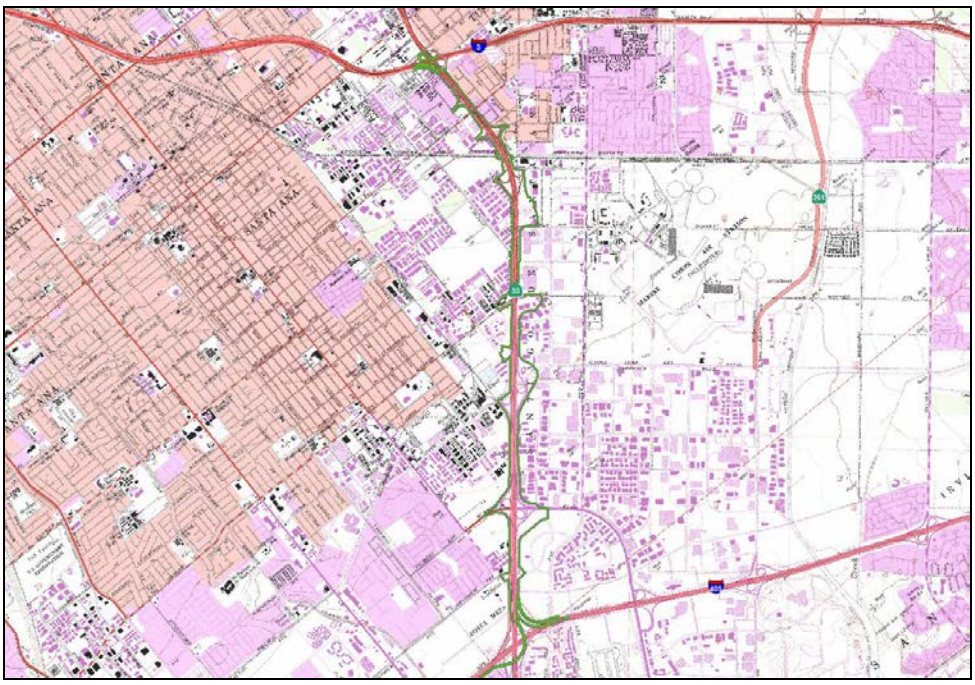
State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

ORANGE COUNTY, CALIFORNIA
DISTRICT 12 – ORA – 55, PM 6.4/10.3
EA 0J34U/EFIS 1215000045

Initial Study with Mitigated Negative Declaration/Environmental Assessment with Finding of No Significant Impact



Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 U.S.C. 327 and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans.

August 2017

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General Information About This Document

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please call or write to Department of Transportation, Attn: Charles Baker, Caltrans Environmental Analysis – Specialist Branch, Caltrans District 12, 1750 East 4th Street, Suite 100, Santa Ana, CA 92705; (657) 328-6139 Voice; or use the California Relay Service 1 (800) 855-7100 (TTY), 1 (800) 735-2922 (Voice) or 711.

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SCH# 2015111075
12-ORA-55 PM 6.4/10.3
0J34U
1215000045

Widening of State Route 55 (SR-55) between Interstate 405 (I-405) and Interstate 5 (I-5) (Post Mile 6.4 to Post Mile 10.3) in the Cities of Irvine, Santa Ana, and Tustin, California

INITIAL STUDY WITH MITIGATED NEGATIVE DECLARATION/ ENVIRONMENTAL ASSESSMENT WITH FINDING OF NO SIGNIFICANT IMPACT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(c)

THE STATE OF CALIFORNIA
Department of Transportation

8/31/2017
Date of Approval

Chris Flynn
Deputy District Director
California Department of Transportation
District 12
CEQA/NEPA Lead Agency

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SCH Number: 2015111075

MITIGATED NEGATIVE DECLARATION

Pursuant to: Division 13, Public Resources Code

Project Description

The California Department of Transportation (Caltrans) District 12, in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route 55 (SR-55) in both directions from just north of the Interstate 405 (I-405)/SR-55 interchange to just south of the Interstate 5 (I-5)/SR-55 interchange between Post Miles 6.4 and 10.3, in the Cities of Irvine, Santa Ana, and Tustin in Orange County, California.

Determination

Caltrans has prepared an Initial Study for this project, and following public review, has determined from this study that the proposed project would not have a significant effect on the environment for the following reasons:

The project would have **no impact** on the following resources: Coastal Zones, Wild and Scenic Rivers, Farmlands or Timberlands, Natural Communities, and Threatened and Endangered Species.

In addition, the project would have a **less than significant impact** on: Land Use, Growth, Community Impacts, Utilities and Emergency Services, Visual/Aesthetics, Cultural Resources, Hydrology and Floodplains, Water Quality and Storm Water Runoff, Geology and Soils, Paleontological Resources, Air Quality, Noise, Wetlands and Other Waters, Plant Species, Animal Species, Invasive Species, and Cumulative Impacts.

The project would have a **less than significant impact with mitigation** on: Traffic and Transportation/Pedestrian and Hazardous Waste with the implementation of avoidance, minimization, and mitigation measures discussed in Sections 2.5.4 and 2.12.4.

Chris Flynn
Deputy District Director
California Department of Transportation
District 12

8/31/2017
Date of Approval

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CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Widening of State Route 55 (SR-55) between Interstate 405 (I-405) and Interstate 5 (I-5) in the Cities of Irvine, Santa Ana, and Tustin, California

FOR

The California Department of Transportation (Caltrans) in cooperation with the Orange County Transportation Authority (OCTA) has determined that the Preferred Alternative-Alternative 3M will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA) which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 USC 327.

8/31/2017
Date

Chris Flynn
Caltrans Deputy District Director
California Department of Transportation
District 12

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TABLE OF CONTENTS

Cover i
General Information About This Document iii
Title Page v
Proposed Mitigated Negative Declaration vii
Finding of No Significant Impact ix
CHAPTER 1 PROPOSED PROJECT 1-1
1.1 Introduction 1-1
1.1.1 Existing Facility 1-1
1.2 Purpose and Need 1-5
1.2.1 Purpose 1-5
1.2.2 Need 1-5
1.3 Project Description 1-24
1.3.1 Project Alternatives 1-25
1.3.2 Common Design Features of the Build Alternatives 1-41
1.3.3 Unique Features of the Build Alternatives 1-45
1.3.4 Construction Schedule 1-56
1.4 Comparison of Alternatives 1-56
1.5 Alternatives Considered but Eliminated from Further Consideration 1-63
1.5.1 Closure of McFadden Avenue Northbound On- and Off-Ramps 1-63
1.5.2 Transportation Systems Management, Transportation Demand Management, and Transit Alternatives 1-63
1.5.3 PSR/PDS Build Alterantive 4 - Full Standard Alternative 1-64
1.6 Identification of the Preferred Alternative 1-64
1.7 Permits and Approvals Needed 1-65
CHAPTER 2 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES 2-1
Human Environment 2.1-1
2.1 Land Use 2.1-1
2.1.1 Existing and Future Land Uses 2.1-1
2.1.2 Consistency with State, Regional, and Local Plans and Programs 2.1-9
2.1.3 Parks and Recreational Facilities 2.1-14
2.1.4 Environmental Consequences 2.1-15
2.1.5 Avoidance, Minimization, and/or Mitigation Measures 2.1-31
2.2 Growth 2.2-1
2.2.1 Regulatory Setting 2.2-1
2.2.2 Affected Environment 2.2-1
2.2.3 Environmental Consequences 2.2-1
2.2.4 Avoidance, Minimization, and/or Mitigation Measures 2.2-2
2.3 Community Impacts 2.3-1
2.3.1 Community Character and Cohesion 2.3-1
2.3.2 Relocations and Real Property Acquisition 2.3-13
2.3.3 Environmental Justice 2.3-28
2.4 Utilities and Emergency Services 2.4-1
2.4.1 Affected Environment 2.4-1
2.4.2 Environmental Consequences 2.4-2
2.4.3 Avoidance, Minimization, and/or Mitigation Measures 2.4-6
2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities 2.5-1
2.5.1 Regulatory Setting 2.5-1
2.5.2 Affected Environment 2.5-1
2.5.3 Environmental Consequences 2.5-4
2.5.4 Avoidance, Minimization, and/or Mitigation Measures 2.5-20
2.6 Visual/Aesthetics 2.6-1

2.6.1 Regulatory Setting 2.6-1
2.6.2 Affected Environment 2.6-1
2.6.3 Environmental Consequences 2.6-21
2.6.4 Avoidance, Minimization, and/or Mitigation Measures 2.6-53
2.7 Cultural Resources 2.7-1
2.7.1 Regulatory Setting 2.7-1
2.7.2 Affected Environment 2.7-1
2.7.3 Environmental Consequences 2.7-3
2.7.4 Avoidance, Minimization, and/or Mitigation Measures 2.7-4
PHYSICAL ENVIRONMENT 2.8-1
2.8 Hydrology and Floodplains 2.8-1
2.8.1 Regulatory Setting 2.8-1
2.8.2 Affected Environment 2.8-1
2.8.3 Environmental Consequences 2.8-3
2.8.4 Avoidance, Minimization, and/or Mitigation Measures 2.8-5
2.9 Water Quality and Storm Water Runoff 2.9-1
2.9.1 Regulatory Setting 2.9-1
2.9.2 Affected Environment 2.9-4
2.9.3 Environmental Consequences 2.9-8
2.9.4 Avoidance, Minimization, and/or Mitigation Measures 2.9-13
2.10 Geology/Soils/Seismic/Topography 2.10-1
2.10.1 Regulatory Setting 2.10-1
2.10.2 Affected Environment 2.10-1
2.10.3 Environmental Consequences 2.10-5
2.10.4 Avoidance, Minimization, and/or Mitigation Measures 2.10-9
2.11 Paleontology 2.11-1
2.11.1 Regulatory Setting 2.11-1
2.11.2 Affected Environment 2.11-1
2.11.3 Environmental Consequences 2.11-2
2.11.4 Avoidance, Minimization, and/or Mitigation Measures 2.11-3
2.12 Hazardous Waste/Materials 2.12-1
2.12.1 Regulatory Setting 2.12-1
2.12.2 Affected Environment 2.12-1
2.12.3 Environmental Consequences 2.12-6
2.12.4 Avoidance, Minimization, and/or Mitigation Measures 2.12-12
2.13 Air Quality 2.13-1
2.13.1 Regulatory Setting 2.13-1
2.13.2 Affected Environment 2.13-2
2.13.3 Environmental Consequences 2.13-11
2.13.4 Avoidance, Minimization, and/or Mitigation Measures 2.13-30
2.13.5 Climate Change 2.13-31
2.14 Noise 2.14-1
2.14.1 Regulatory Setting 2.14-1
2.14.2 Affected Environment 2.14-3
2.14.3 Environmental Consequences 2.14-26
2.14.4 Avoidance, Minimization, and/or Abatement Measures 2.14-34
BIOLOGICAL Environment 2.15-1
2.15 Wetlands and Other Waters 2.15-1
2.15.1 Regulatory Setting 2.15-1
2.15.2 Affected Environment 2.15-2
2.15.3 Environmental Consequences 2.15-4
2.15.4 Avoidance, Minimization, and/or Mitigation Measures 2.15-8
2.16 Plant Species 2.16-1
2.16.1 Regulatory Setting 2.16-1
2.16.2 Affected Environment 2.16-1
2.16.3 Environmental Consequences 2.16-3

2.16.4 Avoidance, Minimization, and/or Mitigation Measures 2.16-3
2.17 Animal Species 2.17-1
2.17.1 Regulatory Setting 2.17-1
2.17.2 Affected Environment 2.17-1
2.17.3 Environmental Consequences 2.17-4
2.17.4 Avoidance, Minimization, and/or Mitigation Measures 2.17-12
2.18 Invasive Species 2.18-1
2.18.1 Regulatory Setting 2.18-1
2.18.2 Affected Environment 2.18-1
2.18.3 Environmental Consequences 2.18-2
2.18.4 Avoidance, Minimization, and/or Mitigation Measures 2.18-3
2.19 Cumulative Impacts 2.19-1
2.19.1 Regulatory Setting 2.19-1
2.19.2 Methodology 2.19-1
2.19.3 Resources Excluded from Cumulative Impacts Analysis 2.19-1
2.19.4 Resources Evaluated for Cumulative Impacts 2.19-4
2.19.5 Avoidance, Minimization, and/or Mitigation Measures 2.19-25
2.20 Climate Change 2.20-1
2.20.1 Regulatory Setting 2.20-1
2.20.2 Environmental Setting 2.20-4
2.20.3 Project Analysis 2.20-6
2.20.4 CEQA Conclusion 2.20-12
2.20.5 Greenhouse Gas Reduction Strategies 2.20-12
2.20.6 Adaptation Strategies 2.20-14
CHAPTER 3 COMMENTS AND COORDINATION 3-1
3.1 Notice of Initiation of Studies 3-1
3.2 Interagency Coordination and Consultation 3-1
3.2.1 Native American Consultation 3-1
3.2.2 Historical Consultation 3-2
3.2.3 State Historic Preservation Officer 3-7
3.2.4 Transportation Conformity Working Group 3-7
3.2.5 United States Fish and Wildlife Service/ National Marine Fisheries Service 3-7
3.2.6 United States Army Corps of Engineers 3-7
3.3 Community Outreach and Public Involvement 3-8
3.3.1 Project Development Team 3-8
3.3.2 Orange County Transportation Authority Project Website 3-8
3.3.3 Public Review/Circulation of Draft IS/EA and Supplemental IS/EA 3-8
3.3.4 Noise Barrier Survey Coordination 3-10
CHAPTER 4 LIST OF PREPARERS 4-1
4.1 California Department of Transportation, District 12 4-1
4.2 Orange County Transportation Authority 4-1
4.3 HDR Engineering, Inc. 4-1
4.4 LSA Associates, Inc. 4-1
4.5 Fehr & Peers 4-2
4.6 Leighton Consulting, Inc. 4-2
CHAPTER 5 DISTRIBUTION LIST 5-1
5.1 Federal Agencies 5-1
5.2 State Agencies 5-1
5.3 Regional Agencies 5-2
5.4 County Agencies 5-2
5.5 Local Agencies 5-3
5.5.1 Irvine 5-3
5.5.2 Tustin 5-3
5.5.3 Santa Ana 5-3

5.5.4 Costa Mesa 5-4
5.6 Federal Legislators 5-4
5.7 State Legislators 5-4
5.8 Local Elected Officials 5-5
5.9 Interested Groups, Organizations, and Individuals 5-6
5.10 Utilities, Services, and Businesses 5-6
APPENDIX A CEQA CHECKLIST A-1
APPENDIX B RESOURCES EVALUATED RELATIVE TO THE REQUIREMENTS OF SECTION 4(F) B-1
APPENDIX C TITLE VI POLICY STATEMENT C-1
APPENDIX D SUMMARY OF RELOCATION BENEFITS D-1
APPENDIX E ENVIRONMENTAL COMMITMENTS RECORD E-1
APPENDIX F LIST OF TECHNICAL STUDIES F-1
APPENDIX G FEMA FIRM G-1
APPENDIX H RESPONSE TO COMMENTS DRAFT IS/EA AND SUPPLEMENTAL DRAFT IS/EA H-1

LIST OF FIGURES

Figure 1-1 Project Location Map 1-3
Figure 1-2 Existing SR-55 1-7
Figure 1-3 LOS Thresholds for a Basic Freeway Segment 1-13
Figure 1-4 Build Alternative 1 1-29
Figure 1-5 Build Alternative 2 1-31
Figure 1-6 Build Alternative 3 1-33
Figure 1-7 Build Alternative 4 1-35
Figure 1-8 Build Alternative 3M (Preferred Alterantive) 1-37
Figure 1-9 No Build Alternative 1-39
Figure 2.1-1 Existing Land Uses 2.1-3
Figure 2.1-2 General Plan Land Uses 2.1-7
Figure 2.3-1 Project and Study Area Boundaries and Census Tracts 2.3-35
Figure 2.3-2 Alternative 1 Right of Way/TCE Impacts 2.3-37
Figure 2.3-3 Alternative 2 Right of Way/TCE Impacts 2.3-45
Figure 2.3-4 Alternative 3 Right of Way/TCE Impacts 2.3-57
Figure 2.3-5 Alternative 4 Right of Way/TCE Impacts 2.3-69
Figure 2.3-6 Alternative 3M (Preferred Alternative) Right of Way/TCE Impacts 2.3-81
Figure 2.6-1 Photograph Key Map and Visual Assessment Units 2.6-3
Figure 2.6-2 Key Views 1 and 2 ..... 2.6-7
Figure 2.6-3 Key Views 3A and 3B 2.6-11
Figure 2.6-4 Key Views 4 and 5 ..... 2.6-13
Figure 2.6-5 Key Views 6 and 7 ..... 2.6-17
Figure 2.6-6: Visual Simulation for Key View 3A – Alternative 2 ..... 2.6-27
Figure 2.6-7: Visual Simulation for Key View 3B – Alternative 2 ..... 2.6-29
Figure 2.6-8: Visual Simulation for Key View 3A – Alternative 3 ..... 2.6-33
Figure 2.6-9: Visual Simulation for Key View 3B – Alternative 3 ..... 2.6-35
Figure 2.6-10: Visual Simulation for Key View 5 – Alternative 3 ..... 2.6-37
Figure 2.6-11: Visual Simulation for Key View 7 – Alternative 3 ..... 2.6-39
Figure 2.6-12: Visual Simulation for Key View 3A – Alternative 3M (Preferred Alternative) 2.6-45
Figure 2.6-13: Visual Simulation for Key View 3B – Alternative 3M (Preferred Alternative) 2.6-47
Figure 2.6-14: Visual Simulation for Key View 5 – Alternative 3M (Preferred Alternative) 2.6-49
Figure 2.6-15: Visual Simulation for Key View 7 – Alternative 3M (Preferred Alternative) 2.6-51
Figure 2.12-1 Sites of Potential Hazardous Waste Concern for Alternative 1 ..... 2.12-23
Figure 2.12-2 Sites of Potential Hazardous Waste Concern for Alternative 2 ..... 2.12-31
Figure 2.12-3 Sites of Potential Hazardous Waste Concern for Alternative 3 ..... 2.12-41
Figure 2.12-4 Sites of Potential Hazardous Waste Concern for Alternative 4 ..... 2.12-51
Figure 2.12-5 Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative) 2.12-59
Figure 2.13-1 National MSAT Emission Trends 2.13-25
Figure 2.14-1 Noise Levels of Common Activities 2.14-2
Figure 2.14-2 Modeled Noise Barriers and Receptor Locations 2.14-7
Figure 2.15-1 Drainage Features 2.15-11
Figure 2.19-1 Planned Projects 2.19-11
Figure 2.19-2 Community Impact Resource Study Area 2.19-15
Figure 2.19-3 Surface Water Quality Resource Study Area 2.19-19
Figure 2.19-4 Hazardous Waste/Materials Resource Study Area 2.19-23
Figure 2.20-1 California Greenhouse Gas Forecast 2.20-6
Figure 2.20-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emission 2.20-7

Figure 2.20-3 Cascade of Uncertainties 2.20-11
Figure 2.20-4 The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals 2.20-12

LIST OF TABLES

Table 1.1 Existing (2011), and 2020 and 2040 No Build Alternative Mainline Traffic Volumes 1-11
Table 1.2 Existing (2011), and 2020 and 2040 No Build Alternative Freeway Mainline Levels of Service on Northbound and Southbound SR-55 1-14
Table 1.3 Existing (2011), and 2020 and 2040 No Build Alternative HOV Lane Levels of Service 1-15
Table 1.4 Summary of Peak-Hour Travel Times and Speeds for General-Purpose Lanes 1-15
Table 1.5 Summary of Travel Speeds for HOV Freeway Segments 1-17
Table 1.6 SR-55 Accident History (April 1, 2007–March 31, 2010) 1-18
Table 1.7 Accident Rates on SR-55 Higher than the Statewide Average for Similar Facilities 1-21
Table 1.8 Proposed Drainage Relocations Common to all Build Alternatives 1-42
Table 1.9 Utility Relocations and Protection in Place Common to all Build Alternatives 1-42
Table 1.10 Impervious Surface Areas by Alternative 1-44
Table 1.11 Alternative 2 Proposed Drainage Relocations 1-46
Table 1.12 Utility Relocations and Protection in Place Unique to Alternative 2 1-47
Table 1.13 Alternative 3 Proposed Drainage Relocations 1-49
Table 1.14 Utility Relocations and Protection in Place Unique to Alternative 3 1-50
Table 1.15 Alternative 4 Proposed Drainage Relocations 1-52
Table 1.16 Utility Relocations and Protection in Place Unique to Alternative 4 1-52
Table 1.17 Alternative 3M Proposed Drainage Relocations 1-54
Table 1.18 Utility Relocations and Protection in Place Unique to Alternative 3M (Preferred Alternative) 1-55
Table 1.19 Summary of Costs by Alternative 1-56
Table 1.20 Summary of Alternatives and Impacts 1-57
Table 1.21 Mobility by Alternatives (2040) 1-65
Table 1.22 Permits and Approvals Needed 1-66
Table 2.1.1 Existing Land Uses in the Study Area 2.1-1
Table 2.1.2 Temporary Off-Street Parking Impacts Under the Build Alternatives 2.1-19
Table 2.1.3 Permanent Off-Street Parking Impacts Under the Build Alternatives 2.1-23
Table 2.1.4 Consistency with General Plans 2.1-25
Table 2.3.1 Racial and Ethnic Demographics 2.3-4
Table 2.3.2 Household Income and Size 2.3-5
Table 2.3.3 Housing Profile 2.3-6
Table 2.3.4 Age Distribution 2.3-7
Table 2.3.5 Transit Dependency 2.3-8
Table 2.3.6 Housing Tenure 2.3-8
Table 2.3.7 Full and Partial Acquisitions Anticipated Under Alternative 1 ..... 2.3-16
Table 2.3.8 Potential Annual Sales Tax Revenue Losses Related to Business Displacements in the City of Santa Ana for Alternatives 1 and 2 ..... 2.3-17
Table 2.3.9 Full and Partial Acquisitions Anticipated Under Alternative 2 ..... 2.3-17
Table 2.3.10 Full and Partial Acquisitions Anticipated Under Alternative 3 ..... 2.3-19
Table 2.3.11 Full and Partial Acquisitions Anticipated Under Alternative 4 ..... 2.3-22
Table 2.3.12 Full and Partial Acquisitions Anticipated Under Alternative 3M (Preferred Alternative) 2.3-25
Table 2.3.13 Potential Annual Sales Tax Revenue Losses Related to Business Displacements in the City of Santa Ana for Alternatives 3, 4, and 3M 2.3-28
Table 2.3.14 Racial Minority, Hispanic/Latino, Low-Income, and Transit-Dependent Populations 2.3-30
Table 2.3.15 Properties Proposed for Full and Partial Acquisitions with Hazardous Waste Concerns 2.3-31

Table 2.4.1: Potential Effects on Utility Facilities During Construction of Build Alternatives 2.4-3
Table 2.5.1 SR-55 HOV Freeway Segment Average Speed and Degradation Determination 2.5-24
Table 2.5.2 Temporary Mainline Closures on SR-55 During Construction of Build Alternatives 2.5-24
Table 2.5.3 Temporary Ramp Closures on SR-55 During Construction of Build Alternatives 2.5-25
Table 2.5.4 Temporary Closures of Local Arterials During Construction of Build Alternatives 2.5-26
Table 2.5.5 2020 SR-55 Mainline and Ramp Peak-Hour Levels of Service 2.5-27
Table 2.5.6 2020 SR-55 HOV Lane Peak-Hour Levels of Service 2.5-29
Table 2.5.7 2020 SR-55 Intersection Peak-Hour Levels of Service 2.5-30
Table 2.5.8 2020 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes 2.5-31
Table 2.5.9 2020 SR-55 HOV Lane Peak-Hour Speeds and Travel Times 2.5-32
Table 2.5.10 Summary of 2020 SR-55 Peak Operating Conditions 2.5-33
Table 2.5.11 2020 Peak-Hour Local Intersection Operations 2.5-34
Table 2.5.12 2040 SR-55 Mainline and Ramp Peak-Hour Levels of Service 2.5-35
Table 2.5.13 2040 SR-55 HOV Lane Peak-Hour Levels of Service 2.5-37
Table 2.5.14 2040 SR-55 Intersection Peak-Hour Levels of Service 2.5-38
Table 2.5.15 2040 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes 2.5-40
Table 2.5.16 2040 SR-55 HOV Lane Peak-Hour Speeds and Travel Times 2.5-41
Table 2.5.17 Summary of 2040 SR-55 Peak Operating Conditions 2.5-42
Table 2.5.18 2040 Peak-Hour Local Intersection Operations 2.5-43
Table 2.5.19 2020 Local Intersection Operations with Mitigation 2.5-44
Table 2.5.20 2040 Local Intersection Operations with Mitigation 2.5-44
Table 2.6.1 Visual Quality Summary 2.6-19
Table 2.6.2 Viewer Response Summary 2.6-21
Table 2.6.3 Narrative Ratings for Each Key View 2.6-25
Table 2.9.1 2010 Clean Water Act Section 303(d) Listing for Receiving Waters in the Study Area 2.9-7
Table 2.10.1 Total Disturbed Areas During Construction 2.10-5
Table 2.12.1 Properties Proposed for Full and Partial Acquisitions or TCEs with Hazardous Waste Concerns 2.12-17
Table 2.12.2 Properties Adjacent to the Maximum Disturbance Limits with Potential Hazardous Waste Concerns 2.12-21
Table 2.13.1 Local Air Quality Levels 2.13-5
Table 2.13.2 Sensitive Land Uses in the Project Area 2.13-6
Table 2.13.3 State and Federal Criteria Air Pollutant Standards, Effects, and Sources 2.13-7
Table 2.13.4 Peak-Day Construction Emissions by Construction Phase 2.13-12
Table 2.13.5 Total Construction Emissions 2.13-13
Table 2.13.6 2020 SR-55 Traffic Volumes 2.13-17
Table 2.13.7 2040 SR-55 Traffic Volumes 2.13-18
Table 2.13.8 Change in 2020 SR-55 Traffic Volumes Between the No Build and Build Alternatives 2.13-19
Table 2.13.9 Change in 2040 SR-55 Traffic Volumes Between the No Build and Build Alternatives 2.13-19
Table 2.13.10 Traffic Volume Comparison 2.13-22
Table 2.13.11 MSAT Emissions for the SR-55 Region 2.13-28
Table 2.13.12 2020 Regional Vehicle Emissions (lbs/day) 2.13-29
Table 2.13.13 2040 Regional Vehicle Emissions (lbs/day) 2.13-29
Table 2.14.1 Noise Abatement Criteria 2.14-2

Table 2.14.2 Existing Traffic Noise Levels 2.14-23
Table 2.14.3 Typical Construction Equipment Noise Levels 2.14-27
Table 2.14.4 Predicted Traffic Noise Levels (dBA L_{eq}) 2.14-29
Table 2.14.5 Summary of Abatement Key Information 2.14-37
Table 2.15.1 Potentially Jurisdictional Drainage Feature Length and Area Measurements 2.15-3
Table 2.15.2 Potentially Nonjurisdictional Drainage Feature Length and Area Measurements 2.15-3
Table 2.15.3 Temporary and Permanent Project Impacts to USACE Jurisdictional and Nonjurisdictional Areas 2.15-4
Table 2.15.4 Temporary and Permanent Project Impacts to CDFW Jurisdictional and Nonjurisdictional Areas 2.15-5
Table 2.15.5 Summary of Proposed General Conditions for the San Diego Creek Watershed Letter of Permission Procedures 2.15-9
Table 2.16.1 United States Fish and Wildlife Service Species Effect Determination for Plant Species 2.16-5
Table 2.17.1 United States Fish and Wildlife Service Species Effect Determination for Animal Species 2.17-7
Table 2.18.1 Invasive Plant Species in the Biological Study Area 2.18-2
Table 2.19.1 Planned Projects List 2.19-5
Table 2.20.1 Change in Regional CO_2 Emissions 2.20-8
Table 2.20.2 Average Required Fuel Economy (mpg) 2.20-10
Table 2.20.3 Climate Change/CO_2 Reduction Strategies 2.20-13
Table 3.1 Summary of Native American Consultation 3-3

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Chapter 1 Proposed Project

1.1 Introduction

California participated in the "Surface Transportation Project Delivery Pilot Program" (Pilot Program) pursuant to 23 USC 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding pursuant to 23 USC 327 (NEPA Assignment MOU) with Federal Highway Administration (FHWA). The National Environmental Policy Act (NEPA) Assignment MOU became effective October 1, 2012, and was renewed on December 23, 2016 for a term of five years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary's responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to the Department under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

Caltrans District 12, in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route 55 (SR-55) in both directions from just north of the Interstate 405 (I-405)/SR-55 Interchange to just south of the Interstate 5 (I-5)/SR-55 Interchange between Post Miles 6.4 and 10.3, traversing the cities of Santa Ana, Tustin, and Irvine in Orange County, California, as shown on Figure 1-1. Caltrans is the Lead Agency for compliance under the CEQA and NEPA.

The proposed project is in the Southern California Association of Governments (SCAG) financially constrained 2016–2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which was found to be conforming by the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) in June 2016. The project is also in the 2017 Federal Transportation Improvement Program (FTIP), which was found to be conforming by the FHWA/FTA on December 16, 2016: "Project ID: ORA100511, Description: "SR-55 widening between I-405 and I-5 - add 1 MF and 1 HOV lane each direction and fix chokepoints from I-405 to I-5; add 1 AUX lane each direction between select on/off ramp and non-capacity operational improvements through project limits." Copies of the 2016/2040 RTP/SCS and 2017 FTIP listings for the proposed project are provided in Chapter 3 Comments and Coordination.

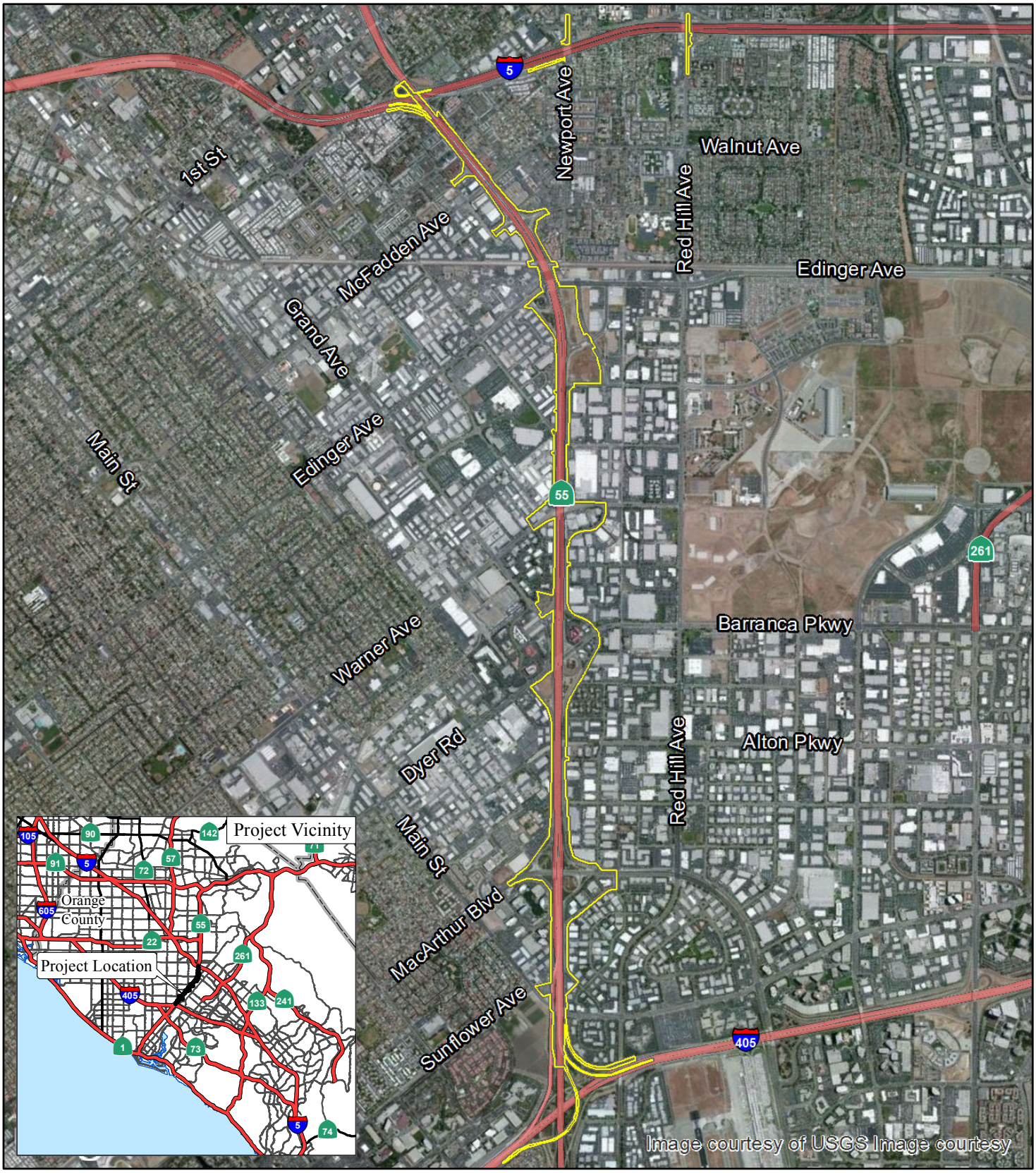
Subsequent to public circulation of the Draft Initial Study/Environmental Assessment (IS/EA) and the Supplemental Draft Initial Study/Environmental Assessment (Supplemental IS/EA) and consideration of public comments, the Project Development Team (PDT) recommended Alternative 3M as the Preferred Alternative for this project. This chapter provides descriptions of the previous project studies conducted to date, the preferred project alternative, other alternatives considered in this document and other project alternatives previously considered but eliminated from evaluation in this document.

1.1.1 Existing Facility

SR-55 is a major north-south freeway in central and coastal Orange County that extends from Finley Avenue, just south of State Route 1 (SR-1) in the City of Newport Beach, to SR-

91 in the City of Anaheim and has interchanges with State Route 73 (SR-73) near the southern terminus, I-405, I-5, State Route 22 (SR-22), and State Route 91 (SR-91) in the north. SR-55 is a main travel route to residential, commercial, and retail areas in central and coastal Orange County, John Wayne Airport (JWA), and the beaches and tourist attractions in the coastal cities.

SR-55 was originally constructed in 1962 as a four-lane freeway with two general-purpose lanes in each direction. Over the next 10 years, one additional general-purpose lane was added in each direction. In 1985, the median was paved and the freeway was restriped to provide one high-occupancy vehicle (HOV) lane in each direction. In 1992, SR-55 was extended from Mesa Drive to 19th Street in Costa Mesa. HOV direct connectors were added at the I-5/SR-55 Interchange to connect southbound I-5 HOV traffic to southbound SR-55 and to connect northbound SR-55 HOV traffic to northbound I-5, and an additional general-purpose lane was constructed in each direction between SR-22 and McFadden Avenue in 1995.



LEGEND

Project Limits

FIGURE 1-1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Project Location Map

0 1500 3000

FEET

SOURCE: Bing Maps (c. 2008); TBM (2008); HDR (9/2012)

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Between 1996 and 2002, one additional general-purpose lane was added in each direction between I-5 and SR-91. In 2005, HOV direct connectors were added at the I-405/SR-55 Interchange to connect southbound SR-55 HOV traffic to I-405 and to connect I-405 HOV traffic to northbound SR-55.

In general, the project segment of SR-55 currently consists of one HOV lane and four general-purpose lanes in each direction, with auxiliary lanes provided at some locations as shown on Figure 1-2. The HOV lanes currently operate with continuous access. All the on-ramps along the project segment of SR-55 are currently metered.

1.2 Purpose and Need

The project purpose is a set of objectives the project intends to meet. The project need is the transportation deficiency that the project was initiated to address.

1.2.1 Purpose

The purpose of the proposed action is to:

- Improve mobility and reduce congestion;
- Improve traffic operations; and
- Increase capacity.

1.2.2 Need

Current deficiencies of SR-55 within the project limits are as follows:

- Limited available lane capacity during peak periods
- Inadequate merging distances as a result of closely spaced on- and off-ramps along the freeway mainline
- Non-standard lane and shoulder widths at some locations

1.2.2.1.1 Capacity, Transportation Demand, and Safety

Capacity and Transportation Demand in the SR-55 Corridor

Levels of Service

Freeway traffic flow can be defined in terms of levels of service (LOS). For freeways, there are six defined LOS, ranging from LOS A to LOS F. LOS A represents free traffic flow with low traffic volumes and high speeds, and LOS F represents traffic volumes that exceed the facility capacity and result in forced flow operations at low speeds, as shown on Figure 1-3. As shown on Figure 1-3, traffic volumes on a facility such as SR-55 substantially affect travel speeds and times.

Table 1.1 provides information on the existing (year 2011) traffic volumes in numbers of vehicles traveling on mixed-flow segments of northbound and southbound SR-55 during the AM peak hour and PM peak hour, and the average daily traffic (ADT) on those segments. Traffic volumes are also shown for the No Build Alternative in 2020 and 2040. As shown, there is strong directionality in traffic demand, generally with higher traffic volumes southbound in the AM peak hour and northbound in the PM peak hour in all three scenarios.

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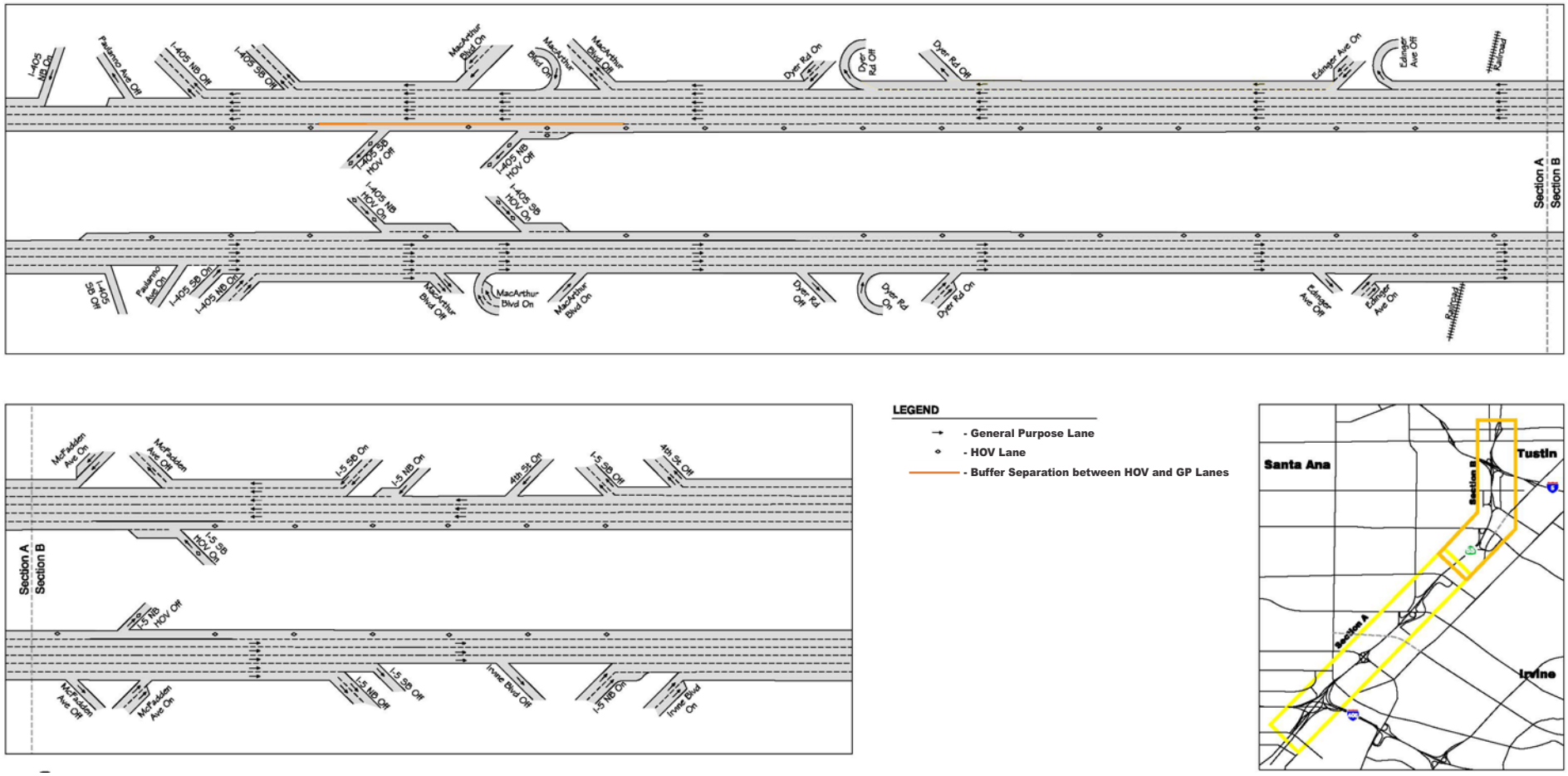

FIGURE 1-2

N

NOT TO SCALE

SOURCE: FEHR & PEERS (Jan. 2013)

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State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Existing SR-55

12-ORA-55 PM 6.4/10.3

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Table 1.2 provides the LOS for the existing condition and the No Build Alternative in 2020 and 2040 on the SR-55 mainline during the AM and PM peak hours. Consistent with traffic volumes shown in Table 1.1 and the travel times and speeds discussed later in this section, the poorest LOS (E and F) in 2011 occurred on southbound SR-55 in the AM peak hour and on northbound SR-55 in the PM peak hour.

Under the No Build Alternative in 2020 and 2040, the poorest LOS would still occur on southbound SR-55 in the AM peak hour and on northbound SR-55 in the PM peak hour although the LOS in the other directions on SR-55 in those peak hours would also be degraded compared to existing conditions. As a result, without substantial improvements, a majority of the study segments on northbound and southbound SR-55 would operate at LOS E and F during AM and PM peak hours by 2020 and 2040.

Table 1.3 shows the existing condition (2011), and 2020 and 2040 No Build Alternative LOS on the HOV lanes on SR-55. As shown, a majority of the study segments of the HOV lanes currently operate at acceptable LOS in both directions during both peak-hour periods, with LOS E and F occurring only at limited locations. However, as shown in Table 1.3, by 2020 and 2040 under the No Build Alternative, the LOS on the HOV lanes will be degraded, with more segments operating at LOS D, E, and F compared to existing conditions.

Travel Times and Speeds

The LOS on freeways characterize the performance of the freeway in terms of both travel times and speed. Table 1.4 summarizes the peak-hour travel times and speeds on northbound and southbound segments of SR-55 for existing conditions (2011) and the No Build Alternative in 2020 and 2040. There is strong directionality in the traffic volumes and congestion between the AM and PM peak hours and directions that are clearly reflected in the travel times and speeds. As shown in Table 1.4, the higher travel times and lower travel speeds in all three scenarios would occur on southbound SR-55 in the AM peak hour and northbound SR-55 in the PM peak hour.

Table 1.5 summarizes the peak-hour speeds on northbound and southbound HOV segments of SR-55 for the No Build Alternative in 2020 and 2040. As shown in Table 1.5, the lower travel speeds would generally occur on southbound SR-55 in the AM peak hour and northbound SR-55 in the PM peak hour.

Accidents and Safety in the SR-55 Corridor

Accident data for the project segment of SR-55 were provided by Caltrans for the 3-year period from April 1, 2007, to March 31, 2010. As shown in Table 1.6, a total of 1,447 accidents occurred on the project segment of SR-55 including the on- and off-ramps between April 2007 and March 2010. The majority of the accidents (87 percent) occurred on the SR-55 mainline and 13 percent occurred at the on- and off-ramps. Approximately 45 percent of the accidents occurred during the PM peak hour between 3:00 p.m. and 7:00 p.m. As shown in Table 1.7, the accident rates at the 17 locations were higher than the statewide averages for total accidents and/or total fatality and injury accidents for similar facilities.

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Table 1.1 Existing (2011), and 2020 and 2040 No Build Alternative Mainline Traffic Volumes

Freeway Segment	Direction	Existing Conditions (2011)			Future Conditions (2020)			Future Conditions (2040)		
		AM Peak Hour	PM Peak Hour	ADT	AM Peak Hour	PM Peak Hour	ADT	AM Peak Hour	PM Peak Hour	ADT
Paularino Ave to I-405 (Mainline)	NB	6,914	4,456	75,608	7,150	4,470	77,360	7,500	4,200	79,955
	SB	8,073	8,627	92,288	8,175	8,875	94,900	7,995	9,235	98,500
I-405 to MacArthur Blvd (Mainline)	NB	7,949	7,189	112,361	8,165	7,185	114,110	8,530	7,110	117,655
	SB	9,901	9,497	121,192	9,940	9,675	123,590	10,050	10,140	129,195
MacArthur Blvd to Dyer Rd (Mainline)	NB	7,180	8,151	113,814	7,415	8,140	115,150	7,775	8,015	116,745
	SB	10,582	8,727	120,747	10,590	8,905	122,940	10,680	9,280	126,570
Dyer Rd to Edinger Ave (Mainline)	NB	6,741	9,760	118,456	7,020	9,725	119,300	7,330	9,420	118,570
	SB	10,774	8,382	127,169	10,980	8,595	129,340	11,000	8,940	132,280
Edinger Ave to McFadden Ave (Mainline)	NB	7,153	10,743	124,460	7,385	10,635	125,505	7,585	10,230	124,460
	SB	10,644	8,037	126,673	10,550	8,215	129,515	10,340	8,430	132,475
McFadden Ave to I-5 (Mainline)	NB	7,585	11,250	129,155	7,920	11,180	131,820	8,460	11,415	139,380
	SB	10,163	8,124	102,024	10,190	8,375	104,885	10,440	8,965	112,705
I-5 to Irvine Blvd (Mainline)	NB	5,504	11,052	111,397	6,075	11,080	116,570	8,070	12,855	137,970
	SB	7,486	6,498	80,554	7,655	6,865	86,220	9,060	8,510	107,385
I-405 to MacArthur Blvd (HOV)	NB	385	536	5,245	430	560	5,330	465	485	4,835
	SB	796	838	8,681	795	880	9,075	680	910	9,265
MacArthur Blvd to Dyer Rd (HOV)	NB	761	1,239	11,169	995	1,440	12,785	985	1,405	13,080
	SB	1,147	1,193	12,432	1,415	1,380	13,590	1,305	1,355	13,855
Dyer Rd to Edinger Ave (HOV)	NB	905	1,303	12,331	1,160	1,505	14,080	1,190	1,545	14,845
	SB	1,569	1,278	14,183	1,675	1,486	15,540	1,730	1,495	16,225
Edinger Ave to McFadden Ave (HOV)	NB	898	1,826	16,767	1,175	2,100	18,545	1,285	2,300	19,315
	SB	2,021	1,533	15,360	2,405	1,765	16,715	2,545	1,850	17,400
McFadden Ave to I-5 (HOV)	NB	321	1,108	7,586	375	1,115	7,750	405	845	6,790
	SB	1,291	688	8,553	1,370	735	8,920	1,135	755	8,260
I-5 to Irvine Blvd (HOV)	NB	325	1,184	8,108	375	1,255	8,680	440	1,025	8,060
	SB	1,316	672	7,968	1,315	750	8,495	1,140	845	8,610

Source: Traffic Volumes Report (2016)

Note: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is 8:00 to 9:00 a.m. The PM peak hour is 5:00 to 6:00 p.m.

ADT = average daily traffic
Ave = Avenue
Blvd = Boulevard
I-5 = Interstate 5
I-405 = Interstate 405
HOV = high-occupancy vehicle
NB = northbound
Rd = Road
SB = southbound

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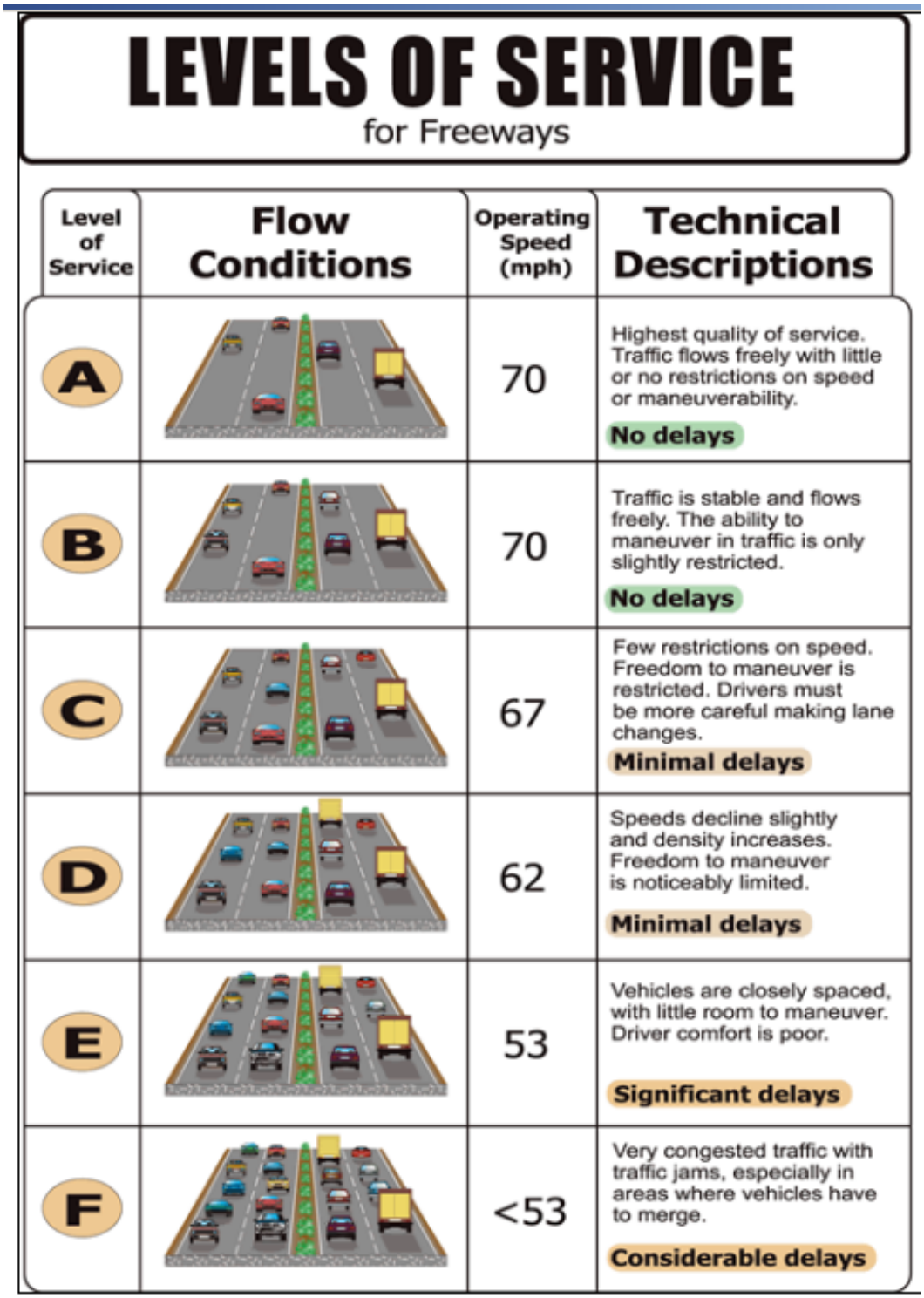

Figure 1-3 LOS Thresholds for a Basic Freeway Segment

Table 1.2 Existing (2011), and 2020 and 2040 No Build Alternative Freeway Mainline Levels of Service on Northbound and Southbound SR-55

Mainline Location[1]	2011		2020		2040	
	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
Northbound						
Paularino Ave merge	**E**	**F**	**F**	**F**	**F**	**F**
SB I-405 merge	D	**F**	D	**F**	D	**F**
NB I-405 on-ramp weave	**E**	**F**	C	**F**	D	**F**
MacArthur Blvd off-ramp weave	**E**	**F**	C	**F**	D	**F**
MacArthur Blvd merge (EB)	D	**F**	D	**F**	D	**F**
MacArthur Blvd merge (WB)	D	**F**	D	**F**	D	**F**
Dyer Rd diverge	D	**F**	D	**F**	D	**F**
Dyer Rd merge (EB)	D	**F**	C	**F**	D	**F**
Dyer Rd merge (WB)	D	**F**	D	**F**	D	**F**
Dyer Rd to Edinger Ave	D	**F**	D	**F**	D	**F**
Edinger Ave diverge	D	**F**	D	**F**	D	**F**
Edinger Ave on-ramp weave	**E**	**F**	D	**F**	C	**F**
McFadden Ave off-ramp weave	**E**	**F**	D	**F**	C	**F**
McFadden Ave on-ramp weave	**F**	**F**	**E**	**F**	**E**	**F**
NB I-5 off-ramp weave	**F**	**F**	**E**	**F**	**E**	**F**
SB I-5 diverge	B	**F**	B	**F**	C	**F**
Irvine Blvd diverge	B	**F**	B	**F**	C	**F**
NB I-5 merge	B	**F**	B	**F**	D	**F**
Southbound						
SB I-5 diverge	**F**	C	**F**	C	**F**	**E**
4th St merge	**F**	C	**F**	C	**F**	**F**
NB I-5 merge	**F**	D	**F**	D	**F**	**F**
SB I-5 on-ramp weave	**F**	D	**F**	D	**E**	**F**
McFadden Ave off-ramp weave	**F**	D	**F**	D	**E**	**F**
McFadden Ave on-ramp weave	**F**	D	**F**	C	**E**	**E**
Edinger Ave off-ramp weave	**F**	D	**F**	C	**E**	**E**
Edinger Ave merge	**F**	D	D	D	D	**F**
Edinger Ave to Dyer Rd	D	D	D	D	D	**F**
Grand Ave diverge	**E**	**F**	D	D	D	**F**
Dyer Rd diverge	D	**E**	**F**	**F**	**F**	**F**
Dyer Rd on-ramp weave	D	D	D	**F**	**E**	**F**
MacArthur Blvd off-ramp weave	D	D	D	**F**	**E**	**F**
MacArthur Blvd merge weave (WB)	D	D	**E**	**F**	**E**	**F**
MacArthur Blvd on-ramp weave (EB)	C	**E**	D	D	D	D
SB I-405 off-ramp weave	C	**E**	D	D	D	D
NB I-405 diverge	C	D	D	D	C	D
Paularino Ave diverge	C	D	D	D	C	D

Source: *Final Traffic Operations Report (2016)*.

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is 8:00 to 9:00 a.m. The PM peak hour is 5:00 to 6:00 p.m.

[1] merge = on-ramp junction, diverge = off-ramp junction

Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-5 = Interstate 5
I-405 = Interstate 405
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
St = Street
WB = westbound

Table 1.3 Existing (2011), and 2020 and 2040 No Build Alternative HOV Lane Levels of Service

Freeway HOV Segment	2011		2020		2040	
	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS	AM Peak Hour LOS	PM Peak Hour LOS
Northbound						
I-405 to MacArthur Blvd	A	A	A	A	A	A
MacArthur Blvd to Dyer Rd	B	C	B	C	B	C
Dyer Rd to Edinger Ave	B	**F**	B	**E**	B	**F**
Edinger Ave to McFadden Ave	B	**F**	B	**E**	B	**E**
McFadden Ave to I-5	A	B	A	B	A	B
Southbound						
I-5 to McFadden Ave	**E**	A	**F**	A	**F**	C
McFadden Ave to Edinger Ave	**E**	C	D	C	D	C
Edinger Ave to Dyer Rd	D	C	D	C	C	D
Dyer Rd to MacArthur Blvd	B	B	C	C	B	D
MacArthur Blvd to I-405	B	B	B	B	B	B

Source: *Final Traffic Operations Report (2016)*.
Notes: ■ indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is 8:00 to 9:00 a.m. The PM peak hour is 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
I-5 = Interstate 5
I-405 = Interstate 405
LOS = levels of service
Rd = Road

Table 1.4 Summary of Peak-Hour Travel Times and Speeds for General-Purpose Lanes

Location (Distance Traveled)	AM Peak Hour		PM Peak Hour	
	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)
Existing Conditions (2011)				
NB SR-55 from Paularino Ave to Irvine Blvd (5.4 mi)	6:21	51.3	17:28	18.6
SB SR-55 from Irvine Blvd to Paularino Ave (5.4 mi)	9:16	35.1	5:24	60.3
2020 No Build Alternative				
NB SR-55 from Paularino Ave to Irvine Blvd (5.4 mi)	05:53	55.3	19:27	16.7
SB SR-55 from Irvine Blvd to Paularino Ave (5.4 mi)	08:21	39.0	06:25	50.7
2040 No Build Alternative				
NB SR-55 from Paularino Ave to Irvine Blvd (5.4 mi)	06:13	52.4	22:19	14.6
SB SR-55 from Irvine Blvd to Paularino Ave (5.4 mi)	07:59	40.8	09:40	33.7

Source: *Final Traffic Operations Report (2016)*
Note: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is 8:00 to 9:00 a.m. The PM peak hour is 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
min:sec = minutes:seconds
mi = miles
mph = miles per hour
NB = northbound
SB = southbound
SR-55 = State Route 55

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Table 1.5 Summary of Travel Speeds for HOV Freeway Segments

Freeway HOV Segment	Existing (2011)		2020		2040	
	AM Peak Hour Speed (mph)	PM Peak Hour Speed (mph)	AM Peak Hour Speed (mph)	PM Peak Hour Speed (mph)	AM Peak Hour Speed (mph)	PM Peak Hour Speed (mph)
Northbound						
I-405 to MacArthur Blvd	64.5	56.5	64	60	64	60
MacArthur Blvd to Dyer Rd	60.0	32.4	67	63	67	62
Dyer Rd to Edinger Ave	59.6	37.8	66	41	66	33
Edinger Ave to McFadden Ave	60.7	38.8	66	42	66	38
McFadden Ave to I-5	61.1	41.4	67	66	66	64
Southbound						
I-5 to McFadden Ave	48.9	55.1	68	66	10	47
McFadden Ave to Edinger Ave	49.0	54.1	60	57	60	53
Edinger Ave to Dyer Rd	60.0	59.7	63	63	63	47
Dyer Rd to MacArthur Blvd	67.9	67.7	63	60	63	52
MacArthur Blvd to I-405	66.7	66.6	67	66	67	66

Source: *Final Traffic Operations Report (2016)*

Notes: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is 8:00 to 9:00 a.m. The PM peak hour is 5:00 to 6:00 p.m.

The SR-55 HOV speed data were obtained from the Caltrans Performance Measurement System (PeMS) database.

Ave = Avenue
Blvd = Boulevard
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
mph = miles per hour
Rd = Road
SR-55 = State Route 55

Table 1.6 SR-55 Accident History (April 1, 2007–March 31, 2010)

Location	Total Accidents	Total Fatalities	Total Fatalities & Injuries	Total Accident Rate[1]		Total Fatality and Injury Accident Rate[1]	
				Actual	Statewide Average	Actual	Statewide Average
Northbound SR-55							
NB SR-55 on-ramp from SB I-405	20	0	4	0.59	0.60	0.12	0.20
NB SR-55 between the I-405 underpass and the NB off-ramp to MacArthur Blvd	72	0	20	0.76	1.01	0.21	0.31
NB SR-55 between the NB on-ramp from SB I-405 and the NB on-ramp from WB MacArthur Blvd	125	0	30	**2.45**	1.02	**0.59**	0.31
NB SR-55 on-ramp from NB I-405	4	0	0	0.20	0.35	0.00	0.11
NB SR-55 off-ramp to MacArthur Blvd	10	0	3	0.51	1.20	0.15	0.42
NB SR-55 on-ramp from EB MacArthur Blvd	7	0	4	**0.75**	0.70	**0.43**	0.20
NB SR-55 between the NB on-ramp from WB MacArthur Blvd and the NB off-ramp to Dyer Rd	19	0	9	0.36	1.05	0.17	0.32
NB SR-55 between the NB off-ramp to Dyer Rd and the NB on-ramp from WB Grand Ave/Dyer Rd	120	0	32	**1.52**	1.15	**0.41**	0.35
NB SR-55 on-ramp from WB MacArthur Blvd	3	0	1	0.20	0.65	0.07	0.20
NB SR-55 off-ramp to Dyer Rd	6	0	2	0.50	1.20	0.17	0.42
NB SR-55 on-ramp from EB Dyer Rd	1	0	0	0.08	0.70	0.00	0.20
NB SR-55 between the NB on-ramp from Grand Ave/Dyer Rd and the Warner Ave underpass	36	0	10	0.87	1.10	0.24	0.34
NB SR-55 between the Warner Ave underpass and the NB off-ramp to Edinger Ave	44	0	15	0.61	1.11	0.21	0.34
NB SR-55 on-ramp from WB Dyer Rd	6	0	3	0.45	0.65	**0.22**	0.20
NB SR-55 between the NB off-ramp to Edinger Ave and the NB on-ramp from Edinger Ave	15	0	6	0.34	1.10	0.14	0.34
NB SR-55 between the NB on-ramp from Edinger Ave and the NB off-ramp to McFadden Ave	44	0	14	**1.07**	1.04	**0.34**	0.30
NB SR-55 between the NB off-ramp to McFadden Ave and the NB on-ramp from McFadden Ave	30	0	6	0.86	1.01	0.17	0.29
NB SR-55 between the NB on-ramp from McFadden Ave and the NB off-ramp to I-5	92	0	30	**3.09**	1.00	**1.01**	0.29
NB SR-55 off-ramp to Edinger Ave	8	0	3	**1.26**	1.20	**0.47**	0.42
NB SR-55 on-ramp from Edinger Ave	9	0	3	0.55	0.80	0.18	0.80
NB SR-55 off-ramp to McFadden Ave	3	0	1	0.43	0.85	0.14	0.26
NB SR-55 on-ramp from McFadden Ave	10	0	3	**0.91**	0.45	**0.27**	0.14
NB SR-55 between the NB off-ramp to NB I-5 and the NB off-ramp to SB I-5	30	0	11	0.58	1.11	0.21	0.33
NB SR-55 off-ramp to NB I-5	15	0	1	0.28	0.60	0.02	0.20
NB SR-55 off-ramp to SB I-5	8	0	1	**0.55**	0.45	0.07	0.15
Total NB SR-55 between the SB off-ramp to John Wayne Airport and the NB off-ramp to SB I-5	**627**	**0**	**183**	**1.06**	**1.07**	**0.26**	**0.32**

Table 1.6 SR-55 Accident History (April 1, 2007–March 31, 2010)

Location	Total Accidents	Total Fatalities	Total Fatalities & Injuries	Total Accident Rate[1]		Total Fatality and Injury Accident Rate[1]	
				Actual	Statewide Average	Actual	Statewide Average
Southbound SR-55							
SB SR-55 on-ramp from SB I-5	36	0	10	**0.58**	0.45	**0.16**	0.15
SB SR-55 between the I-5 on-ramp and the NB off-ramp from I-5	34	0	7	1.12	1.18	0.23	0.36
SB SR-55 between the SB on-ramp from I-5 and the SB off-ramp to McFadden Ave	124	0	35	**2.67**	1.00	**0.75**	0.29
SB SR-55 off-ramp from McFadden Ave	5	0	2	0.59	0.95	0.23	0.28
SB SR-55 on-ramp from McFadden Ave	3	0	1	0.39	0.55	0.13	0.16
SB SR-55 off-ramp to Edinger Ave	7	0	2	0.45	1.10	0.13	0.36
SB SR-55 on-ramp from Edinger Ave	5	0	1	0.62	0.75	0.12	0.26
SB SR-55 between the SB off-ramp to McFadden Ave and the SB on-ramp from McFadden Ave	32	0	6	**1.30**	1.01	0.24	0.29
SB SR-55 between the SB on-ramp from McFadden Ave and the SB off-ramp to Edinger Ave	36	0	5	0.95	1.01	0.13	0.29
SB SR-55 between the SB off-ramp to Edinger Ave and the SB on-ramp from Edinger Ave	54	0	9	**1.15**	1.09	0.19	0.33
SB SR-55 between the SB on-ramp from Edinger Ave and the Warner Ave overpass	45	0	11	0.54	1.11	0.13	0.34
SB SR-55 off-ramp to WB Grand Ave/Dyer Rd	0	0	0	0.00	1.20	0.00	0.42
SB SR-55 between the Warner Ave overpass and the SB off-ramp to WB Grand Ave/Dyer Rd	29	0	10	0.75	1.10	0.26	0.34
SB SR-55 between the SB off-ramp to WB Grand/Dyer Rd and the SB off-ramp to Dyer Rd	55	0	16	1.05	1.11	0.31	0.34
SB SR-55 off-ramp to EB Dyer Rd	4	0	3	0.48	1.20	**0.36**	0.34
SB SR-55 on-ramp from Dyer Rd	3	0	1	0.22	0.75	0.07	0.26
SB SR-55 off-ramp to MacArthur Blvd	8	0	2	0.43	1.20	0.11	0.42
SB SR-55 between the SB off-ramp to Dyer Rd and the on-ramp from Dyer Rd	52	0	14	**1.51**	1.19	**0.41**	0.37
SB SR-55 between the SB on-ramp from Dyer Rd and the SB off-ramp to MacArthur Blvd	16	0	4	0.35	1.05	0.09	0.32
SB SR-55 on-ramp from WB MacArthur Blvd	3	0	2	0.48	0.70	**0.32**	0.20
SB SR-55 between the SB off-ramp to MacArthur Blvd and the SB on-ramp from WB MacArthur Blvd	75	0	18	**1.54**	1.04	**0.37**	0.32
SB SR-55 on-ramp from EB Mac Arthur Blvd	3	0	1	0.22	0.65	0.07	0.20
SB SR-55 off-ramp to SB I-405	8	0	4	0.40	0.60	**0.20**	0.20
SB SR-55 between the SB on-ramp from WB MacArthur Blvd and the SB on-ramp to SB I-405	30	0	10	0.67	0.94	0.22	0.28

Table 1.6 SR-55 Accident History (April 1, 2007–March 31, 2010)

Location	Total Accidents	Total Fatalities	Total Fatalities & Injuries	Total Accident Rate[1]		Total Fatality and Injury Accident Rate[1]	
				Actual	Statewide Average	Actual	Statewide Average
SB SR-55 between the SB off-ramp to SB I-405 and the NB on-ramp from NB I-405	15	0	5	0.65	1.03	0.22	0.32
SB SR-55 between the NB on-ramp from NB I-405 and the I-405 overpass	28	0	4	0.85	1.08	0.12	0.34
Total SB SR-55 between the NB off-ramp to SB I-5 and the SB off-ramp to John Wayne Airport	**625**	**0**	**154**	**1.06**	**1.07**	**0.26**	**0.32**
TOTAL NORTHBOUND AND SOUTHBOUND	**1,447**	**0**	**395**	**N/A**	**N/A**	**N/A**	**N/A**

Source: *Final Traffic Operations Report (2016)*.

