’. The 2003 City of Brea General Plan (Figure CD-10, Bike Plan) identifies the corridor as ‘Proposed Bike Path (Class I)’.

Pedestrian facilities in the City of Brea are served by sidewalks and crosswalks, both of which are provided at the southern end of the corridor (in the City of Brea only). Sidewalks exist on the east side of Brea Boulevard from Central Avenue/State College Boulevard north to the City of Brea/County of Orange boundary (approximately 2,000 feet), and on the west side of Brea Boulevard from Central Avenue/State College Boulevard north to Canyondale Drive (approximately 750 feet). Crosswalks exist at Central Avenue/State College Boulevard and at Canyon Country Road. There are no pedestrian sidewalks or crosswalks north of the City limits (just south of Bridge 1 [#55C0121]; refer to Figure 3-3 in Section 3.0, Project Description of this Draft EIR).

5.11.1.6 2019 (Existing) Traffic Volume

The traffic data collected for the traffic analysis included 7:00 to 9:00 AM and 4:00 to 6:00 PM peak hour turning movement and ADT counts conducted during the second week of September in 2019. The dates for the traffic counts are representative of typical conditions in the study area. The AM/PM peak hour

intersection turning movement and ADT counts are provided in Appendix A of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

Intersection Analysis

Table 5.11-1 displays the intersection level of service (LOS) and Intersection Capacity Utilization (ICU, or delay) results for the study intersections under 2019 (Existing) Conditions. Refer to Section 5.11.3 (Methodology Related to Transportation and Traffic) for further explanation of LOS and delay. The detailed intersection LOS calculation worksheets for 2019 (Existing) Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

**TABLE 5.11-1
2019 (EXISTING) INTERSECTION CONDITIONS**

ID	INTERSECTION	CONTROL TYPE	AM PEAK HOUR ICU (sec)	AM PEAK HOUR LOS	PM PEAK HOUR ICU (sec)	PM PEAK HOUR LOS
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.76	C	0.77	C
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	33.3	D	36.3	E
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	0.99	E	0.78	C
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	66.3	F	>300	F
5	Brea Boulevard / SR-57 Southbound On-Ramp	STOP (HCM 6th)	12.5	B	16.6	C

Notes:

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

As shown in Table 5.11-1, two study intersections are currently operating at acceptable LOS D or better. The remaining three study intersections are operating at unacceptable LOS.

Roadway Segment Analysis

Table 5.11-2 displays the roadway segment results for the study roadway segments under 2019 (Existing) Conditions.

As shown in Table 5.11-2, four study roadway segments are currently operating at acceptable LOS A. The remaining three study roadway segments are operating at unacceptable LOS (worse than LOS D):

**TABLE 5.11-2
2019 (EXISTING) ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	CLASS¹	ADT	CAPACITY² (vpd)	V/C³	LOS
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	Primary	18,800	30,000	0.50	A
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	Primary	16,700	10,000	1.34	F
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	Primary	20,300	15,000	0.92	E
4	Brea Blvd north of SR-57 Southbound On-Ramp	Primary	22,500	15,000	1.02	F
5	Tonner Canyon Rd east of Brea Blvd	Primary	3,350	10,000	0.27	A
6	Canyon Country Rd east of Brea Blvd	Collector	1,250	10,000	0.13	A
7	Canyondale Dr east of Brea Blvd	Collector	750	10,000	0.08	A

Notes:

¹ Class = Roadway Classification

² vpd = vehicles per day

³ V/C = Volume to capacity; V/C ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

5.11.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines and the County of Orange Guidelines for Evaluating Vehicle Miles Traveled Under CEQA (November 2020), implementation of the Project would result in a significant adverse impact on the environment related to transportation and traffic if it would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities.
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b) and Section 5.0 - Significance Thresholds for Transportation Projects of the County of Orange Guidelines for Evaluating Vehicle Miles Traveled Under CEQA.
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.

5.11.3 METHODOLOGY RELATED TO TRANSPORTATION AND TRAFFIC

The traffic analysis was performed in accordance with County of Orange and City of Brea traffic study requirements. The study intersection and roadway segment analyses were conducted based on the following methodologies for each analysis type.

- City of Brea and Orange County signalized intersection LOS - ICU methodology.¹⁶ The City of Brea performance criteria incorporates a lane capacity of 1,700 vehicles per hour (vph), a clearance interval of 0.05, and a right-turn-on-red utilization factor of 0.75.
- Signalized intersections LOS – Highway Capacity Manual (HCM), 6th Edition.
- Unsignalized intersections LOS –HCM, 6th Edition.
- Arterial roadway segment LOS conducted using the capacities from the OCTA Master Plan of Arterial Highways (MPAH) and the total number of through lanes.
- Freeway segment LOS – HCM, 7th Edition.

5.11.3.1 Intersection LOS Standards and Methodology

LOS is an indicator of operating conditions on a roadway or at an intersection and is defined in categories ranging from A to F, with “A” representing the best traffic flow conditions and “F” representing poor conditions. LOS A indicates free-flowing traffic, and LOS F indicates substantial congestion with stop-and-go traffic and long delays at intersections. Table 5.11-3 provides descriptions of LOS for both signalized and unsignalized intersections.

The intersection analyses were conducted using the ICU methodology’s intersection capacity utilization ratio for the signalized study intersections and the HCM methodology for unsignalized intersections which defines LOS in terms of average delay (delay defined as the average of delays experienced for all approaches at an intersection). Both are based on vph. The computerized analysis of intersection operations was performed using PTV Vistro analysis software, which calculates both ICU and HCM methodologies.

City of Brea Performance Criteria and Thresholds of Significance

The City of Brea’s performance criteria is based on peak hour intersection volumes using ICU values for both AM and PM peak hour traffic at study intersections. As shown in the performance criteria, LOS “D” (ICU \leq 0.90) for arterial intersections is the performance standard adopted by the City of Brea. For intersections under the City of Brea’s jurisdiction a project will have a significant impact if (a) the addition of Project traffic causes the LOS to drop to a LOS “E” or below or (b) if the addition of Project traffic contributes 0.02 or more to the ICU of an intersection that already operates at LOS “E” or worse without the Project traffic. The City of Brea performance criteria incorporates a lane capacity of 1,700 vph, a clearance interval of 0.05, and a right-turn-on-red utilization factor of 0.75.

Orange County Congestion Management Program Thresholds of Significance

The Orange County Congestion Management Program (CMP) designates intersections to achieve LOS “E” or better (ICU not to exceed 1.00). The City of Brea has four CMP intersections, however none of those intersections are within the study area.

¹⁶ Transportation Research Board (TRB), Circular 212 Planning Method, 1980

**TABLE 5.11-3
INTERSECTION LOS DESCRIPTIONS**

LOS	DESCRIPTION OF OPERATION	SIGNALIZED INTERSECTION VOLUME TO CAPACITY RATIO (V/C)	UNSIGNALIZED INTERSECTION AVERAGE DELAY (s/veh)¹
A	LOS A describes operations with very low delay. This occurs when progression is extremely favorable, and most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.00 – 0.60	0 – 10
B	LOS B describes operations with generally good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	0.61 – 0.70	> 10 – 15
C	LOS C describes operations with higher delays, which may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.71 – 0.80	> 15 – 25
D	LOS D describes operations with high delay, resulting from some combination of unfavorable progression, long cycle lengths, or high volumes. The influence of congestion becomes more noticeable, and individual cycle failures are noticeable.	0.81 – 0.90	> 25 – 35
E	LOS E is considered the limit of acceptable delay. Individual cycle failures are frequent occurrences.	0.91 – 1.00	> 35 – 50
F	LOS F describes a condition of excessively high delay, considered unacceptable to most drivers. This condition often occurs when arrival flow rates exceed the LOS D capacity of the intersection. Poor progression and long cycle lengths may also be major contributing causes to such delay.	Above 1.00	> 50

Notes:

¹ s/veh = seconds per vehicle

Source: Appendix O of this Draft EIR

Caltrans Thresholds of Significance

Highway Capacity Manual (HCM), 6th Edition, methodology was used to evaluate intersections maintained by Caltrans. According to the Caltrans Traffic Impact Analysis Guidelines, “Caltrans endeavors to maintain a target LOS at the transition between LOS “C” and LOS “D” on State highway facilities”. Generally, two criteria must be met for Caltrans intersections to be considered significantly impacted. First, the LOS must be unacceptable (i.e., LOS E or F). Secondly, the change in delay due to the Project exceeds two seconds. If both criteria are met, the intersection is considered to have a significant impact and mitigation is required.

5.11.3.2 Non-Freeway Arterial Segment LOS Standards and Methodology – OCTA MPAH

Planning Criteria for Determining Arterial Highways Classifications

To evaluate the arterial classifications needed to serve current and future traffic conditions, certain criteria and assumptions are made regarding roadway capacities. The concept of capacity, and the relationship

between capacity and traffic volumes is expressed by means of LOS. The LOS criteria from OCTA's MPAH are depicted on Table 5.11-4.

**TABLE 5.11-4
ARTERIAL HIGHWAYS MPAH CAPACITY VALUES**

TYPE OF ARTERIAL	LOS A	LOS B	LOS C	LOS D	LOS E	LOS F
8 Lanes Divided	45,000	52,500	60,000	67,500	75,000	--
6 Lanes Divided	33,900	39,400	45,000	50,600	56,300	--
4 Lanes Divided	22,500	26,300	30,000	33,800	37,500	--
2 Lanes Divided	9,000	12,000	15,000	20,000	22,000	--
4 Lanes Undivided	15,000	17,500	20,000	22,500	25,000	--
2 Lanes Undivided	7,500	8,800	10,000	11,300	12,500	--

Source: Adapted from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

These roadway capacities are approximate figures only, for use at the General Plan level. They are affected by such factors as intersections (numbers, spacing and configuration), degree of access control, roadway grades, design geometries (horizontal and vertical), alignment standards, sight distance, level of truck and bus traffic, and level of pedestrian and bicycle traffic. ADT has historically been used by the County of Orange as a long-range planning tool to assist in determining arterial highway classification (number of through lanes) needed to meet traffic demand.

Freeway Arterial Segment LOS Methodology – Caltrans

For Caltrans freeway traffic impacts, HCM, 7th Edition (2022) was used, which includes a new procedure for evaluating systems of freeways. For the SR-57 segment (between Lambert Road and S. Diamond Bar Boulevard), a capacity of 205,100 vehicles per day was determined using Exhibit 12-39 from HCM 7th Edition (refer to Appendix O of this Draft EIR).

5.11.3.3 VMT-Related Methodology

For the VMT assessment, the OCTA's Orange County Traffic Analysis Model (OCTAM) VMT Tool (provided in the Scenario file model dashboard) was utilized using the full model stream provided by OCTA. All OCTAM model steps were run separately for each model run for both Future Buildout (2045) Plus Project Conditions and Future Buildout (2045) No Project Conditions models.

5.11.4 POTENTIAL IMPACTS

5.11.4.1 Conflict with a Program, Plan, Ordinance or Policy Addressing the Circulation System, Including Transit, Roadway, Bicycle and Pedestrian Facilities

The Project would widen Brea Boulevard from two to four lanes (two lanes each direction) with 12 feet wide lanes, shoulders that will vary from 6 feet to 10 feet wide, and a median that is either 12 feet wide raised with landscaping, 6 feet wide with a concrete barrier, or striped of varying widths. Widening would occur between Canyon Drive and the SR-57 southbound on-ramp, a total length of approximately 8,100 linear feet or 1.5 miles. Traffic signal improvements include installing a traffic signal approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge over Brea Boulevard near Tonner Canyon Road, and

providing striping and installing new signage. Construction of these improvements would be conducted within permanent and temporary limits of disturbance along the corridor. Road widening will require replacement of the three bridges and installation of a new wildlife overpass/land bridge.

The Project will be divided into two phases:

- Phase I will include utility relocations, the infrastructure necessary for utility companies to relocate their utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, associated temporary transition pavement, and associated grading; and
- Phase II will include the widening of the road, open graded asphalt concrete (OGAC) paving, the intersections at Canyon Country Road, 1,200 feet north of Canyon Country Road, and at Tonner Canyon Road along with other miscellaneous features.

Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026.

Construction will result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. Access will remain for emergency responders and oil field operators. Construction crews may work extended hours, night shifts, and weekends to reduce the overall Project construction duration. During night shifts and extended hours, construction lighting will be required.

A construction crew of approximately 40 construction workers (daily) will be in the project area during construction. For safety purposes, a temporary fence will be installed to secure the construction site and restrict public access while maintaining vehicular access to Brea Boulevard.

No Project Construction (2028) Conditions

This section provides a summary of the baseline traffic conditions in Year 2028 without Project construction. Construction of the Project is expected to last approximately 5 years and is anticipated to begin in the year 2026, Year 2028, the mid-year of the 5-year construction schedule, was used as the construction analysis year, assuming that construction activity will peak in 2028.

No Project Construction (2028) forecast volumes were developed using the OCTAM growth forecast data. This modeling shows an increase in daily traffic between 2019 to 2028 of 9% within the corridor. This is a rough increase in traffic of 1% per year. This growth rate is consistent throughout the corridor. Tonner Canyon Road shows a growth rate of 1.5%. Growth on Canyon Country Road and Canyondale Drive is negligible as these roads access residential areas that are built-out. Refer to the Traffic Impact Analysis Report (Appendix O of this Draft EIR) for a figure depicting the No Project Construction (2028) AM/PM peak hour intersection ADT volumes.

Intersection Analysis

Table 5.11-5 displays the intersection LOS and delay results for the study intersections under No Project Construction (2028) Intersection Conditions. The detailed intersection LOS calculation worksheets for No Project Construction (2028) Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

**TABLE 5.11-5
NO PROJECT CONSTRUCTION (2028) INTERSECTION CONDITIONS**

ID	INTERSECTION	CONTROL TYPE	2028 AM PEAK HOUR ICU (sec)	2028 AM PEAK HOUR LOS	2028 PM PEAK HOUR ICU (sec)	2028 PM PEAK HOUR LOS
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.81	C	0.80	C
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	49.1	E	46.5	E
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	1.11	F	0.86	D
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	159.6	F	>300	F
5	Brea Boulevard/SR-57 Southbound On-Ramp	STOP (HCM 6th)	14.1	B	20.1	C
6	Harbor Blvd / Whittier Ave	Signal (ICU)	0.93	E	1.07	F
7	Harbor Blvd / La Habra Blvd	Signal (ICU)	0.82	D	0.84	D
8	Harbor Blvd / Lambert Road	Signal (ICU)	0.91	E	0.83	D
9	Brea Blvd / Lambert Road	Signal (ICU)	0.86	D	0.80	C
10	State College Blvd / Lambert Road	Signal (ICU)	0.76	C	0.75	C
11	SR-57 Southbound Ramps / Lambert Road	Signal (HCM 6th)	21.6	C	24.9	C
12	SR-57 Northbound Ramps / Lambert Road	Signal (HCM 6th)	16.7	B	19.5	B
13	SR-57 Southbound Ramps / Brea Canyon Cutoff Road	Signal (HCM 6th)	256.2	F	183.0	F
14	SR-57 Northbound Ramps / S Diamond Bar Blvd	Signal (HCM 6th)	29.7	C	34.3	C
15	Brea Blvd / Diamond Bar Blvd	Signal (ICU)	0.70	B	0.74	C

Notes:

ICU = intersection capacity utilization (seconds)

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

As shown in Table 5.11-5, nine study intersections are forecast to operate at acceptable LOS D or better under No Project Construction (2028) Conditions during both AM and PM peak hours. The remaining six study intersections are forecast to operate at unacceptable LOS (i.e., worse than LOS D during either the AM or PM peak hours, or both).

Roadway Segment Analysis

Table 5.11-6 displays the roadway segment analysis results for the study roadway segments under No Project Construction (2028) Roadway Segment Conditions.

**TABLE 5.11-6
NO PROJECT CONSTRUCTION (2028) ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2028 ADT	CAPACITY² (vpd)	V/C³	LOS
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	20,400	30,000	0.54	A
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	18,500	10,000	1.48	F
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	22,400	15,000	1.02	F
4	Brea Blvd north of SR-57 Southbound On-Ramp	24,700	15,000	1.12	F
5	Tonner Canyon Rd east of Brea Blvd	3,800	10,000	0.30	A
6	Canyon Country Rd east of Brea Blvd	1,300	10,000	0.13	A
7	Canyondale Dr east of Brea Blvd	750	10,000	0.08	A
8	Lambert Road between Brea Boulevard and Harbor Boulevard	37,700	45,000	0.67	B
9	Harbor Blvd between Lambert Road and La Habra Boulevard	42,100	45,000	0.75	C
10	SR-57 Between Lambert Road and Diamond Bar Boulevard	233,300	205,100	1.14	F

Notes:

² vpd = vehicles per day

³ V/C = Volume to capacity; V/C ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

ADT = average daily traffic; LOS = level of service

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

As shown in Table 5.11-6, six study roadway segments are forecast to operate at LOS C or better. The remaining four study roadway segments are forecast to operate at unacceptable LOS (i.e., worse than LOS C).

Project Construction (2028) Conditions

To evaluate temporary potential impacts of the Project on the surrounding circulation system during construction, the trip generation associated with the anticipated construction of the Project was developed according to planned construction activities, equipment, and manpower needs.

Project Construction Trip Generation

During construction of the Project, up to 40 construction workers are anticipated to be working at the Project site daily. It is expected that 50 percent of the workers will arrive during the AM peak hours (7:00-9:00) and that other workers and trades will arrive later in the morning as mobilization takes place. During the PM peak hours (4:00-6:00), it is assumed that all workers will leave at the end of the day during the PM peak hours. It is assumed that all workers will arrive individually with each driving their own or assigned vehicle.

Additionally, various types of construction equipment ranging from stationary or mobile heavy equipment to handheld equipment will be used depending on the work activities planned during construction. The Project Construction Trip Generation Summary is depicted in Table 5.11-7.

**TABLE 5.11-7
PROJECT CONSTRUCTION TRIP GENERATION SUMMARY**

CATEGORY	TRIPS IN (AM PEAK¹)	TRIPS OUT (AM PEAK¹)	TOTAL TRIPS (AM PEAK¹)	TRIPS IN (PM PEAK²)	TRIPS OUT (PM PEAK²)	TOTAL TRIPS (PM PEAK²)	TRIPS IN (DAILY)	TRIPS OUT (DAILY)	TOTAL TRIPS (DAILY)
Autos (workers)	20	0	20	0	40	40	40	40	80
Trucks	8	8	16	8	8	16	73	73	146
Total Vehicles	28	8	36	8	48	56	113	113	226

NOTES:

¹ AM Peak = 7:00AM to 9:00 AM; Assumed 50 percent of workers arrive during the AM peak hour

² PM Peak = 4:00 PM to 6:00 PM; Assumed 100 percent of workers leave during the PM peak hour

Source: Appendix O of this Draft EIR

Project Construction (2028) Without Detour Conditions

Intersection Analysis

Table 5.11-8 displays the intersection LOS and for the study intersections under Project Construction (2028) Without Detour Conditions. For the without detour columns, the AM/PM peak hour LOS are shown for the study intersections using the forecasts from Table 5.11-7. Refer to the Traffic Impact Analysis Report (Appendix O of this Draft EIR) for a figure depicting the Project Construction (2028) Without Detour AM/PM peak hour intersection ADT volumes. Three of the study intersections are forecast to operate at unacceptable LOS E or F.

The results for Project Construction (2028) Without Detour Conditions show little change (see Table 5.11-8) from No Project Construction (2028) except at the Brea Boulevard/Tonner Canyon Road intersection during the AM peak hour. While additional trips generated by construction activity are modest, the AM peak hour increase in delay would be a significant impact throughout the duration of Project construction at this intersection (refer to Mitigation Measures T-1 and HHM-4).

Roadway Segment Analysis

Table 5.11-9 displays the roadway segment analysis results for the study roadway segments under Project Construction (2028) Without Detour Conditions. Project Construction (2028) Without Detour Conditions show no change from the No Project Construction (2028) Conditions and as a result, no impact occurs.

No roadway segments will be impacted under Project Construction (2028) Without Detour Conditions, as is shown by the projected ADT and volume to capacity ratio. Three of the roadway segments are forecast to operate at unacceptable LOS F in 2028 with or without Project construction.

Project Construction (2028) With Detour Conditions

As mentioned, construction of the Project will require the periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. Access will remain for emergency responders and oil field operators. These planned closures of Brea Boulevard would potentially result in through traffic seeking alternate travel routes; the two adjacent facilities that can provide alternate travel routes are Harbor Boulevard to the west and SR-57 freeway to the east.

Refer to the Traffic Impact Analysis Report (Appendix O of this Draft EIR) for a figure depicting the Project Construction (2028) With Detour AM/PM peak hour intersection ADT volumes. It should be noted that the ADT volumes used for this analysis are derived from traffic counts that reflect heavy mid-week traffic flows, whereas the actual closures would be at nights and over weekends when traffic flows are lower. As such, the analysis presented is conservative.

**TABLE 5.11-8
PROJECT CONSTRUCTION (2028) WITHOUT DETOUR INTERSECTION CONDITIONS**

ID	INTERSECTION	2028 CONTROL TYPE	2028 AM PEAK ICU (sec)	2028 AM PEAK LOS	2028 PM PEAK ICU (sec)	2028 PM PEAK LOS	2028 CONST. NO DET. CONTROL TYPE	2028 CONST. NO DET. AM PEAK ICU (sec)	2028 CONST. NO DET. AM PEAK LOS	2028 CONST. NO DET. PM PEAK ICU (sec)	2028 CONST. NO DET. PM PEAK LOS	IMPACT?
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.81	D	0.80	D	Signal (ICU)	0.81	D	0.80	D	No
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	49.10	E	46.50	E	STOP (HCM 6th)	49.10	E	46.50	E	No
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	1.11	F	0.86	D	Signal (ICU)	1.11	F	0.86	D	No
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	159.60	F	>300	F	STOP (HCM 6th)	263.90	F	>300	F	Yes
5	Brea Boulevard/SR-57 Southbound On-Ramp	STOP (HCM 6th)	14.10	B	20.10	C	STOP (HCM 6th)	14.20	B	20.60	C	No

Notes:

ICU = intersection capacity utilization (seconds)

Significant impact occurs when the final LOS is E or F and the ICU increases by more than 0.02 and by more than 2.0 seconds for HCM 6th analysis.

'Const. No Det.' = Project Construction Without Detour

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

**TABLE 5.11-9
PROJECT CONSTRUCTION (2028) WITHOUT DETOUR ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2028 ADT	2028 CAPACITY (vpd)	2028 V/C	2028 LOS	2028 CONST. NO DET. ADT	2028 CONST. NO DET. CAPACITY (vpd)	2028 CONST. NO DET. V/C	2028 CONST. NO DET. LOS	IMPACT?
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	20,400	30,000	0.54	A	20,400	30,000	0.54	A	No
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	18,500	10,000	1.48	F	18,500	10,000	1.48	F	No
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	22,400	15,000	1.02	F	22,800	15,000	1.04	F	No
4	Brea Blvd north of SR-57 Southbound On-Ramp	24,700	15,000	1.12	F	24,900	15,000	1.13	F	No
5	Tonner Canyon Rd east of Brea Blvd	3,800	10,000	0.30	A	3,900	10,000	0.31	A	No
6	Canyon Country Rd east of Brea Blvd	1,300	10,000	0.13	A	1,300	10,000	0.13	A	No
7	Canyondale Dr east of Brea Blvd	750	10,000	0.08	A	750	10,000	0.08	A	No

Notes:

ADT = average daily traffic; vpd = vehicles per day; LOS = level of service; 'Const. No Det.' = Project Construction Without Detour

V/C – Volume to Capacity ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

Intersection Analysis

Table 5.11-10 displays the intersection LOS and impacts results for the study intersections under Project Construction (2028) With Detour Conditions. Significant impact occurs at signalized ICU intersections when the final LOS is E or F and the ICU increases by more than 0.02. For HCM analyses, significant impact occurs when the final LOS is E or F and the delay increases by more than 2.0 seconds. The findings and results in Table 5.11-10 show that three intersections would experience impacts with under Project Construction (2028) With Detour Conditions. They are Harbor Blvd / Whittier Ave, Harbor Blvd / Lambert Road, and SR-57 Northbound Ramps / S Diamond Bar Blvd.

The detailed intersection LOS calculation worksheets for Project Construction (2028) With Detour Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR). As mentioned previously, the impacts are overstated as they are based on heavier, mid-week flow rather than flows corresponding to nights and weekends when the detours will occur. Nevertheless, the analysis shows significant impacts at three intersections during construction when closure of Brea Boulevard is required (refer to Mitigation Measures T-1, T-2, and HHM-4).

Roadway Segment Analysis

Table 5.11-11 displays the roadway segment analysis results for the study roadway segments under Project Construction (2028) With Detour Conditions. As shown on 5.11-11, impacts due to detours on roadway segments is less than those to intersections as roadway segments spread total demand across several lanes rather than concentrated delays at intersections as a result of the additional turning movements required when following detours.

The SR-57 between Lambert Road and Diamond Bar Boulevard does show significant impact with a V/C increase of 0.04. SR-57 parallels Brea Boulevard and as such would receive a good portion of the diverted traffic with closure of Brea Boulevard. However, the modeled delays and changes in LOS presented in this analysis reflect mid-week, peak travel demand, which overstates the impact, whereas the actual closures would be at nights and over weekends when traffic flows are lower.

On weekends, weekend ADT on SR-57 would be lower than the AADT that was used in the model and much of the detoured traffic would be from non-freeway travel demands which can be approximately 10% lower on Saturdays and 20% lower on Sundays. As a result, the impacts to SR-57 are overstated. Nevertheless, the analysis shows a significant impact at SR-57 between Lambert Road and Diamond Bar Boulevard during construction when closure of Brea Boulevard is required (refer to Mitigation Measures T-1, T-2, and HHM-4).

2019 Plus Project Conditions

This section provides a summary of the LOS results if the Project was implemented under 2019 (Existing) Conditions. Because the Project is not a land use development project that would generate new trips, but rather is characterized as a roadway circulation network solution to enhance roadway safety and traffic flow, the 2019 Plus Project traffic volumes were assumed to be the same as existing traffic volumes. The only differentiator from 2019 (Existing) Conditions is the implementation of proposed roadway improvements (i.e., changes to number of lanes, lane geometry, and intersection control at the five key intersections).

**TABLE 5.11-10
PROJECT CONSTRUCTION (2028) WITH DETOUR INTERSECTION CONDITIONS**

ID	INTERSECTION	2028 CONTROL TYPE	2028 AM PEAK ICU (sec)	2028 AM PEAK LOS	2028 PM PEAK ICU (sec)	2028 PM PEAK LOS	2028 CONST. WITH DET. CONTROL TYPE	2028 CONST. WITH DET. AM PEAK ICU (sec)	2028 CONST. WITH DET. AM PEAK LOS	2028 CONST. WITH DET. PM PEAK ICU (sec)	2028 CONST. WITH DET. PM PEAK LOS	IMPACT?
1	Brea Boulevard/ Central Avenue - N. State College Boulevard	Signal (ICU)	0.81	D	0.80	D	Signal (ICU)	0.53	A	0.55	A	No
2	Brea Boulevard/ Canyondale Drive	STOP (HCM 6th)	49.10	E	46.50	E	STOP (HCM 6th)	9.50	A	9.40	A	No
3	Brea Boulevard/ Canyon Country Road	Signal (ICU)	1.11	F	0.86	D	Signal (ICU)	0.21	A	0.16	A	No
4	Brea Boulevard/ Tonner Canyon Road	STOP (HCM 6th)	159.60	F	>300	F	STOP (HCM 6th)	10.00	A	22.50	C	No
5	Brea Boulevard/ SR-57 Southbound On-Ramp	STOP (HCM 6th)	14.10	B	20.10	C	STOP (HCM 6th)	8.30	A	9.30	A	No
6	Harbor Blvd/ Whittier Ave	Signal (ICU)	0.93	E	1.07	F	Signal (ICU)	1.11	F	1.18	F	Yes
7	Harbor Blvd/La Habra Blvd	Signal (ICU)	0.82	D	0.84	D	Signal (ICU)	0.85	D	0.86	D	No
8	Harbor Blvd/ Lambert Road	Signal (ICU)	0.91	E	0.83	D	Signal (ICU)	0.97	E	0.85	D	Yes
9	Brea Blvd/ Lambert Road	Signal (ICU)	0.86	D	0.80	C	Signal (ICU)	0.83	D	0.81	D	No
10	State College Blvd/Lambert Road	Signal (ICU)	0.76	C	0.75	C	Signal (ICU)	0.76	C	0.77	C	No

**TABLE 5.11-10
PROJECT CONSTRUCTION (2028) WITH DETOUR INTERSECTION CONDITIONS**

ID	INTERSECTION	2028 CONTROL TYPE	2028 AM PEAK ICU (sec)	2028 AM PEAK LOS	2028 PM PEAK ICU (sec)	2028 PM PEAK LOS	2028 CONST. WITH DET. CONTROL TYPE	2028 CONST. WITH DET. AM PEAK ICU (sec)	2028 CONST. WITH DET. AM PEAK LOS	2028 CONST. WITH DET. PM PEAK ICU (sec)	2028 CONST. WITH DET. PM PEAK LOS	IMPACT?
11	SR-57 Southbound Ramps/Lambert Road	Signal (HCM 6th)	21.60	C	24.90	C	Signal (HCM 6th)	48.00	D	41.70	D	No
12	SR-57 Northbound Ramps/Lambert Road	Signal (HCM 6th)	16.70	B	19.50	B	Signal (HCM 6th)	18.50	B	30.70	C	No
13	SR-57 Southbound Ramps/Brea Canyon Cutoff Road	Signal (HCM 6th)	256.20	F	183.00	F	Signal (HCM 6th)	248.40	F	97.70	F	No
14	SR-57 Northbound Ramps/S Diamond Bar Blvd	Signal (HCM 6th)	29.70	C	34.30	C	Signal (HCM 6th)	28.50	C	95.50	F	Yes
15	Brea Blvd / Diamond Bar Blvd	Signal (ICU)	0.70	B	0.74	C	Signal (ICU)	0.73	C	0.82	D	No

Notes:

ICU – intersection capacity utilization (seconds); LOS = level of service; ‘Const. With Det.’ = Project Construction With Detour

Significant impact occurs when the final LOS is E or F and the ICU increases by more than 0.02 and by more than 2.0 seconds for HCM 6th analysis.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

**TABLE 5.11-11
PROJECT CONSTRUCTION (2028) WITH DETOUR ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2028 ADT	2028 CAPACITY (vpd)	2028 V/C	2028 LOS	2028 CONST. WITH DET. ADT	2028 CONST. WITH DET. CAPACITY (vpd)	2028 CONST. WITH DET. V/C	2028 CONST. WITH DET. LOS	IMPACT?
1	Brea Blvd between Central Ave- N State College Blvd and Canyondale Dr	20,400	30,000	0.54	A	2,200	30,000	0.06	A	No
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	18,500	10,000	1.48	F	1,300	10,000	0.10	A	No
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	22,400	15,000	1.02	F	5,300	15,000	0.24	A	No
4	Brea Blvd north of SR-57 Southbound On-Ramp	24,700	15,000	1.12	F	6,800	15,000	0.31	A	No
5	Tonner Canyon Rd east of Brea Blvd	3,800	10,000	0.30	A	3,950	10,000	0.32	A	No
6	Canyon Country Rd east of Brea Blvd	1,300	10,000	0.13	A	1,300	10,000	0.13	A	No
7	Canyondale Dr east of Brea Blvd	750	10,000	0.08	A	750	10,000	0.08	A	No
8	Lambert Road between Brea Boulevard and Harbor Boulevard	37,700	45,000	0.67	B	37,000	45,000	0.66	B	No

**TABLE 5.11-11
PROJECT CONSTRUCTION (2028) WITH DETOUR ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2028 ADT	2028 CAPACITY (vpd)	2028 V/C	2028 LOS	2028 CONST. WITH DET. ADT	2028 CONST. WITH DET. CAPACITY (vpd)	2028 CONST. WITH DET. V/C	2028 CONST. WITH DET. LOS	IMPACT?
9	Harbor Blvd between Lambert Road and La Habra Boulevard	42,100	45,000	0.75	C	42,100	45,000	0.75	C	No
10	SR-57 Between Lambert Road and Diamond Bar Boulevard	233,300	205,100	1.14	F	243,000	205,100	1.18	F	Yes

Notes:

ADT = average daily traffic; vpd = vehicles per day; LOS = level of service; 'Const. With Det.' = Project Construction With Detour

V/C – Volume to Capacity ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

Intersection Analysis

Table 5.11-12 shows the intersection LOS and ICU or delay results for the study intersections under 2019 Plus Project Conditions. The detailed intersection LOS calculation worksheets for 2019 Plus Project Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

As shown in Table 5.11-12, no study intersections would be significantly impacted by the Project under 2019 Plus Project Conditions. Additionally, the proposed signalization of the intersection of Brea Boulevard and Tonner Canyon Road as part of the Project would result in the improvement of the intersection from LOS F (AM/PM) to LOS A (AM/PM).

Roadway Segment Analysis

Table 5.11-13 displays the roadway segment analysis results for the study roadway segments under 2019 Plus Project Conditions.

As shown in Table 5.11-13, all of the study roadway segments are forecast to operate at LOS A after Project construction with the exception of Brea Boulevard north of SR-57 Southbound On-Ramp which will remain at LOS F. This segment is not being improved as part of the Project and would continue to operate as it does under existing conditions.

The signal at Brea Boulevard/Tonner Canyon Road is forecast to operate at a LOS A for both AM/PM peaks (Table 5.11-12) which would improve queuing at this location. However, northeast of the intersection

and the SR-57 Southbound On-Ramp, Brea Boulevard would remain unimproved (one lane in each direction) and so there is the potential for vehicles continuing northeast to experience slower traffic.

As shown in Table 5.11-13, the LOS on Brea Boulevard where roadway segments are widened would be substantially improved. Brea Boulevard between Canyon Country Road and Tonner Canyon Road would improve from LOS F to LOS A, and between Tonner Canyon Road and SR-57 Southbound On-Ramp from LOS E to LOS A.

Future Buildout (2045) No Project Conditions

Future Buildout (2045) No Project baseline traffic volumes were developed using OCTAM forecast data. Refer to the Traffic Impact Analysis Report (Appendix O of this Draft EIR) for a figure depicting the Future Buildout (2045) No Project AM/PM peak hour traffic volumes for the study intersections and ADT volumes for the study area roadway segments.

Intersection Analysis

Table 5.11-14 displays the intersection LOS and delay results for the study intersections under Future Buildout (2045) No Project Conditions. The detailed intersection LOS calculation worksheets for Future Buildout (2045) No Project Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

**TABLE 5.11-12
2019 PLUS PROJECT INTERSECTION CONDITIONS**

ID	INTERSECTION	2019 (EXIST) CONTROL TYPE	2019 (EXIST) AM PEAK ICU (sec)	2019 (EXIST) AM PEAK LOS	2019 (EXIST) PM PEAK ICU (sec)	2019 (EXIST) PM PEAK LOS	2019 (PLUS) CONTROL TYPE	2019 (PLUS) AM PEAK ICU (sec)	2019 (PLUS) AM PEAK LOS	2019 (PLUS) PM PEAK ICU (sec)	2019 (PLUS) PM PEAK LOS	IMPACT?
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.76	C	0.77	C	Signal (ICU)	0.76	C	0.77	C	No
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	33.3	D	36.3	E	STOP (HCM 6th)	33.3	D	36.3	E	No
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	0.99	E	0.78	C	Signal (ICU)	0.56	A	0.46	A	No
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	66.3	F	>300	F	Signal (ICU)	0.53	A	0.58	A	No
5	Brea Boulevard/SR-57 Southbound On-Ramp	STOP (HCM 6th)	12.5	B	16.6	C	STOP (HCM 6th)	12.5	B	16.6	C	No

Notes:

ICU – intersection capacity utilization (seconds); LOS = level of service

Significant impact occurs when the final LOS is E or F and the ICU increases by more than 0.02 and by more than 2.0 seconds for HCM 6th analysis.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

**TABLE 5.11-13
2019 PLUS PROJECT ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2019 ADT	2019 CAPACITY (vpd)	2019 V/C	2019 LOS	2019 (PLUS) ADT	2019 (PLUS) CAPACITY (vpd)	2019 (PLUS) V/C	2019 (PLUS) LOS	IMPACT?
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	18,800	30,000	0.50	A	18,800	30,000	0.50	A	No
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	16,700	10,000	1.34	F	16,700	30,000	0.45	A	No
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	20,300	15,000	0.92	E	20,300	30,000	0.54	A	No
4	Brea Blvd north of SR-57 Southbound On-Ramp	22,500	15,000	1.02	F	22,500	15,000	1.02	F	No
5	Tonner Canyon Rd east of Brea Blvd	3,350	10,000	0.27	A	3,350	10,000	0.27	A	No
6	Canyon Country Rd east of Brea Blvd	1,250	10,000	0.13	A	1,250	10,000	0.13	A	No
7	Canyondale Dr east of Brea Blvd	750	10,000	0.08	A	750	10,000	0.08	A	No

Notes;

ADT = average daily traffic; vpd = vehicles per day; LOS = level of service

V/C – Volume to Capacity ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

**TABLE 5.11-14
FUTURE BUILDOUT (2045) NO PROJECT INTERSECTION CONDITIONS**

ID	INTERSECTION	CONTROL TYPE	2045 AM PEAK HOUR ICU (sec)	2045 AM PEAK HOUR LOS	2045 PM PEAK HOUR ICU (sec)	2045 PM PEAK HOUR LOS
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.81	D	0.79	C
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	90.1	F	66.1	F
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	1.26	F	0.92	E
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	>300	F	>300	F
5	Brea Boulevard / SR-57 Southbound On-Ramp	STOP (HCM 6th)	17.2	C	28.7	D

Notes:

ICU – intersection capacity utilization (seconds); LOS = level of service

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

As shown in Table 5.11-14, three study intersections are forecast to operate at an unacceptable LOS E or F.

Roadway Segment Analysis

Table 5.11-15 displays the roadway segment analysis results for the study roadway segments under Future Buildout (2045) No Project Conditions.

**TABLE 5.11-15
FUTURE BUILDOUT (2045) NO PROJECT ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	2045 ADT	2045 CAPACITY¹ (vpd)	2045 V/C²	2045 LOS	ID
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	23,700	30,000	0.63	B	1
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	22,000	10,000	1.76	F	2
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	26,600	15,000	1.21	F	3
4	Brea Blvd north of SR-57 Southbound On-Ramp	29,100	15,000	1.32	F	4
5	Tonner Canyon Rd east of Brea Blvd	4,700	10,000	0.38	A	5
6	Canyon Country Rd east of Brea Blvd	1,400	10,000	0.14	A	6
7	Canyondale Dr east of Brea Blvd	750	10,000	0.08	A	7

Notes:

¹ vpd = vehicles per day

² V/C = Volume to capacity; V/C ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

ADT = average daily traffic; LOS = level of service

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

As shown in Table 5.11-15, four study roadway segments are forecast to operate at LOS B or better and three study roadway segments are forecast to operate at LOS F.

Future Buildout (2045) Plus Project Conditions

This section provides a summary of the LOS results under Future Buildout (2045) Plus Project Conditions. The traffic volumes used to evaluate Future Buildout (2045) Plus Project Conditions were assumed to be the same as Future Buildout (2045) No Project Traffic Volumes; the only differentiator between the two scenarios is the addition of Project-related improvements under Future Buildout (2045) Plus Project Conditions (i.e., changes to number of lanes, lane geometry, and intersection control at the five key intersections).

Intersection Analysis

Table 5.11-16 displays the intersection LOS and delay results for the study intersections under Future Buildout (2045) Plus Project Conditions. The detailed intersection LOS calculation worksheets for Future Buildout (2045) Plus Project Conditions are provided in Appendix B of the Traffic Impact Analysis Report (Appendix O of this Draft EIR).

**TABLE 5.11-16
FUTURE BUILDOUT (2045) PLUS PROJECT INTERSECTION CONDITIONS**

ID	INTERSECTION	2045 (NO) CONTROL TYPE	2045 AM PEAK ICU (sec)	2045 AM PEAK LOS	2045 PM PEAK ICU (sec)	2045 PM PEAK LOS	2045 (PLUS) CONTROL TYPE	2045 (PLUS) AM PEAK ICU (sec)	2045 (PLUS) AM PEAK LOS	2045 (PLUS) PM PEAK ICU (sec)	2045 (PLUS) PM PEAK LOS	IMPACT?
1	Brea Boulevard/Central Avenue - N. State College Boulevard	Signal (ICU)	0.81	D	0.79	C	Signal (ICU)	0.81	D	0.79	C	No
2	Brea Boulevard/Canyondale Drive	STOP (HCM 6th)	90.1	F	66.1	F	STOP (HCM 6th)	88.4	F	66.0	F	No
3	Brea Boulevard/Canyon Country Road	Signal (ICU)	1.26	F	0.92	E	Signal (ICU)	0.69	B	0.53	A	No
4	Brea Boulevard/Tonner Canyon Road	STOP (HCM 6th)	>300	F	>300	F	Signal (ICU)	0.69	B	0.67	B	No
5	Brea Boulevard/SR-57 Southbound On-Ramp	STOP (HCM 6th)	17.20	C	28.7	D	STOP (HCM 6th)	17.20	C	28.7	D	No

Notes:

ICU – intersection capacity utilization (seconds); LOS = level of service

Significant impact occurs when the final LOS is E or F and the ICU increases by more than 0.02 and by more than 2.0 seconds for HCM 6th analysis.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

This page intentionally left blank.

As shown in Table 5.11-16, most study intersections are forecast to operate at acceptable LOS D or better under Future Buildout (2045) Plus Project Conditions. The proposed signalization of the intersection of Brea Boulevard and Tonner Canyon Road as part of the Project would result in the improvement of the intersection from LOS F/F (AM/PM) to LOS B/B (AM/PM) under Future Buildout (2045) Plus Project Conditions. The Brea Boulevard/Canyondale Drive intersection is also at LOS F, but the delay of the intersection decreases with Project improvements.

Roadway Segment Analysis

Table 5.11-17 displays the roadway segment analysis results for the study roadway segments under Future Buildout (2045) Plus Project Conditions.

As shown in Table 5.11-17, all study roadway segments are forecast to operate at LOS B or better with the Project with the exception of Brea Boulevard - north of SR-57 southbound On-Ramp that is not widened and which will remain at LOS F. According to the criteria for significant impacts, the roadway segment will not be significantly impacted by the Project since the V/C and LOS remain the same as Future Buildout (2045) No Project Conditions.

With the implementation of the Project under Future Buildout (2045) Plus Project Conditions, the following roadway segments where widening occurs, would result in the improvement of roadway LOS.

- Brea Boulevard - between Canyon Country Road and Tonner Canyon Road (LOS A, improvement from LOS F)
- Brea Boulevard – between Tonner Canyon Road and SR-57 southbound On-Ramp (LOS B, improvement from LOS F)

Intersection and Roadway Segment Analysis Summary

As shown in the 2019 and 2045 Plus Project Condition scenarios, implementation of the Project would result in substantial improvements in intersection LOS (attributable to proposed widening and signalization of intersections) and improvement to roadway segment LOS (where widening occurs).

The results of the Project Construction (2028) traffic analysis (without detour) showed that while additional trips generated by construction activity would be modest, the AM peak hour increase in delay at the Brea Boulevard/Tonner Canyon Road intersection would be a significant impact throughout the duration of construction (refer to Mitigation Measures T-1 and HHM-4).

The Project Construction (2028) traffic analysis (with detour) conservatively showed that the study roadway segments would be impacted due to periodic full closure of Brea Boulevard on weekends. Three intersections and one roadway segment were identified as being impacted due to the short-duration detours, but these impacts would be temporary and periodic (refer to Mitigation Measures T-1, T-2, and HHM-4). Furthermore, the modeled delays and changes in LOS presented in this analysis reflect mid-week, peak travel demand, which overstates the impact of construction and short-term detours, which are anticipated to occur primarily on the weekends and outside of peak travel demand hours.

Transit, Bicycle, and Pedestrian Impacts

Implementation of the Project would not affect any existing or proposed OCTA transit routes and stations. Refer to the discussion above in Section 5.11.1.3.

During construction, for safety purposes, a temporary fence will be installed to secure the construction site and restrict pedestrian access while maintaining vehicular access to Brea Boulevard. Existing paved roadway shoulders within the corridor that could be used by bicyclists would not be available during construction. Access would be maintained to existing sidewalks, crosswalks, and other pedestrian facilities (located in the City of Brea) when possible, but safety-related restrictions to some of these facilities would be necessary depending on the construction phase and work activity type.

As discussed in Section 3.0, Project Description, of this Draft EIR, in an effort to limit the footprint of the Project, the design will utilize a modified Primary Arterial Highway per OC Public Works' Standard Plan 1103 for Standard Street Sections to minimize environmental impacts, impacts to adjacent properties, and utility relocations by using a width less than 100 feet. This would result in shoulders that vary from 6 feet to 10 feet and no sidewalk throughout the corridor within unincorporated Orange County. Within the City of Brea, the roadway section will be a modified Primary Arterial Highway Section per City of Brea's Standard Plan 109-0 to match the existing roadway configuration by reducing the shoulder width. As such, bicycle- or pedestrian-related enhancements would not be provided along the length of the corridor as part of the Project; however, the roadway shoulders could still be used in the future for a Class II Bikeway in conjunction with other existing and/or planned bikeway facilities in proximity to the corridor. At the southern end of the corridor in the City of Brea, a portion of the existing sidewalk on the east side of Brea Boulevard (north of Canyon Country Road) would be reconstructed due to the road widening, and on the west side of Brea Boulevard the sidewalk that presently terminates at Canyon Drive would be extended north to Canyon Country Road. However, there would be no connection to, or provision of, sidewalks further north along Brea Boulevard within unincorporated Orange County. Bicycle access would remain very limited within the corridor due to the modified Primary Arterial Highway designs (e.g., reduced shoulders) in the City of Brea and County of Orange. Overall, the Project does not remove or result in a degradation of existing bicycle or pedestrian facilities and is not expected to conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. Therefore, impacts to transit, bicycle, or pedestrian facilities would be less than significant.

5.11.4.2 OCTAM VMT Analysis

The OCTAM Version 4.2 VMT Tool (provided in the Scenario file model dashboard) is capable of re-distributing traffic volumes as a result of land use changes or roadway network changes using a cost-analysis-type approach (e.g., taking into consideration travel time, travel distance, vehicle operation, mode choice, etc.). For this analysis, AECOM utilized the full model stream provided by OCTA and ran all OCTAM model steps (i.e., network preparation, trip generation, trip distribution, mode choice, assignment, and post-processing) separately for the Future Buildout (2045) Plus Project Conditions and the Future Buildout (2045) No Project Conditions models. Because the OCTAM Model considers buildout of the MPAH (which already takes Project-related widening of Brea Boulevard into account), AECOM removed the two associated lanes (one in each direction) in order to model Future Buildout (2045) No Project Conditions.

The VMT summary results in Table 5.11-18 (which are presented as a daily VMT, daily percent change in VMT, and as an extrapolated yearly VMT change) show that VMT would be lower for the Future Buildout (2045) Plus Project Conditions model than the Future Buildout (2045) No Project Conditions model (i.e., approximately 0.23 percent lower with the Project).

These results indicate that with the Project improvements, the modeled desired trip paths over Brea Boulevard would be shorter and less congested than the more heavily congested and longer options. For example, the model indicates that for motorists near the southern end of the corridor intending to travel

**TABLE 5.11-17
FUTURE BUILDOUT (2045) PLUS PROJECT ROADWAY SEGMENT CONDITIONS**

ID	SEGMENT	CLASS	2045 ADT	2045 CAPACITY (vpd)	2045 V/C	2045 LOS	2045 (PLUS) ADT	2045 (PLUS) CAPACITY (vpd)	2045 (PLUS) V/C	2045 (PLUS) LOS	IMPACT?
1	Brea Blvd between Central Ave-N State College Blvd and Canyondale Dr	Primary	23,700	30,000	0.63	B	23,700	30,000	0.63	B	No
2	Brea Blvd between Canyon Country Rd and Tonner Canyon Rd	Primary	22,000	10,000	1.76	F	22,000	30,000	0.59	A	No
3	Brea Blvd between Tonner Canyon Rd and SR-57 Southbound On-Ramp	Primary	26,600	15,000	1.21	F	26,600	30,000	0.71	B	No
4	Brea Blvd north of SR-57 Southbound On-Ramp	Primary	29,100	15,000	1.32	F	29,100	15,000	1.32	F	No
5	Tonner Canyon Rd east of Brea Blvd	Primary	4,700	10,000	0.38	A	4,700	10,000	0.38	A	No
6	Canyon Country Rd east of Brea Blvd	Collector	1,400	10,000	0.14	A	1,400	10,000	0.14	A	No
7	Canyondale Dr east of Brea Blvd	Collector	750	10,000	0.08	A	750	10,000	0.08	A	No

Notes;

ADT = average daily traffic; vpd = vehicles per day; LOS = level of service

V/C – Volume to Capacity ratio using maximum capacities from Guidance for Administration of the Orange County Master Plan of Arterial Highways 2017, Table A-4-1.

Significant impact occurs when the final LOS is E or F and the V/C increases by more than 0.02.

Bold = Unacceptable LOS

Source: Appendix O of this Draft EIR

This page intentionally left blank.

**TABLE 5.11-18
PROJECT CONSTRUCTION TRIP GENERATION SUMMARY**

VEHICLE MILES TRAVELED (VMT)	FUTURE BUILDOUT (2045) NO PROJECT CONDITIONS MODEL (2 TOTAL LANES; DAILY WEEKDAY VMT)	FUTURE BUILDOUT (2045) PLUS PROJECT CONDITIONS MODEL (4 TOTAL LANES; DAILY WEEKDAY VMT)	DAILY VMT CHANGE	DAILY VMT CHANGE (%)	APPROXIMATE YEARLY VMT CHANGE IN OCTAM (305 EQUIVALENT DAYS/YEAR)
VMT	80,555,339	80,371,625	-183,714	-0.23%	-56,000,000

Source: Appendix O of this Draft EIR

north on SR-57 to Los Angeles County, a primary route option change of some vehicles would be a shift north through the shorter and less congested corridor instead of travelling southeast to the SR-57 at Lambert Road via State College Boulevard. The VMT model shows a similar case in the southbound direction. This results in a net reduction in VMT with the Project.

As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial.

In addition, the Project is strictly a transportation project, and it does not include any changes in land use for areas adjacent to the affected segment of Brea Boulevard or for any other areas. There are no major development proposals or zoning changes contemplated along the affected segment of Brea Boulevard at this time, and much of the surrounding area is expected to continue to remain in use for oil extraction, low-density residential, open space, and other light-intensity uses into the future. Traffic levels associated with these uses are primarily dependent on other factors (e.g., sociodemographic trends; unemployment rates and other economic performance metrics; market demand for petroleum; etc.) and are not expected to be substantially affected by the Project.

Therefore, the Project would not result in a significant impact related to VMT and, as such, would not conflict with CEQA Guidelines section 15064.3, subdivision (b).

Project Potential to Create Localized Induced Travel Demand on Brea Boulevard

As shown above, the Project would not result in induced automobile use, as there would be a net reduction in VMT. However, during the public scoping process, one of the concerns brought up was the Project's potential to result in "induced demand" on the localized segment of Brea Boulevard where widening would occur. The VMT analysis indicated an increase in traffic volumes along the affected segment of Brea Boulevard is expected as motorists divert from other, longer routes. As discussed above, however, the majority of traffic along the affected segment (1.5 miles of widening) of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for substantial diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal.

The LOS analysis shows that there would be an approximate 1 percent per year increase over existing traffic volumes during the weekday AM and PM peak hours along the affected segment of Brea Boulevard. However, despite the increase in traffic volume, the VMT analysis shows that overall VMT within Orange County would still decrease with the Project, and the LOS analysis shows that intersections (and segments) along Brea Boulevard would see improvements in LOS and delay (or v/c ratio) with the Project.

5.11.4.3 Substantially Increase Hazards due to a Geometric Design Feature (e.g., Sharp Curves or Dangerous Intersections) or Incompatible Uses (e.g., Farm Equipment)

The purpose of the Project is to make the roadway consistent with its designated classification per the MPAH and with current County design standards, and which addresses the geometric designs of curves, intersections, and ingress and egress of adjacent land uses.

Throughout the corridor, sight distance (the distance a driver can see unobstructed) does not meet current County design standards and the Project provides an opportunity to enhance the driver sight distance and therefore enhance safety. The horizontal alignment of the existing roadway will be modified to increase sight distance. The horizontal curves between Canyon Country Road and Bridge # 3 will vary from the original alignment to increase the radius to soften the curve¹⁷. After Bridge # 3, two new horizontal curves will be added to slightly shift the roadway to the north to minimize the impact to utilities on the south. A third horizontal curve will shift the roadway back to its original alignment at the intersection of Brea Boulevard and Tonner Canyon Road.

The existing one-way stop-controlled T-intersection at Tonner Canyon Road and Brea Boulevard will be signalized to enhance safety by reducing potential conflicts between motorists attempting to merge in either direction onto Brea Boulevard. There are many existing driveway access points to properties that front Brea Boulevard, a number of which serve as access for the adjacent active oil field. Existing access points will be maintained, modified, relocated, consolidated and/or otherwise enhanced. The Project provides an opportunity to improve and enhance ingress and egress to the active oil field to limit potential traffic delays from large specialized equipment accessing the field. Installation of a new traffic signal approximately 1,200 feet north of Canyon Country Road will allow left turn movement onto Brea Boulevard for the oil field operator from their facility west of Brea Boulevard.

Additionally, the Project intends to enhance wildlife movement in the vicinity of the corridor to conserve and provide greater connectivity for wildlife while potentially reducing the risk for wildlife collisions with traffic. To this end, existing bridges (and their undercrossings) will be widened and a new wildlife overpass/land bridge would be constructed. To ensure effective use of existing bridge undercrossings, culverts, and the new overpass/land bridge, and to enhance motorist safety by preventing wildlife vehicle collisions, wildlife fencing (6.5 to 8 feet in height) will be constructed on both sides of the widened roadway throughout the corridor where concrete retaining walls that supersede the need for fencing are not present. Wildlife fencing is a critical element that funnels animals to the overpass/land bridge and/or through underpasses (bridges and culverts) where below-grade crossings are unaffected by vehicular traffic that otherwise presents a barrier to at-grade crossings.

Therefore, the Project would not increase hazards due to a geometric design feature or incompatible uses and no mitigation measures are required.

5.11.4.4 Result in Inadequate Emergency Access

As discussed above, construction of the Project would result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 p.m. to Monday at 5:00 a.m. During construction, access would remain for emergency responders and oil field operators but (as discussed in Section 5.7.4.3, Hazards and Hazardous Materials, of this Draft EIR) there is the potential to impair or interfere with the County of Orange and Orange County Fire Authority Local Hazard Mitigation

¹⁷ Horizontal curves are defined as a circular transition between two straight lines that allow vehicles to negotiate turns at design speed. The radius of these circular transitions determines the sharpness or softness of the curve for motorists navigating the roadway. The shorter the radius is, the sharper the turn; increasing the radius of a horizontal curve will soften the curve.

Plan (LHMP) and/or the City of Brea's Emergency Response Plan. As such, while the Project would maintain emergency access, it has the potential to result in a significant impact to emergency response during construction (refer to Mitigation Measure HHM-4).

5.11.5 MITIGATION MEASURES

The following mitigation measure is intended to encourage construction work force ride sharing to reduce the total construction-related peak hour trips:

T-1 Prior to the start of construction, the contractor shall prepare and have approved a Ride Sharing Incentive Plan by the Director of OC Public Works or designee. The plan shall encourage ride sharing by offering incentives to the construction work force for carpooling to and from the construction site.

The following mitigation measure is intended to document the timeframe restriction for when full closure of Brea Boulevard can occur (i.e., night and weekend only), which will ensure that the traffic volumes diverted from Brea Boulevard to adjacent facilities, such as SR-57, would be lower than modeled (e.g., typically 10% lower on Saturday and 20% lower on Sundays):

T-2 Periodic full closures of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road shall be limited to between Friday at 8:00 pm through Monday at 5:00 am.

Additionally, mitigation in the form of public awareness (e.g., community communication/alert plan and public notification via social media, changeable message signs, etc.) and traffic control planning would assist in further reducing these temporary construction-related impacts. Mitigation Measure HHM-4 was developed (see Section 5.7, Hazards and Hazardous Materials of this Draft EIR) to help reduce or avoid potential impacts related to emergency/fire response as a result of construction-related road and lane closures contains these public awareness and traffic control planning components:

HHM-4 Prior to the start of construction, the contractor shall prepare and have approved a Construction Emergency Access/Response and Fire Prevention Plan (Emergency Plan) by the Director of OC Public Works or designee, the local OCFA Division Chief, the local Orange County Sheriff Lieutenant, and the City of Brea Fire Services Department. The Emergency Plan shall detail emergency access and traffic control during construction-related road and lane closures and the implementation of fire safety measures during construction activities. The Emergency Plan shall include at a minimum the following requirements, restrictions, and measures, which are to be documented in the contractor's construction plans and specifications to the satisfaction of the Director of OC Public Works or designee:

- Requirement for contractor to provide a detailed schedule of work activities at a pre-construction meeting, including start and end dates for work phases, calendared work day hours, temporary signal/flagman hours of operation, and after work hours emergency access solutions;
- Detailed traffic control and detour plan that assures emergency access is maintained at all times and is not in conflict with the LHMP or City of Brea's Emergency Response Plan;
- Community communication/alert plan, including public notification activities via social media, changeable message signs, pre-construction updates, safety and emergency protocols, etc. Community communication shall involve disseminating

information on OCFA's Ready!, Set!, Go! Safety program and an emergency evacuation route map;

- Protocols for ongoing contractor updates to local OCFA Division Chief, local Orange County Sheriff Lieutenant, City of Brea, and OC Public Works, beginning at the pre-construction meeting and continuing until the end of construction.
- Inclusion of specific emergency operational procedures (i.e., response actions, communication protocols, hazardous condition/weather monitoring, etc.) for (a) flood emergencies, (b) wildland fires, (c) structure fires, (d) Emergency Medical Services emergencies, (e) red flag warning periods/days (e.g., no hot work), and (f) loss of power;
- Immediate suspension of all construction activities in the event of a fire within the project limits and immediate construction crew use of onsite fire extinguishers and water truck, as well as 911 emergency call;
- Compliance with applicable subsections of Chapter 33 of the 20191 California Fire Code, the National Fire Protection Association Standard 51B, and Section 4442 of the California Public Resources Code.
- Compliance with the fire protection provisions contained in Caltrans Standard Specifications No. 7-1.02(m);
- Details for coordinating with OCFA, Orange County Sheriff's Department, City of Brea Fire Services Department and Police Department through their Incident Command System should a wildfire evacuation be necessary.

5.11.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measure HHM-4 would reduce potentially significant impacts related to emergency access/response to a level that is less than significant.

Mitigation Measure T-1 is provided to encourage construction work force ride sharing to help minimize construction-related trips at the Brea Boulevard/Tonner Canyon intersection. Mitigation Measure T-2 documents the timeframe when full closure of Brea Boulevard can occur, which is when overall traffic volumes would be lower, and HHM-4 would assist in reducing congestion during construction-related road and lane closures through public awareness. However, these measures would not be sufficient to reduce the modeled impacts to below a level of significance. The impacts would be significant and unavoidable in the short term (construction period only).

This page intentionally left blank.