[1] [redacted] indicates an accident rate on SR-55 that is higher than the statewide average accident rate. For mainline sections, the accident rate is the number of accidents per million vehicle miles. For ramps, the accident rate is the number of accidents per million vehicles.

Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-405 = Interstate 405
I-5 = Interstate 5
N/A = not applicable
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
WB = westbound

Table 1.7 Accident Rates on SR-55 Higher than the Statewide Average for Similar Facilities

Accident Location	Comparison to the Statewide Average Rate for Total Accidents	Comparison to the Statewide Average Rate for Total Fatality and Injury Accidents
Northbound SR-55		
NB SR-55 between the NB on-ramp from SB I-405 and the NB on-ramp from WB MacArthur Blvd	About 140% higher	About 90% higher
NB SR-55 on-ramp from EB MacArthur Blvd	About 7% higher	About 115% higher
NB SR-55 between the NB off-ramp to Dyer Rd and the NB on-ramp from WB Grand Ave/Dyer Rd	About 32% higher	About 17% higher
NB SR-55 on-ramp from WB Dyer Rd	About --% higher	About 10% higher
NB SR-55 between the NB on-ramp from Edinger Ave and the NB off-ramp to McFadden Ave	About 3% higher	About 13% higher
NB SR-55 between the NB on-ramp from McFadden Ave and the NB off-ramp to I-5	About 209% higher	About 248% higher
NB SR-55 off-ramp to Edinger Ave	About 5% higher	About 12% higher
NB SR-55 on-ramp from McFadden Ave	About 102% higher	About 93% higher
NB SR-55 off-ramp to SB I-5	About 22% higher	--
Southbound SR-55		
SB SR-55 on-ramp from SB I-5	About 29% higher	About 7% higher
SB SR-55 between the on-ramp from I-5 and the SB off-ramp to McFadden Ave	About 167% higher	About 159% higher
SB SR-55 between the SB off-ramp to McFadden Ave and the SB on-ramp from McFadden Ave	About 29% higher	--
SB SR-55 between the SB off-ramp to Edinger Ave and the SB on-ramp from Edinger Ave	About 6% higher	--
SB SR-55 off-ramp to EB Dyer Rd	--	About 6% higher
SB SR-55 between the SB off-ramp to Dyer Rd and the on-ramp from Dyer Rd	About 27% higher	About 11% higher
SB SR-55 on-ramp from westbound MacArthur Blvd	--	About 60% higher
SB SR-55 between the SB off-ramp to MacArthur Blvd and the SB on-ramp from WB MacArthur Blvd	About 48% higher	About 16% higher

Source: *Final Traffic Operations Report (2016).*

Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-5 = Interstate 5
I-405 = Interstate 405
NB = northbound
SB = southbound
SR-55 = State Route 55
Rd = Road
WB = westbound

It was determined from a review of the accident data that rear-end collisions were the most common accident type, accounting for approximately 60 percent of all accidents. Other key accident types included sideswipes and hit-objects. Rear-end collisions are typically related to traffic congestion in chokepoint areas and are associated with sudden attempts to stop when traffic volumes exceed the capacity of the road. The majority of sideswipe accidents can usually be attributed to lane weaving and narrow lane widths.

Improvements in the SR-55 corridor would improve safety by relieving traffic congestion, which in turn would reduce rear-end accidents in the area. The improvements would allow vehicles to merge easier throughout the corridor, thereby reducing sideswipe occurrences by giving drivers more time and space to merge with adjacent traffic. Increasing the lane widths would also improve the safety of the corridor by giving the drivers more space in which to operate their vehicle.

1.2.2.1.2 Operational Deficiencies

The traffic congestion, delays, and reduced travel speeds currently experienced on the project segment of SR-55 are partly the result of the following nonstandard features that are not consistent with the Caltrans *Highway Design Manual*:

- Nonstandard deceleration lengths at various off-ramps
- Nonstandard shoulder widths at various locations along SR-55
- Nonstandard horizontal clearance at various locations along SR-55
- Nonstandard successive on-ramps at various locations, such as the southbound MacArthur Boulevard on-ramps, the northbound MacArthur Boulevard on-ramps, and the northbound Dyer Road on-ramps
- Nonstandard vertical clearance at the South Tustin overhead bridge
- Nonstandard median width throughout the project limits
- Nonstandard interchange spacing
- Nonstandard weaving length
- Nonstandard curve radii at various ramps
- Nonstandard auxiliary lane lengths at various locations
- Nonstandard lane widths at various locations
- Nonstandard vertical curve sight distances at various locations
- Nonstandard horizontal curve sight distances at various locations

Many of the deficiencies would be corrected by designing and constructing the project improvements at these locations to the standards in the Caltrans *Highway Design Manual*. Mandatory and advisory design exceptions are proposed for some of these deficiencies, as described later in this chapter.

1.2.2.1.3 Social and Economic Demands

A review of SCAG regionally adopted growth projections indicates that continuing growth is forecasted in the subregion served by SR-55 (SCAG 2008). The population of Orange County is expected to increase from 3 million persons in 2008 to over 3.4 million persons in 2035, an increase of more than 14 percent. Growth in Riverside County is projected to increase at a faster pace, with the population in that County projected to increase from 2.1 million in 2008 to 3.3 million in 2035, an increase of 56 percent. This regional growth will continue to place a high demand on SR-55 by Orange and Riverside County residents traveling to jobs, retail, and other designations in central and coastal Orange County.

1.2.2.1.4 Legislation

Measure M

The SR-55 Improvement Project between I-405 and I-5 is part of a larger suite of transportation improvements included in Orange County's 30-year Measure M2 (M2) Plan. M2, the one-half cent transportation sales tax, is planned to provide more than $15 billion in transportation improvements in Orange County through 2041 (2011 to 2041). M2 is comprised of the following transportation improvement programs: freeways, local streets and roads, and transit. Up to 43 percent of the funds are intended to fulfill transit and system preservation needs. Another 4 percent are reserved for two unique environmental programs.

The M2 program was publicly reviewed through a Program Environmental Impact Report prior to voters approving the ballot measure in November 2006. Since 2008, the M2 program has been included in the SCAG RTP, SCS, and the associated Program Environmental Impact Reports prepared by SCAG.

OCTA Freeway Chokepoint Program

The OCTA Freeway Chokepoint Program was initiated in 2001 to support cooperative efforts with Caltrans to identify chronic freeway bottlenecks and to develop projects to

remedy those identified deficiencies. As part of that Program, freeway improvements were identified to alleviate localized freeway chokepoints. Funds for those projects were allocated from Measure M2 and other sources. The SR-55 Widening Project is included in the OCTA Freeway Chokepoint Program.

1.2.2.1.5 Modal Interrelationships and System Linkages

SR-55 is an integral component of the transportation system in Orange County. It provides a key linkage between the coastal areas in Newport Beach and other beach communities and cities along the corridor in central Orange County. SR-55 has interchanges with a number of other freeways, providing access to the countywide and regional freeway systems. All Build Alternatives would enhance mobility in the SR-55 corridor, thereby improving mobility in this part of Orange County.

The Los Angeles to San Diego (LOSSAN) rail corridor, which is an important passenger and freight rail corridor that connects metropolitan areas from Los Angeles to San Diego, crosses below SR-55 approximately 500 feet (ft) north of Edinger Avenue in the City of Santa Ana. Train operations on this segment of the LOSSAN rail corridor include Amtrak's Pacific Surfliner intercity passenger rail service, the Southern California Regional Rail Authority (SCRRA) Metrolink commuter rail service, and the Union Pacific Railroad (UPRR) and BNSF Railway freight rail services.

SR-55 does not directly serve the Ports of Los Angeles and Long Beach or the rail transfer yards and is not a major corridor for goods movement in Southern California. However, SR-55 provides a connection to the Ports of Los Angeles and Long Beach via I-405, SR-22, and SR-91.

JWA is immediately east of SR-55 and south of I-405. There is direct access to JWA from SR-55 via ramps from SR-55 southbound or northbound to southbound I-405. The Build Alternatives would not modify or otherwise affect the existing access to/from SR-55 to/from JWA via I-405.

Nine OCTA bus routes operate on SR-55 and arterials in the vicinity of SR-55: Routes 53 and 86 on Main Street; Route 59 on Dyer Road; Route 66 on McFadden Avenue; Route 70 on Edinger Avenue; Route 72 on Warner Avenue; Route 76 on MacArthur Boulevard; Route 66 on Newport Avenue; Route 71 on Red Hill Avenue; Routes 59 and 72 on Pullman Street; Routes 464 and 794, which use SR-55; and Route 213, which uses Dyer Road and SR-55 within the project limits. The HOV lanes on SR-55 are used by private transit companies, taxis, carpools, and vanpools. All the transit and shared ride modes would continue to use SR-55 during the project construction and in the long term. OCTA will also continue to identify opportunities to improve transit services in the SR-55 corridor as part of its transit planning activities throughout Orange County. The capacity and operational improvements provided by the Build Alternatives would support these transit and shared ride modes in the future.

1.2.2.1.6 Air Quality Improvements

Only Build Alternative 3M and 4 include modifications to the existing HOV lanes or the construction of new HOV lanes. Alternatives 1, 3, 3M, and 4 include restoring existing auxiliary lanes and the addition of new auxiliary lanes. All the existing on-ramps on the project segment of SR-55 are currently metered; those ramps would continue to be metered under all Build Alternatives. These project features would contribute to air quality emissions reductions in the long term. All Build Alternatives will continue to directly benefit transit vehicles (and their passengers) traveling on existing HOV lanes. Carpool, vanpool, and bus

services in the SR-55 corridor would benefit from the time savings as a result of using the existing and proposed HOV lanes.

1.2.2.1.7 Independent Utility and Logical Termini

The project limits for the SR-55 Widening Project were defined based on providing a logical and independent set of improvements. Logical termini are defined as rational end points for transportation improvement and analysis of the potential environmental impacts of a proposed project. A project is defined as having independent utility if it meets the project purpose in the absence of other improvements in the project segment or in other parts of the corridor.

Logical Termini

All Build Alternatives provide logical termini for the proposed improvements to SR-55 because they provide for direct connections to other major transportation facilities (I-5 and I-405), which themselves are destinations of major traffic volumes. The improvements in the Build Alternatives terminate at major freeway-to-freeway interchanges (I-5 on the north and I-405 on the south).

The southern project terminus of the Build Alternatives just north of the SR-55/I-405 Interchange experiences a substantial change in traffic demand on SR-55, with higher volumes north of and lower volumes south of the SR-55/I-405 Interchange. The SR-55/I-5 Interchange, at the north end of the project segment, experiences substantial traffic transitioning to/from I-5 and to/from SR-55, with higher volumes south of and lower volumes north of the SR-55/I-5 Interchange.

Independent Utility

The proposed project would have independent utility. The general-purpose, HOV, and auxiliary lanes included in the Build Alternatives would provide benefits to the traveling public without requiring or being dependent on the provision of other improvements on SR-55 or other freeways or arterials. Those improvements would benefit travelers as they enter/exit the freeway or travel in the general-purpose and HOV lanes. The Build Alternatives represent a reasonable expenditure even if no additional transportation improvements are made in the corridor, they can be implemented in the absence of any other improvements, and they do not restrict consideration of alternatives for other reasonably foreseeable transportation improvements in the SR-55 corridor and other corridors in the Project Area. Because the Build Alternatives meet the project purpose in the absence of other improvements in the SR-55 corridor, the SR-55 widening project would have independent utility.

1.3 Project Description

This section describes the proposed action and project alternatives that were developed to meet the identified purpose and need of the project, while avoiding or minimizing environmental impacts. The five build alternatives are “Alternative 1” (additional auxiliary lanes), “Alternative 2” (new general-purpose lanes), “Alternative 3” (new general-purpose lanes and additional auxiliary lanes), “Alternative 4” (new HOV lanes and auxiliary lanes), “Alternative 3M” (new HOV, general-purpose, and auxiliary lanes), and the “No Build Alternative.”

The project is located in Orange County on SR-55 between just north of the I-405/SR-55 Interchange and the I-5/SR-55 Interchange (between Post Miles 6.4 and 10.3). The total length of the project is approximately 4 miles (mi). Within the limits of the proposed project, SR-55 currently has four general-purpose lanes and an HOV lane in each direction, with

auxiliary lanes between ramps at various locations. The purpose of the proposed project is to provide congestion relief, improve traffic flow, and increase mobility on SR-55.

1.3.1 Project Alternatives

The criteria that will be used to evaluate the project alternatives are the design features (standard and nonstandard), improvements in LOS, and environmental impacts. The potential environmental impacts of the project are assessed in this environmental document (ED) for the following parameters: land use, growth, community impacts, utilities and emergency services, traffic and transportation, visual, cultural resources, hydrology and floodplains, water quality, geology and soils, paleontological resources, hazardous waste and materials, air quality, noise, biological resources (i.e., natural communities, wetlands and other waters, and plant, animal, invasive, and threatened and endangered species), cumulative impacts, and climate change. A summary of impacts by alternative is provided in Table 1.18 (provided at the end of this section).

Existing commercial and industrial development adjacent to the project segment of SR-55 severely limits the availability of right of way and limits the range of alternatives for improving the freeway. The Build Alternatives evaluated in this ED are described generally in this section, followed by a detailed discussion of permanent and temporary features common to all the Build Alternatives and the features unique to each alternative.

Alternative 1: Additional Auxiliary Lanes and Southbound General-Purpose Lane

Alternative 1 proposes new auxiliary lanes in the northbound direction on SR-55 by widening to the outside at two locations:

- Between the MacArthur Boulevard and Dyer Road Interchanges
- Between the Dyer Road and Edinger Avenue Interchanges

In the southbound direction on SR-55, a general-purpose lane would be constructed between the southbound I-5 connector and the east Dyer Road off-ramp. The southbound auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges will be restored to match the existing condition. Additionally, the transition length for merging between the existing southbound HOV lane on SR-55 and the southbound I-5/SR-55 Connector HOV lane would be extended past Edinger Avenue.

Alternative 2: New General-Purpose Lanes

Alternative 2 proposes to construct one general-purpose lane in both the northbound and southbound directions on SR-55 by widening to the outside.

In the northbound direction, auxiliary lanes between the northbound I-405 connector and the MacArthur Boulevard Interchange, and between the Edinger Avenue and McFadden Avenue Interchanges will be restored to match the existing condition. In the southbound direction, the auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges will be restored to match the existing condition. Additionally, the transition length for merging between the existing southbound HOV lane on SR-55 and the southbound I-5/SR-55 Connector HOV lane would be extended past Edinger Avenue.

Alternative 3: New General-Purpose Lanes and Additional Auxiliary Lanes

Alternative 3 proposes to add one general-purpose lane in the northbound and southbound directions, add additional northbound auxiliary lanes, and restore existing auxiliary lanes. In the northbound direction, new auxiliary lanes would be constructed at two locations:

- Between the MacArthur Boulevard and Dyer Road interchanges

- Between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction, the transition length for merging between the existing southbound SR-55 HOV lane and the southbound I-5/SR-55 HOV connector would be extended past Edinger Avenue.

Alternative 4: New HOV Lanes and Additional Auxiliary Lanes

Alternative 4 proposes to add a second HOV lane in each direction between the I-405 and I-5 HOV direct connectors.

Additionally, in the northbound direction, auxiliary lanes will be constructed at three locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges
- From just south of the Tustin Overhead to the northbound I-5 connector

The northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction, a general-purpose lane would be created between the southbound I-5 connector and the east Dyer Road off-ramp. The existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

Alternative 3 Modified (Alternative 3M): New HOV and General Purpose Lanes and Additional Auxiliary Lanes (Preferred Alternative)

Alternative 3M proposes to add one general-purpose lane in the northbound and southbound directions and a second HOV lane in each direction between the I-405 and I-5 HOV direct connectors. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden Avenue onramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would be eliminated. In the southbound direction, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

Design features common to all Build Alternatives are discussed below in Section 1.3.2, Common Design Features of the Build Alternatives. Design features unique to each Build Alternative are discussed in Section 1.3.3, Unique Features of the Build Alternatives. The

existing condition on SR-55 was shown earlier on Figure 1-2. The project features in Alternatives 1, 2, 3, 4, and 3M are shown on Figures 1-4, 1-5, 1-6, 1-7, and 1-8 respectively.

No Build Alternative

The No Build Alternative does not include improvements to the existing SR-55 mainline lane configuration (see Figure 1-9). This alternative does not preclude the construction of future improvements or general maintenance to improve the operation of the freeway mainline and ramp facilities or incorporate safety enhancements.

Population and job growth in Orange County anticipated by regionally adopted forecasts would result in increased traffic volumes on the project segment of SR-55. Without additional capacity, increases in traffic volumes on SR-55 would result in increased traffic congestion and delays, and degraded LOS.

The No Build Alternative is not consistent with the project purpose and need or the recommendations of the SR-55 Route Concept Report and the Project Study Report/Project Development Support (PSR/PDS) for the SR-55 Improvement Project. The purpose of describing and analyzing a No Build Alternative in this ED is to allow decision-makers to compare the impacts of approving the proposed project (a Build Alternative) with the impacts of not approving the proposed project (the No Build Alternative).

The No Build Alternative serves as the baseline against which to evaluate the effects of the Build Alternatives.

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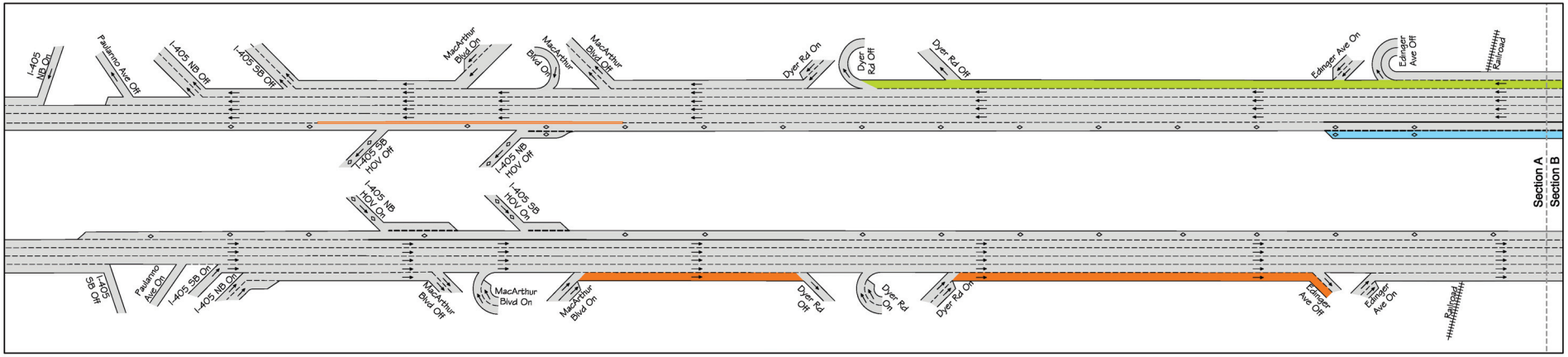

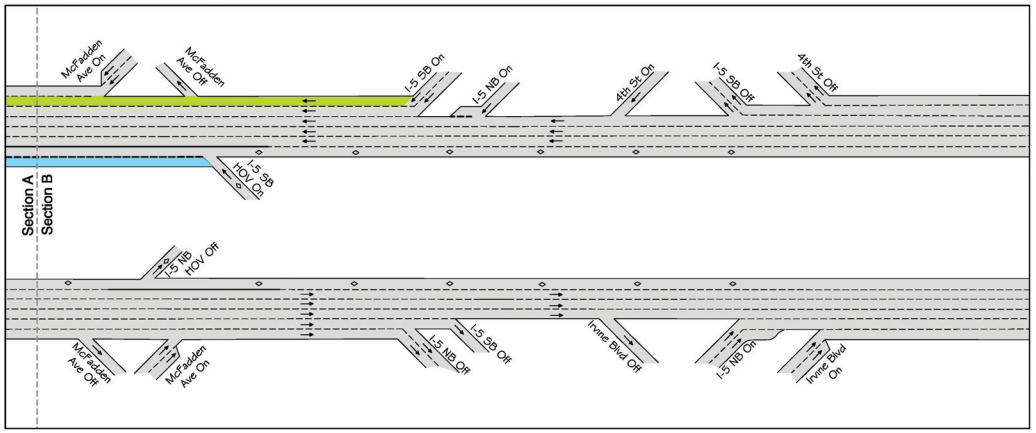

LEGEND

- General Purpose Lane
- HOV Lane
- Proposed General Purpose Lane
- Proposed Auxiliary Lane
- Proposed HOV Lane
- HOV Limited Access

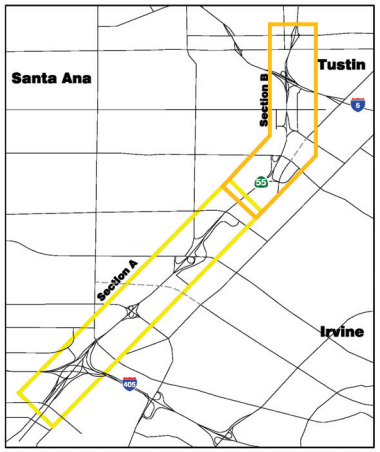

FIGURE 1-4

N

NOT TO SCALE

SOURCE: Final Traffic Operations Report (2014)

I:\HDR1102\G\IS_EA\Build Alternative 1.cdr (11/13/2015)

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Build Alternative 1

12-ORA-55 PM 6.4/10.3

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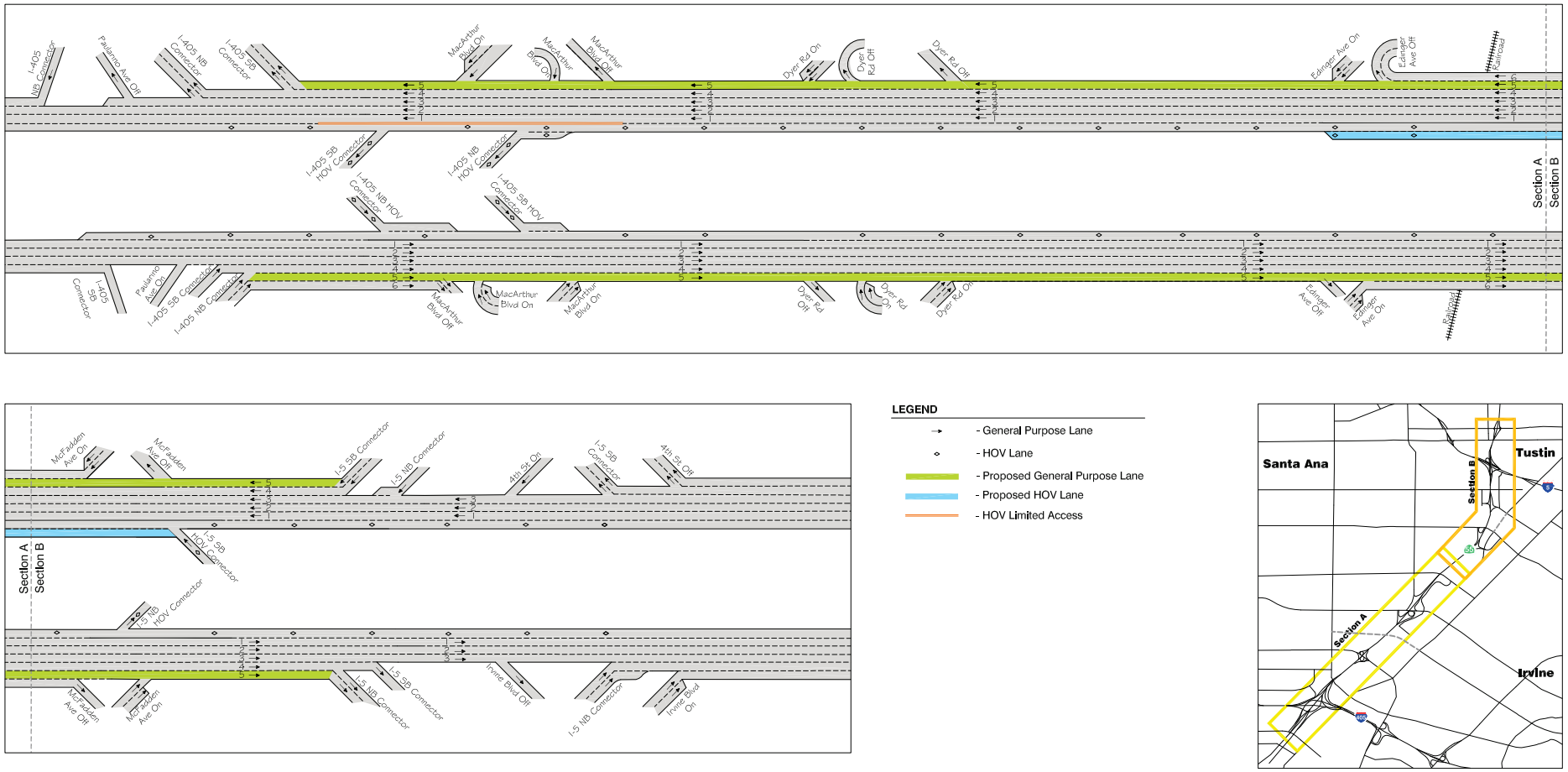

LEGEND

- General Purpose Lane
- HOV Lane
- Proposed General Purpose Lane
- Proposed HOV Lane
- HOV Limited Access

FIGURE 1-5

N

NOT TO SCALE

SOURCE: Fehr & Peers

I:\HDR1102\G\IS_EA\Build Alternative 2.cdr (11/13/2015)

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Build Alternative 2

12-ORA-55 PM 6.4/10.3

EA No. 0J3400/EFIS 1200020328

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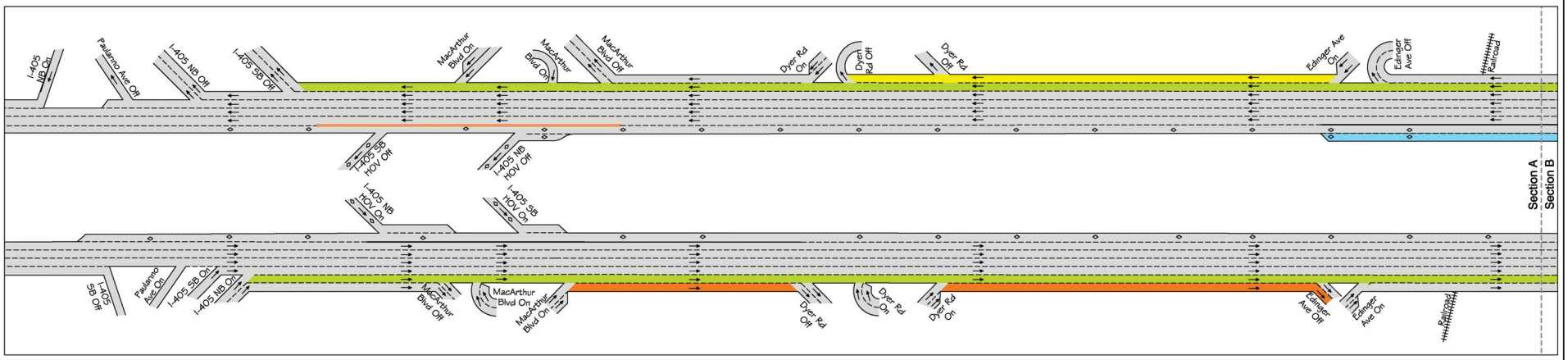

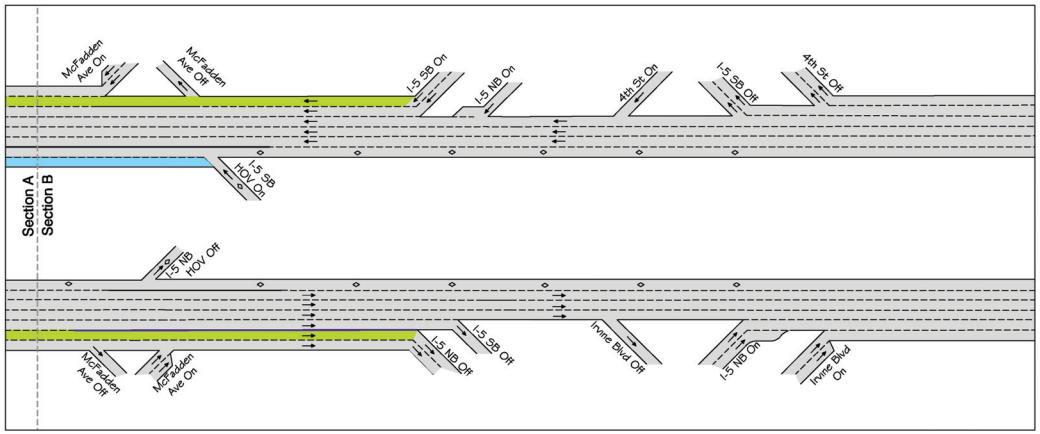

LEGEND

- General Purpose Lane
- HOV Lane
- Proposed General Purpose Lane
- Proposed Auxiliary Lane
- Proposed HOV Lane
- Separator
- Improvements by Other Project Completed in 2012
- HOV Limited Access

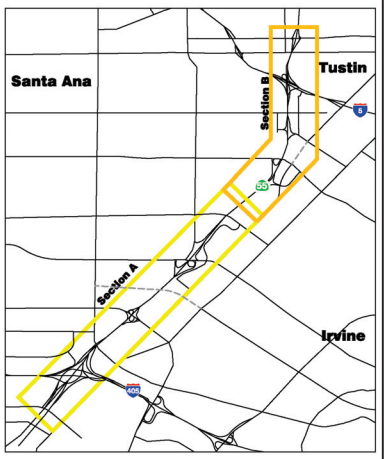

FIGURE 1-6

NOT TO SCALE

SOURCE: Final Traffic Operations Report (2014)

I:\HDR1102\G\IS_EA\Build Alternative 3.cdr (11/13/2015)

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Build Alternative 3

12-ORA-55 PM 6.4/10.3

EA No. 0J3400/EFIS 1200020328

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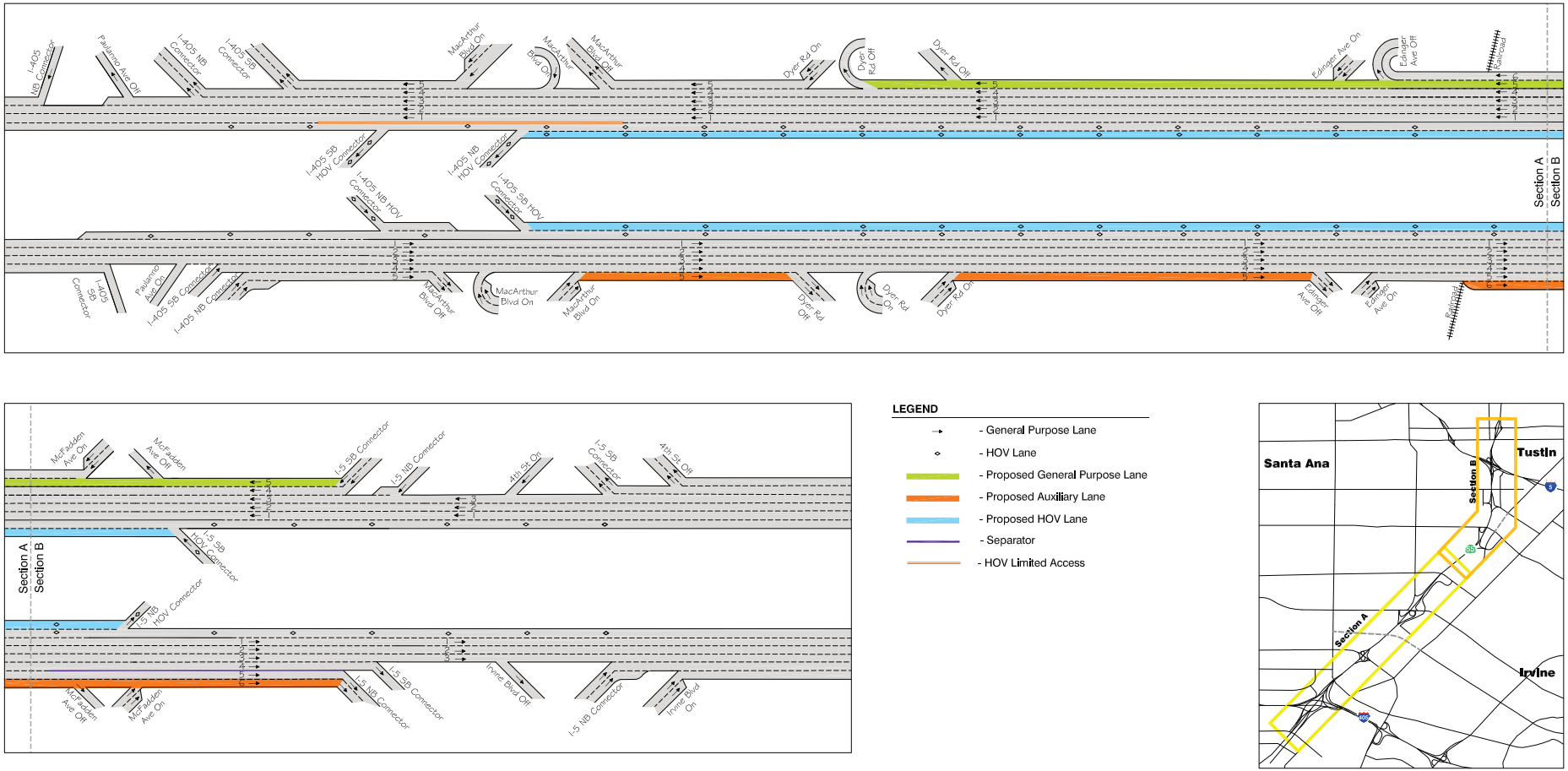

FIGURE 1-7

N

NOT TO SCALE

SOURCE: Fehr & Peers

I:\HDR1102\G\IS_EA\Build Alternative 4.cdr (11/13/2015)

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Build Alternative 4

12-ORA-55 PM 6.4/10.3

EA No. 0J3400/EFIS 1200020328

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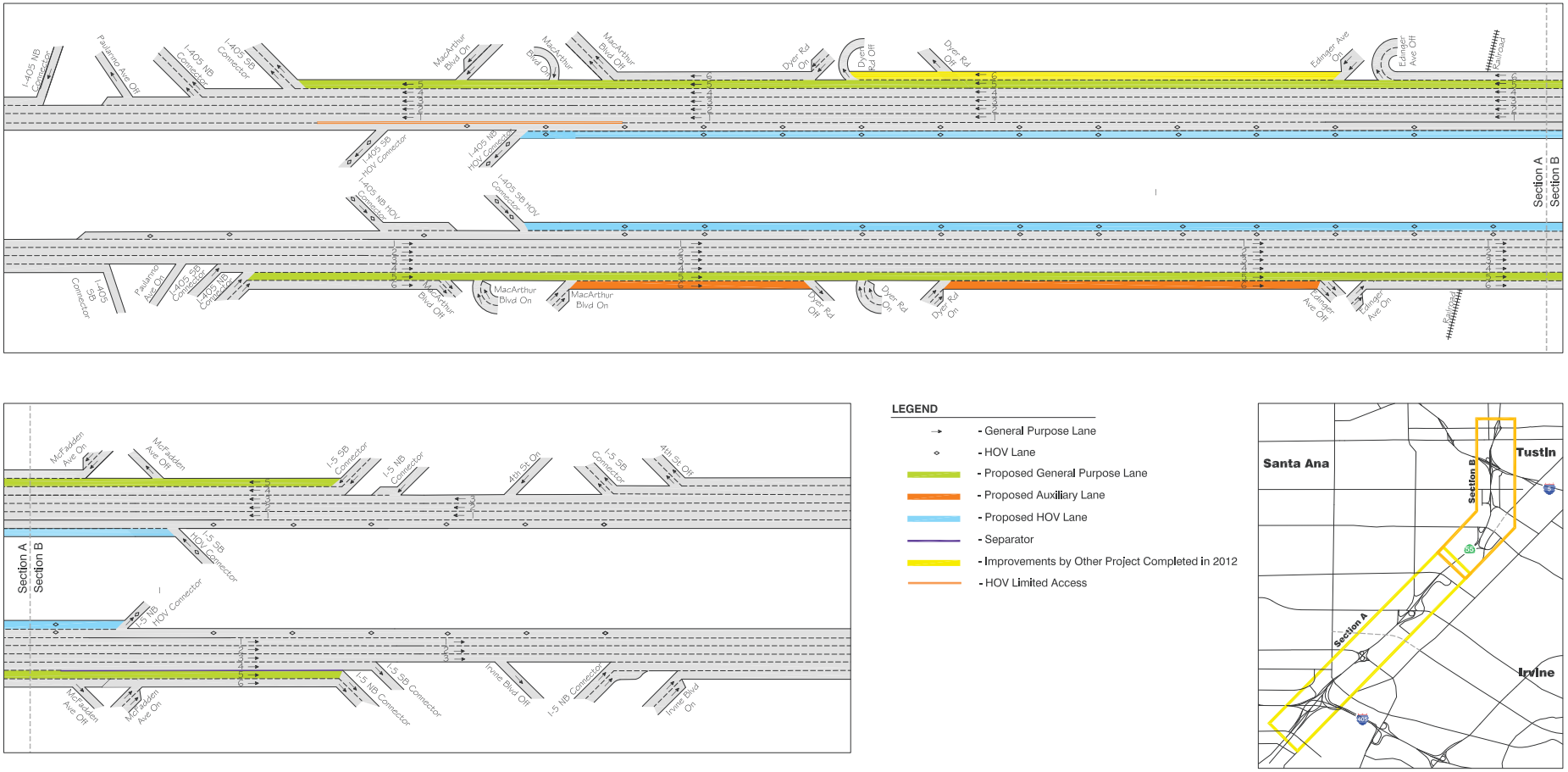

FIGURE 1-8

N

NOT TO SCALE

SOURCE: Fehr & Peers

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Build Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3

EA No. 0J3400/EFIS 1200020328

I:\HDR1102\G\IS_EA\Final IS_EA\Build Alternative 3M.cdr (6/27/2017)

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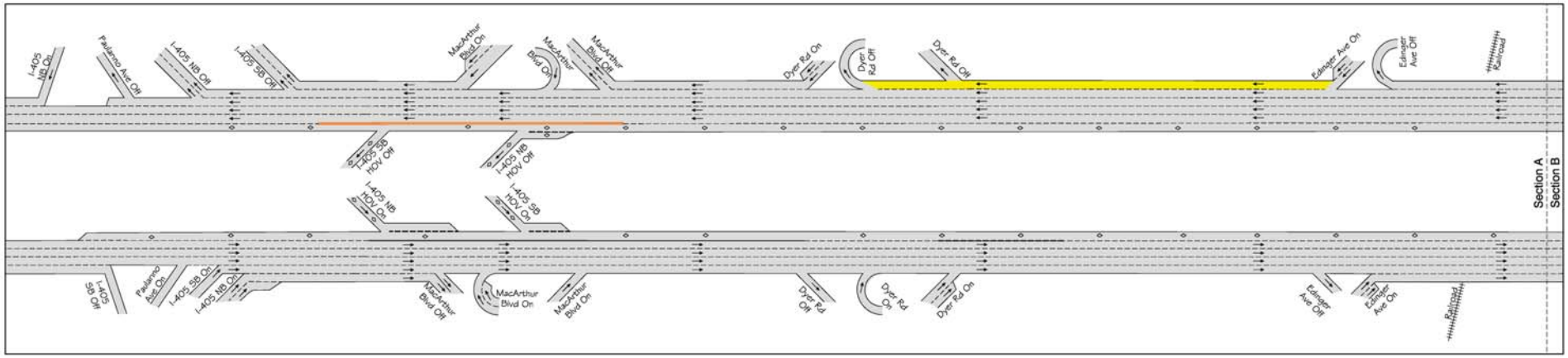

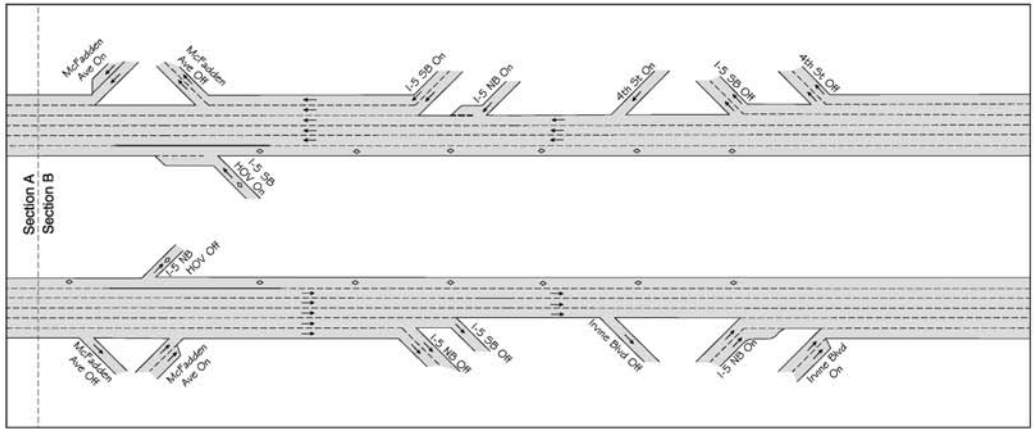

LEGEND

- General Purpose Lane
- HOV Lane
- Improvements by Other Project Completed in 2012
- HOV Limited Access

FIGURE 1-9

N

NOT TO SCALE

SOURCE: Final Traffic Operations Report (2014)

I:\HDR1102\G\IS_EA\Final IS_EA\No Build Alternative.cdr (6/28/2017)

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

No Build Alternative

12-ORA-55 PM 6.4/10.3

EA No. 0J3400/EFIS 1200020328

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1.3.2 Common Design Features of the Build Alternatives

1.3.2.1.1 Permanent Project Components

Mainline Improvements

As shown on the figures of the alternatives, the Build Alternatives would all add one general-purpose lane southbound between McFadden Avenue and Edinger Avenue. In addition, the Build Alternatives would extend the transition length for merging between the existing southbound HOV lane and the southbound I-5/SR-55 HOV connector to past Edinger Avenue.

Each Build Alternative would widen westbound Dyer Road to include an exclusive right-turn lane from the northbound SR-55 on-ramp to a relocated driveway at the motel adjacent to this ramp.

Ramp Improvements

All Build Alternatives would require modifications to the following ramps to accommodate the mainline improvements:

- Westbound MacArthur Boulevard to the northbound SR-55 on-ramp
- Southbound SR-55 off-ramp to MacArthur Boulevard
- Northbound SR-55 off-ramp to Dyer Road
- Northbound SR-55 off-ramp to MacArthur Boulevard
- Eastbound Dyer Road to the northbound SR-55 loop on-ramp
- Westbound Dyer Road to the northbound SR-55 on-ramp
- Eastbound Dyer Road to the southbound SR-55 on-ramp
- Northbound SR-55 off-ramp to Edinger Avenue
- Southbound SR-55 loop off-ramp to Edinger Avenue
- Edinger Avenue to the southbound SR-55 on-ramp
- McFadden Avenue to the southbound SR-55 on-ramp
- Southbound SR-55 off-ramp to McFadden Avenue

Bridges

All Build Alternatives would require northbound widening of the Dyer Road undercrossing, southbound widening of the Edinger Avenue undercrossing, and southbound widening of the South Tustin Overhead bridge structures.

Retaining Walls

To minimize the need to acquire right of way by keeping the permanent improvements within the existing right of way, all Build Alternatives would require construction of retaining walls at the following locations:

- Northbound SR-55 just north of the Dyer Road undercrossing
- Tieback wall on the northbound SR-55 side of the Warner Avenue overcrossing

- Two locations on southbound SR-55 between the McFadden Avenue on-ramp and the Edinger Avenue off-ramp

Drainage Facilities

There are extensive storm drain facilities throughout the SR-55 corridor. The project construction would affect some of those facilities in order to contain storm water flows within the project limits or to accommodate project improvements such as sound and retaining walls. The changes to drainage facilities as a result of the Build Alternatives include relocation, extension, and/or adjustment of the existing drainage systems; additional inlet, down drains, and/or overside drains; and abandonment and/or removal of system components that are no longer serviceable.

All Build Alternatives would require the relocation of the existing Caltrans culverts and concrete pipe storm drains in the SR-55 right of way described in Table 1.8. In addition, all Build Alternatives would reconfigure Lane Channel (a 31.5 ft. wide concrete trapezoidal channel adjacent to the west side of SR-55 between the MacArthur Boulevard and Dyer Road interchanges) from a trapezoidal channel to a rectangular channel and would realign the channel. The Lane Channel is an Orange County Flood Control District facility.

Table 1.8 Proposed Drainage Relocations Common to all Build Alternatives

Size and Type of Facility	Location	Proposed Relocation
30" alternative pipe culvert	Parallel to NB SR-55 from south of Warner Ave to Valencia Ave	Would be relocated farther east to accommodate the freeway widening
54" alternative pipe culvert 48" alternative pipe culvert 42" reinforced concrete pipe 36" alternative pipe culvert	Parallel to SB SR-55 from north of Edinger Ave to north of McFadden Ave	Would be relocated farther west to accommodate the freeway widening and would join an existing 24" alternative pipe culvert
Open channel (concrete V-ditch)	Northbound SR-55 between Dyer Road off-ramp and loop on-ramp	Convert the open channel to an underground 24 pipe
Open channel (Lane Channel)	North of MacArthur Blvd to south of Dyer Rd.	Reconfigure Lane Channel from trapezoidal to rectangular and relocate eastward.

Source: *Draft Preliminary Drainage Report* (2013) and Project Report (2017).
Ave = Avenue SB = southbound
NB = northbound SR-55 = State Route 55

Utilities

During construction, all utilities within the freeway right of way would be protected in place or relocated. During final design, the Project Engineer would coordinate with each utility provider to finalize the exact location of that utility's facilities, assess whether the facilities can be protected in place during construction or would require relocation, and review the project plans for protection in place/relocation of the facility with the utility provider prior to construction. The utility relocations and/or protection in place common to all Build Alternatives are listed in Table 1.9. All Build Alternatives would require permanent utility easements on eight parcels.

Table 1.9 Utility Relocations and Protection in Place Common to all Build Alternatives

Utility Provider	Description of Facility	Project Effect (Relocation or Protection in Place)
City of Santa Ana	12" water line in 20" casing	SR-55 crossing would be relocated (jack and bore)

Table 1.9 Utility Relocations and Protection in Place Common to all Build Alternatives

Utility Provider	Description of Facility	Project Effect (Relocation or Protection in Place)
	24" water line in 30" casing	SR-55 crossing would be relocated (jack and bore)
	Pressure reducing facility	Would be reconstructed west of SR-55
Orange County Sanitation District	Sewer manhole	Would be removed from NB SR-55
	24" VCP sewer	Casing for sewer line crossing would be extended east of SR-55
	15" VCP sewer	Would be relocated along west side of SB SR-55
Southern California Edison	Overhead 66 kV electric transmission line	Would be relocated to an underground line along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
		Would be relocated along the north and south sides of MacArthur Blvd on the east side of SR-55
		Would be relocated with 4 steel poles and 2 wood poles along Pullman St on the east side of SR-55 between MacArthur Blvd and McGaw Ave
		Would be relocated to an underground line along Pullman St on the east side of SR-55 between Garry Ave and Carnegie Ave
		Would be relocated to an underground line along Pullman St on the east side of SR-55 and Warner Ave
	Overhead electric distribution line	Would be relocated to an underground line at the corner of Pullman St and Carnegie Ave
	Overhead 66 kV electric transmission line	Would be relocated along Ritchey St on the west side of SR-55 and then cross SR-55 and continue along the east side of NB SR-55
	Underground electric line	Would be relocated along the west side of SB SR-55
	Overhead electric line	Would be relocated with 2 wood poles along the west side of SB SR-55
Southern California Gas Company	30" high-pressure gas main	Casing for gas line crossing would be extended east of SR-55
	4" gas line	Would be relocated along Pullman St on the east side of SR-55 between Dyer Rd and Warner Ave
	30" high-pressure gas main	Would be relocated along the west side of SB SR-55
MWD	18" water line	Would be relocated (jack and bore casing)
AT&T	4" cable line	Casing for cable line crossing would be extended east and west of SR-55

Source: *Draft Project Report* (2015).

Ave = Avenue
Blvd = Boulevard
kV = kilovolt
MWD = Metropolitan Water District
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street
VCP = vitrified clay pipe

Sound Walls

Two noise barriers were determined to be reasonable. Noise Barrier (NB) No. 3 and combined NB No. 3 Reduced and NB No. 4 would be reasonable and feasible. NB No. 3 is 1,021 ft long, 16–22 ft in height, and proposed to be located along the Caltrans right of way/property line on the northbound side of SR-55 near the northbound McFadden Avenue off-ramp at Sycamore Avenue. Combined NB No. 3 Reduced and NB No. 4 is 1,244 ft long, 10–22 ft in height, and proposed to be located along the perimeter of the multi-family residences located along Kenyon Drive in Tustin. The location of these barriers are shown later on Figure 2.14-2.

Water Quality Best Management Practices (BMPs)

The existing impervious surface area within the project limits is 122.9 ac. The new impervious areas and the total impervious areas under each of the Build Alternatives are listed in Table 1.10. Treatment BMPs being proposed as part of the Build Alternatives include a series of biofiltration strips and swales and, potentially, an infiltration basin.

Table 1.10 Impervious Surface Areas by Alternative

Alternative	New Impervious Surface Area (ac)	Total Impervious Surface Area (ac)
Alternative 1	7.25	130.15
Alternative 2	11.32	134.22
Alternative 3	15.28	138.18
Alternative 4	15.02	137.92
Alternative 3M	15.30	138.18

Source: *Water Quality Assessment Report* (2014) and *Supplemental Water Quality Assessment Report* (2016).
ac = acres

Ramp Metering Systems and Other Facilities

There are a number of existing Caltrans facilities and systems within the freeway right of way that may need to be modified and/or relocated to accommodate the improvements provided in the Build Alternatives. These include the ramp metering system at every on-ramp on the project segment of SR-55, changeable message signs, closed-caption television, loop detectors, Transportation Systems Management (TSM), and fiber optic communication systems. The modified and/or relocated facilities and systems would all be located within the right of way for SR-55.

Existing overhead freeway signs at the ramps would be relocated to accommodate the modified ramps. Call boxes along the freeway mainline and metal beam guard rails would be relocated within the SR-55 right of way, as needed, to accommodate the widened freeway and modified ramps.

An Exception to Ramp Metering Policy (HOV Bypass Lane at Ramp Meters) Fact Sheet will be required for locations where ramp traffic demand requires two-lane ramps and providing an HOV Bypass Lane is not feasible. Exceptions to Design Standards Fact Sheets will be prepared for the preferred alternative (Alternative 3M).

Landscape and Irrigation Systems

Planting plans included in the final design for the proposed project would consist of replacement planting for existing trees, shrubs, and ground cover removed by the Build Alternatives where space within the freeway right of way is available for landscaping purposes. The replacement planting would be consistent with the existing landscape palette along the project segment of SR-55 and would incorporate native plant species to the extent feasible.

Existing irrigation systems temporarily removed during construction would be replaced. Project-related irrigation system modifications would include extending existing irrigation crossovers under roads, installing new waterline crossovers inside bridge cells as needed, and modifying existing systems to maintain water supply to undisturbed planting areas.

Right of Way Acquisition

All Build Alternatives would require the full acquisition of one parcel adjacent to the southbound SR-55 on-ramp from Dyer Road and three parcels adjacent to the north side of the southbound SR-55 off-ramp to Grand Avenue, and the partial acquisition of seven parcels. The locations of the anticipated full and partial parcel acquisitions under all Build Alternatives are shown later on Figures 2.3-2 through 2.3-5.

Design Exceptions (Advisory and Mandatory)

All Build Alternatives would require design exceptions. Design exceptions are necessary when the proposed design deviates from the standard design features presented in the Caltrans *Highway Design Manual*. For example, the design standard for a freeway left-side shoulder is 10 ft; design exceptions would be requested for locations where the columns supporting overcrossing bridges encroach into the shoulder and narrow the shoulder to approximately 7 ft beneath the bridge. None of the proposed Build Alternatives would be full standard; mandatory and advisory design exceptions would be required for all Build Alternatives. A full standard alternative would not be cost effective, would require extensive rebuild of the existing freeway, and would have extensive right of way impacts. There are 8 mandatory and 12 advisory design standards common to all alternatives that would require design exceptions at one or more locations along the project.

An Exception to Ramp Metering Policy (HOV Bypass Lane at Ramp Meters) Fact Sheet will be required for locations where ramp traffic demand requires two-lane ramps and providing an HOV Bypass Lane is not feasible. Exceptions to Design Standards Fact Sheets will be prepared for the preferred alternative (Alternative 3M).

1.3.3 Unique Features of the Build Alternatives

1.3.3.1.1 This section describes features unique to each Build Alternative.

1.3.3.1.1 Alternative 1: Additional Auxiliary Lanes

The features provided in Alternative 1 were shown earlier on Figure 1-4. The features unique to Alternative 1 are described below.

The maximum disturbance limits, shown on Figure 1-1, define the maximum area that could potentially be disturbed during construction of Alternative 1. The actual construction disturbance area may be less than the maximum disturbance limits shown on Figure 1-1 but would not extend outside the area within those defined maximum disturbance limits. The maximum disturbance limits include areas anticipated to be used during construction for temporary construction easements (TCEs) and all right of way anticipated to be acquired to accommodate the permanent improvements in Alternative 1.

Right of Way Acquisition

Alternative 1 would not require any partial acquisitions beyond those described in Section 1.3.2. The locations of the anticipated full and partial parcel acquisitions under Alternative 1 are shown later on Figure 2.3-2.

Design Exceptions (Advisory and Mandatory)

In addition to the design exceptions common to all the Build Alternatives, Alternative 1 would require 1 mandatory and 1 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

Temporary Construction Easements

Alternative 1 would require a total of 24 TCEs; 16 would be on commercial and industrial parcels, 5 TCEs would be on residential parcels, 2 TCEs would be on flood control parcels, and 1 TCE would be on a railroad parcel.

1.3.3.1.2 Alternative 2: One New General-Purpose Lane

The features provided in Alternative 2 were shown earlier on Figure 1-5. The features unique to Alternative 2 are described below.

Figure 1-1 shows the maximum disturbance limits for Alternative 2. The actual construction disturbance area may be less than the maximum disturbance limits shown on Figure 1-1 but would not extend outside the area within those defined maximum disturbance limits. The maximum disturbance limits include areas anticipated to be used during construction for TCEs and all right of way anticipated to be acquired to accommodate the permanent improvements in Alternative 2.

Ramp Improvements

In addition to the ramp improvements described in Section 1.3.2, Alternative 2 would require modification of all the other ramps along the project segment of SR-55, with the exception of the southbound SR-55 off-ramp to Dyer Road/Grand Avenue. The additional ramps that would need modification under Alternative 2 are:

- Eastbound MacArthur Boulevard to the northbound SR-55 loop on-ramp
- Westbound MacArthur Boulevard to the southbound SR-55 loop on-ramp
- Eastbound MacArthur Boulevard to the southbound SR-55 on-ramp
- Southbound SR-55 loop off-ramp to Dyer Road
- Edinger Avenue (from Newport Avenue) to the northbound SR-55 on-ramp
- Northbound SR-55 off-ramp to McFadden Avenue
- Westbound McFadden Avenue to the northbound SR-55 on-ramp

Bridges

In addition to the bridge widenings discussed above under Section 1.3.2, freeway widening to accommodate the additional general-purpose lanes for Alternative 2 would require northbound and southbound widening at the MacArthur Boulevard undercrossing bridge structure, southbound widening of the Dyer Road undercrossing, and northbound widening of the South Tustin overhead.

Retaining Walls

In addition to the retaining walls described in Section 1.3.2, Alternative 2 would require the construction of retaining walls at the following locations:

- On northbound SR-55 between I-405 and MacArthur Boulevard
- On northbound SR-55, just north of the MacArthur Boulevard undercrossing
- On the westbound Dyer Road on-ramp to northbound SR-55
- On northbound SR-55, just south of the Edinger Avenue undercrossing
- Two locations on northbound SR-55 between Edinger Avenue and McFadden Avenue
- On southbound SR-55, just north of the Dyer Road undercrossing
- Tieback wall on the southbound side of the Warner Avenue overcrossing

Drainage Facilities

In addition to the storm drain relocations described in Table 1.8, Alternative 2 would require the relocation of the storm drain facilities described in Table 1.11.

Table 1.11 Alternative 2 Proposed Drainage Relocations

Size and Type of Facility	Location	Proposed Relocations
53" reinforced concrete pipe 64" x 40" reinforced concrete pipe arch 30" reinforced concrete pipe 24" reinforced concrete pipe	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening

24" alternative pipe culvert	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening
66" alternative pipe culvert 8 ft x 4 ft reinforced concrete box 63" alternative pipe culvert 60" alternative pipe culvert 54" alternative pipe culvert	Parallel to SB SR-55 from north of Dyer Rd to south of Edinger Ave	Would be relocated farther west to accommodate the widening and would join an existing 54" alternative pipe culvert
8 ft x 4 ft reinforced concrete box	Parallel to NB SR-55 from south of McFadden Ave to north of McFadden Ave	Would be relocated farther east to accommodate the widening and join an existing 8 ft x 4 ft reinforced concrete box

Source: *Draft Preliminary Drainage Report* (2013).
Ave = Avenue NB = northbound SR-55 = State Route 55
Blvd = Boulevard Rd = Road St = Street
ft = foot SB = southbound

Right of Way Acquisition

In addition to the right of way acquisitions described in Section 1.3.2, Alternative 2 would require the partial acquisition of 9 additional parcels. The locations of the anticipated full and partial parcel acquisitions under Alternative 2 are shown later on Figure 2.3-3.

Design Exceptions (Advisory and Mandatory)

In addition to the design exceptions common to all the Build Alternatives, Alternative 2 would require 6 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

Utilities

In addition to the utility relocation and protection in place effects common to all the Build Alternatives, Alternative 2 would result in effects on additional utility facilities, as listed in Table 1.12. Alternative 2 would require permanent utility easements on one parcel in addition to the eight permanent utility easements common to all the Build Alternatives.

Table 1.12 Utility Relocations and Protection in Place Unique to Alternative 2

Utility Provider	Description of Facility	Project Effect (Relocation or Protection in Place)
Irvine Ranch Water District	8" VCP sewer	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd, with a new manhole installed
	5 fire hydrants 6 water service lines 6 fire service lines 10 valve cans	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
Southern California Edison	Overhead 66 kV electric transmission line	Would be relocated
	Overhead electric steel pole	Would be relocated on the east side of SR-55
	Overhead 66 kV electric transmission line	Would be relocated with one wood pole along Cowan St. on the east side of SR-55 between Main St and MacArthur Blvd
	Underground 12 kV electric distribution line	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
Southern California Gas Company	2" gas line	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd

Table 1.12 Utility Relocations and Protection in Place Unique to Alternative 2

Utility Provider	Description of Facility	Project Effect (Relocation or Protection in Place)
AT&T	Underground Conduits	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd

Source: *Draft Project Report* (2015).
Blvd = Boulevard St = Street
kV = kilovolt VCP = vitrified clay pipe
SR-55 = State Route 55

Temporary Construction Easements

Alternative 2 would require a total of 47 TCEs; 36 would be on commercial and industrial and industrial parcels, 5 TCEs would be on residential parcels, 3 TCEs would be on flood control parcels, 2 TCEs would be on railroad parcels, and 1 TCE would be on a publicly owned parcel.