5.12 TRIBAL CULTURAL RESOURCES

This section describes the tribal cultural resources known to exist in the project area, potential environmental impacts of the Project, recommended mitigation measures to help reduce or avoid impacts, and the level of significance of Project impacts after mitigation. The analysis in this section was summarized from the *Cultural, Historical, and Paleontological Resources Assessment for the Brea Boulevard Corridor Improvement Project* prepared by AECOM in September 2022, which is provided in Appendix I of this Draft EIR.

5.12.1 EXISTING CONDITIONS

5.12.1.1 Environmental and Geological Setting

The Project is located in Brea Canyon, which is adjacent to the Tonner Fault. The local geology consists of steeply dipping sedimentary beds uplifted by the fault. Oil travels upward through permeable rock and up the faults from source rocks below. Tar seeps were visible on the surface in prehistoric and historic times.

Vegetation in the project area includes chaparral, grasslands, and riparian forest. Coast live oak, California black walnut, and California sycamore are the dominant trees. Climatically, the project area is generally Mediterranean and is characterized by mild winters and moderate, dry summers with occasional storms. The Santa Ana Canyon south of Brea Canyon forms a wind tunnel channeling that gives name to the strong Santa Ana winds that blow through the canyon annually.

5.12.1.2 Cultural Setting

As discussed in Section 5.4.4.2, Cultural Resources, of this Draft EIR, no archaeological resources were observed within the project area during the course of the background research and cultural resources field survey. Four historic built resources, consisting of numerous individual structures, were observed and documented within the project area. These include Brea Boulevard itself (including an abandoned road alignment and other structures associated with the road), Sergio O’Cadiz’s *Sunburst* sculpture, the Brea Canyon Portola Monument, and a collection of structures associated with the Brea-Olinda Oil Field (30-177012).

Brea Boulevard and its associated infrastructure, and a collection of structures associated with the Brea-Olinda Oil Field (30-177012) are not eligible for inclusion in the California Register of Historical Resources (CRHR) under any criteria.

Sergio O’Cadiz’s *Sunburst* sculpture appears eligible for inclusion in the CRHR under Criterion 3 as the work of “an important creative individual.” Also, this particular work of O’Cadiz also “possesses high artistic values,” further qualifying it for inclusion under Criterion 3.

The Brea Canyon Portola Monument appears eligible for inclusion in the CRHR under Criteria 1 and 2. The erection of the Brea Canyon Portola Monument was part of a statewide effort to preserve and commemorate California’s past (Criterion 1); and the roles of the Native Daughters of the Golden West as a whole, Grace Parlor No. 242, and Carrie McFadden Ford in the 1930s statewide movement of historic preservation campaign commemorated California’s past (Criterion 2). In addition, excavations in the vicinity of the monument have the potential to yield data which may also make the site eligible for inclusions under Criterion 4. The site is located where Native American and Spanish or Mexican period artifacts are rumored to have been found. At this time the monument does not appear to be eligible for inclusion in the CRHR under Criterion 4, but future excavations in the vicinity may change this assessment.

Detailed information regarding the archaeological analysis conducted for the Project, the previously recorded cultural resources, and archaeological investigations are described in Section 5.4, Cultural Resources, and Appendix I of this Draft EIR.

5.12.1.3 Regulatory Setting

On September 25, 2014, Governor Jerry Brown (Edmund Gerald Brown, Jr.) signed into law Assembly Bill (AB) 52. Among other provisions, AB 52 established a new category of protected resources in CEQA called tribal cultural resources. AB 52's changes, including the new category, became effective on July 1, 2015. The purpose of establishing this new category of resources is to consider tribal cultural values in addition to scientific and archaeological values when determining project impacts during the planning process. According to PRC Section 21074, subdivisions (a), (b) and (c), tribal cultural resources consist of either of the following:

- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
 - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
 - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
- (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
 - (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
 - (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a "nonunique archaeological resource" as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

5.12.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the CEQA Guidelines, implementation of the Project would result in a significant adverse impact related to tribal cultural resources if it would cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is either:

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in PRC Section 5020.1(k).
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

5.12.3 METHODOLOGY RELATED TO TRIBAL CULTURAL RESOURCES

5.12.3.1 Sacred Lands File Search

AECOM conducted a Native American contact program on behalf of OC Public Works, to inform interested parties of the Project and to address any concerns regarding Traditional Cultural Properties or other resources that might be affected by the Project. The program involved contacting Native American representatives identified in a list provided by the Native American Heritage Commission (NAHC) to solicit comments and concerns regarding the Project. Documents pertaining to the Native American contact program are attached as Confidential Appendix B of Appendix I of this Draft EIR.

A letter was prepared and mailed to the NAHC on September 25, 2017 requesting a Sacred Lands File (SLF) search for the Project and contact information for Native American groups or individuals that may have concerns about cultural resources within the project area. Although the NAHC responded in a letter, sent via e-mail and dated October 9, 2017, indicating that a record search of the NAHC resulted in negative results, the letter stated that “the area is sensitive for cultural resources” and that “the absence of specific site information in the SLF does not indicate the absence of Native American cultural resources in any area of potential project effect (APE).” The letter also included a list of five Native American contacts who may have knowledge of cultural resources in the vicinity of the Project.

5.12.3.2 Native American Contact

Letters were mailed on October 10, 2017, to the following groups or individuals provided on the NAHC contact list. Maps depicting the project area and response forms were attached to each letter.

- Andrew Salas, Chairperson, Gabrieleno Band of Mission Indians - Kizh Nation
- Anthony Morales, Chairperson, Gabrielino/Tongva San Gabriel Band of Mission Indians
- Sandonne Goad, Chairperson, Gabrielino/Tongva Nation
- Robert Dorame, Chairperson, Gabrielino Tongva Indians of California Tribal Council
- Charles Alvarez, Chairperson, Gabrielino - Tongva Tribe

If no answer was received within two weeks of mailing the letter, a follow-up phone call was placed to the number provided by the NAHC on February 8, 2018. As a result of the letter and follow-up calls, five Native American Tribes were contacted, and a total of four responses were received. One contact, Charles Alvarez of the Gabrielino-Tongva Tribe, called on October 12, 2017 to state that he had no comment on the Project. The remaining three Native American Tribal representatives, including Chairperson Andrew Salas, Chairperson Anthony Morales, and Chairperson Robert Dorame all stated that the Project area is sensitive for cultural resources, and that ground-disturbing activities should be monitored by a Native American monitor. Chairperson Sadonne Goad did not respond to the letter or a follow-up voicemail.

5.12.3.3 AB 52 Consultation

AB 52 consultation letters were sent on December 28, 2020 to the four tribes with standing notifications with OC Public Works. Chairperson Andrew Salas also requested and engaged in government-to-government consultation with OC Public Works in compliance with AB 52. Chairperson Andrew Salas and Tribal Biologist Matthew Teutimez met with OC Public Works representatives via telephone conference on March 18, 2021. The exact contents of AB 52 consultation is privileged and confidential, but call notes are on file with OC Public Works. Chairperson Salas and Mr. Teutimez emphasized their tribal government’s ancestral ties to the project area and restated their belief that the project area, for example, is generally sensitive for tribal cultural resources. Neither Chairman Salas nor Mr. Teutimez identified any

tribal cultural resources meeting the legal definition provided in Public Resources Code Section 21074(a). They again requested Native American monitoring for any ground-disturbing activities. OC Public Works concluded consultation with the Gabrieleno Band of Mission Indians - Kizh Nation and provided a letter to the Tribe concluding the consultation process on July 15, 2021.

5.12.3.4 Other Interested Party Contact

An e-mail was sent on June 15, 2018, to Sherry Farley, who is Past Grand President of the Native Daughters of the Golden West and former Present and current History and Landmarks Chair of Grace Parlor No. 242. Mrs. Farley responded in both a voicemail and an email on June 25, 2018. This was followed by a phone call and an additional email on June 27, 2018. Mrs. Farley provided AECOM with background information about, and historical photos of, the Brea Canyon Portola Monument erected by the Grace Parlor of the Native Daughters of the Golden West on June 2, 1932. This information is incorporated into Appendix G of this Draft EIR.

According to Mrs. Farley, the Brea Canyon Portola Monument remains important to the Native Daughters of the Golden West and is visited and maintained by the Grace Parlor. It is also one of 13 monuments erected by Grace Parlor No. 242 and Santa Ana Parlor No. 235 which are part of a regular Monument Search Scavenger Hunt. If it is necessary to impact the Brea Canyon Portola Monument in the course of Project work, the Native Daughters would like it to be relocated to a place where it can be enjoyed as close to its current location as possible. The Native Daughters would like to take part in a rededication of the monument if it is moved and be kept informed of Project progress. Copies of correspondence and call notes with Mrs. Farley are contained in Appendix C of Appendix I of this Draft EIR.

5.12.3.5 Archival Research and Cultural Resources Survey

As discussed in Section 5.4, Cultural Resources, of this Draft EIR, the cultural resources investigation for the Project involved archival research and a field survey. The archival research conducted for the Project included a records search at the South Central Coastal Information Center, an SLF search, and a consultation of relevant online archives.

A cultural resources field survey of the project limits was conducted on May 29 and 30, 2018. The cultural resources survey included identification of archaeological and built environment resources. One known built resource, the Brea-Olinda Oil Field (30-177012), was revisited and its boundaries extended. Three previously unrecorded resources, including Sergio O'Cadiz's *Sunburst* sculpture, the Brea Canyon Portola Monument, and Brea Boulevard itself, were identified during the survey.

5.12.4 POTENTIAL IMPACTS

5.12.4.1 Resources Listed or Eligible for Listing in the California Register of Historical Resources, or in a Local Register of Historical Resources as Defined in PRC Section 5020.1(k)

As previously discussed, there are four historic-in-age resources documented within or adjacent to the Project APE. Of the four historic resources identified, the Brea-Olinda Oil Field, was previously found eligible through survey evaluation for the NRHP and CRHR. However, it has since been impacted in a way that negates its previous eligibility (i.e., destruction of Wildcatter's Park and other impacts to the site; refer to Section 5.4 and Appendix I of this Draft EIR). Brea Boulevard and its associated structures, including the abandoned weigh station, abandoned road segment, and abandoned bridge on to private property, were evaluated and found not eligible for listing in the CRHR (refer to Section 5.4 and Appendix I of this Draft

EIR). The Brea Canyon Portola Monument and Sergio O’Cadiz’s *Sunburst* sculpture appear eligible for inclusion in the CRHR. However, these are both 20th century creations, and therefore do not figure into the ethnographic and ethnohistoric literature related to the *Gabrielino*. Nonetheless, widening of the road would require the removal of the road shoulder on which the Brea Canyon Portola Monument is located. Mitigation Measure CR-1 in Section 5.4.5, Cultural Resources, of this Draft EIR, would move the Brea Canyon Portola Monument to a new, nearby location to preserve its integrity of setting while still allowing cars to stop beside it and the regular Monument Search Scavenger Hunt to continue. Implementing Mitigation Measure CR-1 would reduce the Project’s impact to historical resources pursuant to Section 15064.5 to a less than significant level.

No tribal representatives contacted during the tribal outreach efforts identified these resources as having cultural value for their tribes. Therefore, the Project would not cause a substantial adverse change in the significance of any known tribal cultural resource pursuant to Section 21074 and listed in the CRHR. Impacts would be less than significant and no additional mitigation measures are required.

5.12.4.2 Resources Determined to be Significant per PRC Section 5024.1

As required by AB 52, the NAHC was contacted and an SLF search was requested for the Project. No resources of specifically California Native American origin were identified during the investigation of cultural resources, and no specific resources that could be designated tribal cultural resources were identified during the archival research, as part of the tribal contact through AB 52 consultation with the Gabrieleno Band of Mission Indians - Kizh Nation, or the field survey. The NAHC identified five *Gabrielino* tribal contacts who are culturally affiliated with the project area and who may have knowledge of and interest in the project area. An attempt was made to contact all five tribal representatives, and four of the representatives were spoken with and queried as to their concerns about the Project. None of these tribal government representatives identified specific resources within the project area that might be designated tribal cultural resources. However, three tribal representatives indicated that the project area is sensitive for unknown tribal cultural resources. Those three representatives are Chairperson Andrew Salas, Gabrieleno Band of Mission Indians – Kizh Nation; Chairperson Anthony Morales, Gabrielino/Tongva San Gabriel Band of Mission Indians; and Chairperson Robert Dorame, Gabrielino Tongva Indians of California Tribal Council. The three representatives recommended tribal monitoring of ground-disturbing activities by a qualified tribal monitor. Each representative requests that the monitor come from within his own tribal body. Ground-disturbing activities have the potential to cause a substantial adverse change in the significance of tribal cultural resources of a California Native American tribe should they be encountered within the project limits. However, OC Public Works would implement its tribal cultural resources-related Standard Conditions (SCs) to help reduce or avoid potential impacts related to these resources (refer to SC TCR-1 and SC TCR-2). In addition, Mitigation Measures CR-1 through CR-5, provided in Section 5.4, Cultural Resources, of this Draft EIR, are also applicable to tribal cultural resources to reduce potential impacts to such resources.

SC TCR-1 If previously unknown and unanticipated archaeological or tribal cultural resources are discovered during ground disturbing activities in previously undisturbed soils or visually evident in imported soils, OC Public Works will implement the following measures. All work will halt within a 50-foot radius of the discovery. OC Public Works will have a qualified professional archaeologist with knowledge of Native American resources and a Native American monitor to assess the significance of the find. If the resources are Native American in origin, OC Public Works shall coordinate with the Tribe regarding evaluation, treatment, curation, and preservation of these resources. The archaeologist will have the authority to modify the no-work radius as appropriate, using professional judgment in consultation with OC Public Works. Work will not continue within the no-work radius until the archaeologist conducts sufficient research and evidence and data collection to establish that the resource is

either: (1) not Native American in origin; or (2) not potentially eligible for listing on the CRHR. If a potentially eligible resource is encountered, then the archaeologist and OC Public Works, as lead agency, in consultation with the Tribe, will arrange for either: (1) avoidance of the resource, if possible; or (2) test excavations to evaluate eligibility, and if eligible, an attempt to resolve adverse effects to determine appropriate resolution of the resource. The assessment of eligibility will be formally documented in writing as verification that the provisions in CEQA for managing unanticipated discoveries and PRC Section 5024 have been met.

SC TCR-2 Ongoing consultation with the tribal representatives who have expressed interest in the Project shall be maintained, and they shall be consulted as to the treatment and final disposition of any resources of Native American origin that are encountered during Project activities.

With adherence to SC TCR-1 and SC TCR-2, potential impacts to tribal cultural resources would be less than significant and no mitigation measures are required.

5.12.5 MITIGATION MEASURES

No mitigation measures related to tribal cultural resources are required.

5.12.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Adherence to SC TCR-1 and SC TCR-2 would reduce impacts related to tribal cultural resources to a level that is less than significant. No mitigation measures are necessary.

5.13 WILDFIRE

This section describes wildfire conditions and wildfire behavior, identifies the California Department of Forestry and Fire Protection (CAL FIRE) fire hazard severity zones for the project site and vicinity, and describes first response to wildfires in the project area. Impacts are evaluated relative to the potential for the Project to exacerbate wildfire risks or expose people or structures to significant risks. In addition, this analysis identifies compliance with existing safety procedures, standards, and regulations related to managing fire risk that would be part of the Project.

5.13.1 EXISTING CONDITIONS

As noted in Section 3.0, Project Description, of this Draft EIR, the Project is located within the City of Brea and unincorporated Orange County, from Central Avenue/State College Boulevard to the State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road, a total length of approximately 8,800 linear feet or 1.7 miles. Construction of the Project would be conducted within permanent and temporary limits of disturbance along the corridor (i.e., the project limits).

5.13.1.1 Wildfire Classification and Behavior

Fires are classified by where in the fuel strata they burn: surface fires, understory fires, and crown fires (California Forest Stewardship Program 2015). Surface fires are the most common. Depending on the fuels, weather, and topography, these fires can be low to high intensity. Understory fires have flame lengths of up to 10 feet. They consume surface fuels, small trees, brush, and lower branches of overstory trees. Crown fires reach into the crowns of trees with flame lengths of more than 10 feet.

Fire season is the period when fires are expected to occur, based on knowledge of long-term climate patterns. Wildland fire behavior is based on three primary factors: topography, weather, and fuels. The following discussion briefly describes how each of these factors influences wildfire behavior within and in the vicinity of the Project.

Topography

Topographic features such as slope and aspect influence a fire's intensity, direction, and rate of spread. Fires burning in flat or gently sloping areas tend to burn more slowly and spread in wider ellipses than fires on steep slopes. Streams, rivers, and canyons can channel local diurnal and general winds, which can accelerate a fire's speed and affect its direction, especially during foehn (warm, dry, and unusually strong) wind events (California Forest Stewardship Program 2015).

From west to east along the corridor, the existing roadway gradient ascends from approximate elevation of 390 feet above mean sea level to an elevation of 512 feet, with a total rise of around 122 feet in vertical elevation. Hilltop elevations south and east of the roadway reach elevations of approximately 770 feet. Canyon terrain on the north rises at least 450 feet higher than the south, achieving elevations of approximately 1,228 feet.

Weather

Weather conditions influence the potential for fire ignition, rates of spread, intensity, and the direction(s) toward which a fire burns. Temperature, relative humidity, and wind are the variables used to predict fire behavior.

Orange County is considered to have a Mediterranean climate, where precipitation occurs during the winter months and summers are typically hot and dry. Normal January temperatures range from an average minimum of 45 degrees Fahrenheit (°F) to an average maximum of 56°F, and August temperatures range from an average minimum of 65°F to an average maximum of 85°F. Average annual rainfall ranging from 10-14 inches. Weather phenomena characteristic of Orange County includes:

- Microclimate Conditions: Where temperatures can vary as much as 18°F from inland areas to the coast, with a temperature gradient of over one degree per mile.
- May Gray/June Gloom: Often brings morning overcast skies to the coastal cities that usually give way to sunny skies by noon, during the late spring and early summer.
- Santa Ana Winds: Per the National Weather Service (NWS), Santa Ana Winds are “strong down slope winds that blow through the mountain passes in Southern California”. They can easily exceed 40 miles per hour, are warm and dry, and can severely exacerbate brush or forest fires, especially under drought conditions.

Fuels

Vegetation usually provides most of the fuel that feeds wildfire. The volume, character, distribution, and arrangement of vegetation all greatly influence fire behavior (California Forest Stewardship Program 2015).

Vegetation communities and land cover types observed within the project area and vicinity have generally been disturbed by human activities associated with roadway and oil field development. The project area and vicinity are comprised of varying densities of native and non-native vegetation, and developed areas, such as the oil fields, roadways, and residential development at the southwest end of the corridor.

Native vegetation communities such as California walnut, coast live oak, coastal sage scrub (although disturbed), and willow riparian habitats occurring in the project area and vicinity reflect coastal foothill and mountain habitats of southern California such as those in the nearby Puente Hills, Chino Hills, and Santa Ana Mountains. Non-native vegetation consists of common ornamental species, primarily eucalyptus and pepper tree, and other non-native trees that were likely planted during development of the oil fields and have over time become naturalized within the project area and vicinity. Refer to Section 5.3, Biological Resources, for further discussion of habitat and vegetation types in the project area.

5.13.1.2 Fire Hazard Severity Zones

Fire hazard severity zones are measured qualitatively, based on vegetation, topography, weather, crown fire potential (a fire’s tendency to burn upward into trees and tall brush), and ember production and movement within the area in question.

Fire prevention areas considered to be under state jurisdiction are referred to “state responsibility areas” or SRAs, and CAL FIRE is responsible for vegetation fires within SRA lands.¹⁸ In general, SRA lands contain trees producing, or capable of producing, forest products; timber, brush, undergrowth, and grass, whether of commercial value or not, that provide watershed protection for irrigation or for domestic or industrial use; or lands in areas that are principally used, or are useful for, range or forage purposes.

Public Resources Code Sections 4201–4204 and Government Code Sections 51175–51189 require identification of fire hazard severity zones within the State of California. In SRAs, CAL FIRE is required

¹⁸ California Public Resources Code (PRC) Sections 4125–4127 define a State Responsibility Area as lands in which the financial responsibility for preventing and suppressing wildland fire resides with the State of California.

to delineate three wildfire hazard ranges: moderate, high, and very high. As shown in Figures 5.13-1 and 5.13-2, the portion of the Project in unincorporated Orange County is within an SRA and designated by CAL FIRE as high and very high fire severity zones (CAL FIRE 2007, 2022). CAL FIRE contracts with the Orange County Fire Authority (OCFA) to provide all aspects of wildland fire management for the SRA within the unincorporated county (OCFA 2020).

CAL FIRE identifies only very high fire hazard severity zones in “local responsibility areas,” (LRAs) which are areas under the jurisdiction of local entities (e.g., cities and counties). The portion of the Project in the City of Brea is within a LRA and the area generally north of Canyonale Drive is designated by CAL FIRE as a very high fire severity zone (Figures 5.13-1 and 5.13-2) (CAL FIRE 2011, 2022). The Brea Fire Department provides fire protection services to this portion of the project area.

5.13.1.3 Wildfire Responses

Orange County Fire Authority

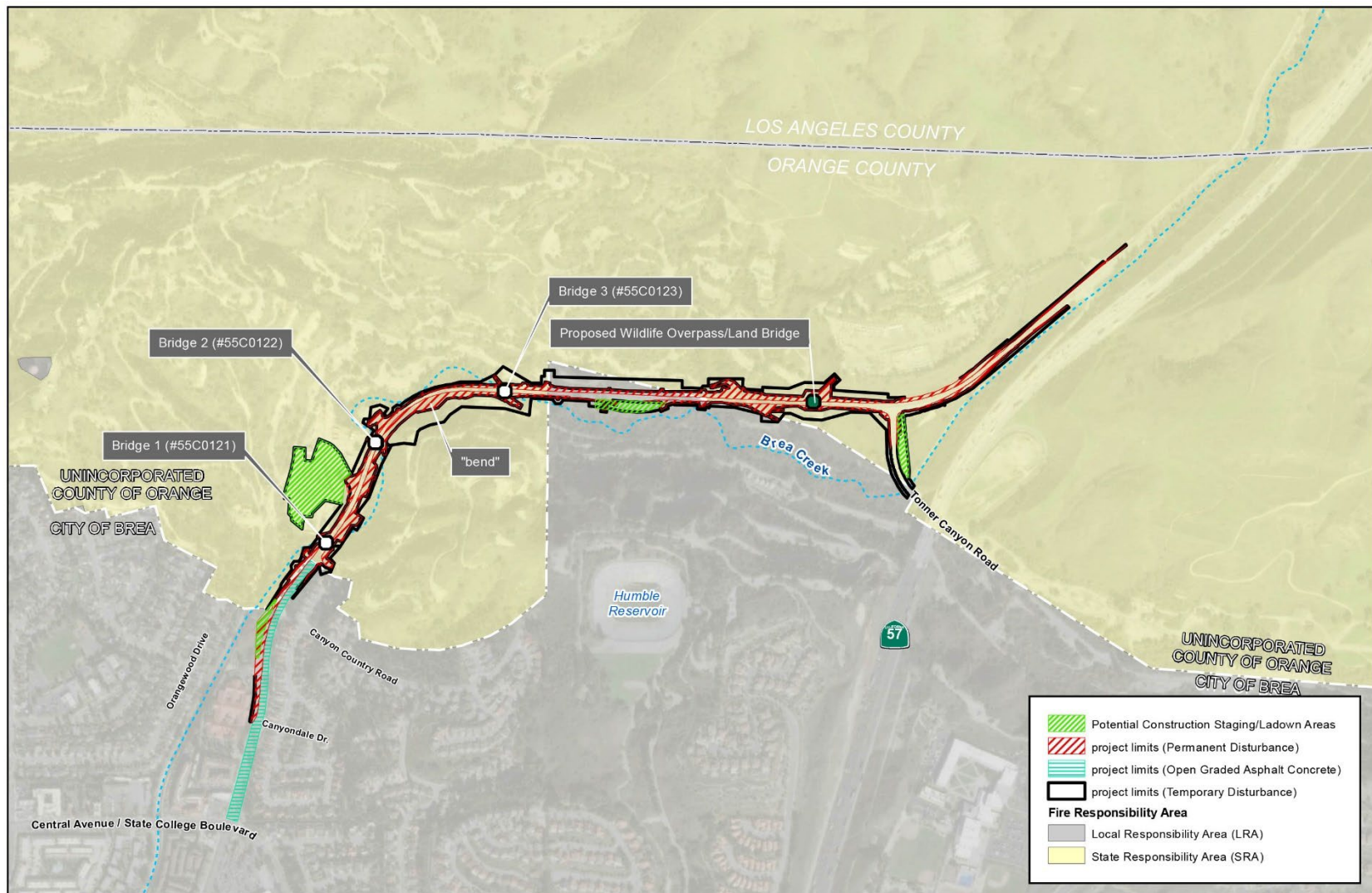
The OCFA operates as a Joint Powers of Authority, and contracts with 24 of Orange County’s 34 incorporated cities to provide a full spectrum of fire protection services. Additionally, OCFA is contracted by the County of Orange to protect its 16 unincorporated communities, as well as Orange County Parks. CAL FIRE also contracts with OCFA to protect Orange County’s SRA lands, which include two State Parks plus portions of the Cleveland National Forest Trabuco Ranger District.

OCFA is headquartered in Irvine, CA at the Regional Fire Operations Training Center, and has 79 fire stations, all of which are equipped with wildland firefighting capabilities, including 22 with specialized wildland apparatus (OCFA 2020).

OCFA Battalion 2 provides wildfire suppression to the project area within unincorporated Orange County. Battalion 2 is in the northeast corner of Orange County and borders Los Angeles and San Bernardino Counties, plus a small portion of Riverside County, and includes the cities of Placentia and Yorba Linda. There are two OCFA stations near the Project vicinity. Fire Station 10, located at 18422 East Lemon Drive in Yorba Linda, staffs 15 firefighters and houses one medic engine and a water tender (OCFA 2022). Fire Station 32, located at 20990 Yorba Linda Boulevard in Yorba Linda, staffs 24 firefighters and houses two engines, a swift water rescues, and truck (OCFA 2022).

Brea Fire Department

The Brea Fire Department provides fire suppression and emergency medical services along with various other public safety services to 47,000 residents in an approximately 12.4 square-mile area that encompasses the City of Brea. In addition, the department operates a very active Fire Prevention and Emergency Preparedness Program, which provides for fire inspections, hazardous process permitting, fire code enforcement, public education, and business emergency planning in accordance with California Code of Regulations. The Brea Fire Department provides services from four fire stations located across its service area. In 2020, the Brea Fire Department responded to 4,823 calls for service with 68 percent of those calls consisting of emergency medical incidents (Brea Fire Department 2021). Average response time was 7 minutes and 29 seconds from the time of dispatch to arrival (Brea Fire Department 2021). The closest station to the project area is Station 2 located at 200 North Brea Boulevard in Brea, approximately 0.8 mile south of Central Avenue/State College Boulevard. Station 2 includes one engine company, one truck company, and reserve equipment (Brea Fire Department 2022).



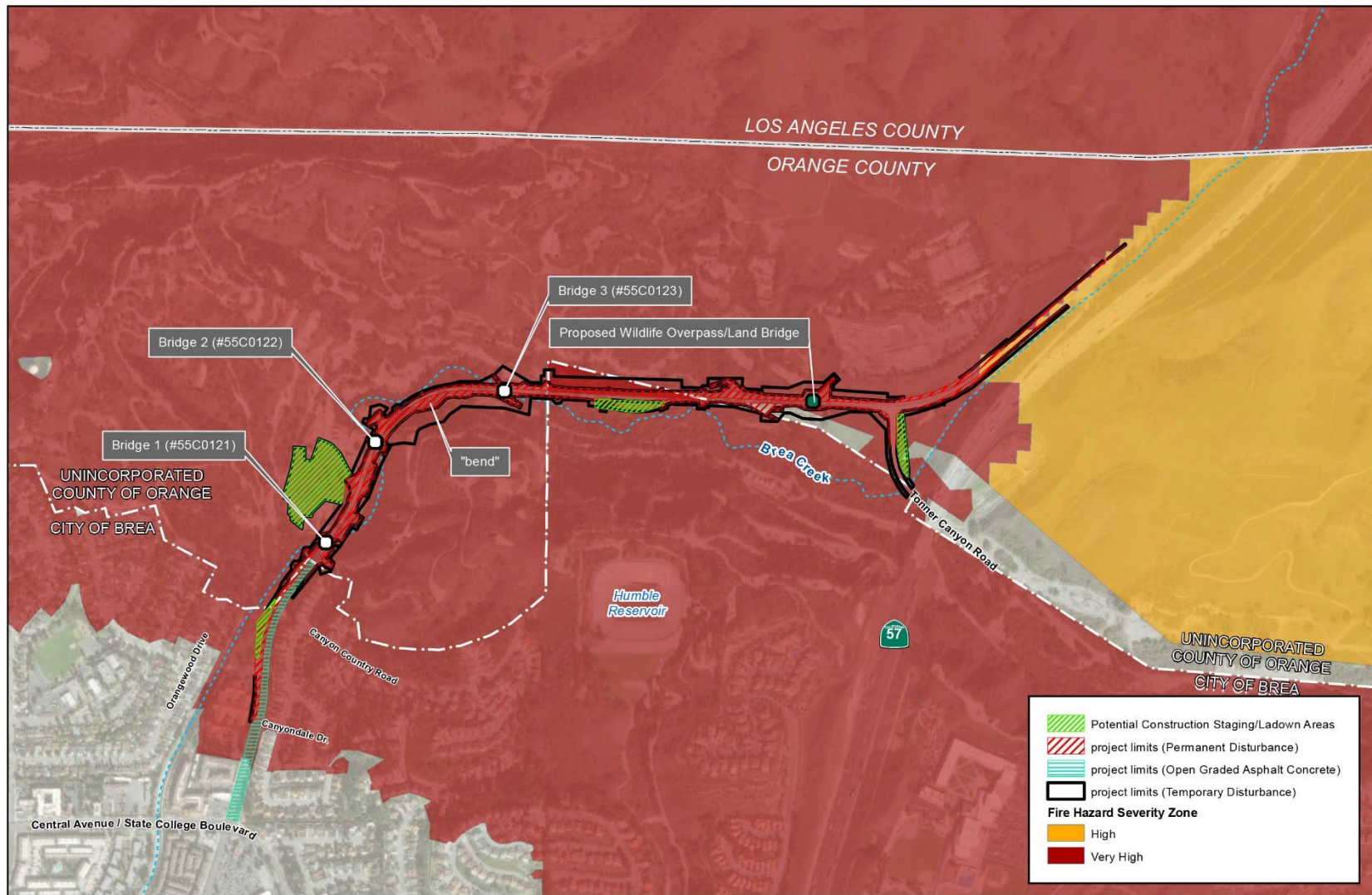
Eagle Aerial Imaging (2015), Mark Thomas (2021), OCPW (2022), AECOM (2022), and CalFIRE (2020)

Figure 5.13-1
Fire Responsibility Areas

Scale 1 : 12,000
1" = 1,000 feet

0 500 1,000 2,000 3,000 Feet

Brea Boulevard Corridor Improvement Project



Eagle Aerial Imaging (2015), Mark Thomas (2021), OCPW (2022), AECOM (2022), and CalFIRE (2020)



Figure 5.13-2
Fire Hazard Severity Zones

Brea Boulevard Corridor Improvement Project

The closest station to the project area is Station 2 located at 200 North Brea Boulevard in Brea, approximately 0.8 mile south of Central Avenue/State College Boulevard. Station 2 includes one engine company, one truck company, and reserve equipment (Brea Fire Department 2022).