1.3.3.1.3 Alternative 3: One New General-Purpose Lane and Additional Auxiliary Lanes

The features provided in Alternative 3 were shown earlier on Figure 1-6. The features unique to Alternative 3 are described below.

Figure 1-1 shows the maximum disturbance limits for Alternative 3. The actual construction disturbance area may be less than the maximum disturbance limits shown on Figure 1-1 but would not extend outside the area within those defined maximum disturbance limits. The maximum disturbance limits include areas anticipated to be used during construction for TCEs and all right of way anticipated to be acquired to accommodate the permanent improvements in Alternative 3.

Ramp Improvements

In addition to the ramp improvements described in Section 1.3.2, Alternative 3 would require modification of all the other ramps along the project segment of SR-55 to accommodate the improvements to the SR-55 mainline facilities. The additional ramps that would need modification under Alternative 3 are:

- Eastbound MacArthur Boulevard to the northbound SR-55 loop on-ramp
- Westbound MacArthur Boulevard to the southbound SR-55 loop on-ramp
- Eastbound MacArthur Boulevard to the southbound SR-55 on-ramp
- Southbound SR-55 loop off-ramp to Dyer Road
- Southbound SR-55 loop off-ramp to Dyer Road at Grand Avenue
- Northbound SR-55 off-ramp to McFadden Avenue
- McFadden Avenue to the northbound SR-55 on-ramp
- Edinger Avenue (from Newport Avenue) to the northbound SR-55 on-ramp
- MacArthur northbound loop on-ramp

Bridges

In addition to the bridge widenings discussed above in Section 1.3.2, freeway widening to accommodate the additional general-purpose lanes for Alternative 3 would require northbound and southbound widening of the MacArthur Boulevard undercrossing bridge

structure, southbound widening of the Dyer Road undercrossing, and northbound widening of the South Tustin overhead.

Retaining Walls

In addition to the retaining walls described in Section 1.3.2, Alternative 3 would require the construction of retaining walls at the following locations:

- On northbound SR-55 between I-405 and MacArthur Boulevard
- On northbound SR-55, just north of the MacArthur Boulevard undercrossing
- On northbound SR-55, between the westbound MacArthur Boulevard on-ramp and the Dyer Road off-ramp
- On the westbound Dyer Road on-ramp to northbound SR-55
- On northbound SR-55, just south of the Edinger Avenue undercrossing
- Two locations on northbound SR-55, between Edinger Avenue and McFadden
- On southbound SR-55, just north of the Dyer Road undercrossing
- Tieback wall on southbound side of the Warner Avenue overcrossing

Drainage Facilities

In addition to the storm drain relocations described in Table 1.8, Alternative 3 would require relocation of the storm drain facilities described in Table 1.13.

Table 1.13 Alternative 3 Proposed Drainage Relocations

Size and Type of Facility	Location	Proposed Design
53" reinforced concrete pipe 64" x 40" reinforced concrete pipe arch 30" reinforced concrete pipe 24" reinforced concrete pipe	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening
24" alternative pipe culvert	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening
66" alternative pipe culvert 8 ft x 4 ft reinforced concrete box 63" alternative pipe culvert 60" alternative pipe culvert 54" alternative pipe culvert	Parallel to SB SR-55 from north of Dyer Rd to south of Edinger Ave	Would be relocated farther west to accommodate the widening and would join an existing 54" alternative pipe culvert
8 ft x 4 ft reinforced concrete box	Parallel to NB SR-55 from south of McFadden Ave to north of McFadden Ave	Would be relocated farther east to accommodate the widening and would join an existing 8 ft x 4 ft reinforced concrete box

Source: *Draft Preliminary Drainage Report* (2013).

Ave = Avenue	ft = foot	Rd = Road	SR-55 = State Route 55
Blvd = Boulevard	NB = northbound	SB = southbound	St = Street

Right of Way Acquisition

In addition to the right of way acquisitions described in Section 1.3.2, Alternative 3 would require the full acquisition of three parcels on southbound SR-55 just north of the Warner Avenue overcrossing and one parcel on northbound SR-55 just south of the Warner Avenue overcrossing. Alternative 3 would also require the partial acquisition of 23 parcels in addition to those acquisitions described in Section 1.3.2. The locations of the anticipated full and partial parcel acquisitions under Alternative 3 are shown later on Figure 2.3-4.

Design Exceptions (Advisory and Mandatory)

In addition to the design exceptions common to all the Build Alternatives, Alternative 3 would require 1 mandatory and 5 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

Utilities

In addition to the utility relocation and protection in place effects common to all the Build Alternatives described earlier in Table 1.9, Alternative 3 would result in effects on additional utility facilities as listed in Table 1.14. Alternative 3 would require permanent utility easements on 10 parcels in addition to the 8 permanent utility easements common to all the Build Alternatives.

Table 1.14 Utility Relocations and Protection in Place Unique to Alternative 3

Utility Provider and Facility	Description of Facility	Project Effect (Relocation or Protection in Place)
City of Santa Ana	3 fire hydrants 3 water service lines 3 fire service lines 5 valve cans	Would be relocated along Pullman St between Dyer Rd and Warner Ave
	24" water line	Would be relocated along Ritchey St on the west side of SR-55
Irvine Ranch Water District	8" VCP sewer	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd, with a new manhole installed
	5 fire hydrants 6 water service lines 6 fire service lines 10 valve cans	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
Orange County Sanitation District	15" VCP sewer	Would be relocated along Ritchey St on the west side of SR-55
Southern California Edison	Overhead 66 kV electric transmission line	Would be relocated
	Overhead electric steel pole	Would be relocated on the east side of SR-55
	Overhead 66 kV electric transmission line	Would be relocated with one wood pole along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
	Underground 12 kV electric distribution line	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
Southern California Gas Company	2" gas line	Would be relocated along Cowan St on the east
	3" gas line	Would be relocated along Pullman St on the east side of SR-55 between McGaw Ave and Duryea Ave
Time Warner	Telecom cables	Would be relocated
AT&T	Underground conduits	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
		Would be relocated along Pullman St on the east side of SR-55

Source: *Final Project Report* (2017) .
Ave = Avenue SR-55 = State Route 55
Blvd = Boulevard St = Street
kV = kilovolt VCP = vitrified clay pipe

Temporary Construction Easements

Alternative 3 would require a total of 59 TCEs; 48 TCEs would be on commercial and industrial parcels, 5 TCEs would be on residential parcels, 3 TCEs would be on flood control parcels, 2 TCEs would be on railroad parcels, and 1 TCE would be on a vacant parcel.

1.3.3.1.4 Alternative 4: One New HOV Lane and Auxiliary Lanes

The features provided in Alternative 4 were shown earlier on Figure 1-7. The features unique to Alternative 4 are described below.

Figure 1-1 shows the maximum disturbance limits for Alternative 4. The actual construction disturbance area may be less than the maximum disturbance limits shown on Figure 1-1 but would not extend outside the area within those defined maximum disturbance limits. The maximum disturbance limits include areas anticipated to be used during construction for TCEs and all right of way anticipated to be acquired to accommodate the permanent improvements in Alternative 4.

Ramp Improvements

In addition to the ramp improvements described in Section 1.3.2, Alternative 4 would require modification of the following ramps:

- Southbound SR-55 loop off-ramp to Dyer Road
- Southbound SR-55 off-ramp to Dyer Road at Grand Avenue
- Edinger Avenue (from Newport Ave) to the northbound SR-55 on-ramp
- Northbound SR-55 off-ramp to McFadden Avenue
- Westbound McFadden Avenue to the northbound SR-55 on-ramp

Bridges

In addition to the bridge widenings discussed above under Section 1.3.2, freeway widening to accommodate the additional general-purpose lanes for Alternative 4 would require southbound widening of the Dyer Road undercrossing and northbound widening of the South Tustin overhead.

Retaining Walls

In addition to the retaining walls described in Section 1.3.2, Alternative 4 would require the construction of retaining walls at the following locations:

- On northbound SR-55, between the westbound MacArthur Boulevard on-ramp and the Dyer Road off-ramp
- On the westbound Dyer Road on-ramp to northbound SR-55
- On northbound SR-55, just south of the Edinger Avenue undercrossing
- Two locations on northbound SR-55 between Edinger Avenue and McFadden Avenue
- On southbound SR-55, just north of the Dyer Road undercrossing
- On the southbound side of the Warner Avenue overcrossing

Drainage Facilities

In addition to the storm drain relocations described in Table 1.8, Alternative 4 would also require the relocation of the storm drain facilities described in Table 1.15.

Table 1.15 Alternative 4 Proposed Drainage Relocations

Size and Type of Facility	Location	Proposed Design
66" alternative pipe culvert 8-ft x 4-ft reinforced concrete box 63" alternative pipe culvert 60" alternative pipe culvert 54" alternative pipe culvert	Parallel to SB SR-55 from north of Dyer Rd to south of Edinger Ave	To be relocated farther west and join existing 54" alternative pipe culvert
8 ft x 4 ft reinforced concrete box	Parallel to NB SR-55 from south of McFadden Ave to north of McFadden Ave	To be relocated farther east and join existing 8 ft x 4 ft reinforced concrete box

Source: *Draft Preliminary Drainage Report* (2013).
Ave = Avenue NB = northbound SR-55 = State Route 55
ft = foot SB = southbound

Right of Way Acquisition

In addition to the right of way acquisitions described in Section 1.3.2, Alternative 4 would require the full acquisition of the same three parcels on southbound SR-55 just north of the Warner Avenue overcrossing and the one parcel on northbound SR-55 just south of the Warner Avenue overcrossing as Alternative 3. Alternative 4 would also require the partial acquisition of 14 parcels in addition to those acquisitions described in Section 1.3.2. The locations of the anticipated full and partial parcel acquisitions under Alternative 4 are shown later on Figure 2.3-5.

Design Exceptions (Advisory and Mandatory)

In addition to the design exceptions common to all the Build Alternatives, Alternative 4 would require 2 mandatory and 2 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

Utilities

In addition to the utility relocation and protection in place effects common to all the Build Alternatives listed earlier in Table 1.9, Alternative 4 would result in effects on additional utility facilities as listed in Table 1.16. Alternative 4 would require permanent utility easements on 7 parcels in addition to the 8 permanent utility easements common to all the Build Alternatives.

Table 1.16 Utility Relocations and Protection in Place Unique to Alternative 4

Utility Provider	Description and Location of Facility	Project Effect (Relocation or Protection in Place)
City of Santa Ana	3 fire hydrants 3 water service lines 3 fire service lines 5 valve cans	Would be relocated along Pullman St between Dyer Rd and Warner Ave
	24" water line	Would be relocated along Ritchey St on the west side of SR-55
Orange County Sanitation District	15" VCP sewer	Would be relocated along Ritchey St on the west side of SR-55
Southern California Edison	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
Southern California Gas Company	3" gas line	Would be relocated along Pullman St on the east side of SR-55 between McGaw Ave and Duryea Ave

Table 1.16 Utility Relocations and Protection in Place Unique to Alternative 4

Utility Provider	Description and Location of Facility	Project Effect (Relocation or Protection in Place)
Time Warner	Telecom cables	Would be relocated
AT&T	Underground conduits	Would be relocated along Pullman St on the east side of SR-55

Source: *Draft Project Report* (2015).
Ave = Avenue SR-55 = State Route 55
Blvd = Boulevard St = Street
Rd = Road VCP = vitrified clay pipe

Temporary Construction Easements

Alternative 4 would require a total of 49 TCEs; 38 would be on commercial and industrial parcels, 5 TCEs would be on residential parcels, 3 TCEs would be on flood control parcels, 2 TCEs would be on railroad parcels, 1 TCE would be on a vacant parcel.

1.3.3.1.5 Alternative 3M (Preferred Alternative): New HOV and General Purpose Lanes and Additional Auxiliary Lanes

The features provided in Alternative 3M were shown earlier on Figure 1-8. The features unique to Alternative 3M are described below.

Figure 1-1 shows the maximum disturbance limits for Alternative 3. The actual construction disturbance area may be less than the maximum disturbance limits shown on Figure 1-1 but would not extend outside the area within those defined maximum disturbance limits. The maximum disturbance limits include areas anticipated to be used during construction for TCEs and all right of way anticipated to be acquired to accommodate the permanent improvements in Alternative 3M.

Ramp Improvements

In addition to the ramp improvements described in Section 1.3.2, Alternative 3M would require modification of all the other ramps along the project segment of SR-55 to accommodate the improvements to the SR-55 mainline facilities. The additional ramps that would need modification under Alternative 3M are:

- Southbound SR-55 loop off-ramp to Dyer Road
- Southbound SR-55 loop off-ramp to Dyer Road at Grand Avenue
- Edinger Avenue (from Newport Ave) to the northbound SR-55 on-ramp
- Northbound SR-55 off-ramp to McFadden Avenue
- McFadden Avenue to the northbound SR-55 on-ramp
- MacArthur northbound loop on-ramp
- Eastbound MacArthur Boulevard to the northbound SR-55 loop on-ramp
- Westbound MacArthur Boulevard to the southbound SR-55 loop on-ramp
- Eastbound MacArthur Boulevard to the southbound SR-55 on-ramp

Bridges

In addition to the bridge widenings discussed above in Section 1.3.2, freeway widening to accommodate the additional HOV, general-purpose lanes, and auxiliary lanes for Alternative 3M would require northbound and southbound widening of MacArthur Boulevard undercrossing, southbound widening of the Dyer Road undercrossing, northbound widening

of the Edinger Avenue undercrossing, and the northbound widening of the South Tustin Overhead bridge structures.

Retaining Walls

In addition to the retaining walls described in Section 1.3.2, Alternative 3M would require the construction of retaining walls at the following locations:

- On northbound SR-55 between I-405 and MacArthur Boulevard
- On northbound SR-55, just north of the MacArthur Boulevard undercrossing
- On northbound SR-55, between the westbound MacArthur Boulevard on-ramp and the Dyer Road off-ramp
- On the westbound Dyer Road on-ramp to northbound SR-55
- On northbound SR-55, just south of the Edinger Avenue undercrossing
- Two locations on northbound SR-55, between Edinger Avenue and McFadden
- On southbound SR-55, just north of the Dyer Road undercrossing
- Tieback wall on southbound side of the Warner Avenue overcrossing

Drainage Facilities

In addition to the storm drain relocations described in Table 1.8, Alternative 3M would require relocation of the storm drain facilities described in Table 1.17.

Table 1.17 Alternative 3M Proposed Drainage Relocations

Size and Type of Facility	Location	Proposed Design
53" reinforced concrete pipe 64" x 40" reinforced concrete pipe arch 30" reinforced concrete pipe 24" reinforced concrete pipe	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening
24" alternative pipe culvert	Parallel to NB SR-55, north of Main St and south of MacArthur Blvd	Would be relocated farther east to accommodate the widening
66" alternative pipe culvert 8 ft x 4 ft reinforced concrete box 63" alternative pipe culvert 60" alternative pipe culvert 54" alternative pipe culvert	Parallel to SB SR-55 from north of Dyer Rd to south of Edinger Ave	Would be relocated farther west to accommodate the widening and would join an existing 54" alternative pipe culvert
8 ft x 4 ft reinforced concrete box	Parallel to NB SR-55 from south of McFadden Ave to north of McFadden Ave	Would be relocated farther east to accommodate the widening and would join an existing 8 ft x 4 ft reinforced concrete box
18" Slotted Corrugate pipe and inlets at average 100' spacing	Parallel to NB SR-55 from North of Dyer Road to Bell Avenue; 4' Shoulder Area	Proposed
Grated Line Drain	Parallel to SB SR-55 North of Grand Ave Ramp to Newport Circle; 8' shoulder area	Proposed

Source: *Final Project Report* (2017).

Ave = Avenue	ft = foot	Rd = Road	SR-55 = State Route 55
Blvd = Boulevard	NB = northbound	SB = southbound	St = Street

Right of Way Acquisition

In addition to the right of way acquisitions described in Section 1.3.2, Alternative 3M would require the full acquisition of three parcels on southbound SR-55 just north of the Warner Avenue overcrossing and one parcel on northbound SR-55 just south of the Warner Avenue overcrossing. Alternative 3M would also require the partial acquisition of 24 parcels in

addition to those acquisitions described in Section 1.3.2. The locations of the anticipated full and partial parcel acquisitions under Alternative 3M are shown later on Figure 2.3-4.

Design Exceptions (Advisory and Mandatory)

In addition to the design exceptions common to all the Build Alternatives, Alternative 3M would require 1 mandatory and 5 advisory design standards that would require design exceptions at one or more locations along the alignment of this alternative.

Utilities

In addition to the utility relocation and protection in place effects common to all the Build Alternatives described earlier in Table 1.9, Alternative 3M would result in effects on additional utility facilities as listed in Table 1.18. Alternative 3M would require permanent utility easements on 10 parcels in addition to the 8 permanent utility easements common to all the Build Alternatives.

Table 1.18 Utility Relocations and Protection in Place Unique to Alternative 3M

Utility Provider and Facility	Description of Facility	Project Effect (Relocation or Protection in Place)
City of Santa Ana	3 fire hydrants 3 water service lines 3 fire service lines 5 valve cans	Would be relocated along Pullman St between Dyer Rd and Warner Ave
	24" water line	Would be relocated along Ritchey St on the west side of SR-55
Irvine Ranch Water District	8" VCP sewer	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd, with a new manhole installed
	5 fire hydrants 6 water service lines 6 fire service lines 10 valve cans	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
Orange County Sanitation District	15" VCP sewer	Would be relocated along Ritchey St on the west side of SR-55
Southern California Edison	Overhead 66 kV electric transmission line	Would be relocated
	Overhead electric steel pole	Would be relocated on the east side of SR-55
	Overhead 66 kV electric transmission line	Would be relocated with one wood pole along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
	Underground 12 kV electric distribution line	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
	Pole anchor	Would be removed
	Wood pole	Would be replaced with steel pole
Southern California Gas Company	2" gas line	Would be relocated along Cowan St on the east
	3" gas line	Would be relocated along Pullman St on the east side of SR-55 between McGaw Ave and Duryea Ave
Time Warner	Telecom cables	Would be relocated
AT&T	Underground conduits	Would be relocated along Cowan St on the east side of SR-55 between Main St and MacArthur Blvd
		Would be relocated along Pullman St on the east side of SR-55

Source: *Final Project Report* (2017).
Ave = Avenue SR-55 = State Route 55
Blvd = Boulevard St = Street
kV = kilovolt VCP = vitrified clay pipe

Temporary Construction Easements

Alternative 3M would require a total of 59 TCEs; 48 TCEs would be on commercial and industrial parcels, 5 TCEs would be on residential parcels, 3 TCEs would be on flood control parcels, 2 TCEs would be on railroad parcels, and 1 TCE would be on a vacant parcel.

Project Costs

The SR-55 Improvement Project would cost between approximately $127.1 and $257.2 million, depending on the alternative. The road, structure, right of way, and total costs for each Build Alternative are provided in Table 1.17. As noted earlier, this project is anticipated to be constructed with M2 funds. In addition, $12 million in federal Regional Surface Transportation Project (RSTP) funds are available for final design.

Table 1.19 Summary of Costs by Alternative

Alternative	Right of Way Costs	Road Costs	Structure Costs	Total Costs
Alternative 1	$51,978,631	$71,100,000	$4,028,000	$127,107,000
Alternative 2	$69,619,966	$120,700,000	$8,010,000	$198,030,000
Alternative 3	$105,293,804	$136,100,000	$9,366,000	$250,760,000
Alternative 4	$92,724,138	$116,300,000	$7,494,000	$216,519,000
Alternative 3M	$106,279,200	$140,801,000	$9,377,000	$257,157,000

Source: *Draft Project Report* (2015) and *Project Report* (2017).

1.3.4 Construction Schedule

Construction of the project is anticipated to begin in early-2021. Construction activities for Alternatives 1 and 2 are anticipated to be completed within approximately 30 months. Construction activities for Alternatives 3, 4, and 3M are anticipated to be completed within approximately 36 months.

1.4 Comparison of Alternatives

Table 1.20 provides information for comparison of the Build Alternatives and the No Build Alternative. The table summarizes the criteria used to evaluate the project alternatives, including design features, improvement in LOS, and environmental impacts. The criteria were developed by the Project Design Team (PDT) and was used during selection of a preferred alternative for the proposed project.

Table 1.20 Summary of Alternatives and Impacts

Evaluation Criteria		No Build Alternative	Build Alternative 1	Build Alternative 2	Build Alternative 3	Build Alternative 4	Build Alternative 3M (Preferred Alternative)
Project Features and Design Standards							
Number of Lanes		1 HOV, 4 general-purpose	1 HOV, 4 general-purpose, and auxiliary	1 HOV, 5 general-purpose	1 HOV, 5 general-purpose, and auxiliary	2 HOV, 4 general-purpose, and auxiliary	2 HOV, 5 general-purpose, and auxiliary
Travel Lanes consistent with the Caltrans Highway Design Manual?		Nonstandard general-purpose and HOV lanes	Standard general-purpose lanes and HOV lane	Standard general-purpose lanes and HOV lane	Standard general-purpose lanes and HOV lane	Standard general-purpose and HOV lane	Nonstandard general-purpose lanes and HOV lane
Shoulders consistent with the Caltrans Highway Design Manual?		Non-standard HOV median shoulder, standard outside shoulder	Standard HOV median shoulder, standard outside shoulder, non-standard inside shoulders	Standard HOV median shoulder, non-standard outside shoulder, non-standard inside shoulders	Non-standard HOV median, non-standard outside shoulder, non-standard inside shoulders	Non-standard HOV median, non-standard outside shoulder, non-standard inside shoulders	Non-standard HOV median, non-standard outside shoulder, non-standard inside shoulders
Horizontal clearances consistent with the Caltrans Highway Design Manual?		Standard clearances are not provided for the inside median	Standard clearances are provided except bridge columns and median sign posts	Standard clearances are provided except bridge columns and median sign posts	Standard clearances are provided except bridge columns and median sign posts	Standard clearances are provided except bridge columns and median sign posts	Standard clearances are not provided for the inside median
Vertical clearances consistent with the Caltrans Highway Design Manual?		Minimum vertical clearances are provided	Minimum vertical clearance over LOSSAN rail corridor is not provided	Minimum vertical clearance over LOSSAN rail corridor is not provided	Minimum vertical clearance over LOSSAN rail corridor is not provided	Minimum vertical clearance over LOSSAN rail corridor is not provided	Minimum vertical clearance over LOSSAN rail corridor is not provided
AM/PM peak-hour mainline LOS in 2040		E/F	E/F	D/F	D/F	D/F	D/F
Temporary construction easements		None	24	47	59	49	59
Project Cost		None	$127,107,000	$198,030,000	$250,760,000	$216,519,000	$257,157,000
Construction Duration		None	30 months	30 months	36 months	36 months	36 months
Potential Environmental Impacts							
Land Use		Not consistent with applicable transportation and land use plans	Consistent with local, regional, and State plans Permanent loss of 8 parking stalls	Consistent with local, regional, and State plans Permanent loss of 8 parking stalls	Consistent with local, regional, and State plans Permanent loss of 20 parking stalls	Consistent with local, regional, and State plans Permanent loss of 20 parking stalls	Consistent with local and State plans Permanent loss of 20 parking stalls
Growth		No impact	Would not result in unplanned growth	Would not result in unplanned growth	Would not result in unplanned growth	Would not result in unplanned growth	Would not result in unplanned growth
Farmlands and Timberlands		No impact	No impact	No impact	No impact	No impact	No impact
Community Impacts	Community Character and Cohesion	No impact	Temporary impacts during construction, including 12 overnight ramp closures No long-term impacts	Temporary impacts during construction, including 19 overnight ramp closures No long-term impacts	Temporary impacts during construction, including 20 overnight ramp closures No long-term impacts	Temporary impacts during construction, including 19 overnight ramp closures No long-term impacts	Temporary impacts during construction, including 20 overnight ramp closures No long-term impacts
	Relocation	No impact	Construction would require TCEs on 21	Construction would require TCEs on 41	Construction would require TCEs on 53	Construction would require TCEs on 43	Construction would require TCEs on 53

Table 1.20 Summary of Alternatives and Impacts

Evaluation Criteria		No Build Alternative	Build Alternative 1	Build Alternative 2	Build Alternative 3	Build Alternative 4	Build Alternative 3M (Preferred Alternative)
			residential, commercial, and industrial parcels; 2 flood control parcels; and 1 railroad parcel. Full acquisition of 4 vacant parcels and partial acquisition of 7 non-residential parcels, including the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump).	residential, commercial, and industrial parcels; 3 flood control parcels; 2 railroad parcels; and 1 public parcel. Full acquisition of 4 vacant parcels and partial acquisition of 16 non-residential parcels, including the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump).	residential, commercial, and industrial parcels; 3 flood control parcels; 2 railroad parcels; and 1 vacant parcel. Full acquisition of 8 non-residential parcels (including 2 business relocations) and partial acquisitions 30 non-residential properties (including the demolition of one occupied building), resulting in the displacement of one business (Rockin' Jump).	residential, commercial, and industrial parcels; 3 flood control parcels; 2 railroad parcels; and 1 vacant parcel. Full acquisitions of 8 non-residential parcels (including 2 business relocations) and partial acquisitions of 21 non-residential properties (including the demolition of one occupied building), resulting in the displacement of one business (Rockin' Jump).	residential, commercial, and industrial parcels; 3 flood control parcels; 2 railroad parcels; and 1 vacant parcel. Full acquisition of 8 non-residential parcels (including 4 business relocations) and partial acquisitions 31 non-residential properties (including the demolition of one occupied building), resulting in the displacement of one business (Rockin' Jump).
	Environmental Justice	No impact	No disproportionate impact	No disproportionate impact	No disproportionate impact	No disproportionate impact	No disproportionate impact
Utilities and Emergency Services		No impact	30 utility relocations and temporary emergency services delay during construction No long-term impacts	37 utility relocations and temporary emergency services delay during construction No long-term impacts	38 utility relocations and temporary emergency services delay during construction No long-term impacts	30 utility relocations and temporary emergency services delay during construction No long-term impacts	38 utility relocations and temporary emergency services delay during construction No long-term impacts
Traffic and Transportation		Long-term negative impact	Temporary impacts during construction Improved traffic operations and reduced congestion in the long term	Temporary impacts during construction Improved traffic operations and reduced congestion in the long term	Temporary impacts during construction Improved traffic operations and reduced congestion in the long term	Temporary impacts during construction Improved traffic operations and reduced congestion in the long term	Temporary impacts during construction Improved traffic operations and reduced congestion in the long term
Visual and Aesthetics		No impact	Temporary impacts during construction Permanent wall and landscaping enhancements	Temporary impacts during construction Permanent wall and landscaping enhancements	Temporary impacts during construction Permanent wall and landscaping enhancements	Temporary impacts during construction Permanent wall and landscaping enhancements	Temporary impacts during construction Permanent wall and landscaping enhancements

Table 1.20 Summary of Alternatives and Impacts

Evaluation Criteria	No Build Alternative	Build Alternative 1	Build Alternative 2	Build Alternative 3	Build Alternative 4	Build Alternative 3M (Preferred Alternative)
Cultural Resources	No impact	Unanticipated cultural resources may be encountered during construction.	Unanticipated cultural resources may be encountered during construction.	Unanticipated cultural resources may be encountered during construction.	Unanticipated cultural resources may be encountered during construction.	Unanticipated cultural resources may be encountered during construction.
Hydrology and Floodplains	No impact	Minimal change to floodplain elevations	Minimal change to floodplain elevations	Minimal change to floodplain elevations	Minimal change to floodplain elevations	Minimal change to floodplain elevations
Water Quality and Storm Water Runoff	No impact	Construction activities would disturb a total area of 38.9 ac, resulting in temporary impacts during construction. Permanent increase in impervious surface area of 7.3 ac, thereby increasing the volume of runoff and permanent improvement in water quality with project Treatment BMPs	Construction activities would disturb a total area of 70.3 ac, resulting in temporary impacts during construction. Permanent increase in impervious surface area of 11.3 ac, thereby increasing the volume of runoff and permanent improvement in water quality with project Treatment BMPs	Construction activities would disturb a total area of 77.2 ac, resulting in temporary impacts during construction. Permanent increase in impervious surface area of 15.3 ac, thereby increasing the volume of runoff and permanent improvement in water quality with project Treatment BMPs	Construction activities would disturb a total area of 64.9 ac, resulting in temporary impacts during construction. Permanent increase in impervious surface area of 15.0 ac, thereby increasing the volume of runoff and permanent improvement in water quality with project Treatment BMPs	Construction activities would disturb a total area of 77.2 ac, resulting in temporary impacts during construction. Permanent increase in impervious surface area of 15.3 ac, thereby increasing the volume of runoff and permanent improvement in water quality with project Treatment BMPs
Geology, Soils, Seismic, and Topography	No impact	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts
Paleontology	No impact	Potential to encounter paleontological resources during construction if activities extend below 10 feet.	Potential to encounter paleontological resources during construction if activities extend below 10 feet.	Potential to encounter paleontological resources during construction if activities extend below 10 feet.	Potential to encounter paleontological resources during construction if activities extend below 10 feet.	Potential to encounter paleontological resources during construction if activities extend below 10 feet.
Hazardous Wastes and Materials	No impact	Soil contaminants and structural materials may be encountered during construction No long-term impacts	Soil contaminants and structural materials may be encountered during construction No long-term impacts	Soil contaminants and structural materials may be encountered during construction No long-term impacts	Soil contaminants and structural materials may be encountered during construction No long-term impacts	Soil contaminants and structural materials may be encountered during construction No long-term impacts

Table 1.20 Summary of Alternatives and Impacts

Evaluation Criteria	No Build Alternative	Build Alternative 1	Build Alternative 2	Build Alternative 3	Build Alternative 4	Build Alternative 3M (Preferred Alternative)
Air Quality	No impact	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts	Temporary impacts during construction No substantial long-term impacts
Noise	No impact	Temporary impacts during construction No perceptible increase in noise in the long-term. The following noise barriers were determined to be reasonable and feasible: • NB No. 3 • Combined NB No. 3 Reduced and NB No. 4	Temporary impacts during construction No perceptible increase in noise in the long-term. The following noise barriers were determined to be reasonable and feasible: • NB No. 3 • Combined NB No. 3 Reduced and NB No. 4	Temporary impacts during construction No perceptible increase in noise in the long-term. The following noise barriers were determined to be reasonable and feasible: • NB No. 3 • Combined NB No. 3 Reduced and NB No. 4	Temporary impacts during construction No perceptible increase in noise in the long-term. The following noise barriers were determined to be reasonable and feasible: • NB No. 3 • Combined NB No. 3 Reduced and NB No. 4	Temporary impacts during construction No perceptible increase in noise in the long-term. The following noise barriers were determined to be reasonable and feasible: • NB No. 3 • Combined NB No. 3 Reduced and NB No. 4
Natural Communities	No impact	No impact	No impact	No impact	No impact	No impact
Wetlands and Other Waters	No impact	1.01 ac of temporary impacts to USACE and CDFG jurisdiction No permanent impacts to USACE jurisdiction. 0.93 ac of permanent impacts to CDFW jurisdiction	1.01 ac of temporary impacts to USACE and CDFG jurisdiction No permanent impacts to USACE jurisdiction. 0.93 ac of permanent impacts to CDFW jurisdiction	1.01 ac of temporary impacts to USACE and CDFG jurisdiction No permanent impacts to USACE jurisdiction. 0.93 ac of permanent impacts to CDFW jurisdiction	1.01 ac of temporary impacts to USACE and CDFG jurisdiction No permanent impacts to USACE jurisdiction. 0.93 ac of permanent impacts to CDFW jurisdiction	1.01 ac of temporary impacts to USACE and CDFG jurisdiction No permanent impacts to USACE jurisdiction. 0.93 ac of permanent impacts to CDFW jurisdiction
Plant Species	No impact	No impact	No impact	No impact	No impact	No impact

Table 1.20 Summary of Alternatives and Impacts

Evaluation Criteria	No Build Alternative	Build Alternative 1	Build Alternative 2	Build Alternative 3	Build Alternative 4	Build Alternative 3M (Preferred Alternative)
Animal Species	No impact	Potential for temporary impacts during construction to burrowing owls, migratory birds, bats, and other bridge- and crevice-nesting special-status species. No long-term impacts	Potential for temporary impacts during construction to burrowing owls, migratory birds, bats, and other bridge- and crevice-nesting special-status species. No long-term impacts	Potential for temporary impacts during construction to burrowing owls, migratory birds, bats, and other bridge- and crevice-nesting special-status species. No long-term impacts	Potential for temporary impacts during construction to burrowing owls, migratory birds, bats, and other bridge- and crevice-nesting special-status species. No long-term impacts	Potential for temporary impacts during construction to burrowing owls, migratory birds, bats, and other bridge- and crevice-nesting special-status species No long-term impacts
Threatened and Endangered Species	No impact	No impact	No impact	No impact	No impact	No impact
Invasive Species	No impact	No impact	No impact	No impact	No impact	No impact
Cumulative Impacts	No impact	No impact	No impact	No impact	No impact	No impact
Climate Change	No temporary impacts	Temporary impacts during construction Increase in CO_2 emissions of 3 tons/day in 2020 and 5 tons/day in 2040 compared to the No Build Alternative	Temporary impacts during construction Increase in CO_2 emissions of 7 tons/day in 2020 and 12 tons/day in 2040 compared to the No Build Alternative	Temporary impacts during construction Increase in CO_2 emissions of 10 tons/day in 2020 and 20 tons/day in 2040 compared to the No Build Alternative	Temporary impacts during construction Increase in CO_2 emissions of 6 tons/day in 2020 and 11 tons/day in 2040 compared to the No Build Alternative	Temporary impacts during construction Increase in CO_2 emissions of 12 tons/day in 2020 and 23 tons/day in 2040 compared to the No Build Alternative

Source: LSA Associates, Inc. (2017).
Note: Long-term impacts are equivalent to permanent impacts.
ac = acres
BMPs = best management practices
CDFW = California Department of Fish and Wildlife
GHG = greenhouse gas
HOV = high-occupancy vehicle
LOS = levels of service
LOSSAN = Los Angeles to San Diego
TCE = temporary construction easement
USACE = United States Army Corps of Engineers

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1.5 Alternatives Considered but Eliminated from Further Consideration

Analysis of the proposed project provided a comprehensive study of design solutions that were considered for addressing the need for improvements along the project segment of SR-55. The following transportation concepts were evaluated and eliminated from further consideration based either on impacts to resources, feasibility, ability to meet the purpose and need, and/or cost.

1.5.1 Closure of McFadden Avenue Northbound On- and Off-Ramps

The complete closure of the McFadden Avenue northbound on- and off-ramps was considered to address the problem of weaving distance on SR-55 for traffic merging from the McFadden Avenue northbound on-ramp. Closing the ramps would prevent drivers from weaving over to stay on SR-55, thereby preventing the congestion and decreasing the accident rate in this area. As a result of the closure, access from the McFadden Avenue on-ramp to northbound SR-55 and northbound and southbound I-5 would be eliminated. In addition, access from northbound SR-55 to McFadden Avenue would also be eliminated. This option was removed from consideration because of the volume impacts of closing the ramps. The existing traffic would dissipate into the local system and create a substantial traffic volume impact throughout the area. This impact would increase the envelope and the impacts of the project; therefore, this design variation was considered infeasible.

1.5.2 Transportation Systems Management, Transportation Demand Management, and Transit Alternatives

Alternative travel modes were considered during the early planning studies for improvements to SR-55. TSM strives to maximize the efficiency of the existing system through operational modifications such as ridesharing, reversible lanes, ramp metering, and traffic-signal optimization. The TSM strategy is to improve traffic flow and increase the number of vehicle trips without changing the number of through lanes on a road. Transportation Demand Management (TDM) focuses on the demand side of travel behavior with regional strategies for reducing the number of vehicle trips and vehicle miles traveled, and increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler's transportation choice through initiatives such as telecommuting and changing work schedules to produce a more even pattern of transportation network use, muting the effect of morning and evening rush hours. In addition, multi-modal transportation alternatives integrate multiple transportation modes, such as pedestrian, bicycle, automobile, rail, and mass transit.

TSM, TDM, and multi-modal transportation strategies have been and would continue to be provided in the SR-55 corridor area. As discussed in Section 1.1.1, Existing Facility, the existing on-ramps along the project segment of SR-55 are all currently metered. Several bus routes operate on SR-55 and the surrounding areas. All Build Alternatives would maintain the existing ramp metering and would not permanently impact the bus lines. In addition, there is currently one HOV lane in each direction that operates with continuous access. Alternatives 1, 2, and 3 would maintain the existing HOV lane and would extend the transition length for merging between the existing southbound HOV lane on SR-55 and the southbound I-5/SR-55 Connector HOV lane past Edinger Avenue. Alternatives 3M and 4 proposes to add a second HOV lane in each direction between the I-405 and I-5 HOV direct connectors.

TSM, TDM, and mass transit alternatives alone do not satisfy the proposed project purpose of improving both existing and future mobility, reducing congestion, and improving mainline

weaving, merge, and diverge movements, and would not fulfill OCTA's Freeway Chokepoint Program.

The addition, the managed lane in Alternatives 3M and 4 is a TDM feature in and of itself. This additional lane provides additional capacity for HOV users (including public transit buses and vanpools). The managed lanes on the State Highway System are used as a sustainable transportation system management strategy. Managed lanes are used to promote carpooling and transit patronage, improve travel time reliability, reduce greenhouse gas emissions, and maximize the efficiency of a freeway by increasing person and vehicle throughput while reducing congestion and delay. Since the managed lanes are projected to provide free flow with little congestion, this will provide an opportunity/incentive for transit agencies and companies to implement future bus services and routes.

As a result, these alternatives were withdrawn from further consideration and are not evaluated in detail in this ED.

1.5.3 PSR/PDS Build Alternative 4 - Full Standard Alternative

A full standard Build Alternative, with no mandatory or advisory design exceptions, was considered during the early planning studies for improvements to SR-55. A full standard alternative would not be cost effective, would require extensive rebuild of the existing freeway, and would have extensive right of way impacts. As a result, this alternative was withdrawn from further consideration and is not evaluated in detail in this ED.

1.6 Identification of the Preferred Alternative

This section identifies the Preferred Alternative (alternative preferred for construction), as well as the rationale and process used. The Preferred Alternative (PA) was made after considering all information in the Draft IS/EA and Supplemental IS/EA, and technical studies. It was also based on extensive input from the Project Development Team (PDT) members, public, stakeholders, and federal, state, regional, and local agencies during the project development process. Public outreach and coordination resulted in comments from the public and agencies; all of which were carefully considered during the PA process. Consideration was given to all issues raised during the public circulation period.

The preferred alternative was chosen during a Preferred Alternative Selection meeting (consisted of PDT members) on May 10, 2017, and was based on the following PA evaluation criteria and factors:

- Vehicle Throughput
- Purpose and Need
- Meets Measure M Goals and Objectives
- Improvement of Operations
- Minimized ROW Impacts
- Construction Costs
- HOV Travel Times
- General Purpose Lane Travel Times
- Peak Period Delay

All five Build Alternatives either meet a portion of, or the entirety of the project's purpose and need by reducing congestion; improving mobility; enhancing traffic operations; and increasing capacity. The No Build Alternative would not meet the project purpose and need.

The PDT concluded that although environmental/ social/ economic impacts were generally similar for all five Build Alternatives, benefits pertaining to SR-55 segment throughput of

people and vehicles; maximizing performance of existing system; trip reliability and long-term congestion relief were substantially different for the build alternatives. Increased vehicle throughput for build alternatives, mobility for 2040 by peak hour throughput, average daily traffic, and travel-time savings for all Alternatives is discussed in Table 1-21 below.

This table depicts Alternative 3M as the most beneficial as compared to other Build Alternatives. Also, the PA best fulfills the purpose and need of the project. This improvement, would provide major benefits for the communities along the corridor by encouraging HOVs, transit bus services, and emergency vehicles, while also increasing capacity on the mainline. Livability along the corridor would be improved as lanes would be able to serve the community and improve air quality by reducing congestion. Alternatives 1, 3, 4, and 3M would result in operational improvements. However, Alternative 3M has lower travel times and higher travel speeds as compared to the other Build Alternatives. Alternative 2 does not achieve service life for the design year as demand is expected to exceed capacity. Alternative 3M (HOV, GP, and Aux Lanes) better preserves mobility beyond the design year. Additionally, the trip reliability for transit/carpools would be enhanced because they would be able to utilize the Managed Lanes, as opposed to being forced to use the General Purpose lanes.

Table 1.21 Mobility by Alternatives (2040)

	No Build	Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
Increase Vehicle Throughput	N/A	5% between I-405 to I-5	7% between I-405 to I-5	9% between I-405 to I-5	3% between I-405 to I-5	10% between I-405 to I-5
Peak Hour Throughput (potential, one direction)	11,000 vehicles per hour	11,570 vehicles per hour	11,800 vehicles per hour	12,030 vehicles per hour	11,325 vehicles per hour	12,095 vehicles per hour
Average Daily Traffic	256,935 (GP) 36,715 (HOV)	264,325 (GP) 36,565 (HOV)	270,190 (GP) 35,865 (HOV)	274,155 (GP) 35,520 (HOV)	265,795 (GP) 38,810 (HOV)	278,890 (GP) 38,280 (HOV)
Travel Time I-405 to I-5 (NB, PM Peak Period)	22:19 min GP 5:56 min HOV	22:48 min GP 5:46 min HOV	22:07 min GP 6:14 min HOV	22:33 min GP 7:05 min HOV	22:01 min GP 5:06 min HOV	20:47 min GP 4:56 min HOV

Source: *Final Traffic Operations Report* (2016)

As a result of these considerations, Caltrans selected Alternative 3M as the Preferred Alternative and made the final determination of the proposed project's effect on the environment. Caltrans has prepared and approved a Mitigated Negative Declaration (MND) in accordance to the California Environmental Quality Act (CEQA); and as assigned by the Federal Highway Administration (FHWA), has issued a Finding of No Significant Impact (FONSI) in accordance with the Nation Environmental Policy Act (NEPA).

1.7 Permits and Approvals Needed

The proposed project is anticipated to require the permits, reviews, and approvals listed in Table 1.22 on the following page.

Table 1.22 Permits and Approvals Needed

Permit/Approval	Agency	Status
Encroachment Permit for the LOSSAN rail corridor	OCTA, owner of the LOSSAN rail corridor right of way	Coordination between Caltrans and OCTA for this encroachment permit will occur prior to any project construction.
NPDES Construction General-Permit Order No. 2009-009-DWQ, NPDES No. CAS000003 (Section 402 of the CWA)	SWRCB	The Permit Registration Documents, including the NOI, will be submitted to the SWRCB and the WDID received prior to any project construction.
Caltrans NPDES Permit Order No. 2012-0011-DWQ as amended by Order WQ 2014-0077-DWQ No. CAS000003 (Section 402 of the CWA)	SWRCB	Amended permit issued to Caltrans on May 20, 2014, for discharges from State right of way.
Watershed Streambed Alteration Agreement	CDFW	A Watershed Streambed Alteration Agreement is anticipated to be needed for this project because the project is expected to be found consistent with the San Diego Creek Watershed SAMP after consultation with the resources agencies.
Streambed Alteration Agreement (Fish and Game Code Section 1601)	CDFW	A Streambed Alteration Agreement and not a Watershed Alteration Agreement would be needed for this project if the project is found to be inconsistent with the San Diego Creek Watershed SAMP after consultation with the resources agencies.
Water Quality Certification (Section 401 of the CWA)	Santa Ana RWQCB	A Section 401 Water Quality Certification is not anticipated to be needed for this project unless the project is found not to be consistent with the San Diego Creek Watershed SAMP after consultation with the resources agencies.
Letter of Permission	Corps	A Letter of Permission is anticipated to be needed for this project because the project is expected to be found consistent with the San Diego Creek Watershed SAMP after consultation with the resources agencies.
Individual Permit (Section 404 of the CWA)	Corps	An Individual Permit and not a Letter of Permission would be needed for this project if the project is found not to be consistent with the San Diego Creek Watershed SAMP after consultation with the resources agencies. This permit would be required if the project involves the discharge of fill into or alterations to the Lane Channel or the Santa Ana/Santa Fe Channel.
Encroachment permit for work at Lane Channel	OCFCD	Coordination between Caltrans and OCTA for this encroachment permit will occur prior to any project construction.
Certificate of Public Convenience and Necessity (CPCN)	Public Utilities Commission	During final design, a permit will be obtained by Southern California Edison for the required overhead transmission relocation work.

Caltrans = California Department of Transportation
CDFW = California Department of Fish and Wildlife
Corps = United States Army Corps of Engineers
CWA = Clean Water Act
LOSSAN = Los Angeles to San Diego
NOI = Notice of Intent
NPDES = National Pollutant Discharge Elimination System
OCFCD = Orange County Flood Control District
OCTA = Orange County Transportation Authority
RWQCB = Regional Water Quality Control Board
SAMP = Special Area Management Plan
SWRCB = State Water Resources Control Board
WDID = Waste Discharger Identification

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

This chapter describes the current state of the resources in the project area and identifies the potential effects of implementing the proposed project. Each subsection describes the present conditions, discusses the potential impacts of building the proposed project, and indicates what measures would be taken to avoid, minimize, or mitigate those impacts.

The environmental analysis contained within the following chapter considers the potential environmental consequences associated with implementation of the five proposed alternatives (the No Build Alternative and five Build Alternatives). For the purposes of this analysis, the proposed Build Alternatives are analyzed concurrently where potential environmental effects would be similar; however, where applicable, the Build Alternatives analyses are separated and discussed individually.

The environmental impact analyses discuss potential impacts in three general categories: human environment, physical environment, and biological environment. The following discussion of potential effects is presented by environmental resource area. As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document:

- **Coastal Zone:** California's Coastal Zone generally extends 1,000 yards inland from the mean high tide line. The project area is located approximately 4 miles (mi) from the Pacific Ocean and is not located within the Coastal Zone.
- **Wild and Scenic Rivers:** According to the Bureau of Land Management, there are no wild and scenic rivers located in the project area.[1]
- **Farmlands:** According to the Community Impact Assessment (CIA) (2015) prepared for the project, there is a parcel immediately to the west of the State Route 55 (SR-55)/Interstate 405 (I-405) Interchange that is currently being used for agricultural uses. This parcel is designated as Farmland of Statewide Importance by the the California Department of Conservation Farmland Mapping and Monitoring Program (FMMP). However, the designated farmland adjacent to the SR-55/I-405 Interchange would not be impacted by the proposed project.
- **Timberland**: The City of Santa Ana General Plan (Conservation Element, adopted September 20, 1982; Open Space, Parks, and Recreation Element, adopted September 20, 1982; and Economic Development Element, adopted July 6, 1998; all three Elements reformatted January 2010) does not show any timberland resources or activities in the City, including the area along the project segment of SR-55. The City of Tustin General Plan Conservation/Open Space/Recreation Element (June 17, 2008) does not show any timberland resources or activities in the City, including the area along the project segment of SR-55. The City of Irvine General Plan (Parks and Recreation Element and Conservation and Open Space Element, Supplement No. 8, June 2012) does not show any timberland resources or activities in the City of Irvine, including the area along the project segment of SR-55.

[1] U.S. Department of the Interior, Bureau of Land Management. Wild and Scenic Rivers. http://www.blm.gov/ca/st/en/prog/blm_special_areas/wildrivers.html. Accessed April 8, 2013.

- **Natural Communities:** According to the *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study* (Minimal Impacts) (2017), the Biological Study Area (BSA) does not contain any natural communities. The five habitat types present in the BSA include ruderal, ornamental landscaping, clear or graded, urban, and transportation.
- **Threatened and Endangered Species:** According to the *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study* (Minimal Impacts) (2017), the BSA does not contain suitable habitat for any threatened or endangered species.

HUMAN ENVIRONMENT

2.1 Land Use

This section is based on information from the *Community Impact Assessment* (CIA; 2015), *Supplemental Community Impact Assessment* (2017), and Appendix B, Resources Evaluated Relative to the Requirements of Section 4(f), of this environmental document.

2.1.1 Existing and Future Land Uses

The study area for the land use analysis includes the project area (the physical area that would be directly affected by the Build Alternatives) and the adjacent neighborhoods within the cities of Tustin, Santa Ana, and Irvine (Census Tracts 525.02, 740.03, 740.04, 744.03, 744.08, 755.05, 755.07, 755.12, 755.13, 755.14, and 755.15). The census tracts are depicted later on Figure 2.3-1 in Section 2.3, Community Impacts.

2.1.1.1 Existing Land Uses

The existing land uses in the study area are shown on Figure 2.1-1. Existing land uses in the southern portion of the study area between Interstate 405 (I-405) and Edinger Avenue generally consist of commercial and industrial uses and a small number of multifamily residential uses. The northern portion of the study area between Edinger Avenue and Interstate 5 (I-5) is dominated by multifamily residential and commercial properties. The acreages and percentages of existing land uses in the study area are shown in Table 2.1.1.

Table 2.1.1 Existing Land Uses in the Study Area

Land Use	Acres	Percentage
Commercial and Services	1,811	25.1%
Industrial	2,340	32.2%
Mixed Commercial and Industrial	107	1.5%
Open Space and Recreation	66	0.9%
Residential	1,626	22.6%
School	217	3.0%
Transportation, Communication, and Utilities	164	2.3%
Vacant	876	12.2%
Total	**7,206**	**––**

Source: Table 3.1.1, *Community Impact Assessment* (2015).
Note: Existing land use data were updated based on a review of aerial imagery of the study area taken on March 24, 2015.

As indicated in Table 2.1.1, approximately 876 acres (ac) or approximately 12.2 percent of the study area consists of vacant land. As shown on Figure 2.1-1, this vacant land is largely confined to two areas within the study area. The majority of the vacant land in the study area (approximately 810 ac) is located on the former site of Marine Corps Air Station (MCAS) Tustin in the area bound by Red Hill Avenue, Barranca Parkway, Jamboree Road, and Edinger Avenue. The study area also includes a large area of vacant land along the east side of State Route 55 (SR-55) in the vicinity of the Edinger Avenue interchange. A large parcel immediately to the west of the SR-55/I-405 interchange in the City of Costa Mesa remains in agricultural use.

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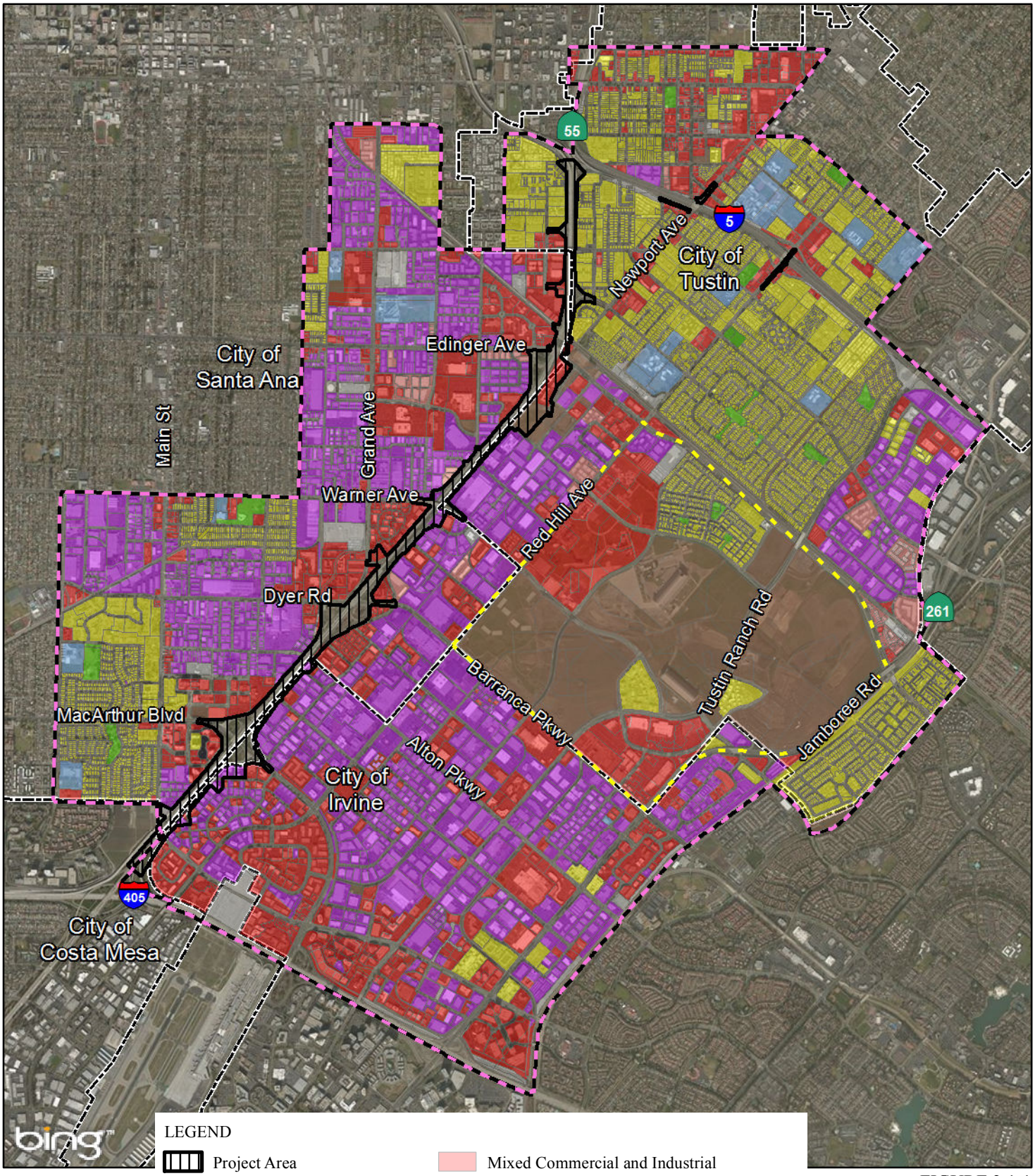

FIGURE 2.1-1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Existing Land Uses

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

SOURCE: Bing Maps (2013); SCAG (2008)

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2.1.1.2 General Plan Land Uses

General Plan land use designations for the study area and surrounding areas, which guide future development, are shown on Figure 2.1-2. As shown on Figure 2.1-2, vacant land at the former MCAS Tustin is designated for mixed commercial and residential, commercial, and residential uses, while the vacant land in the vicinity of the Edinger Avenue on- and off-ramps from northbound SR-55 is designated for commercial uses. The parcel immediately west of the SR-55/I-405 interchange that is currently being used for agricultural uses is designated for mixed commercial and residential uses by the City of Costa Mesa General Plan. The existing land uses in the study area are generally consistent with the land use designations in the General Plans of the cities of Tustin, Santa Ana, and Irvine.

2.1.1.3 Development Trends

The City of Tustin, the third oldest city in Orange County (County), encompasses an area of 11.08 square miles (sq mi). In 2011, the City of Tustin had 76,689 residents, and since 1990, it has grown at a faster rate than neighboring City of Santa Ana, but slower than the City of Irvine. The City of Tustin contains significant land available for development at the former site of MCAS Tustin. In addition, some development opportunities exist for freeway-oriented development adjacent to SR-55 at the Edinger Avenue interchange. According to Southern California Association of Governments (SCAG) growth projections, the City of Tustin is projected to become more jobs rich over the next several decades. Based on SCAG projections, the employment base is projected to increase by 58 percent from 42,100 in 2008 to 66,800 in 2035. During the same time period, SCAG projects that Tustin's population will increase approximately 7.5 percent, from 76,689 in 2008 to 82,900 in 2035.

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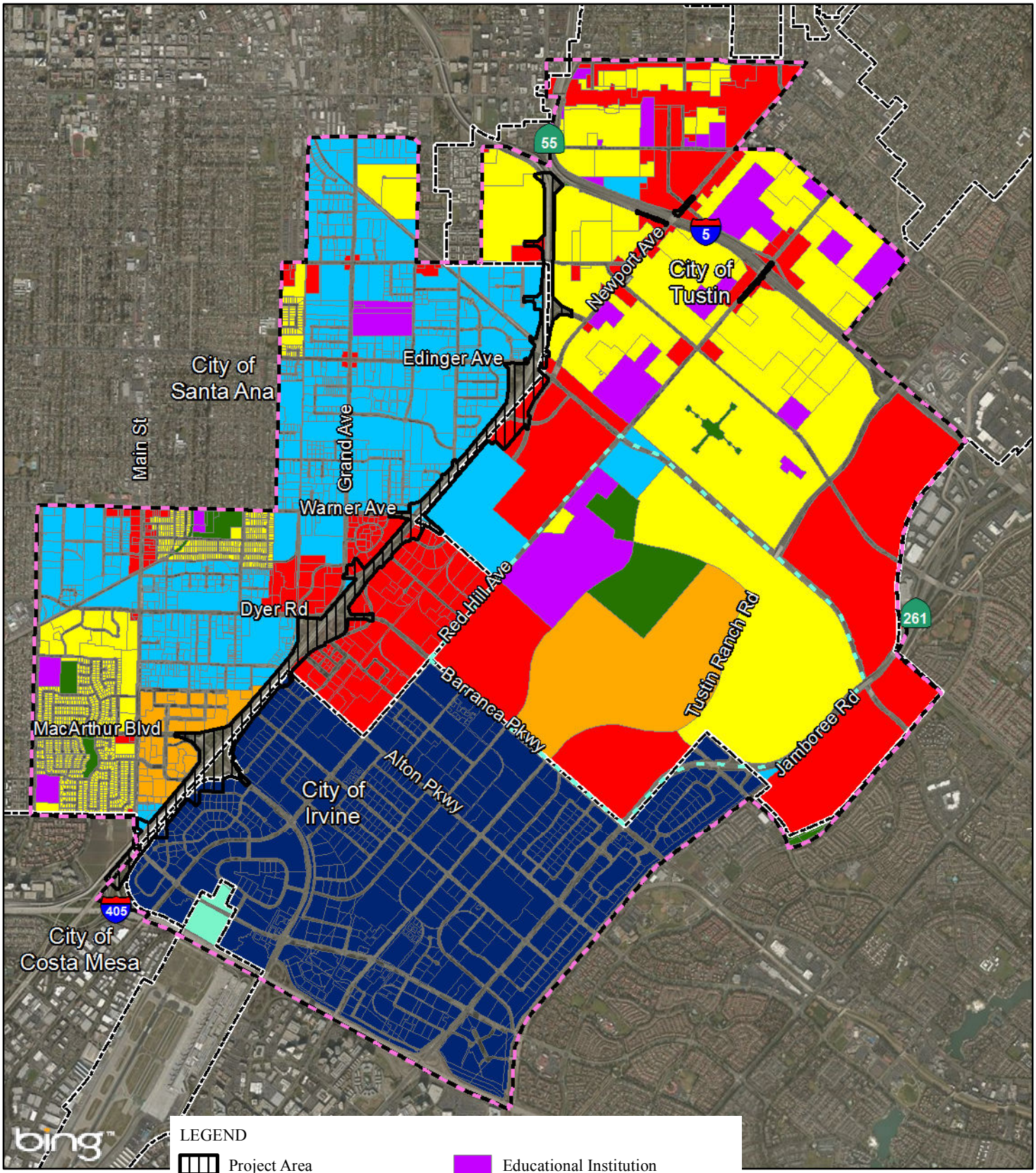

FIGURE 2.1-2

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

General Plan Land Uses

12-ORA-55 PM 6.4/10.3
EA 0J3400/1200020328

SOURCE: Bing Maps (2013); City of Costa Mesa (2009); City of Irvine (2010); City of Santa Ana (2011); City of Tustin (2012)

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The City of Santa Ana is the second largest city in Orange County in terms of population (329,427 residents) and the fifth largest city in the County in terms of land area (27.3 sq mi). Santa Ana experienced rapid population growth from 1970 to 1990 that was largely due to an influx of Hispanic/Latino immigrants. Since 1990, Santa Ana has grown at a modest rate of 1 percent per year. Although Santa Ana is essentially a built-out community, the few remaining vacant parcels in the City have been designated for high-density commercial and residential development. Based on SCAG projections (2012), Santa Ana's population is projected to grow from 329,427 in 2008 to 336,700 in 2035, which translates into a modest 2 percent increase. During that same time period, SCAG projects that employment in Santa Ana will drop by 11 percent, from 168,400 to 149,400.

The City of Irvine was incorporated in 1971 and currently encompasses approximately 45 sq mi. The City of Irvine experienced a rapid population growth between 1990 and 2010 during which its population almost doubled. As of 2010, Irvine is the third largest city in Orange County in terms of population at 215,529 people. Residential growth has been mainly concentrated around the geographic center of the City whereas employment growth has been concentrated adjacent to regional transportation facilities, including John Wayne Airport, I-405, I-5, and the Irvine train station. The northern and southern hillside areas of the City of Irvine are largely undeveloped lands. According to the City of Irvine General Plan, build out is anticipated to occur in 2040. Based on SCAG projections (2012), the City of Irvine's population is expected to grow from 215,529 in 2008 to 304,200 by 2035, which translates into a 41 percent population increase. Employment is projected to increase by 30 percent, from 223,500 in 2008 to 291,800 in 2035.

Approved and planned projects in the study area are described in Table 2.19.1 and shown on Figure 2.19-1 in Section 2.19, Cumulative Impacts.

2.1.2 Consistency with State, Regional, and Local Plans and Programs

This section discusses the Project's consistency with the SCAG 2016–2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), the SCAG 2015 Federal Transportation Improvement Program (FTIP), the Orange County Transportation Authority (OCTA) Measure M Renewal Ordinance, the OCTA M2020 Plan, the OCTA Long Range Transportation Plan (LRTP), and the General Plans of the cities of Tustin, Santa Ana, and Irvine.

2.1.2.1 SCAG Regional Transportation Plan/Sustainable Communities Strategy

SCAG is the largest regional planning agency in the nation, functioning as the Metropolitan Planning Organization (MPO) for six counties and 187 cities.

SCAG develops long-term solutions for regional challenges such as transportation, air quality, housing, growth, hazardous waste, and water quality. Because these issues cross city and county boundaries, SCAG works with cities, counties, and public agencies in the six-county region (i.e., Los Angeles, Orange, Ventura, San Bernardino, Riverside, and Imperial Counties) to develop plans and strategies to address these issues.

SCAG has developed strategies that specifically address the growth and transportation issues facing Southern California, including the RTP/SCS. The RTP/SCS is intended to be a usable reference document for local planners, business people, and other individuals whose work affects the future built environment in Southern California. SCAG's 2016–2040 RTP/SCS is a long-range plan that identifies multimodal regional transportation needs and investments over the next 23 years in Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.

The 2016–2040 RTP/SCS was adopted by SCAG on April 7, 2016. SCAG's 2016–2040 RTP/SCS establishes a transportation vision for Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties and places a greater emphasis on sustainability and integrated planning than previous RTPs and defines three principles that collectively work as the key to the region's future: mobility, economy, and sustainability. SCAG updates the RTP every 4 years. The proposed project is listed in the 2016–2040 financially constrained RTP/SCS (RTP/SCS ID 2M0733), which was found to conform by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) on June, 1, 2016.

2.1.2.2 SCAG Federal Transportation Improvement Program

The FTIP is a listing of all capital transportation projects proposed over a 6-year period for the SCAG region. It is prepared to implement the projects and programs listed in the RTP and is developed in compliance with State and federal requirements. A new FTIP is prepared and approved every 2 years. These funded projects include highway improvements; transit, rail, and bus facilities; carpool lanes; signal synchronization; intersection improvements; freeway ramps; and other related improvements.

Federal law requires that all federally funded projects and regionally significant projects (regardless of funding) must be listed in an FTIP. The proposed project is included in the SCAG financially constrained 2015 FTIP (FTIP ID ORA100511), which was found to conform by FHWA and FTA on December 15, 2014.

2.1.2.3 Measure M Renewal Ordinance

In 1990, Orange County voters approved Measure M, a half-cent sales tax for transportation improvements that was scheduled to sunset in 2011. On November 7, 2006, the County's voters renewed Measure M for a 30-year extension through 2041 and approved a continuation of transportation improvements through the Measure M Transportation Investment Plan (M2). By the year 2041, the M2 program plans to deliver approximately $15.5 billion worth of transportation improvements to Orange County. Major improvement plans target Orange County freeways, streets and roads, and transit and environmental programs. The proposed project is included as project "F" in the M2 program and is subject to the provisions of OCTA's M2 Ordinance. Attachment B, Section II.A.4, of the M2 Ordinance contains the following language related to the design of freeway projects funded by M2:

> "Freeway Projects will be built largely within existing rights of way using the latest highway design and safety requirements. However, to the greatest extent possible within the available budget, Freeway Projects shall be implemented using Context Sensitive Design, as described in the nationally recognized Federal Highway Administration (FHWA) Principles of Context Sensitive Design Standards. Freeway Projects will be planned, designed and constructed using a flexible community-responsive and collaborative approach to balance aesthetic, historic and environmental values with transportation safety, mobility, maintenance, and performance goals. Context Sensitive Design features include: parkway-style designs; environmentally friendly, locally native landscaping; sound reduction; improved wildlife passage and aesthetic treatments, designs and themes that are in harmony with the surrounding communities."

OCTA adopted the M2020 Plan on September 10, 2012. The M2020 Plan is an early action delivery plan for the M2 program. The M2020 Plan identifies the development and

construction of 14 freeway projects to be delivered before the year 2020. The proposed SR-55 Improvement Project is included in the M2020 Plan as Project F, Phase I.

2.1.2.4 OCTA Long Range Transportation Plan

The OCTA LRTP provides a visionary blueprint for transportation improvements for Orange County and input into the development of the RTP. The general goals of the LRTP are to assess the performance of the transportation system over a 20+ year horizon and to identify the projects that best address the needs of the system based on expected population, housing, and employment growth, while simultaneously taking into account forecasted financial assumptions. The LRTP reflects OCTA's current policies and commitments and incorporates input from local jurisdictions, business and community leaders, County residents, transportation planning professionals, and other stakeholders. OCTA updates the LRTP about every 4 years. The last LRTP was finalized on September 12, 2014. The proposed project is included in OCTA's 2014 LRTP.

2.1.2.5 Local General Plans

As a blueprint for the future, a general plan must contain policies and programs designed to provide decision-makers with a solid basis for land use-related decisions. A general plan must address many issues that are directly related to and influence land use decisions. Land uses can include residential, business, industry, open space, natural resources, recreation, public uses, roadways, and the public utility infrastructure.

City of Tustin General Plan

The City of Tustin General Plan serves as the City's blueprint for future growth and development. Relevant circulation-related goals and policies in the City of Tustin General Plan are described below.

Circulation Element (adopted January 2008)

- **Goal 3:** Support development of a network of regional transportation facilities which ensure the safe and efficient movement of people and goods from within the City to areas outside its boundaries, and which accommodate the regional travel demands of developing areas outside the City.
    - **Policy 3.2:** Support capacity and noise mitigation improvements such as high-occupancy vehicle lanes, general purpose lanes, auxiliary lanes and noise barriers on the I-5 and SR-55 freeways.
        - **Consistent:** Alternative 3M would add an additional HOV, one general-purpose, and auxiliary lanes in each direction of travel. All existing auxiliary lanes would be maintained and additional auxiliary lanes would be added in the northbound direction between MacArthur Boulevard and Dyer Road and between Dyer Road and Edinger Avenue. In addition, two noise barriers along SR-55 have been determined reasonable and feasible.
    - **Policy 3.3:** Monitor and coordinate with California Department of Transportation (Caltrans) freeway work as it affects Tustin's roadway and require modifications as necessary.
        - **Consistent:** All improvements to SR-55 under Alternative 3M are and would continue to be coordinated with the City of Tustin. The City of Tustin is part of the PDT.

- **Policy 3.4:** Maintain a proactive and assertive role with appropriate agencies dealing with regional transportation issues affecting the City.
    - **Consistent:** The City of Tustin is part of the PDT.

- **Goal 4:** Maximize the efficiency of the circulation system through the use of transportation system management and demand management strategies.
    - **Policy 4.3:** Encourage the implementation of employer Transportation Demand Management (TDM) requirements, which were included in the Southern California Air Quality Management District's Regulation 2202 of the 1997 Air Quality Management Plan and as required by Proposition 111 as part of the Congestion Management Program (CMP) and participate in regional efforts to implement TDM requirements.
        - **Consistent:** Alternative 3M incorporates TDM as part of the improvements.

City of Santa Ana General Plan

The City of Santa Ana General Plan was reformatted in January 2010. Relevant circulation and land use-related goals and policies in the City of Santa Ana General Plan are described below.

Circulation Element[1]

- **Goal 1:** Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City, and enhances its economic viability.
    - **Policy 1.1:** Coordinate transportation improvements in a manner which minimizes disruptions to the community.
        - **Consistent:** Alternative 3M would improve the operation of SR-55 and implement mitigation measures that would minimize construction impacts to local communities.
    - **Policy 1.2:** Coordinate with the State to provide a freeway system that promotes efficient and convenient access to City streets in a manner consistent with local land use policy.
        - **Consistent:** Coordination with Caltrans for Alternative 3M is conducted during PDT meetings to provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets in a manner consistent with local land use policy.
- **Goal 2:** Provide design and construction that facilitate safe utilization of the City's transportation systems.
    - **Policy 2.7:** Continue design practices which facilitate the safe use of circulation systems.
        - **Consistent:** The Alternative 3M design includes general-purpose lanes that would facilitate the safe use of existing circulation systems and alleviate existing congested freeway conditions.

[1] The Circulation Element of the City of Santa Ana General Plan is currently being revised.

- **Goal 4:** Fully coordinate transportation and land use planning activities.
    - **Policy 4.1:** Program and prioritize transportation improvements to stimulate growth in major development areas.
        - **Consistent:** Alternative 3M was designed to address and accommodate existing and projected growth as programmed in the 2015 FTIP and the 2016 RTP. The project is in the 2016 RTP, which was found to be conforming by the FHWA/FTA on June 1, 2016.
    - **Policy 4.2:** Assess land use and transportation project impacts through the development review process.
        - **Consistent:** Alternative 3M is subject to CEQA and NEPA development review. Land use and transportation impacts are discussed as part of the CEQA/NEPA documentation.
- **Goal 8:** Strengthen the coordination of transportation and land use planning activities with adjacent jurisdictions and regional agencies.
    - **Policy 8.1:** Participate in interjurisdictional planning forums and other inter-agency opportunities to coordinate transportation and land use projects.
        - **Consistent:** PDT meetings occur monthly to streamline discussion between the agencies and the affected cities.
    - **Policy 8.2:** Maintain compliance with regional, state, and federal programs which provide funding for transportation improvements.
        - **Consistent:** The project is in the 2016 RTP, which was found to be conforming by the FHWA/FTA on June 1, 2016. The project is also included in the 2015 FTIP, which was found to be conforming by the FHWA/FTA on December 15, 2014. Regional PM10 SIP budget compliance was accounted for during the current approved RTP and FTIP conformity determination. Thus, Alternative 3M is in compliance with regional, State, and federal programs.

City of Irvine General Plan

The City of Irvine General Plan is a comprehensive long-range statement of Irvine's development and preservation policies. Relevant circulation and land use-related goals and policies in the City of Irvine General Plan are described below.

Circulation Element

- **Objective B-1: Roadway Development:** Plan, provide and maintain an integrated vehicular circulation system to accommodate projected local and regional needs.
    - **Policy (a):** Use the Circulation, Land Use and Growth Management Elements to determine roadway sizing and phasing.
        - **Consistent:** The City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements were taken into consideration when designing the layout of Alternative 3M.
    - **Policy (i):** Actively lobby with appropriate state commissions, committees, and legislators for funding to upgrade the Costa Mesa, San Diego and Santa Ana Freeways.

    - **Consistent:** Alternative 3M would add one general-purpose lane southbound between McFadden Avenue and Edinger Avenue. Alternative 3M would also add one additional HOV lane in each direction within the project area. This would improve the traffic mobility on SR-55 (the Costa Mesa Freeway) and relieve congestion.
  - **Policy (r):** Pursue local and outside funding for the implementation of the roadway system from sources.
    - **Consistent:** Alternative 3M is funded from federal and State sources.
- **Objective B-2 Roadway Design:** Develop a vehicular circulation system consistent with high standards of transportation engineering safety and with sensitivity to adjoining land uses.
  - **Policy (a):** Align roadways in relationship to adjoining land uses to minimize noise and visual impacts.
    - **Consistent:** Alternative 3M would be aligned to minimize environmental impacts to existing land uses. Sound walls may be proposed if Alternative 3M results in noise impacts.

2.1.3 Parks and Recreational Facilities

The City of Tustin operates and maintains a total of 14 parks as well as several community facilities, including the Clifton C. Miller Community Center, the Columbus Tustin Activity Center, Tustin Area Senior Center, and the Tustin Family and Youth Center. The following parks and community facilities in the City of Tustin are within 0.5 mi of the project area:

- **McFadden-Pasadena Parkette:** East McFadden Avenue and Pasadena Avenue, Tustin. This park is approximately 0.4 ac in size and consists of green space with a playground, picnic table, and ornamental trees. This park is adjacent to the project area.
- **Tustin Area Senior Center:** 200 South C Street, Tustin. The Tustin Area Senior Center is a 17,000-square-foot (sf) facility that features dining facilities and three classrooms and is designed to serve the needs of Tustin's senior community by providing opportunities to learn, socialize, and obtain assistance with human service needs. The Tustin Area Senior Center is approximately 0.5 mi northeast of the project area.
- **Tustin Family and Youth Center:** 14722 Newport Avenue, Tustin. The Tustin Family and Youth Center is a 6,000 sf facility designed to serve the specialized needs of the residents of southwest Tustin. The facility provides a full range of family- and youth-oriented social, educational, and recreational programs, including English as a Second Language (ESL) classes for adults, and serves as a resource/referral center for families in need, youth at risk, and for individuals seeking self-improvement and vocational opportunities. The Tustin Family and Youth Center is approximately 0.1 mi east of the project area.
- **Frontier Park:** 1400 Mitchell Avenue, Tustin. This park is approximately 4.5 ac in size and consists of green space with a playground, Frisbee golf course, outdoor fitness equipment, restrooms, and shaded picnic areas. Frontier Park is approximately 0.1 mi northwest of the project area.
- **Pine Tree Park:** 1402 Bryan, Tustin. This park is approximately 4.2 ac in size and consists of green space with a playground, one sand volleyball court, portable skate

park, restrooms, and a picnic shelter. Pine Tree Park is approximately 0.4 mi north of the project area.

The City of Santa Ana operates and maintains a total of 35 parks, 2 senior centers, 6 recreation centers, 2 tennis centers, and several other community facilities. The following parks and community facilities in the City of Santa Ana are within 0.5 mi of the project area:

- **Santa Ana Zoo at Prentice Park:** 1801 East Chestnut Street, Santa Ana. The 19 ac Santa Ana Zoo features over 80 species of animals, a children's farm, a train ride, and a carousel. The Santa Ana Zoo is located approximately 0.5 mi northwest of the project area.
- **Sandpointe Park:** 450 West MacArthur Boulevard, Santa Ana. Amenities include a basketball court, a volleyball court, a hiking/exercise trail, playground equipment, tennis courts, and restrooms. This park is approximately 7.0 ac in size and located approximately 0.4 mi west of the project area. The Sandpointe Recreation Center is also located at Sandpointe Park.

There are no parks or community facilities owned or operated by the City of Irvine within 0.5 mi of the project area.

Parks and recreation resources within 0.5 mi of the project area are shown on Figure B-1 in Appendix B, Resources Evaluated Relative to the Requirements of Section 4(f). They were evaluated to assess whether they would trigger the requirements for protection under Section 4(f). As discussed in Appendix B, the project would not result in the use of Section 4f Resources. Refer to Appendix B for additional discussion regarding evaluation of the project under Section 4(f).

In California, public parks operated by public agencies are protected by the Park Preservation Act (California Public Resources Code [PRC] Sections 5400–5409). The Park Preservation Act prohibits local and State agencies from acquiring any property that is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land. Because none of the Build Alternatives would result in the acquisition of land in use as a public park, the requirements of the Park Preservation Act do not apply to the proposed project.

2.1.4 Environmental Consequences

2.1.4.1 Temporary Impacts

Build Alternatives

Land Use

Construction of the Build Alternatives may require construction staging areas on a vacant parcel adjacent to the northbound SR-55 off-ramp to Edinger Avenue and in Caltrans right of way along southbound SR-55 north of McFadden Avenue. Staging activities may result in temporary increases in dust and noise levels in the vicinity of these staging areas; however, due to their temporary nature, such activities are not anticipated to result in land use conflicts with adjacent businesses and residences.

Alternative 1 would require temporary construction easements (TCEs) on two flood control parcels and one railroad parcel. Alternatives 2, 3, 4, and 3M would require TCEs on three flood control parcels and two railroad parcels in order to place pre-cast concrete box girders above the Santa Ana-Santa Fe Channel and the Los Angeles-San Diego-San Luis Obispo rail corridor (LOSSAN rail corridor) so that the South Tustin Overhead Bridge can be

widened. Since these activities would not affect the ability of the Santa Ana-Santa Fe Channel to convey storm water flows, the Build Alternatives would not result in temporary land use conflicts with the affected flood control parcels. Construction of the widening of the South Tustin Overhead Bridge under the Build Alternatives could potentially affect railroad operations on the LOSSAN rail corridor by causing service delays. However, construction activities within the rail corridor would be coordinated with operators using those tracks (i.e., Metrolink, Amtrak, Union Pacific Railroad, and BNSF Railway) to minimize railroad service delays.

During construction, the Build Alternatives would require the temporary use of privately owned property for additional TCEs necessary to allow access to construct retaining walls, sound walls, road widening, and other project features. The locations of the parcels where TCEs would be needed under all Build Alternatives shown on Figures 2.3-2 through 2.3-5 in Section 2.3, Community Impacts.

TCEs would be required adjacent to SR-55 in order to allow access for the construction of sound walls, retaining walls, and roadway widening:

- Alternative 1 would require a total of 24 TCEs, 16 on commercial and industrial parcels, 5 on residential parcels, 2 on flood control parcels, and 1 on a railroad parcel.
- Alternative 2 would require a total of 47 TCEs, 36 on commercial and industrial parcels, 5 on residential parcels, 3 on flood control parcels, 2 on railroad parcels, and 1 on a publicly owned parcel.
- Alternative 3 would require a total of 59 TCEs, 48 on commercial and industrial parcels, 5 on residential parcels, 3 on flood control parcels, 2 on railroad parcels, and 1 on a vacant parcel.
- Alternative 4 would require a total of 49 TCEs, 38 on commercial and industrial parcels, 5 on residential parcels, 3 on flood control parcels, 2 on railroad parcels, and 1 on a vacant parcel.

Alternative 3M (Preferred Alternative) would Alternative 3M would require a total of 59 TCEs, 48 on commercial and industrial parcels, 5 on residential parcels, 3 on flood control parcels, 2 on railroad parcels, and 1 on a vacant parcel. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts related to land use compatibility would be limited to parking impacts.

Table 2.1.2 provides information about the parcels that would require temporary parking lot reconfigurations, including the names of the businesses operating on those parcels and the approximate number of parking stalls that would be temporarily reconfigured. Where TCEs would be required on parking lots adjacent to SR-55, alternative parking would be provided or parking lots would be temporarily reconfigured to accommodate impacted businesses. Following completion of the project, any off-street parking areas that are temporarily disturbed by construction activities would be returned to their property owners in the same or better condition as prior to construction. Owners of parcels where TCEs would be required would receive compensation for the temporary use of a portion of their property, which would further minimize the impacts related to the use of property for TCEs.

Consistency with State, Regional, and Local Plans and Programs

Consistency with State, regional, and local plans and programs is related to the consistency of permanent project changes with those plans. As a result, the construction of the Build

Alternatives for the proposed project would not result in any temporary inconsistencies with State, regional, and local plans and policies.

Parks and Recreational Facilities

During construction of the Build Alternatives, access to nearby schools, parks, and other community facilities would not be temporarily modified or otherwise affected as part of the proposed project. Although MacArthur Boulevard, McFadden Avenue, Sycamore Avenue, Red Hill Avenue, and Grand Avenue have been identified as potential detour routes for the overnight mainline, ramp, and arterial closures, those closures are expected to occur during overnight hours. Therefore, none of the schools, parks, and other community facilities located adjacent to these streets (i.e., Sandpointe Park, the McFadden-Pasadena Parkette, Hillview High School/Tustin Adult School, Jeane Thorman Elementary School, A.G. Currie Middle School, the Tustin Family and Youth Center, St. Cecilia School, and the Industrial Santa Ana Post Office) would be adversely affected by travel delays or increased noise levels because they would be closed or unused during overnight hours.

Detours associated with the overnight ramp closures would result in minor temporary traffic increases on MacArthur Boulevard, McFadden Avenue, Sycamore Avenue, Red Hill Avenue, and Grand Avenue between 10:00 p.m. and 5:00 a.m. Because more than one preliminary detour route has been identified for all but one of the ramp closures, alternative detour routes would be available to help avoid travel delays and minimized increased noise levels near schools, parks, and other community facilities.

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Table 2.1.2 Temporary Off-Street Parking Impacts Under the Build Alternatives

APN	Address	Business Name(s)	Existing Land Use	Temporarily Reconfigured Parking Stalls	Build Alternatives				
					Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
402-101-07	1535 Trotter Street Santa Ana, CA 92705	Freeway Honda	Commercial	2	●	●	●	●	●
402-101-39	1505 Auto Mall Drive Santa Ana, CA 92705	Freeway Honda	Commercial	6	●	●	●	●	●
430-031-09	1717 East Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	8	●	●	●	●	●
430-112-12	1063 McGaw Avenue Irvine, CA 92614	A-Mark Precious Metals, Collateral Finance Corporation, H.R. Harmer, Spectrum Group International, Spectrum Numismatics International, Spectrum Wine Auctions, Stack's Bowers, Teletrade	Commercial	5			●	●	●
430-171-07	1740 East Garry Avenue Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services, Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group, PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI	Commercial	35			●	●	●

Source: *Community Impact Assessment* (2015)
● = Parking impact occurs for Build Alternative
Alt = Alternative
APN = Assessor's Parcel Number

Final detour routes would be determined based on coordination with the affected cities. Flag persons and other traffic control measures would be implemented to address any safety or access issues related to schools, parks, or community facilities.

The Class I bike trails in the project area are not in areas that would be temporarily disturbed or on near streets that would be used as detour routes during construction. As a result, construction of the Build Alternatives would not temporarily modify or otherwise affect access to the bike trails in the project area.

As discussed in detail in Appendix B, the construction of the Build Alternatives would not result in the temporary use of any land from any Section 4(f) resource. As also discussed in Appendix B, construction of the Build Alternatives would not result in short-term adverse access, air quality, noise, or other proximity impacts at any parks, recreation facilities, or schools. As a result, the short-term proximity impacts of the Build Alternatives at these parks, recreation facilities, and schools would not substantively impair the protected activities, features, or attributes of these resources in terms of their Section 4(f) significance and, therefore, would not trigger the requirements for protection of those resources under Section 4(f).

2.1.4.2 Permanent Impacts

Build Alternatives

Land Use

The Build Alternatives would require the permanent acquisition of privately owned property for right of way to accommodate the project improvements, as shown on Figures 2.3-2 through 2.3-6 and summarized in Tables 2.3.7 through 2.3.13 in Section 2.3, Community Impacts. Properties acquired by the proposed project would be converted from their current land use to transportation land uses or public drainage facilities. All of the proposed property acquisitions are situated adjacent to existing commercial and industrial land uses that would benefit from increased freeway visibility and improved circulation in their vicinity. Because the Build Alternatives would impact freeway-adjacent properties, improve freeway operations, and reduce traffic congestion in the area, the land use compatibility impacts are not considered to be substantial.

Some of the partial acquisitions may result in the loss of landscaping or require parking lot reconfigurations on parcels. Table 2.1.3 provides information about the parcels that would require parking lot reconfigurations under each of the Build Alternatives, including the existing and proposed number of parking stalls as well as the number of parking stalls required by the applicable municipal parking regulations. As shown in Table 2.1.3, Alternatives 1 and 2 would result in the permanent loss of 8 parking stalls, and Alternatives 3, 4, and 3M would result in the permanent loss of 20 parking stalls. OCTA would apply to the affected cities to obtain parking and/or landscaping variances for properties where the project would reduce the number of off-street parking stalls and/or the required amount of landscaping below the applicable municipal off-street parking and/or landscaping requirements.

Consistency with Regional Plans

The design concept and scope of the proposed project are consistent with the 2016–2040 RTP/SCS and 2017 FTIP and are intended to meet the traffic needs in the area based on local land use plans. The proposed project would be designed in compliance with the requirements of the M2 Ordinance and is consistent with OCTA's 2014 LRTP and M2020

Plan. Thus, the Build Alternatives are consistent with the regional and federal transportation plans.

Consistency with General Plans

The General Plan goals and policies consistency analysis for the Build Alternatives is provided in Table 2.1.4. Each of the Build Alternatives would be consistent with the applicable goals, policies, and objectives contained in the General Plans of the cities of Tustin, Santa Ana, and Irvine. Specifically, the project is consistent with the goals, policies, and objectives to improve regional transportation facilities, maximize the efficiency of the circulation system, and improve access to the city streets. In addition, implementation of the Build Alternatives would not result in changes to existing land use patterns along SR-55 since SR-55 is an existing transportation facility that is located in a highly developed area, and the Build Alternatives would result in a limited number of acquisitions. None of the Build Alternatives would require amendment of the affected cities' General Plans.

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Table 2.1.3 Permanent Off-Street Parking Impacts Under the Build Alternatives

APN	Address	Business Name(s)	Existing Land Use	Parking Stalls				Build Alternatives				
				Existing	Required	Proposed	Diff.	Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
402-101-07 402-101-39 402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	421	325	413	-8	●	●	●	●	●
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises	Industrial	625	813	649	+24	●	●	●	●	●
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services, Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group, PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI	Industrial	118	122	118	0			●	●	●
403-041-08	2061 S. Ritchey Street Santa Ana, CA 92705	O'Neil Storage	Industrial	12	3	12	0			●	●	●
427-262-06	17781 Cowan Street Irvine, CA 92614	ALG, Alzheimer's Association of Orange County, AnnexCore Marketing Agency, Caliber Collision Centers, Chrome Data, EnviroPacifica, Gradient Engineers, Home Buyer's Guide, Leighton, Terratest Labs, Vista Gardens Memory Care	Commercial	218	262	223	+5		●	●		
427-282-14 427-282-15	17952 Cowan Street Irvine, CA 92614	Assemblies of God	Commercial	89	126	94	+5		●	●		
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	66	79	66	0			●	●	●

Table 2.1.3 Permanent Off-Street Parking Impacts Under the Build Alternatives

APN	Address	Business Name(s)	Existing Land Use	Parking Stalls				Build Alternatives				
				Existing	Required	Proposed	Diff.	Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	177	190	187	+10	●	●	●	●	●
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	46	44	46	0			●		
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	643	582	631	-12			●	●	●

Source: *Off-Street Parking Study* (2014) and *Supplemental Community Impact Assessment* (2017).
● = Parking impact occurs for Build Alternative
Alt = Alternative
APN = Assessor's Parcel Number
E. = East
N/A = Not applicable.
S. = South

Table 2.1.4 Consistency with General Plans

Policy	Alternative 1	Alternative 2	Alternative 3 and 3M	Alternative 4	No Build Alternative
City of Tustin					
Goal 3: Support development of a network of regional transportation facilities which ensure the safe and efficient movement of people and goods from within the City to areas outside its boundaries, and which accommodate the regional travel demands of developing areas outside the City.					
Policy 3.2 Support capacity and noise mitigation improvements such as high-occupancy vehicle lanes, general purpose lanes, auxiliary lanes and noise barriers on the I-5 and SR-55 freeways.	**Consistent.** Alternative 1 would add one general-purpose lane southbound between McFadden Avenue and Edinger Avenue. Alternative 1 would also add one auxiliary lane in the northbound direction between MacArthur Boulevard and Dyer Road and between Dyer Road and Edinger Avenue, where no auxiliary lanes currently exist.	**Consistent.** Alternative 2 would add one general-purpose lane (in each direction) within the project area. Alternative 2 would also convert the existing auxiliary lane into a general-purpose lane in the northbound direction between MacArthur Boulevard and Dyer Road and in the southbound direction between Edinger Avenue and Dyer Road and between Dyer Road and MacArthur Boulevard.	**Consistent.** Alternative 3 and 3M would add one general-purpose lane (in each direction) within the project area. In addition, all existing auxiliary lanes would be maintained and additional auxiliary lanes would be added in the northbound direction between MacArthur Boulevard and Dyer Road and between Dyer Road and Edinger Avenue. In addition, two noise barriers along SR-55 have been determined reasonable and feasible.	**Consistent.** Alternative 4 would add one general-purpose lane southbound between McFadden Avenue and Edinger Avenue. Alternative 4 would also add one additional HOV lane in each direction within the project area. All existing auxiliary lanes would be maintained and additional auxiliary lanes would be added in the northbound direction between MacArthur Boulevard and Dyer Road and between Dyer Road and Edinger Avenue.	**Inconsistent.** The No Build Alternative would not add HOV and/or general-purpose lanes and, thus, would not support capacity and noise mitigation improvements.
Policy 3.3 Monitor and coordinate with Caltrans freeway work as it affects Tustin's roadway and require modifications as necessary.	**Consistent.** All improvements to SR-55 under Alternative 1 are and would continue to be coordinated with the City of Tustin. The City of Tustin is part of the PDT.	**Consistent.** All improvements to SR-55 under Alternative 2 are and would continue to be coordinated with the City of Tustin. The City of Tustin is part of the PDT.	**Consistent.** All improvements to SR-55 under Alternative 3 and 3M are and would continue to be coordinated with the City of Tustin. The City of Tustin is part of the PDT.	**Consistent.** All improvements to SR-55 under Alternative 4 are and would continue to be coordinated with the City of Tustin. The City of Tustin is part of the PDT.	N/A
Policy 3.4 Maintain a proactive and assertive role with appropriate agencies dealing with regional transportation issues affecting the City.	**Consistent.** The City of Tustin is part of the PDT.	**Consistent.** The City of Tustin is part of the PDT.	**Consistent.** The City of Tustin is part of the PDT.	**Consistent.** The City of Tustin is part of the PDT.	N/A
Goal 4: Maximize the efficiency of the circulation system through the use of transportation system management and demand management strategies.					
Policy 4.3 Encourage the implementation of employer Transportation Demand Management (TDM) requirements, which were included in the Southern California Air Quality Management District's	**Consistent.** Alternative 1 incorporates TDM as part of the improvements.	**Consistent.** Alternative 2 incorporates TDM as part of the improvements.	**Consistent.** Alternative 3 and 3M incorporates TDM as part of the improvements.	**Consistent.** Alternative 4 incorporates TDM as part of the improvements.	**Inconsistent.** No improvements are proposed under the No Build Alternative other than routine maintenance.

Table 2.1.4 Consistency with General Plans

Policy	Alternative 1	Alternative 2	Alternative 3 and 3M	Alternative 4	No Build Alternative
Regulation 2202 of the 1997 Air Quality Management Plan and as required by Proposition 111 as part of the Congestion Management Program (CMP) and participate in regional efforts to implement TDM requirements.					
City of Santa Ana					
Goal 1: Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City, and enhances its economic viability.					
Policy 1.1 Coordinate transportation improvements in a manner which minimizes disruptions to the community.	**Consistent.** Alternative 1 would improve the operation of SR-55 and implement mitigation measures that would minimize construction impacts to local communities.	**Consistent.** Alternative 2 would improve the operation of SR-55 and implement mitigation measures that would minimize construction impacts to local communities.	**Consistent.** Alternative 3 and 3M would improve the operation of SR-55 and implement mitigation measures that would minimize construction impacts to local communities.	**Consistent.** Alternative 4 would improve the operation of SR-55 and implement mitigation measures that would minimize construction impacts to local communities.	**Inconsistent.** No improvements to SR-55 will be made and operation of the freeway will gradually deteriorate, likely distributing some traffic on local streets which in turn would permanently affect local communities.
Policy 1.2 Coordinate with the State to provide a freeway system that promotes efficient, and convenient access to City streets in a manner consistent with local land use policy.	**Consistent.** Coordination with Caltrans for Alternative 1 is conducted during PDT meetings to provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets in a manner consistent with local land use policy.	**Consistent.** Coordination with Caltrans for Alternative 2 is conducted during PDT meetings to provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets in a manner consistent with local land use policy.	**Consistent.** Coordination with Caltrans for Alternative 3 and 3M is conducted during PDT meetings to provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets in a manner consistent with local land use policy.	**Consistent.** Coordination with Caltrans for Alternative 4 is conducted during PDT meetings to provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets in a manner consistent with local land use policy.	**Inconsistent.** The No Build Alternative would not provide a freeway system that promotes efficient and convenient access to City of Santa Ana streets. Under the No Build Alternative, SR-55 would remain congested.
Goal 2: Provide design and construction that facilitate safe utilization of the City's transportation systems.					
Policy 2.7 Continue design practices which facilitate the safe use of circulation systems.	**Consistent.** The Alternative 1 design includes general-purpose lanes that would facilitate the safe use of existing circulation systems and alleviate existing congested freeway conditions.	**Consistent.** The Alternative 2 design includes general-purpose lanes that would facilitate the safe use of existing circulation systems and alleviate existing congested freeway conditions.	**Consistent.** The Alternative 3 and 3M design includes general-purpose lanes that would facilitate the safe use of existing circulation systems and alleviate existing congested freeway conditions.	**Consistent.** The Alternative 4 design includes general-purpose lanes that would facilitate the safe use of existing circulation systems and alleviate existing congested freeway conditions.	**Inconsistent.** The No Build Alternative would not facilitate safe use of circulation systems because no improvements are proposed, and the freeway mainline would experience congested conditions and high accident rates.
Goal 4: Fully coordinate transportation and land use planning activities.					
Policy 4.1 Program and prioritize transportation	**Consistent.** Alternative 1 was designed to address	**Consistent.** Alternative 2 was designed to address	**Consistent.** Alternative 3 and 3M were designed to	**Consistent.** Alternative 4 was designed to address	**Inconsistent.** The No Build Alternative would not

Table 2.1.4 Consistency with General Plans

Policy	Alternative 1	Alternative 2	Alternative 3 and 3M	Alternative 4	No Build Alternative
improvements to stimulate growth in major development areas.	and accommodate existing and projected growth as programmed in the 2015 FTIP and Amendment No. 2 to the RTP. The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016.	and accommodate existing and projected growth as programmed in the 2015 FTIP and Amendment No. 2 to the RTP. The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016.	address and accommodate existing and projected growth as programmed in the 2015 FTIP and Amendment No. 2 to the RTP. The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016.	and accommodate existing and projected growth as programmed in the 2015 FTIP and Amendment No. 2 to the RTP. The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016.	accommodate growth occurring in major development areas in the region.
Policy 4.2 Assess land use and transportation project impacts through the development review process.	**Consistent.** Alternative 1 is subject to CEQA and NEPA development review. Land use and transportation impacts are discussed as part of the CEQA/NEPA documentation.	**Consistent.** Alternative 2 is subject to CEQA and NEPA development review. Land use and transportation impacts are discussed as part of the CEQA/NEPA documentation.	**Consistent.** Alternative 3 and 3M is subject to CEQA and NEPA development review. Land use and transportation impacts are discussed as part of the CEQA/NEPA documentation.	**Consistent.** Alternative 4 is subject to CEQA and NEPA development review. Land use and transportation impacts are discussed as part of the CEQA/NEPA documentation.	**Inconsistent.** The No Build Alternative would not necessitate assessment of land use and transportation impacts, as no construction will be proposed.
Goal 8: Strengthen the coordination of transportation and land use planning activities with adjacent jurisdictions and regional agencies.					
Policy 8.1 Participate in inter-jurisdictional planning forums and other inter-agency opportunities to coordinate transportation and land use projects.	**Consistent.** PDT meetings occur monthly to streamline discussion between the agencies and the affected cities.	**Consistent.** PDT meetings occur monthly to streamline discussion between the agencies and the affected cities.	**Consistent.** PDT meetings occur monthly to streamline discussion between the agencies and the affected cities.	**Consistent.** PDT meetings occur monthly to streamline discussion between the agencies and the affected cities.	N/A. Because no development is proposed, no planning forums or other coordination meetings are conducted.

Table 2.1.4 Consistency with General Plans

Policy	Alternative 1	Alternative 2	Alternative 3 and 3M	Alternative 4	No Build Alternative
Policy 8.2 Maintain compliance with regional, state, and federal programs which provide funding for transportation improvements.	**Consistent.** The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016. The project is also included in the 2015 FTIP, which was found to be conforming by the FHWA/FTA on December 15, 2014. Regional PM_{10} SIP budget compliance was accounted for during the current approved RTP and FTIP conformity determination. Thus, Alternative 1 is in compliance with regional, State, and federal programs.	**Consistent.** The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016. The project is also included in the 2015 FTIP, which was found to be conforming by the FHWA/FTA on December 15, 2014. Regional PM_{10} SIP budget compliance was accounted for during the current approved RTP and FTIP conformity determination. Thus, Alternative 2 is in compliance with regional, State, and federal programs.	**Consistent.** The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016. The project is also included in the 2015 FTIP, which was found to be conforming by the FHWA/FTA on December 15, 2014. Regional PM_{10} SIP budget compliance was accounted for during the current approved RTP and FTIP conformity determination. Thus, Alternative 3 is in compliance with regional, State, and federal programs.	**Consistent.** The project is in the 2016-2040 RTP/SCS, which was found to be conforming by the FHWA/FTA on June 1, 2016. The project is also included in the 2015 FTIP, which was found to be conforming by the FHWA/FTA on December 15, 2014. Regional PM_{10} SIP budget compliance was accounted for during the current approved RTP and FTIP conformity determination. Thus, Alternative 4 is in compliance with regional, State, and federal programs.	**Inconsistent.** The No Build Alternative would not provide improvements to SR-55 and, thus, would not be in compliance with regional, State, and federal programs that provide funding for transportation improvements.
City of Irvine					
Objective B-1 Roadway Development: Plan, provide and maintain an integrated vehicular circulation system to accommodate projected local and regional needs.					
Policy (a): Use the Circulation, Land Use and Growth Management Elements to determine roadway sizing and phasing.	**Consistent.** The City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements were taken into consideration when designing the layout of Alternative 1.	**Consistent.** The City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements were taken into consideration when designing the layout of Alternative 2.	**Consistent.** The City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements were taken into consideration when designing the layout of Alternative 3 and 3M.	**Consistent.** The City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements were taken into consideration when designing the layout of Alternative 4.	**Inconsistent.** The No Build Alternative does not take into consideration growth, and the City of Irvine's General Plan Circulation, Land Use, and Growth Management Elements, and no freeway improvements will be conducted. Thus, SR-55 will continue to experience congested conditions.

Table 2.1.4 Consistency with General Plans

Policy	Alternative 1	Alternative 2	Alternative 3 and 3M	Alternative 4	No Build Alternative
Policy (i): Actively lobby with appropriate state commissions, committees, and legislators for funding to upgrade the Costa Mesa, San Diego and Santa Ana Freeways.	**Consistent.** Alternative 1 proposes to add an auxiliary lane to improve traffic mobility and reduce congestion on SR-55 (the Costa Mesa Freeway).	**Consistent.** Alternative 2 proposes to add a general-purpose lane, resulting in improvements in traffic mobility and reduction of congestion on SR-55 (the Costa Mesa Freeway).	**Consistent.** Alternative 3 and 3M proposes to add a general-purpose lane, resulting in improvements in traffic mobility and reduction of congestion on SR-55 (the Costa Mesa Freeway).	**Consistent.** Alternative 4 would add one general-purpose lane southbound between McFadden Avenue and Edinger Avenue. Alternative 4 would also add one additional HOV lane in each direction within the project area. This would improve the traffic mobility on SR-55 (the Costa Mesa Freeway) and relieve congestion.	**Inconsistent.** The No Build Alternative would not upgrade SR-55 (the Costa Mesa Freeway) and, thus, would maintain the existing congested conditions.
Policy (r): Pursue local and outside funding for the implementation of the roadway system from sources.	**Consistent.** Alternative 1 is funded from federal and State sources.	**Consistent.** Alternative 2 is funded from federal and State sources.	**Consistent.** Alternative 3 and 3M is funded from federal and State sources.	**Consistent.** Alternative 4 is funded from federal and State sources.	**Inconsistent.** The No Build Alternative would not anticipate upgrades to SR-55 and, thus, would not pursue local and outside funding for the implementation of the roadway system from sources.
Objective B-2 Roadway Design: Develop a vehicular circulation system consistent with high standards of transportation engineering safety and with sensitivity to adjoining land uses.					
Policy (a): Align roadways in relationship to adjoining land uses to minimize noise and visual impacts.	**Consistent.** Alternative 1 would be aligned to minimize environmental impacts to existing land uses. Noise barriers may be proposed if Alternative 1 results in noise impacts.	**Consistent.** Alternative 2 would be aligned to minimize environmental impacts to existing land uses. Noise barriers may be proposed if Alternative 2 results in noise impacts.	**Consistent.** Alternative 3 and 3M would be aligned to minimize environmental impacts to existing land uses. Noise barriers may be proposed if Alternative 3 and 3M results in noise impacts.	**Consistent.** Alternative 4 would be aligned to minimize environmental impacts to existing land uses. Noise barriers walls may be proposed if Alternative 4 results in noise impacts.	**Consistent.** The No Build Alternative is aligned to existing land uses and would not result in additional noise and visual impacts

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).

Caltrans = California Department of Transportation
CEQA = California Environmental Quality Act of 1970
FHWA = Federal Highway Administration
FTA = Federal Transit Administration
FTIP = Federal Transportation Improvement Program
HOV = high-occupancy vehicle
I-5 = Interstate 5
N/A = not applicable
NEPA = National Environmental Policy Act of 1969
PDT = Project Development Team
PM_{10} = particulate matter less than 10 microns in size
RTP = Regional Transportation Plan
SIP = State Implementation Plan
SR-55 = State Route 55

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Parks and Recreational Facilities

No schools, parks, or other community facilities would be acquired or otherwise affected by the Build Alternatives.

As detailed in Appendix B, the proposed project would not result in the permanent use of land from, or permanent aerial, surface, or subsurface easements at, any Section 4(f) resource. The proposed project would not result in proximity or constructive use at any of those resources that would substantially impair the activities, features, and/or attributes that qualify the resources for protection under Section 4(f). As a result, the proposed project would not trigger the requirements for protection under Section 4(f) at any publicly owned parks and recreation resources.

No Build Alternative

The No Build Alternative would not result in any improvements on the project segment of SR-55. As a result, the No Build Alternative would not result in permanent impacts related to existing and planned land uses, parks and recreation facilities, or Section 4(f) resources.

The existing condition of SR-55 in the project area is generally not consistent with the regional mobility goals and objectives of the City of Tustin, City of Santa Ana, and City of Irvine General Plan Circulation Elements. As shown in Table 2.1.4, the No Build Alternative would be generally inconsistent with the goals and policies in the cities' General Plans because the implementation of the No Build Alternative would not facilitate transportation improvements along the SR-55 corridor.

2.1.5 Avoidance, Minimization, and/or Mitigation Measures

The proposed project would not result in substantial permanent effects related to plan consistency, land use compatibility, and community facilities and services. The following measures are required to address the proposed project's temporary construction impacts related to land use conflicts:

LU-1 Prior to the commencement of construction activities above or within the Los Angeles-San Diego rail corridor (LOSSAN rail corridor), the Orange County Transportation Authority (OCTA) will coordinate with Metrolink, Amtrak, the Union Pacific Railroad, the BNSF Railway, and any other passenger or freight rail operators using the LOSSAN rail corridor to minimize railroad service delays associated with such construction activities.

The following measures would be implemented to address the proposed project's permanent impacts to off-street parking and/or landscaping:

LU-2 During property acquisition, in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), an application will be submitted to the City of Irvine, the City of Tustin, and the City of Santa Ana to obtain parking and/or landscaping variances for properties where the project would reduce the number of off-street parking stalls and/or the required amount of landscaping below the applicable municipal off-street parking and/or landscaping requirements. If variances are not granted, any severance damages to the affected parcels will be determined during the right of way acquisition process in accordance with the Uniform Act.

LU-3 During final design, design modifications that will minimize or avoid the loss of parking stalls on affected properties will continue to be researched. If such

losses cannot be minimized or avoided, affected property owners will be compensated by redesigning and reconfiguring parking areas to recoup some or all of the lost parking stalls, if feasible, within existing municipal codes for setbacks, landscaping, and other site requirements. If those efforts to reduce off-street parking impacts have been exhausted and the project still results in the loss of parking stalls, all affected property owners will be compensated for the loss of parking stalls on their properties in compliance with the Uniform Act.

In addition, Measure REL-1 in Section 2.3.2.4, Avoidance, Minimization, and/or Mitigation Measures, would avoid and/or minimize the effects of the full- and partial-parcel acquisitions of property under the Build Alternatives.

2.2 Growth

2.2.1 Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect consequences, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. The CEQA guidelines (Section 15126.2[d]) require that environmental documents "…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…"

2.2.2 Affected Environment

Existing and General Plan land uses in the Cities of Santa Ana, Tustin, and Irvine along the project segment of State Route 55 (SR-55) were discussed earlier in Section 2.1, Land Use.

The growth impact analysis is based on the *Community Impact Assessment* (CIA) (2015) and follows the First Cut Screening guidelines provided in Caltrans' *Guidance for Preparers of Growth-Related, Indirect Impact Analyses* (February 2012).

2.2.3 Environmental Consequences

2.2.3.1 Temporary Impacts

Build Alternatives

Any potential growth-related impacts of the Build Alternatives would be permanent. There would be no temporary growth-inducing impacts under the Build Alternatives.

No Build Alternative

No improvements to the project segment of SR-55 would be implemented under the No Build Alternative. As a result, the No Build Alternative would not result in growth-inducing impacts.

2.2.3.2 Permanent Impacts

Build Alternatives

The assessment of the potential growth-related impacts of the Build Alternatives was conducted using the first-cut screening analysis approach, including assessment of whether further analysis would be necessary based on consideration of the following four questions.

- *How, if at all, does the proposed project potentially change accessibility?*

The Build Alternatives would reduce traffic congestion in the study area, resulting in better operations of SR-55 and local circulation. In addition, the Build Alternatives would alleviate existing deficiencies and accommodate projected future (2040) traffic volumes in the study area consistent with adopted local land use and transportation plans (those plans were discussed earlier in Section 2.1, Land Use). The Build Alternatives include improvements to an existing freeway facility and would not provide new transportation facilities or new access

points to areas previously not accessible. Therefore, the Build Alternatives would not result in changes in accessibility to the transportation system in the study area.

- *How, if at all, do the project type, project location, and growth pressure potentially influence growth?*

The Build Alternatives would accommodate approved and planned growth in the study area (refer to the list of reasonably foreseeable projects in Table 2.19.1) because they would add capacity on the project segment of SR-55, thereby reducing congestion in the study area. Pressure for growth is typically a result of a combination of factors, including economic, market, and land use demands and conditions. Growth in the Cities of Santa Ana, Tustin, and Irvine is expected to occur with or without the Build Alternatives.

Because they would result in capacity enhancements to an existing freeway facility, the Build Alternatives may make growth in the study area more attractive. However, as shown in Table 2.19.1, a substantial number of development projects were proposed and approved prior to the initiation of the planning studies for the SR-55 widening project, which indicates that development in the Cities of Santa Ana, Tustin, and Irvine is not dependent on completion of that freeway improvement project. Continued development of the former site of Marine Corps Air Station (MCAS) Tustin and development of vacant parcels in those three cities will depend on the health of the local economy and is likely to occur when the demand for real estate in central Orange County improves. The SR-55 corridor is in the center of an urban area. There is not a substantial amount of land in this area available for new development. Therefore, although the Build Alternatives would accommodate existing and planned growth, they would not influence growth beyond what is currently planned.

- *Is project-related growth reasonably foreseeable as defined in NEPA?*

Under NEPA, indirect impacts need only be evaluated if they are reasonably foreseeable as opposed to remote and speculative.

As discussed above, the Build Alternatives would not influence growth beyond those projects that are currently planned for the area (Table 2.19.1) and would not change the rate, type, or amount of growth. Therefore, no project-related growth would occur under the Build Alternatives.

- *If there is project-related growth, how, if at all, will that impact resources of concern?*

As discussed above, because the Build Alternatives would not change the rate, type, or amount of growth, the reasonably foreseeable growth in the Cities of Tustin, Santa Ana, and Irvine is not project related.

Because the Build Alternatives would not result in growth-inducing impacts, no analysis of those potential impacts beyond the first cut screening analysis is necessary.

No Build Alternative

No improvements to SR-55 would occur under the No Build Alternative. Therefore, the No Build Alternative would not result in any permanent growth-related impacts.

2.2.4 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternatives would not result in temporary or permanent growth-related impacts. No avoidance, minimization, or mitigation measures are required.

2.5 Traffic and Transportation/Pedestrian and Bicycle Facilities

2.5.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

2.5.2 Affected Environment

2.5.2.1 Existing SR-55 Facilities

This section is based on the Final Traffic Operation Report (2015), Final Traffic Operations Report (2016), Community Impact Assessment (2015), and the Supplemental Community Impact Assessment (2017) for the project.

As discussed earlier in Chapter 1, Proposed Project, State Route 55 (SR-55) is a major north-south freeway in central and coastal Orange County that has interchanges with State Route 73 (SR-73) near the southern terminus of SR-55, Interstate 405 (I-405), Interstate 5 (I-5), State Route 22 (SR-22), and SR-91 (SR-91) on the north. The project segment of SR-55 between I-405 and I-5, shown earlier on Figure 1-1 in Chapter 1, traverses a highly urbanized, densely populated area with closely spaced interchanges with arterial streets and other freeways. The operational characteristics of the project segment of SR-55 are influenced by a concentration of merge, diverge, and weaving operations associated with those tightly spaced interchanges.

The existing lane and ramp configurations on the project segment of SR-55 were shown on Figure 1-2 in Chapter 1. As shown on that figure, the project segment of SR-55 generally consists of one high-occupancy vehicle (HOV) lane and four general-purpose lanes in each direction, with auxiliary lanes provided at some locations. All the on-ramps except for freeway-to-freeway connector ramps on the project segment of SR-55 are currently metered.

2.5.2.2 Existing Traffic Operations

Existing Levels of Service

As discussed in Section 1.2.2.1, Capacity, Transportation Demand and Safety, in the subsection titled “Capacity and Demand in the SR-55 Corridor,” existing traffic volumes on SR-55 have reached or are approaching the capacity of the freeway during the morning and

afternoon peak periods.[1] SR-55 is a highly congested corridor, and one of the top bottlenecks in Orange County is on northbound SR-55 at Dyer Road. There is heavy congestion on SR-55 during peak periods, especially on southbound SR-55 north of Edinger Avenue in the AM peak period and on the entire project segment of northbound SR-55 in the PM peak period. During peak periods, those segments of SR-55 currently operate at levels of service (LOS) E or F with an average travel speed of less than 20 miles per hour (mph).

Existing traffic conditions described in this section and in Section 1.2.2.1 are based on traffic counts and traffic conditions in 2011. Table 1.1, provided earlier in Chapter 1 provides information on the average daily traffic (ADT) and existing traffic volumes during the AM and PM peak hours[2] on SR-55. As shown, there is strong directionality in traffic demand[3], generally with higher traffic volumes southbound in the AM peak hour and northbound in the PM peak hour.

Table 1.2, provided in Chapter 1 provides the existing LOS on SR-55 in the AM and PM peak hours. Consistent with the existing traffic volumes shown in Table 1.1 and the travel times and speeds discussed below, the poorest LOS (E and F) currently occur on southbound SR-55 in the AM peak hour and on northbound SR-55 in the PM peak hour.

Table 1.3, provided in Chapter 1, shows the existing condition on the HOV lanes on SR-55. Large segments of the HOV lanes currently operate at acceptable LOS in both directions during both peak periods, with LOS E and F occurring only at limited locations during peak periods.

Existing Travel Times and Speeds

Table 1.4, provided in Chapter 1, summarizes the existing peak-hour travel times and speeds on the northbound and southbound segments of SR-55. There is strong directionality in the traffic volumes between the AM and PM peak hours and peak directions that are clearly reflected in the travel times and speeds. As shown in Table 1.4, the highest travel times and lowest travel speeds are on southbound SR-55 in the AM peak hour and northbound SR-55 in the PM peak hour. The lowest travel times and highest travel speeds are on northbound SR-55 in the AM peak hour and southbound SR-55 in the PM peak hour.

Forecasted traffic volumes with and without the proposed project in 2020 and 2040 are discussed in detail later in Section 2.5.3.2, Permanent Impacts, in the subsections titled "Build Alternatives 1, 2, 3, 4, and 3M" and "No Build Alternative."

HOV Degradation Determination

According to Fixing America's Surface Transportation Act (FAST Act), Division A, Title 1, Sec. 1411, an HOV facility is determined to be operating deficiently if the monitored speeds at the HOV facility during the AM or PM peak hour are less than 45 mph on 50 mph or greater facilities, or less than 10 mph below the posted limit on 50 mph or less facilities, for more than 10 percent of the time over a consecutive 180 days. Based on these criteria, the HOV facilities within the project area would need to maintain a 45 mph speed or better for a minimum of 117 weekdays to be performing at non-degraded operations. Table 2.5.1

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1 "Peak period" is defined as the entire morning or evening commute period. The AM peak period is from 6:00 a.m. to 10:00 a.m. The PM peak period is from 3:00 p.m. to 7:00 p.m.

2 "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes. The AM peak hour is from 7:00 a.m. to 8:00 a.m. The PM peak hour is from 4:00 p.m. to 5:00 p.m.

3 Future traffic volumes discussed in this section are considered projected demand volumes. Demand is defined based on peak travel congestion periods where roadway traffic needs exceeds freeway capacity.

summarizes the average travel speed,[1] the percentage of days operating under degraded conditions, and a determination of degradation for each HOV freeway segment within the project area. (Please note that the tables for this section are provided following the last page of text in this section.) The average traveling speed on the HOV lane along SR-55 is 62 mph in the northbound direction during the AM peak hour, 48 mph in the northbound direction during the PM peak hour, 58 mph in the southbound direction during the AM peak hour, and 61 mph in the southbound direction during the PM peak hour. As shown in Table 2.5.1, five HOV freeway segments are degraded on northbound SR-55 and three HOV freeway segments are degraded on southbound SR-55. In summary, SR-55 within the project area is degraded during the PM peak hour in the existing condition.

2.5.2.3 Pedestrian and Bicycle Facilities

Pedestrian travel across the project segment of SR-55 where arterial streets cross SR-55 is provided via sidewalks at the following locations:

- McFadden Avenue overcrossing
- Edinger Avenue undercrossing
- Warner Avenue overcrossing
- Dyer Road undercrossing
- MacArthur Boulevard undercrossing

These arterials generally include sidewalks on at least one side of the road segments as they cross SR-55. There are no designated on- or off-street bike lanes on these arterials; however, bicyclists can travel on all arterial crossings over or under SR-55 regardless of the provision of bike lanes. In addition, the City of Santa Ana Bikeway Master Plan designates Edinger Avenue and Dyer Road as future Class II bike lanes.

The BNSF Railway tracks cross the northern part of the project segment of SR-55. However, because the tracks are fenced in this area, the railroad right of way is not available for use by pedestrians and bicyclists.

The following Class I (off-street) bike paths are within 0.5 mile (mi) of the project segment of SR-55:

- On Anton Boulevard and Sakioka Drive in the City of Costa Mesa, approximately 0.2 mi west of the project segment of SR-55
- On Barranca Parkway east of Red Hill Avenue in the City of Irvine, approximately 0.4 mi east of the project segment of SR-55

There is a Class II (striped, on-street) bike lane on Red Hill Avenue between Nisson Road and El Camino Real in the City of Tustin. In addition, the City of Tustin Master Bikeway Plan designates the entire length of Red Hill Avenue within the City limits as a future Class II bikeway. There are additional Class II bike lanes located along several other major arterials in the study area.

[1] The SR-55 HOV speed data were obtained from the California Department of Transportation (Caltrans) Performance Measurement System (PeMS) database. For assessing HOV Degradation, data was collected from 8:00 a.m. to 9:00 a.m. and from 5:00 p.m. to 6:00 p.m. Average speeds were calculated by dividing the total vehicle-miles traveled by the total vehicle-hours traveled.

2.5.3 Environmental Consequences

The project limits are on SR-55 from north of I-405 (PM 6.4) to south of the I-5 connectors (PM 10.3). To evaluate the effects of traffic flow downstream and upstream of the project limits, the study area for the traffic operations analysis was extended south of I-405 to Paularino Avenue and north of I-5 to 4th Street/Irvine Boulevard. The traffic operations analysis considered all the freeway HOV and general-purpose lanes on SR-55 between Paularino Avenue and 4th Street/Irvine Boulevard; the freeway-to-freeway connectors from and to I-405 and I-5; all the northbound and southbound on- and off-ramps on SR-55 at the interchanges with Paularino Avenue, MacArthur Boulevard, Dyer Road, Edinger Avenue, McFadden Avenue, and 4th Street/Irvine Boulevard; and the following ramp intersections:

- Northbound SR-55 ramps at Paularino Avenue
- Southbound SR-55 ramps at Paularino Avenue
- Northbound SR-55 ramps at MacArthur Boulevard
- Southbound SR-55 ramps at MacArthur Boulevard
- Northbound SR-55 ramps/Dyer Road
- Grand Avenue at Dyer Road
- Southbound SR-55 ramps at Dyer Road
- Southbound SR-55 off-ramp at Grand Avenue
- Northbound SR-55 ramps at Edinger Avenue/Del Amo Avenue
- Southbound SR-55 ramps at Edinger Avenue/Auto Mall
- Northbound SR-55 ramps at McFadden Avenue
- Southbound SR-55 ramps at McFadden Avenue
- Northbound SR-55 ramps at 4th Street/Irvine Boulevard
- Southbound SR-55 ramps at 4th Street/Irvine Boulevard

The traffic impact analyses considered existing conditions and conditions under the No Build Alternative and the five Build Alternatives for 2020 and 2040 as follows:

- Existing Conditions (based on traffic data collected in 2011)
- No Build Alternative Opening Year 2020 and Design Year 2040
- Alternative 1 Opening Year 2020 and Design Year 2040
- Alternative 2 Opening Year 2020 and Design Year 2040
- Alternative 3 Opening Year 2020 and Design Year 2040
- Alternative 4 Opening Year 2020 and Design Year 2040
- Alternative 3M (Preferred Alternative) Opening Year 2020 and Design Year 2040

The methodologies for forecasting and assessing future year with and without project traffic effects are described in detail in Chapter 2, Traffic Analysis Methodology, in the *Final Traffic Operation Reports*. The findings of those analyses are summarized below.

The analysis evaluation criteria used to determine acceptable traffic operating conditions are based on the LOS policies identified by Caltrans. Caltrans strives to have freeway facilities operate at LOS C or D. Freeway LOS were shown graphically on Figure 1-3 in Chapter 1. Based on Caltrans policies, LOS D was used as the threshold for the freeway facilities analysis. Any future freeway facilities projected to operate at unacceptable LOS (worse than LOS D) need to be mitigated. Per Caltrans, an impact to freeway facilities would be considered substantial if the project would:

- Degrade the LOS on the freeway facilities from LOS D to LOS E or F, or
- Impact a facility that is already operating at an unacceptable LOS E or F.

In addition to the interchange locations cited above, the traffic analysis considered the potential for Alternatives 3, 4, and 3M to impact operations at local arterial intersections because the modifications to the McFadden Avenue northbound on-ramp would eliminate the direct access from the McFadden Avenue on-ramp to southbound I-5 and northbound SR-55, which could potentially result in the diversion of traffic to nearby local roads such as Newport Avenue and Red Hill Avenue. The following 12 intersections were included in the traffic analysis for Alternatives 3, 4, and 3M:

- Northbound I-5 on-ramp at Newport Avenue
- Southbound I-5 off-ramp at Newport Avenue
- Walnut Avenue at Newport Avenue
- Sycamore Avenue at Newport Avenue
- Edinger Avenue at Newport Avenue
- El Camino Real at Red Hill Avenue
- Northbound I-5 ramps at Red Hill Avenue
- Southbound I-5 ramps at Red Hill Avenue
- Nisson Road at Red Hill Avenue
- Walnut Avenue at Red Hill Avenue
- Sycamore Avenue at Red Hill Avenue
- Edinger Avenue at Red Hill Avenue

Based on discussions with the jurisdictions where these local intersections are located, the following LOS evaluation criteria were used for the operations analyses at these intersections:

- LOS D is identified as the desired LOS for the operation of the study area local intersections. LOS E and F are considered unacceptable operational conditions.
- An impact would be considered substantial if one of the following conditions is met during the analyzed peak hour:
    - The intersection would degrade from acceptable LOS D or better to LOS E or F; or
    - The average delay at the intersection would increase by 2 seconds if the intersection already operates at LOS E or F.

The No Build Alternative includes the following previously analyzed projects that are assumed to be in place under the No Build Alternative:

- **Southbound Auxiliary Lane from Edinger Avenue to Dyer Road:** This project was completed in 2012 after the existing year (2011) conditions established for the SR-55 Improvement Project between I-405 and I-5. It is shown on Figure 1-8 in Chapter 1 as "Improvements by Other Project Completed in 2012." As a result, this project was not considered to be part of the existing condition in the study area. This segment has been factored into the built out 2020 and 2040 forecast conditions.
- **Southbound Auxiliary Lane from Dyer Road to MacArthur Boulevard:** This project has been constructed and is shown on Figure 1-2 as part of existing SR-55. It was included in the existing condition and is also included in the No Build Alternative and all Build Alternatives.
- **Continuous HOV Lane Access from Paularino Avenue to Meats Avenue:** This project has been implemented. This project was included in the existing condition and is included in the No Build Alternative and all Build Alternatives.
- **Extension of Newport Avenue:** This improvement is not expected to be implemented by 2020 but is expected to be constructed and be part of the No Build Alternative by 2040. It was not included in the Build Alternatives for the 2020 traffic forecasts but was included in all Build Alternatives for the 2040 forecasts.

The improvements in the Build Alternatives were shown in Chapter 1 on Figures 1-4 through 1-7 for Alternatives 1 through 4 and 3M, respectively. Those improvements are described in more detail in Chapter 1, Proposed Project, in this environmental document, and in Chapter 4, Project Alternatives, in the *Final Traffic Operation Report (2016)*.

2.5.3.1 Temporary Impacts

Build Alternatives 1, 2, 3, 4, and 3M

The construction of the Build Alternatives would result in temporary impacts to traffic circulation and pedestrian and bicycle access on and in the vicinity of the project segment of SR-55. Those impacts could include short-term closures of freeway and arterial facilities and modifications to the existing facilities as described in the following sections. These temporary construction impacts would be similar for all the Build Alternatives.

Construction activities expected to require temporary closures of the SR-55 mainline, interchange ramps, and local arterials include:

- Installation, moving, and removal of construction barriers (k-rails)
- Pavement restriping
- Falsework erection and removal
- Construction of retaining walls and tie-back walls
- Widening of undercrossing structures and foundations
- Installation and removal of overhead signs and loop detectors
- Placement of concrete pavement using rapid set concrete, such as at ramp termini
- Asphalt and concrete pavement construction and overlay operations

- Utility work
- Extension or modifications of drainage channels

The total duration of construction activities under the Build Alternatives would range from approximately 520 to 780 days, depending on the Build Alternative and the number of contracts procured to build the improvements. Temporary closures of the SR-55 mainline, interchange ramps, and local arterials would be limited to overnight (between 10:00 p.m. and 5:00 a.m.) with limited durations.

In addition to temporary closures described above, the following temporary modifications to the existing freeway mainline, connector and ramp facilities, and arterial streets in the construction zone could be implemented during construction of the Build Alternatives:

- Narrowing of the widths of the travel lanes and shoulders
- Reductions in the number of available travel lanes
- Speed limit reductions

These temporary modifications would allow for traffic to pass through the project area on SR-55, the ramps, and the arterials, but those travelers would be expected to experience some delays as they travel on those facilities.

The proposed temporary closures of, and modifications to, the freeway and arterial facilities and the potential effects of those closures and modifications under the Build Alternatives are described in the following sections.

Temporary Mainline Closures and Other Modifications on SR-55

Table 2.5.2 summarizes the anticipated temporary closures on the SR-55 mainline during construction of the Build Alternatives, the proposed detour routes that would be provided during those closures, and the estimated increases in travel times for travelers required to exit the mainline freeway and travel around the closures on the detour routes. As shown, all five Build Alternatives would require temporary overnight closures of two segments of southbound SR-55 and one segment of northbound SR-55 to accommodate the installation and removal of overhead signage. Detours around the temporary mainline closures would be provided on local arterials in the vicinity of the closures. As shown in Table 2.5.2, the proposed detours around the temporarily closed mainline segments of SR-55 would result in increased travel times ranging from approximately 5 to 9 minutes.

During construction, the total number of travel lanes on the SR-55 mainline is expected to remain the same as existing conditions. However, the lane and shoulder widths would be temporarily narrowed to accommodate the placement of construction barriers. The speed limits on the segments of SR-55 with narrowed lanes may also be temporarily reduced.

Pedestrians and bicyclists are not allowed to travel on the SR-55 mainline. The temporary mainline closures and the temporary detours associated with those closures would not affect the existing Class I bike paths on the east and west sides of SR-55. As a result, the mainline closures, delays, and increased travel times under all the Build Alternatives would not impact pedestrians and bicyclists or pedestrian and bicycle facilities.