5.13.1.4 Regulatory Setting

California Public Resources Code

Section 4290

California Public Resources Code (PRC) 4290 was adopted for establishing minimum wildfire protection standards in conjunction with building, construction, and development in SRAs. Under Section 4290, the future design and construction of structures, subdivisions, and developments in SRAs must provide for basic emergency access and perimeter wildfire protection measures as specified in Section 4290. These measures provide for road standards for emergency access, signing and building numbering, water supply reserves, and fuel breaks and greenbelts. Local standards that exceed those of Section 4290 supersede Section 4290.

Section 4427

PRC Section 4427 limits the use of any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tarpots, or grinding devices from which a spark, fire, or flame may originate, when the equipment is located on or near land covered by forest, brush, or grass. Before such equipment may be used, all flammable material, including snags, must be cleared away from the area around such operation for a distance of 10 feet. A serviceable round point shovel with an overall length of not less than 46 inches and a backpack pump water-type fire extinguisher, fully equipped and ready for use, must be maintained in the immediate area during the operation.

Section 4428

PRC Section 4428 limits industrial operations on or near any land covered by forest, brush, or grass between April 1 and December 1 of any year, or other times when ground litter and vegetation will sustain combustion permitting the spread of fire. Such operations must provide and maintain, for firefighting purposes only, suitable and serviceable tools in the following amounts, manner, and locations:

- A sealed box of tools must be located in the operating area, at a point accessible in the event of fire. The fire toolbox must contain a backpack pump-type fire extinguisher filled with water, two axes, two McLeod fire tools, and enough shovels for each employee at the operation to be equipped to fight fire.
- Each passenger vehicle used must be equipped with a shovel and an ax, and any other vehicle used must be equipped with a shovel. Each tractor used must also be equipped with a shovel.

Section 4431

PRC Section 4431 requires users of gasoline-fueled internal combustion-powered equipment operating within 25 feet of flammable material on or near land covered by forest, brush, or grass to have a tool for firefighting purposes at the immediate location of use. This requirement is limited to periods when burn permits are necessary. Under Section 4431, the Director of Forestry and Fire Protection specifies the type and size of fire extinguisher necessary to provide at least a minimum assurance of controlling fire caused by use of portable power tools during various climatic and fuel conditions.

Section 4442

PRC Section 4442 prohibits the use of internal combustion engines running on hydrocarbon fuels on any land covered by forest, brush, or grass unless the engine is equipped with a spark arrestor and is constructed, equipped, and maintained in good working order when traveling on any such land. In addition, a spark arrestor affixed to the exhaust system cannot be placed or mounted in such a manner as to allow flames or heat from the exhaust system to ignite flammable material.¹⁹

Emergency Responses or Emergency Evacuation Plans

County of Orange and Orange County Fire Authority Local Hazard Mitigation Plan

The local hazard mitigation plan (LHMP) for the County of Orange is a multi-jurisdiction plan developed jointly between the County of Orange, a local government, and the OCFA, a joint powers authority, and was approved by the Federal Emergency Management Agency (FEMA) in December 2021 (County of Orange and OCFA 2021). The focus of the LHMP is mitigating all natural hazards impacting unincorporated areas of the County along with facilities owned by the County and OCFA. This LHMP was developed via participation from County agencies as well as the OCFA who formed the Orange County Hazard Mitigation Planning Task Force, the County Emergency Management Council, the County Emergency Management Council Subcommittee, and the Orange County Emergency Management Organization. It should be noted that the City of Brea is a member of the Orange County Emergency Management Organization, which is a standing subcommittee of the Orange County Operational Executive Board, tasked with developing and reviewing plans across the County to ensure consistency with the LHMP.

City of Brea's Emergency Preparedness Regulations and Program

Title 8, Health, Safety, and Welfare, of the City of Brea Municipal Code provides for, among other things, the preparation and carrying out of plans for the protection of people and property in the event of an emergency (City of Brea 2019).

In addition, the City of Brea has an active Emergency Preparedness Program coordinated by a professional emergency manager (City of Brea 2020). Public programs available range from those provided upon the request of an organization or group to the more structured Brea Community Emergency Response Team classes offered periodically. This program consists of the following five elements:

- Development and maintenance of the City's Emergency Response Plan
- Development and maintenance of the City's Emergency Operations Center
- Coordination of preparedness, training and exercises for city staff to be sure they are ready to respond to any emergency
- Public education and outreach to the residents and businesses of Brea
- Fund recovery following disasters

¹⁹ A spark arrestor is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles larger than 0.0232 inch from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels.

5.13.2 THRESHOLDS OF SIGNIFICANCE

Based upon the thresholds contained in Appendix G of the California Environmental Quality Act (CEQA) Guidelines, implementation of the Project would result in a significant adverse impact on the environment related to wildfire if it would:

- Substantially impair an adopted emergency response plan or emergency evacuation plan.
- Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire.
- Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment.
- Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes.

5.13.3 METHODOLOGY RELATED TO WILDFIRE

This analysis of the Project's effects related to wildfire is based on a review of CAL FIRE's Fire Hazard Severity Zone map for Orange County; regulatory safety procedures, standards, and regulations; and the information resources cited herein. Effects were identified and evaluated based on the environmental characteristics of the project area and whether the Project exacerbates the risk of a wildfire in vulnerable areas.

5.13.4 POTENTIAL IMPACTS

5.13.4.1 Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan

As discussed in Section 5.7, Hazards and Hazardous Materials, the County of Orange and OCFA have implemented a LHMP to mitigate all natural hazards impacting unincorporated areas of the County along with facilities owned by the County of Orange and OCFA. The City of Brea is a participating entity under the LHMP, who helps develop and review plans across the County to ensure consistency with the LHMP. The City of Brea also has Emergency Preparedness regulations (Title 8 of the Brea Municipal Code) and program, which includes development and maintenance of the City's Emergency Response Plan. Construction of the Project will require periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 p.m. to Monday at 5:00 a.m. During construction, access would remain for emergency responders and oil field operators but there is the potential to impair or interfere with the LHMP and City of Brea's Emergency Response Plan. As such, impacts related to impairment of an adopted emergency Response Plan during construction would be potentially significant (refer to Mitigation Measure HHM-4).

5.13.4.2 Exacerbate Wildfire Risks

As stated above, Appendix G of the CEQA Guidelines determines wildfire impacts based on whether a proposed project would occur within or near an SRA or on lands classified as very high fire hazard severity zones. As previously shown in Figures 5.13-1 and 5.13-2, the portion of the Project in unincorporated Orange County is within an SRA and designated by CAL FIRE as high and very high fire severity zones.

The portion of the Project in the City of Brea generally north of Canyondale Drive is designated by CAL FIRE as a very high fire severity zone (Figure 5.13-2).

Project construction activities would involve road widening construction (including the construction of retaining walls), removal and replacement of three bridges and associated dewatering activities, extension or reconfiguration of 13 culvert crossings (for drainage or utilities or both), a new wildlife overpass/land bridge, and related staging and grading activities. The proposed bridges would be installed along the same alignment as the existing bridges and would be single-span precast/prestressed concrete girder bridges. There are no buildings proposed that would introduce additional population to the project area.

During Project construction, the primary fire hazards would be from vehicles and construction equipment. Construction vehicles use flammable fuels, such as diesel and gasoline, and would be operated in proximity to dry vegetation; their hot tailpipes or sparks from chains or other metal objects could ignite dry brush, especially during the warmer, dry months between June and October. Additionally, activities such as welding and grinding could generate sparks which would increase the likelihood of ignition. Therefore, dependent on the time of year and location of construction activities, there would be a temporary increase in exacerbated fire risks in the area.

Operations and maintenance would consist of routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge, and similar activities. These intermittent maintenance activities could increase the potential for ignition due to the presence of vehicles and use of equipment.

Construction, operation, and maintenance of the Project will be required to comply with all laws, plans, policies, and regulations related to fire safety and wildfire suppression identified above in the Regulatory Setting section, including the following requirements from the California Public Resources Code:

- PRC Section 4427, which identifies appropriate fire suppression equipment and stipulates removal of flammable materials to a distance of 10 feet from any equipment that could produce a spark, fire, or flame on days when burning permits are required;
- PRC Section 4428, which identifies additional firefighting equipment requirements during the period of highest fire danger (April 1–December 1);
- PRC Section 4431, which prohibits the use of portable tools powered by gasoline-fueled internal combustion engines within 25 feet of flammable materials when burning permits are required; and
- PRC Section 4442, which requires engines be equipped with a spark arrestor.

Wildfire risks during construction, operation, and maintenance would be offset by compliance with fire safety and wildfire suppression measures. Adherence to these safety measures, when considered together, would minimize the risk of increased frequency, intensity, or size of wildfires and decrease the risk of exposure of people or structures to wildfire. Therefore, impacts related to the potential for the Project to exacerbate wildfire risks would be less than significant and no mitigation measures are required.

5.13.4.3 Exacerbate Fire Risk or Result in Temporary or Ongoing Impacts to The Environment from Installation or Maintenance of Associated Infrastructure

Infrastructure that could exacerbate wildfire risks, in this case, refers to construction of the Project (i.e., the widened and reconfigured Brea Boulevard, three replacement bridges, extended or reconfigured 13 culvert crossings, and a new wildlife overpass/land bridge); relocation of utilities; and operation and maintenance

activities, such as routine cleaning of all storm drain facilities, removal of graffiti, cleaning of debris, routine pavement rehabilitation, periodic routine bridge maintenance, periodic maintenance of vegetation on the wildlife overpass/land bridge). The potential for construction, operation, and maintenance of the Project to result in temporary or ongoing impacts to the environment are addressed in the applicable resource sections throughout this Draft EIR. Where the Project would result in potentially significant or significant environmental impacts, mitigation measures are identified, if necessary, to reduce those impacts to less-than-significant levels. There are no additional potentially significant or significant impacts associated with construction, operation, and maintenance beyond those comprehensively considered throughout the other sections of this Draft EIR. Therefore, the construction, operation, and maintenance of the Project is not evaluated further in this section.

5.13.4.4 Expose People or Structures to Significant Risks as a Result of Runoff, Post-Fire Slope Instability, or Drainage Changes

Construction and operation of the Project (e.g., the widened and reconfigured Brea Boulevard, three replacement bridges, extended or reconfigured 13 culvert crossings, and a new wildlife overpass/land bridge) has the potential to result in runoff, slope instability, and alteration of existing drainage patterns. The Project would not be located on an unstable soil; however, grading and slope cutting activities during construction would expose soils to potential erosion and could alter drainage patterns. In addition, portions of the roadway alignment are located within a mapped landslide seismic hazard zone and thus the Project could be subject to earthquake-induced landslides (see Section 5.5, Geology and Soils, for further discussion).²⁰

As described in Section 5.8, Hydrology and Water Quality, of this Draft EIR, the Project would not substantially alter the existing drainage pattern of the site or area, and it would not result in substantial erosion or an impediment or redirection of flood flows. The Project would be required to adhere to the requirements of a construction-related National Pollutant Discharge Elimination System (NPDES) permit, which would specify best management practices to minimize erosion and runoff. Adherence to NPDES-related provisions would ensure impacts associated with alteration of the existing drainage pattern during construction. As discussed in Section 5.5, the Project would be designed and constructed in accordance with the geotechnical recommendations provided in the Project's geotechnical reports (Appendix J). The Project would also be designed per Orange County Highway Design Manual, Caltrans Highway Design Manual, Orange County Highway Design Manual, Orange County Flood Control District Design Manual, City of Brea Public Works' Standards and Specifications, and Standard Specifications for Public Works Construction (Greenbook). In addition, the Project would also comply with the requirements of applicable design standards such as: American Association of State Highway and Transportation Officials Load and Resistance Factor Design Bridge Design Specifications Bridge Design Specifications with California Amendments, and Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications. Therefore, the Project would not create conditions that cause downstream runoff, post-fire slope instability, or drainage changes that would expose people or structures to significant risks. This impact would be less than significant and no mitigation measures are required.

5.13.5 MITIGATION MEASURES

The following mitigation measure was developed to help reduce or avoid potential impacts related to emergency response and evacuation during construction:

²⁰ A landslide is defined as the movement of a mass of rock, debris, or earth down a slope. Landslides are a type of "mass wasting," which denotes any down-slope movement of soil and rock under the direct influence of gravity.

HHM-4 Prior to the start of construction, the contractor shall prepare and have approved a Construction Emergency Access/Response and Fire Prevention Plan (Emergency Plan) by the Director of OC Public Works or designee, the local OCFA Division Chief, the local Orange County Sheriff Lieutenant, and the City of Brea Fire Services Department. The Emergency Plan shall detail emergency access and traffic control during construction-related road and lane closures and the implementation of fire safety measures during construction activities. The Emergency Plan shall include at a minimum the following requirements, restrictions, and measures, which are to be documented in the contractor's construction plans and specifications to the satisfaction of the Director of OC Public Works or designee:

- Requirement for contractor to provide a detailed schedule of work activities at a pre-construction meeting, including start and end dates for work phases, calendared work day hours, temporary signal/flagman hours of operation, and after work hours emergency access solutions;
- Detailed traffic control and detour plan that assures emergency access is maintained at all times and is not in conflict with the LHMP or City of Brea's Emergency Response Plan;
- Community communication/alert plan, including public notification activities via social media, changeable message signs, pre-construction updates, safety and emergency protocols, etc. Community communication shall involve disseminating information on OCFA's Ready!, Set!, Go! Safety program and an emergency evacuation route map;
- Protocols for ongoing contractor updates to local OCFA Division Chief, local Orange County Sheriff Lieutenant, City of Brea, and Orange County Public Works, beginning at the pre-construction meeting and continuing until the end of construction.
- Inclusion of specific emergency operational procedures (i.e., response actions, communication protocols, hazardous condition/weather monitoring, etc.) for (a) flood emergencies, (b) wildland fires, (c) structure fires, (d) Emergency Medical Service emergencies, (e) red flag warning periods/days (e.g., no hot work), and (f) loss of power;
- Immediate suspension of all construction activities in the event of a fire within the Project limits and immediate construction crew use of onsite fire extinguishers and water truck, as well as 911 emergency call;
- Compliance with applicable subsections of Chapter 33 of the 2019 California Fire Code, the National Fire Protection Association Standard 51B, and Section 4442 of the California Public Resources Code.
- Compliance with the fire protection provisions contained in Caltrans Standard Specifications No. 7-1.02(m);
- Details for coordinating with OCFA, Orange County Sheriff's Department, City of Brea Fire Services Department and Police Department through their Incident Command System should a wildfire evacuation be necessary.

5.13.6 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Mitigation Measure HHM-4 would reduce potentially significant impacts related to impairment of an emergency response plan or emergency evacuation plan during construction to a level that is less than significant with mitigation incorporated.

6.0 ALTERNATIVES TO THE PROJECT

6.1 OVERVIEW

The California Environmental Quality Act (CEQA) requires that an Environmental Impact Report (EIR) describe a range of reasonable alternatives to the Project, or to the location of the Project that could feasibly avoid or lessen any significant environmental impacts while substantially attaining the basic objectives of the Project. An EIR should also evaluate the comparative merits of the alternatives. This section includes potential alternatives to the Project and evaluates them, as required by CEQA.

Key provisions of the CEQA Guidelines²¹ pertaining to the alternatives analysis are summarized below:

- The discussion of alternatives shall focus on alternatives to the project or its location that 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 No Project alternative shall be evaluated along with its impact. The no project analysis shall discuss the existing conditions at the time the Notice of Preparation is published. Additionally, the analysis shall discuss what reasonably would be expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.
- The range of alternatives required in an EIR is governed by a “rule of reason;” therefore, the EIR must evaluate 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.
- For alternative locations, only locations that would avoid or substantially lessen any of the significant effects of the project need be considered for inclusion in the EIR.
- An EIR need not consider an alternative whose effects cannot be reasonably ascertained and whose implementation is remote and speculative.

The range of feasible alternatives is selected and discussed in a manner to foster meaningful public participation and informed decision making. Among the factors that may be taken into account when addressing the feasibility of alternatives are environmental impacts, site suitability, economic viability, availability of infrastructure, general plan consistency, regulatory limitations, jurisdictional boundaries, and whether the applicant could reasonably acquire, control, or otherwise have access to the alternative site.²²

6.2 PROJECT OBJECTIVES

Project objectives include the following:

- Improve Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the Master Plan of Arterial Highways (MPAH);
- Replace three functionally obsolete bridges over Brea Creek with bridges that meet current design standards;

²¹ California Code of Regulations, Title 14, Division 6, Chapter 3, CEQA Guidelines, §15126.6.

²² *Ibid.*, §15126.6(f)(1).

- Increase flood conveyance of Brea Creek under the three bridges;
- Enhance safe wildlife movement across the roadway within the corridor;
- Improve roadway to meet current design standards;
- Redesign the Brea Boulevard/Tonner Canyon Road and Brea Boulevard/Canyon Country Road intersections;
- Minimize impacts to the surrounding habitat and wildlife; and
- Minimize impacts to above/underground utilities.

6.3 ALTERNATIVES CONSIDERED

An EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are feasible, and therefore merit in-depth consideration, and which are infeasible. Alternatives considered include a range of potential projects to meet the Project's objectives.

As part of the development process for the Project, OC Public Works prepared a road widening Funding Study (OC Public Works 2013) for Brea Boulevard to consider available alternatives to achieve the desired increase in arterial highway capacity along with bridge replacement and other associated changes. Brea Boulevard, within the identified project limits, is an existing two-lane, undivided highway that has been classified as a Primary Arterial Highway (i.e., a four-lane, divided roadway) per Orange County Transportation Authority's (OCTA's) MPAH, and as an existing road there is no alternative location for the Project. The Funding Study considered a Primary Arterial Highway design that met Orange County Public Works' (OC Public Works') standard plan (a right of way (R/W) width with standard minimum lane, shoulder, parkway, and median widths) for the arterial type, as well as a Modified Primary Arterial Highway design in an effort to minimize environmental impacts, impacts to adjacent properties, and utility relocations. Because the Modified Primary Arterial Highway design was capable of achieving the Project objectives with the reduced R/W width, while minimizing environmental impacts, R/W acquisition and impacts to adjacent properties, and utility relocations when compared to the standard Primary Arterial Highway design, it was selected as the Project that is the focus of this Draft EIR. Thus, the Project has been designed to lessen or avoid potential significant environmental effects of a widened roadway, while attaining the Project objectives. Although the build alternatives considered in this analysis do not avoid or lessen potential environmental effects of the Project, they provide the public and decision-makers with additional information for comparison purposes and consideration.

Alternatives considered in this analysis include the following:

- Alternative 1: No Project (No Build)
- Alternative 2: Standard Primary Arterial 4-Lane Divided Highway
- Alternative 3: 4-Phase Project Construction Approach Timeline

6.4 ALTERNATIVE 1 – NO PROJECT (NO BUILD)

6.4.1 DESCRIPTION OF ALTERNATIVE 1

Under Alternative 1 – No Project (No Build), none of the improvements identified under the Project would be implemented. Brea Boulevard and the project limits would remain as they currently exist and the roadway would continue to not match OCTA's MPAH.

6.4.2 IMPACTS OF ALTERNATIVE 1

6.4.2.1 Aesthetics

Under Alternative 1, existing views of and from within the corridor would remain unchanged because no road widening or associated improvements would occur. Alternative 1 would not result in R/W acquisition for road widening, demolition and removal of existing bridges, slope cuts requiring retaining walls, installation of new traffic signals, or installation of a new wildlife overpass/land bridge. There would be no change to the visual quality or character of the corridor, no new sources of light and glare would be introduced, and no impacts to scenic resources or a scenic vista. There would be no impacts related to aesthetics. Therefore, aesthetics impacts associated with Alternative 1 would be less than the Project.

6.4.2.2 Air Quality

Alternative 1 would not result in any construction-related air pollutant emissions or odors (e.g., construction equipment exhaust, construction-related trips by workers, delivery and hauling truck trips, fugitive dust from site preparation activities, off-gassing from traffic coating and paving activities, etc.) or any operational maintenance-related activities. However, since there would be no improvements to traffic flow or reduction of congestion (idling vehicles) under Alternative 1, there would be no reduction in operational emissions compared to the Project. Therefore, air quality impacts associated with Alternative 1 would be slightly greater than the Project.

6.4.2.3 Biological Resources

Under Alternative 1, there would be no change to existing conditions within the corridor related to biological resources. There would be no impacts to jurisdictional waters, wetlands, and riparian areas; special-status wildlife species; vegetation communities; special-status plants; or wildlife movement corridors. Therefore, biological resources impacts associated with Alternative 1 would be less than the Project. It should be noted that a new wildlife overpass/land bridge would not be provided under Alternative 1 and, therefore, no enhanced wildlife movement across the roadway would occur.

6.4.2.4 Cultural Resources

Alternative 1 would not result in any ground disturbance and therefore would not result in the disruption of any soils that could potentially contain archaeological resources or human remains. Additionally, with no road widening under Alternative 1, there would be no impact to the Brea Canyon Portola Monument and, therefore, no need to move the monument to a nearby location. There would also be no impacts related to cultural resources. Therefore, cultural resources impacts associated with Alternative 1 would be less than the Project.

6.4.2.5 Geology and Soils

Alternative 1 would not result in any impacts associated with geology and soils because there would be no change to the existing conditions. The corridor would remain in its current condition and no ground disturbance would occur. Therefore, geology and soils impacts associated with Alternative 1 would be less than the Project.

6.4.2.6 Greenhouse Gas Emissions and Energy

Alternative 1 would not result in any construction-related greenhouse gas (GHG) emissions (e.g., exhaust-related GHG emissions from heavy-duty off-road equipment, materials transport, worker commutes, etc.), construction-related fuel consumption, or changes to operation-related maintenance activities. However, since there would be no improvements to traffic flow or reduction of congestion (idling vehicles) under Alternative 1, there would be no reduction in associated fuel consumption or operational GHG emissions compared to the Project. Therefore, GHG emissions and energy impacts associated with Alternative 1 would be slightly greater than the Project.

6.4.2.7 Hazards and Hazardous Materials

Under Alternative 1, no construction activity would occur and conditions within the corridor would remain the same as existing conditions. Although the regulatory database search identified hazardous material sites within 1 mile of the project limits, these identified sites are either known leaking underground storage tanks that have been granted closure from regulatory agencies, are pulled, plugged, idle, or active wells, or are sites listed as small quantity generators of hazardous waste. As such, there would be no significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of existing on site hazardous materials into the environment and no impacts related to areas of the site being included on a list of hazardous materials sites would occur. Therefore, hazards and hazardous materials impacts associated with Alternative 1 would be less than the Project.

6.4.2.8 Hydrology and Water Quality

Under Alternative 1, no construction activity would occur and conditions within the corridor would remain the same as existing conditions. Alternative 1 would not result in the generation of any construction-related storm water runoff or waste discharge, and also would not result in any change to the drainage pattern or amount of impervious surfaces within the project limits. In addition, Alternative 1 would not place any new structures within a 100-year flood hazard area. There would be no impacts related to hydrology and water quality. Therefore, hydrology and water quality impacts associated with Alternative 1 would be less than the Project. It should be noted that no bridge replacements would occur under Alternative 1 and, therefore, no improvement to the hydraulics of the channel (by removing the piers and opening the waterway, thus reducing the likelihood of debris capture) would occur. Flood conveyance under the three bridges would remain the same as under current conditions.

6.4.2.9 Land Use and Planning

Under Alternative 1, no construction activity would occur and conditions at the project site would remain the same as existing conditions. There would be no road widening or re-alignment of the existing road and, therefore, no permanent property acquisitions for road easements R/W, retaining wall easements, slope easements, or easements for water quality features from adjacent private properties would be required. Further, no relocation of utilities or oilfield-related equipment requiring permits and/or agreements with the owners would be needed. Similar to the Project, Alternative 1 would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. There would be no impacts related to land use and planning. Therefore, land use and planning impacts associated with Alternative 1 would be less than the Project. It should be noted that under Alternative 1, Brea Boulevard would remain inconsistent with OCTA's MPAH.

6.4.2.10 Noise and Vibration

Under Alternative 1, no roadway construction and associated improvements would occur and therefore, no short-term construction impacts related to noise and vibration within the corridor would occur (such as nighttime and weekend construction activities for bridge replacement-related work). However, since the additional through lanes, new intersections, and open graded asphalt concrete (OGAC) paving would not be provided under Alternative 1, there would be no improvement in traffic flow/congestion or noise reduction for residents in the City of Brea (existing roadway noise associated with the average pavement type in the City of Brea would remain). Therefore, noise and vibration impacts associated with Alternative 1 would be greater than the Project.

6.4.2.11 Transportation and Traffic

Under Alternative 1, no roadway construction and associated improvements would occur. As such, there would be no temporary construction-related increases in traffic and no short-duration, non-recurring detours. However, none of the improvements identified under the Project would be implemented. Therefore, improvements to traffic flow or congestion would not occur. Brea Boulevard would remain as it currently exists (i.e., would not be improved consistent with the designated Primary Arterial Highway classification per the MPAH or meet current design standards) and commuter traffic would continue to experience delays. Therefore, transportation and traffic impacts associated with Alternative 1 would be greater than the Project.

6.4.2.12 Tribal Cultural Resources

Alternative 1 would not result in any ground disturbance or changes to the built environment and therefore would not result in changes to historic built resources or the disruption of any soils that could potentially contain an archaeological resource, human remains, or Native American cultural materials. Because no change to existing conditions within the project limits would occur and, none of the improvements identified would be implemented, consultation with tribal representatives would not be necessary. There would be no impacts related to tribal cultural resources. Therefore, tribal cultural resources impacts associated with Alternative 1 would be less than the Project.

6.4.2.13 Wildfire

Under Alternative 1, no construction activity would occur and conditions within the corridor would remain the same as existing. No periodic, full closure of Brea Boulevard (that could potentially impair or interfere with emergency response or evacuation) would be required and no temporary increase in exacerbated fire risk in the area as a result of construction activity would occur. Therefore, wildfire-related impacts associated with Alternative 1 would be less than the Project.

6.4.3 SUMMARY OF ALTERNATIVE 1

Alternative 1 would not result in any significant impacts related to aesthetics, air quality, biological resources, cultural resources, geology and soils, GHG emissions and energy, hazards and hazardous materials, hydrology and water quality, land use and planning, noise and vibration, transportation and traffic, tribal cultural resources, or wildfire.

Under Alternative 1, no change from existing conditions would occur. Alternative 1 would result in less impacts than the Project related to aesthetics, biological resources, cultural resources, geology and soils, hazards and hazardous materials, hydrology and water quality, land use and planning, tribal cultural resources, and wildfire. However, it would result in slightly greater impacts than the Project related to air

quality and GHG emissions and energy, and greater impacts than the Project related to noise and vibration and transportation and traffic. Although no new significant impacts would occur under Alternative 1, it would not attain the basic objectives of the Project. Brea Boulevard would not be improved consistent with the designated Primary Arterial Highway classification per the MPAH nor meet current design standards (e.g., sight distance), existing bridges would not be replaced and flood conveyance would remain the same as under current conditions, wildlife movement across the roadway would not be improved within the project limits, and intersections would remain as is (particularly the motorist safety-related signalization of the Brea Boulevard/Tonner Canyon Road intersection would not occur). Alternative 1 would not widen or realign the existing roadway and therefore would not result in impacts to the surrounding habitat or require or result in impacts to existing above/underground utilities.

6.5 ALTERNATIVE 2 – STANDARD PRIMARY ARTERIAL 4-LANE DIVIDED HIGHWAY

6.5.1 DESCRIPTION OF ALTERNATIVE 2

Under Alternative 2 – Standard Primary Arterial 4-Lane Divided Highway, Brea Boulevard would be widened from two to four lanes (two lanes each direction). Alternative 2 would include a standard Primary Arterial Highway per OC Public Works’ Standard Plan 1103, which requires 100 feet of R/W, two 12 feet wide lanes each direction, 11 feet wide shoulders (which could serve as a bike lane), 8 feet wide parkways (left natural, not Portland Cement Concrete [PCC]) and a 14 feet wide raised median. Similar to the Project, Alternative 2 would also replace three Brea Creek bridges, install traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, modify the existing signal at Canyon Country Road, modify driveway ingress/egress, install a new wildlife overpass/land bridge, add OGAC paving at the southern end of the corridor, acquire R/W, significant utility relocations (power poles, oil lines, oil wells, telephone duct banks, etc.), striping and signing. Alternative 2 is included to provide a design that fully meets OC Public Works’ standards for the MPAH designation of Brea Boulevard, which would be approximately 20 to 30 feet wider than what is proposed as part of the Project throughout the corridor.