Temporary Ramp Closures on SR-55

Table 2.5.3 summarizes the temporary ramp closures that would be required for each Build Alternative, the proposed detour routes that would be provided during those closures, and the estimated increases in travel times for travelers required to use the detour routes around

the closed ramps. As shown, all five Build Alternatives would require temporary ramp closures. Alternative 3 would require the greatest number of ramp closures (20) and Alternative 1 would require the least number of ramp closures (12). The proposed detours around the temporarily closed ramps would result in increased travel times ranging from approximately 1 to 10 minutes.

The temporary ramp closures are not expected to occur for longer than 10 nights at any given ramp. No two consecutive on- or off-ramps in the same direction would be closed at the same time to minimize inconvenience to the traveling public.

Pedestrians and bicyclists are not allowed to travel on the SR-55 on- and off-ramps. The temporary ramp closures and the temporary detours associated with those closures would not affect the existing Class I bike paths on the east and west sides of SR-55. As a result, the ramp closures, delays, and increased travel times as a result of the mainline closures under all the Build Alternatives would not impact pedestrians and bicyclists or pedestrian and bicycle facilities.

Temporary Closures of Local Arterials

Table 2.5.4 summarizes the anticipated temporary overnight closures of local arterials during construction of the Build Alternatives, the proposed detour routes that would be provided during those closures, and the estimated increases in travel times for travelers required to travel around the closures on the detour routes. As shown, all five Build Alternatives would require temporary overnight closures of segments of MacArthur Boulevard, Dyer Road, and Edinger Avenue. All five Build Alternatives would require falsework for the widening of the Dyer Road and Edinger Avenue undercrossings. The erection and removal of the falsework at these undercrossings and the installation, moving, and removal of construction barriers for ramp work would require temporary overnight closures on segments of MacArthur Boulevard, Dyer Road, and Edinger Avenue for all five Build Alternatives. Slope paving required for the bridges at these crossings may also require temporary overnight closures of one or two traffic lanes on MacArthur Boulevard, Dyer Road, and Edinger Avenue. No other local street closures would be required during construction of the five Build Alternatives.

As shown in Table 2.5.4, the proposed detours around the temporarily closed segments of these local arterials would result in increased travel times ranging from approximately 4 to 12 minutes.

The temporary closures of these arterial roads would also include closure of the sidewalks along those roads at their crossings of SR-55. The detours provided for vehicular traffic to travel around the closed arterials would also be signed for use by pedestrians and bicyclists. As a result, pedestrians and bicyclists who use those arterials would be required to travel north or south of the closed arterial to reach the closest open arterial crossing at SR-55. This would result in a longer travel path for both pedestrians and bicyclists and would substantially increase their travel times. However, the arterials would be closed only overnight and for very limited periods, which would minimize the effects of the closures on pedestrians and bicyclists.

The temporary arterial closures and the temporary detours associated with those closures would not affect the existing Class I bike paths on the east and west sides of SR-55. As a result, none of the closures under the Build Alternatives would impact those Class I bike paths or the pedestrians and bicyclists using those bike paths.

No Build Alternative

None of the improvements proposed in Build Alternatives would be constructed under the No Build Alternative. As a result, the No Build Alternative would not result in temporary impacts related to traffic and circulation or to pedestrian or bicycle facilities.

2.5.3.2 Permanent Impacts

Build Alternatives 1, 2, 3, 4, and 3M

The following tables provide detailed information on the traffic operations under the Build and No Build Alternatives in the Opening Year (2020):

- **Table 2.5.5, 2020 SR-55 Mainline and Ramp Peak-Hour Levels of Service:** This table provides the LOS on the northbound and southbound SR-55 mainline and the on- and off-ramps in the AM and PM peak hours in 2020.
- **Table 2.5.6, 2020 SR-55 HOV Lane Peak-Hour Levels of Service:** This table provides the LOS for the northbound and southbound HOV lanes on the project segment of SR-55 in the AM and PM peak hours in 2020.
- **Table 2.5.7, 2020 SR-55 Intersection Peak-Hour Levels of Service:** This table provides the LOS for intersections between SR-55 and local arterials for the AM and PM peak hours in 2020.
- **Table 2.5.8, 2020 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes:** This table provides the travel times and speeds on northbound and southbound SR-55 general purpose lanes in the AM and PM peak hours in 2020.
- **Table 2.5.9, 2020 SR-55 HOV Lane Peak-Hour Speeds and Travel Times:** This table provides the speeds and travel times on northbound and southbound SR-55 HOV lanes in the AM and PM peak hours in 2020.
- **Table 2.5.10, Summary of 2020 SR-55 Peak Operating Conditions:** This table summarizes the detailed operating conditions data for 2020 from Tables 2.5.4 through 2.5.7.
- **Table 2.5.11, 2020 Peak-Hour Local Intersection Operations:** This table provides the delay in seconds and LOS at local arterial intersections evaluated under Alternatives 3, 4, and 3M for the AM and PM peak hours in 2020.

The following tables provide detailed information on the traffic operations under the Build and No Build Alternatives in the Design Year (2040):

- **Table 2.5.12, 2040 SR-55 Mainline and Ramp Peak-Hour Levels of Service:** This table provides the LOS on the northbound and southbound SR-55 mainline and its on- and off-ramps in the AM and PM peak hours in 2040.
- **Table 2.5.13, 2040 SR-55 HOV Lane Peak-Hour Levels of Service:** This table provides the LOS for the northbound and southbound HOV lanes on the project segment of SR-55 in the AM and PM peak hours in 2040.
- **Table 2.5.14, 2040 SR-55 Intersection Peak-Hour Levels of Service:** This table provides the LOS for intersections between SR-55 and local arterials for the AM and PM peak hours in 2040.

- **Table 2.5.15, 2040 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes:** This table provides the travel times and speeds on northbound and southbound SR-55 general purpose lanes in the AM and PM peak hours in 2040.
- **Table 2.5.16, 2040 SR-55 HOV Lane Peak-Hour Speeds and Travel Times:** This table provides the speeds and travel times on northbound and southbound SR-55 HOV lanes in the AM and PM peak hours in 2040.
- **Table 2.5.17, Summary of 2040 SR-55 Peak Operating Conditions:** This table summarizes the detailed operating conditions data for 2040 from Tables 2.5.11 through 2.5.16.
- **Table 2.5.18, 2040 Peak-Hour Local Intersection Operations:** This table provides the delay in seconds and LOS at local arterial intersections evaluated under Alternatives 3, 4, and 3M for the AM and PM peak hours in 2040.

As noted above, 2020 represents the project opening year, and 2040 represents the project build-out year. The traffic operations under the Build and No Build Alternatives in 2020 and 2040 are discussed by alternative below.

Alternative 1 – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9, and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 1 would:
  - Two additional freeway segments would operate at LOS E or F under Alternative 1 compared to the No Build Alternative as a result of the higher traffic demand served by Alternative 1.
  - Reduce the southbound and northbound SR-55 peak hour travel times on the general purpose lanes by 1 percent.
  - One additional HOV segment on southbound SR-55 would operate at LOS E or F due to more traffic demand served by Alternative 1.
  - Increase southbound SR-55 peak hour travel times on the HOV lane by 30% due to more traffic demand served by Alternative 1.
  - Reduce the network vehicle hours of delay by 18 percent while serving more traffic through the network.
- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9, and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 1 would:
  - Two additional freeway segments would operate at LOS E or F under Alternative 1 compared to the No Build Alternative as a result of the higher traffic demand served by Alternative 1.
  - Increase northbound and southbound SR-55 peak hour travel times on the HOV lanes by 6% and 4% respectively, due to more traffic demand served by Alternative 1.
  - Reduce the network vehicle hours of delay by 7 percent while serving more traffic through the network.

Alternative 1 – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 1 would:
  - Two additional freeway segments would operate at LOS E or F due to the higher traffic demand served by Alternative 1.
  - Increase the northbound SR-55 peak hour travel times on the general purpose lanes by 2 percent, due to more traffic served by the freeway facility.
  - One additional HOV segment on southbound SR-55 would operate at LOS E or F due to more traffic demand served by Alternative 1.
  - Increase southbound SR-55 peak hour travel times on the HOV lane by 37% due to more traffic demand served by Alternative 1.
  - Reduce the network vehicle hours of delay by 20 percent while serving more traffic through the network.
- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 1 would:
  - Increase the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 2 percent and 17 percent, respectively, due to more traffic served by the freeway facility.
  - Reduce northbound and southbound SR-55 peak hour travel times on the HOV lanes by 3% and 1%, respectively.
  - Reduce the network vehicle hours of delay by 17 percent while serving more traffic through the network.

Alternative 2 – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 2 would:
  - Two additional freeway segments would operate at LOS E or F due to the higher traffic demand served by Alternative 2.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 3 percent and 8 percent, respectively.
  - One additional HOV segment would operate at LOS E or F due to more traffic demand served by Alternative 2.
  - Reduce southbound SR-55 peak hour travel times on the HOV lanes by 2%.
  - Reduce the network vehicle hours of delay by 34 percent while serving more traffic through the network.
- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 2 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at three freeway segments.

- Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 15 percent.
- Increase northbound SR-55 peak hour travel times on the HOV lane by 12% due to more traffic demand served by Alternative 2, while reduce southbound SR-55 peak hour travel times on the HOV lanes by 3%. .
- Reduce the network vehicle hours of delay by 17 percent while serving more traffic through the network.

Alternative 2 – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 2 would:
  - Increase the northbound SR-55 peak hour travel time on the general purpose lanes by 1 percent and decrease the southbound SR-55 travel time by 5 percent.
  - One additional HOV segment on southbound SR-55 would operate at LOS E or F due to more traffic demand served by Alternative 2.
  - Increase southbound SR-55 peak hour travel times on the HOV lane by 34% due to more traffic demand served by Alternative 2.
  - Reduce the network vehicle hours of delay by 25 percent while serving more traffic through the network.
- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 2 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at four freeway segments.
  - Reduce northbound SR-55 peak hour travel time on the general purpose lanes by 1 percent, and reduce southbound SR-55 travel time by 35 percent.
  - Increase northbound SR-55 peak hour travel times on the HOV lane by 5% due to more traffic demand served by Alternative 2, while reduce southbound SR-55 peak hour travel times on the HOV lanes by 18%. .
  - Reduce the network vehicle hours of delay by 20 percent while serving more traffic through the network.

Alternative 3 – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 3 would:
  - Improve the LOS E and F under the No Build Alternative to acceptable LOS D or better at three freeway mainline segments.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 7 percent and 14 percent, respectively.
  - One additional HOV segment on southbound SR-55 would operate at LOS E or F due to more traffic demand served by Alternative 3.

- Increase southbound SR-55 peak hour travel times on the HOV lane by 28% due to more traffic demand served by Alternative 3.
- Reduce the network vehicle hours of delay by 51 percent while serving more traffic through the network.

- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 3 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at four freeway segments.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 12 percent and 16 percent, respectively.
  - Increase northbound SR-55 peak hour travel times on the HOV lane by 36% due to more traffic demand served by Alternative 3, while reduce southbound SR-55 peak hour travel times on the HOV lanes by 4%.
  - Reduce the network vehicle hours of delay by 28 percent while serving more traffic through the network.

Alternative 3 – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 3 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at five freeway segments.
  - Reduce northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 6 percent and 5 percent, respectively.
  - One additional HOV segment on southbound SR-55 would operate at LOS E or F due to more traffic demand served by Alternative 3.
  - Increase southbound SR-55 peak hour travel times on the HOV lane by 45% due to more traffic demand served by Alternative 3.
  - Reduce the network vehicle hours of delay by 31 percent while serving more traffic through the network.
- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 3 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at four freeway segments.
  - Increase the northbound SR-55 peak hour travel time on the general purpose lanes by 1 percent and reduce the southbound SR-55 travel time by 34 percent, respectively.
  - Increase northbound SR-55 peak hour travel times on the HOV lane by 19% due to more traffic demand served by Alternative 3, while reduce southbound SR-55 peak hour travel times on the HOV lanes by 16%.
  - Reduce the network vehicle hours of delay by 40 percent while serving more traffic through the network.

Alternative 4 – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 4 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at three freeway segments.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 5 percent and 17 percent, respectively.
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at one HOV segment.
  - Reduce northbound and southbound SR-55 peak hour travel times on the HOV lanes by 1% and 43%, respectively.
  - Reduce the network vehicle hours of delay by 53 percent while serving more traffic through the network.
- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 4 would:
  - One additional freeway segment would operate at LOS E or F due to the higher traffic demand served by Alternative 4.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 4 percent and 1 percent, respectively.
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at two HOV segments.
  - Reduce northbound and southbound SR-55 peak hour travel times on the HOV lanes by 5% and 2%, respectively.
  - Reduce the network vehicle hours of delay by 21 percent while serving more traffic through the network.

Alternative 4 – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 4 would:
  - Four additional freeway segments would operate at LOS E or F due to the higher traffic demand served by Alternative 4.
  - Reduce northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 2 percent and 7 percent, respectively.
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at one HOV segment.
  - Reduce northbound and southbound SR-55 peak hour travel times on the HOV lanes by 1% and 36%, respectively.
  - Reduce the network vehicle hours of delay by 33 percent while serving more traffic through the network.

- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 4 would:
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at one freeway segment.
  - Reduce the northbound SR-55 peak hour travel time on the general purpose lanes by 1 percent and increase the southbound SR-55 travel time by 16 percent.
  - Improve the LOS E or F under the No Build Alternative to acceptable LOS D or better at two HOV segments.
  - Reduce northbound and southbound SR-55 peak hour travel times on the HOV lanes by 14% and 9%, respectively.
  - Reduce the network vehicle hours of delay by 32 percent while serving more traffic through the network.

Alternative 3M (Preferred Alternative) – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 3M would:
  - Improve the LOS E and F to acceptable LOS D or better at one HOV segment and at three freeway mainline segments.
  - Reduce the northbound and southbound SR-55 travel times on the general purpose lanes by 8 percent and 20 percent, respectively.
  - Reduce the northbound and southbound SR-55 travel times on the HOV lanes by 2 percent and 45 percent, respectively.
  - Reduce the network vehicle hours of delay by 58 percent while serving more traffic through the network.
- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, compared to the No Build Alternative, Alternative 3M would:
  - Improve the LOS E or F to acceptable LOS D or better at 2 HOV segments and at four freeway segments.
  - Reduce the northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 15 percent and 17 percent, respectively.
  - Reduce the northbound and southbound SR-55 travel times on the HOV lanes by 6 percent.
  - Reduce the network vehicle hours of delay by 31 percent while serving more traffic through the network.

Alternative 3M (Preferred Alternative) – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 3M would:
  - Improve the LOS E or F to acceptable LOS D or better at one HOV segment and at five freeway segments.

- Reduce northbound and southbound SR-55 peak hour travel times on the general purpose lanes by 9 percent and 12 percent, respectively.
- Reduce the northbound and southbound SR-55 travel times on the HOV lanes by 2 percent and 39 percent, respectively.
- Reduce the network vehicle hours of delay by 41 percent while serving more traffic through the network.

- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, compared to the No Build Alternative, Alternative 3M would:
  - Improve the LOS E or F to acceptable LOS D or better at 2 HOV segments and at four freeway segments.
  - Reduce the northbound SR-55 peak hour travel time on the general purpose lanes by 7 percent and reduce the southbound SR-55 travel time by 34 percent, respectively.
  - Reduce the northbound and southbound SR-55 travel times on the HOV lanes by 16 percent and 20 percent, respectively.
  - Reduce the network vehicle hours of delay by 41 percent while serving more traffic through the network.

Comparison of the Performance of the Build Alternatives

Tables 2.5.10 and 2.5.17 summarize the performance of the No Build Alternative and the five Build Alternatives in the AM and PM peaks for the following operational characteristics in 2020 and 2040, respectively:

- Number of freeway segments operating at LOS D or better or LOS E/F
- Number of HOV lane segments operating at LOS D or better or LOS E/F
- Number of intersections operating at LOS D or better or LOS E/F
- Changes in general-purpose lane peak-hour travel times compared to the No Build Alternative
- Changes in HOV lane peak-hour travel times compared to the No Build Alternative
- Changes in peak-hour vehicle miles traveled (VMT) compared to the No Build Alternative
- Changes in peak-hour vehicle hour delay changes compared to the No Build Alternative

As shown in Table 2.5.10, the numbers of freeway segments, HOV lane segments, and study area intersections operating at LOS E/F would vary compared to the No Build Alternative in 2020 depending on the AM or PM peak period and Build Alternative. Depending on the Build Alternative:

- Vehicle travel times on the general purpose lanes in 2020 will be reduced up to 17 percent in the AM peak hour and 16 percent in the PM peak hour compared to the No Build Alternative.

- Vehicle travel times on the HOV lanes in 2020 will decrease up to 43 percent and increase up to 30 percent in the AM hour and decrease up to 5 percent and increase up to 36 percent in the PM peak hour.
- The number of people served in 2020 will increase by 0 to 2 percent in the AM peak period and 0 to 1 percent in the PM peak period.
- VMT in 2020 will increase in the AM peak period by 1 to 2 percent and in the PM peak period by up to 1 percent, compared to the No Build Alternative.
- Vehicle hours of delay in 2020 will be reduced between 18 and 53 percent in the AM peak period and between 7 and 28 percent in the PM peak period compared to the No Build Alternative.

These operational characteristics show that although the LOS may not improve on the freeway and HOV segments and at intersections in 2020, the total VMT and number of people served would increase and the vehicle hours of delay would be reduced substantially under the Build Alternatives compared to the No Build Alternative. As a result, the Build Alternatives will result in improved travel conditions and higher throughput compared to the No Build Alternative in 2020.

As shown in Table 2.5.17, the numbers of freeway segments operating at LOS E/F in the peak period would vary in the AM peak period and generally decrease in the PM peak period compared to the No Build Alternative in 2040. The number of HOV lane segments operating at LOS E/F would vary depending on the Alternative. In addition, the study area intersections operating at LOS E/F in the peak periods would either not change or would decrease compared to the No Build Alternative in 2040. However, depending on the Build Alternative:

- Vehicle travel times on the general purpose lanes in 2040 will decrease up to 7 percent and increase up to 2 percent in the AM hour and decrease up to 35 percent and increase up to 17 percent in the PM peak hour.
- Vehicle travel times on the HOV lanes in 2040 will decrease up to 36 percent and increase up to 45 percent in the AM hour and decrease up to 18 percent and increase up to 19 percent in the PM peak hour.
- The number of people served in 2040 will increase by 1 to 3 percent in the AM peak period and 1 to 4 percent in the PM peak period.
- VMT in 2040 will increase between 2 and 4 percent in the AM peak period and between 0 and 4 percent in the PM peak period compared to the No Build Alternative.
- Vehicle hours of delay in 2040 will be reduced between 20 percent and 33 percent in the AM peak period and between 17 percent and 40 percent in the PM peak period.

These operational characteristics show that although the LOS may not improve on the freeway and HOV segments and at intersections in 2040, the total VMT and number of people served would increase and the vehicle hours of delay would be reduced substantially under the Build Alternatives compared to the No Build Alternative. As a result, the Build Alternatives will result in improved travel conditions and higher throughput compared to the No Build Alternative in 2040.

Local Intersection Operations

Tables 2.5.11 and 2.5.18 summarize the 2020 and 2040 AM and PM peak-hour delay and LOS at local intersections under Alternatives 3, 4, and 3M respectively.

As shown in Table 2.5.11, a majority of the intersections would operate with similar amounts of delay and with the same LOS under Alternatives 3 and 4 in 2020. However, the following intersection would be substantially impacted in 2020 under both Alternatives 3, 4, and 3M:

- **Northbound I-5 On-Ramp/Newport Avenue:** This intersection is currently unsignalized and the traffic from northbound Newport Avenue onto the northbound I-5 on-ramp has to yield to oncoming through traffic on southbound Newport Avenue. This movement currently operates at unacceptable LOS under existing conditions and any increased future demand would further exacerbate the delay at this location. In the 2020 No Build Alternative, this intersection would operate at LOS F during the AM and PM peak hours. The limited access at the McFadden Avenue on-ramp proposed under both Alternatives 3, 4, and 3M would divert more traffic to use this location resulting in increased delay during the AM and PM peak hours.

As shown in Table 2.5.11, delay at local intersections under the No Build Alternative would vary substantially in the AM peak hour (i.e., from approximately 13 seconds at the southbound I-5 on-ramp at Red Hill Avenue to approximately 366 seconds at the northbound I-5 on-ramp at Newport Avenue). In the PM peak hour, the delay at local intersections would range from approximately 9 seconds at the Edinger Avenue/Newport Avenue intersection to approximately 157 seconds at the Edinger Avenue/Red Hill Avenue intersection.

As shown in Table 2.5.11, with the improvement proposed for Alternatives 3, 4, and 3M a majority of the intersections would operate with similar levels of delay and with the same LOS in 2020, with the exception of the northbound I-5 on-ramp at Newport Avenue. The delay at local intersections in 2020 under Alternatives 3, 4, and 3M would continue to vary substantially in the AM peak hour (i.e., from approximately 13 seconds at the southbound I-5 off-ramp at Newport Avenue to approximately 678 seconds at the northbound I-5 on-ramp at Newport Avenue). In the PM peak hour, the delay at local intersections under Alternatives 3 and 4 would range from approximately 10 seconds at the Edinger Avenue/Newport Avenue intersection to approximately 173 seconds at the northbound I-5 on-ramp at Newport Avenue. Delay at the northbound I-5 on-ramp at Newport Avenue intersection would increase from approximately 366 seconds for the No Build Alternative to approximately 671 seconds, 678 seconds, and 366 seconds for Alternatives 3, 4, and 3M respectively.

As shown in Table 2.5.18, in 2040, a majority of local intersections would operate with similar amounts of delay and with the same LOS under Alternatives 3, 4, and 3M. However, the following intersection would be substantially impacted in 2040 under both Alternatives 3, 4, and 3M:

- **Northbound I-5 On-Ramp/Newport Avenue:** In the 2040 No Build Alternative, this intersection would operate at LOS F during the AM and PM peak hours. The limited access at the McFadden Avenue on-ramp would divert more traffic to use this location resulting in increased delay during peak hours under both Alternatives 3 and 4.

As shown in Table 2.5.18, delay at local intersections under the No Build Alternative would vary substantially in the AM hour (i.e. from 14 seconds at the southbound I-5 on-ramp at Red Hill Avenue to 549 seconds at the northbound I-5 on-ramp at Newport Avenue). In the PM Peak hour, the delay at local intersections would range from 17 seconds at the

southbound I-5 on-ramp at Red Hill Avenue to 343 seconds at the northbound I-5 on-ramp at Newport Avenue.

As shown in Table 2.5.18, with the improvement proposed for Alternatives 3, 4, and 3M a majority of the intersections would operate with similar amounts of delay and with the same LOS in 2040, with the exception of the northbound I-5 on-ramp at Newport Avenue. The delay at local intersections in 2040 under Alternatives 3, 4, and 3M would continue to vary substantially in the AM peak hour (i.e., from approximately 14 seconds at the southbound I-5 on-ramp at Red Hill Avenue to approximately 1,218 seconds at the northbound I-5 on-ramp at Newport Avenue). In the PM peak hour, the delay at local intersections under Alternatives 3, 4, and 3M would range from approximately 19 seconds at the southbound I-5 on-ramp at Red Hill Avenue to approximately 549 seconds at the northbound I-5 on-ramp at Newport Avenue. PM peak hour delay at the northbound I-5 on-ramp at Newport Avenue intersection would increase from approximately 343 seconds for the No Build Alternative to approximately 523, 549, and 477 seconds for Alternatives 3, 4, and 3M, respectively.

Pedestrian and Bicycle Facilities

The five Build Alternatives include minor modifications to existing arterials at their crossings of SR-55 to accommodate the permanent improvements to SR-55 and the ramps provided by the Build Alternatives. The arterials closed temporarily and/or modified during construction would be returned to their existing cross sections no later than the completion of construction of the improvements in the Build Alternatives. The existing sidewalks on those arterials at their crossings of SR-55 would also be returned to their original or better conditions no later than the completion of construction. Specifically, at arterial crossings where modifications to the sidewalks are needed as part of the Build Alternatives, those modifications would be consistent with ADA accessibility requirements. The permanent improvements in the Build Alternatives would not affect the existing bike paths or lanes on the east and west sides of SR-55.

No Build Alternative

No Build Alternative – 2020

- **2020 AM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, the No Build Alternative would result in 12 freeway locations and 1 HOV locations operating at LOS E or F during the AM peak.
- **2020 PM Peak:** As shown in detail in Tables 2.5.5 through 2.5.9 and summarized in Table 2.5.10, the No Build Alternative would result in 22 freeway locations, 1 HOV location, and 3 study area intersections operating at LOS E or F during the PM peak.

No Build Alternative – 2040

- **2040 AM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, the No Build Alternative would result in 14 freeway locations, 1 HOV location, and 1 study area intersection operating at LOS E or F during the AM peak.
- **2040 PM Peak:** As shown in detail in Tables 2.5.11 through 2.5.16 and summarized in Table 2.5.17, the No Build Alternative would result in 32 freeway locations, 2 HOV location, and 7 study area intersections operating at LOS E or F during the PM peak.

No Build Alternative Pedestrian and Bicycle Facilities

None of the improvements proposed in the Build Alternatives would be constructed under the No Build Alternative. As a result, the No Build Alternative would not result in permanent impacts related to pedestrian or bicycle facilities.

2.5.4 Avoidance, Minimization, and/or Mitigation Measures

2.5.4.1 Measures for Short-Term Traffic Impacts

The following measure addresses the potential for short-term impacts related to traffic and transportation during construction of all five Build Alternatives.

T-1 **Transportation Management Plan.** A Transportation Management Plan (TMP) will be developed during final design and will be implemented by the construction contractor during project construction to address short-term traffic circulation and access effects during project construction. Specifically, during final design, a qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during project construction. The TMP will be approved by the Orange County Transportation Authority (OCTA) and the California Department of Transportation (Caltrans) District 12 during final design and will be incorporated into the plans, specifications, and estimates.

The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to:

- Maintain traffic safety during construction
- Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction
- Minimize traffic delays and facilitate reduction of the overall duration of construction activities
- Minimize detours and impacts to pedestrians and bicyclists
- Foster public awareness of the project and related transportation and traffic impacts
- Achieve public acceptance of construction of the project and the TMP measures

The TMP will contain, but not be limited to, the following elements intended to reduce traveler delay and enhance traveler safety. These elements will be refined during final design and incorporated in the TMP for implementation during project construction.

- **Public Information/Public Awareness Campaign (PAC).** The primary goal of the PAC is to educate motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. The PAC is an important tool for reaching target audiences with important construction project information and is anticipated to include, but not be limited to:
  - Rideshare information

- Brochures and mailers
- Media releases
- Paid advertising
- Public meetings
- Broadcast fax and email services
- Telephone hotline
- Notification to targeted groups
- Commercial traffic reporters/feeds
- Project website
- Visual information
- Local cable television and news
- Internet postings

- **Traveler Information Strategies.** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; "businesses are open" signing; and other signing and information to assist travelers in navigating through, around, and in construction areas. Key components of the traveler information system are anticipated to include, but not be limited to:

  - Fixed and portable changeable message signs
  - Ground-mounted signs
  - Automated work zone information systems
  - Highway advisory radio
  - Lane closure website
  - Caltrans highway information network
  - Bicycle and pedestrian information
  - Commute Smart website

- **Incident Management.** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to:

  - Caltrans Construction Zone Enhanced Enforcement Program (COZEEP)
  - Freeway Service Patrol

- Traffic surveillance stations
- Caltrans Transportation Management Center
- Traffic management team
- Towing services

- **Construction Strategies.** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include, but not be limited to, consideration of the following:
  - Conflicts with other projects and special events
  - Construction staging alternatives
  - Mainline lane closures
  - Local road closures
  - Ramp and connector closures (no two consecutive on- or off-ramps in the same direction would be closed at the same time)
  - Pedestrian and bicycle detours and facility closures
  - Traffic control improvements
  - Coordination with other projects
  - Project phasing
  - Traffic screens
  - Truck traffic restrictions
- **Demand Management.** Temporarily reducing the overall traffic volumes on the project segment of State Route 55 (SR-55) could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, the following strategies that could reduce vehicular demand in the study area during project construction:
  - Rideshare incentives
  - Transit services
  - Shuttle services
  - Variable work hours and telecommuting
  - Park-and-ride lots
- **Alternate Route Strategies.** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following:
  - Mainline lane closures

- Ramp/connector closures
- Local road closures
- Temporary highway or shoulder use
- Local street improvements
- Temporary detours and closures of bicycle and pedestrian facilities
- Traffic signal coordination

The design/build contractor will implement the measures in the TMP during construction.

T-2 Prior to and during construction, the construction contractor will coordinate with OCTA Central Communications regarding all temporary mainline ramp and arterial closures and detour plans that would affect OCTA bus routes to minimize temporary delays to OCTA bus service.

2.5.4.2 Measures for Long-Term Impacts

The following mitigation measure would reduce impacts to the affected intersection (northbound I-5 on-ramp at Newport Avenue) for Alternatives 3, 4, and 3M:

T-3 If Alternative 3, 4, or 3M is selected for implementation, the following improvements will be included in the design of the selected alternative, to be constructed as part of that alternative by 2020 (Opening Year):

- **Northbound I-5 On-Ramp/Newport Avenue:** Installation of a traffic signal at this intersection.

2.5.4.3 Traffic Operations at Local Intersections after Mitigation

Implementation of the local intersection improvements in Measure T-3 included in the 2020 (Opening Year) improvements would result in the following changes in traffic operations at the intersection affected by Alternatives 3, 4, and 3M:

- **Northbound I-5 On-Ramp/Newport Avenue:** As shown in Tables 2.5.19 and 2.5.20, the effects of Alternatives 3, 4, and 3M at this intersection in 2020 and 2040 would be mitigated based on the signalization of this intersection that is required as part of the 2020 (Opening Year) project features in Measure T-3. As a result, this intersection would operate at acceptable LOS during the AM and PM peak hours under Alternatives 3,4, and 3M in 2020 and 2040.

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Table 2.5.1 SR-55 HOV Freeway Segment Average Speed and Degradation Determination

HOV Freeway Segment	AM Peak Hour			PM Peak Hour		
	Average Speed (mph)	% of Days under 45 mph	Degraded?	Average Speed (mph)	% of Days under 45 mph	Degraded?
Northbound						
Paularino Ave to I-405	65.2	0%	No	64.7	0%	No
I-405 to MacArthur Blvd	64.5	0%	No	56.5	0%	No
MacArthur Blvd to Dyer Rd	60.0	0%	No	32.4	82.2%	Yes
Dyer Rd to Edinger Ave	59.6	0%	No	37.8	84.5%	Yes
Edinger Ave to McFadden Ave	60.7	0%	No	38.8	88.4%	Yes
McFadden Ave to I-5	61.1	0%	No	41.4	72.9%	Yes
I-5 to Irvine Blvd	63.4	0%	No	43.7	60.5%	Yes
Irvine Blvd to 17th St	62.6	0%	No	52.1	0.8%	No
Entire NB Segment of SR-55 within the study area	61.8	0%	No	47.8	27.9%	Yes
Southbound						
17th St to Irvine Blvd	53.7	1.6%	No	66.4	0.8%	No
Irvine Blvd to I-5	42.6	62.0%	Yes	53.9	10.9%	Yes
I-5 to McFadden Ave	48.9	40.3%	Yes	55.1	10.9%	Yes
McFadden Ave to Edinger Ave	49.0	16.3%	Yes	54.1	8.5%	No
Edinger Ave to Dyer Rd	60.0	0%	No	59.7	0%	No
Dyer Rd to MacArthur Blvd	67.9	0.8%	No	67.7	0%	No
MacArthur Blvd to I-405	66.7	0.8%	No	66.6	0%	No
Entire SB Segment of SR-55 within the study area	57.9	1.6%	No	61.4	0%	No

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Note: The SR-55 HOV speed data was obtained from Caltrans Performance Measurement System (PeMS) database and provided by Caltrans. The timeframe used for this analysis was January 2011 to June 2011, which consists of 129 weekdays.

Ave = Avenue
Blvd = Boulevard
Caltrans = California Department of Transportation
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
mph = miles per hour
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street

Table 2.5.2 Temporary Mainline Closures on SR-55 During Construction of Build Alternatives

Mainline Segment	Estimated Duration (nights)[1]	Proposed Detour Route	Increase in Travel Time (minutes)
SB SR-55 between MacArthur Blvd off-ramp and NB I-405 connector to SB SR-55	3	MacArthur Blvd/Bristol St/Baker St	8
		MacArthur Blvd/NB I-405 connector	5
SB SR-55 between Dyer Rd (West) off-ramp and WB MacArthur Blvd on-ramp	3	Dyer Rd/Main St/MacArthur Blvd	5
		Dyer Rd/Red Hill Ave/MacArthur Blvd	5
NB SR-55 between Edinger Ave off-ramp and McFadden Ave on-ramp	3	Edinger Ave/Red Hill Ave/Sycamore Ave	6
		Edinger Ave/Grand Ave/McFadden Ave	9

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).
[1] Estimated duration refers to the time period that each mainline segment would be subject to overnight closures (all closures would occur between 10:00 p.m. and 5:00 a.m.). The overnight closures are not anticipated to occur on consecutive nights.

Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
NB = northbound
SB = southbound
SR-55 = State Route 55
St = Street
WB = westbound

Table 2.5.3 Temporary Ramp Closures on SR-55 During Construction of Build Alternatives

Ramp	Estimated Duration (nights)[1]	Proposed Detour Route	Estimated Travel Delay (minutes)	Temporary Ramp Closures			
				Alt 1	Alt 2	Alt 3/3M	Alt 4
NB SR-55 off-ramp to MacArthur Blvd	10	Baker St/Red Hill Ave	6	●	●	●	●
		Dyer Rd/Red Hill Ave	6				
EB MacArthur Blvd to NB SR-55 on-ramp	10	Main St/Dyer Rd	2		●	●	●
		Red Hill Ave/Dyer Rd	4				
WB MacArthur Blvd to NB SR-55 on-ramp	10	Red Hill Ave/Dyer Rd	2	●	●	●	●
		Main St/Dyer Rd	4				
EB MacArthur Blvd on-ramp to SB SR-55	10	Main St/Dyer Rd	4		●	●	●
		Red Hill Ave/Dyer Rd	7				
WB MacArthur Blvd to SB SR-55 on-ramp	10	Red Hill Ave/Dyer Rd	5		●	●	
		Main St/Dyer Rd	5				
SB SR-55 off-ramp to MacArthur Blvd	10	Dyer Rd/Red Hill Ave	6	●	●	●	●
		I-405/Bristol St	7				
NB SR-55 off-ramp to Dyer Rd	10	MacArthur Blvd/Red Hill Ave	5	●	●	●	●
		Edinger Ave/Red Hill Ave	6				
EB Dyer Rd on-ramp to NB SR-55	10	Main St/MacArthur Blvd	2	●	●	●	●
		Red Hill Ave/MacArthur Blvd	5				
WB Dyer Rd on-ramp to NB SR-55	10	Red Hill Ave/Edinger Ave	4	●	●	●	●
		Grand Ave/Edinger Ave	5				
Dyer Rd on-ramp to SB SR-55	10	Red Hill Ave/MacArthur Blvd	0	●	●	●	●
		Main St/MacArthur Blvd	4				
SB SR-55 off-ramp to Dyer Rd (East)	10	Dyer Rd (West) off-ramp	1		●	●	●
		Main St/MacArthur Blvd	5				
SB SR-55 off-ramp to Dyer Rd (West)	10	Dyer Rd (East) off-ramp	1			●	●
		Edinger Ave/Grand Ave	6				
NB SR-55 off-ramp to Edinger Ave	10	Dyer Rd/Edinger Ave	5	●	●	●	●
		Sycamore Ave/Red Hill Ave	7				
Edinger Ave on-ramp to NB SR-55	10	Grand Ave/McFadden Ave	1		●	●	●
		Red Hill Ave/Sycamore Ave	5				
Edinger Ave on-ramp to SB SR-55	10	Grand Ave/Dyer Rd	1	●	●	●	●
		Red Hill Ave/Dyer Rd	5				
SB SR-55 off-ramp to Edinger Ave	10	McFadden Ave/Grand Ave	7	●	●	●	●
		Grand Ave	6				
NB SR-55 off-ramp to McFadden Ave	10	Edinger Ave/Red Hill Ave/ Sycamore Ave	5		●	●	●
		Irvine Blvd/Newport Ave	10				
McFadden Ave on-ramp to NB SR-55	10	Sycamore Ave/Red Hill Ave/ Edinger Ave	6		●	●	●
McFadden Ave off-ramp to SB SR-55	10	Grand Ave/Edinger Ave	7	●	●	●	●
		Walnut Ave/Red Hill Ave/ Edinger Ave	6				
SB SR-55 off-ramp to McFadden Ave	10	Irvine Blvd/Grand Ave	9	●	●	●	●
		Edinger Ave/Grand Ave	7				
		Total Temporary Ramp Closures		**12**	**19**	**20**	**19**

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).

[1] Estimated duration refers to the time period that each ramp would be subject to overnight closures (all closures would occur between 10:00 p.m. and 5:00 a.m.). The overnight closures are not anticipated to occur on consecutive nights.

Alt = Alternative
Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-405 = Interstate 405
NB = northbound
SB = southbound
SR-55 = State Route 55
St = Street
WB = westbound

Table 2.5.4 Temporary Closures of Local Arterials During Construction of Build Alternatives

Local Arterial (Direction)	Estimated Duration (nights)[1]	Proposed Detour Route	Estimated Travel Delay (Minutes)
MacArthur Blvd undercrossing (EB)	2	Main St/Red Hill Ave	4
		Main. St/Dyer Rd/Red Hill Ave	7
MacArthur Blvd undercrossing (WB)	2	Red Hill Ave/Main St	4
		Red Hill Ave/Dyer Rd/Main St	7
Dyer Rd undercrossing (EB)	2	Main St/MacArthur Blvd/Red Hill Ave	6
		Main St/Edinger Ave/Red Hill Ave	12
Dyer Rd undercrossing (WB)	2	Red Hill Ave/MacArthur Blvd/Main St	6
		Red Hill Ave/Edinger Ave/Main St	12
Edinger Ave undercrossing (EB)	2	Grand Ave/Warner Ave/Red Hill Ave	5
		Grand Ave/McFadden Ave/Pasadena Ave/Sycamore Ave/Red Hill Ave	8
Edinger Ave undercrossing (WB)	2	Red Hill Ave/Warner Ave/Grand Ave	5
		Red Hill Ave/Sycamore Ave/Pasadena Ave/McFadden Ave/Grand Ave	8

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).

[1] Estimated duration refers to the time period that each ramp would be subject to overnight closures (all closures would occur between 10:00 p.m. and 5:00 a.m.). The overnight closures are not anticipated to occur on consecutive nights.

Ave = Avenue
Blvd = Boulevard
EB = eastbound
Rd = Road
St = Street
WB = westbound

Table 2.5.5 2020 SR-55 Mainline and Ramp Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
Northbound SR-55						
Paularino Ave On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-405 On-ramp	D	D	D	D	D	D
NB I-405 On-ramp	C	D	C	C	D	C
MacArthur Blvd Off-ramp	C	D	C	C	D	C
MacArthur Blvd On-ramp (EB)	D	D	C	C	D	C
MacArthur Blvd On-ramp (WB)	D	C	C	C	C	C
Dyer Rd Off-ramp	D	C	C	C	C	C
Dyer Rd On-ramp (EB)	C	D	C	C	D	C
Dyer Rd On-ramp (WB)	D	C	C	C	C	B
Dyer Rd to Edinger Ave	D	C	C	C	C	B
Edinger Ave Off-ramp	D	C	C	C	C	B
Edinger Ave On-ramp	D	D	D	C	C	C
McFadden Ave Off-ramp	D	D	D	C	C	C
McFadden Ave On-ramp	**E**	**E**	**E**	C	C	C
NB I-5 Off-ramp	**E**	**E**	**E**	C	C	B
SB I-5 Off-ramp	B	B	B	B	B	B
Irvine Blvd Off-ramp	B	B	B	B	B	B
NB I-5 On-ramp	B	B	B	B	B	B
Southbound SR-55						
SB I-5 Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
4th St On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
NB I-5 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-5 On-ramp	**F**	**E**	**E**	**E**	D	**F**
McFadden Ave Off-ramp	**F**	**E**	**E**	**E**	D	**E**
McFadden Ave On-ramp	**F**	D	D	D	D	**D**
Edinger Ave Off-ramp	**F**	D	D	D	D	D
Edinger Ave On-ramp	D	**E**	**F**	C	**E**	C
Edinger Ave to Dyer Rd	D	D	D	C	D	C
Grand Ave Off-ramp	D	**F**	D	C	D	C
Dyer Rd Off-ramp	**F**	**F**	**F**	D	**E**	D
Dyer Rd On-Ramp	D	**E**	**E**	D	**F**	D
MacArthur Blvd Off-ramp	D	**E**	**E**	D	**F**	D
MacArthur Blvd On-ramp (WB)	**E**	**E**	D	**F**	**F**	F
MacArthur Blvd On-ramp (EB)	D	D	**E**	**F**	D	**F**
SB I-405 Off-ramp	D	D	**E**	**F**	D	**E**
NB I-405 Off-ramp	D	D	D	D	D	**F**
Paularino Ave Off-ramp	D	D	D	D	D	D
PM Peak-Hour LOS						
Northbound SR-55						
Paularino Ave On-ramp	**F**	**F**	C	D	**F**	D
SB I-405 On-ramp	**F**	**F**	C	D	**F**	D
NB I-405 On-ramp	**F**	**F**	**E**	**F**	**F**	**F**
MacArthur Blvd Off-ramp	**F**	**F**	**E**	**F**	**F**	**F**
MacArthur Blvd On-ramp (EB)	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd On-ramp (WB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd On-ramp (EB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd On-ramp (WB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd to Edinger Ave	**F**	**F**	**F**	**F**	**F**	**F**
Edinger Ave Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
Edinger Ave On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
McFadden Ave Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
McFadden Ave On-ramp	**F**	**F**	**F**	C	C	C
NB I-5 Off-ramp	**F**	**F**	**F**	**F**	**F**	**D**
SB I-5 Off-ramp	**F**	**F**	**F**	**F**	**E**	**F**
Irvine Blvd Off-ramp	**F**	**F**	**F**	**F**	**E**	**F**
NB I-5 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**

Table 2.5.5 2020 SR-55 Mainline and Ramp Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
Southbound SR-55						
SB I-5 Off-ramp	C	C	C	C	C	C
4th St On-ramp	C	C	C	C	C	C
NB I-5 On-ramp	D	D	D	D	D	D
SB I-5 On-ramp	D	D	D	D	D	D
McFadden Ave Off-ramp	D	D	D	D	D	D
McFadden Ave On-ramp	C	C	C	C	C	C
Edinger Ave Off-ramp	C	C	C	C	C	C
Edinger Ave On-ramp	D	D	C	C	D	C
Edinger Ave to Dyer Rd	D	**F**	D	C	**E**	C
Grand Ave Off-ramp	D	**F**	D	C	**F**	C
Dyer Rd Off-ramp	**F**	**F**	C	C	**F**	C
Dyer Rd On-ramp	**F**	**F**	**F**	C	**F**	C
MacArthur Blvd Off-ramp	**F**	**F**	D	C	**F**	C
MacArthur Blvd On-ramp (WB)	**F**	**F**	D	**F**	**F**	**F**
MacArthur Blvd On-ramp (EB)	D	D	**E**	**F**	D	**F**
SB I-405 Off-ramp	D	D	**E**	**F**	D	**F**
NB I-405 Off-ramp	D	D	D	D	D	D
Paularino Ave Off-ramp	D	D	D	D	D	D

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street
WB = westbound

Table 2.5.6 2020 SR-55 HOV Lane Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
Northbound SR-55						
I-405 to MacArthur Blvd	A	A	A	A	A	A
MacArthur Blvd to Dyer Rd	B	B	B	B	A	A
Dyer Rd to Edinger Ave	B	B	B	B	A	A
Edinger Ave to McFadden Ave	B	B	B	B	A	A
McFadden Ave to I-5	A	A	A	A	A	A
Southbound SR-55						
I-5 to McFadden Ave	**F**	**F**	**F**	**F**	D	**C**
McFadden Ave to Edinger Ave	D	**F**	**F**	**F**	C	**C**
Edinger Ave to Dyer Rd	D	C	C	C	C	B
Dyer Rd to MacArthur Blvd	C	C	C	B	B	B
MacArthur Blvd to I-405	B	B	B	B	C	B
PM Peak-Hour LOS						
Northbound SR-55						
I-405 to MacArthur Blvd	A	A	A	A	A	A
MacArthur Blvd to Dyer Rd	C	C	C	C	B	B
Dyer Rd to Edinger Ave	**E**	**E**	**E**	**F**	D	**D**
Edinger Ave to McFadden Ave	**E**	**E**	**E**	**F**	D	**D**
McFadden Ave to I-5	B	B	B	B	B	B
Southbound SR-55						
I-5 to McFadden Ave	A	A	A	A	A	A
McFadden Ave to Edinger Ave	C	B	B	B	B	B
Edinger Ave to Dyer Rd	C	C	C	C	B	B
Dyer Rd to MacArthur Blvd	C	C	C	C	B	A
MacArthur Blvd to I-405	B	B	B	B	B	B

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: ■ indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
Rd = Road
SR-55 = State Route 55

Table 2.5.7 2020 SR-55 Intersection Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
1. SR-55 SB/4th St	C	C	D	D	D	C
2. SR-55 NB/Irvine Blvd	C	C	C	C	C	C
3. SR-55 SB/Village Way	C	B	C	C	C	C
4. SR-55 NB/Pasadena Ave	A	A	A	A	A	A
5. SR-55 SB/Edinger Ave	C	C	C	C	C	C
6. SR-55 NB/Newport Ave	C	C	C	C	C	C
7. SR-55 SB/Grand Ave	A	B	A	A	A	A
8. SR-55 SB/Dyer Rd	C	C	B	C	B	B
9. Grand Ave/Dyer Rd	B	B	B	B	B	B
10. SR-55 NB/Dyer Rd	B	B	B	B	B	B
11. SR-55 SB/MacArthur Blvd	B	B	B	B	B	B
12. SR-55 NB/MacArthur Blvd	B	B	B	B	B	A
13. SR-55 SB/Paularino Ave	C	C	C	C	C	C
14. SR-55 NB/Paularino Ave	C	C	C	C	C	C
PM Peak-Hour LOS						
1. SR-55 SB/4th St	B	B	B	B	B	B
2. SR-55 NB/Irvine Blvd	B	B	B	B	B	B
3. SR-55 SB/Village Way	B	B	B	B	B	B
4. SR-55 NB/Pasadena Ave	A	A	A	A	A	A
5. SR-55 SB/Edinger Ave	C	C	C	C	C	C
6. SR-55 NB/Newport Ave	**F**	**F**	**F**	**F**	**F**	**F**
7. SR-55 SB/Grand Ave	A	A	B	A	A	B
8. SR-55 SB/Dyer Rd	C	C	C	C	C	C
9. Grand Ave/Dyer Rd	B	B	B	B	B	B
10. SR-55 NB/Dyer Rd	B	A	**F**	D	C	D
11. SR-55 SB/MacArthur Blvd	**E**	**E**	**F**	**F**	**E**	**F**
12. SR-55 NB/MacArthur Blvd	**F**	**E**	**F**	**F**	**E**	**F**
13. SR-55 SB/Paularino Ave	C	**E**	C	C	C	C
14. SR-55 NB/Paularino Ave	D	**F**	C	C	**E**	C

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

Ave = Avenue
Blvd = Boulevard
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street

Table 2.5.8 2020 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes

Location	Mile	No Build Alternative		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
		Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)
AM Peak Hour													
Northbound SR-55													
Paularino Ave to I-405	0.5	00:54	31.3	00:53	31.9	00:56	30.2	00:56	30.2	00:50	33.8	00:53	31.9
I-405 to MacArthur Blvd	1.0	01:01	58.1	01:03	56.3	00:58	61.2	00:58	61.2	01:03	56.3	00:57	62.2
MacArthur Blvd to Dyer Rd	0.9	00:50	63.8	00:48	66.5	00:48	66.5	00:48	66.5	00:50	63.8	00:48	66.5
Dyer Rd to Edinger Ave	1.6	01:36	59.2	01:34	60.5	01:24	67.7	01:24	67.7	01:28	64.6	01:24	67.7
Edinger Ave to McFadden Ave	0.5	00:39	46.7	00:40	45.5	00:45	40.5	00:30	60.7	00:30	60.7	00:30	60.7
McFadden Ave to I-5	0.5	00:25	67.3	00:25	67.3	00:25	67.3	00:25	67.3	00:25	67.3	00:25	67.3
I-5 to Irvine Blvd	0.5	00:28	68.5	00:28	68.5	00:28	68.5	00:28	68.5	00:28	68.5	00:28	68.5
Northbound SR-55 Total[1]	**5.4**	**05:53**	**55.3**	**05:51**	**55.7**	**05:44**	**56.8**	**05:29**	**59.4**	**05:34**	**58.5**	**05:25**	**60.1**
Southbound SR-55													
4th St to I-5	0.5	02:31	12.7	01:58	16.2	01:50	17.4	01:50	17.4	01:30	21.3	01:27	22.0
I-5 to McFadden Ave	0.5	01:12	23.4	00:55	30.6	00:50	33.7	00:52	32.4	00:42	40.1	00:45	37.4
McFadden Ave to Edinger Ave	0.5	00:39	46.7	00:29	62.8	00:30	60.7	00:28	65.0	00:27	67.5	00:28	65.0
Edinger Ave to Dyer Rd	1.6	01:41	56.3	02:22	40.0	01:57	48.6	01:28	64.6	01:40	56.8	01:28	64.6
Dyer Rd to MacArthur Blvd	0.9	00:58	55.0	01:09	46.3	01:12	44.3	01:00	53.2	01:09	46.3	01:00	53.2
MacArthur Blvd to I-405	1.0	00:55	64.5	00:56	63.3	00:57	62.2	01:06	53.7	01:04	55.4	01:06	53.7
I-405 to Paularino(1)	0.5	00:25	67.7	00:26	65.1	00:26	65.1	00:26	65.1	00:26	65.1	00:26	65.1
Southbound SR-55 Total[1]	**5.4**	**08:21**	**39.0**	**08:15**	**39.5**	**07:42**	**39.5**	**07:10**	**45.4**	**06:58**	**46.7**	**06:40**	**48.8**
PM Peak Hour													
Northbound SR-55													
Paularino Ave to I-405	0.5	02:16	12.4	02:26	11.6	00:27	62.7	00:26	65.1	02:03	10.8	00:26	65.1
I-405 to MacArthur Blvd	1.0	05:23	11.0	05:24	10.9	02:03	28.8	02:26	24.3	04:45	10.9	01:57	30.3
MacArthur Blvd to Dyer Rd	0.9	03:58	13.4	03:53	13.7	04:35	11.6	04:43	11.3	03:43	13.4	04:19	12.3
Dyer Rd to Edinger Ave	1.6	04:04	23.3	04:20	21.9	05:51	16.2	06:01	15.7	05:35	21.9	06:13	15.2
Edinger Ave to McFadden Ave	0.5	01:14	24.6	01:07	27.2	01:31	20.0	01:30	20.2	01:09	27.2	01:39	18.4
McFadden Ave to I-5	0.5	01:14	22.7	01:05	25.9	00:59	28.5	00:56	30.0	00:32	25.9	00:57	29.5
I-5 to Irvine Blvd(1)	0.5	01:18	24.6	01:11	27.0	01:10	27.4	01:00	32.0	00:49	27.0	01:02	30.9
Northbound SR-55 Total[1]	**5.4**	**19:27**	**16.7**	**19:26**	**16.8**	**16:36**	**19.6**	**17:02**	**19.1**	**18:36**	**17.5**	**16:33**	**19.7**
Southbound SR-55													
4th St to I-5	0.5	00:30	63.9	00:30	63.9	00:30	63.9	00:30	63.9	00:30	63.9	00:30	63.9
I-5 to McFadden Ave	0.5	00:29	58.0	00:28	60.1	00:29	58.0	00:29	58.0	00:29	58.0	00:28	60.1
McFadden Ave to Edinger Ave	0.5	00:30	60.7	00:28	65.0	00:28	65.0	00:28	65.0	00:28	65.0	00:28	65.0
Edinger Ave to Dyer Rd	1.6	01:54	49.9	01:50	51.7	01:27	65.3	01:27	65.3	01:47	53.1	01:27	65.3
Dyer Rd to MacArthur Blvd	0.9	01:35	33.6	01:42	31.3	01:02	51.5	00:54	59.1	01:38	32.6	00:50	63.8
MacArthur Blvd to I-405	1.0	01:00	59.1	01:00	59.1	01:04	55.4	01:09	51.4	01:01	58.1	01:08	52.2
I-405 to Paularino(1)	0.5	00:27	62.7	00:26	65.1	00:29	58.3	00:27	62.7	00:27	62.7	00:27	62.7
Southbound SR-55 Total[1]	**5.4**	**06:25**	**50.7**	**06:24**	**50.9**	**05:29**	**59.4**	**05:24**	**60.3**	**06:20**	**51.4**	**05:18**	**61.4**

Source: Final Traffic Operation Report (2015) and *Final Traffic Operations Report* (2016).
Note: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
[1] Total travel time in minutes and average travel speed for the full segment of SR-55.
Ave = Avenue
I-405 = Interstate 405
I-5 = Interstate 5
min:sec = minutes:seconds
mph = miles per hour
Rd = Road
SR-55 = State Route 55
St = Street

Table 2.5.9 2020 SR-55 HOV Lane Peak-Hour Speeds and Travel Times

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour Speeds in mph (Travel Times in min:sec)						
Northbound SR-55						
I-405 to MacArthur Blvd	64 (0:55)	63 (0:56)	64 (0:55)	65 (0:55)	64 (0:55)	68 (0:52)
MacArthur Blvd to Dyer Rd	67 (0:48)	67 (0:48)	67 (0:48)	67 (0:48)	68 (0:47)	67 (0:48)
Dyer Rd to Edinger Ave	66 (1:26)	66 (1:26)	67 (1:25)	67 (1:25)	67 (1:25)	67 (1:25)
Edinger Ave to McFadden Ave	66 (0:28)	66 (0:28)	66 (0:28)	66 (0:28)	65 (0:28)	67 (0:27)
McFadden Ave to I-5	67 (0:25)	68 (0:25)	68 (0:25)	68 (0:25)	68 (0:25)	67 (0:25)
NB Total (I-405 to I-5)	***66 (4:02)***	***66 (4:03)***	***66 (4:01)***	***66 (4:01)***	***66 (4:00)***	***67 (3:57)***
Southbound SR-55						
I-5 to McFadden Ave	8 (3:30)	12 (2:20)	26 (1:05)	12 (2:20)	52 (0:32)	66 (0:25)
McFadden Ave to Edinger Ave	60 (0:30)	8 (3:48)	11 (2:46)	8 (3:48)	66 (0:28)	67 (0:27)
Edinger Ave to Dyer Rd	63 (1:30)	63 (1:30)	63 (1:30)	66 (1:26)	66 (1:26)	67 (1:25)
Dyer Rd to MacArthur Blvd	63 (0:51)	61 (0:52)	61 (0:52)	66 (0:48)	65 (0:49)	67 (0:48)
MacArthur Blvd to I-405	67 (0:53)	67 (0:53)	67 (0:53)	67 (0:53)	66 (0:54)	66 (0:54)
SB Total (I-5 to I-405)	***37 (7:14)***	***28 (9:23)***	***37 (7:06)***	***29 (9:15)***	***64 (4:09)***	***67 (3:59)***
PM Peak-Hour Speeds in mph (Travel Times in min:sec)						
Northbound SR-55						
I-405 to MacArthur Blvd	60 (0:59)	60 (0:59)	65 (0:55)	61 (0:58)	61 (0:58)	61 (0:58)
MacArthur Blvd to Dyer Rd	63 (0:51)	63 (0:51)	64 (0:50)	64 (0:50)	66 (0:48)	66 (0:48)
Dyer Rd to Edinger Ave	41 (2:19)	37 (2:34)	34 (2:47)	24 (3:57)	44 (2:09)	45 (2:06)
Edinger Ave to McFadden Ave	42 (0:43)	40 (0:46)	32 (0:57)	30 (1:01)	44 (0:41)	45 (0:40)
McFadden Ave to I-5	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)
NB Total (I-405 to I-5)	***50 (5:17)***	***48 (5:35)***	***45 (5:54)***	***37 (7:11)***	***53 (5:01)***	***54 (4:57)***
Southbound SR-55						
I-5 to McFadden Ave	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)	66 (0:25)
McFadden Ave to Edinger Ave	57 (0:32)	66 (0:28)	66 (0:28)	66 (0:28)	66 (0:28)	66 (0:28)
Edinger Ave to Dyer Rd	63 (1:30)	57 (1:40)	64 (1:29)	66 (1:28)	63 (1:30)	67 (1:25)
Dyer Rd to MacArthur Blvd	60 (0:53)	56 (0:57)	64 (0:50)	65 (0:49)	63 (0:51)	67 (0:48)
MacArthur Blvd to I-405	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)
SB Total (I-5 to I-405)	***63 (4:14)***	***60 (4:24)***	***65 (4:06)***	***66 (4:04)***	***64 (4:08)***	***66 (4:00)***

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Note: indicates unacceptable LOS E or F conditions.
Travel times were calculated using the segment distance divided by the speeds.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
Rd = Road
SR-55 = State Route 55

Table 2.5.10 Summary of 2020 SR-55 Peak Operating Conditions

Measure of Effectiveness	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak Hour						
Number of Study Freeway Locations						
Peak-Hour LOS D or Better	24	22	22	27	27	27
Peak-Hour LOS E or F	12	14	14	9	9	9
Number of Study HOV Locations						
Peak-Hour LOS D or Better	8	8	8	8	10	
Peak-Hour LOS E or F	2	2	2	2	0	10
Number of Study Intersections						
Peak-Hour LOS D or Better	14	14	14	14	14	14
Peak-Hour LOS E or F	0	0	0	0	0	0
Peak-Hour Travel Time Changes for General Purpose Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	-1%	-3%	-7%	-5%	-8%
Southbound SR-55	--	-1%	-8%	-14%	-17%	-20%
Peak-Hour Travel Time Changes for HOV Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	0%	0%	0%	-1%	-2%
Southbound SR-55	--	+30%	-2%	+28%	-43%	-45%
Peak-Period Number of People Served Changes[1] (compared to No Build Alternative)	--	+0%	+1%	+1%	+2%	+2%
Peak-Period Vehicle Miles Traveled Changes[1] (compared to No Build Alternative)	--	+1%	+1%	+2%	+2%	+2%
Peak-Period Vehicle Hours Delay Changes[1] (compared to No Build Alternative)	--	-18%	-34%	-51%	-53%	-58%
PM Peak Hour						
Number of Study Freeway Locations						
Peak-Hour LOS D or Better	14	12	17	18	13	18
Peak-Hour LOS E or F	22	24	19	18	23	18
Number of Study HOV Locations						
Peak-Hour LOS D or Better	9	8	8	8	10	10
Peak-Hour LOS E or F	1	2	2	2	0	0
Number of Study Intersections						
Peak-Hour LOS D or Better	11	9	10	11	10	11
Peak-Hour LOS E or F	3	5	4	3	4	3
Peak-Hour Travel Time Changes for General Purpose Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	0%	-15%	-12%	-4%	-15%
Southbound SR-55	--	0%	-15%	-16%	-1%	-17%
Peak-Hour Travel Time Changes for HOV Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	+6%	+12%	+36%	-5%	-6%
Southbound SR-55	--	+4%	-3%	-4%	-2%	-6%
Peak-Period Number of People Served Changes[1] (compared to No Build Alternative)	--	+0%	+1%	+1%	+1%	+2%
Peak-Period Vehicle Miles Traveled Changes[1] (compared to No Build Alternative)	--	+0%	+1%	+1%	0%	+2%
Peak-Period Vehicle Hours Delay Changes[1] (compared to No Build Alternative)	--	-7%	-17%	-28%	-21%	-31%

Source: Final Traffic Operation Report (2015) and *Final Traffic Operations Report* (2016).

Notes: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
"Peak period" is defined at the entire morning or evening commute period as follows: AM peak period – 7:00 to 11:00 a.m.; PM peak period – 4:00 to 8:00 p.m.

[1] Change in percentages compared to the No Build Alternative.

HOV = high-occupancy vehicle
LOS = levels of service
SR-55 = State Route 55

Table 2.5.11 2020 Peak-Hour Local Intersection Operations

Location	No Build Alternative		Alternative 3		Alternative 4		Alternative 3M	
	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS
AM Peak Hour								
I-5 NB On-Ramp/Newport Ave	366.1	**F**	671.0	**F**	677.6	**F**	663.4	**F**
I-5 SB Off-Ramp/Newport Ave	13.1	B	13.5	B	22.0	C	21.4	C
Walnut Ave/Newport Ave	69.8	**E**	70.5	**E**	70.3	**E**	67.9	**E**
Sycamore Ave/Newport Ave	19.8	B	17.9	B	17.3	B	17.4	B
Edinger Ave/Newport Ave	28.8	C	30.3	C	33.5	C	29.8	C
El Camino Real/Red Hill Ave	46.5	D	42.1	D	41.9	D	40.2	D
I-5 NB Ramps/Red Hill Ave	17.5	B	18.0	B	18.1	B	18.0	B
I-5 SB Ramps/Red Hill Ave	12.7	B	13.4	B	13.1	B	13.0	B
Nisson Rd/Red Hill Ave	15.5	B	15.7	B	15.5	B	15.7	B
Walnut Ave/Red Hill Ave	47.5	D	52.4	D	54.1	D	54.1	D
Sycamore Ave/Red Hill Ave	38.8	D	48.1	D	47.8	D	48.2	D
Edinger Ave/Red Hill Ave	112.8	**F**	113.7	**F**	112.8	**F**	113.6	**F**
PM Peak Hour								
I-5 NB On-Ramp/Newport Ave	101.9	**F**	172.7	**F**	170.8	**F**	167.2	**F**
I-5 SB Ramps/Newport Ave	18.1	B	18.5	B	18.5	B	28.2	C
Walnut Ave/Newport Ave	24.8	C	24.4	C	25.0	C	23.5	C
Sycamore Ave/Newport Ave	22.8	C	18.7	B	18.6	B	18.3	B
Edinger Ave/Newport Ave	9.4	A	9.6	A	9.4	A	9.3	A
El Camino Real/Red Hill Ave	30.0	C	30.1	C	30.5	C	29.3	C
I-5 NB Ramps/Red Hill Ave	18.6	B	18.5	B	18.6	B	18.5	B
I-5 SB Ramps/Red Hill Ave	20.1	C	12.5	B	12.5	B	12.5	B
Nisson Rd/Red Hill Ave	30.9	C	33.2	C	33.4	C	33.2	C
Walnut Ave/Red Hill Ave	34.3	C	41.8	D	40.7	D	41.2	D
Sycamore Ave/Red Hill Ave	21.1	C	21.5	C	21.6	C	21.5	C
Edinger Ave/Red Hill Ave	157.3	**F**	156.4	**F**	155.1	**F**	153.0	**F**

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

[1] Average delay reported for signalized intersections and worst-movement delay reported for SSSC intersections.

Ave = Avenue
I-5 = Interstate 5
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
sec = seconds
SSSC = side street stop-control

Table 2.5.12 2040 SR-55 Mainline and Ramp Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
Northbound SR-55						
Paularino Ave On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-405 On-ramp	D	**E**	D	D	**E**	D
NB I-405 On-ramp	D	**E**	C	C	**E**	C
MacArthur Blvd Off-ramp	D	**E**	C	C	**E**	C
MacArthur Blvd On-ramp (EB)	D	D	C	D	**E**	D
MacArthur Blvd On-ramp (WB)	D	C	C	C	C	C
Dyer Rd Off-ramp	D	C	C	C	C	C
Dyer Rd On-ramp (EB)	D	D	C	C	**E**	C
Dyer Rd On-ramp (WB)	D	C	C	C	C	C
Dyer Rd to Edinger Ave	D	C	C	C	C	C
Edinger Ave Off-ramp	D	C	C	C	C	C
Edinger Ave On-ramp	C	C	C	C	C	C
McFadden Ave Off-ramp	C	C	C	C	C	C
McFadden Ave On-ramp	**E**	**E**	**F**	C	D	C
NB I-5 Off-ramp	**E**	**E**	**F**	C	C	C
SB I-5 Off-ramp	C	C	C	C	B	C
Irvine Blvd Off-ramp	C	C	C	C	C	C
NB I-5 On-ramp	D	D	D	D	D	D
Southbound SR-55						
SB I-5 Off-ramp	**F**	**F**	**F**	**F**	**E**	**F**
4th St On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
NB I-5 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-5 On-ramp	**E**	**E**	**E**	**E**	**E**	**E**
McFadden Ave Off-ramp	**E**	**E**	**E**	**E**	**E**	**E**
McFadden Ave On-ramp	**E**	C	C	D	D	D
Edinger Ave Off-ramp	**E**	C	C	D	D	D
Edinger Ave On-ramp	D	**F**	**F**	C	**F**	C
Edinger Ave to Dyer Rd	D	D	D	C	**F**	C
Grand Ave Off-ramp	D	**E**	D	C	**F**	C
Dyer Rd Off-ramp	**F**	**F**	**E**	D	**F**	D
Dyer Rd On-ramp	**E**	**F**	**F**	D	**F**	D
MacArthur Blvd Off-ramp	**E**	**F**	**E**	D	**F**	D
MacArthur Blvd On-ramp (WB)	**E**	**F**	D	**F**	**F**	
MacArthur Blvd On-ramp (EB)	D	D	**E**	**E**	D	**E**
SB I-405 Off-ramp	D	D	**E**	**E**	D	**E**
NB I-405 Off-ramp	C	D	D	D	D	D
Paularino Ave Off-ramp	C	C	C	C	C	D
PM Peak-Hour LOS						
Northbound SR-55						
Paularino Ave On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-405 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
NB I-405 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd On-ramp (EB)	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd On-ramp (WB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd On-ramp (EB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd On-ramp (WB)	**F**	**F**	**F**	**F**	**F**	**F**
Dyer Rd to Edinger Ave	**F**	**F**	**F**	**F**	**F**	**F**
Edinger Ave Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
Edinger Ave On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
McFadden Ave Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
McFadden Ave On-ramp	**F**	**F**	**F**	**E**	D	C
NB I-5 Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-5 Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
Irvine Blvd Off-ramp	**F**	**F**	**F**	**F**	**F**	**F**
NB I-5 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**

Table 2.5.12 2040 SR-55 Mainline and Ramp Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
Southbound SR-55						
SB I-5 Off-ramp	**E**	**F**	**E**	**E**	**F**	E
4th St On-ramp	**F**	**F**	**E**	**E**	**F**	E
NB I-5 On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
SB I-5 On-ramp	**F**	**F**	**E**	**F**	**F**	**F**
McFadden Ave Off-ramp	**F**	**F**	**E**	**F**	**F**	**F**
McFadden Ave On-ramp	**E**	**F**	C	C	**F**	C
Edinger Ave Off-ramp	**E**	**F**	C	C	**F**	C
Edinger Ave On-ramp	**F**	**F**	D	C	**F**	C
Edinger Ave to Dyer Rd	**F**	**F**	D	C	**F**	C
Grand Ave Off-ramp	**F**	**F**	D	C	**F**	C
Dyer Rd Off-ramp	**F**	**F**	D	**F**	**F**	**F**
Dyer Rd On-ramp	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd Off-ramp	**F**	**F**	**E**	**F**	**F**	**F**
MacArthur Blvd On-ramp (WB)	**F**	**F**	**F**	**F**	**F**	**F**
MacArthur Blvd On-ramp (EB)	D	D	**F**	**F**	D	**F**
SB I-405 Off-ramp	D	D	**F**	**F**	D	**F**
NB I-405 Off-ramp	D	C	D	D	D	D
Paularino Ave Off-ramp	D	D	D	D	D	D

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

Ave = Avenue
Blvd = Boulevard
EB = eastbound
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street
WB = westbound

Table 2.5.13 2040 SR-55 HOV Lane Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
Northbound SR-55						
I-405 to MacArthur Blvd	A	A	A	A	A	A
MacArthur Blvd to Dyer Rd	B	B	B	B	A	A
Dyer Rd to Edinger Ave	B	B	B	A	A	A
Edinger Ave to McFadden Ave	B	B	B	B	A	A
McFadden Ave to I-5	A	A	A	A	A	A
Southbound SR-55						
I-5 to McFadden Ave	**F**	**F**	**E**	**F**	C	C
McFadden Ave to Edinger Ave	D	**F**	**F**	**F**	C	C
Edinger Ave to Dyer Rd	C	C	C	C	C	C
Dyer Rd to MacArthur Blvd	B	C	B	D	C	B
MacArthur Blvd to I-405	B	B	B	B	C	C
PM Peak-Hour LOS						
Northbound SR-55						
I-405 to MacArthur Blvd	A	A	A	A	A	A
MacArthur Blvd to Dyer Rd	C	C	C	C	B	B
Dyer Rd to Edinger Ave	**F**	**F**	**F**	**F**	D	D
Edinger Ave to McFadden Ave	**E**	**E**	**E**	**F**	D	D
McFadden Ave to I-5	B	B	B	B	B	B
Southbound SR-55						
I-5 to McFadden Ave	C	D	B	B	D	B
McFadden Ave to Edinger Ave	C	B	B	B	B	B
Edinger Ave to Dyer Rd	D	D	C	C	B	B
Dyer Rd to MacArthur Blvd	D	D	C	C	B	A
MacArthur Blvd to I-405	B	B	B	B	B	B

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: ■ indicates unacceptable LOS E or F conditions.

"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

Ave = Avenue
Blvd = Boulevard
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
Rd = Road
SR-55 = State Route 55

Table 2.5.14 2040 SR-55 Intersection Peak-Hour Levels of Service

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour LOS						
1. SR-55 SB/4th St	**E**	**E**	**E**	**E**	**F**	**E**
2. SR-55 NB/Irvine Blvd	C	C	C	C	C	C
3. SR-55 SB/Village Way	B	B	B	C	B	B
4. SR-55 NB/Pasadena Ave	C	C	C	B	B	B
5. SR-55 SB/Edinger Ave	C	C	C	C	C	C
6. SR-55 NB/Newport Ave	C	C	C	C	C	C
7. SR-55 SB/Grand Ave	A	B	B	B	B	B
8. SR-55 SB/Dyer Rd	B	B	B	B	B	C
9. Grand Ave/Dyer Rd	B	C	C	C	C	B
10. SR-55 NB/Dyer Rd	B	B	B	B	B	B
11. SR-55 SB/MacArthur Blvd	A	A	A	A	A	B
12. SR-55 NB/MacArthur Blvd	B	B	B	B	B	B
13. SR-55 SB/Paularino Ave	D	D	D	D	D	D
14. SR-55 NB/Paularino Ave	C	C	C	C	C	C
PM Peak-Hour LOS						
1. SR-55 SB/4th St	C	C	C	C	C	C
2. SR-55 NB/Irvine Blvd	B	B	B	B	C	B
3. SR-55 SB/Village Way	B	B	C	C	B	B
4. SR-55 NB/Pasadena Ave	**F**	**F**	**F**	A	A	A
5. SR-55 SB/Edinger Ave	C	C	C	C	C	C
6. SR-55 NB/Newport Ave	**F**	**F**	**F**	**F**	**F**	**F**
7. SR-55 SB/Grand Ave	A	A	B	B	B	B
8. SR-55 SB/Dyer Rd	C	C	C	C	C	C
9. Grand Ave/Dyer Rd	B	B	B	B	B	B
10. SR-55 NB/Dyer Rd	**F**	**F**	**F**	**F**	**F**	**F**
11. SR-55 SB/MacArthur Blvd	**E**	**E**	**E**	**E**	**E**	**E**
12. SR-55 NB/MacArthur Blvd	**F**	**F**	**F**	**F**	**E**	**E**
13. SR-55 SB/Paularino Ave	**E**	**F**	C	C	C	C
14. SR-55 NB/Paularino Ave	**F**	**F**	**F**	**F**	**F**	**F**

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: ▮ indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
SR-55 = State Route 55
St = Street

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Table 2.5.15 2040 SR-55 Peak-Hour Travel Times and Speeds for General-Purpose Lanes

Location	Mile	No Build Alternative		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
		Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)	Travel Time (min:sec)	Travel Speed (mph)
AM Peak Hour													
Northbound SR-55													
Paularino Ave to I-405	0.5	01:12	23.5	01:12	23.5	01:17	22.0	01:00	28.2	01:06	25.6	00:58	29.2
I-405 to MacArthur Blvd	1.0	01:06	53.7	01:11	50.0	01:04	55.4	01:04	55.4	01:19	44.9	01:04	55.4
MacArthur Blvd to Dyer Rd	0.9	00:51	62.6	00:50	63.8	00:49	65.1	00:49	65.1	00:51	62.6	00:49	65.1
Dyer Rd to Edinger Ave	1.6	01:31	62.5	01:30	63.2	01:27	65.3	01:36	59.2	01:28	64.6	01:26	66.1
Edinger Ave to McFadden Ave	0.5	00:32	56.9	00:32	56.9	00:35	52.0	00:27	67.5	00:28	65.0	00:28	65.0
McFadden Ave to I-5	0.5	00:32	52.6	00:36	46.7	00:35	48.1	00:25	67.3	00:25	67.3	00:25	67.3
I-5 to Irvine Blvd	0.5	00:29	66.1	00:29	66.1	00:29	66.1	00:29	66.1	00:29	66.1	00:29	66.1
Total	**5.4**	**06:13**	**52.4**	**06:20**	**51.4**	**06:16**	**52.0**	**05:50**	**55.8**	**06:06**	**53.4**	**05:39**	**57.6**
Southbound SR-55													
4th St to I-5	0.5	v	15.0	01:53	17.0	01:53	17.0	01:47	17.9	01:15	25.6	01:46	18.1
I-5 to McFadden Ave	0.5	00:55	30.6	00:51	33.0	00:51	33.0	00:53	31.7	00:50	33.7	00:50	33.7
McFadden Ave to Edinger Ave	0.5	00:35	52.0	00:28	65.0	00:29	62.8	00:29	62.8	00:29	62.8	00:29	62.8
Edinger Ave to Dyer Rd	1.6	01:45	54.1	01:59	47.8	01:47	53.1	01:29	63.9	02:00	47.4	01:27	65.3
Dyer Rd to MacArthur Blvd	0.9	01:15	42.6	01:28	36.3	01:11	45.0	01:24	38.0	01:30	35.5	00:59	54.1
MacArthur Blvd to I-405	1.0	00:56	63.3	00:56	63.3	00:57	62.2	01:06	53.7	00:57	62.2	01:04	55.4
I-405 to Paularino	0.5	00:25	67.7	00:25	67.7	00:25	67.7	00:25	67.7	00:25	67.7	00:25	67.7
Total	**5.4**	**07:59**	**40.8**	**08:00**	**40.7**	**07:33**	**43.1**	**07:33**	**43.1**	**07:26**	**43.8**	**07:00**	**46.5**
PM Peak Hour													
Northbound SR-55													
Paularino Ave to I-405	0.5	02:22	11.9	02:25	11.7	01:10	24.2	01:18	21.7	02:25	11.7	00:38	44.5
I-405 to MacArthur Blvd	1.0	05:02	11.7	05:20	11.1	03:54	15.2	04:05	14.5	05:15	11.3	03:23	17.5
MacArthur Blvd to Dyer Rd	0.9	04:40	11.4	04:45	11.2	05:04	10.5	05:27	9.8	04:29	11.9	05:04	10.5
Dyer Rd to Edinger Ave	1.6	05:35	17.0	05:54	16.1	06:57	13.6	07:28	12.7	05:56	16.0	07:26	12.7
Edinger Ave to McFadden Ave	0.5	01:57	15.6	01:46	17.2	02:20	13.0	01:52	16.3	01:39	18.4	01:55	15.8
McFadden Ave to I-5	0.5	01:25	19.8	01:21	20.8	01:23	20.3	01:16	22.1	01:11	23.7	01:15	22.4
I-5 to Irvine Blvd	0.5	01:18	24.6	01:17	24.9	01:19	24.3	01:07	28.6	01:06	29.0	01:06	29.0
Total	**5.4**	**22:19**	**14.6**	**22:48**	**14.3**	**22:07**	**14.7**	**22:33**	**14.4**	**22:01**	**14.8**	**20:47**	**15.7**
Southbound SR-55													
4th St to I-5	0.5	00:55	34.9	01:10	27.4	00:38	50.5	00:38	50.5	01:10	27.4	00:38	50.5
I-5 to McFadden Ave	0.5	01:02	27.1	01:15	22.4	00:46	36.6	00:40	42.1	01:14	22.7	00:40	42.1
McFadden Ave to Edinger Ave	0.5	00:36	50.6	00:50	36.4	00:30	60.7	00:29	62.8	00:50	36.4	00:29	62.8
Edinger Ave to Dyer Rd	1.6	03:26	27.6	04:20	21.9	01:29	63.9	01:32	61.8	04:10	22.7	01:32	61.8
Dyer Rd to MacArthur Blvd	0.9	02:15	23.6	02:20	22.8	01:16	42.0	01:20	39.9	02:23	22.3	01:20	39.9
MacArthur Blvd to I-405	1.0	01:00	59.1	01:00	59.1	01:07	52.9	01:12	49.3	01:00	59.1	01:12	49.3
I-405 to Paularino	0.5	00:26	65.1	00:26	65.1	00:32	52.9	00:32	52.9	00:26	65.1	00:32	52.9
Total	**5.4**	**09:40**	**33.7**	**11:21**	**28.7**	**06:18**	**51.7**	**06:23**	**51.0**	**11:13**	**29.0**	**06:23**	**51.0**

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Note: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
I-5 = Interstate 5
min:sec = minutes:seconds
mph = miles per hour
Rd = Road
SR-55 = State Route 55
St = Street

Table 2.5.16 2040 SR-55 HOV Lane Peak-Hour Speeds and Travel Times

Location	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak-Hour Speeds in mph (Travel Times in min:sec)						
Northbound SR-55						
I-405 to MacArthur Blvd	64 (0:55)	64 (0:55)	64 (0:55)	65 (0:55)	64 (0:55)	68 (0:52)
MacArthur Blvd to Dyer Rd	67 (0:48)	67 (0:48)	67 (0:48)	67 (0:48)	68 (0:48)	67 (0:48)
Dyer Rd to Edinger Ave	66 (1:26)	66 (1:26)	67 (1:25)	65 (1:27)	67 (1:25)	67 (1:25)
Edinger Ave to McFadden Ave	66 (0:28)	66 (0:28)	66 (0:28)	65 (0:28)	67 (0:27)	67 (0:27)
McFadden Ave to I-5	66 (0:25)	66 (0:25)	66 (0:25)	67 (0:25)	67 (0:25)	67 (0:25)
NB Total (I-405 to I-5)	***66 (4:02)***	***66 (4:02)***	***66 (4:01)***	***66 (4:03)***	***67 (4:00)***	***67 (3:57)***
Southbound SR-55						
I-5 to McFadden Ave	10 (2:48)	20 (1:24)	23 (1:13)	14 (2:00)	56 (0:30)	65 (0:26)
McFadden Ave to Edinger Ave	60 (0:30)	7 (4:20)	7 (4:20)	7 (4:20)	66 (0:28)	66 (0:28)
Edinger Ave to Dyer Rd	63 (1:30)	63 (1:30)	63 (1:30)	65 (1:27)	64 (1:29)	67 (1:25)
Dyer Rd to MacArthur Blvd	63 (0:51)	63 (0:51)	63 (0:51)	66 (0:48)	63 (0:51)	67 (0:48)
MacArthur Blvd to I-405	67 (0:53)	67 (0:53)	67 (0:53)	67 (0:53)	66 (0:54)	66 (0:54)
SB Total (I-5 to I-405)	***41 (6:32)***	***30 (8:58)***	***30 (8:47)***	***28 (9:29)***	***64 (4:11)***	***66 (4:01)***
PM Peak-Hour Speeds in mph (Travel Times in min:sec)						
Northbound SR-55						
I-405 to MacArthur Blvd	60 (0:59)	59 (1:00)	60 (0:59)	60 (0:59)	62 (0:57)	62 (0:57)
MacArthur Blvd to Dyer Rd	62 (0:51)	62 (0:51)	63 (0:51)	63 (0:51)	65 (0:49)	66 (0:48)
Dyer Rd to Edinger Ave	33 (2:52)	34 (2:47)	30 (3:09)	25 (3:47)	43 (2:12)	45 (2:06)
Edinger Ave to McFadden Ave	38 (0:48)	44 (0:41)	38 (0:48)	30 (1:01)	42 (0:43)	43 (0:42)
McFadden Ave to I-5	64 (0:26)	62 (0:27)	62 (0:27)	63 (0:27)	66 (0:25)	67 (0:25)
NB Total (I-405 to I-5)	***45 (5:56)***	***46 (5:46)***	***43 (6:14)***	***38 (7:05)***	***52 (5:06)***	***53 (4:58)***
Southbound SR-55						
I-5 to McFadden Ave	47 (0:36)	46 (0:37)	62 (0:27)	60 (0:28)	46 (0:37)	62 (0:27)
McFadden Ave to Edinger Ave	53 (0:34)	66 (0:28)	66 (0:28)	66 (0:28)	66(0:28)	66 (0:28)
Edinger Ave to Dyer Rd	47 (2:01)	46 (2:04)	62 (1:32)	60 (1:35)	54 (1:45)	66 (1:26)
Dyer Rd to MacArthur Blvd	52 (1:01)	52 (1:01)	63 (0:51)	60 (0:53)	60 (0:53)	63 (0:51)
MacArthur Blvd to I-405	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)	66 (0:54)
SB Total (I-5 to I-405)	***52 (5:06)***	***53 (5:04)***	***63 (4:12)***	***62 (4:18)***	***58 (4:37)***	***65 (4:06)***

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: ■ indicates unacceptable LOS E or F conditions.
Travel times were calculated using the segment distance divided by the speeds.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
Ave = Avenue
Blvd = Boulevard
HOV = high-occupancy vehicle
I-405 = Interstate 405
I-5 = Interstate 5
LOS = levels of service
Rd = Road
SR-55 = State Route 55

Table 2.5.17 Summary of 2040 SR-55 Peak Operating Conditions

Measure of Effectiveness	No Build Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M
AM Peak Hour						
Number of Study Freeway Locations						
Peak-Hour LOS D or Better	22	20	22	27	18	27
Peak-Hour LOS E or F	14	16	14	9	18	9
Number of Study HOV Locations						
Peak-Hour LOS D or Better	9	8	8	8	10	10
Peak-Hour LOS E or F	1	2	2	2	0	.
Number of Study Intersections						
Peak-Hour LOS D or Better	13	13	13	13	13	13
Peak-Hour LOS E or F	1	1	1	1	1	1
Peak-Hour Travel Time Changes for General Purpose Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	+2%	+1%	-6%	-2%	-9%
Southbound SR-55	--	+0%	-5%	-5%	-7%	-12%
Peak-Hour Travel Time Changes for HOV Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	0%	0%	0%	-1%	-2%
Southbound SR-55	--	+37%	+34%	+45%	-36%	-39%
Peak-Period Number of People Served Changes[1] (compared to No Build Alternative)	--	+1%	+1%	+3%	+3%	+4%
Peak-Period Vehicle Miles Traveled Changes[1] (compared to No Build Alternative)	--	+2%	+3%	+3%	+4%	+6%
Peak-Period Vehicle Hours Delay Changes[1] (compared to No Build Alternative)	--	-20%	-25%	-31%	-33%	-41%
PM Peak Hour						
Number of Study Freeway Locations						
Peak-Hour LOS D or Better	4	4	8	8	5	8
Peak-Hour LOS E or F	32	32	28	28	31	28
Number of Study HOV Locations						
Peak-Hour LOS D or Better	9	8	8	8	10	10
Peak-Hour LOS E or F	1	2	2	2	0	0
Number of Study Intersections						
Peak-Hour LOS D or Better	7	7	8	9	9	9
Peak-Hour LOS E or F	7	7	6	5	5	5
Peak-Hour Travel Time Changes for General Purpose Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	+2%	-1%	+1%	-1%	-7%
Southbound SR-55	--	+17%	-35%	-34%	+16%	-34%
Peak-Hour Travel Time Changes for HOV Lanes[1] (compared to No Build Alternative)						
Northbound SR-55	--	-3%	+5%	+19%	-14%	-16%
Southbound SR-55	--	-1%	-18%	-16%	-9%	-20%
Peak-Period Number of People Served Changes[1] (compared to No Build Alternative)	--	+1%	+3%	+4%	+2%	+4%
Peak-Period Vehicle Miles Traveled Changes[1] (compared to No Build Alternative)	--	+0%	+4%	+4%	+3%	+6%
Peak-Period Vehicle Hours Delay Changes[1] (compared to No Build Alternative)	--	-17%	-20%	-40%	-32%	-41%

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).

Notes: "Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
"Peak period" is defined at the entire morning or evening commute period as follows: AM peak period – 7:00 to 11:00 a.m.; PM peak period – 4:00 to 8:00 a.m.

[1] Change in percentages compared to the No Build Alternative.

HOV = high-occupancy vehicle
LOS = levels of service
SR-55 = State Route 55

Table 2.5.18 2040 Peak-Hour Local Intersection Operations

Location	No Build Alternative		Alternative 3		Alternative 4		Alternative 3M	
	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS
AM Peak Hour								
I-5 NB On-Ramp/Newport Ave	549.6	**F**	1,217.7	**F**	1,175.4	**F**	1,186.7*	**F**
I-5 SB Ramps/Newport Ave	26.0	C	24.6	C	24.3	C	39.4	D
Walnut Ave/Newport Ave	75.0	**E**	54.1	D	56.4	**E**	43.1	D
Sycamore Ave/Newport Ave	242.2	**F**	58.1	**E**	60.4	**E**	51.9	D
Edinger Ave/Newport Ave	178.3	**F**	164.3	**F**	165.7	**F**	152.4	**F**
El Camino Real/Red Hill Ave	65.1	**E**	62.7	**E**	61.7	**E**	63.1	**E**
I-5 NB Ramps/Red Hill Ave	16.8	B	18.9	B	18.1	B	19.0	B
I-5 SB Ramps/Red Hill Ave	14.6	B	16.0	B	14.0	B	15.7	B
Nisson Rd/Red Hill Ave	28.4	C	36.6	D	37.0	D	36.9	D
Walnut Ave/Red Hill Ave	38.3	D	36.5	D	35.4	D	37.6	D
Sycamore Ave/Red Hill Ave	19.6	B	19.6	B	18.9	B	18.6	B
Edinger Ave/Red Hill Ave	62.4	**E**	55.6	**E**	54.0	D	55.0	**E**
PM Peak Hour								
I-5 NB On-Ramp/Newport Ave	342.8	**F**	523.4	**F**	548.7	**F**	476.9	**F**
I-5 SB Ramps/Newport Ave	17.1	B	18.2	B	18.0	B	30.4	C
Walnut Ave/Newport Ave	27.7	C	32.3	C	29.1	C	32.2	C
Sycamore Ave/Newport Ave	144.1	**F**	72.8	**E**	35.9	D	49.4	D
Edinger Ave/Newport Ave	131.8	**F**	114.4	**F**	123.9	**F**	112.8	**F**
El Camino Real/Red Hill Ave	40.9	D	40.4	D	40.7	D	40.4	D
I-5 NB Ramps/Red Hill Ave	20.5	C	20.5	C	20.7	C	20.5	C
I-5 SB Ramps/Red Hill Ave	18.0	B	18.7	B	18.6	B	18.8	B
Nisson Rd/Red Hill Ave	40.5	D	44.5	D	44.5	D	45	D
Walnut Ave/Red Hill Ave	34.8	C	43.0	D	43.0	D	43.2	D
Sycamore Ave/Red Hill Ave	27.1	C	54.3	D	49.2	D	53.9	D
Edinger Ave/Red Hill Ave	107.8	**F**	94.9	**F**	100.5	**F**	93.3	**F**

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: ■ indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.

[1] Average delay reported for signalized intersections and worst-movement delay reported for SSSC intersections.

Ave = Avenue
I-5 = Interstate 5
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
sec = seconds
SSSC = side street stop-control

Table 2.5.19 2020 Local Intersection Operations with Mitigation

Location	Alternative 3		Alternative 3 With Mitigation		Alternative 4		Alternative 4 With Mitigation		Alternative 3M		Alternative 3M With Mitigation	
	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS
AM Peak Hour												
I-5 NB On-Ramp/Newport Ave	671.0	**F**	14.6	B	677.6	**F**	14.6	B	671.0	**F**	15.7	B
PM Peak Hour												
I-5 NB On-Ramp/Newport Ave	172.7	**F**	7.9	A	170.8	**F**	8.0	A	172.7	**F**	7.9	A

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: [redacted] indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
[1] Average delay reported for signalized intersections and worst-movement delay reported for SSSC intersections.
Ave = Avenue
I-5 = Interstate 5
LOS = levels of service
Rd = Road
SB = southbound
sec = seconds
SSSC = side street stop-control

Table 2.5.20 2040 Local Intersection Operations with Mitigation

Location	Alternative 3		Alternative 3 With Mitigation		Alternative 4		Alternative 4 With Mitigation		Alternative 3M		Alternative 3M With Mitigation	
	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS	Delay (sec)[1]	LOS
AM Peak Hour												
I-5 NB On-Ramp/Newport Ave	1217.7	**F**	24.7	C	1175.4	**F**	24.1	C	1186.7	**F**	26.1	C
PM Peak Hour												
I-5 NB On-Ramp/Newport Ave	523.4	**F**	16.0	B	548.7	**F**	16.5	B	476.9	**F**	15.2	B

Source: *Final Traffic Operation Report* (2015) and *Final Traffic Operations Report* (2016).
Notes: [redacted] indicates unacceptable LOS E or F conditions.
"Peak hour" is defined as the 1 hour during the morning or evening commute that has the highest traffic volumes as follows: AM peak hour – 8:00 to 9:00 a.m.; PM peak hour – 5:00 to 6:00 p.m.
[1] Average delay reported for signalized intersections and worst-movement delay reported for SSSC intersections.
Ave = Avenue
I-5 = Interstate 5
LOS = levels of service
NB = northbound
Rd = Road
SB = southbound
SSSC = side street stop-control

2.3 Community Impacts

2.3.1 Community Character and Cohesion

2.3.1.1 Regulatory Setting

The National Environmental Policy Act of 1969 (NEPA), as amended, established that the federal government use all practicable means to ensure that all Americans have safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration in its implementation of NEPA (23 United States Code [USC] 109(h)) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

2.3.1.2 Affected Environment

This section is based on information from the *Community Impact Assessment* (CIA 2015) and the *Supplemental Community Impact Assessment* (2017). The study area for community character and cohesion includes portions of the cities of Tustin, Santa Ana, and Irvine, specifically the 11 census tracts adjacent to the project area (Census Tracts 525.02, 740.03, 740.04, 744.03, 744.08, 755.05, 755.07, 755.12, 755.13, 755.14, and 755.15, which are shown on Figure 2.3-1). [The figures for this section have been placed at the end of the text to enhance the section's readability.] Data presented in this section are based on census tract information available from the 2010 Census and the 2009–2013 American Community Survey (ACS).[1]

Community character refers to the degree to which the human environment is safe, healthful, productive, and aesthetically and culturally pleasing. The southern portion of the study area between Interstate 405 (I-405) and Edinger Avenue generally consists of business parks, commercial and industrial uses, and a small number of multifamily residences. By contrast, the northern portion of the study area between Edinger Avenue and First Street consists of single-family and multifamily residential, industrial, and commercial properties. Commercial and industrial uses adjacent to State Route 55 (SR-55) have been developed to take advantage of proximity to the freeway. Seventeen buildings or structures older than 45 years of age in the project Area of Potential Effects (APE) are not eligible for listing in the National Register of Historic Places (National Register) or California Register of Historical Resources (California Register), and none is a historical resource as defined by CEQA. The 11 State agency bridges within the project's APE are listed in the California Historical Significance State Agency Bridge List as Category 5 Bridges and are not eligible for the National Register. Therefore, the community character of the project area is not considered unique.

[1] The ACS is an ongoing survey conducted by the United States Census Bureau that provides data every year, giving communities current information they need to plan investments and services. Information from the survey generates data that help determine how more than $400 billion in federal and State funds are distributed each year.

Community cohesion is the degree to which residents have a sense of belonging to their neighborhoods, a commitment to the community, and a strong attachment to neighbors, groups, and institutions, usually as a result of continued association over time. Some specific indicators of community cohesion are:

- **Ethnicity:** In general, homogeneity of the population contributes to higher levels of community cohesion. Communities that are ethnically homogeneous often speak the same language, hold similar beliefs, and share a common culture and therefore are more likely to engage in social interaction on a routine basis.
- **Household Size:** In general, communities with a high percentage of families with children are more cohesive than communities comprised of largely single people. This appears to be because children tend to establish friendships with other children in their community. The social networks of children often lead to the establishment of friendships and affiliations among parents in the community. Although the Census Bureau does not provide specific data regarding the number of children present in each household, the Census Bureau provides data regarding the persons per household, which can serve as a proxy for households with children.
- **Age:** In general, communities with a high percentage of elderly residents (65 years or older) tend to demonstrate a greater social commitment to their community. This is because the elderly population, which includes retirees, often tends to be more active in the community because they have more time available for volunteering and participating in social organizations.
- **Housing Occupancy:** Communities with a high percentage of owner-occupied residences are typically more cohesive because their population tends to be less mobile. Because they have a financial stake in their community, homeowners often take a greater interest in what is happening in their community than renters do. This means they often have a stronger sense of belonging to their community.
- **Housing Tenure:** Communities with a high percentage of long-term residents are typically more cohesive because a greater proportion of the population has had time to establish social networks and develop an identity with the community.
- **Transit-Dependent Population:** Communities with a high percentage of residents who are dependent on public transportation typically tend to be more cohesive than communities that are dependent on automobiles for transportation. This is because residents who tend to walk or use public transportation for travel tend to engage in social interactions with each other more frequently than residents who travel by automobile.

These indicators of community character and cohesion in the study area and the applicable local jurisdictions are described in greater detail below.

Ethnicity

Table 2.3.1 shows the racial and ethnic composition of Orange County, the cities of Tustin, Santa Ana, and Irvine, and the 11 census tracts in the study area as reported in the 2010 Census. As shown, the racial composition of the study area census tracts varies. With the exception of Census Tracts 525.02 and 755.05, Whites account for 40 to 50 percent of the population in the study area census tracts, which is less than the County overall but generally consistent with the population of the cities of Tustin, Santa Ana, and Irvine. Census Tracts 525.02 and 755.05 have higher percentages of Whites than the County or the cities of Tustin, Santa Ana, and Irvine. Several census tracts include substantial minority populations. For example, Asians comprise approximately 31 percent of the population in

Census Tract 755.15. Between 12 and 48 percent of the population in the study area census tracts identifies as some other race. Although all 11 study area census tracts contain substantial Hispanic or Latino populations, only Census Tract 744.03 exhibits a high degree of ethnic homogeneity, with Hispanics/Latinos comprising nearly 95 percent of the population in that census tract. Racial or ethnic homogeneity does not appear to be evident in any of the other census tracts in the study area.

Table 2.3.1 Racial and Ethnic Demographics

Area	White	Black	American Indian/Native Alaskan	Asian	Hawaiian/ Pacific Islanders	Other	Hispanic/ Latino
County							
Orange County	1,830,758 (60.8%)	50,744 (1.7%)	18,132 (0.6%)	537,804 (17.9%)	9,354 (0.3%)	563,440 (18.7%)	1,012,973 (33.7%)
Study Area Cities							
City of Tustin	39,729 (52.6%)	1,722 (2.3%)	442 (0.6%)	15,299 (20.3%)	268 (0.4%)	18,080 (23.8%)	30,024 (39.7%)
City of Santa Ana	148,838 (45.9%)	4,856 (1.5%)	3,260 (1.0%)	34,138 (10.5%)	976 (0.3%)	132,460 (40.8%)	253,928 (78.2%)
City of Irvine	107,215 (50.5%)	3,718 (1.8%)	355 (0.2%)	83,176 (39.2%)	334 (0.2%)	17,577 (8.1%)	19,621 (9.2%)
Study Area Census Tracts							
Census Tract 525.02 (City of Tustin)	3,846 (65.0 %)	87 (1.5%)	31 (0.5%)	1,189 (20.1%)	13 (0.2%)	747 (12.6%)	1,424 (24.1%)
Census Tract 740.03 (City of Santa Ana)	1,466 (46.7%)	50 (1.6%)	18 (0.6%)	290 (9.2%)	38 (1.2%)	31,275 (40.7%)	2,388 (76.1%)
Census Tract 740.04 (City of Santa Ana)	3,723 (50.0%)	232 (3.1%)	57 (0.8%)	1,280 (17.2%)	32 (0.4%)	2,120 (28.6%)	4,364 (58.6%)
Census Tract 744.03 (City of Santa Ana)	2,796 (49.2%)	53 (0.9%)	75 (1.3%)	147 (2.6%)	11 (0.2%)	2,606 (45.8%)	5,382 (94.6%)
Census Tract 744.08 (City of Tustin)	2,211 (41.0%)	176 (3.3%)	50 (0.9%)	322 (6.0%)	43 (0.8%)	2,597 (48.0%)	4,212 (78.0%)
Census Tract 755.05 (City of Tustin)	2,255 (62.7%)	71 (2.0%)	36 (1.0%)	416 (11.6%)	22 (0.6%)	799 (22.2%)	1,478 (41.1%)
Census Tract 755.07 (City of Tustin)	2,727 (52.6%)	162 (3.1%)	43 (0.8%)	767 (14.8%)	29 (0.6%)	1,459 (28.1%)	2,582 (49.8%)
Census Tract 755.12 (City of Tustin)	1,624 (45.8%)	91 (2.6%)	24 (0.7%)	640 (18.0%)	21 (0.6%)	1,148 (32.4%)	2,036 (57.4%)
Census Tract 755.13 (City of Tustin)	2,387 (47.0%)	192 (3.8%)	24 (0.5%)	821 (16.2%)	6 (0.1%)	1,644 (32.4%)	2,737 (53.9%)
Census Tract 755.14 (City of Tustin)	1,553 (41.9%)	88 (2.4%)	34 (0.9%)	513 (13.9%)	4 (0.1%)	1,511 (40.8%)	2,455 (66.3%)
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	6,305 (41.2%)	394 (2.6%)	90 (0.6%)	4,759 (31.1%)	70 (0.5%)	3,677 (24.0%)	5,803 (37.9%)

Source: *Community Impact Assessment* (2015).

Note: Percentages do not add up to 100 percent. The United States Census Bureau included five race categories in the 2010 Census: White, Black or African-American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander. Respondents who were unable to identify with any of these five race categories were able to identify as Some Other Race on the 2010 Census questionnaire. In addition, respondents are able to identify as more than one race or write-in detailed information about their race. According to the United States Census Bureau, persons who identify their origin as Hispanic or Latino may be of any race.

Household Size

Table 2.3.2 provides household characteristics for the study area census tracts, the cities of Tustin, Santa Ana, and Irvine, and the County, as reported in the 2010 Census and the 2009–2013 ACS. As shown, the median household income in the study area census tracts varies widely. Census Tracts 744.03, 744.08, and 755.14 are characterized by less affluent residents, with a lower median household income than the three cities and the County. Census Tracts 740.03 and 755.15 are generally consistent with the County's median household income level and near the median household income levels for the three study area cities. With the exception of Census

Table 2.3.2 Household Income and Size

Area	Median Household Income	Persons per Household
County		
Orange County	$75,422	2.99
Study Area Cities		
City of Tustin	$73,194	2.98
City of Santa Ana	$53,335	4.37
City of Irvine	$90,585	2.61
Study Area Census Tracts		
Census Tract 525.02 (City of Tustin)	$94,567	2.99
Census Tract 740.03 (City of Santa Ana)	$73,578	3.77
Census Tract 740.04 (City of Santa Ana)	$64,602	3.41
Census Tract 744.03 (City of Santa Ana)	$34,861	4.56
Census Tract 744.08 (City of Tustin)	$43,239	3.54
Census Tract 755.05 (City of Tustin)	$63,954	2.57
Census Tract 755.07 (City of Tustin)	$55,372	2.80
Census Tract 755.12 (City of Tustin)	$53,750	3.24
Census Tract 755.13 (City of Tustin)	$61,250	3.36
Census Tract 755.14 (City of Tustin)	$42,554	3.33
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	$76,591	2.92

Source: *Community Impact Assessment* (2015).

Tracts 755.05, 755.07, and 755.15, the study area census tracts have larger average household sizes than the County and the cities of Tustin and Irvine but smaller average household sizes than the City of Santa Ana. Census Tracts 755.05, 755.07, and 755.15 have smaller average household sizes than the County and the cities of Tustin and Santa Ana. Census Tract 744.03 reported the largest average household size at 4.56 persons, and Census Tract 755.05 reported the smallest average household size at 2.57 persons.

Housing Occupancy

Table 2.3.3 provides the number of housing units in the study area census tracts, the cities of Tustin, Santa Ana, and Irvine, and the County in 2010, as reported in the 2010 Census. As shown, the percentage of occupied housing units in the study area census tracts is relatively consistent with the housing occupancy rates for the County and the three cities, with the exception of Census Tract 740.03, which has a substantially lower housing occupancy rate (76 percent) than the County and the study area cities. According to the 2010 Census, the majority of the housing units in the County, the cities of Tustin and Irvine, and Census Tracts 740.03 and 740.04 are owner-occupied. In contrast, the majority of the housing units in the City of Santa Ana and Census Tracts 744.03, 744.08, 755.05, 755.07, 755.12, 755.13, 755.14, and 755.15 are renter occupied. The study area census tracts in Santa Ana have a substantially lower percentage of owner-occupied housing units than the County and the study area cities.

Table 2.3.3 Housing Profile

Area	Total Housing Units	Housing Units Occupied	Owner-Occupied Housing Units	Renter-Occupied Housing Units
County				
Orange County	1,042,254	984,503 (95%)	599,032 (61%)	385,471 (39%)
Study Area Cities				
City of Tustin	26,335	24,839 (94%)	13,109 (53%)	11,730 (47%)
City of Santa Ana	77,796	74,381 (96%)	36,613 (49%)	37,768 (51%)
City of Irvine	76,184	74,680 (94%)	38,124 (53%)	33,556 (47%)
Study Area Census Tracts				
Census Tract 525.02 (City of Tustin)	2,001	1,969 (98%)	1,675 (85%)	294 (15%)
Census Tract 740.03 (City of Santa Ana)	916	694 (76%)	694 (62%)	261 (38%)
Census Tract 740.04 (City of Santa Ana)	2,355	2,312 (98%)	1,184 (51%)	1,128 (49%)
Census Tract 744.03 (City of Santa Ana)	1,345	1,291 (96%)	367 (28%)	924 (72%)
Census Tract 744.08 (City of Tustin)	1,640	1,559 (95%)	512 (33%)	1,047 (67%)
Census Tract 755.05 (City of Tustin)	1,474	1,387 (94%)	584 (42%)	803 (58%)
Census Tract 755.07 (City of Tustin)	2,010	1,843 (92%)	419 (23%)	1,424 (77%)
Census Tract 755.12 (City of Tustin)	1,194	1,092 (91%)	347 (32%)	745 (68%)
Census Tract 755.13 (City of Tustin)	1,583	1,552 (98%)	607 (39%)	903 (61%)
Census Tract 755.14 (City of Tustin)	1,216	1,208 (99%)	189 (16%)	1,019 (84%)
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	4,155	3,833 (92%)	1,374 (36%)	2,459 (64%)

Source: *Community Impact Assessment* (2015).

Age of Population

Table 2.3.4 shows the age distribution, including the median age, of the population in the County, the cities of Tustin, Santa Ana, and Irvine, and the study area census tracts, as reported in the 2010 Census. A higher median age is often characteristic of a more mature and affluent community, while a lower median age is often characteristic of a less mature, less affluent community. The majority of the study area census tracts reported median ages lower than the County and the study area cities, with the exception of Census Tract 525.02, which has a higher median age than that of the County and the City of Tustin.

Table 2.3.4 Age Distribution

Area	Median Age	Population		
		< 16 Years Old	16–64 Years Old	> 64 Years Old
County				
Orange County	36.2	21.4%	66.9%	11.6%
Study Area Cities				
City of Tustin	33.4	23.8%	67.7%	8.5%
City of Santa Ana	29.1	27.3%	66.0%	6.8%
City of Irvine	33.9	19.0%	72.4%	8.7%
Study Area Census Tracts				
Census Tract 525.02 (City of Tustin)	40.9	19.2%	65.7%	15.1%
Census Tract 740.03 (City of Santa Ana)	29.1	25.5%	69.9%	4.6%
Census Tract 740.04 (City of Santa Ana)	32.0	21.0%	70.9%	8.0%
Census Tract 744.03 (City of Santa Ana)	23.9	36.2%	61.2%	2.7%
Census Tract 744.08 (City of Tustin)	28.3	30.1%	65.3%	4.6%
Census Tract 755.05 (City of Tustin)	37.3	20.2%	67.0%	12.8%
Census Tract 755.07 (City of Tustin)	31.1	21.4%	71.4%	7.2%
Census Tract 755.12 (City of Tustin)	29.8	23.5%	69.9%	6.6%
Census Tract 755.13 (City of Tustin)	31.3	24.4%	68.8%	6.8%
Census Tract 755.14 (City of Tustin)	29.5	25.7%	68.0%	6.3%
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	29.9	23.5%	72.3%	4.2%

Source: *Community Impact Assessment* (2015).

Unlike the majority of the study area census tracts, which have age distributions that are slightly younger than the County and the study area cities, Census Tract 744.03 has a high proportion (36.2 percent) of its population under the age of 16. Census Tract 744.03 also has a substantially younger median age (23.9) than the County, the study area cities, and the other study area census tracts. Census Tract 525.02 (15.1 percent) and Census Tract 755.05 (12.8 percent) have higher proportions of their populations over the age of 65 than the County and the three cities in the study area.

Transit Dependency

The transit-dependent population is typically described as the population that relies on public transportation for travel. The transit-dependent population may include the disabled, the elderly, the young, low-income individuals, and households without vehicles available. Given that transit dependency can be attributed to a combination of factors, including age, income level, and ability to drive, transit-dependent populations are often difficult to identify based on census data because these groups often overlap. In an effort to avoid double counting such populations, the transit-dependent population was calculated by determining the number of persons in households that are eligible to drive but do not have access to a vehicle. This number was derived by taking the number of residents aged 15 and over (the approximate population eligible to drive) within a geographic area, subtracting the number of persons living in group quarters (e.g., college residence halls, skilled nursing facilities, correctional facilities, and other group living environments where driving is not typically required), subtracting the number of vehicles available, and then dividing the result by the population aged 15 and over.

Table 2.3.5 shows the percentage of transit-dependent population in the County, the study area cities, and the study area census tracts. As shown in Table 2.3.5, 18.1 percent of the County's population is transit dependent. The percentage of transit-dependent population in the City of Tustin (21.0 percent) is similar to that in the County (18.1 percent); however, in the City of Santa Ana, the percentage of transit-dependent population is much greater (37.0 percent). Of the 11 census tracts in the study area, 9 exhibit higher transit-dependent populations than the County (18.1 percent), with the exception of Census Tract 525.02 (17.9

percent) and Census Tract 755.05 (16.8 percent). Census Tracts 744.03, 755.13, and 755.14 have higher percentages of transit-dependent residents (49.6 percent, 38.8 percent, and 38.3 percent, respectively) than the City of Santa Ana.

Table 2.3.5 Transit Dependency

Area	Transit-Dependent Population[1]
County	
County of Orange	18.1%
Study Area Cities	
City of Tustin	21.0%
City of Santa Ana	37.0%
City of Irvine	13.9%
Study Area Census Tracts	
Census Tract 525.02 (City of Tustin)	17.9%
Census Tract 740.03 (City of Santa Ana)	32.2%
Census Tract 740.04 (City of Santa Ana)	24.8%
Census Tract 744.03 (City of Santa Ana)	49.6%
Census Tract 744.08 (City of Tustin)	35.0%
Census Tract 755.05 (City of Tustin)	16.8%
Census Tract 755.07 (City of Tustin)	26.4%
Census Tract 755.12 (City of Tustin)	28.8%
Census Tract 755.13 (City of Tustin)	38.8%
Census Tract 755.14 (City of Tustin)	38.3%
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	21.1%

Source: *Community Impact Assessment* (2015).

[1] The transit-dependent population was calculated by taking the number of residents aged 15 and over (as reported in Table B01001 of the 2009–2013 ACS), subtracting the number of persons living in group quarters (as reported in Table B26001 of the 2009–2013 ACS), subtracting the number of vehicles available (as reported in Table B25046 of the 2009–2013 ACS), and then dividing the difference by the population aged 15 and over.

Housing Tenure

Housing tenure is shown in Table 2.3.6. As shown in Table 2.3.6, 34.9 percent of the County's residents have lived in their current residences for more than 10 years and, therefore, can be considered long-term residents. Similar to the County, a large percentage (33.8 percent) of the population in the City of Santa Ana consists of long-term residents. By comparison, the cities of Tustin and Irvine have relatively lower percentages of long-term residents (25.8 percent and 21.8 percent, respectively).

Table 2.3.6 Housing Tenure

Area	Year Householder Moved Into Unit		
	2010 or Later	2000–2009	Moved in 1999 or Earlier (Long-Term Residents)
County			
Orange County	187,513 (18.8%)	460,798 (46.3%)	347,201 (34.9%)
Study Area Cities			
City of Tustin	5,718 (22.9%)	12,822 (51.3%)	6,432 (25.8%)
City of Santa Ana	14,109 (19.3%)	34,196 47.0%)	24,606 (33.8%)
City of Irvine	21,274 (26.2%)	42,153 (52.0%)	17,631 (21.8%)
Study Area Census Tracts			
Census Tract 525.02	63	767	1,111

Table 2.3.6 Housing Tenure

Area	Year Householder Moved Into Unit		
	2010 or Later	2000–2009	Moved in 1999 or Earlier (Long-Term Residents)
(City of Tustin)	(3.2%)	(39.5%)	(57.3%)
Census Tract 740.03 (City of Santa Ana)	375 (40.1%)	385 (41.1%)	176 (18.8%)
Census Tract 740.04 (City of Santa Ana)	408 (18.7%)	1,046 (48.0%)	725 (33.3%)
Census Tract 744.03 (City of Santa Ana)	175 (13.6%)	886 (68.7%)	229 (17.7%)
Census Tract 744.08 (City of Tustin)	446 (28.9%)	894 (57.9%)	203 (13.2%)
Census Tract 755.05 (City of Tustin)	391 (28.7%)	641 (47.1%)	329 (24.2%)
Census Tract 755.07 (City of Tustin)	631 (32.8%)	974 (50.6%)	319 (16.5%)
Census Tract 755.12 (City of Tustin)	354 (33.1%)	475 (44.4%)	242 (22.5%)
Census Tract 755.13 (City of Tustin)	381 (25.7%)	730 (49.2%)	374 (25.1%)
Census Tract 755.14 (City of Tustin)	343 (29.0%)	639 (54.1%)	199 (16.9%)
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	1,672 (31.5%)	3,225 (60.7%)	405 (7.9%)

Source: *Community Impact Assessment* (2015).

Census Tracts 740.04, 755.05, 755.12, and 755.13 have moderate percentages of long-term residents (between 22.5 and 33.3 percent). The percentages of long-term residents in the other four study area census tracts are lower than for the County and the study area cities. Census Tract 525.02 has a much larger concentration of long-term residents (57.3 percent) than the County or the study area cities.

Community Cohesion Summary

Indicators for a community that has a high degree of cohesion are high rates of home ownership and ethnic homogeneity, and high percentages of transit-dependent residents, elderly residents, long-term residents, and households of two or more people. Census Tract 744.03 has a larger average household size (4.56 persons), a higher degree of ethnic homogeneity (approximately 95 percent of the population is Hispanic or Latino), and a higher percentage of transit-dependent population (49.6 percent) than the County and the study area cities; however, Census Tract 744.03 also demonstrates several characteristics that indicate its population is highly transient (i.e., low proportion of owner-occupied residences and relatively short housing tenure). Census Tract 525.02 has a high rate of owner-occupied residences, above-average homogeneity (approximately 65 percent of the population is White), higher percentages of its population over 65 (15.1 percent), and long-term residents (57.3 percent) than the County and the City of Tustin. Based on these factors, Census Tracts 525.02 and 744.03 are concluded to have reasonably high levels of community cohesion. Community cohesion is relatively low within the other study area census tracts.

2.3.1.3 Environmental Consequences

Temporary Impacts

Build Alternatives

Impacts to community cohesion generally depend on whether a project is likely to create a barrier or disrupt connectivity of a community. Either of these can be a result of disruptions

in access or residential and business acquisitions. As described below, construction of the Build Alternatives would potentially affect community character and cohesion through the temporary use of land from privately owned properties for use as temporary construction easements (TCEs), short-term air quality and noise effects, and temporary road and ramp closures/detours along and in the immediate vicinity of the project segment of SR-55.

The Build Alternatives would require TCEs on small parts of the rear of several parcels in the residential neighborhoods along SR-55, north of the Los Angeles to San Diego (LOSSAN) high-speed rail corridor. As a result, the extent of temporary impacts to residential uses adjacent to the project area would be limited. Construction of the Build Alternatives would also require TCEs on commercial and industrial properties in the project area. Given that most of these TCEs would be located on land that is currently being used for landscaping and parking lots adjacent to the existing SR-55 right of way (ROW), the temporary use of such land for construction activities would neither result in adverse effects on community character nor have the potential to divide an existing community or create any barriers between existing communities.

Construction activities would result in temporary impacts associated with construction equipment noise and air emissions at residences and businesses adjacent to SR-55. These impacts would be temporary and would cease when the project construction is complete.

All the Build Alternatives would require overnight closures of the southbound SR-55 mainline between MacArthur Boulevard and I-405 and between Dyer Road and MacArthur Boulevard, and overnight closures of the northbound mainline between Edinger Avenue and McFadden Avenue. Detour routes would be provided to direct traffic around these mainline closures using the local arterial street network. The potential detours would result in increased travel times ranging from approximately 5 to 9 minutes.

All the Build Alternatives would require overnight ramp closures. Alternative 3 and 3M would require the greatest number of ramp closures (20), and Alternative 1 would require the least number of ramp closures (12). Alternatives 2 and 4 would each require the closure of 19 ramps. Because each ramp closure is not expected to exceed 10 nights, they would not cause excessive inconvenience to the traveling public. No two consecutive off-ramps or two consecutive on-ramps in the same direction would be closed concurrently.

Overnight closures on MacArthur Boulevard, Dyer Road, and Edinger Avenue would be required for all Build Alternatives. No other local street closures would be required. As with the mainline closures, detour routes on other local streets would be provided to direct traffic around the closures. The potential detour routes would result in increased travel times ranging from approximately 4 to 12 minutes.

All mainline, arterial, and ramp closures would occur only during the overnight hours between 10:00 p.m. and 5:00 a.m. and on a short-term basis. The total number of overnight closures at each mainline and arterial location is not anticipated to exceed three nights (closures will not occur on consecutive nights). The total number of overnight closures at each ramp location is not anticipated to exceed 10 nights (closures may or may not occur on consecutive nights). Adequate notification of all mainline, arterial, and ramp closures would be provided to the public and local government agencies.

Access to all nearby businesses would be maintained during mainline, ramp, and arterial closures. All businesses would be accessible from alternate freeway off-ramps and by using local streets. Given that the closures would be short term and confined to the nighttime hours, the increased travel times and distances would result in minimal disruption to neighborhoods and businesses adjacent to the project area and would not divide the study

area cities or neighborhoods in those cities. Nevertheless, construction-related closures could impede movement within the study area cities, which would result in temporary adverse effects to community character and cohesion. Although community members would still be able to use community services and facilities during the construction period, there would be some degree of inconvenience due to construction-related delays, temporary closures, and construction equipment operation.

No Build Alternative

No improvements to SR-55 other than routine maintenance are proposed under the No Build Alternative. Therefore, the No Build Alternative would not result in temporary impacts related to businesses and community character and cohesion.

Permanent Impacts

The Build Alternatives would result in beneficial impacts related to community character and cohesion in terms of improved access and connectivity and decreased travel times. In addition, emergency services in the three cities (e.g., fire and police protection) would be more readily available with the Build Alternatives because mobility in the study area would improve over existing conditions. The Build Alternatives would provide improvements on a segment of SR-55 that has been in operation since its construction in 1962. Therefore, the Build Alternatives would not create any new or exacerbate any existing physical divisions in the study area or in the cities in the study area.

Under Alternatives 3, 4, and 3M, the northbound McFadden on-ramp would be restricted to the northbound I-5 connector only. As a result, direct access from the northbound McFadden Avenue on-ramp to northbound SR-55 and southbound Interstate 5 (I-5) would be eliminated. As a result, motorists in the vicinity of the McFadden Avenue on-ramp intending to travel to northbound SR-55 would mainly use Newport Avenue and Red Hill Avenue to enter northbound I-5 before connecting to northbound SR-55, while some motorists would use the Edinger Avenue and Dyer Road on-ramps to access northbound SR-55. Most of the motorists in the vicinity of the McFadden Avenue on-ramp intending to travel to southbound I-5 would enter southbound I-5 from the Red Hill Avenue on-ramp. Although Alternative 3, 4, and 3M would require some motorists to follow a different travel path to access northbound SR-55 and southbound I-5 and would result in minor travel delays for some motorists, these Alternatives would not create a barrier to traffic movements in the study area because motorists would still be able to access northbound SR-55 and southbound I-5 via other nearby interchanges.

As described in Section 2.6, Visual/Aesthetics, implementation of the Build Alternatives would result in moderately low permanent visual impacts from project-related activities. SR-55 is an existing facility in a highly developed area. Improvements proposed by this project would not deteriorate the existing visual quality or character of the project corridor and surrounding area. In many locations along the project segment of SR-55, visual quality is anticipated to improve as a result of the undergrounding existing overhead utility lines. Further, the final design of new retaining walls and sound walls provided by the project would feature architectural treatments and features to minimize the loss of, and improve the visual quality on, the project segment of SR-55. Additionally, a project-specific Landscape Plan will be implemented to address landscape treatments within the State ROW along the project segment of SR-55.

As described in detail later in Section 2.3.2, Relocation and Real Property Acquisition, the Build Alternatives would result in limited property acquisition in the project area. None of the Build Alternatives would result in residential displacements. Property acquisitions for

Alternatives 1 and 2 would result in the displacement of one business: Rockin' Jump (an indoor trampoline facility). Alternatives 3, 4, and 3M (Preferred Alternative) would result in the displacement of Rockin' Jump (an indoor trampoline facility), Western Exterminator Company (a termite and pest control company), Above & Beyond, Inc. (a manufacturer of outdoor advertising products), and Hand N Hand Patient Care (a medical marijuana dispensary). Because these companies provide specialized services that are likely to be marketed to the broader region rather than simply the adjacent communities, and Rockin' Jump is a relatively new business to the area, their relocation is not anticipated to result in any damage or disruption to the social fabric of the communities in which they are located.

In summary, the Build Alternatives would not divide existing communities by creating a barrier to traffic movements. The Build Alternatives would result in beneficial impacts related to community character and cohesion in terms of improved access and connectivity and decreased travel times. The existing visual quality or character of the project corridor and surrounding area would not be deteriorated, and in many locations is anticipated to improve by undergrounding the existing overhead utility lines. None of the business displacements that would be required by the Build Alternatives would impact the cohesion of the communities in which they are located. Thus, permanent community character and cohesion impacts as a result of the Build Alternatives would be minimal.

No Build Alternative

No improvements to existing SR-55 other than routine maintenance are proposed under the No Build Alternative. Therefore, the No Build Alternative would not relieve existing traffic congestion on SR-55. Future increases in traffic congestion under the No Build Alternative would result in permanent impacts to community character and cohesion in the communities adjacent to the project segment of SR-55.

2.3.1.4 Avoidance, Minimization, and/or Mitigation Measures

Measure REL-1, provided later in Section 2.3.2.4, would minimize the effects of the full and partial acquisitions of property under the Build Alternatives related to community character and cohesion.

Temporary construction impacts would be minimized based on implementation of Measure T-1, which is provided in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. Measure T-1 requires development and implementation of a Transportation Management Plan (TMP) during construction of the Build Alternatives to address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers.

Temporary air quality impacts would be minimized based on implementation of Measures AQ-1 through AQ-5, which are provided in Section 2.13, Air Quality. These measures require the control of dust and equipment emissions during construction of the Build Alternatives.

Temporary noise impacts would be minimized based on implementation of Measure N-1, which is provided in Section 2.14, Noise. Measure N-1 requires the construction contractor to comply with California Department of Transportation (Caltrans) Standard Specifications regarding noise control during construction of the Build Alternatives.

2.3.2 Relocations and Real Property Acquisition

2.3.2.1 Regulatory Setting

The Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended) (Uniform Act) and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix D for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, or sex in compliance with Title VI of the Civil Rights Act (42 USC 2000d, et seq.). Please see Appendix C for a copy of the Caltrans Title VI Policy Statement.

2.3.2.2 Affected Environment

The information in this section is summarized from the Community Impact Assessment (2015), Draft Relocation Impact Statement (DRIS) (2015), Draft Relocation Impact Statement - Alternative 3M (2017), and the Final Relocation Impact Statement (2017).

As shown previously in Figure 2.3-1, the study area for the assessment of the project effects related to property acquisition and relocation was defined as 11 Census Tracts (Census Tracts 525.02, 740.03, 740.04, 744.03, 744.08, 755.05, 755.07, 755.12, 755.13, 755.14, and 755.15) in the cities of Tustin, Santa Ana, and Irvine. This study area was selected because it covers the entire project area and includes areas in the vicinity of the project area that are likely to be considered for the relocation of businesses displaced by the Build Alternatives. As described earlier in Section 2.1, Land Use, the existing land uses in the study area include primarily multifamily residential, office, commercial, and industrial uses, and limited amounts of vacant land. Existing land uses in the southern part of the study area between I-405 and Edinger Avenue generally consist of commercial and industrial uses, and a small number of multifamily residential uses. The northern part of the study area between Edinger Avenue and I-5 is dominated by multifamily residential and commercial properties.

2.3.2.3 Environmental Consequences

Temporary Impacts

Alternative 1

As shown on Figure 2.3-2, Alternative 1 would require TCEs on 21 residential, commercial, and industrial parcels to allow access for the construction of sound walls, retaining walls, and roadway widening. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts would be limited to parking impacts. Alternative 1 would also require TCEs on two flood control parcels and one railroad parcel in order to place pre-cast concrete box girders above the Santa Ana-Santa Fe Channel and the LOSSAN high-speed rail corridor so that the South Tustin Overhead Bridge can be widened.

Construction staging areas may be located on a vacant parcel adjacent to the northbound SR-55 off-ramp to Edinger Avenue and in State ROW along southbound SR-55 north of McFadden Avenue.

After construction, the TCEs and staging areas used for any Build Alternative would be restored to their original pre-project conditions. TCEs and staging areas would not require businesses, employees, or residents to relocate. Owners of the parcels affected by TCEs

and staging areas would be compensated for temporary use of their property during construction. For these reasons, temporary ROW acquisition impacts are not anticipated to be substantial. As a result, the temporary use of land during construction of the Build Alternatives would not result in substantial impacts.

Alternative 2

As shown on Figure 2.3-3, Alternative 2 would require TCEs on 40 residential, commercial, and industrial parcels to accommodate the construction of sound walls, retaining walls, and roadway widening. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts would be limited to parking impacts. Alternative 2 would require TCEs on three flood control parcels and two railroad parcels, and may require construction staging areas on a vacant parcel and in State ROW.

After construction, the TCEs and staging areas would be restored to their original pre-project conditions as described above for Alternative 1.

Alternative 3

As shown on Figure 2.3-4, Alternative 3 would require TCEs on 53 residential, commercial, and industrial parcels to accommodate the construction of sound walls, retaining walls, and roadway widening. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts would be limited to parking impacts, as described in Section 2.3.1. Similar to Alternative 2, Alternative 3 would require TCEs on three flood control parcels and two railroad parcels, and may require construction staging areas on a vacant parcel and in State ROW.

After construction, the TCEs and staging areas would be restored to their original pre-project conditions as described above for Alternative 1.

Alternative 4

As shown on Figure 2.3-5, Alternative 4 would require TCEs on 43 residential, commercial, and industrial parcels in order to accommodate the construction of sound walls, retaining walls, and roadway widening. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts would be limited to parking impacts, as described in Section 2.3.1. Similar to Alternative 2, Alternative 4 would require TCEs on three flood control parcels and two railroad parcels, and may require construction staging areas on a vacant parcel and in State ROW.

After construction, the TCEs and staging areas would be restored to their original pre-project conditions as described above for Alternative 1.

Alternative 3M (Preferred Alternative)

As shown on Figure 2.3-6, Alternative 3M would require TCEs on 53 residential, commercial, and industrial parcels to accommodate the construction of sound walls, retaining walls, and roadway widening. Given that most of these TCEs generally consist of land that is currently being used for landscaping and parking lots, temporary impacts would be limited to parking impacts, as described in Section 2.3.1. Alternative 3M would require TCEs on three flood control parcels and two railroad parcels, and may require construction staging areas on a vacant parcel and in State ROW.

No Build Alternative

The No Build Alternative would not include any construction and therefore would not require the use of any privately owned land for TCEs or staging areas.