6.5.2 IMPACTS OF ALTERNATIVE 2

6.5.2.1 Aesthetics

Implementation of Alternative 2 would result in similar aesthetics-related impacts as the Project because similar Project elements would be implemented. However, because Alternative 2 proposes a standard Primary Arterial Highway design, it would have a larger disturbance footprint for the wider roadway (approximately 20 to 30 feet wider than what is proposed as part of the Project). A wider roadway would result in the need for additional slope cut (with taller retaining walls), additional mature tree and vegetation removal within the corridor, and a larger wildlife overpass/land bridge. As such, Alternative 2 would, similar to the Project, result in substantial changes to scenic resources (e.g., roadway cut and fill into the adjacent vegetated hillside and removal of mature vegetation and stands of mature trees) within City of Brea view corridors, and substantially degrade existing visual character and quality of the corridor from key views (e.g., through hillside reduction, introduction of large retaining walls and new wildlife overpass/land bridge, etc.), some elements of which would be within view of a nearby eligible State scenic highway. These impacts would be significant and unavoidable, similar to the Project, but the changes would be incrementally greater under Alternative 2. Impacts associated with the creation of new sources of light and glare (i.e., new traffic signals) would be similar to the Project and not be considered substantial. Overall, aesthetics impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.2 Air Quality

Similar to the Project, construction of Alternative 2 would involve the use of off-road equipment, haul trucks, and worker commute trips that would generate temporary emissions of volatile organic compounds (VOC), nitrous oxides (NO_x), carbon monoxide (CO), and particulate matter (PM₁₀ and PM_{2.5}). VOC, NO_x, and CO emissions would, similar to the Project, be associated primarily with mobile equipment exhaust, including off-road construction equipment and on-road motor vehicles, and fugitive PM dust emissions would be associated primarily with earthmoving and material handling operations. Although the wider roadway under Alternative 2 would result in additional earthmoving, slope cut, vegetation removal, retaining wall construction, larger/wider bridges, paving, etc., when compared to the Project, it is assumed that construction of Alternative 2 would be performed by the same size construction crew (approximately 40 workers daily), which would result in a similar maximum daily intensity of construction activity, but that would occur over a longer period of time. As such, while the overall construction-related emissions of Alternative 2 would be slightly greater than the Project, the maximum daily construction emissions would be similar to as modeled for the Project and therefore expected to be less than significant. Alternative 2 would similarly not conflict with or obstruct implementation of the applicable air quality plan (South Coast Air Quality Management District's 2016 Air Quality Management Plan), not expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors affecting a substantial number of people. The air quality impacts associated with Alternative 2 would be less than significant, similar to the Project, but overall they would be slightly greater than the Project as a result of the emissions occurring over a longer period of time.

6.5.2.3 Biological Resources

Implementation of Alternative 2 would result in similar biological resources-related impacts as the Project because similar Project elements would be implemented. However, because Alternative 2 proposes a standard Primary Arterial Highway design, it would have a larger disturbance footprint for the wider roadway (approximately 20 to 30 feet wider than what is proposed as part of the Project). A wider roadway would result in the need for additional slope cut (with taller retaining walls), additional mature tree and vegetation removal within the corridor, and wider replaced bridges and longer wildlife overpass/land bridge. As such, Alternative 2 would impact a variety of additional native and nonnative upland plant communities, native riparian and wetland plant communities, special-status species and sensitive natural communities, and protected wildlife, but likely to a greater degree than the Project. Additionally, the wider roadway under Alternative 2 would result in wider bridges (i.e., longer channel features), as well as longer replaced culverts, which would decrease their openness ratios and thus make them less attractive for wildlife use when compared to the Project. Mitigation measures would be required for Alternative 2 that would be the same or similar to those designed for the Project, and biological resources impacts under Alternative 2 would be less than significant after mitigation, similar to the Project. However, the overall biological resources impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.4 Cultural Resources

Similar to the Project, Alternative 2 would include excavation/filling activities along and within the corridor that could result in the disruption of soils that could contain archaeological resources or human remains, or could result in disturbance to known, historic-in-age resources. As such, cultural resources mitigation measures would be implemented for Alternative 2 that are the same or similar to those designed for the Project. However, with a larger disturbance footprint for the wider roadway design under Alternative 2, the potential for encountering buried archaeological resources or human remains would be incrementally

increased. Cultural resources impacts associated with Alternative 2 would be less than significant after mitigation, similar to the Project. However, the overall cultural resources impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.5 Geology and Soils

Alternative 2 would have similar potential for risks related to geology and soils as the Project (i.e., potential for strong seismic ground shaking, landslides, etc.) because similar elements would be implemented. Similar to the Project, Alternative 2 would be designed and constructed in accordance with geotechnical recommendations that would be provided in a geotechnical report specific to Alternative 2, and would comply with the requirements of: American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; and construction industry standards and specifications.

Additionally, similar to the Project, Alternative 2 would disturb soil deposits that could contain fossils or fossiliferous deposits at varying depths beneath the surface; however, with a larger disturbance footprint for the wider roadway design under Alternative 2, the potential for encountering fossils or fossiliferous deposits would be incrementally increased. As such, a paleontological monitoring mitigation measure would be implemented for Alternative 2 that would be the same or similar to the mitigation measure designed for the Project. Geology and soils impacts under Alternative 2 would be less than significant after mitigation, similar to the Project. However, the overall geology and soils impacts (paleontological resources) associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.6 Greenhouse Gas Emissions and Energy

Similar to the Project, construction of Alternative 2 would involve heavy-duty off-road equipment, materials transport, and worker commutes during construction that would result in exhaust-related GHG emissions. However, because Alternative 2 proposes a standard Primary Arterial Highway design it would have a larger disturbance footprint for the wider roadway (approximately 20 to 30 feet wider than what is proposed as part of the Project), which would result in higher total GHG emissions associated with its construction. Total GHG emissions associated with construction of the Project were modeled to be approximately 7,008 metric tons of carbon dioxide equivalent (MT CO₂e), which was amortized over the 30-year life of the Project to be approximately 234 MT CO₂e. If conservatively assuming Alternative 2 to have approximately 40 percent more GHG emissions (due to the approximately 40 percent wider roadway), a 40 percent increase in the Project's amortized GHG emissions (approximately 328 MT CO₂e) would still be below the Southern California Air Quality Management District's (SCAQMD's) adopted significance threshold of 10,000 MT CO₂e per year, the adjusted Senate Bill (SB) 32 threshold of 6,000 MT CO₂e per year, and the Sacramento Metropolitan Air Quality Management District (SMAQMD) threshold of 1,100 MT CO₂e. Therefore, similar to the Project, Alternative 2 would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, or conflict with AB 32, SB 32, or the Air Resources Board (ARB) Scoping Plan goals; or any other relevant plans, policies, or regulations for the purpose of reducing GHG emissions. Thus, the GHG and energy (which are derived from estimated fuel use) impacts associated with Alternative 2 would be less than significant, similar to the Project. However, the overall GHG emissions and energy impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway having incrementally greater construction activity and duration.

6.5.2.7 Hazards and Hazardous Materials

Alternative 2 would be subject to compliance with the same type of spill prevention, containment, and cleanup measures identified within permits issued by the Santa Ana Regional Water Quality Control Board (RWQCB) as required for the Project. Construction activities must be undertaken in accordance with any conditions and requirements (including Best Management Practices or BMPs) established by a National Pollutant Discharge Elimination System (NPDES) permit. BMPs specified in NPDES permit include storm water prevention measures included in a Storm Water Pollution Prevention Plan (SWPPP), and protocols for the procedures for the storage, usage, and disposal of hazardous materials. Adherence to the BMPs would be required for all phases of construction. Compliance with the SWPPP and the implementation of standard BMPs during construction would reduce the potential for hazardous materials spills. However, similar to the Project, adjacent properties have been used for decades to produce and store crude oil and other petroleum products, and undocumented wells, pipelines, and other oil field-related appurtenances could be unexpectedly encountered during construction of Alternative 2. As such, Alternative 2 has the potential to release hazardous materials into the environment during construction due to unknown hazardous materials within the project limits. With a larger disturbance footprint for the wider roadway design under Alternative 2, the potential for encountering these types of materials would be incrementally increased over that of the Project. Likewise, the potential for being located on a site that could create a significant hazard to the public or environment would also be incrementally increased. As such, mitigation measures would be implemented for Alternative 2 that would be the same or similar to those designed for the Project. Similar to the Project, there is also the potential for Alternative 2 to impair or interfere with the Orange County Fire Authority and County of Orange Local Hazard Mitigation Plan (LHMP) and City of Brea's Emergency Response Plan. As such, a mitigation measure would be implemented for Alternative 2 that would be the same or similar to the mitigation measure designed for the Project. Hazards and hazardous materials impacts under Alternative 2 would be less than significant after mitigation, similar to the Project. However, the overall hazards and hazardous materials impacts associated with Alternative 2 would be slightly greater than the Project as a result of: (1) the larger disturbance footprint for the wider roadway having incrementally greater potential to encounter unknown hazardous materials, and (2) as a result of the incrementally greater construction activity occurring over a longer period of time that would extend the timeframe for which there could be impairment or interference with emergency response or evacuation.

6.5.2.8 Hydrology and Water Quality

Implementation of Alternative 2 would result in impacts related to hydrology and water quality similar to the Project because similar Project elements would be implemented. As with the Project, under Alternative 2, grading activities could potentially result in sediment runoff into Brea Creek and ultimately, downstream receiving waters during runoff events, as well as sediment tracking from construction truck trips leaving the project area. Construction activities could introduce pollutants to the creek if not properly managed. However, typical BMPs (e.g., temporary fiber rolls, check dams, drainage inlet protections, sediment barriers, gravel sand berms, hydroseed, and dust control plan, etc.) would be employed during the construction period and during the long-term operational phase. Alternative 2 would also disturb more than 1 acre of soil. Therefore, similar to the Project, OC Public Works would be required to prepare and implement a SWPPP and a Water Quality Management Plan (WQMP) which meet the requirements of the Construction General Permit (CGP) and the Orange County Municipal Separate Storm Sewer System (MS4) Permit, respectively. Furthermore, construction dewatering activities would also require compliance with the CGP, so as not to degrade surface water quality. Adherence to the provisions of the Orange County MS4 Permit, the De Minimis Surface Water Discharge Permit, and the SWPPP as part of compliance with General Permit 2009-0009-DWQ would reduce construction-related impacts to water quality to a level that is less than significant. Adherence to the provisions of the WQMP would reduce operation-related impacts associated with water quality to a level that is less than significant.

Similar to the Project, Alternative 2 would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. This is because there are no groundwater wells within the project limits, construction-related dewatering activities would be temporary and would not be substantial, and bridge replacements would improve the hydraulics of the channel by removing existing piers, converting the creek underneath Bridges 2 and 3 from concrete to a natural soft bottom, and opening the waterway. Therefore, impacts would be less than significant.

Although the improved roadway would be wider under Alternative 2, it would comply with the same applicable design standards as the Project, such as: AASHTO LRFD Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Compliance with the applicable design standards and Santa Ana RWQCB requirements would ensure operation of Alternative 2 would not substantially alter the existing drainage pattern of the area. Similar to the Project, the proposed bridges would improve the hydraulics of the channel, but the wider roadway under Alternative 2 would result in wider bridges (i.e., longer channel features), as well as longer replaced culverts, which would increase velocity and flow at these locations relative to the Project, requiring additional or expanded engineering design features to address changes in velocity. Thus, because implementation of Alternative 2 would not substantially alter the existing drainage pattern of the site or area, it would not result in: (1) substantial erosion or siltation on- or off-site; (2) a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (3) the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) an impediment or redirection of flood flows. Impacts would be considered less than significant.

Similar to the Project, potential impacts to water quality would be less than significant with Alternative 2's adherence with the requirements of the CGP and Orange County MS4 Permit as well as the provisions of the WQMP. In addition, Alternative 2 would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Given this, Alternative 2 would also not conflict with or obstruct implementation of the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) or the Basin 8-1 Alternative Plan. Therefore, impacts would be less than significant, similar to the Project. The overall hydrology and water quality impacts associated with Alternative 2 would be similar to those of the Project.

6.5.2.9 Land Use and Planning

Implementation of Alternative 2 would result in impacts related to land use and planning similar to the Project because similar Project elements would be implemented. Alternative 2 would, same as the Project, be consistent with all applicable City of Brea and County of Orange General Plan goals, objectives, or policies. However, with a larger disturbance footprint for the wider roadway design under Alternative 2, permanent and partial property acquisitions and utility and oilfield-related equipment relocations would be incrementally increased (for example: Alternative 2 would require approximately 35 percent more²³ property acquisition compared to the Project). Land use and planning impacts under Alternative 2 would be less than significant, similar to the Project. However, the overall land use and planning impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

²³ The approximate 35 percent difference is based on comparison of the total estimated rights-of-way and easement needs of the modified and standard arterial design alternatives presented in the road widening Funding Study for Brea Boulevard.

6.5.2.10 Noise and Vibration

Implementation of Alternative 2 would result in similar impacts related to noise and vibration as the Project because similar Project elements would be implemented. As with the Project, sources of noise and vibration under Alternative 2 would be associated with construction activities. The types of construction equipment used and the construction crew size (approximately 40 workers daily) are expected to be the same under Alternative 2 as for the Project, which would result in a similar maximum daily intensity of construction activity (and associated noise and vibration). However, because the wider roadway under Alternative 2 would result in additional earthmoving, slope cut, vegetation removal, retaining wall construction, etc., when compared to the Project, these construction activities and their noise impacts would occur over a longer period of time. As with the Project, Alternative 2 would require full closure of Brea Boulevard for bridge replacement-related work, resulting in construction activities that would occur outside the normal hours of construction and that would be above the City's nighttime noise standard (and at any time on Sundays) for a number of noise-sensitive receivers in the City of Brea. The same or similar mitigation measures would be required for Alternative 2 as those designed for the Project, but these temporary noise impacts would similarly remain significant and unavoidable despite their implementation; also, with the wider roadway the incrementally greater construction activity for the wider bridge replacements would likely require a greater number of weekend road closures when compared to the Project. Operation of the widened roadway under Alternative 2 would be the same as the Project because the same number of lanes and the same intersection improvements would be implemented, and OGAC would be installed in the same location, resulting in the same future traffic noise model-predicted noise levels. Noise and vibration impacts under Alternative 2 would be significant and unavoidable after the implementation of mitigation measures (for infrequent nighttime/weekend construction), similar to the Project. However, the overall noise and vibration impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.11 Transportation and Traffic

Implementation of Alternative 2 would result in similar impacts related to transportation and traffic as the Project because similar Project elements would be implemented. The types of construction equipment used and the construction crew size (approximately 40 workers daily) are expected to be the same under Alternative 2 as for the Project, which would result in the same construction trip generation. However, because the wider roadway under Alternative 2 would result in additional earthmoving, slope cut, vegetation removal, retaining wall construction, wider bridge replacements, etc., when compared to the Project, these construction activities and their traffic impacts would occur over a longer period of time. As with the Project, construction of Alternative 2 would require periodic full closure of Brea Boulevard, resulting in short-duration and non-recurring detours during bridge replacement work. As conservatively modeled for the Project, construction-related detours would result in significant impacts at three intersections and one roadway segment, which would also be expected under Alternative 2. The same or similar mitigation measures would be required for Alternative 2 as those designed for the Project, but these temporary traffic impacts would similarly remain significant and unavoidable despite their implementation; also, with the wider roadway the incrementally greater construction activity for the wider bridge replacements would likely require a greater number of weekend road closures when compared to the Project. Operation of the widened roadway under Alternative 2 would be the same as the Project because the same number of lanes and the same intersection improvements would be implemented, resulting in the same results presented for the Project under the 2019 and 2045 Plus Project Condition scenarios (i.e., implementation of the Project would result in substantial improvements in intersection Level of Service (LOS) [attributable to proposed widening and signalization of intersections] and improvement to roadway segment LOS [where widening occurs]). Additionally, Alternative 2 would result in the same regional reduction in vehicle miles traveled (VMT). Overall, traffic and transportation impacts associated with Alternative 2 would be similar to the Project. Transportation and traffic impacts under Alternative 2 would

be significant and unavoidable after the implementation of mitigation measures (for short-duration and non-recurring weekend detours), similar to the Project. However, the overall transportation and traffic impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.12 Tribal Cultural Resources

Similar to the Project, Alternative 2 would include excavation/filling activities along and within the corridor that could result in the disruption of soils that could contain archaeological resources, human remains, or Native American cultural materials. As such, tribal cultural resources standard conditions would be implemented for Alternative 2 that are the same or similar to those designed for the Project. However, with a larger disturbance footprint for the wider roadway design under Alternative 2, the potential for encountering tribal cultural resources would be incrementally increased. Tribal cultural resources impacts associated with Alternative 2 would be less than significant, similar to the Project. However, the overall tribal cultural resources impacts associated with Alternative 2 would be slightly greater than the Project as a result of the larger disturbance footprint for the wider roadway.

6.5.2.13 Wildfire

Similar to the Project, Alternative 2 would require periodic full closure of Brea Boulevard for bridge replacement-related work. While access would remain for emergency responders and oil field operators, there would still be the potential to impair or interfere with emergency response or evacuation. As such, a mitigation measure would be implemented for Alternative 2 that would be the same or similar to the mitigation measure designed for the Project. Additionally, during Project construction, equipment and vehicles would use flammable fuels, such as diesel and gasoline, and would be operated in proximity to dry vegetation; their hot tailpipes or sparks from chains or other metal objects could ignite dry brush, especially during the warmer, dry months between June and October. Therefore, dependent on the time of year and location of construction activities, there would be a temporary increase in exacerbated fire risks in the area. However, Alternative 2 would comply with the same applicable fire safety and wildfire suppression measures as the Project, such as California PRC Sections 4427, 4428, 4431, 4442, etc. Compliance with the applicable fire safety and wildfire suppression measures would minimize the risk of increased frequency, intensity, or size of wildfires and decrease the risk of exposure of people or structures to wildfire. Wildfire impacts under Alternative 2 would be less than significant after mitigation, similar to the Project. However, the overall wildfire impacts associated with Alternative 2 would be slightly greater than the Project as a result of the incrementally greater construction activity occurring over a longer period of time that would: (1) extend the timeframe for which there could be impairment or interference with emergency response or evacuation; and (2) extend the construction period across a greater number of drier months for which there would be a temporary increase in exacerbated fire risk in the area.

6.5.3 SUMMARY OF ALTERNATIVE 2

As with Project, Alternative 2 would result in less-than-significant impacts related to air quality, GHG emissions and energy, hydrology and water quality, land use and planning, and tribal cultural resources. Alternative 2 would result in less-than-significant impacts after mitigation related to biological resources, cultural resources, geology and soils, and hazards and hazardous materials. Alternative 2 would result in significant unavoidable impacts related to aesthetics, noise and vibration, and transportation and traffic. Therefore, Alternative 2 would result in similar environmental impacts to those under the Project. However, due to the wider roadway and associated larger disturbance footprint/additional construction activity and duration, impacts related to aesthetics, air quality, biological resources, cultural resources, geology and soils, GHG emissions and energy, hazards and hazardous materials, land use and planning, noise and

vibration, transportation and traffic, tribal cultural resources, and wildfire would be slightly greater than the Project. Similar to the Project, Alternative 2 would meet all Project objectives.

6.6 ALTERNATIVE 3 – 4-PHASE PROJECT CONSTRUCTION APPROACH TIMELINE

6.6.1 DESCRIPTION OF ALTERNATIVE 3

Under Alternative 3 – 4-Phase Project Construction Approach Timeline, the same Project described in Section 3.0 of this Draft EIR would be proposed, but the total construction timeline would be extended from five to ten years in order to account for the availability of Project funding sources. Active construction duration would remain at 5 years (and the same maximum intensity of construction activity identified for the Project would remain the same for Alternative 3 within any given year) but the 5 years of active construction could occur at any time within the 10-year timeframe (e.g., within the first five years, within the last five years, or at various combinations of years with periods of inactivity within the overall 10 years) depending on funding availability. Thus, the construction timeframe for this alternative would be extended from 2026-2030 to 2026-2035. Additionally, whereas the Project is divided into two phases of activities required for the entire corridor (i.e., Phase I: utility relocations, infrastructure for utilities, wildlife overpass/land bridge, bridge replacement, retaining walls, and associated grading/pavement; and Phase II: road widening, sound reduction surface treatment [OGAC], and intersections), Alternative 3 would be divided into four phases corresponding to four separate segments along the corridor. The four phases under Alternative 3 are a segmentation of the project limits with each of the four phases including all of the improvements necessary for that segment (i.e., both the Phase I and Phase II activities identified for the Project that are applicable to the specific segment length). The four phases under Alternative 3 are the following:

- Phase I: All work from Central Avenue/State College Boulevard northeast to the City of Brea/County of Orange boundary. This phase would be inclusive of the sound reduction surface treatment (OGAC) and the replacement of the traffic signal at Brea Boulevard and Canyon Country Road.
- Phase II: All work from the City of Brea/County of Orange boundary, northeast past the “bend” (refer to Figure 3-2 in Section 3.0) to approximately 2,385 feet west of the Tonner Canyon Road intersection. This phase would be inclusive of the replacement of all three existing bridges, a number of slopes cuts, the largest slope cut/retaining wall at the “bend”, and installation of the new traffic signal approximately 1,200 feet north of Canyon Country Road.
- Phase III: All work from the end of Phase II, east to approximately 985 feet west of the Tonner Canyon Road intersection.
- Phase IV: All work from the end of Phase III, east-northeast to the end of the corridor (i.e., State Route 57 (SR-57) southbound on-ramp approximately 1,700 feet northeast of Tonner Canyon Road). This phase would be inclusive of the wildlife overpass/land bridge and installation of the new traffic signal at Brea Boulevard/Tonner Canyon Road.

The purpose of the four phases/segmentation is to identify discreet portions of the corridor that could be constructed, corresponding to different funding sources that become available; however, it should be noted that these phases are not necessarily sequential. The four phases can be constructed at any time within the 10-year construction window and with any grouping (for example Phases I and III could be constructed at the same time), but the intensity of construction would be no greater than considered for the Project as there would be no change to the number of daily construction workers, daily truck trips, frequency of lane closures, etc. In order to account for a worst-case scenario of environmental effects under the variable

timeline of this alternative, the construction timing assumptions that were the most conservative to each environmental resource/category were used. For example, the air quality and GHG emissions analysis assumed construction to occur within the first five years (same as the Project) because it is more conservative to assume emissions tied to earlier engine efficiencies/less stringent emissions regulatory environment than would be expected to occur in later years; whereas the traffic analysis assumed construction to occur within the last five years, when daily traffic volumes would be higher due to five additional years of forecast annual regional growth in the vicinity of the roadway.

6.6.2 IMPACTS OF ALTERNATIVE 3

6.6.2.1 Aesthetics

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to aesthetics. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the aesthetics analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, aesthetics impacts associated with Alternative 3 would be the same as described for the Project, which would be significant and unavoidable.

6.6.2.2 Air Quality

For Alternative 3, the air quality analysis assumed construction to occur within the first five years (same as the Project) because it is more conservative to assume emissions tied to earlier engine efficiencies/less stringent emissions regulatory environment than would be expected to occur in later years (refer to Appendix P, Alternatives Analysis Memoranda). As such, because the same Project described in Section 3.0 of this Draft EIR would occur under Alternative 3, there would be no change to the air quality analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, air quality impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant.

6.6.2.3 Biological Resources

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to biological resources. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the biological resources analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, biological resources impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant after mitigation.

6.6.2.4 Cultural Resources

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to cultural resources. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the cultural resources analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, cultural resources impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant after mitigation.

6.6.2.5 Geology and Soils

Under Alternative 3 the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to geology and soils. Changes to the timing of construction or the potential

for extension of the total construction timeline under Alternative 3 would not have any effect to the geology and soils analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, geology and soils impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant after mitigation.

6.6.2.6 Greenhouse Gas Emissions and Energy

For Alternative 3, the GHG emissions and energy analysis assumed construction to occur within the first five years (same as the Project) because it is more conservative to assume emissions tied to earlier engine efficiencies/less stringent emissions regulatory environment than would be expected to occur in later years (refer to Appendix P, Alternatives Analysis Memoranda). As such, because the same Project described in Section 3.0 of this Draft EIR would occur under Alternative 3, there would be no change to the GHG emissions and energy analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, GHG emissions and energy impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant.

6.6.2.7 Hazards and Hazardous Materials

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to hazards and hazardous materials. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the hazards and hazardous materials analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, hazards and hazardous materials impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant after mitigation.

6.6.2.8 Hydrology and Water Quality

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to hydrology and water quality. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the hydrology and water quality analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, hydrology and water quality impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant.

6.6.2.9 Land Use and Planning

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to land use and planning. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the land use and planning analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, land use and planning impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant.

6.6.2.10 Noise and Vibration

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to noise and vibration. Changes to the timing of Phase I construction activities (depending on funding availability) could result in a delay compared to the Project of the application of OGAC paving in the City of Brea, which was shown in the analysis within Section 5.0 of this Draft EIR to result in an immediate noise reduction for residents in the City of Brea compared to

average pavement types. However, a delay in the application of the OGAC would not have any effect to the overall noise and vibration analysis or conclusions in Section 5.0. Therefore, noise and vibration impacts associated with Alternative 3 would be the same as described for the Project, which would be significant and unavoidable (for infrequent nighttime/weekend construction).

6.6.2.11 Transportation and Traffic

For Alternative 3, the traffic analysis assumed construction to occur within the last five years (2031-2035), when daily traffic volumes would be higher due to five additional years of forecast annual regional growth in the vicinity of the roadway (refer to Appendix P, Alternatives Analysis Memoranda). Alternative 3 is the same development as the Project, but the possibility of an extended construction timeline would result in incrementally degraded LOS at all intersections and roadway segments during construction when compared to the Project, including two additional potentially significant (temporary) intersection impacts (at Harbor/La Habra boulevards and SR-57 southbound Ramps/Lambert Road) under the Project Construction (2033) with Detour Conditions scenario (Appendix P of this Draft EIR). The incremental degradation of LOS and new intersection impacts is all due to the additional area traffic from ambient growth (if the construction timeline were to be extended under Alternative 3). Therefore, transportation and traffic impacts associated with Alternative 3 would be slightly greater than the Project. The same or similar mitigation measures would be required for Alternative 3 as those designed for the Project, but the temporary traffic impacts (for short-duration and non-recurring weekend detours) would similarly remain significant and unavoidable despite their implementation.

6.6.2.12 Tribal Cultural Resources

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same impacts related to tribal cultural resources. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the tribal cultural resources analysis or conclusions in Section 5.0 of this Draft EIR. Therefore, tribal cultural resources impacts associated with Alternative 3 would be the same as described for the Project, which would be less than significant.

6.6.2.13 Wildfire

Under Alternative 3, the same Project described in Section 3.0 of this Draft EIR would occur, which would result in the same potential impacts related to wildfire. Changes to the timing of construction or the potential for extension of the total construction timeline under Alternative 3 would not have any effect to the fire risk in the area or conclusions in Section 5.0 of this Draft EIR. Therefore, wildfire impacts associated with Alternative 3 would be the same as the Project. However, compliance with the same applicable fire safety and wildfire suppression measures as the Project, and implementation of the same or similar mitigation measure as designed for the Project, would result in wildfire impacts that are less than significant after mitigation.

6.6.3 SUMMARY OF ALTERNATIVE 3

As with the Project, Alternative 3 would result in less-than-significant impacts related to air quality, GHG emissions and energy, hydrology and water quality, land use and planning, and tribal cultural resources. Alternative 3 would result in less-than-significant impacts after mitigation related to biological resources, cultural resources, geology and soils, hazards and hazardous materials, and wildfire. Alternative 3 would result in significant unavoidable impacts related to aesthetics, noise and vibration, and transportation and traffic. Therefore, Alternative 3 would result in the same or similar environmental impacts to those under

the Project. However, due to the possibility of an extended construction timeline, impacts related to transportation and traffic would be slightly greater than the Project. Similar to the Project, Alternative 3 would meet all Project objectives.

6.7 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Table 6-1 shows a comparison of the environmental effects of the Project, the Project alternatives, and Alternative 1 (the No Project [No Build]). Each of the build alternatives would result in environmental impacts greater than would occur under Alternative 1. Therefore, Alternative 1 is the environmentally superior alternative, although it would not attain the basic objectives of the Project as discussed in Section 6.8 below. Section 15126.6(e) of the CEQA Guidelines states that if the No Project Alternative is selected as the environmentally superior alternative, then the EIR shall also identify an environmentally superior alternative among the other alternatives. A comparison of the remaining alternatives is provided below.

The Project and Alternatives 2 and 3 would include similar elements and would all be constructed and operated in a similar manner. Although impacts would be similar to the Project, the wider roadway and associated larger disturbance footprint/additional construction activity under Alternative 2 would result in greater impacts to aesthetics, air quality, biological resources, GHG emissions and energy, and land use and planning. Alternative 3 is the same development as the Project, but the possibility of an extended construction timeline would result in incrementally degraded LOS at all intersections and roadway segments during construction when compared to the Project, including two additional potentially significant (temporary) intersection impacts. The incremental degradation of LOS and new intersection impacts are all due to the additional area traffic from ambient growth (if the construction timeline were to be extended under Alternative 3). Therefore, taking all of these factors into consideration, the environmentally superior alternative is the Project, which proposes a Modified Primary Arterial Highway design intended to minimize environmental impacts, impacts to adjacent properties, and utility relocations.