Permanent Impacts

Alternative 1

As shown on Figure 2.3-2 and in Table 2.3.7, Alternative 1 would result in the full acquisition of four vacant parcels. Because these full acquisitions would be limited to vacant parcels, no business displacements would occur. Alternative 1 would also result in the partial acquisition of seven non-residential properties, one of which would result in the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump). Alternative 1 would not require partial or full acquisition of residential properties. Therefore, no residential displacements would occur.

The displacement of one business in the City of Santa Ana would displace approximately 20 employees, which represents approximately 0.01 percent of the total number of employees in the City of Santa Ana. However, based on the FRIS, there are several locations available in the study area cities for relocation of the displaced business. As of July 2017, there were 332 offices for lease and 49 for sale in the study area cities that could serve as replacement properties for the displaced business. Therefore, there is an adequate supply of available replacement properties in which to relocate the displaced business within the study area cities, and it is anticipated that the business would be relocated near its current location.

The full acquisition of the four nonresidential parcels in the City of Santa Ana would result in property tax revenue losses for local taxing agencies because these parcels would be removed from the property tax assessment roll. The full parcel acquisitions under Alternatives 1 would result in the loss of an estimated $4,587 in annual property tax revenue to the City of Santa Ana, which is approximately 0.01 percent of the City of Santa Ana's total annual property tax revenue. The County, the Santa Ana and Tustin Unified School Districts, and other local taxing agencies that receive a share of property taxes from these parcels would also be affected. Partial acquisitions in the cities of Tustin and Santa Ana would result in additional minor reductions in the local property tax assessment roll, further decreasing property tax collections.

Table 2.3.7 Full and Partial Acquisitions Anticipated Under Alternative 1

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump	Commercial	Partial	32,769	Yes
430-012-03	2400 S. Pullman Street Santa Ana, CA 92705	Above & Beyond, Inc.	Industrial	Partial	1,729	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	Partial	4,578	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	15,883	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A	Industrial	Partial	15,603	No
016-221-27	1580 E. Warner Avenue Santa Ana, CA 92705	N/A	Vacant	Full	76,760	No
016-221-28	Brookhollow Drive Santa Ana, CA 92705	N/A	Vacant	Full	37,426	No
016-221-29	S. Grand Avenue Santa Ana, CA 92705	N/A	Vacant	Full	9,055	No
411-141-06	Santa Ana, CA 92705	N/A	Vacant	Full	6,547	No

Source: *Community Impact Assessment* (2015).
E. = East
N/A = Not Applicable
S. = South
sf = square feet

The partial acquisitions associated with Alternative 1 would result in the displacement of one sales tax-generating business within the City of Santa Ana. As discussed above, there is an adequate supply of available replacement properties in which to relocate the displaced business within the study area cities. In the event that the displaced business was relocated within the City of Santa Ana, there would be no net loss of sales tax revenue to that city. However, relocation to a different city would result in a net loss of sales tax revenue to the City of Santa Ana. As shown in Table 2.3.8, the potential annual sales tax revenue loss would be $4,064 for the City of Santa Ana if the business was relocated outside of Santa Ana, and $1,355 for the County and $2,709 for the Orange County Transportation Authority (OCTA) if it was relocated outside of Orange County. Should undergrounding of utilities be required, a permanent easement may be necessary.

Table 2.3.8 Potential Annual Sales Tax Revenue Losses Related to Business Displacements in the City of Santa Ana for Alternatives 1 and 2

Jurisdiction	Tax Rate	Taxable Sales	Total Sales Tax Revenue	Business Permits	Average Sales Tax/Business	Sales Tax Loss
City of Santa Ana	0.75%	$3,655,025,000	$27,412,688	$6,745	$4,064	$4,064
Orange County Transportation Fund	0.25%	—	$9,137,563	—	$1,355	$1,355
OCTA (Measure M)	0.50%	—	$18,275,125	—	$2,709	$2,709

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).
Note: This table represents the maximum sales tax loss that could occur if the displaced business was relocated outside of Orange County.
OCTA = Orange County Transportation Authority

Alternative 2

As shown on Figure 2.3-3 and in Table 2.3.9, Alternative 2 would result in the full acquisition of the same four vacant parcels as Alternative 1. Alternative 2 would also result in the partial acquisition of 16 non-residential properties.

Table 2.3.9 Full and Partial Acquisitions Anticipated Under Alternative 2

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump	Commercial	Partial	32,769	Yes
427-261-05	17942 Cowan Irvine, CA 92614	N/A[1]	Commercial	Partial	2,177	No
427-261-06	17912 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	2,763	No
427-261-07	17872 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,010	No
427-261-08	17842 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,000	No
427-261-09	17792 Cowan B Irvine, CA 92614	N/A[1]	Industrial	Partial	3,204	No
427-261-10	17792 Cowan A Irvine, CA 92614	N/A[1]	Industrial	Partial	4,503	No
427-262-06	17781 Cowan Irvine, CA 92614	ALG, Alzheimer's Association of Orange County, AnnexCore Marketing Agency, Caliber Collision Centers, Chrome Data, EnviroPacifica, Gradient Engineers, Home Buyer's Guide, Leighton, Terratest Labs, Vista Gardens Memory Care	Commercial	Partial	4,988	No
427-282-14	17952 Cowan	Assemblies of God	Commercial	Partial	1,141	No

Table 2.3.9 Full and Partial Acquisitions Anticipated Under Alternative 2

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
	Irvine, CA 92614					
427-282-15	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	3,684	No
430-012-03	2400 S. Pullman St. Santa Ana, CA 92705	Above & Beyond, Inc.	Industrial	Partial	1,729	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	Partial	4,578	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	15,883	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A	Industrial	Partial	15,603	No
016-221-27	1580 E. Warner Avenue Santa Ana, CA 92705	N/A	Vacant	Full	76,760	No
016-221-28	Brookhollow Drive Santa Ana, CA 92705	N/A	Vacant	Full	37,426	No
016-221-29	S. Grand Avenue Santa Ana, CA 92705	N/A	Vacant	Full	9,055	No
411-141-06	Santa Ana, CA 92705	N/A	Vacant	Full	6,547	No

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).
E. = East S. = South
N/A = Not Applicable sf = square feet

Similar to Alternative 1, Alternative 2 would result in the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump). Alternative 2 would not require partial or full acquisition of residential properties. Therefore, no residential displacements would occur.

Alternative 2 would result in the same employee displacements as Alternative 1. The 20 displaced employees represent approximately 0.01 percent of the total number of employees in the City of Santa Ana's employed labor force. As discussed previously, there are several available locations in which to relocate the displaced business within the study area cities; therefore, it is anticipated that the business would be relocated near its current location.

Alternative 2 would result in the same property tax and sales tax losses as Alternative 1, as shown in Table 2.3.8. Should undergrounding of utilities be required, a permanent easement may be necessary.

Alternative 3

As shown on Figure 2.3-4 and in Table 2.3.10, Alternative 3 would result in the full acquisition of eight nonresidential parcels. Five of those parcels are currently vacant and unimproved, one contains a pressure reducing facility, and the remaining two full parcel acquisitions would result in the displacement of three businesses (Western Exterminator Company, Above & Beyond, Inc., and Hand N Hand Patient Care). Alternative 3 would also result in the partial acquisition of 31 non-residential properties. One of the partial acquisitions for Alternative 3 would result in the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump). Alternative 3 would not require full acquisition of residential properties. Therefore, no residential displacements would occur.

The displacement of four businesses in the City of Santa Ana would displace approximately 110 employees (20 at Rockin' Jump, 50 at the Western Exterminator Company, 20 at Above & Beyond, Inc., and 20 at Hand N Hand Patient Care), which represents approximately 0.06 percent of the total employed labor force in the City of Santa Ana. However, based on the Draft Relocation Impact Statement – Alternative 3M, there are several locations available in the study area cities for relocation of the displaced business. As of November 2016, there a total of 383 office units, 109 retail units, and 502 industrial units for sale or lease that would serve as replacement properties. Therefore, there is an adequate supply of available replacement properties in which to relocate the displaced business within the study area cities, and it is anticipated that the business would be relocated near its current location.

Table 2.3.10 Full and Partial Acquisitions Anticipated Under Alternative 3

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
016-221-12	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	6,813	No
016-221-13	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	3,818	No
016-221-14	1570 E. Warner Avenue Santa Ana, CA 92705	N/A[1]	Commercial	Partial	1,045	No
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump	Commercial	Partial	32,769	Yes
403-041-04	1929 E. St. Andrew Place Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,258	No
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	A-1 Shower Door, Andrade's, Applied Flow Technologies, Berry Sheet Metal, CPS Solutions, Fred's Custom Draperies, GD Designs, H&R Upholstery, J.E. Steel Rule Die, Junk Monster, Monarch Precision Deburring, Olama Products, Serena D'Italia, Speedway, Stedco Engineering, Sunny Hills Cleans, Water Jetting Equipment	Industrial	Partial	3,546	No
403-041-08	2061 S. Ritchey Street Santa Ana, CA 92705	O'Neil Storage	Industrial	Partial	4,076	No
427-261-05	17942 Cowan Irvine, CA92614	N/A[1]	Commercial	Partial	2,177	No
427-261-06	17912 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	2,763	No
427-261-07	17872 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,010	No
427-261-08	17842 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,000	No
427-261-09	17792 Cowan B	N/A[1]	Industrial	Partial	3,204	No

Table 2.3.10 Full and Partial Acquisitions Anticipated Under Alternative 3

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
	Irvine, CA 92614					
427-261-10	17792 Cowan A Irvine, CA 92614	N/A[1]	Industrial	Partial	4,503	No
427-262-06	17781 Cowan Irvine, CA 92614	ALG, Alzheimer's Association of Orange County, AnnexCore Marketing Agency, Caliber Collision Centers, Chrome Data, EnviroPacifica, Gradient Engineers, Home Buyer's Guide, Leighton, Terratest Labs, Vista Gardens Memory Care	Commercial	Partial	4,988	No
427-282-14	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	1,141	No
427-282-15	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	3,684	No
430-011-03	2441 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,086	No
430-011-04	2401 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	622	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	Partial	9,478	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-032-10	2501 S. Pullman Street A Santa Ana, CA 92705	N/A[1]	Commercial	Partial	458	No
430-112-04	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	645	No
430-112-05	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	644	No
430-112-06	17092 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	559	No
430-112-12	1063 McGaw Avenue Irvine, CA 92614	A-Mark Precious Metals, Collateral Finance Corporation, H.R. Harmer, Spectrum Group International, Spectrum Numismatics International, Spectrum Wine Auctions, Stack's Bowers, Teletrade	Commercial	Partial	1,071	No
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	Partial	3,072	No
430-171-07	1740 E. Garry Avenue Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services,	Commercial	Partial	3,107	No

Table 2.3.10 Full and Partial Acquisitions Anticipated Under Alternative 3

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group, PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI				
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	31,185	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A[1]	Industrial	Partial	30,875	No
016-221-27	1580 E. Warner Avenue Santa Ana, CA 92705	N/A	Vacant	Full	76,760	No
016-221-28	Brookhollow Drive Santa Ana, CA 92705	N/A	Vacant	Full	37,426	No
016-221-29	S. Grand Avenue Santa Ana, CA 92705	N/A	Vacant	Full	9,055	No
403-072-01	S. Ritchey Street Santa Ana, CA 92705	Vacant	Industrial	Full	1,086	No
403-072-02	S. Ritchey Street Santa Ana, CA 92705	N/A	Public/ Exempt	Full	3,818	No
403-072-03	2201 S. Ritchey Street Santa Ana, CA 92705	Western Exterminator	Industrial	Full	35,611	Yes
411-141-06	Santa Ana, CA 92705	N/A	Vacant	Full	6,547	No
430-012-03	2400 S. Pullman Street Santa Ana, CA 92705	Above & Beyond, Inc. , Hand N Hand Patient Care	Industrial	Full	35,953	Yes

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).
E. = East S. = South
N/A = Not Applicable sf = square feet

Alternative 3 would require the full acquisition of eight nonresidential parcels, including one city-owned parcel, in the City of Santa Ana. Although the city-owned parcel is exempt from property taxes, the acquisition of the other seven parcels to public ROW would result in property tax revenue losses for local taxing agencies. The full parcel acquisitions would result in the loss of an estimated $11,873 in annual property tax revenue to the City of Santa Ana, which is approximately 0.03 percent of the City of Santa Ana's total annual property tax revenue. The County, the Santa Ana and Tustin Unified School Districts, and other local taxing agencies that receive a share of the property tax from these parcels would also be affected. Partial acquisitions in the cities of Tustin, Santa Ana, and Irvine would result in additional minor reductions in the local property tax assessment roll, further decreasing property tax collections.

The property acquisitions associated with Alternative 3 would result in the displacement of three sales tax-generating businesses within the City of Santa Ana. As discussed above, there is an adequate supply of available replacement properties in which to relocate the displaced businesses within the study area cities. In the event that all three displaced businesses are relocated within Santa Ana, there would be no net loss of sales tax revenue to that city. However, relocation to a different city would result in a net loss of sales tax revenue to the City of Santa Ana. As shown in Table 2.3.13, the potential annual sales tax revenue loss would be $12,192 for the City of Santa Ana if all three of the businesses are relocated outside of Santa Ana, and $4,064 for the County and $8,128 for the OCTA if they are relocated outside of Orange County. Should undergrounding of utilities be required, a permanent easement may be necessary.

Alternative 4

As shown on Figure 2.3-4 and in Table 2.3.12, Alternative 4 would result in the full acquisition of the same eight parcels as Alternative 3. Six of those parcels are currently vacant and therefore would not result in business displacements. The other two full parcel acquisitions would result in the displacement of two businesses (Western Exterminator Company and Above & Beyond, Inc.). Alternative 4 would also result in the partial acquisition of 21 non-residential properties. Similar to the other Build Alternatives, Alternative 4 would result in the demolition of one occupied building, resulting in the displacement of one business. Alternative 4 would not require full acquisition of residential properties. Therefore, no residential displacements would occur.

Alternative 4 would result in the same employee displacements as Alternative 3. The 90 displaced employees represent approximately 0.06 percent of the total employed labor force in the City of Santa Ana. There are several available locations in which to relocate the displaced businesses within the study area cities; therefore, it is anticipated that businesses would be relocated near their current locations.

Table 2.3.11 Full and Partial Acquisitions Anticipated Under Alternative 4

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
016-221-12	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	6,813	No
016-221-13	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	3,818	No
016-221-14	1570 E. Warner Avenue Santa Ana, CA 92705	N/A[1]	Commercial	Partial	1,045	No
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump	Commercial	Partial	32,769	Yes
403-041-04	1929 E. St. Andrew Place Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,258	No
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	A-1 Shower Door, Andrade's, Applied Flow Technologies, Berry Sheet Metal, CPS	Industrial	Partial	3,546	No

Table 2.3.11 Full and Partial Acquisitions Anticipated Under Alternative 4

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		Solutions, Fred's Custom Draperies, GD Designs, H&R Upholstery, J.E. Steel Rule Die, Junk Monster, Monarch Precision Deburring, Olama Products, Serena D'Italia, Speedway, Stedco Engineering, Sunny Hills Cleans, Water Jetting Equipment				
403-041-08	2061 S. Ritchey Street Santa Ana, CA 92705	O'Neil Storage	Industrial	Partial	4,076	No
430-011-03	2441 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,086	No
430-011-04	2401 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	622	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	Partial	9,478	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-032-10	2501 S. Pullman Street A Santa Ana, CA 92705	N/A[1]	Commercial	Partial	458	No
430-112-04	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	645	No
430-112-05	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	644	No
430-112-06	17092 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	559	No
430-112-12	1063 McGaw Avenue Irvine, CA 92614	A-Mark Precious Metals, Collateral Finance Corporation, H.R. Harmer, Spectrum Group International, Spectrum Numismatics International, Spectrum Wine Auctions, Stack's Bowers, Teletrade	Commercial	Partial	1,071	No
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	Partial	3,072	No
430-171-07	1740 E. Garry Avenue Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services, Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group, PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick	Commercial	Partial	3,107	No

Table 2.3.11 Full and Partial Acquisitions Anticipated Under Alternative 4

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI				
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	31,185	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A[1]	Industrial	Partial	30,875	No
016-221-27	1580 E. Warner Avenue Santa Ana, CA 92705	N/A	Vacant	Full	76,760	No
016-221-28	Brookhollow Drive Santa Ana, CA 92705	N/A	Vacant	Full	37,426	No
016-221-29	S. Grand Avenue Santa Ana, CA 92705	N/A	Vacant	Full	9,055	No
403-072-01	S. Ritchey Street Santa Ana, CA 92705	Vacant	Industrial	Full	1,086	No
403-072-02	S. Ritchey Street Santa Ana, CA 92705	N/A	Public/ Exempt	Full	3,818	No
403-072-03	2201 S. Ritchey Street Santa Ana, CA 92705	Western Exterminator	Industrial	Full	35,611	Yes
411-141-06	Santa Ana, CA 92705	N/A	Vacant	Full	6,547	No
430-012-03	2400 S. Pullman Street Santa Ana, CA 92705	Above & Beyond, Inc. , Hand N Hand Patient Care	Industrial	Full	35,953	Yes

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017).
[1] Partial acquisition would require the demolition of a vacant building.
E. = East S. = South
N/A = Not Applicable sf = square feet

Alternative 4 would result in the same property tax and sales tax losses as Alternative 3 and 3M, as shown in Table 2.3.13. Should undergrounding of utilities be required, a permanent easement may be necessary.

Alternative 3M (Preferred Alternative)

As shown on Figure 2.3-6 and in Table 2.3.12, Alternative 3M would result in the full acquisition of eight nonresidential parcels. Five of those parcels are currently vacant and unimproved, one contains a pressure reducing facility, and the remaining two full parcel acquisitions would result in the displacement of three businesses (Western Exterminator Company, Above & Beyond, Inc., and Hand N Hand Patient Care). Alternative 3M would also result in the partial acquisition of 31 non-residential properties. One of the partial acquisitions for Alternative 3M would result in the demolition of one occupied building, resulting in the displacement of one business (Rockin' Jump). Alternative 3M would not require full acquisition of residential properties. Therefore, no residential displacements would occur.

The displacement of four businesses in the City of Santa Ana would displace approximately 110 employees (20 at Rockin' Jump, 50 at the Western Exterminator Company, 20 at Above & Beyond, Inc., and 20 at Hand N Hand Patient Care), which represents approximately 0.06 percent of the total employed labor force in the City of Santa Ana. However, based on the

Draft Relocation Impact Statement – Alternative 3M, there are several locations available in the study area cities for relocation of the displaced business. As of November 2016, there a total of 383 office units, 109 retail units, and 502 industrial units for sale or lease that would serve as replacement properties. Therefore, there is an adequate supply of available replacement properties in which to relocate the displaced business within the study area cities, and it is anticipated that the business would be relocated near its current location.

Table 2.3.12 Full and Partial Acquisitions Anticipated Under Alternative 3M (Preferred Alternative)

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
016-221-12	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	6,813	No
016-221-13	Brookhollow Drive Santa Ana, CA 92705	N/A[1]	Commercial	Partial	3,818	No
016-221-14	1570 E. Warner Avenue Santa Ana, CA 92705	N/A[1]	Commercial	Partial	1,045	No
402-101-45	2101 E. Edinger Avenue Santa Ana, CA 92705	Freeway Honda	Commercial	Partial	1,480	No
402-111-24	1411 Village Way Santa Ana, CA 92705	Advanced Office Services, The Baseball Academy, Calumet Photographic, CubeKing, Enterprise Fleet Services, Liquid Handling, Monkeysports, Motorvac Technologies, Roger Dunn Golf Shop, Sender One Climbing, The Wine Club, Worldwide Golf Enterprises, Rockin' Jump	Commercial	Partial	32,769	Yes
403-041-04	1929 E. St. Andrew Place Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,258	No
403-041-07	1969 S. Ritchey Street Santa Ana, CA 92705	A-1 Shower Door, Andrade's, Applied Flow Technologies, Berry Sheet Metal, CPS Solutions, Fred's Custom Draperies, GD Designs, H&R Upholstery, J.E. Steel Rule Die, Junk Monster, Monarch Precision Deburring, Olama Products, Serena D'Italia, Speedway, Stedco Engineering, Sunny Hills Cleans, Water Jetting Equipment	Industrial	Partial	3,546	No
403-041-08	2061 S. Ritchey Street Santa Ana, CA 92705	O'Neil Storage	Industrial	Partial	4,076	No
427-261-05	17942 Cowan Irvine, CA92614	N/A[1]	Commercial	Partial	2,177	No
427-261-06	17912 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	2,763	No
427-261-07	17872 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,010	No
427-261-08	17842 Cowan Irvine, CA 92614	N/A[1]	Industrial	Partial	3,000	No
427-261-09	17792 Cowan B Irvine, CA 92614	N/A[1]	Industrial	Partial	3,204	No
427-261-10	17792 Cowan A Irvine, CA 92614	N/A[1]	Industrial	Partial	4,503	No
427-262-06	17781 Cowan Irvine, CA 92614	ALG, Alzheimer's Association of Orange County, AnnexCore	Commercial	Partial	4,988	No

Table 2.3.12 Full and Partial Acquisitions Anticipated Under Alternative 3M (Preferred Alternative)

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		Marketing Agency, Caliber Collision Centers, Chrome Data, EnviroPacifica, Gradient Engineers, Home Buyer's Guide, Leighton, Terratest Labs, Vista Gardens Memory Care				
427-282-14	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	1,141	No
427-282-15	17952 Cowan Irvine, CA 92614	Assemblies of God	Commercial	Partial	3,684	No
430-011-03	2441 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	3,086	No
430-011-04	2401 S. Pullman Street Santa Ana, CA 92705	N/A[1]	Industrial	Partial	622	No
430-012-04	2350 Pullman Street Santa Ana, CA 92705	Sweet Life Enterprises	Industrial	Partial	9,478	No
430-031-09	1717 E. Dyer Road Santa Ana, CA 92705	Motel 6	Commercial	Partial	4,155	No
430-032-10	2501 S. Pullman Street A Santa Ana, CA 92705	N/A[1]	Commercial	Partial	458	No
430-112-04	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	645	No
430-112-05	17132 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	644	No
430-112-06	17092 Pullman Street Irvine, CA 92614	N/A[1]	Industrial	Partial	559	No
430-112-12	1063 McGaw Avenue Irvine, CA 92614	A-Mark Precious Metals, Collateral Finance Corporation, H.R. Harmer, Spectrum Group International, Spectrum Numismatics International, Spectrum Wine Auctions, Stack's Bowers, Teletrade	Commercial	Partial	1,071	No
430-115-01	1021 Duryea Avenue Irvine, CA 92614	Cabinets Plus	Industrial	Partial	3,072	No
430-171-07	1740 E. Garry Avenue Santa Ana, CA 92705	Advanced Plant Engineering Contractors, American Senior Living, Borazzi International, California MHP Management, Carson & Company, CHC Consulting, Cocojojo, Creative Integrated Systems, Creative Transportation, Diamond Roofing, Drink Pass, EFC Foundation, Elite Nursing Services, Energy Data Surveys Vinyl Windows, Gina Skin Care, Global Life Center, Gracorp, Hartley & Associates, HEC Services, Integrated Technology Systems, JTL Design Engineering, Kelsurveys, Inc., Lamaison Construction, Motion Analysis, OBM Global Technology, Powers Marketing Group,	Commercial	Partial	3,107	No

Table 2.3.12 Full and Partial Acquisitions Anticipated Under Alternative 3M (Preferred Alternative)

APN	Address	Business Name(s)	Existing Land Use	Acquisitions		
				Type	Area (sf)	Relocation
		PMG/Zoom Western/SMD, Precision Payroll, Quality Professionals, Quick Processing – Bamma USA, Readwrite Solutions, Raybit Systems, RK Solutions, Rotary Lift, RVM Engineering, Safe Realty Property Management, Sandwich Express, Secret Garden, SEOP, Inc., Shoshin USA, SIG Technologies, South District Patrol, Southwest Express, SWC, Title XI				
430-241-07	1100 Valencia Avenue Tustin, CA 92780	RICOH	Industrial	Partial	31,185	No
430-241-12	1123 Warner Avenue Tustin, CA 92780	N/A[1]	Industrial	Partial	30,875	No
016-221-27	1580 E. Warner Avenue Santa Ana, CA 92705	N/A	Vacant	Full	76,760	No
016-221-28	Brookhollow Drive Santa Ana, CA 92705	N/A	Vacant	Full	37,426	No
016-221-29	S. Grand Avenue Santa Ana, CA 92705	N/A	Vacant	Full	9,055	No
403-072-01	S. Ritchey Street Santa Ana, CA 92705	N/A	Public/ Exempt	Full	1,086	No
403-072-02	S. Ritchey Street Santa Ana, CA 92705	N/A	Public/ Exempt	Full	3,818	No
403-072-03	2201 S. Ritchey Street Santa Ana, CA 92705	Western Exterminator	Industrial	Full	35,611	Yes
411-141-06	Santa Ana, CA 92705	N/A	Vacant	Full	6,547	No
430-012-03	2400 S. Pullman Street Santa Ana, CA 92705	Above & Beyond, Inc., Hand N Hand Patient Care	Industrial/ Warehouse	Full	35,953	Yes

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017)
[1] Partial acquisition would require the demolition of a vacant building.
E. = East S. = South
N/A = Not Applicable sf = square feet

Alternative 3M would require the full acquisition of eight nonresidential parcels, including one city-owned parcel, in the City of Santa Ana. Although the city-owned parcel is exempt from property taxes, the acquisition of the other seven parcels to public ROW would result in $63,265 in property tax revenue losses for local taxing agencies. The full parcel acquisitions would result in the loss of an estimated $11,887 in annual property tax revenue to the City of Santa Ana, which is approximately 0.03 percent of the City of Santa Ana's total annual property tax revenue. The County, the Santa Ana and Tustin Unified School Districts, and other local taxing agencies that receive a share of the property tax from these parcels would also be affected. Partial acquisitions in the cities of Tustin, Santa Ana, and Irvine would result in additional minor reductions in the local property tax assessment roll, further decreasing property tax collections.

The property acquisitions associated with Alternative 3M would result in the displacement of four sales tax-generating businesses within the City of Santa Ana. As discussed above, there is an adequate supply of available replacement properties in which to relocate the displaced businesses within the study area cities. In the event that all four displaced

businesses are relocated within Santa Ana, there would be no net loss of sales tax revenue to that city. However, relocation to a different city would result in a net loss of sales tax revenue to the City of Santa Ana. As shown in Table 2.3.13, the potential annual sales tax revenue loss would be $16,256 for the City of Santa Ana if all four of the businesses are relocated outside of Santa Ana, and $5,420 for the County and $10,836 for the OCTA if they are relocated outside of Orange County. Should undergrounding of utilities be required, a permanent easement may be necessary.

Table 2.3.13 Potential Annual Sales Tax Revenue Losses Related to Business Displacements in the City of Santa Ana for Alternatives 3, 4, and 3M

Jurisdiction	Tax Rate	Taxable Sales	Total Sales Tax Revenue	Business Permits	Average Sales Tax/Business	Sales Tax Loss	Property Tax Loss
City of Santa Ana	0.75%	$3,655,025,000	$27,412,688	$6,745	$4,064	$16,256	$11,887
Orange County Transportation Fund	0.25%	—	$9,137,563	—	$1,355	$5,420	—
OCTA (Measure M)	0.50%	—	$18,275,125	—	$2,709	$10,836	—

Source: *Community Impact Assessment* (2015) and *Supplemental Community Assessment* (2017).
Note: This table represents the maximum sales tax loss that could occur if displaced businesses were relocated outside of Orange County.
OCTA = Orange County Transportation Authority

No Build Alternative

No improvements to SR-55 other than routine maintenance are proposed under the No Build Alternative. The No Build Alternative would not result in property acquisitions; therefore, the No Build Alternative would not result in property or sales tax revenue losses.

2.3.2.4 Avoidance, Minimization, and/or Mitigation Measures

After construction, all TCEs would be restored to their original pre-project or better conditions.

The following measure would be implemented to minimize permanent impacts related to relocations and displacements under all Build Alternatives:

REL-1 Property acquisition will be conducted in compliance with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) (Public Law 91-646, 84 Statutes 1894). The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by federal or federally assisted projects. The Uniform Act provides for uniform and equitable treatment by federal or federally assisted programs of persons displaced from their homes, businesses, or farms and establishes uniform and equitable land acquisition policies.

2.3.3 Environmental Justice

2.3.3.1 Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, signed by President William J. Clinton on February 11, 1994. EO 12898 directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the

Department of Health and Human Services poverty guidelines. For 2014, this was $23,850 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964 and related statutes have also been included in this project. Caltrans' commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix C of this document.

2.3.3.2 Affected Environment

The information in this section is summarized from the *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017). The environmental justice study area includes parts of the cities of Tustin, Santa Ana, and Irvine, including the 11 census tracts shown previously on Figure 2.3-1 (i.e., Census Tracts 525.02, 740.03, 740.04, 744.03, 744.08, 755.05, 755.07, 755.12, 755.13, 755.14, and 755.15).

The term "minority" is defined as persons who identify themselves as Black/African-American, Asian, Native Hawaiian/Pacific Islander, Native American/Native Alaskan, or of Hispanic/Latino origin. "Low-income" is defined based on the Department of Health and Human Services (DHHS) poverty guidelines.

The median household income and percentages of the population in the study area census tracts, the County, and the cities of Tustin, Santa Ana, and Irvine that consist of racial minorities, Hispanics/Latinos, low-income residents, and transit-dependent residents are summarized in Table 2.3.14.

As shown in Table 2.3.14, the median household income in the County is $75,422. The median household income in the City of Irvine ($90,585) is higher than the County, while the median household incomes in the cities of Santa Ana and Tustin ($53,335 and $73,194, respectively) are lower than in the County. The study area census tracts also exhibit a wide range in median household incomes. Census Tract 525.02 has the highest median household income at $94,567, while the median household incomes in Census Tracts 744.03, 744.08, and 755.14 are below $45,000.

The racial minority population percentages in the study area census tracts, the County, and the cities of Tustin, Santa Ana, and Irvine were calculated by determining the number of Black/African-American, Asian, American Indian/Native Alaskan, and Hawaiian/Pacific Islander residents (one race only, as identified by the 2010 Census). As shown in Table 2.3.14, racial minorities comprise approximately 39 percent of the population in the County. Racial minorities comprise a higher percentage of the populations in the study area cities, ranging from approximately 47 percent of the population in Tustin to approximately 54 percent of the population in Santa Ana. Overall, racial minorities comprise a higher percentage of the population in eight of the study area census tracts compared to the County. Census Tracts 744.08 (59.0 percent), 755.14 (58.1 percent), and 755.15 (58.8 percent) have the highest percentage of racial minorities of the census tracts in the study area

Table 2.3.14 Racial Minority, Hispanic/Latino, Low-Income, and Transit-Dependent Populations

Area	Racial Minorities[1]	Hispanic/ Latino Residents[1]	Below Poverty Level[2]	Transit-Dependent Residents[3]	Median Household Income[2]
County					
Orange County	1,179,474 (39.2%)	1,012,973 (33.7%)	12.4%	18.1%	$75,422
Study Area Cities					
City of Tustin	35,811 (47.4%)	30,024 (39.7%)	12.2%	21.0%	$73,194
City of Santa Ana	175,690 (54.1%)	253,928 (78.2%)	21.5%	37.0%	$53,335
City of Irvine	105,160 (48.5%)	19,621 (9.2%)	12.2%	13.9%	$90,585
Study Area Census Tracts					
Census Tract 525.02 (City of Tustin)	2,067 (34.9%)	1,424 (24.1%)	4.7%	17.9%	$94,567
Census Tract 740.03 (City of Santa Ana)	1,671 (53.3%)	2,388 (76.1%)	18.2%	32.2%	$73,578
Census Tract 740.04 (City of Santa Ana)	3,721 (50.0%)	4,364 (58.6%)	6.7%	24.8%	$64,602
Census Tract 744.03 (City of Santa Ana)	2,892 (50.8%)	5,382 (94.6%)	29.4%	49.6%	$34,861
Census Tract 744.08 (City of Tustin)	3,188 (59.0%)	4,212 (78.0%)	18.9%	35.0%	$43,239
Census Tract 755.05 (City of Tustin)	1,344 (37.4%)	1,478 (41.1%)	9.7%	16.8%	$63,954
Census Tract 755.07 (City of Tustin)	2,460 (47.4%)	2,582 (49.8%)	15.2%	26.4%	$55,372
Census Tract 755.12 (City of Tustin)	1,924 (54.3%)	2,036 (57.4%)	5.4%	28.8%	$53,750
Census Tract 755.13 (City of Tustin)	2,687 (53.0%)	2,737 (53.9%)	11.4%	38.8%	$61,250
Census Tract 755.14 (City of Tustin)	2,150 (58.1%)	2,455 (66.3%)	26.4%	38.3%	$42,554
Census Tract 755.15 (Cities of Tustin, Santa Ana, and Irvine)	8,990 (58.8%)	5,803 (37.9%)	11.3%	21.1%	$76,591

Source: *Community Impact Assessment* (2015).

[1] From the 2010 Census. The Hispanic/Latino population is not considered a race but rather an ethnicity; therefore, the Hispanic/Latino category may include more than one race.

[2] From the 2009–2013 American Community Survey.

[3] Calculated by determining the number of persons in households who are eligible to drive but do not have access to a vehicle, based on 2009–2013 ACS data.

As shown in Table 2.3.14, Hispanics/Latinos represent approximately 34 percent of the County population. In the cities of Irvine, Tustin, and Santa Ana, Hispanics/Latinos comprise 9 percent, 40 percent, and 78 percent of the populations, respectively. Ten of the study area census tracts exhibit higher Hispanic/Latino populations than the County overall. Substantial Hispanic/Latino population concentrations exist in Census Tracts 740.03 (76 percent), 744.03 (95 percent), and 744.08 (78 percent).

As shown in Table 2.3.14, the percentage of persons living below the poverty level was substantially higher in the City of Santa Ana (21.5 percent) than in the County (12.4 percent), while the percentages of persons living below the poverty level in the City of Tustin (12.2 percent) and the City of Irvine (12.2 percent) were similar to that of the County. Five census tracts exhibited a higher percentage of persons living below the poverty level than did the County. The percentages of persons living below the poverty level in two census tracts (i.e., Census Tracts 744.03 and 755.14) were substantially higher than the County at approximately 29.4 percent and 26.4 percent, respectively.

The transit-dependent population was calculated by determining the number of persons in households who are eligible to drive but do not have access to a vehicle. As shown in Table 2.3.13, the percentage of transit-dependent residents in the City of Tustin (21.0 percent) is similar to that in the County (18.1 percent), while the percentage of transit-dependent residents in the City of Irvine (13.9 percent) is lower than that in the County. The City of Santa Ana (37.0 percent) has a much higher percentage of transit-dependent residents than the County. Of the 11 census tracts in the study area, 9 exhibit higher percentages of transit-dependent residents than the County. Census Tract 744.03 (49.6 percent) has the highest percentage of transit-dependent residents, and Census Tract 755.05 (16.8 percent) has the lowest.

In summary, several census tracts in the study area exhibit several environmental justice indicators that may contain low-income populations, people living below the poverty level, transit-dependent residents, and minority populations. In particular, Census Tract 744.03 has the lowest median household income, the highest percentage of racial minorities, the highest percentage of persons living below the poverty level, and the highest percentage transit-dependent population.

2.3.3.3 Environmental Consequences

Temporary Impacts

Build Alternatives

Construction activities associated with the Build Alternatives would temporarily affect residents and businesses throughout the entire project area, including low-income and minority populations. Those impacts would include temporary disruptions of local traffic patterns and access to residences and businesses during overnight mainline, ramp, and local arterial closures as well as increased traffic congestion, noise levels, and dust. However, environmental justice populations would not be disproportionately impacted.

The project construction activities would also provide jobs that would benefit local economies, including low-income and minority populations.

As described in further detail in Section 2.12, Hazardous Waste/Materials, seven of the parcels that would be fully or partially acquired under the Build Alternatives were identified as having hazardous waste concerns. As shown in Table 2.3.15 below, of these seven parcels, all are located in census tracts where low-income and minority populations are known to be present.

Table 2.3.15 Properties Proposed for Full and Partial Acquisitions with Hazardous Waste Concerns

APN	Census Tract Location	Environmental Justice Population Present?
402-111-24	744.03	Yes
403-041-07	744.03	Yes
403-072-01	744.03	Yes
403-072-02	744.03	Yes
427-261-08	755.15	Yes
430-012-03	755.15	Yes
430-241-12	755.15	Yes

Sources: *Initial Site Assessment* (2013) and *Community Impact Assessment* (2015).

Although all of the parcels shown in Table 2.3.15 are located near environmental justice populations, implementation of Measures HAZ-1, HAZ-4, HAZ-5, and HAZ-6, which are described in further detail in Section 2.12.4, Avoidance, Minimization, and/or Mitigation Measures, would address any risks associated with the following hazards identified on these parcels: contaminated soil and groundwater; asbestos-containing materials (ACMs), lead-based paint (LBP), mercury, and/or chlorofluorocarbons; residual contamination from a dispenser piping leak; hazardous chemicals associated with automotive-related businesses; and residual pesticides and herbicides in subsurface soils due to historic agricultural uses.

Because the identified hazardous materials risks would be located far from residential populations and the implementation of the avoidance and minimization measures identified above would avoid and/or minimize potential effects related to hazardous materials and hazardous wastes during construction of the Build Alternatives, environmental justice populations would not be disproportionately impacted.

No Build Alternative

Under the No Build Alternative, the temporary construction-related adverse effects on all populations, including low-income and minority (environmental justice) populations, during construction of the Build Alternatives would not occur. However, these environmental justice populations also would not gain any economic benefit from the construction of the Build Alternatives.

Permanent Impacts

Build Alternatives

None of the Build Alternatives would require the acquisition of residential properties or the displacement of residents. Therefore, all Build Alternatives would not result in adverse effects on minority and low-income populations related to the acquisition of residential uses and/or the displacement of residents.

Alternatives 1 and 2 would displace one business, while Alternatives 3, 4, and 3M would displace four businesses. Despite the fact that each of the businesses that would be displaced by the Build Alternatives is located in a census tract where low-income and minority populations reside, as described above in Section 2.3.1.3, Environmental Consequences, all three of the businesses that could be displaced provide specialized services that are likely to be marketed to the broader region rather than simply the adjacent communities, and one of the businesses is a relatively new business to the area. Therefore, their relocation is not anticipated to result in any damage or disruption to the social fabric of the communities in which they are located.

In Orange County, businesses typically hire employees from throughout the broader region, especially for higher-paying positions. Therefore, it can be difficult to determine whether a business employs a large percentage of low-income or minority populations using Census data, which is derived from responses provided by nearby residents. Because none of the businesses appear to exhibit any unique characteristics that suggest their employment base is primarily drawn from the census tract in which they are located, their relocation is not likely to disproportionately affect minority or low-income populations.

Although each of the Build Alternatives would result in permanent noise level increases along the SR-55 corridor within the project area, most of the noise level increases at the residential receptors would be barely perceptible (it is generally accepted that the average healthy ear can barely perceive a noise level change of 3 decibels [dBA]). Therefore,

because the noise level increases under the Build Alternatives would be minimal, low-income and minority populations would not be adversely affected.

The Build Alternatives would benefit all study area residents, including low-income and minority populations, by improving mobility and circulation throughout the study area and the central Orange County. Therefore, the Build Alternatives would improve traffic patterns and mobility for all residents, including low-income and minority persons. Transit-dependent populations would also benefit from improved travel speeds for bus routes operating on SR-55 during peak hours.

Based on the above discussion and analysis, the Build Alternatives will not cause disproportionately high and adverse effects on any minority or low-income populations per EO 12898 regarding environmental justice.

No Build Alternative

No improvements to SR-55 other than routine maintenance are proposed under the No Build Alternative. Therefore, the No Build Alternative would not result in property acquisition or permanent increases in noise levels that would impact populations in the area, including low-income and minority populations. However, the No Build Alternative would also not provide transportation benefits to populations in the area, including low-income and minority populations that would occur under the Build Alternatives.

2.3.3.4 Avoidance, Minimization, and/or Mitigation Measures

Although the Build Alternatives would not result in disproportionate impacts on environmental justice populations during construction, measures included in the Build Alternatives would reduce temporary construction traffic, noise, and air quality impacts on all populations in the study area, including environmental justice populations.

Temporary construction impacts on environmental justice populations would be minimized by implementation of Measure T-1, which is provided in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. Measure T-1 requires development and implementation of a TMP during construction of the Build Alternatives to: address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers.

Temporary air quality impacts would be minimized by implementation of Measures AQ-1 through AQ-5, which are detailed in Section 2.13, Air Quality. These measures require the control of dust and equipment emissions during construction of the Build Alternatives. These measures would benefit all persons in the project area, including environmental justice populations.

Temporary noise impacts would be minimized by implementation of Measure N-1, which is detailed in Section 2.14, Noise. Measure N-1 requires the construction contractor to comply with Caltrans Standard Specifications, Section 14-8.02, “Noise Control,” during construction of the Build Alternatives. These measures would benefit all persons in the project area, including environmental justice populations.

The Build Alternatives would not result in permanent adverse effects on environmental justice populations; therefore, no avoidance, minimization, and/or mitigation measures are required.

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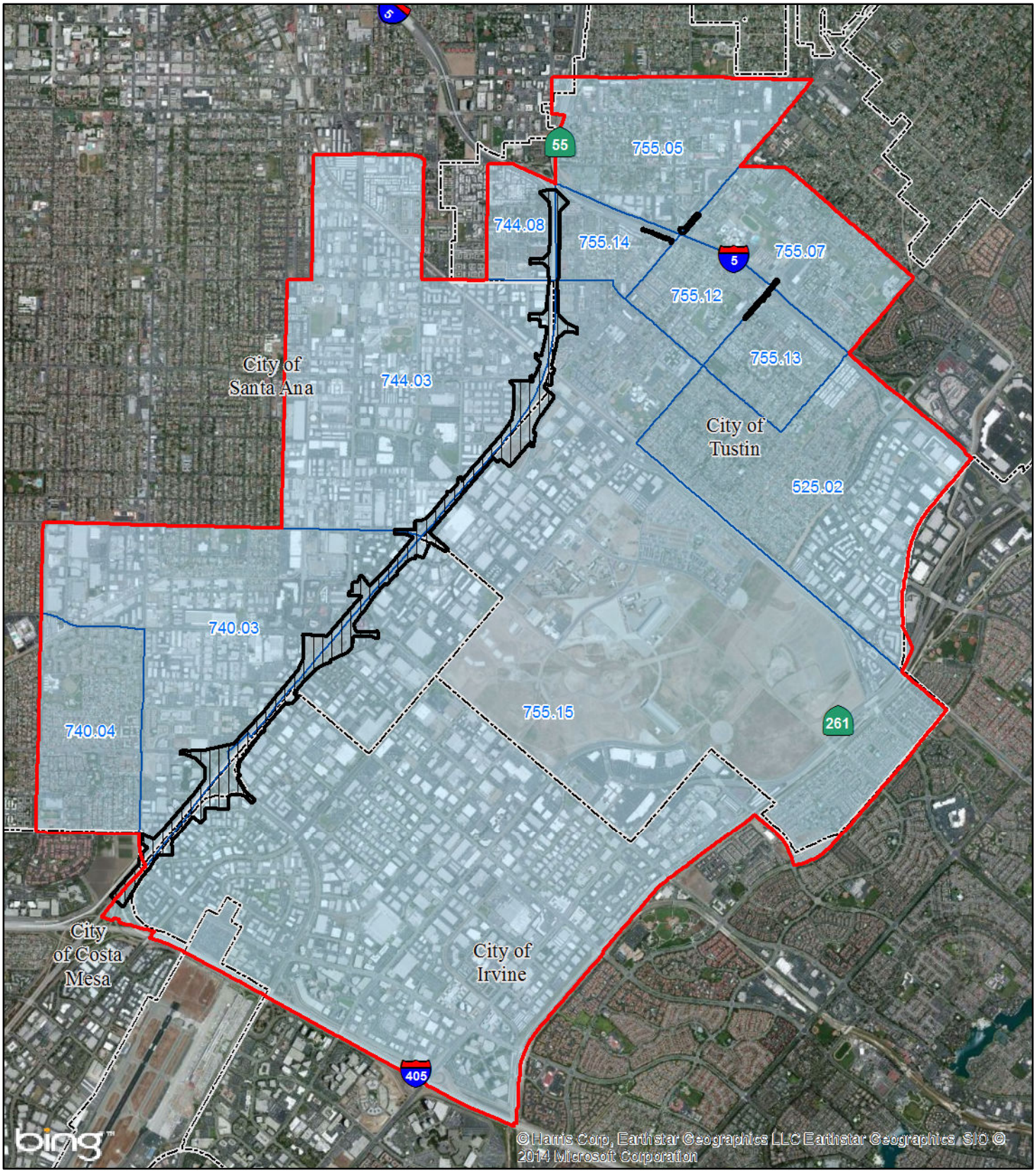

LEGEND

- Project Area
- City Boundary
- 2010 Census Tract Boundaries
- Study Area

0 1750 3500

FEET

SOURCE: Bing Maps (c. 2010); Census Bureau (2010)

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FIGURE 2.3-1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Project and Study Area Boundaries and Census Tracts

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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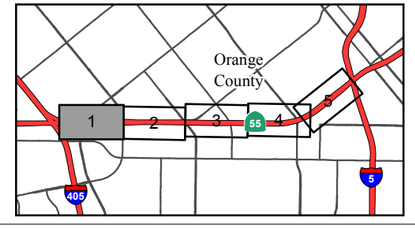

FIGURE 2.3-2
Sheet 1 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW Acquisition Impacts

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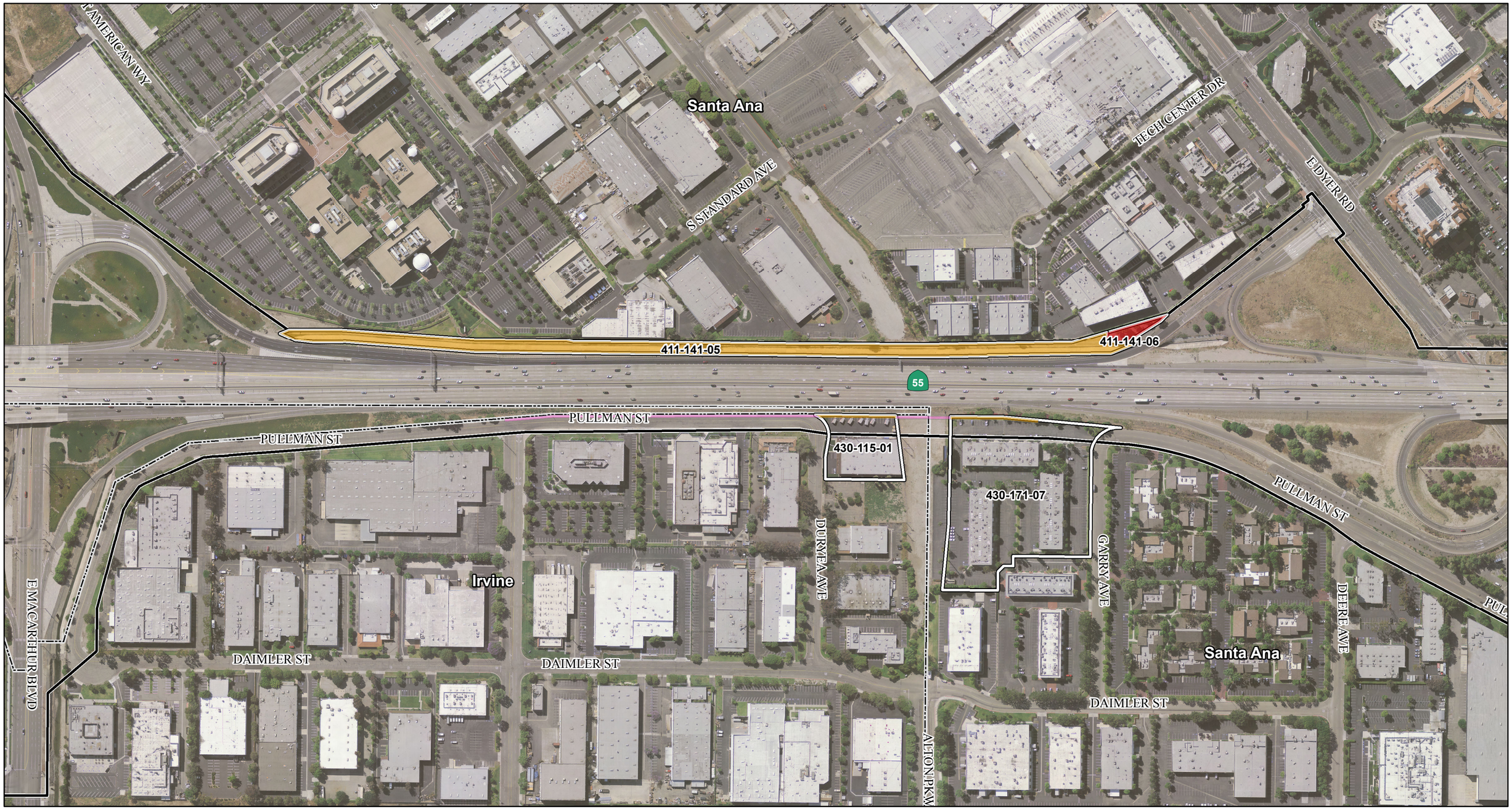

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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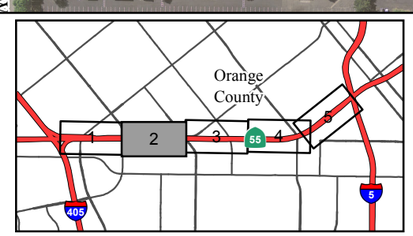

FIGURE 2.3-2
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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Santa Ana
S HOTEL TERRACE DR
S GRAND AVE
016-221-29
016-221-28
016-221-27
BROOKHOLLOW DR
BROOKHOLLOW DR
E NEWPORT CIR
S RITCHEY ST
55
E DYER RD
S PULLMAN ST
430-031-03
430-031-09
430-012-04
430-012-03
E WARNER AVE
S PULLMAN ST
430-241-12
PULLMAN ST
Santa Ana
E CARNEGIE AVE
Tustin

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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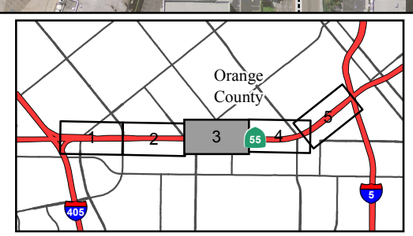

FIGURE 2.3-2
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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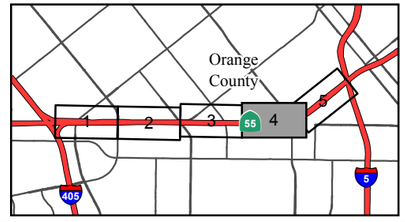

FIGURE 2.3-2
Sheet 4 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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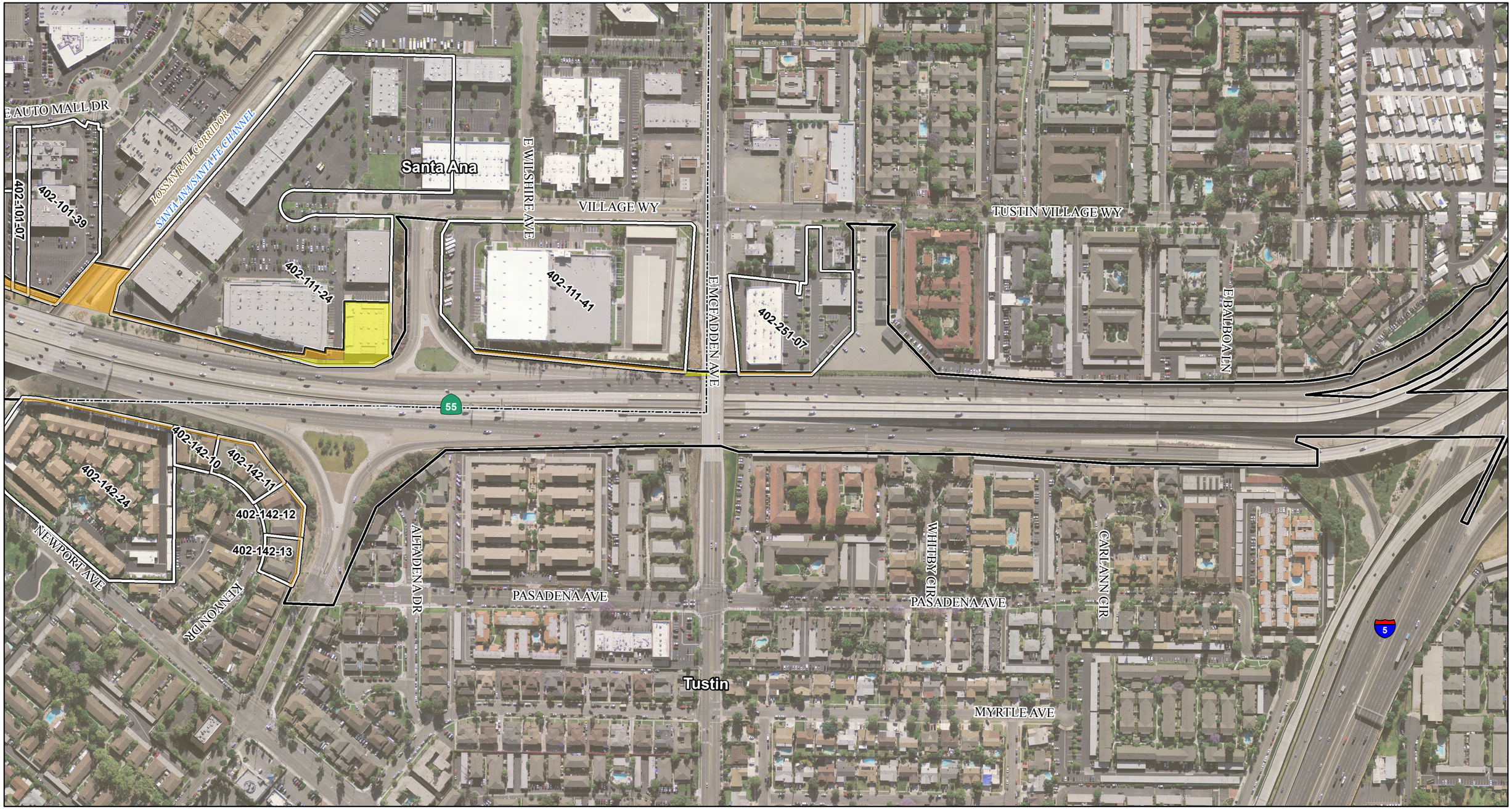

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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FIGURE 2.3-2
Sheet 5 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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Costa Mesa
Santa Ana
Unincorporated
Irvine
SUNFLOWER AVE
MAIN ST
S MAIN ST
E SANDPOINTE AVE
MACARTHUR PL
55
427-282-14
427-282-15
427-261-05
427-261-06
427-261-07
427-261-08
427-261-09
427-261-10
427-262-06
427-262-02
COWAN
MCDURMOTT W
HICH
MITCHELL
E MACARTHUR BLVD

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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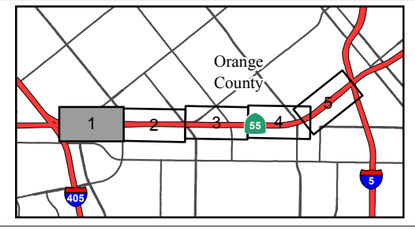

FIGURE 2.3-3
Sheet 1 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 2 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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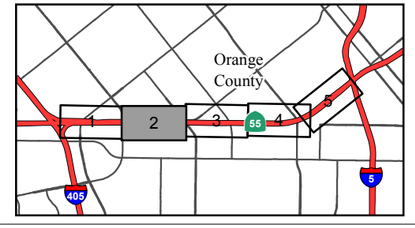

FIGURE 2.3-3
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 2 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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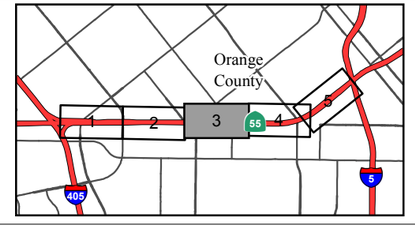

FIGURE 2.3-3
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 2 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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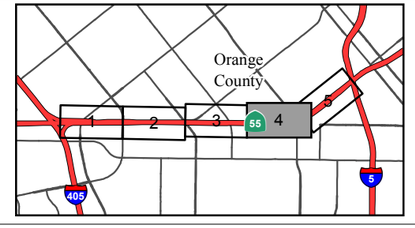

FIGURE 2.3-3
Sheet 4 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 2 ROW Acquisition Impactss

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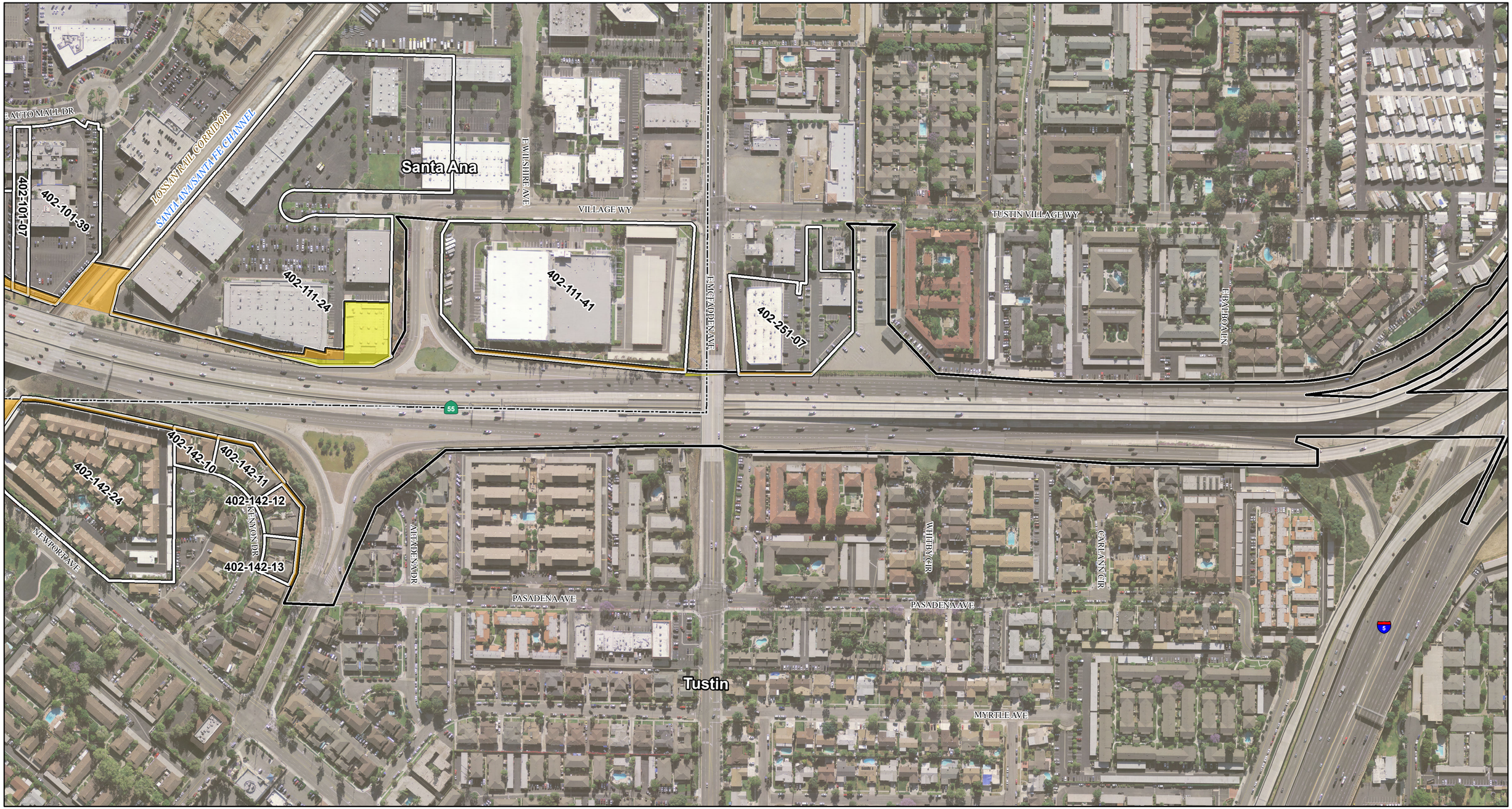

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

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FIGURE 2.3-3
Sheet 5 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 2 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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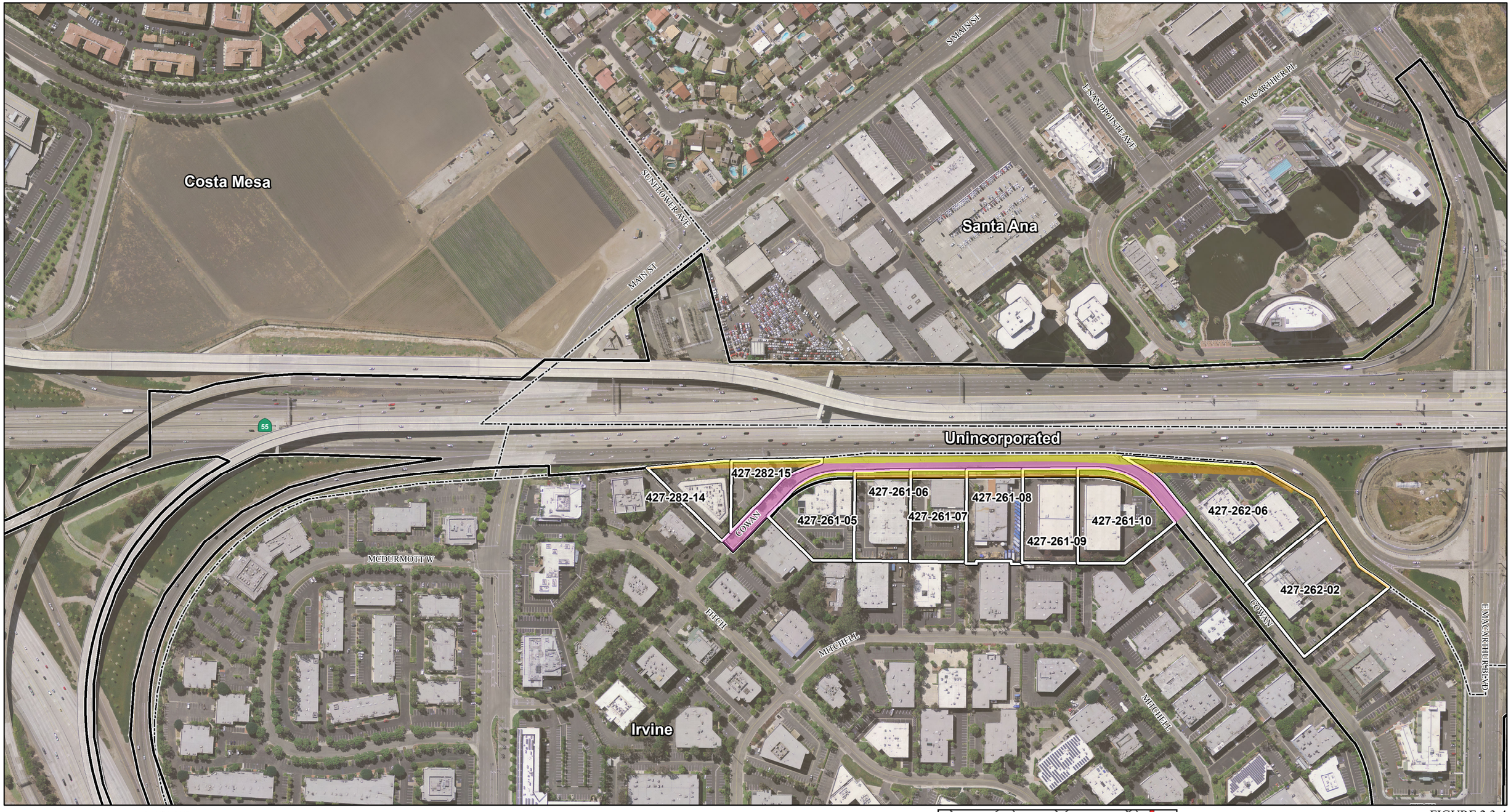