**TABLE 6-1
COMPARISON OF THE ENVIRONMENTAL IMPACTS
OF ALL PROJECT ALTERNATIVES**

ENVIRONMENTAL PARAMETER	PROJECT	ALTERNATIVE 1 - NO PROJECT (NO BUILD)	ALTERNATIVE 2 - STANDARD PRIMARY ARTERIAL 4- LANE DIVIDED HIGHWAY	ALTERNATIVE 3 - 4-PHASE PROJECT CONSTRUCTION APPROACH TIMELINE
Aesthetics	4	1	4 (Slightly Greater)	4 (Same)
Air Quality	2	2 (Slightly Greater)	2 (Slightly Greater)	2 (Same)
Biological Resources	3	1	3 (Slightly Greater)	3 (Same)
Cultural Resources	3	1	3 (Slightly Greater)	3 (Same)
Geology and Soils	3	1	3 (Slightly Greater)	3 (Same)
Greenhouse Gas Emissions and Energy	2	2 (Slightly Greater)	2 (Slightly Greater)	2 (Same)
Hazards and Hazardous Materials	3	1	3 (Slightly Greater)	3 (Same)
Hydrology and Water Quality	2	1	2 (Similar)	2 (Same)
Land Use and Planning	2	1	2 (Slightly Greater)	2 (Same)
Noise and Vibration	4	4 ¹ (Greater)	4 (Slightly Greater)	4 (Same)
Transportation and Traffic	4	4 ² (Greater)	4 (Slightly Greater)	4 (Slightly Greater)
Tribal Cultural Resources	2	1	2 (Slightly Greater)	2 (Same)
Wildfire	3	1	3 (Slightly Greater)	3 (Same)

Note:

¹ As shown in the Noise and Vibration Impact Analysis Technical Memo (Appendix N of this Draft EIR), existing noise measurements taken in the City of Brea are as high as 66.8 dBA L_{eq}, which is in the ‘Normally Unacceptable’ range of the City of Brea’s Noise/Land Use Compatibility Matrix. In the absence of OGAC pavement under the No Project Alternative, the existing elevated noise levels would incrementally increase due to ambient traffic growth.

² Improvements to traffic flow or congestion would not occur. Brea Boulevard would remain as it currently exists (i.e., would not be improved consistent with the designated Primary Arterial Highway classification per the MPAH or meet current design standards) and commuter traffic would continue to experience delays.

Legend

1. No Impact.
2. Less than Significant Impact.
3. Less than Significant Impact After Mitigation.
4. Unavoidable Significant Impact.

NOTE: Refer to the individual resource-specific discussions of each alternative for an explanation of impacts that are “slightly greater” or “greater” than the Project.

6.8 SUMMARY OF THE ALTERNATIVES' ABILITY TO MEET THE PROJECT OBJECTIVES

The Project and Alternatives 2 and 3 meet all Project objectives. Alternative 1 would not attain the basic objectives of the Project. For example, under Alternative 1 Brea Boulevard would: not be improved consistent with the designated Primary Arterial Highway classification per the MPAH nor meet current design standards (e.g., sight distance); existing bridges would not be replaced and flood conveyance would remain the same as under current conditions; wildlife movement across the roadway would not be improved within the project limits; and intersections would remain as is (particularly the motorist safety enhancement signalization of the Brea Boulevard/Tonner Canyon Road intersection would not occur).

6.9 ALTERNATIVES CONSIDERED AND WITHDRAWN FROM FURTHER CONSIDERATION

As part of the Funding Study (OC Public Works 2013), an alternative that only implemented intersection improvements at Brea Boulevard and Tonner Canyon Road was also considered. Under this alternative, additional through lanes in each direction would not be constructed. It would consist of widening Brea Boulevard at Tonner Canyon Road to allow an additional left turn acceleration lane in the direction toward the City of Brea and an improved right turn acceleration lane in the direction toward the City of Diamond Bar, while maintaining a stop-controlled intersection configuration. Although this alternative would not improve Brea Boulevard to the MPAH classification or provide any additional through lanes, it was considered as an interim solution that would improve traffic flow at the intersection by providing the acceleration lane for motorists attempting to merge onto Brea Boulevard from Tonner Canyon Road. However, it was rejected as a viable alternative for OCTA funding consideration since it did not add through lanes/improve capacity and was withdrawn from further consideration within this Draft EIR. This alternative fails to meet the basic Project objectives.

Alternatives that are remote or speculative, or have effects that cannot be reasonably predicted, need not be considered.²⁴ Brea Boulevard, within the project limits, is an existing two-lane, undivided highway that has been identified by OC Public Works as in need of widening, consistent with the OCTA MPAH. As an existing road, there is no alternative location for the Project. A number of comments received during the Scoping Process (2017 and 2019 Notice of Preparation/Initial Study (NOP/IS) and public scoping meetings) for the Project suggested widening of, or improvements to, nearby SR-57 instead of to Brea Boulevard. However, SR-57 is a state facility and, as such, OC Public Works does not have jurisdiction to implement any changes to it (and Brea Boulevard would still be inconsistent with the current MPAH classification identified by OCTA under such a scenario). It should be noted that Caltrans and OCTA have identified improvements to SR-57 (e.g., Lambert Road Interchange Improvements and Northbound Improvement Lambert Road to Tonner Canyon Road, respectively) that they are pursuing separately from this Project.

Other comments received on the NOP/IS suggested a narrower widening of Brea Boulevard by providing a total of three lanes (two northbound and one southbound) instead of four. While this suggestion could reduce and minimize impacts to surrounding habitat and to above/underground utilities, it would not improve Brea Boulevard to be consistent with the MPAH classification and would not improve southbound traffic flow. It would similarly fail to meet the basic Project objectives.

²⁴ California Code of Regulations, Title 14, Division 6, Chapter 3, CEQA Guidelines, §15126.6(f)(3).

This page intentionally left blank.

7.0 GROWTH INDUCING IMPACTS

7.1 INTRODUCTION

Section 15126.2(e) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) describe the potential growth inducing impacts of a Project. Specifically, Section 15126.2(e) states:

“Discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. [...] Also discuss the characteristics of some projects which may encourage and facilitate other activities that could substantially affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.”

7.2 GROWTH INDUCING IMPACTS RELATED TO THE PROPOSED PROJECT

Section 15126.2 (e) of the CEQA Guidelines, discussed above, has been broken up into a series of questions to determine if a proposed project has the potential to result in growth inducing impacts, as presented below.

Would the project result in the removal of an impediment to growth such as the establishment of an essential public service or the provision of new access to an area?

Brea Boulevard is an existing roadway with a 30-foot-wide, two-lane, undivided highway (one lane in each direction) that meets the classification of a Collector Arterial Highway per the Orange County General Plan Transportation Element (2020). A Collector Arterial Highway is intended to accommodate between 7,500 to 10,000 (Average Daily Traffic (ADT)); however, Brea Boulevard currently has traffic volumes between 17,000 to 22,000 ADT as of November 4, 2019, which exceeds the Collector Arterial Highway capacity but could be accommodated with a Primary Arterial Highway design and classification (which can accommodate 20,000 to 30,000 ADT) per the Orange County Transportation Authority (OCTA) Master Plan of Arterial Highways (MPAH) Orange County Public Works (OC Public Works) has thus identified the need to widen Brea Boulevard consistent with the OCTA MPAH. Thus, one of the objectives of the Project is to accommodate the existing ADT capacity by improving the roadway to be consistent with the designated Primary Arterial Highway classification per the MPAH (therefore, the Project is growth accommodating, not growth inducing). Other objectives of the Project include enhance Brea Boulevard’s roadway safety and traffic flow, meeting current design standards, and enhancing safe wildlife movement across roadway while minimizing impacts to the surrounding habitat and wildlife. Specifically, the Project involves widening Brea Boulevard from two to four lanes (two lanes each direction) between Canyondale Drive and the northern end of the corridor (approximately 1.5 miles), replacing and widening three functionally obsolete bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge, adding open graded asphalt concrete paving at the southern end of the corridor, and providing striping and installing new signage. The Project would not result in the generation of raw sewage, nor create a demand for sewer collection and/or treatment facilities because it involves widening an existing road. In addition, the Project would not result in an increased demand for wastewater, water treatment, electric power, natural gas, or telecommunications facilities. No new or expanded wastewater or water treatment facilities would be required to accommodate the Project. Thus, no new or expanded public services or utility services would be needed. Given this, implementation of the Project would not result in the removal of an

impediment to growth such as the establishment of an essential public service or the provision of new access to the area. No impact would occur.

Would the project result in economic expansion or growth such as changes in the revenue base or employment expansion?

The Project is not a land use development proposal that could result in economic expansion or growth, such as changes in revenue base or employment expansion, associated with a new use. As noted above, the Project involves improvements to an existing roadway related to improving Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the MPAH, enhancing roadway safety and traffic flow, meeting current design standards, as well as enhancing safe wildlife movement across the roadway while minimizing impacts to the surrounding habitat and wildlife. There is no residential or commercial/business component that could result in substantial population growth in the area. Construction work would be temporary and construction workers are anticipated to be drawn from the existing local labor pool. It is also anticipated that existing OC Public Works and City staff would be used for maintenance of the Project. Therefore, implementation of the Project would not result in economic expansion or growth. No impact would occur.

Would the project foster population growth (e.g., construct additional housing) either directly or indirectly?

The Project does not include the construction of any residential uses and therefore would not directly or indirectly foster population growth. Also, as noted above, construction work would be temporary and construction workers are anticipated to be drawn from the existing local labor pool, which would not cause additional housing demand as such individuals already live in the area. It is also anticipated that existing OC Public Works and City staff would be used for maintenance of the Project. Therefore, implementation of the Project would not foster population growth either directly or indirectly. No impact would occur.

Would the project result in the establishment of a precedent-setting action such as an innovation, a radical change in zoning, or a General Plan amendment approval?

As described above, the Project involves improvements to an existing roadway related to improving Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the MPAH, enhancing roadway safety and traffic flow, meeting current design standards, as well as enhancing safe wildlife movement across the roadway while minimizing impacts to the surrounding habitat and wildlife. The Project does not include a change in zoning or a General Plan amendment. Furthermore, as described in Section 5.9 (Land Use and Planning) of this Draft EIR, the Project would be consistent with the City of Brea General Plan, City of Brea Municipal Code, the County of Orange General Plan, and County of Orange Zoning Code. Therefore, implementation of the Project would not result in a precedent-setting action such as an innovation, a radical change in zoning, or a General Plan amendment approval. No impact would occur.

Would the project result in development or encroachment in an isolated or adjacent area of open space, as opposed to an infill type of project in an area which is already largely developed?

As described above, the Project involves improvements to an existing roadway related to improving Brea Boulevard to be consistent with the designated Primary Arterial Highway classification per the MPAH, enhancing roadway safety and traffic flow, meeting current design standards, as well as enhancing safe wildlife movement across the roadway while minimizing impacts to the surrounding habitat and wildlife. A majority of Brea Boulevard within the corridor is located within Brea Canyon, where the road generally

follows the contours of the windy canyon. The Project would require roadway cut and fill into the adjacent vegetated hillside of Brea Canyon; however, the Project is not located within an isolated area of open space. Surrounding land uses include active oil fields, State Route 57 (SR-57) and Tonner Canyon Road, along with residential areas with general commercial and public facility land uses. Also, while the Project would require property acquisitions to accommodate the widening of Brea Boulevard, these partial acquisitions would consist of small amounts of property fronting the existing road that would be acquired as part of the Project Right of Way (R/W). These partial property acquisitions would not change surrounding land uses because they only involve small portions of each subject property. In summary, the Project would result in some encroachment into adjacent areas of open space; however, such encroachment would not induce growth, as described above, as it would be associated with improvements to an existing roadway to accommodate existing ADT capacity. Given this, impact would be less than significant.

This page intentionally left blank.

8.0 CUMULATIVE IMPACTS

8.1 INTRODUCTION

Section 15130 of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) discuss cumulative impacts of a project when the project's incremental effect is potentially cumulatively considerable. As defined by the CEQA Guidelines, a cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. To facilitate the discussion of potentially cumulative impacts that could result from implementation of the Project, each impact category evaluated in Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance After Mitigation) is addressed individually in this cumulative impacts analysis.

A simple comparison of the cumulative environment contrasted with the increment of impact on its face is not an adequate rationale for concluding that a project does not have a cumulative effect. This is known as the ratio theory approach. Neither is the one molecule rule of change or addition an appropriate standard, where any increment, no matter how small, would be considered cumulatively significant. The most current interpretation of the standard is whether "any additional amount of effect should be considered significant in the context of the existing cumulative effect" (*Communities For A Better Environment v. California Resources Agency* [2002] 103 Cal.App.4th 98). The same case states further:

"[T]his does not mean, however, that *any* additional effect in a nonattainment area for that effect *necessarily* creates a significant cumulative impact; the 'one [additional] molecule rule' is not the law. ...[T]he lead agency shall consider whether the cumulative impact is significant and whether the proposed project's incremental effects are cumulatively considerable." (*Communities For A Better Environment v. California Resources Agency* [2002] 103 Cal.App.4th 120)

The objective of a cumulative impact analysis is to look at trends with regard to each environmental parameter and ensure that past, present, and future projects in an area are aggregated to examine impacts in a big picture contextual approach. In the context of the Project, there are conditions that must be considered in the local and, depending on the parameter, regional contexts of the Project.

The cumulative impacts analysis provided here is consistent with the process contemplated by Section 15130(a) of the CEQA Guidelines in which the analysis of cumulative effects in an EIR is based on the following: Is the combined impact of this Project and other projects significant? The cumulative impact must be analyzed only if the combined impact is significant and the Project's incremental effect is found to be cumulatively considerable (CEQA Guidelines Section 15130[a][2] and [3]). When an EIR determines that a cumulative impact is not significant, or that the project's incremental effect is not cumulatively considerable, the EIR should briefly describe the basis for that determination (CEQA Guidelines Section 15130[a][2] and [3]).

8.2 CUMULATIVE PROJECTS

In conducting a cumulative impacts analysis, the proper frame of reference is the temporal span and spatial areas in which the Project would cause impacts. In addition, a discussion of cumulative impacts must include either:

- A list of past, present, and probable future projects, including, if necessary, those outside the lead agency's control; or

- A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, or in a previously certified Environmental Impact Report for such a plan, that describes or evaluates conditions contributing to the cumulative effect, provided that such documents are referenced and made available for public inspection at a specified location (CEQA Guidelines Section 15130[b][1])

The term “probable future projects” includes: approved projects that have not yet been constructed; projects that are currently under construction; projects requiring an agency approval for an application that has been received at the time a Notice of Preparation or Notice of Intent to Adopt a Mitigated Negative Declaration is released; and projects that have been budgeted, planned, or included as a later phase of a previously approved project. Projects meeting these criteria within the vicinity (i.e., within approximately 2 miles) of the Project are listed in Table 8-1 and depicted in Figure 8-1.

8.3 CUMULATIVE IMPACTS ANALYSIS

This Draft EIR includes mitigation measures designed to minimize or avoid the Project’s contribution to any significant cumulative effects to the extent feasible. The mitigation measures provided in Section 5.0 of this Draft EIR have been developed to maximize either avoidance or minimization of significant impacts, thereby addressing the Project’s incremental effect or contribution. The Project’s contribution as defined in this section includes the remaining impact for each environmental parameter after mitigation is considered.

8.3.1 CUMULATIVE IMPACTS RELATED TO AESTHETICS

As described in Section 5.1 (Aesthetics), implementation of the Project would result in visual changes (i.e., roadway cut and fill into the adjacent vegetated hillsides, removal of mature vegetation and stands of mature trees, new retaining walls varying from 8 to 60 feet tall, a new wildlife overpass/bridge spanning the widened roadway, etc.) within view corridors identified by the City of Brea as containing scenic vistas and resources, and near an eligible State scenic highway State Route 57 (SR-57). These visual changes would be permanent and the changes to scenic resources and views specifically identified by the City of Brea would be considered to be permanently damaged, representing a substantial degradation of the existing visual character and quality of the project area.

OC Public Works has proposed a Modified Primary Arterial Highway design as part of the Project, which is intended to minimize environmental impacts compared to a Standard Primary Arterial design by reducing the roadway width (resulting in less roadway cut and fill, less removal of vegetation and trees, etc.). Additionally, the designs of the retaining walls and the wildlife overpass/bridge would include visual treatments, such as a natural rock appearance to blend with the existing hillside, reducing visual contrast somewhat. While the Modified Primary Arterial Highway design and visual treatments to the concrete features of the Project are an attempt to lessen the aesthetic impacts of the Project, as discussed in Section 5.1 there are no mitigation measures to reduce the impacts to below a level of significance and the impacts to scenic vistas, scenic resources, and visual character and quality resulting from implementation of the Project would be significant and unavoidable. Therefore, the aesthetic changes within the corridor would result in a cumulative adverse impact related to aesthetics.

The majority of the cumulative projects identified in Table 8-1 are redevelopment and infill projects, which nearly all are removed from the vicinity/viewshed of the corridor. The SR-57 Stormwater Mitigation project would involve construction activity and a permanent new feature (i.e., new stormwater detention basin) within the viewshed of the corridor, which could contribute to the cumulative aesthetic impacts.

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
Caltrans	SR-57 Lambert Road Interchange Improvements	<p>The project entails approximately \$99.8 million in improvements that will be made to provide additional capacity and improve the overall operational performance of the Lambert Road interchange and enable future construction of the SR-57 Northbound Truck Climbing Lane between Lambert Road and the Orange and Los Angeles County line. It involves the following:</p> <ul style="list-style-type: none"> • Reconfiguring of ramps including construction of a loop on-ramp at the south-east quadrant. • Modify the northbound and southbound ramps. • Adding 0.4 miles of auxiliary lanes on southbound mainlines. • Widen Lambert Road and also lower the profile to provide 15-foot standard vertical clearance for the Lambert Road under-crossing. • Widening the northbound Lambert Road under-crossing bridge to accommodate the future truck-climbing lane project. <p>The project was approved in 2015 and started construction in 2019. Construction is anticipated to be completed in 2022.</p>	Under Construction
Caltrans	SR-57 Stormwater Mitigation Project	<p>The SR-57 Stormwater Mitigation Project provides long-term measures to reduce pollutant contributions to the San Gabriel River-Coyote Creek Watershed by construction of a detention basin within the northbound SR-57 Tonner Canyon off-ramp loop at Post Mile 22.0 in unincorporated Orange County, California. The Draft Initial Study / Mitigated Negative Declaration (IS/MND) was released for public review in December 2019. The California Transportation Commission approved the project on May 13, 2020 and filed the Notice of Determination (NOD) on May 19, 2020. Construction started in 2022 and is anticipated to be completed in 2024.</p>	Under Construction
Caltrans	SR-57 Pavement Replacement Project	<p>The approved SR-57 Pavement Replacement project spans 4.4 miles between the SR-60/SR-57 confluence and the Orange County line. SR-57 is a major commute corridor that connects Orange County to Los Angeles County. This project will restore and replace damaged concrete slabs on all lanes and ramps within the project limit. Additional work includes upgrading the concrete median barrier, replacing Metal Beam Guardrails (MBGRs), sign structures and panels, upgrading AC dikes, Americans with Disabilities Act (ADA) curb ramps, replacing traffic loop detectors, and installing 14 permanent Treatment Best Management Practice (BMP) devices. Construction started in 2020 and is anticipated to be completed in 2023.</p>	Under Construction

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
OCTA	SR-57 Northbound Improvement Project – Lambert Road to Tonner Canyon Road	The SR-57 from Lambert Road to Tonner Canyon Road is an important truck route and an integral part of Southern California’s freeway network. This project requires coordination between Orange County Transportation Authority (OCTA) and Los Angeles Metro, two Caltrans Districts (7 and 12) and the cities in the project area, to study the addition of a truck climbing lane to enhance freeway operations and improve regional circulation of goods and services along this segment of northbound SR-57. The preliminary environmental analysis is scheduled to begin in late 2022.	In Process
Orange County	Orange is the New Green Zoning Code Update	The project location includes the unincorporated portion of Orange County. The County has embarked on a comprehensive update to its existing Zoning Code to incorporate sustainable policies and best management practices titled “Orange is the New Green.” The Zoning Code Update will achieve a new standard of sustainability and flexibility that addresses future technological advances. The County’s Zoning Code sets forth land use regulations that apply to the unincorporated areas located throughout Orange County. These regulations are intended to protect the value and enjoyment of property separating incompatible land uses and minimizing their impact on each other. They also provide for the orderly development, or redevelopment, of unincorporated communities. In addition, the amendments include miscellaneous text revisions. The County of Orange Board of Supervisors approved the Zoning Code Update on July 28, 2020 which went into effect 30 days after the date of approval.	Approved
Los Angeles County	Project No. 2017-003723 – Significant Ecological Areas (SEA) Program Update	The Conceptual SEAs project is an amendment to the General Plan to remove all text references to “Conceptual SEAs” and amend Figure 9.3 to designate the Altadena Foothills and Arroyos and the Puente Hills “Conceptual SEAs” as official “SEAs” and subject to the SEA Ordinance. General Plan Implementation Program C/NR-2 SEA Ordinance will make changes to the SEA Ordinance in Los Angeles County Code Title 22, which regulate permitting, design standards, and the review process for development within SEAs. The project was approved by the Los Angeles County Board of Supervisors in 2019.	Approved
City of Brea	Mercury Lane Residential Project	The proposed project is located at the south east corner of Berry Street and Mercury Lane. It entails a zone change from Commercial Industrial to Planned Community and involves construction of 114-unit workforce apartment units. The Draft EIR was released for public review in July 2019. The project was approved in 2020.	Under Construction

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
City of Brea	Brea Mall Mixed Use Project	As a result of the recent acquisition of the Sears parcel, the Simon Property Group is proposing redevelopment of the Sears parcel of the Brea Mall. The proposed redevelopment would be on a 17.5-acre area in the southwest portion of the mall site that includes the Sears parcel and adjoining transition areas adjacent to Nordstrom and Macy's. The proposed project involves demolishing the Sears department store and associated auto center (161,990 square feet [SF]) and 12 acres of surface parking in order to allow a mix of uses—including retail, for-rent residential apartments, a resort-type fitness center, and a public gathering space (large "central green" and plaza). The project would result in a net increase of 149,625 square feet of retail use and 312 residential units on the approximately 17.5-acre portion of the Sears parcel within the 74-acre Brea Mall site. A Draft EIR is being prepared for the proposed redevelopment, which was released for public review in January 2020. A notice of public hearings and release of the Final EIR is tentatively scheduled for fall 2022.	In Process
City of Brea	Living Hope Church CUP Amendment	The applicant is requesting to amend the CUP 10-04 that involves tenant improvements to the existing 6,711 SF open frame canopy structure and use the canopy area to assemble area for outdoor social from existing use. The project was approved in 2021.	Approved
City of Brea	201 North Berry Street Precise Development	The project, located at 201 North Berry Street, consists of demolition of the existing buildings on the project site and construction of a new 109,125 SF warehouse building. The project was approved in 2020 and construction was completed in 2021.	Completed
City of Brea	Transwestern NWC Imperial/Berry Precise Development	The project consists of a new industrial warehouse facility. The existing building will be demolished and a new 132,700 SF building with a 2-story office space will be constructed. The site will feature new parking, landscaping and site amenities for employees. The project was approved in 2021.	Approved
City of Brea	Macallans Expansion and New Speakeasy CUP	The project consists of expanding Macallans' existing patio area and expanding into the adjacent space by 644 SF. The project was approved in December 2020 and construction was completed in 2021.	Completed
City of Brea	Cha Cha's Expansion CUP Amendment	The project, located at 110 W. Birch Street, consists of an interior expansion into the formerly known tenant space "Black and White". In addition, the project includes minor improvements to the patio area for expansion. The project was approved in 2021.	Approved
City of Brea	ALDI Grocery Store	The project consists of a new grocery store (ALDI) at 2395 Imperial Highway (Brea Union Plaza). The project will convert the existing vacant building and adjacent shop in addition to expanding the building to the west along the front sidewalk and parking stalls. The existing building size is approximately 15,714 and will be adding 5,392 for a total of	Approved

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
		21,106 SF. In addition, the applicant is requesting a CUP for a Type 20 beer/wine alcohol license. The project was approved in March 2022.	
City of Brea	The Phoenix Club	The project, located at 375 W. Central Avenue, consists of a restaurant/bar with a banquet hall. In addition, the project will occupy three tenant spaces for office and multi-purpose rooms for member only classes, meetings, etc. A CUP will be required for the project. The project was approved in April 2022.	Approved
City of Brea	Starbucks Drive-thru	The project, located at 2 Pointe Drive, consists of a new Starbucks with a drive-thru and retail tenant space. The location was previously occupied by Souplantation. The project was approved in July 2022.	Approved
City of Brea	Brea 265 Specific Plan	The Brea 265 Specific Plan consists of a master planned residential community of low-, medium-, and high-density residential neighborhoods, parks, recreational amenities and open space, linked together by an extensive trail network that connects to the Tracks at Brea and other regional systems. The project site is located to the south of Lambert Road/Carbon Canyon Road, north of Rose Drive, east of Valencia Avenue and west of Carbon Canyon Regional Park. At buildout, the project would provide 301 low density units, 273 medium-density units, and 526 high-density units, totaling 1,100 units with an overall average density of approximately four dwelling units per acre, provide 18.1 acres of parks/recreations uses and 55.7 acres of open space. The Draft EIR for the project was released for public review in March 2022. In July 2022, the Brea 265 Specific Plan was approved, along with the Final EIR and General Plan Amendment. The project’s Zone Change and Development Agreement were approved in August 2022. The Tentative Tract Map (TTM) for the project is tentatively scheduled for review by the Planning Commission on September 27, 2022.	In Process
City of Brea	Brea Imperial Center	This project involves improvements to the Brea Imperial Center located at 1130-1160 W. Imperial Highway and 311-391 S. State College Boulevard. Specifically, it includes subdividing the existing 4.1-acre site into two parcels, façade improvements, demolition of two pad buildings, construction of a new pad building, landscaping improvements, parking lot modifications, and a new comprehensive sign program. The project was approved in 2018 and construction was completed in 2021.	Completed
City of Brea	Camp Transformation	The project, located at 910 Birch Street, consists of a new fitness center within an existing vacant tenant space and requires a CUP. The project was approved in 2021 and construction was completed in May 2022.	Completed

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
City of Brea	Aloha Veterinary Hospital	The project, located at 407 W Imperial Highway, consists of establishing an animal hospital within an existing commercial tenant space at Brea Gateway Center and will require a CUP. The project was approved in July 2022.	Approved
City of Brea	UFC	The project, located at 220 S. Brea Boulevard, consists of establishing a UFC gym within an existing 27,03 SF two-story commercial building in Brea Downtown and requires a CUP. The project was approved in July 2022.	Approved
City of Brea	Training Facility	The project, located at 650 N. Berry Street, consists of improving an existing two-story office building into a training facility (gym) with ancillary office space, which will require a CUP. The project application was submitted in September 2021.	In Process
City of Brea	Pet Aquamation Business	The project, located at 580 W. Lambert Road, Unit E, consists of establishing a pet aquamation (cremation) facility with mobile after-life care veterinary services. No live animals are proposed on-site. The project application was submitted in July 2022.	In Process
City of Brea	Brea Metro Office Condos	The project, located at 330 E. Lambert Road, consists of subdividing the property into approximately 35 individual office condominiums. No change of use, demolition or on-site improvements. The project application was submitted in November 2021 and is pending re-submittal per staff comments.	In Process
City of Brea	415 W. Date Street	The project, located at 415 W. Date Street, consists of constructing a 1,200 SF two-story detached ADU on an approximately 7,864 SF lot developed with an approximately 1,018 SF single-family residence. The project application was submitted in June 2022.	In Process
City of Brea	Brea Gaslight Square Redevelopment	The project, located at 255 E. Imperial Highway, includes retaining two of the existing five buildings that are currently used for medical uses. The remaining three commercial buildings totaling 18,286 SF would be demolished to facilitate the construction of a 2,000 SF drive-through restaurant with an outdoor seating area and a 6,000 SF commercial building consisting of 2,400 SF of restaurant and 3,600 SF of medical or retail space. The drive-thru restaurant building would be located on the southeast portion of the site and could accommodate 12 vehicles within the drive-through. The restaurant and retail/medical building would be located at the southwest portion of the site. New landscape is proposed throughout the site featuring new trees and planters. The project would also reconfigure the existing parking lot and proposes 92 parking spaces on-site and 12 parking space off-site, for a total of 104 spaces. The project application was submitted in March 2022.	In Process

**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
City of Brea	315 S. Flower Avenue	The project, located at 315 S. Flower Avenue, consists of adding a residential structure (two-story single-family residence and attached garage) to the Brea Historic Resources Register. The project application was submitted in July 2022 and is scheduled for Planning Commission review in late August 2022.	In Process
City of Brea	527 S. Elm Street	The project, located at 527 S. Elm Street, consists of constructing a 1,496 SF detached ADU on an approximately 20,084 SF lot developed with an approximately 3,000 SF single-family residence. The project application was submitted in March 2022 and is being re-submitted.	In Process
City of Brea	Medical Training Facility	The project, located at 910 E. Birch Street, Unit 350, consists of establishing a medical training facility, and a tenant improvement of an existing 2,400 SF commercial tenant space to facilitate such use. The project application was submitted in April 2022.	In Process
City of Brea	Brea Place Project	The project, located at the northeast corner of Birch Street and State College Boulevard, consists of construction of new buildings on vacant portions of the site to build out mixed use campus of office, residential, hotel and support commercial uses. Building A features 462 apartments in a five-story building and Building B features 285 apartments in a three to five story building. The units include a mix of studio, one bedroom and two bedrooms for rent. The project features 13,000 SF of commercial space within the Birch Street frontage and across the street a four-story 150 room hotel. The project was approved in 2017 and is under construction. The construction phase of the approved hotel is scheduled for completion by end of December 2022.	Under Construction
City of Brea	Central Park Village Brea Project	The project, located at 420 W Central Avenue, includes 82 new townhomes ranging from 1 bedroom to 5 bedrooms. Twenty of the 82 townhomes will include affordable residential flats. The project was approved in 2019. As of August 2022, the last phase of the project is being constructed and model homes are currently open.	Under Construction
City of Diamond Bar	Diamond Bar General Plan 2040 and Climate Action Plan EIR	The project is intended to respond directly to emerging trends and topics in Diamond Bar since the preparation of the current General Plan (adopted in 1995), and to ensure the City of Diamond Bar can accommodate the potential population and job growth through the proposed General Plan's horizon year of 2040. The project, which establishes a long-range planning framework and policies, would fully replace the City's existing General Plan and provide a new Climate Action Plan if adopted by the City Council. On December 17, 2019, the City Council adopted the updated Diamond Bar General Plan.	Approved
City of Diamond Bar/Los Angeles County	AERA Master Planned Community	The majority of the 2,935-acre project site is located within an unincorporated area of Los Angeles County (approximately 2,614 acres) and the remaining portion is located within unincorporated Orange County (approximately 321 acres). The project site is generally	Inactive

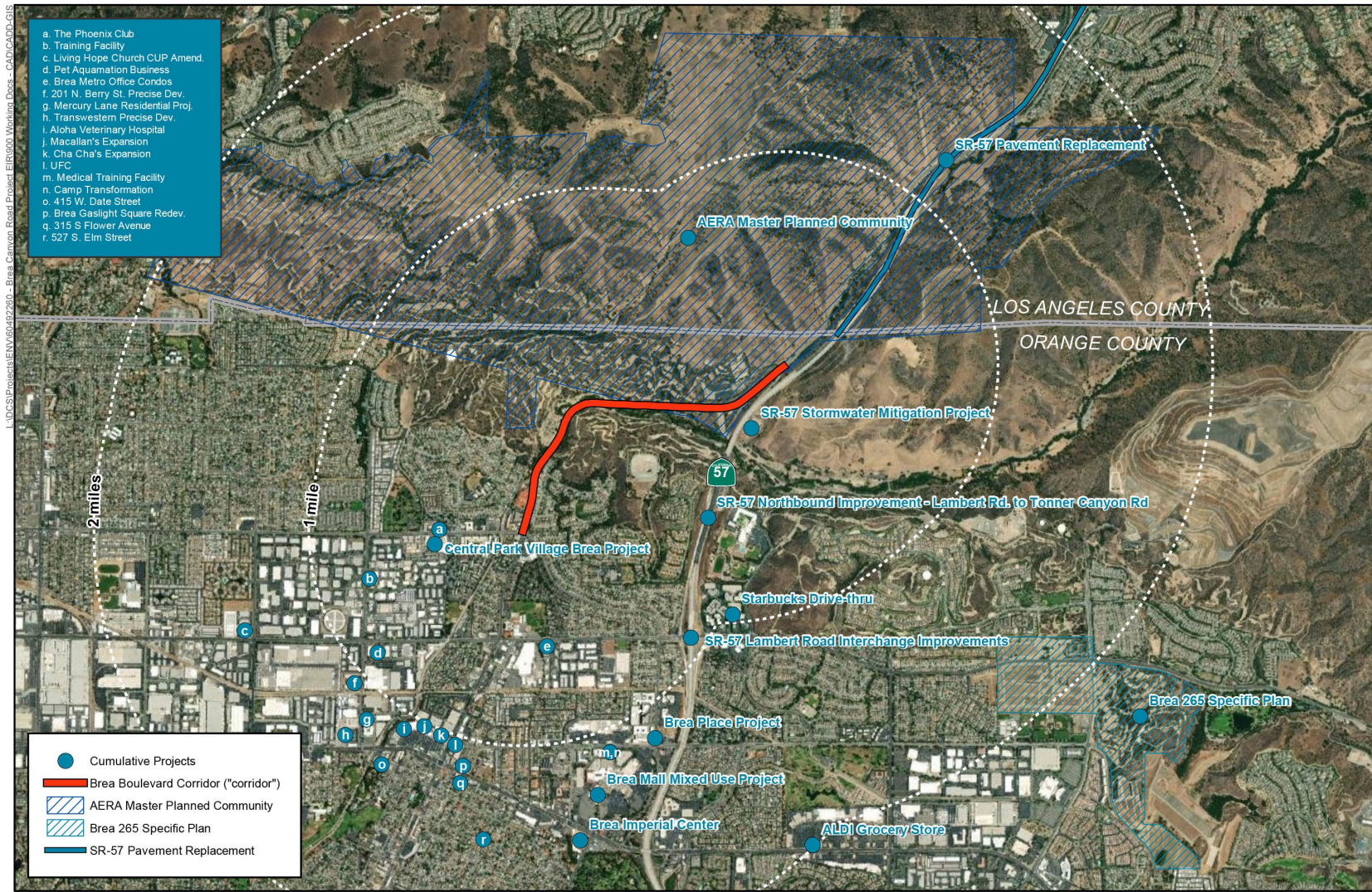
**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
		<p>bounded by the City of Diamond Bar to the northeast, the unincorporated residential community of Rowland Heights to the north, Harbor Boulevard/Fullerton Road and the City of La Habra Heights to the west, the City of Brea to the south, and State Route 57 (SR-57) to the east. Approximately 323 acres of the project site is located east of SR-57 within unincorporated Los Angeles County, south of the City of Diamond Bar. As proposed, the project consists of a General Plan Amendment, Pre-Zoning, and Specific Plan to allow for the phased development of a maximum of 3,600 dwelling units, a golf course and related uses, park uses, commercial uses, internal greenbelts, and open space preservation areas on a 2,935-acre site.</p> <p>On April 21, 2003, the County of Los Angeles issued a Notice of Preparation for the AERA Master Planned Community, stating that the County of Los Angeles and the County of Orange would be co-lead agencies under CEQA. In July 2005, the County of Los Angeles Local Agency Formation Commission (LAFCO) prepared the East San Gabriel Valley Final Municipal Service Review, which recommended that the majority of the AERA property be annexed to the City of Diamond Bar. Subsequently, the City of Diamond Bar determined that it may modify its sphere of influence and ultimately annex much of the project area located within jurisdiction of the County of Los Angeles. Under the CEQA Guidelines and after conferring among representatives from the City of Diamond Bar, the County of Los Angeles, and the County of Orange, the City of Diamond Bar was designated as the lead agency for the proposed project. The City of Diamond Bar issued a NOP for the AERA Master Plan on May 2, 2007.</p> <p>The project has since become inactive and the County of Orange is not aware of any land use development proposal for this location. It is worth noting that Los Angeles County’s approved Project No. 2017-003723 –SEA Program Update (included in this table above) establishes most of the AERA Master Planned Community area an official SEA (i.e., an extension of SEA 15 Puente Hills), which would make future development at the scale that was proposed more challenging within the permitting, design standards, and review process for development within an SEA. Additionally, the City of Diamond Bar’s 2040 General Plan Update (also included in this table above) identifies the area as an SEA in observance of Los Angeles County’s designation of the area.</p>	

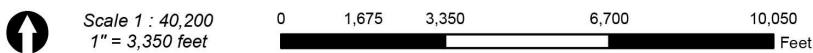
**TABLE 8-1
SUMMARY OF CUMULATIVE PROJECTS LOCATED APPROXIMATELY 2-MILES OF THE PROJECT**

JURISDICTION	PROJECT	PROJECT DESCRIPTION	STATUS AND SCHEDULE
		<p>The County of Orange is including this project for background information purposes due to the number of Notice of Preparation-related public comments received on the Brea Boulevard Corridor Improvement Project that were tied to the AERA Master Planned Community. The County is aware of past public outreach efforts by AERA Energy in the mid-late 2000s to residents living in proximity to this area, and of concerns by a number of residents that traffic associated with a master planned community of that size would have a negative impact on Brea Boulevard. Given the change in landownership and SEA designation, it is presumed that this project is not being actively pursued and that this project would not have any impacts for purposes of this cumulative impacts analysis.</p>	

Sources: Caltrans 2022a and 2022b; City of Brea 2022a, and 2022b; City of Diamond Bar 2021; Google Earth Pro 2022; Los Angeles County Department of Regional Planning 2019; Orange County Development Services 2021; OCTA 2022a and 2022b; OPR-SCH 2021a, 2021b, 2021c, and 2021d.



Eagle Aerial Imaging (2015), OCPW (2022), and AECOM (2022).



**Figure 8-1
Cumulative Projects**

Brea Boulevard Corridor Improvement Project

8.3.2 CUMULATIVE IMPACTS RELATED TO AIR QUALITY

The South Coast Air Quality Management District (SCAQMD) regional analysis focuses on whether a specific project would result in cumulatively considerable increase in emissions. By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development within the South Coast Air Basin (SCAB), and this regional impact is cumulative rather than being attributable to any one source. The SCAQMD thresholds of significance are relevant to whether a project's individual emissions would result in a cumulatively considerable incremental contribution to the existing cumulative air quality conditions. If a project's emissions would be less than those threshold levels, the project would not be expected to result in a considerable incremental contribution to the significant cumulative impact.

As discussed in Section 5.2 (Air Quality), using a conservative equipment usage scenario, construction of the Project was modeled and not found to exceed the SCAQMD maximum daily thresholds of significance for any criteria pollutants, and the peak daily localized construction emissions were found to fall below the SCAQMD Localized Significance Thresholds (i.e., the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standards). Additionally, the Project is strictly a transportation project, and it does not include any changes in land use for areas adjacent to the corridor or for any other areas. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the Vehicle Miles Traveled (VMT) analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, which is inclusive of modeled forecast growth (i.e., approximately 1 percent increase per year over 2019 traffic volumes). Thus, implementation of the Project improvements on Brea Boulevard is anticipated to improve traffic flow and reduce congestion; thereby, reducing emissions from idling vehicles. Therefore, the Project would not result in cumulatively considerable net increase of any criteria pollutant for which the region is in nonattainment status under an applicable federal or state ambient air quality standard. The Project would not result in a cumulatively considerable impact related to air quality.

8.3.3 CUMULATIVE IMPACTS RELATED TO BIOLOGICAL RESOURCES

As discussed in Section 5.3 (Biological Resources), the Project could result in a potentially significant impact to California gnatcatcher, least Bell's vireo, nesting birds, western pond turtle, western spadefoot, roosting bats, sensitive natural communities, United States Fish and Wildlife Service (USFWS) designated

critical habitat (coastal sage scrub), jurisdictional waters, wildlife movement, and a local habitat conservation agreement. However, implementation of mitigation measures BR-1 through BR-13 would reduce potentially significant impacts related to these sensitive species, habitats, and resources to below a level of significance.

The majority of the cumulative projects identified in Table 8-1 are redevelopment and infill projects (e.g., Central Park Village Brea, SR-57 Lambert Road Interchange Improvements, Mercury Lane Residential project, Brea Place, Brea Mall Mixed Use, Brea Imperial Center, etc.) that would likely have limited to no biological resource impacts and would not overlap with those of the Project due to their setting and distance from the corridor. The larger Brea 265 Specific Plan project would likely have some potential impacts similar to the Project (e.g., coastal sage scrub, California gnatcatcher, etc.); however, the majority of the Brea 265 Specific Plan project is more than two miles away from the corridor and it is not within the same subwatershed (i.e., Fullerton Creek and Carbon Creek subwatersheds vs. Brea Creek-Coyote Creek subwatershed). The SR-57 Northbound Improvement and SR-57 Stormwater Mitigation projects would both have construction activity at SR-57 and Tonner Canyon Road, near the confluence of Tonner Canyon and Brea Canyon creeks, which could result in similar or overlapping impacts to biological resources combined with the Project (e.g., roosting bats, wildlife movement, etc.). Additionally, the AERA Master Planned Community would have resulted in substantial modification to nearly 3,000 acres adjacent to and north of the corridor, and likely would have had many potentially significant impacts similar to the Project, but to a much larger degree. As discussed in Table 8-1, Los Angeles County's SEA Update Program established most of the AERA Master Planned Community area as an official SEA (i.e., an extension of SEA 15 Puente Hills), which would make future development at the scale that was proposed more challenging within the permitting, design standards, and review process for development within an SEA (for example, development within an SEA is required to adhere to setback requirements and open space buffers, requirements to provide natural open space preservation configured into one large contiguous area, etc.). As also noted, the AERA Master Planned Community has stalled and no longer appears to be moving forward, and is therefore unlikely to cause cumulative impacts to biological resources in addition to the Project.

Overall, mitigation measures provided as part of the Project would reduce all potential Project-related biological impacts to a level that is less than significant and would result in no net-loss of wetlands. Furthermore, the Project would enhance wildlife movement across the roadway through widened/enlarged existing bridges and culverts, a new wildlife overpass/land bridge, and directional fencing to funnel wildlife to these crossings. Other projects in the area that could have cumulative effects but which have not yet been approved or constructed would be required to develop mitigation measures and coordinate/consult with regulatory agencies as applicable to similarly offset potentially significant impacts. Therefore, the Project would not result in a cumulative adverse impact related to biological resources.

8.3.4 CUMULATIVE IMPACTS RELATED TO CULTURAL RESOURCES

As discussed in Section 5.4 (Cultural Resources), the Project would result in a significant adverse impact on the environment if it would cause a substantial adverse change in the significance of a historical or an archaeological resource. Construction associated with the Project would (1) require removal of the existing road shoulder on which the Brea Canyon Portola Monument (a monument of historical interest that could become eligible for inclusion in the California Register of Historical Resources) is located, and (2) has the potential to encounter archaeological resources during ground-disturbing activities that could cause a substantial adverse change in the significance of those archaeological resources. However, Mitigation Measures CR-1 through CR-5 would reduce potentially significant impacts to historical and archaeological resources to a level that is less than significant with mitigation incorporated.

Implementation of the projects contained in Table 8-1 combined, have the potential to also impact other historical resources or previously unidentified (not visible from the surface) archaeological resources, regionally. However, since these projects which have not been approved or completed would similarly be required to mitigate any impacts to cultural resources to a level that is less than significant, such impacts are not cumulatively considerable.

8.3.5 CUMULATIVE IMPACTS RELATED TO GEOLOGY AND SOILS

As discussed in Section 5.5 (Geology and Soils), the Project has the potential for risks related to geology and soils (i.e., potential for strong seismic ground shaking, landslides, etc.); however, the Project would be designed and constructed in accordance with geotechnical recommendations provided in the Project's geotechnical report. The Project would also comply with the requirements of applicable design standards such as: American Association of State Highway and Transportation Officials Load and Resistance Factor Design (AASHTO LRFD) Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Compliance with geotechnical recommendations and applicable design standards would ensure risks related to geology and soils would be less than significant. Construction of the Project would, however, disturb soil deposits that could contain fossils or fossiliferous deposits at varying depths beneath the surface, which could directly or indirectly destroy paleontological resources. Mitigation Measure G-1 would reduce potentially significant impacts related to paleontological resources to a level that is less than significant with mitigation incorporated.

Geotechnical impacts are considered site-specific; any cumulative development in the region would also be required to be constructed to withstand probable geology and soils-related impacts specific to the context of each development site, and therefore, the identified projects in Table 8-1 would similarly have to comply with current building code regulations and County requirements. Regarding paleontological resources, the projects in Table 8-1 combined also have the potential during ground-disturbing activities to directly or indirectly destroy paleontological resources present in the region. However, since these projects would similarly be required to mitigate any impacts to paleontological resources to a level that is less than significant, such impacts are not cumulatively considerable. Therefore, implementation of the Project would not result in a substantial incremental impact to geology and soils and would not result in a significant cumulative adverse impact.

8.3.6 CUMULATIVE IMPACTS RELATED TO GREENHOUSE GAS EMISSIONS AND ENERGY

Because no single project is large enough to result in a measurable increase in global concentrations of greenhouse gas (GHG) emissions, climate change impacts of a project are considered on a cumulative basis. The analysis presented in Section 5.6 (Greenhouse Gas Emissions and Energy) is also applicable to this analysis of cumulative impacts. As discussed in Section 5.6, the Project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and would be consistent with applicable GHG reduction plans (e.g., SCAQMDs Air Quality Management Plan). Southern California Association of Government's (SCAG's) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) Assembly Bill (AB) 32, Senate Bill (SB) 32, etc.). Likewise, the Project would not result in a wasteful, inefficient, or unnecessary consumption of energy resources, nor a conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the Project would not contribute to a cumulatively considerable GHG or energy impact.

8.3.7 CUMULATIVE IMPACTS RELATED TO HAZARDS AND HAZARDOUS MATERIALS

As discussed in Section 5.7 (Hazards and Hazardous Materials), the Project would comply with a number of spill prevention, containment, and cleanup measures identified within permits issued by the Santa Ana Regional Water Quality Control Board (RWQCB). Construction activities must be undertaken in accordance with any conditions and requirements (including Best Management Practices or BMPs) established by a NPDES permit. BMPs specified in the National Pollutant Discharge Elimination System (NPDES) permit include storm water prevention measures included in a Storm Water Pollution Prevention Plan (SWPPP), and protocols for the procedures for the storage, usage, and disposal of hazardous materials. Adherence to the BMPs would be required for all phases of construction. Compliance with the SWPPP and the implementation of standard BMPs during construction would reduce the potential for hazardous materials spills. However, adjacent properties have been used for decades to produce and store crude oil and other petroleum products, and undocumented wells, pipelines, and other oil field-related appurtenances could be unexpectedly encountered during construction. As such, implementation of the Project has the potential to release hazardous materials into the environment during construction due to unknown hazardous materials within the project limits. Likewise, there is a potential for being located on a site (e.g., undocumented wells, pipelines, and other oil field-related appurtenances, oil/tar seeps, etc.) that could create a significant hazard to the public or environment due to the nature of adjacent properties. Mitigation Measures HHM-1 through HHM-3 would reduce potentially significant impacts related to encountering undocumented conditions during construction to a level that is less than significant with mitigation incorporated. There is also the potential to impair or interfere with the Orange County Fire Authority and County of Orange Local Hazard Mitigation Plan (LHMP) and City of Brea's Emergency Response Plan. Mitigation Measure HHM-4 would ensure consistency with the LHMP and Emergency Response Plan and would detail specific emergency/fire response actions during construction such that potentially significant impacts to emergency and fire response would be reduced to below a level of significance with mitigation incorporated. The projects identified in Table 8-1 would also be required to comply with city, county, state, and federal regulations related to reasonably foreseeable upset and accident conditions, hazardous materials sites, emergency response, and any other appropriate mitigation measures based on requirements established by their respective jurisdictions. Therefore, there are no anticipated significant cumulative impacts associated with hazards and hazardous materials.

8.3.8 CUMULATIVE IMPACTS RELATED TO HYDROLOGY AND WATER QUALITY

As discussed in Section 5.8 (Hydrology and Water Quality), Project grading activities could potentially result in sediment runoff into Brea Creek and ultimately, downstream receiving waters during runoff events, as well as from sediment tracking from construction truck trips leaving the project area. Construction activities could introduce pollutants to the creek if not properly managed. However, typical BMPs (e.g., temporary fiber rolls, check dams, drainage inlet protections, sediment barriers, gravel sand berms, hydroseed, and dust control plan, etc.) would be employed during the construction period and during the long-term operational phase. Additionally, because the Project would disturb more than 1 acre of soil, Orange County Public Works (OC Public Works) would be required to prepare and implement a SWPPP and a Water Quality Management Plan (WQMP) which meet the requirements of the Construction General Permit (CGP) and adherence to the provisions of the Orange County Municipal Separate Storm Sewer System (MS4) Permit, respectively. Furthermore, construction dewatering activities would also require compliance with the CGP, so as not to degrade surface water quality. Adherence to the provisions of the Orange County MS4 Permit, the De Minimis Surface Water Discharge Permit, and the SWPPP as part of compliance with General Permit 2009-0009-DWQ would reduce construction-related impacts related to water quality to a level that is less than significant. Adherence to the provisions of the WQMP would reduce operation-related impacts associated with water quality to a level that is less than significant. The Project

would also comply with the requirements of applicable design standards such as: AASHTO LRFD Bridge Design Specifications with California Amendments; Caltrans' Seismic Design Criteria, Standard Plans and Standard Specifications; OC Public Works' Standard Plans; OC Highway Design Manual; Caltrans' Highway Design Manual; Caltrans' Greenbook; and, construction industry standards and specifications. Compliance with the applicable design standards and Santa Ana RWQCB requirements would ensure operation of the Project would not substantially alter the existing drainage pattern of the area. Thus, because implementation of the Project would not substantially alter the existing drainage pattern of the site or area, it would not result in: (1) substantial erosion or siltation on- or off-site; (2) a substantial increase in the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; (3) the creation or contribution of runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (4) an impediment or redirection of flood flows. Impacts would be considered less than significant. Also, the Project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge because there are no groundwater wells within the project limits and construction-related dewatering activities would be temporary and would not be substantial. Given this, the Project would not conflict with or obstruct implementation of the Basin Plan or the Basin 8-1 Alternative Plan.

As with the Project, other projects in the region that could potentially have cumulative effects would be developed in compliance with existing regulations, and all local and regional plans regulating water quality, such as the CGP and MS4. Therefore, cumulative impacts related to hydrology and water quality would be considered less than significant.

8.3.9 CUMULATIVE IMPACTS RELATED TO LAND USE AND PLANNING

As discussed in Section 5.9 (Land use and Planning), the Project would be consistent with all applicable City of Brea and County of Orange General Plan goals, objectives, or policies. The Project would not cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect and impacts would be less than significant. As a road widening Project, permanent partial property acquisitions for road easements right-of-way (R/W), retaining wall easements, slope easements, and easements for water quality features from adjacent private properties would be required. These partial property acquisitions would not change surrounding land uses because they only involve small portions of each subject property. Project-related acquisitions would be obtained "in fee" or easement through the payment of fair market value for the property. Cumulative development projects would be required to assess consistency with all applicable land use plans, policies, and/or regulations of the applicable jurisdiction(s) on an individual basis. Project-related cumulative impacts pertaining to land use and planning would be considered less than significant.

8.3.10 CUMULATIVE IMPACTS RELATED TO NOISE

As discussed in Section 5.10 (Noise and Vibration), construction noise is not regulated by the City of Brea as long as it is limited to daytime hours of 7:00 am to 7:00 pm, Monday through Saturday. However, due to bridge replacement-related work construction will result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. During these times (up to a maximum 26 weekends with the full roadway closure), activities would occur outside the normal hours of construction, as crews will work extended hours, night shifts, and weekends. Mitigation Measures N-1 and N-2 are included, which could result in noise reductions for some sound sources, but would not be sufficient to reduce noise levels to below City's nighttime noise standard. Thus, the infrequent construction-related noise of the Project occurring over these weekends (between the hours of 7:00 pm and 7:00 am and on Sundays) would be considered an unavoidable significant impact. Construction of the Project would not result in any vibration-related damage to structures in the vicinity of work areas. In addition, operation of the Project would not result in a substantial change to the existing

noise levels within the project area. Although the widened roadway would increase the capacity of Brea Boulevard, the Project is strictly a transportation project and does not include any changes in land use that would generate trips associated with a new use. Traffic increases shown in the future (2045) conditions are tied to regional (modeled forecast) growth that would occur with or without the Project. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the VMT analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, which is inclusive of modeled forecast growth. Additionally, open graded asphalt concrete (OGAC) paving is included as part of the Project at the southern end of the corridor to minimize roadway surface noise in the City of Brea. OGAC would be added from Central Avenue/State College Boulevard north to the City/unincorporated County boundary, which would provide an immediate traffic noise reduction compared to average pavement types.

Overall, noise levels from nighttime construction activities would be above the City's nighttime noise standard for a number of noise-sensitive receivers in the City of Brea, as well as from any construction activities on Sundays. These noise levels would remain significant and unavoidable after mitigation, which would be cumulatively considerable (short-term). However, the Project is strictly a transportation project and does not include any changes in land use that would generate trips associated with a new use. Modeling showed overall VMT within Orange County would decrease with the Project, and the level of service analysis showed that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay. Additionally, the Project would result in an immediate noise reduction at the southern end of the corridor with the addition of OGAC (when compared to average pavement types), which even with an additional approximately 25 years of forecast annual regional traffic growth (between 2019 and 2045) the predicted future traffic-related noise levels were shown to range from +1.6 to -0.3 dBA, with an average of 0.2 dBA increase (+3dBA is considered barely perceptible). Given this, the Project would not result in a significant cumulatively considerable impact related to noise and vibration.

8.3.11 CUMULATIVE IMPACTS RELATED TO TRANSPORTATION

As stated in Section 5.11 (Transportation), construction of the Project would require periodic full closure of Brea Boulevard, resulting in short-duration and non-recurring detours. As conservatively modeled for the Project, construction-related detours would result in significant impacts at three intersections and one roadway segment. Mitigation measures are included to reduce the impacts but these temporary (construction period only) traffic impacts would remain significant and unavoidable. The Project is strictly

a transportation project, and it does not include any changes in land use for areas adjacent to the corridor or for any other areas. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the VMT analysis shows that overall VMT within Orange County would decrease with the Project, and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, which is inclusive of modeled forecast growth (i.e., approximately 1 percent increase per year over 2019 traffic volumes). Furthermore, implementation of the Project was shown in Section 5.11 to result in a regional reduction in VMT and substantial improvements in intersection level of service (attributable to proposed widening and signalization of intersections) and improvement to roadway segment level of service (where widening occurs).

The projects listed in Table 8-1 have the potential to generate additional trips, which could occur throughout the local and regional arterial network, at various times of the day and week. However, these types of projects would, similar to the Project, be required to account for cumulative growth through the use of regional traffic models and consideration of future traffic from other planned projects. Any identified impacts would be required to be mitigated accordingly. Additionally, the AERA Master Planned Community proposed development of a maximum of 3,600 dwelling units, a golf course and related uses, park uses, commercial uses that would have resulted in a substantial amount of additional area traffic with planned use of Brea Boulevard as a principal access road to the master planned community. As discussed in Table 8-1, the Los Angeles County's SEA Update Program established most of the AERA Master Planned Community area as an official SEA, which necessarily limits the potential growth induced by a future development on the site and places stronger mitigation requirements on such a development. At this time it does not appear that the AERA Master Planned Community is proceeding and based on the change in designation for the area, any future development will have a smaller impact and will need to meet more stringent mitigation requirements. Furthermore, growth data from the Orange County Traffic Analysis Model used for the Traffic Impact Analysis Report for the Project (Appendix O of this Draft EIR) shows a nominal increase in traffic of 1 percent per year within the corridor (from present through 2045), not indicative of any expected large-scale development in the area.

Overall, conservative modeling of periodic full closure of Brea Boulevard during construction (i.e., short-duration and non-recurring detours for nights and weekends only) was shown to result in significant impacts at three intersections (Harbor Boulevard/Whittier Ave, Harbor Boulevard/Lambert Road, and SR-57 Northbound Ramps/Diamond Bar Boulevard) and one roadway segment (SR-57 between Lambert Road and Diamond Bar Boulevard) and would remain significant and unavoidable after mitigation, which would be cumulatively considerable. However, operation of the Project would result in substantial improvements

in intersection and roadway segment level of service, as the Project is to intended to improve Brea Boulevard to be consistent with its designated Primary Arterial Highway classification per the MPAH; a roadway circulation network solution to enhance roadway safety and traffic flow of the existing roadway, causing traffic circulation and transportation improvements in the operational phase. Given this, the Project would not result a significant cumulatively considerable impact.

8.3.12 CUMULATIVE IMPACTS RELATED TO TRIBAL CULTURAL RESOURCES

As stated in Section 5.12 (Tribal Cultural Resources), the potential impact to the Brea Canyon Portola Monument (a monument of historical interest that could become eligible for inclusion in the California Register of Historical Resources) would be reduced to a level that is less than significant with mitigation incorporated. No resources of specifically California Native American origin were identified during the cultural resources investigation for the Project, and no specific resources that could be designated tribal cultural resources were identified during the archival research, tribal contact program, or field survey. None of the contacted tribal government representatives identified specific resources within the project area that might be designated tribal cultural resources. However, three of the five tribal representatives indicated that the project area is sensitive for unknown tribal cultural resources; thus, ground-disturbing activities have the potential to cause a substantial adverse change in the significance of tribal cultural resources of a California Native American tribe if any such resources are unexpectedly encountered. Standard Conditions (SC) TCR-1 and SC TCR-2 address such unexpected discoveries and provide for tribal consultation if any unexpected tribal cultural resources are encountered.

Implementation of the projects contained in Table 8-1 combined, have the potential to also impact other historic or tribal cultural resources on a regional level. However, since these projects would similarly be required to mitigate any impacts to historic and tribal cultural resources to a level that is less than significant, as well as consult with tribal representatives as required by AB 52, such impacts are not cumulatively considerable.

8.3.13 CUMULATIVE IMPACTS RELATED TO WILDFIRE

As stated in Section 5.13 (Wildfire), there is the potential to impair or interfere with the Orange County Fire Authority and County of Orange LHMP and City of Brea's Emergency Response Plan, as well as a potential for construction activities to initiate a fire that could spread outward from the project limits, requiring specific actions and emergency response. Mitigation Measure HHM-4 would ensure consistency with the LHMP and Emergency Response Plan and would detail specific emergency/fire response actions during construction such that potentially significant impacts to emergency and fire response would be reduced to below a level of significance with mitigation incorporated. Additionally, the Project would comply with applicable fire safety and wildfire suppression measures, such as California PRC Sections 4427, 4428, 4431, 4442, etc. Compliance with the applicable fire safety and wildfire suppression measures would minimize the risk of increased frequency, intensity, or size of wildfires and decrease the risk of exposure of people or structures to wildfire.

Other projects identified in Table 8-1 would also be required to comply with city, county, state, and federal regulations related to emergency response, fire safety and wildfire suppression, and any other appropriate mitigation measures based on requirements established by their respective jurisdictions. Therefore, there are no anticipated significant cumulative impacts associated with wildfire.

This page intentionally left blank.

9.0 IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR) discuss significant adverse irreversible environmental changes and irretrievable commitments of resources that would be caused by implementation of the Project.

The Project involves widening Brea Boulevard from two to four lanes (two lanes each direction) between Canyondale Drive and the northern end of the corridor (approximately 1.5 miles), replacing and widening three functionally obsolete bridges, installing traffic signals approximately 1,200 feet north of Canyon Country Road and at the intersection of Brea Boulevard and Tonner Canyon Road, replacing the existing signal at Canyon Country Road, modifying existing driveway ingress/egress, installing a new wildlife overpass/land bridge, adding open graded asphalt concrete paving at the southern end of the corridor, and providing striping and installing new signage. Construction of these improvements would be conducted within permanent and temporary limits of disturbance along the corridor. Construction is expected to last approximately 5 years and is anticipated to begin in the year 2026. Implementation of the Project would result in both short- and long-term commitments of natural resources, as discussed below.

Construction of the Project would require the commitment of nonrenewable and/or slowly renewable natural resources such as sand, lumber and other forest products, concrete, asphalt and other building materials typically used in the construction of similar projects. There would be an irretrievable commitment of energy resources such as gasoline (e.g., approximately 41,315 gallons of gasoline over the course of 5-year construction period) and diesel fuel (e.g., approximately 653,627 gallons over the course of 5-year construction period) for the operation of construction equipment and vehicle fueling for on-road and off-road vehicles during the construction phase of the Project, as discussed in Section 5.6 (Greenhouse Gas Emissions and Energy) of this Draft EIR. Because these types of resources are available in sufficient quantities in this region and the Project is of a limited scope with construction of a limited duration, the commitment of these types of resources to the construction of the Project is not anticipated to be an adverse impact. Also, as discussed in Section 5.6 (Greenhouse Gas Emissions and Energy) of this Draft EIR, the Project would be required to comply with the County of Orange Construction & Demolition Program which requires a 65 percent diversion requirement via reuse, recycling, and/or composting of construction and demolition materials.

In addition, the Project would result in the long-term but minimal commitment of nonrenewable resources (e.g., fuel associated with maintenance vehicle trips) during the operation phase of the Project. The intensity and frequency of operational and maintenance activities would be similar to existing conditions. The amounts of energy (fuel) used in operation of the Project would be relatively small in relation to regional consumption, and sufficient quantities of fuel are anticipated to be available locally and in the region to accommodate this demand. Furthermore, as described in Section 5.6 (Greenhouse Gas Emissions and Energy) of this Draft EIR, there are no anticipated traffic increases or increases in vehicle miles traveled (VMT) associated with Project improvements. The Project is strictly a transportation project, and it does not include any changes in land use for areas adjacent to the corridor or for any other areas. There are no major development proposals or zoning changes contemplated along the corridor and traffic levels from the types of existing land uses in this area are not expected to be substantially affected by the Project. As a parallel roadway, some motorists are likely using Brea Boulevard to bypass the SR-57 under existing conditions. However, with the implementation of this Project it is expected that the Project conditions will not change substantially and the majority of these motorists, and traffic within the corridor in general, will be primarily local in nature (i.e., having starting points or destinations in the northern Brea area and general vicinity). While the Project would widen a segment of Brea Boulevard from two lanes to four lanes, this widening would only occur on a relatively short segment (approximately 1.5 miles). This corridor

improvement within unincorporated Orange County does not affect throughput on Brea Boulevard further north within Brea Canyon (i.e., within Los Angeles County), where an increase in capacity could increase the regional attractiveness of the roadway as an alternative to SR-57; and it only extends as far south as Canyondale Drive, where the widened cross-section would match the existing four-lane cross-section of Brea Boulevard. With several existing/redesigned (and one new) signalized intersections concentrated at the southern end in the City of Brea, the Project would also not be expected to result in substantial travel time reduction relative to SR-57 for non-local motorists. As such, the majority of traffic along the affected segment of Brea Boulevard is expected to continue to be primarily local in nature, and the potential for diversion of regional traffic from parallel arterials or highways as a result of the Project is expected to be minimal and would not be substantial. Furthermore, the VMT analysis shows that overall VMT within Orange County would decrease with the Project (approximately 0.23 percent lower with the Project than without), and the level of service analysis shows that intersections (and segments) along Brea Boulevard would see improvements in level of service and delay, thereby reducing idling activity and the associated fuel consumption. Also, the Project would be consistent with state and local plans and/or strategies for renewable energy or energy efficiency and measures to reduce VMT, such as the 2017 Scoping Plan, County of Orange General Plan Resources Element, the City of Brea's 2012 Sustainability Plan, and the Southern California Association of Governments' (SCAG), the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS). Therefore, operation of the Project is not anticipated to result in a long-term adverse impact related to the commitment of resources and energy consumption.

10.0 UNAVOIDABLE ADVERSE IMPACTS

Section 15126.2(c) of the California Environmental Quality Act (CEQA) Guidelines requires that an Environmental Impact Report (EIR):

“Describe any significant impacts, including those which can be mitigated, but not reduced to a level of insignificance. Where there are impacts that cannot be alleviated without imposing an alternative design, their implications and the reasons why the project is being proposed, notwithstanding their effect, should be described.”

Section 5.0 (Existing Conditions, Impacts, Mitigation Measures and Level of Significance After Mitigation) of this Draft EIR documents the analysis of the potentially significant adverse impacts associated with the Project. As discussed in Section 5.0, the Project would result in unavoidable adverse impacts related to aesthetics, noise and vibration, and transportation and traffic, even with mitigation included.

10.1 AESTHETICS

As described in Section 5.1 (Aesthetics) of this Draft EIR, the City of Brea has identified view corridors as scenic vistas and resources (depicted as arrows oriented in a specific direction from roadways on Figure CR-4 of the City of Brea General Plan – Community Resources Element [City of Brea 2003]) within the Brea Boulevard Corridor (specifically, two view corridors are within the project limits – one at the intersection of Tonner Canyon Road and Brea Boulevard, and the other just north of the “bend” on Brea Boulevard; both of the view corridors are looking/oriented to the northwest). Within these two view corridors, construction activities associated with Brea Boulevard widening would be visible, including damage to scenic resources within the view corridor (e.g., roadway cut and fill into the adjacent vegetated hillside and removal of mature vegetation and stands of mature trees). Also, after construction is completed, the new wildlife overpass/land bridge near the intersection of Tonner Canyon Road and Brea Boulevard (which would span the full width of the widened road and include wildlife fencing on both sides of the road), and the 60-foot retaining wall at the bend would be visible changes to these view corridors. The Project grading would comply with the OC Public Works’ and City of Brea’s Standard Plans, along with applying landscaping and architectural treatments (i.e., colored sculpted shotcrete for retaining walls), which would help reduce visual effects from the Project. However, the newly widened road along with the 60-foot retaining wall and new wildlife overpass/bridge would be noticeable changes to these view corridors. Given the permanent damage to the scenic resources and visual elements within these view corridors, the Project would result in a significant impact to scenic vistas.

The Project would be visible from a nearby State eligible scenic highway (State Route 57 [SR-57]) (Caltrans 2021). The following scenic resources are identified along or adjacent to Brea Boulevard within the project limits: view corridors, hillsides, stands of mature trees, mature vegetation, and dedicated open space (County of Orange 2015c; City of Brea 2003). Furthermore, the drive through Brea Canyon along Brea Boulevard is considered a scenic drive per the City of Brea’s General Plan (2003). Widening of the roadway would require removal of vegetation, including stands of mature trees and mature vegetation, and cut and fill into hillsides (with retaining walls) to address slope stability adjacent to the widened roadway. Approximately 16 retaining walls would be required throughout the corridor, with typical wall heights varying from 8 feet to 32 feet with an average of approximately 20 feet along the corridor (and one wall being approximately 60 feet tall). The new wildlife overpass/bridge would span the full width of the widened road and would include wildlife fencing on both sides of the road. The Project would not only result in substantial adverse effects to the view corridors within the project limits (as discussed above), it would also result in permanent damage to other scenic resources (e.g., permanent cuts into vegetated hillsides and removal of mature vegetation and stands of mature trees) within the project limits, including

near an eligible State scenic highway. Given this, implementation of the Project would substantially damage scenic resources, including within view of a State scenic highway; therefore, impacts would be significant.

Additionally, visual simulations of key views show impacts to the visual character and quality of the corridor would be significant. Views would substantially change with the widening of the road, hillside reduction, vegetation and tree removal, and introduction of a new wildlife overpass/land bridge. Given the change in views, including permanent damage to scenic resources (e.g., hillside, vegetation, and trees) within view of a nearby eligible State scenic highway, implementation of the Project would substantially degrade the existing visual character and quality of the corridor.

Impacts to scenic vistas, scenic resources, and visual character and quality resulting from implementation of the Project would be significant. OC Public Works has proposed a Modified Primary Arterial Highway design as part of the Project, which is intended to minimize environmental impacts compared to a Standard Primary Arterial design by reducing the roadway width (resulting in less roadway cut and fill, less removal of vegetation and trees, etc.). Additionally, the designs of the retaining walls and the wildlife overpass/bridge would include visual treatments, such as a natural rock appearance to blend with the existing hillside, reducing visual contrast somewhat. While the Modified Primary Arterial Highway design and visual treatments to the concrete features of the Project are an attempt to lessen the aesthetic impacts of the Project, there are no feasible mitigation measures to reduce the visual impacts to below a level of significance. The impacts to scenic vistas, scenic resources, and visual character and quality resulting from implementation of the Project would be significant and unavoidable.

10.2 NOISE AND VIBRATION

As described in Section 5.10 (Noise and Vibration) of this Draft EIR, construction noise is not regulated by the City of Brea as long as it is limited to daytime hours of 7:00 am to 7:00 pm, Monday through Saturday. However, due to bridge replacement-related work construction will result in periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. During these times (up to a maximum 26 weekends with the full roadway closure), activities would occur outside the normal hours of construction, as crews will work extended hours, night shifts, and weekends. Two bridges are within a sufficient distance from noise-sensitive receivers in the City of Brea such that noise from activities occurring outside the normal hours of construction could be audible; these are Bridge 1 (approximately 200 feet from the nearest receiver locations [e.g., R01, R02, etc.]) and Bridge 2 (approximately 1,000 feet from the nearest receiver locations). The types of bridge-related construction activities that could occur outside the normal hours include: abutment excavation (requiring use of an excavator or backhoe); bridge demolition (requiring excavators, water trucks, loaders, and dump or haul trucks for debris); cast-in-drilled-hole (CIDH) installation for abutments and associated wingwalls (requiring use of drill rig, skid steer or small loader, crane, and concrete trucks/concrete pump trucks); etc. As provided in Section 5.10, the simultaneous operation of multiple pieces of equipment could likely result in temporary noise levels of 70-90 dBA at a distance of 50 feet. Using a simple noise attenuation model (i.e., straight line, not taking into account any topographic features or vegetation, etc., that could provide natural shielding) of 6 dBA reduction per doubling of distance from a noise source, the noise level of 90 dBA at 50 feet would attenuate to approximately 78 dBA at 200 feet (representative of Bridge 1 construction to nearest receiver locations) or approximately 66 dBA at 800 feet. Thus, nighttime construction activities (particularly those occurring in the vicinity of Bridge 1) would be above the City's nighttime noise standard of 50 dBA for a number of noise-sensitive receivers in the City of Brea, as well as any construction activities on Sundays, and would represent a significant noise-related impact.

Mitigation Measures N-1 and N-2 are included, which could result in noise reductions up to 5 to 10 dBA for some sound sources, but would not be sufficient to reduce noise levels to below City's nighttime noise standard of 50 dBA. Thus, the infrequent construction-related noise of the Project occurring over these

weekends (between the hours of 7:00 pm and 7:00 am and on Sundays) would be considered an unavoidable significant impact.

10.3 TRANSPORTATION AND TRAFFIC

As described in Section 5.11 (Transportation and Traffic) of this Draft EIR, construction of the Project will require the periodic full closure of Brea Boulevard from north of Canyon Country Road to Tonner Canyon Road from Friday at 8:00 pm to Monday at 5:00 am. Access will remain for emergency responders and oil field operators. These planned closures of Brea Boulevard would potentially result in through traffic seeking alternate travel routes; the two adjacent facilities that can provide alternate travel routes are Harbor Boulevard to the west and SR-57 freeway to the east.

Three intersections would experience impacts under Project Construction (2028) With Detour Conditions. They are Harbor Boulevard/Whittier Ave, Harbor Boulevard/Lambert Road, and SR-57 Northbound Ramps/Diamond Bar Boulevard. For roadway segments, the SR-57 between Lambert Road and Diamond Bar Boulevard, shows significant impact. SR-57 parallels Brea Boulevard and as such would receive a good portion of the diverted traffic with closure of Brea Boulevard. However, the modeled delays and changes in level of service presented in the detour analysis reflect mid-week, peak travel demand (not night and weekend demand), which overstates the impact. On weekends, weekend average daily traffic on SR-57 would be lower than the annual average daily traffic that was used in the model and much of the detoured traffic would be from non-freeway travel demands, which can be approximately 10 percent lower on Saturdays and 20 percent lower on Sundays. As a result, the detour-related impacts to SR-57 are overstated by the model and this analysis. Nevertheless, the analysis shows a significant impact at SR-57 between Lambert Road and Diamond Bar Boulevard during construction when closure of Brea Boulevard is required.

Mitigation Measures are provided to reduce construction-related trips at the Brea Boulevard/Tonner Canyon intersection (Mitigation Measure T-1) and to reduce construction-related impacts resulting from road and lane closures (Mitigation Measures T-2 and HHM-4); however, these measures would not be sufficient to reduce the modeled impacts to below a level of significance. The impacts would be significant and unavoidable in the short term (construction period only).

This page intentionally left blank.

11.0 LIST OF PREPARERS

11.1 OC PUBLIC WORKS

Austin Morgan, P.E., Project Manager
Cindy Salazar, Senior Planner
Justin Gollhofer, P.E., Senior Project Manager
Kevin Shannon, CGBP, CGLP, Consultant - Environmental Planner
Co Phung, P.E., Civil Engineer
Regina Hu, P.E., QSD, Senior Civil Engineer

11.2 AECOM

Jerry Flores, Project Manager
Nathan Counts, Senior Environmental Planner
Jane Chang, Senior Environmental Planner
Erik Larsen, D.Env., Regulatory Specialist
Hallie Fitzpatrick, AICP, Senior Environmental Planner
Art Popp, Senior Biologist
John Parent, Biologist
Chris Hargreaves, Biologist
Marc A Beherec, Ph.D., RPA, Archaeologist
Alec Stevenson, Environmental Analyst
Paul Burge, INCE Bd. Cert, Associate Principal
Chris Kaiser, INCE, Environment Scientist
Paola Peña, Environment Scientist
Amir Fanai, Senior Environment Scientist
Hannah Allington, Environmental Planner
Jimmy McAninch, Senior Environmental Analyst
Don Holloway, PE, PTOE, Senior Transportation Engineer
Dhanya Pranab Kumar, Transportation Engineer
Jenifer King, Senior Environmental Scientist
Jang Seo, Senior CADD/GIS Operator
Lisa Clement, GISP, Senior Associate, GIS
Marisa Fabrigas, Technician

This page intentionally left blank.

12.0 REFERENCES

- Brea Fire Department. 2022. Station 2. [Web]. Available at: <https://www.ci.brea.ca.us/Facilities/Facility/Details/6>. Accessed August 1, 2022.
- California Air Resources Board (ARB). 2004. Airborne Toxic Control Measures. Available: <https://ww2.arb.ca.gov/resources/documents/airborne-toxic-control-measures>. Accessed September 2022.
- . 2005. Air Quality and Land Use Handbook: A Community Health Perspective. [Web]. Available at: https://www.arb.ca.gov/ch/handbook.pdf?_ga=2.166085054.1222619008.1662044098-701252386.1621871428. Accessed August 2022.
- California Department of Conservation. 2020. Farmland Mapping and Monitoring Program [Web]. Available at: <http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx> (accessed January 2020).
- . 2021. 2020 Annual Report. [Web]. Available at: <https://www.ci.brea.ca.us/291/Fire>. Accessed August 1, 2022.
- California Department of Forestry and Fire Protection. 2022. Fire Hazard Severity Zone. [Web]. Available at: <https://egis.fire.ca.gov/FHSZ/>. Accessed July 25, 2022.
- . 2011. Brea Very High Fire Hazard Severity Zones in LRA As Recommended by CAL FIRE. [Web]. Available at: https://osfm.fire.ca.gov/media/5881/c30_brea_vhfhsz_2.pdf. Accessed July 25, 2022.
- . 2007. Orange County Fire Hazard Severity Zones in SRA. [Web]. Available at: <https://osfm.fire.ca.gov/divisions/community-wildfire-preparedness-and-mitigation/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/>. Accessed July 25, 2022.
- California Department of Transportation (Caltrans). 2020. Transportation and Construction Vibration Manual. Report No. CT-HWANP-RT-20-365.01.01, April 2020.
- . 2021a. California State Scenic Highway System Map [Web]. Available at: <https://www.arcgis.com/apps/webappviewer/index.html?id=2e921695c43643b1aaf7000dfcc19983> (accessed May 2021).
- . 2022a. District 7 Current Projects – SR-57 Pavement Replacement Project [Web]. Available at: <https://dot.ca.gov/caltrans-near-me/district-7/district-7-projects/d7-sr57-pavement-replacement> (accessed August 2022).
- . 2022b. District 12 Current Projects - SR-57 Lambert Road Interchange Improvements [Web]. Available at: <https://dot.ca.gov/caltrans-near-me/district-12/district-12-current-projects/sr-57-lambert-interchange-project> (accessed August 2022).

- California Division of Mines and Geology. 1981. *Special Report 143 – Mineral Land Classification of the Greater Los Angeles Area Part III – Classification of Sand and Gravel Resource Areas, Orange County-Temescal Valley Production-Consumption Region* [Web]. Available at: ftp://ftp.consrv.ca.gov/pub/dmg/pubs/sr/SR_143/PartIII/SR_143_partIII_Text.pdf (accessed July 2020).
- California Energy Commission (CEC). 2020a. California Gasoline Data, Facts, and Statistics. [Web]. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/california-gasoline-data-facts-and-statistics>. Accessed October 2020.
- . 2020b. Diesel Fuel Data, Facts, and Statistics. [Web]. Available at: <https://www.energy.ca.gov/data-reports/energy-almanac/transportation-energy/diesel-fuel-data-facts-and-statistics>. Accessed October 2020.
- California Geological Survey (CGS). 1998. Earthquake Zones Required for Investigation – La Habra Quadrangle [Web]. Available at: https://gmw.conservation.ca.gov/SHP/EZRIM/Maps/LA_HABRA_EZRIM.pdf (accessed March 2020).
- California Regional Water Quality Control Board – Santa Ana Region (Santa Ana RWQCB). 2010. Order No. R8-2009-0030, NPDES No. CAS618030, as amended by Order No. R8-2010-062, Waste Discharge Requirements for The County of Orange, Orange County Flood Control District, and The Incorporated Cities of Orange County within the Santa Ana Region Areawide Urban Storm Water Runoff [Web]. Available at: https://www.waterboards.ca.gov/santaana/board_decisions/adopted_orders/orders/2009/09_030_OC_MS4_as_amended_by_10_062.pdf (accessed July 2020).
- California State Water Resources Control Board (SWRCB). 2022a. 2020-2022 California Integrated Report (Clean Water Act Section 303(d) List and 305(b) Report) (approved May 2022) [Web]. Available at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/2020_2022_integrated_report.html (accessed September 2022).
- California State Water Resources Control Board (SWRCB). 2022b. Construction Stormwater Program [Web]. Available at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/construction.html (accessed September 2022).
- . 2020. Order No. R8-2020-0006, NPDES Permit No. CAG998001, General Waste Discharge Requirements for Discharges to Surface Waters that Pose an Insignificant (De Minimis) Threat to Water Quality [Web]. Available at: https://www.waterboards.ca.gov/santaana/board_decisions/tentative_orders/docs/2020/R8-2020-0006.pdf (accessed July 2020).
- . 2019. Water Quality Control Plan for the Santa Ana River Basin (Region 8) (updated 2019) [Web]. Available at: https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/index.html (accessed July 2020).
- City of Brea. 2022a. Approved Environmental Documents [Web]. Available at: <https://www.ci.brea.ca.us/1548/Approved-Environmental-Documents> (accessed August 2022).

- . 2022b. City of Brea - Major Project Summary (Last Updated August 10, 2022) [Web]. Available at: <https://www.ci.brea.ca.us/DocumentCenter/View/11314/PLANNING-UPDATES-8102022?bidId=> (accessed August 2022).
- . 2021. Specific Plans [Web]. Available at: <https://www.ci.brea.ca.us/1545/Specific-Plans> (accessed July 2021).
- . 2020. Brea's Emergency Preparedness Program [Web]. Available at: <http://www.ci.brea.ca.us/351/Breas-Emergency-Preparedness-Program> (accessed February 2020).
- . 2019a. City of Brea Interactive Zoning Map [Web]. Available at: <http://gisweb.cityofbrea.net/Html5Viewer/Index.html?viewer=zoning> (accessed December 2019).
- . 2019b. City of Brea Municipal Code [Web]. Available at: [http://library.amlegal.com/nxt/gateway.dll/California/brea/partiidevelopmentcode/title20zoningcode?f=templates\\$fn=default.htm\\$3.0\\$vid=amlegal:brea_ca\\$anc=](http://library.amlegal.com/nxt/gateway.dll/California/brea/partiidevelopmentcode/title20zoningcode?f=templates$fn=default.htm$3.0$vid=amlegal:brea_ca$anc=) (accessed December 2019).
- . 2019c. Development Updates – Blackstone Development Adds New Residences to Brea [Web]. Available at: <http://www.ci.brea.ca.us/193/Updates> (accessed December 2019).
- . 2013a. Brea Public Works Standard Plans [Web]. Available at: <https://www.ci.brea.ca.us/843/Brea-Public-Works-Standard-Plans> (accessed June 2021).
- . 2013b. City of Brea 2014-2021 Housing Element [Web]. Available at: https://www.ci.brea.ca.us/DocumentCenter/View/1321/Adopted-2014_2021-Brea-Housing-Element?bidId= (accessed July 2021).
- . 2003. The City of Brea General Plan [Web]. Available at: <http://www.ci.brea.ca.us/DocumentCenter/View/61/General-Plan?bidId=> (accessed December 2019).
- City of Diamond Bar. 2021. General Plan 2040 [Web]. Available at: <https://www.diamondbarca.gov/961/General-Plan-2040> (accessed July 2021).
- County of Orange. 2020. Orange County General Plan – Chapter IV, Transportation Element [Web]. Available at: <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/2020-12/Chapter%20IV-%20Transportation%202020.pdf> (accessed July 2021).
- . 2019. Orange County, California Code of Ordinances - Comprehensive Zoning Code [Web]. Available at: https://library.municode.com/ca/orange_county/codes/code_of_ordinances?nodeId=TIT7LAUSBURE_DIV9PL_ART2THCOZOCO (accessed December 2019).
- . 2016. Unincorporated County of Orange, California Zoning Map [Web]. Available at: <http://www.ocpublicworks.com/civicax/filebank/blobdload.aspx?blobid=52866> (accessed December 2019).
- . 2015a. Orange County General Plan – Land Use Element Map (Land Use Element Amendment 14-02) [Web]. Available at: <https://www.ocgov.com/civicax/filebank/blobdload.aspx?blobid=58442> (accessed December 2019).

- . 2015b. Orange County General Plan – Chapter III, Land Use Element [Web]. Available at: <https://www.ocgov.com/gov/pw/cd/planning/generalplan2005.asp> (accessed December 2019).
- . 2015c. Orange County General Plan – Chapter IV, Resources Element – Open Space/Conservation Program Map (Figure VI-5) [Web]. Available at: <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/8627.pdf> (accessed June 2021).
- . 2006. Tonner Hills Area Plan – Amended Development Plan (Exhibit 6) [Web]. Available at: <http://www.ocgov.com/civicax/filebank/blobdload.aspx?BlobID=9317> (accessed December 2019).
- . 2005. Scenic Highway Plan [Web]. Available at: <https://ocds.ocpublicworks.com/sites/ocpwoocds/files/import/data/files/8588.pdf> (accessed June 2021).
- . 2002a. Tonner Hills Planned Community Program [Web]. Available at: <http://www.ocgov.com/civicax/filebank/blobdload.aspx?BlobID=9315> (accessed December 2019).
- . 2002b. Tonner Hills Area Plan [Web]. Available at: <http://www.ocgov.com/civicax/filebank/blobdload.aspx?BlobID=9310> (accessed December 2019).
- County of Orange and Orange County Fire Authority. Local Hazard Mitigation Plan. 2021. [Web]. Available at: <https://www.ocsheriff.gov/sites/ocsd/files/2022-03/2021%20County%20of%20Orange%20and%20Orange%20County%20Fire%20Authority%20Local%20Hazard%20Mitigation%20Plan.pdf>. Accessed August 1, 2022.
- County of Orange and Tonner Hills 680, LLC. 2007. Conservation Easement Deed by Tonner Hills 680, LLC (“Grantor”), in favor of the County of Orange (“Grantee”) (Instrument No. 2007000535583). June 18.
- Governor’s Office of Planning & Research – State Clearinghouse (OPR-SCH). 2021a. CEQAnet – Brea Mall Mixed Use (SCH Number 2019080299). [Web]. Available at: <https://ceqanet.opr.ca.gov/2019080299/3> (accessed July 2021).
- . 2021b. CEQAnet - Mercury Lane Residential (SCH Number 2018121032). [Web]. Available at: <https://ceqanet.opr.ca.gov/2018121032/3> (accessed July 2021).
- Governor’s Office of Planning & Research – State Clearing House (OPR-SCH). 2021a. CEQAnet – State Route 57 (SR 57) Stormwater Mitigation Project (SCH Number 2019129044). [Web]. Available at: <https://ceqanet.opr.ca.gov/2019129044/2> (accessed July 2021).
- Los Angeles County Department of Regional Planning. 2019. Significant Ecological Areas Program [Web]. Available at: <http://planning.lacounty.gov/site/sea/home/>. Accessed 9 October 2019.
- Office of Environmental Health Hazard Assessment (OEHHA). 2015. Hot Spots Guidance Manual. [Web]. Available at: <https://oehha.ca.gov/air/crn/notice-adoption-air-toxics-hot-spots-program-guidance-manual-preparation-health-risk-0>. Accessed September 2022.

- Orange County Fire Authority. 2022. Operations Division 4. [Web]. Available at: <https://ocfa.org/AboutUs/Departments/OperationsDirectory/Division4.aspx>. Accessed August 3, 2022.
- . 2020. Orange County Fire Authority 2020 Unit Strategic Fire Plan. [Web]. Available at: <https://osfm.fire.ca.gov/media/tegprqoh/2020-orc-fire-plan.pdf>. Accessed August 3, 2022.
- Orange County Development Services. 2020. Archived All District Projects – Orange is the New Green – Zoning Code Update [Web]. Available at: <https://ocds.ocpublicworks.com/service-areas/oc-development-services/planning-development/current-projects/all-districts-3> (accessed July 2021).
- Orange County Public Works (OC Public Works). 2018. Standard Plans [Web]. Available at: <https://ocpublicworks.com/ocpw/oc-public-works-standard-plans> (accessed July 2021).
- Orange County Transportation Authority (OCTA). 2022a. Request for Proposals (RFP) 2-2239 – Project Study Report/Project Development Support for State Route 57 Northbound between Lambert Road to Tonner Canyon Road [Web]. Available at: <https://www.bidnet.com/bneattachments/?/757638447.pdf> (accessed August 2022).
- . 2022b. SR-57 Northbound Project – Lambert Road to Tonner Canyon Road [Web]. Available at: [https://www.octa.net/Projects-and-Programs/All-Projects/Freeway-Projects/Orange-Freeway-\(SR-57\)/SR-57-NB-Widening-Project-\(Lambert-to-Tonner-Canyon\)/](https://www.octa.net/Projects-and-Programs/All-Projects/Freeway-Projects/Orange-Freeway-(SR-57)/SR-57-NB-Widening-Project-(Lambert-to-Tonner-Canyon)/) (accessed August 2022).
- . 2020. 2021 Master Plan of Arterial Highways, Orange County, California [Web]. Available at: http://octa.net/pdf/MPAH_2021.pdf?n=202103 (accessed June 2021).
- Orange County Water District (OCWD). 2020. Groundwater Management Plan [Web]. Available at: <https://www.ocwd.com/what-we-do/groundwater-management/groundwater-management-plan/> (accessed July 2020).
- . 2019. News Release – DWR Approval of OC Groundwater Basin Sustainability Plan Demonstrates Superior Groundwater Management by OCWD [Web]. Available at: https://www.ocwd.com/media/8008/dwr-approves-ocwd-alternative-plan_final.pdf (accessed July 2020).
- Orange County Water District (OCWD), et al. 2017. Basin 8-1 Alternative [Web]. Available at: <https://www.ocwd.com/media/4918/basin-8-1-alternative-final-report-1.pdf> (accessed July 2020).
- U.S. Energy Information Administration (EIA). 2020. State Energy Consumption Estimates: 1960-2018. [Web]. Available at: https://www.eia.gov/state/seds/sep_use/notes/use_print.pdf. Accessed October 2020.
- U.S. Geologic Survey (USGS). 2020. What Is A Landslide and What Causes One? [Web]. Available at: https://www.usgs.gov/faqs/what-a-landslide-and-what-causes-one?qt-news_science_products=0#qt-news_science_products (accessed March 2020).
- Zhu, Y., W. C. Hinds, S. Kim, and S. Shen. 2002. Study of Ultrafine Particles Near a Major Highway with Heavy-duty Diesel Traffic. *Atmospheric Environment* 36:4323–4335.

This page intentionally left blank.