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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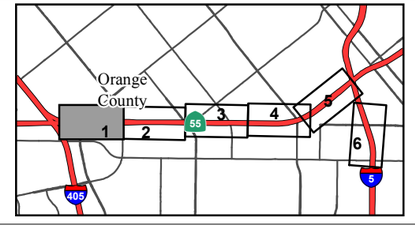

FIGURE 2.3-4
Sheet 1 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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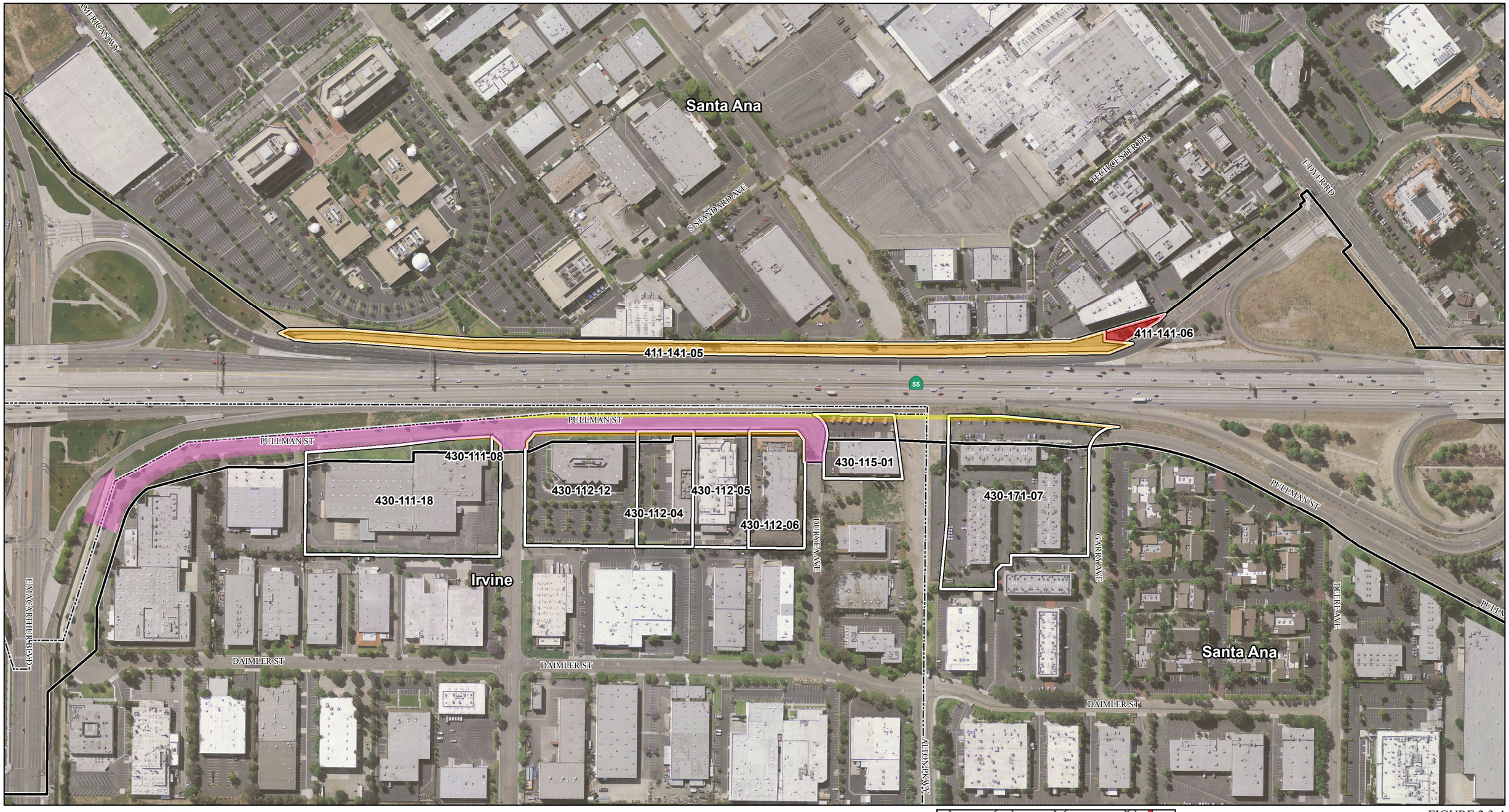

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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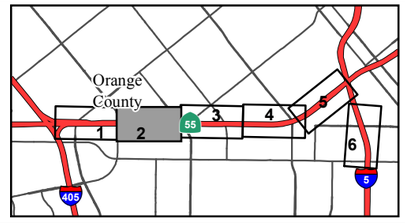

FIGURE 2.3-4
Sheet 2 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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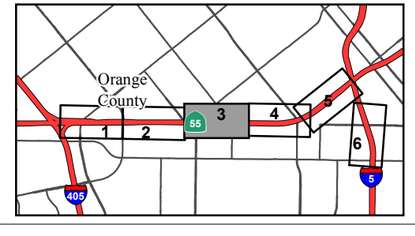

FIGURE 2.3-4
Sheet 3 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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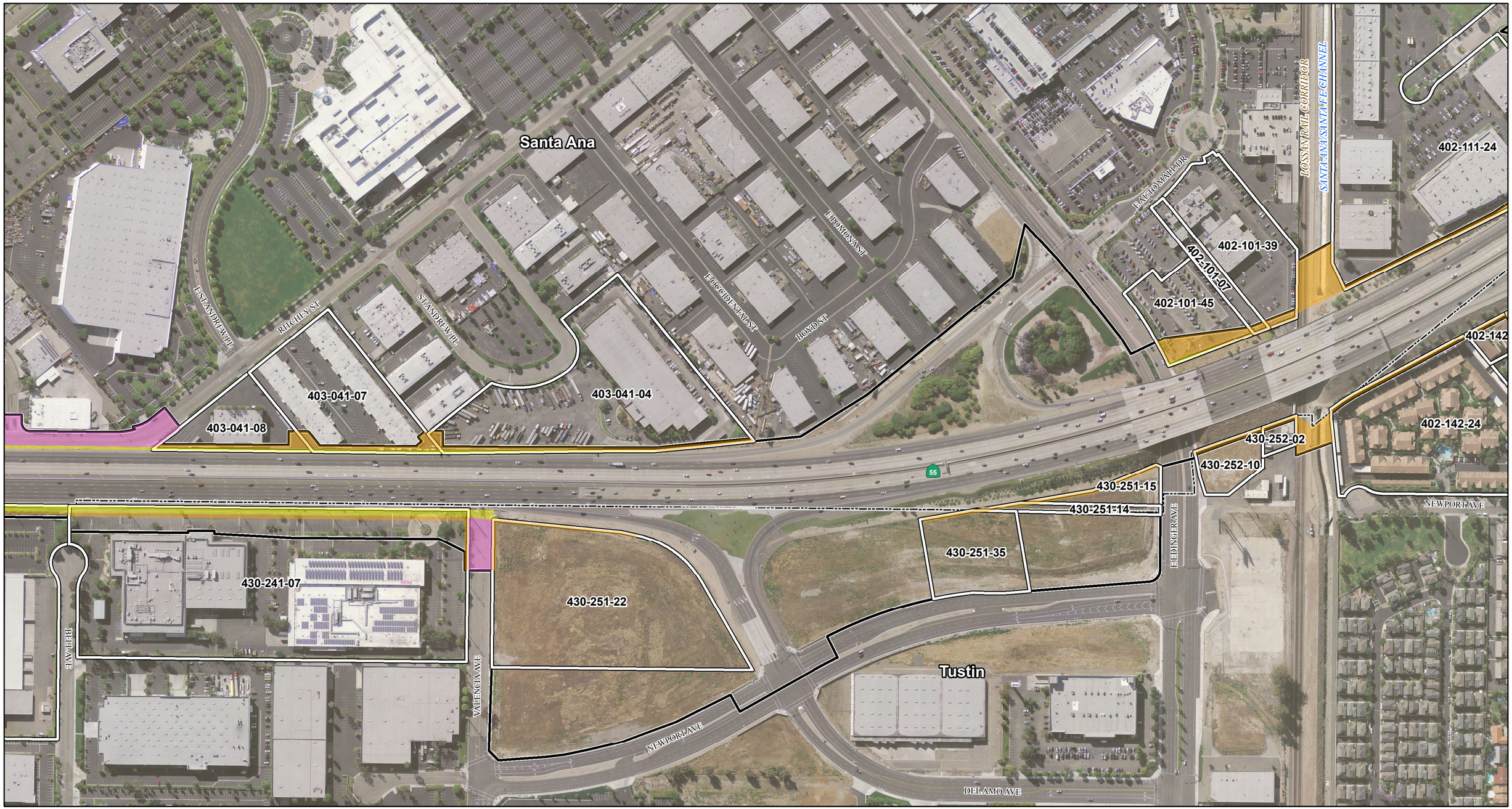

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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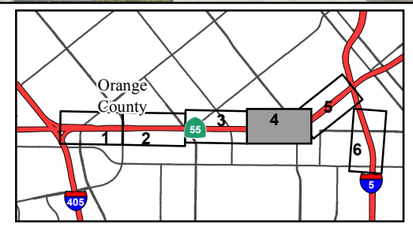

FIGURE 2.3-4
Sheet 4 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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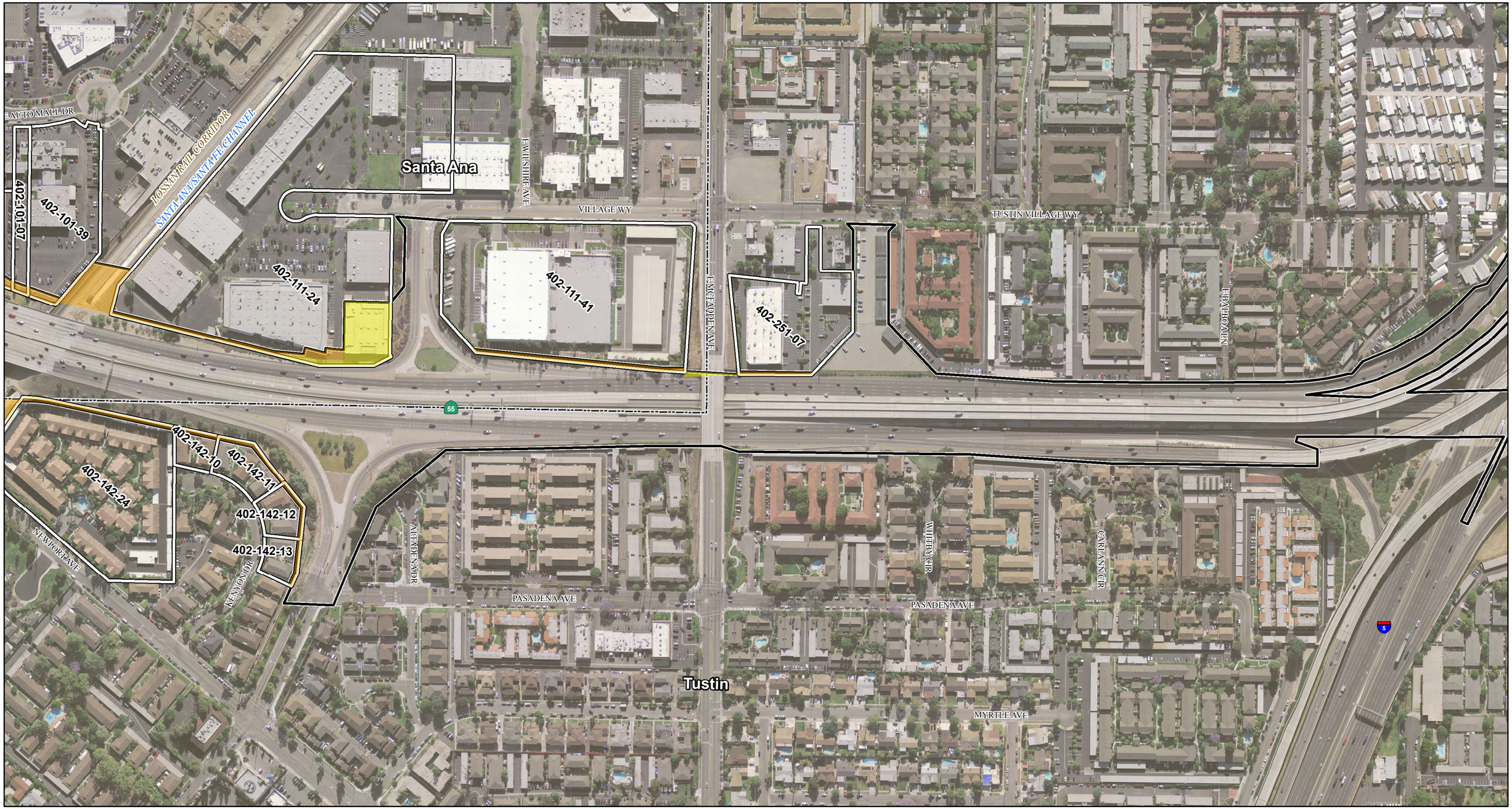

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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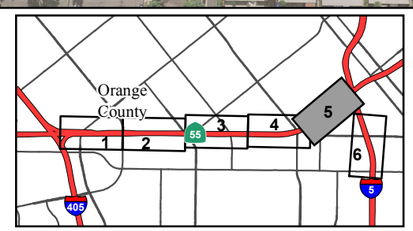

FIGURE 2.3-4
Sheet 5 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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Tustin

EL CAMINO REAL

6TH ST

NEWPORT AVE

MITCHELL AVE

RED HILL AVE

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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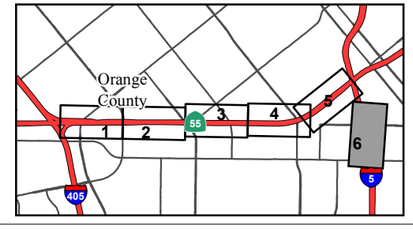

FIGURE 2.3-4
Sheet 6 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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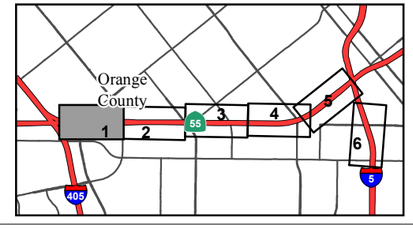

FIGURE 2.3-5
Sheet 1 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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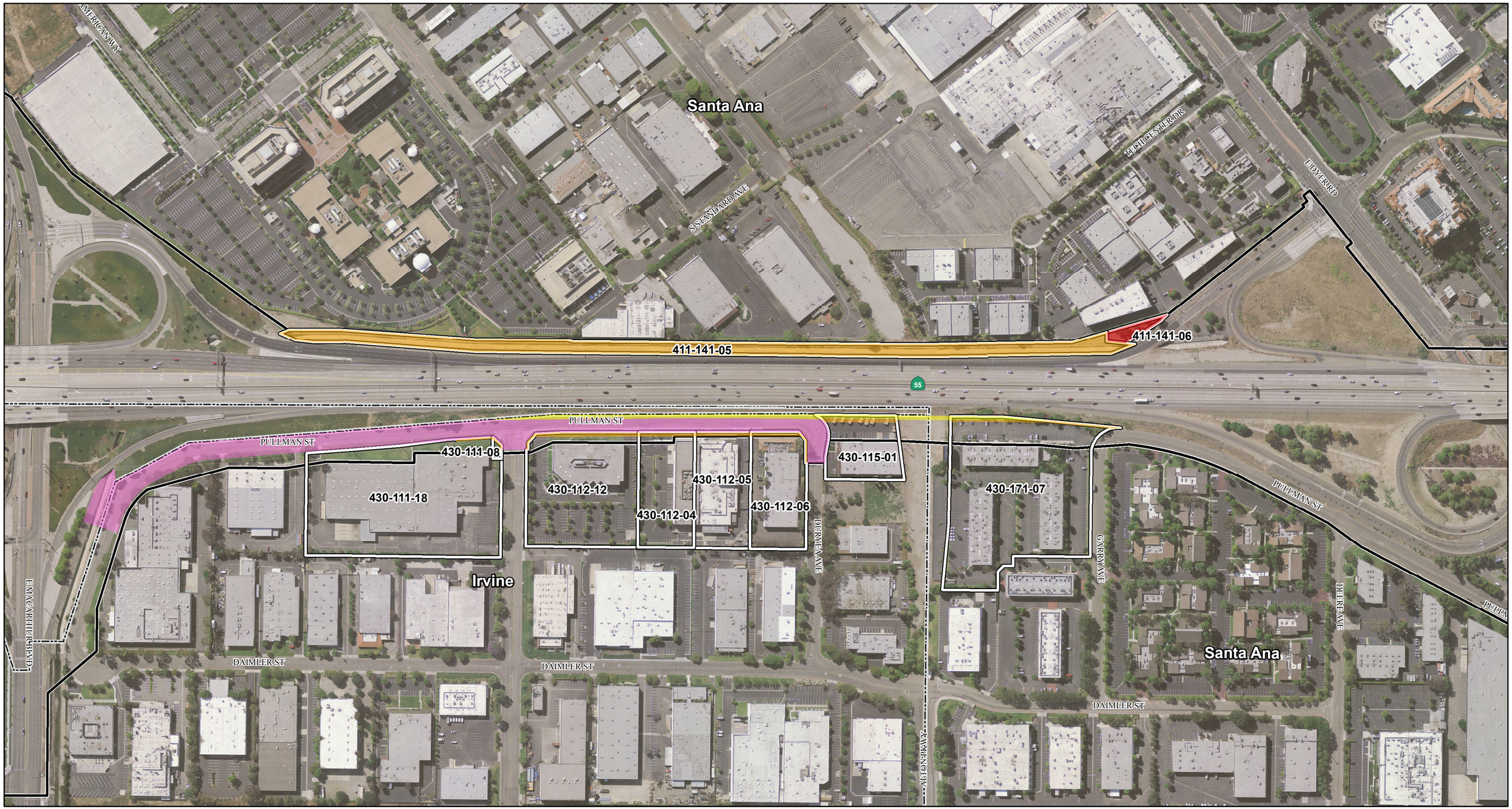

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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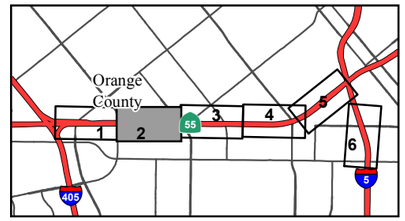

FIGURE 2.3-5
Sheet 2 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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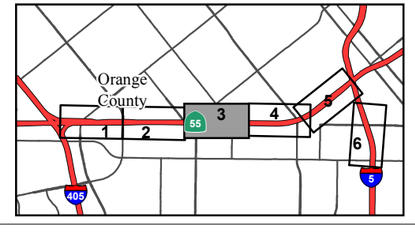

FIGURE 2.3-5
Sheet 3 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
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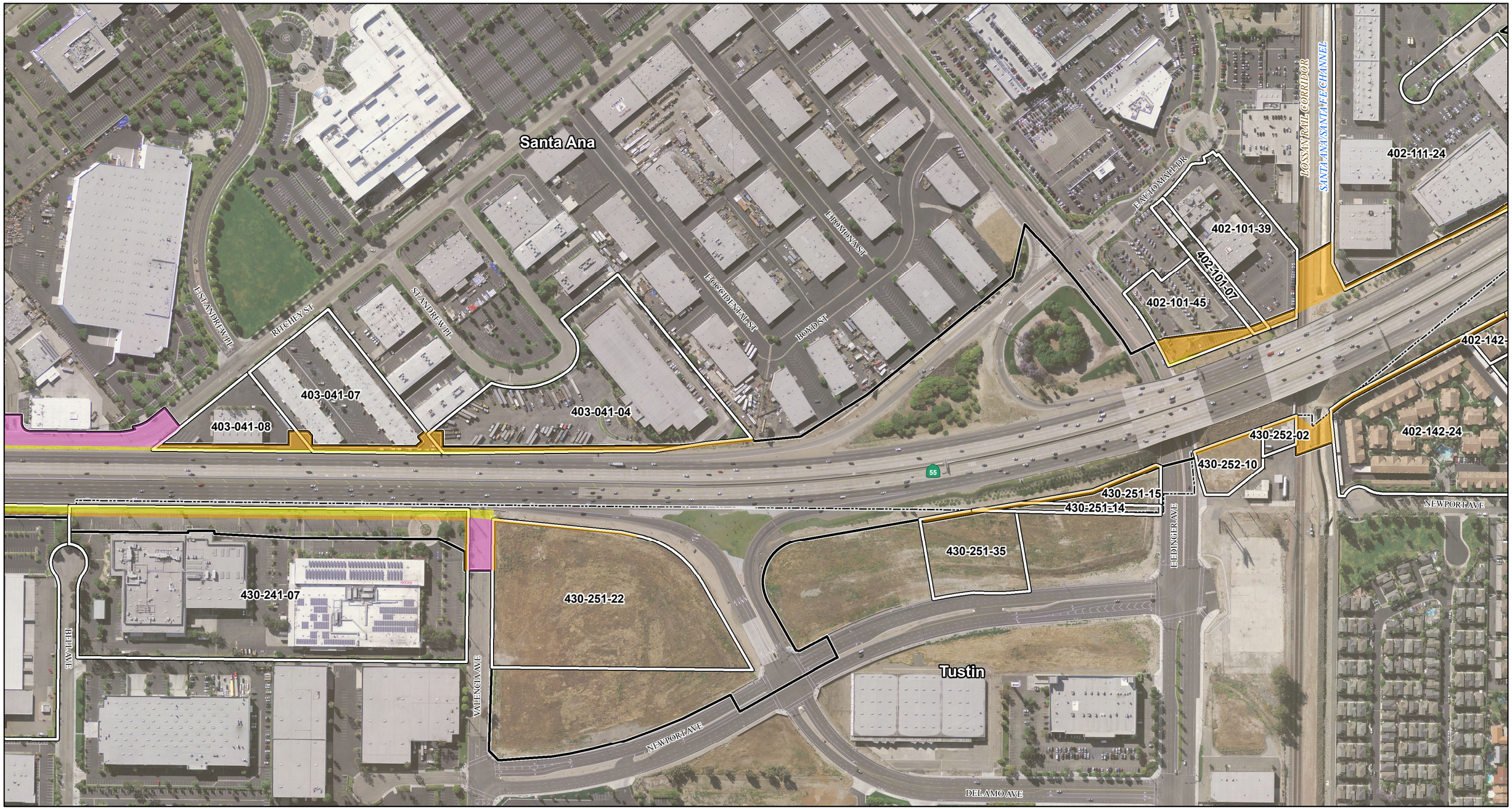

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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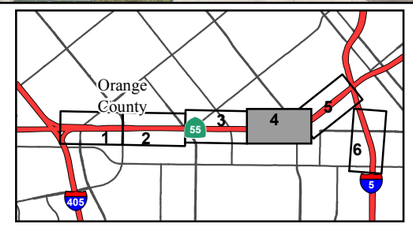

FIGURE 2.3-5
Sheet 4 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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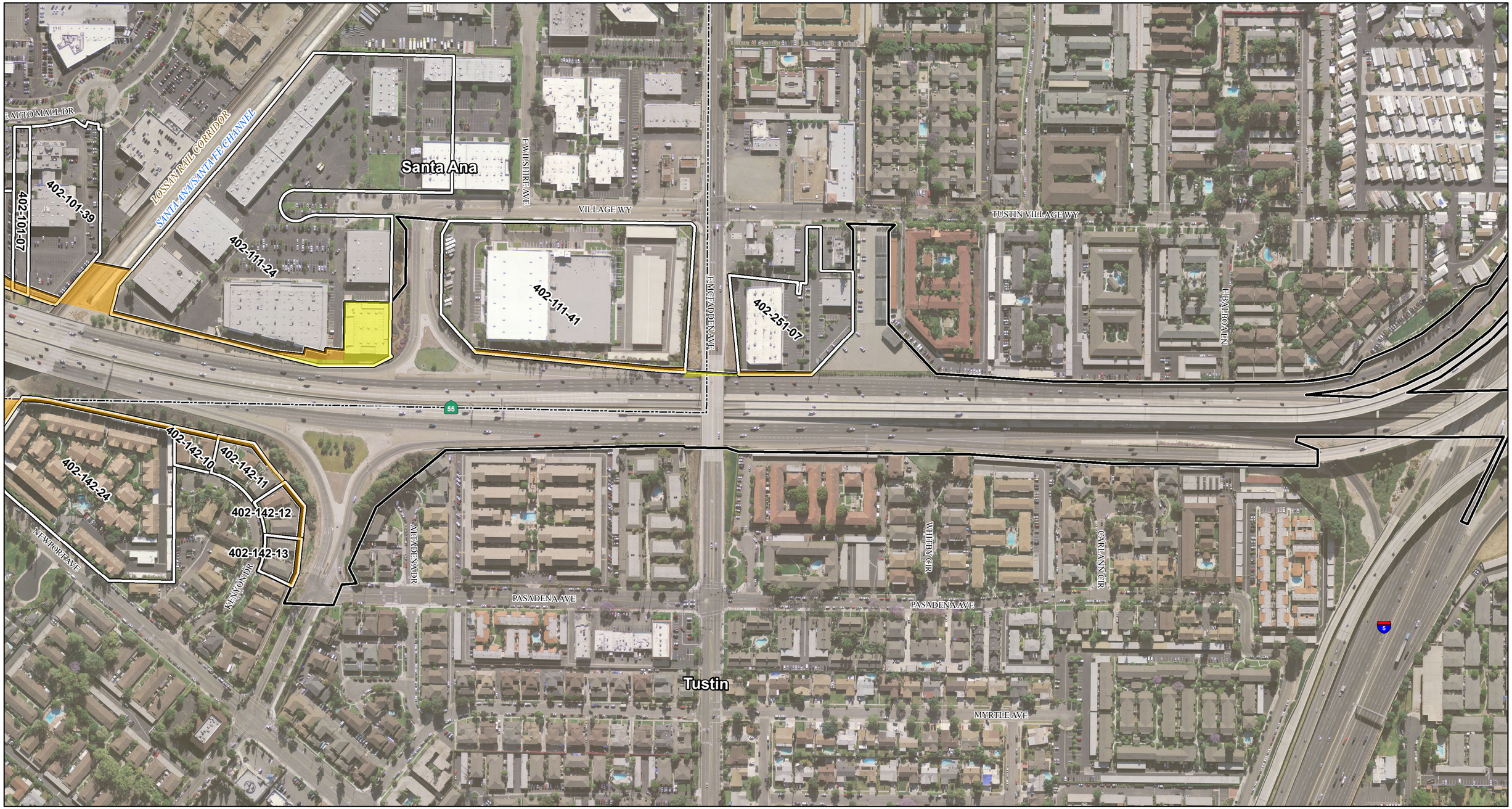

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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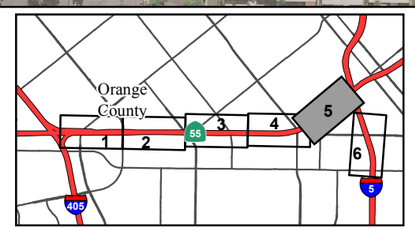

FIGURE 2.3-5
Sheet 5 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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Tustin
6TH ST
EL CAMINO REAL
NISSON RD
NEWPORT AVE
MITCHELL AVE
RED HILL AVE

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (02/05/2014)

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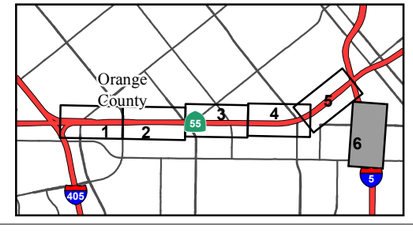

FIGURE 2.3-5
Sheet 6 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 4 ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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Costa Mesa
Santa Ana
Unincorporated
Irvine
SUNFLOWER AVE
MAIN ST
S MAIN ST
E SANDPOINTE AVE
MACARTHUR PL
MCDURMOTT W
FITCH
MITCHELL
COWAN
E MACARTHUR BLVD
55
427-282-15
427-282-14
427-261-06
427-261-05
427-261-07
427-261-08
427-261-09
427-261-10
427-262-06
427-262-02

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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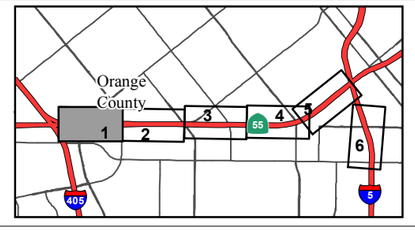

FIGURE 2.3-6
Sheet 1 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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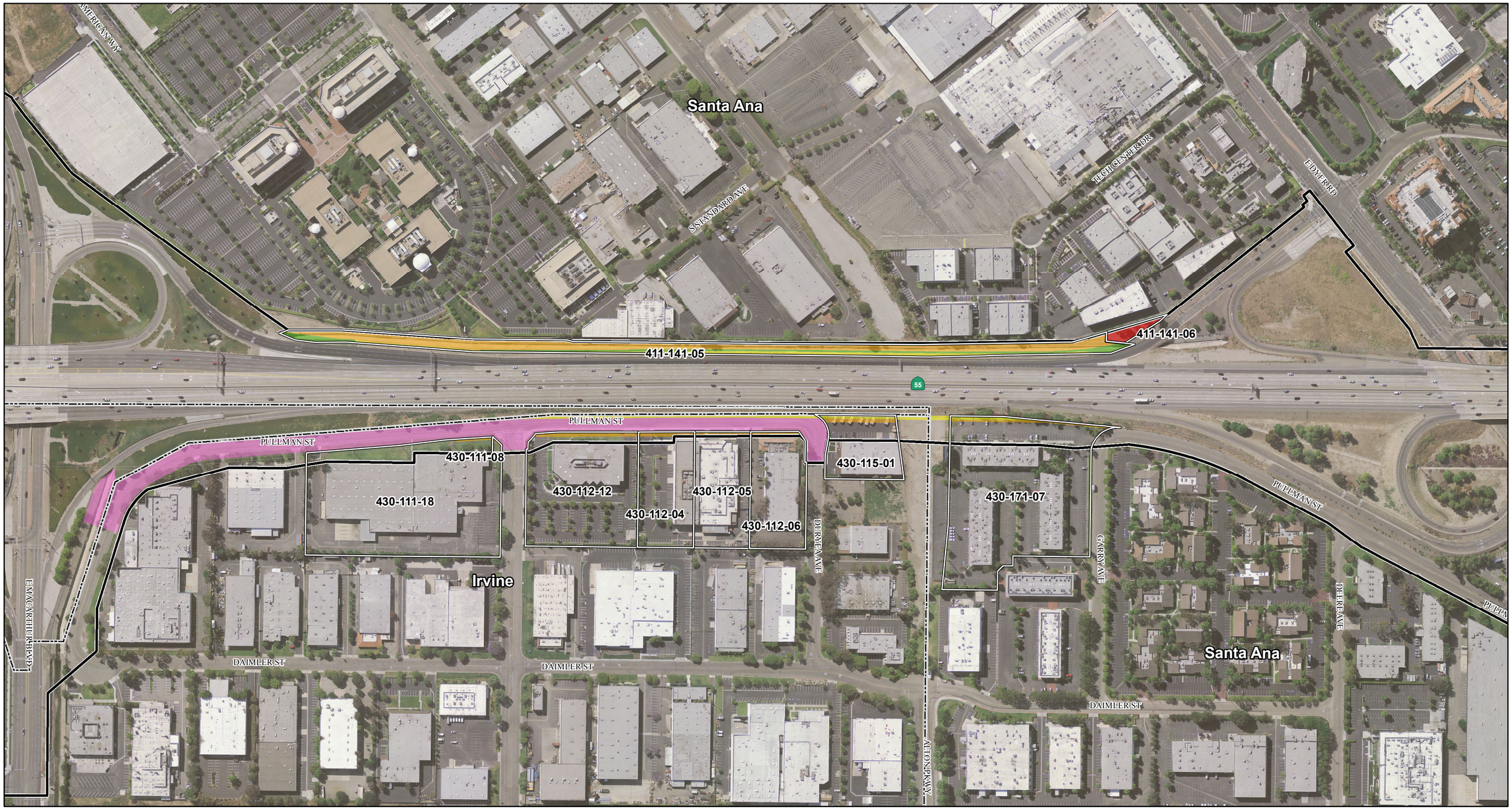

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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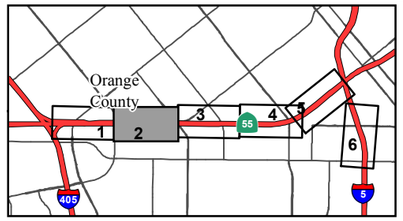

FIGURE 2.3-6
Sheet 2 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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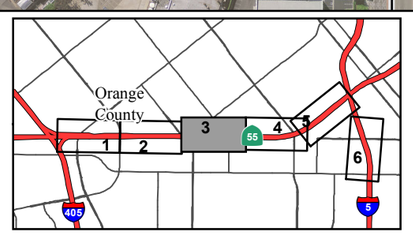

FIGURE 2.3-6
Sheet 3 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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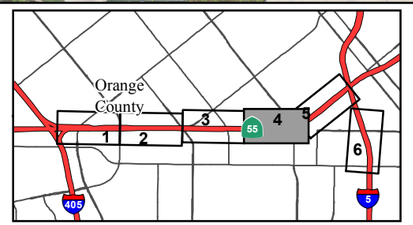

FIGURE 2.3-6
Sheet 4 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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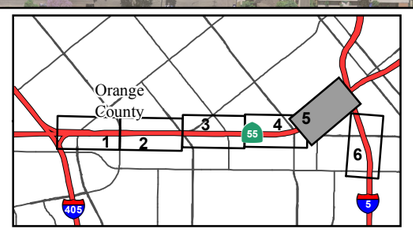

FIGURE 2.3-6
Sheet 5 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (11/18/2016)

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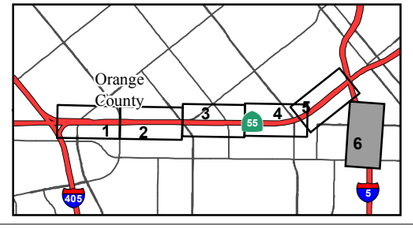

FIGURE 2.3-6
Sheet 6 of 6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 3M (Preferred Alternative) ROW Acquisition Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

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2.4 Utilities and Emergency Services

This section is based on information from the *Community Impact Assessment* (CIA, 2015) and the *Supplemental Community Impact Assessment* (2017).

2.4.1 Affected Environment

This section describes the existing utilities and emergency services facilities and providers in the project area (the maximum disturbance limits for the Build Alternatives) and a study area extending 0.5 mile (mi) from the limits of the project area.

2.4.1.1 Utilities

The following utility providers have facilities located within the study area along the project segment of State Route 55 (SR-55):

- **Southern California Edison:** Overhead and underground transmission lines, transformers, and power poles
- **Southern California Gas Company:** Underground distribution pipelines and 30-inch-diameter, high-pressure pipelines
- **AT&T:** Telecommunication cables and a cell tower
- **Time Warner:** Telecommunication cables
- **City of Santa Ana:** Water service lines, fire service lines, and sewer lines
- **Orange County Sanitation District:** Sewer lines
- **Irvine Ranch Water District:** Water service lines, fire service lines, and sewer lines
- **Mobil Oil:** 36-inch-diameter gas line

2.4.1.2 Fire Protection

Fire protection and emergency medical/paramedic services in the Cities of Santa Ana, Tustin, and Irvine in the study area are provided by the Orange County Fire Authority under contract to those cities. There are two Orange County Fire Authority fire stations located within 0.5 mi of the Study Area: Stations #37 (14901 Red Hill Avenue, Tustin) and #79 (1320 Warner Avenue, Santa Ana). The nearest Orange County Fire Authority station in Irvine (i.e., Station #28) is approximately 1.0 mi east of the study area.

The Costa Mesa Fire Department provides fire protection services in the City of Costa Mesa. There is one Costa Mesa Fire Department station (the Metro Fire Station at 3350 Sakioka Drive) located within 0.5 mi of the study area.

2.4.1.3 Police Protection

Police protection services in the study area are provided by the police departments in the Cities of Tustin, Santa Ana, and Irvine. There is one police station located within 0.5 mi of the study area: Tustin Police Department (300 Centennial Way, Tustin). The other nearest police stations are 1.9 mi northwest of the study area in Santa Ana and 2.1 mi east of the study area in Irvine.

Police services on freeways in California, including SR-55, are provided by the California Highway Patrol. The nearest California Highway Patrol office is approximately 1.8 mi north of the study area in the City of Santa Ana.

2.4.2 Environmental Consequences

2.4.2.1 Temporary Impacts

Build Alternatives

The construction of the Build Alternatives could affect existing underground and overhead utility facilities, which could require protection in-place, removal, replacement, or relocation. The utility facilities that could potentially be affected during construction of the Build Alternatives are listed in Table 2.4.1. An updated utility search would be conducted during final design to determine all utility conflicts that would require protection in-place or relocation. Completion of the utility work described in Table 2.4.1 may result in temporary service disruptions to some utility users in the vicinity of the project area; however those disruptions would generally not exceed 3 hours.

During construction of the Build Alternatives, some impairment to the delivery of emergency services, including fire and police response times, may occur during overnight mainline, ramp, and arterial closures. All of the Build Alternatives would require the overnight closure of the southbound SR-55 mainline between MacArthur Boulevard and Interstate 405 (I-405) and between Dyer Road and MacArthur Boulevard. In addition, the overnight closure of the northbound SR-55 mainline between Edinger Avenue and McFadden Avenue would be required. Detour routes would be provided to direct traffic around the mainline closures using the local arterial street network. Emergency services providers (including the local fire and police departments and the California Highway Patrol) could experience these travel

Table 2.4.1: Potential Effects on Utility Facilities During Construction of Build Alternatives

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
City of Santa Ana	12" water line in 20" casing	SR-55 crossing would be relocated (jack and bore)	●	●	●	●	●
	24" water line in 30" casing	SR-55 crossing would be relocated (jack and bore)	●	●	●	●	●
	Pressure reducing facility	Would be reconstructed west of SR-55	●	●	●	●	●
	3 fire hydrants, 3 water service lines, 3 fire service lines, and 5 valve cans	Would be relocated along Pullman Street between Dyer Road and Warner Avenue			●	●	●
	16" water line	Would be relocated along Ritchey Street on the west side of SR-55			●	●	●
Irvine Ranch Water District	8" vitrified clay pipe sewer	Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard, with a new manhole		●	●		●
	5 fire hydrants, 6 water service lines, 6 fire service lines, and 10 valve cans	Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard		●	●		●
Orange County Sanitation District	Sewer manhole	Would be removed from NB SR-55	●	●	●	●	●
	Sewer manhole	Would install new manhole on the east side of NB SR-55	●	●	●	●	●
	24" vitrified clay pipe sewer	Casing for the sewer line crossing would be extended east and west of SR-55	●	●	●	●	●
	15" vitrified clay pipe sewer	Would be relocated along the west side of SB SR-55	●	●	●	●	●
	15" vitrified clay pipe sewer	Would be relocated along Ritchey Street on the west side of SR-55			●	●	●
Southern California Edison (electricity)	Overhead 66 kV transmission line	Would be relocated underground along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard	●	●	●	●	●
	Overhead 66 kV transmission line	Would be relocated along the north and south sides of MacArthur Boulevard on the east side of SR-55	●	●	●	●	●
	Overhead 66 kV transmission line	Would be relocated with four steel and two wood poles along Pullman Street on the east side of SR-55 between MacArthur Boulevard and McGaw Avenue	●	●	●	●	●
	Overhead 66 kV transmission line	Would be relocated underground along Pullman Street on the east side of SR-55 between Garry Avenue and Carnegie Avenue	●	●	●	●	●
	Underground transmission line	Would be protected in place under NB SR-55.	●	●	●	●	●
	Overhead 66 kV transmission lines	Would be relocated underground along Pullman Street on the east side of SR-55 and Warner Avenue	●	●	●	●	●
	Overhead distribution line	Would be relocated underground at the corner of Pullman Street and Carnegie Avenue	●	●	●	●	●
	Overhead 66 kV transmission line	Would be relocated along Ritchey Street on the west side of SR-55 and then cross SR-55 and continue along the east side of NB SR-55	●	●	●	●	●
	Underground line	Would be relocated along the west side of SB SR-55	●	●	●	●	●
	Overhead line	Would be relocated with two wood poles along the west side of SB SR-55	●	●	●	●	●
	Overhead 66 kV transmission line	Would be relocated		●	●		●
	Overhead steel pole	Would be relocated on the east side of SR-55		●	●		●
	Overhead 66 kV transmission line	Would be relocated with one wood pole along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard		●	●		●

Table 2.4.1: Potential Effects on Utility Facilities During Construction of Build Alternatives

Utility Provider	Description of Facility	Project Effect (Removal, Relocation or Protection in Place)	Alt 1	Alt 2	Alt 3	Alt 4	Alt 3M
	Underground 12 kV distribution line	Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard		●	●		●
	Pole anchor	Would be removed		●	●	●	●
	Wood pole	Would be replaced with a steel pole		●	●	●	●
	Pole anchor	Would be removed			●	●	●
	Wood pole	Would be replaced with a steel pole			●	●	●
Southern California Gas Company (natural gas)	30" high-pressure gas main	Casing for the gas line crossing would be extended	●	●	●	●	●
	4" gas line	Would be relocated along Pullman Street on the east side of SR-55 between Dyer Road and Warner Avenue	●	●	●	●	●
	30" high-pressure gas main	Would be relocated along the west side of SB SR-55	●	●	●	●	●
	2" gas line	Would be relocated along Cowan Street on the east		●	●		●
	3" gas line	Would be relocated along Pullman Street on the east side of SR-55 between McGaw Avenue and Duryea Avenue			●	●	●
	30” high-pressure gas main	Casing for gas line crossing will be extended west of SR-55			●	●	●
MWD	18" water line	Would be relocated (jack and bore casing)	●	●	●	●	●
Time Warner	Telecom cables	Would be relocated			●	●	●
AT&T	4" cable line	Casing for the cable line crossing would be extended west and east of SR-55	●	●	●	●	●
	Cell Tower	Would be relocated on the east side of SR-55			●	●	●
	Underground conduits	Would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard		●	●		●
	Underground conduits	Would be relocated along Pullman Street on the east side of SR-55			●	●	●

Source: *Community Impact Assessment* (2015) and *Supplemental Community Impact Assessment* (2017)
● = utility impacted for Build Alternative
Alt = Alternative
kV = kilovolt
MWD = Metropolitan Water District
NB = northbound
SB = southbound
SR-55 = State Route 55

delays when traveling to/from emergency scenes during these mainline freeway closures.

All of the Build Alternatives would require overnight ramp closures. Alternative 3 and 3M would require the greatest number of ramp closures (20 ramps), while Alternative 1 would require the least number of ramp closures (12 ramps). Alternatives 2 and 4 would both require the closure of 19 ramps. Because these ramp closures are not expected to exceed 10 nights, they would not cause excessive inconvenience to the traveling public. No two consecutive off-ramps or two consecutive on-ramps in the same direction would be closed concurrently. As a result, emergency services providers, including the local fire and police departments and the California Highway Patrol, could experience travel delays when traveling to/from emergency scenes during these ramp closures.

Overnight closures on MacArthur Boulevard, Dyer Road, and Edinger Avenue would be required for all four Build Alternatives. No other local street closures would be required. As with the mainline closures, detour routes on other local streets would be provided to direct traffic around the closures. The potential detour routes would result in increased travel times ranging from approximately 4 to 12 minutes. Emergency services providers, including the local fire and police departments and the California Highway Patrol, could experience increased travel times when traveling to/from emergency scenes during the temporary closures on these local streets.

All mainline, arterial, and ramp closures would occur only during the overnight hours between 10:00 p.m. and 5:00 a.m. and on a short-term basis. The total number of overnight closures at each mainline and arterial location is not anticipated to exceed three nights (closures would not occur on consecutive nights). The total number of overnight closures at each ramp location is not anticipated to exceed 10 nights (closures may or may not occur on consecutive nights). All temporary mainline, ramp, and arterial road closures and detour plans would be coordinated with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times.

No Build Alternative

No improvements to SR-55 other than routine maintenance are proposed under the No Build Alternative. Therefore, the No Build Alternative would not result in temporary adverse effects on utilities and emergency services.

2.4.2.2 Permanent Impacts

Build Alternatives

Any relocation or other effects to utility facilities under the Build Alternatives would occur during the final design or construction phase. All existing utility facilities would be permanently maintained under the Build Alternatives. The Build Alternatives would not result in increased demand for domestic water services, wastewater facilities, or solid waste disposal. Therefore, the Build Alternatives would not result in permanent adverse effects on utility facilities and providers.

As required by Caltrans and the respective standards of the affected cities, emergency access would be maintained or provided as part of the final design of the Build Alternatives. The improvements to the SR-55 mainline under the Build Alternatives would reduce traffic congestion and result in decreased travel times on SR-55 between Interstate 5 (I-5) and I-405 compared to the No Build Alternative. These improvements in traffic flow are likely to improve emergency response times within the study area. Therefore, the Build Alternatives would not result in adverse effects on emergency services and providers.

No Build Alternative

No improvements to SR-55 are proposed under the No Build Alternative other than routine maintenance. Therefore, the No Build Alternative would not result in permanent adverse effects related to emergency service and utility facilities and services.

2.4.3 Avoidance, Minimization, and/or Mitigation Measures

The following measures have been incorporated in the Build Alternatives to address the potential temporary adverse effects of the project construction on utilities and emergency services.

UES-1 During final design, utility relocation plans will be prepared in consultation with the affected utility providers/owners for those utilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating utilities within the State right of way (ROW) or other existing public ROWs and/or easements. If relocation outside of existing ROWs or additional public ROWs and/or easements required for the project are necessary, the final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. The utility relocation plans will be included in the project specifications.

Prior to and during construction, the contractor will implement the components of the utility relocation plans provided in the project specifications.

Prior to utility relocation activities, the contractor will coordinate with affected utility providers regarding potential utility relocations and inform affected utility users in advance about the date and timing of potential service disruptions.

UES-2 Prior to and during construction, the contractor will coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including the identification of alternative routes for emergency vehicles and routes across the construction areas that are developed in coordination with the affected agencies.

In addition to these measures, temporary construction impacts to emergency services would be minimized by implementation of Measure T-1 in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities. Measure T-1 requires development and implementation of a Transportation Management Plan (TMP) during construction of the Build Alternatives to address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers.

2.6 Visual/Aesthetics

2.6.1 Regulatory Setting

The National Environmental Policy Act of 1969 as amended (NEPA) establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

2.6.2 Affected Environment

This information in this section is based on the *Visual Impact Assessment* (VIA) (2015) and *Supplemental VIA Memorandum* (2017).

2.6.2.1 Definitions of Terms

Many different terms are utilized in this section to describe the project based on the context of the discussion. To assist the reader with understanding how the project is described within this section, the following list defines these terms as used in this section:

- **Project Area:** The geographic area that includes the project site and areas visible from the project site as well as areas outside of the project site where the project would be visible.
- **Project Limits/Project Segment:** The area that defines the limits of the project, including areas where any project activities may occur. This includes areas where temporary disturbances may occur as well as where improvements would be built.
- **Project Corridor:** The environment that is visible and that depicts a relationship to State Route 55 (SR-55). This includes visible features within the project limits as well as visible features of the project area as viewed from the project site. The project corridor is the area of land that is visible from, adjacent to, and outside the highway right of way, and is determined by topography, vegetation, and viewing distance.
- **Viewshed:** The surface area that is visible from a key viewpoint. The viewshed extends to all areas that have a view of and from a project site, and identifies potential views that a proposed project could affect.
- **Viewer Group:** A group of persons that might be affected by the introduction of a project into a viewshed based on location, activity, and length of exposure to a view. The viewer groups will respond differently to the same visual changes based on their visual preferences.
- **Key Views:** Representations of typical landscape views within the study area that incorporate a range of visual resources as seen by viewer groups.

2.6.2.2 Visual Setting

The proposed project is located along SR-55 in the Cities of Santa Ana, Tustin, and Irvine in Orange County, California. The project segment of SR-55 is in the South Coast subregion of the Southwestern California region of the California Floristic Province. The South Coast subregion is characterized by valleys and small hills extending from the coast inland to the

foothills of the Transverse and Peninsular Mountain ranges. The project corridor is characterized by relatively flat terrain, ranging from approximately 35 to 125 feet (ft) in elevation; is fully developed with industrial, commercial, hotel, and residential uses; and contains areas of ruderal and ornamental vegetation. Industrial, office, utility, and commercial uses are generally located along the southern three-fourths of the project segment of SR-55. There are high- and medium-density residential uses and some commercial uses adjacent to the northernmost part of the project segment of SR-55. The project corridor also includes utility corridors, BNSF Railway tracks, and flood control/drainage facilities, including the Santa Fe-Santa Ana Channel and the Lane Channel.

2.6.2.3 Visual Assessment Units

The project corridor was divided into a series of “outdoor rooms” or Visual Assessment Units (VAUs). Figure 2.6-1 depicts the three VAUs established for evaluation of the proposed project and the associated key views used to assess potential visual impacts as a result of project implementation. Each VAU has its own visual character and visual quality. For this project, VAUs were defined by particular viewsheds that exhibit similar visual character. The following three VAUs have been identified.

LEGEND

Maximum Disturbance Limits

Photograph Location and Direction

Visual Assessment Units

1

2

3

0 1200 2400

FEET

Bing Maps (c. 2010); TBM (2008); HDR (9/2012)

I:\HDR1102\GIS\ISEA_Key_Views.mxd (4/22/2014)

FIGURE 2.6-1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Photograph Key Map and Visual Assessment Units

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Visual Assessment Unit 1: Southern

Visual Assessment Unit 1 (VAU1) is located in the southern portion of the project area in the Cities of Irvine and Santa Ana, and along the existing SR-55 right of way. VAU1 is generally defined by areas of the project corridor south of Dyer Road/Barranca Parkway to the southerly project limits at Interstate 405 (I-405). VAU1 is generally flat and consists of the SR-55 corridor, the surrounding existing business park development on the eastern side of SR-55, and a combination of commercial and office (including high-rise), high-rise hotel, and high-rise residential uses on the western side. Visual character within VAU1 can be described as primarily commercial in nature and containing high-rise structures. No prominent natural landforms are visible within VAU1.

Visual Assessment Unit 2: Central

Visual Assessment Unit 2 (VAU2) is located in the central portion of the project area in the Cities of Santa Ana and Tustin. VAU2 is generally defined by areas of the project corridor north of Dyer Road/Barranca Parkway and south of Edinger Avenue. VAU2 is generally flat and consists of the SR-55 corridor and surrounding areas. Visual character within VAU2 can be described as primarily business park and industrial in nature and containing older, concrete tilt-up structures and motels. The Santa Ana Mountains are visible in the distance from some vantage points within VAU2; however, views of the Santa Ana Mountains are frequently masked by atmospheric conditions (e.g., haze).

Visual Assessment Unit 3: Northern

Visual Assessment Unit 3 (VAU3) is located in the northern portion of the project area in the Cities of Tustin and Santa Ana, and along the existing SR-55 right of way. VAU3 is generally defined by areas of the project corridor north of Edinger Avenue to the northerly project limits at Interstate 5 (I-5). VAU3 is generally flat and consists of the SR-55 corridor and surrounding areas. VAU3 is completely surrounded by existing commercial development generally south and southwest of the Santa Fe-Santa Ana Channel (there is also an area of commercial development north of the Santa Fe-Santa Ana Channel and south of McFadden Avenue on the west side of SR-55) and residential uses (at various densities) in areas north of the Santa Fe-Santa Ana Channel on the east side of SR-55 and north of McFadden Avenue on the west side of SR-55. Existing noise barriers obstruct views beyond the project limits on both sides of SR-55, resulting in an urban appearance along this part of the corridor. Visual character within VAU3 can be described as primarily residential in nature but also contains areas of commercial uses. No prominent natural landforms are visible within VAU3.

2.6.2.4 Key Views

Because it is not feasible to analyze all the views in which the proposed project would be seen, it is necessary to select a number of key views associated with VAUs that would most clearly demonstrate the change in the project's visual resources. Key views also represent the viewer groups that have the highest potential to be affected by the project, considering exposure and sensitivity.

The location and direction for each of the key views are shown previously on Figure 2.6-1. Descriptions of the existing key views are provided below.

Key View 1

Key View 1, located in VAU1, is depicted on Figure 2.6-2. Key View 1 is taken from Cowan Avenue on the east side of SR-55. The view faces north toward SR-55, with the elevated high-occupancy vehicle (HOV) transition lanes and high-rise commercial buildings in the

background. Also visible from Key View 1 are a retaining wall, the Cowan Avenue roadway, ornamental vegetation within private property, and utility lines and poles. Key View 1 was chosen to represent a typical view of business patrons and employees in the City of Irvine from the existing business park uses to the east.

Key View 2

Key View 2, located in VAU1, is depicted on Figure 2.6-2. Key View 2 is taken from the SR-55 northbound lanes north of the MacArthur Boulevard interchange. The view faces north, and adjacent business park (right side) and commercial (left side) uses are visible along the project corridor. Also visible from Key View 2 are sparse ornamental vegetation within private property and utility lines and poles. Key View 2 was chosen to represent a typical view of commuters and other regular travelers from within the SR-55 northbound lanes.

KEY VIEW 1: *View facing north toward SR-55 with the elevated HOV lanes and high-rise commercial buildings in the background. The photograph is taken from Cowan on the east side of SR-55. Vegetation is visible on both sides of the photograph and electrical poles and lines are visible on the right side of the photograph.*

KEY VIEW 2: *View facing north along SR-55 from the SR-55 northbound general purpose lanes. Business park and industrial uses are visible on both sides of the freeway, while electrical poles and lines are visible on the right side of the photograph.*

FIGURE 2.6-2

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Key Views 1 and 2

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Key View 3A

Key View 3A, located in VAU2, is depicted on Figure 2.6-3. Key View 3A is taken from the existing Warner Avenue overcrossing of SR-55. The view depicts the SR-55 mainline and faces south toward I-405, with the high-rise commercial buildings in the background. Also visible within Key View 3A are the adjacent commercial (right side) and business park (left side) uses, ornamental vegetation within private property, and utility lines and poles. Key View 3A provides an elevated vantage point view of SR-55 south of the overcrossing.

Key View 3B

Key View 3B, located in VAU2, is depicted on Figure 2.6-3. Key View 3B, located in VAU2, is taken from the existing Warner Avenue overcrossing of SR-55. The view depicts the SR-55 mainline and faces north toward I-5, with the Santa Ana Mountains in the background. Also visible within Key View 3B are the adjacent commercial (left side) and business park (right side) uses, ornamental vegetation within private property, and utility lines and poles. Key View 3B provides an elevated vantage point view of SR-55 north of the overcrossing.

Key View 4

Key View 4, located in VAU3, is depicted on Figure 2.6-4. Key View 4 is taken from Edinger Avenue on the east side of SR-55, facing northwest toward SR-55. From Key View 5, SR-55 is above grade, consists of embankments that support a bridge structure where Edinger Avenue crosses under SR-55, and obstructs all views beyond the SR-55 structure. Also visible from Key View 4 is a Residence Inn by Marriott hotel, a large billboard, and roadway traffic signals. Key View 4 was chosen to represent a typical view of commuters and other regular travelers in the City of Tustin from the existing commercial/business uses to the east of SR-55.

Key View 5

Key View 5, located in VAU3, is depicted on Figure 2.6-4. Key View 5 is taken from the intersection of Sycamore Avenue and Pasadena Avenue in the vicinity of the McFadden Avenue interchange on SR-55. The view faces west, and the existing SR-55 northbound on- and off-ramps are visible. Also visible within Key View 5 is relatively dense ornamental vegetation within private property and within existing State-owned right of way for SR-55, freeway signage, and utility poles and lines. Key View 5 was chosen to represent a typical view of residents from residential areas along the northern portion of the project corridor.

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KEY VIEW 3A: *View of SR-55 facing south taken from the Warner Avenue overcrossing. Business park and industrial uses are visible on both sides of the freeway, while electrical poles and lines are visible on the left side of the photograph.*

KEY VIEW 3B: *View of SR-55 facing north taken from the Warner Avenue overcrossing. Business park and industrial uses are visible on both sides of SR-55 and the foreground shows electrical lines crossing SR-55. Background views show the Santa Ana Mountains.*

FIGURE 2.6-3

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Key Views 3A and 3B

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KEY VIEW 4: *View facing northwest toward SR-55 taken from Edinger Avenue on the east side of SR-55. A hotel, vacant land, and a large billboard are visible from this key view.*

KEY VIEW 5: *View facing west from the McFadden Avenue on- and off-ramps on northbound SR-55. The photograph is taken from Sycamore Avenue/Pasadena Avenue. Residential uses are visible from this key view on the left side of the photograph and existing noise barriers are visible on the left and right sides of the photograph.*

FIGURE 2.6-4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Key Views 4 and 5

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Key View 6

Key View 6, located in VAU3, is depicted on Figure 2.6-5. Key View 6 is taken from the SR-55 southbound lanes at the McFadden Avenue interchange. The view faces south, and adjacent commercial uses (right side) and mature ornamental vegetation (left side) are visible along the project corridor. Also visible within Key View 6 are freeway signage and lighting fixtures associated with SR-55. Key View 6 was chosen to represent a typical view of commuters and other regular travelers from within the SR-55 southbound lanes.

Key View 7

Key View 7, located in VAU3, is depicted on Figure 2.6-5. Key View 7 is taken from the northbound lanes of SR-55 just before the McFadden Avenue overcrossing. The view faces north and depicts vehicles traveling among all lanes along northbound SR-55, including the exclusive HOV lane that ramps up to junction with I-5 to the north. The Santa Ana Mountains are partially visible in the distance from this location although they are often masked by haze. There is minimal ornamental vegetation visible from Key View 7, with the exception of mature trees along the east side of SR-55 behind the existing noise barriers. The majority of adjacent uses are not visible from this key view because the existing noise barriers obstruct most of the view outside the immediate corridor. Some commercial uses are visible on the west side of SR-55 just beyond the McFadden Avenue overcrossing. Other visible features include freeway signage and utility poles and lines. Key View 7 was chosen to represent a typical view of commuters and other regular travelers from within the SR-55 northbound lanes.

2.6.2.5 Visual Character

Visual character includes attributes such as form, line, color, and texture, and is used to describe but not evaluate those attributes. That is, these attributes are considered neither good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character can be identified by how visually compatible a proposed project would be with the existing condition by using visual character attributes as an indicator. For this project, the following attributes were considered:

- **Form:** Visual mass or shape
- **Line:** Edges or linear definition
- **Color:** Reflective brightness (light, dark) and hue (red, green)
- **Texture:** Surface coarseness
- **Dominance:** Position, size, or contrast
- **Scale:** Apparent size as it relates to the surroundings
- **Diversity:** A variety of visual patterns
- **Continuity:** Uninterrupted flow of form, line, color, or textural pattern

The existing visual character within the project corridor is shaped primarily by the existing transportation system, which includes SR-55, its on- and off-ramps, and local roads. The project segment of SR-55 is in a developed urban area. Rail traffic is visible along the BNSF railroad tracks at their crossing of SR-55. The existing buildings in the vicinity of the project segment of SR-55 are typically one or two stories, although some commercial, hotel, and residential structures in the vicinity of the southern part of the project segment of SR-55 in the City of Santa Ana are multi-story, with some exceeding 10 stories in height.

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KEY VIEW 6: *View facing south along SR-55 from the SR-55 southbound general purpose lanes. Commercial uses are visible on the west side of SR-55 (right side of the photograph) and residential uses are visible on the east side of SR-55 (left side of the photograph).*

KEY VIEW 7: *View facing north along SR-55 from the SR-55 northbound general purpose lanes just south of the McFadden Avenue overcrossing. An existing noise barrier is visible on the east side of SR-55 (right side of the photograph) and existing business park and commercial buildings intermixed with mature ornamental trees are somewhat visible on the west side of SR-55 (left side of the photograph).*

FIGURE 2.6-5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Key Views 6 and 7

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2.6.2.6 Visual Quality

Visual quality is evaluated by identifying the vividness, intactness, and unity present in the project corridor. Public attitudes validate the assessed level of quality and predict how changes to the project corridor can affect these attitudes. This process helps identify specific methods for addressing each visual impact that may occur as a result of the project. The three criteria for evaluating visual quality are defined below:

- Vividness is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements. For example, views of Niagara Falls would be rated high for vividness.
- Intactness is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions. This factor can be present in well-kept urban and rural landscapes and natural settings. For example, views of a two-lane road that meanders through the countryside would be rated high for intactness.
- Unity is the extent to which all visual elements combine to form a coherent, harmonious visual pattern. For example, views of an English or Japanese garden would be rated high for unity.

None of these descriptive elements is individually equivalent to a specific level of visual quality; all three must be high to substantiate high visual quality. The existing visual quality of the VAUs is summarized in Table 2.6.1. As shown in Table 2.6.1, the existing visual quality ranges from moderately low to moderate.

Table 2.6.1 Visual Quality Summary

	Vividness	Intactness	Unity	Overall Visual Quality
VAU1	Moderately Low	Moderately Low	Moderately Low	Moderately Low
VAU2	Moderately Low	Moderately Low	Moderate	Moderately Low
VAU3	Moderately Low	Moderate	Moderate	Moderate

Source: *Visual Impact Assessment* (2015).
VAU1 = Visual Assessment Unit 1
VAU2 = Visual Assessment Unit 2
VAU3 = Visual Assessment Unit 3

2.6.2.7 Viewer Groups

The population affected by the project is composed of viewers. Viewers are people whose views of the landscape may be altered by the proposed project either because the landscape itself has changed or because their perception of the landscape has changed.

There are two major types of viewer groups for highway projects: highway neighbors and highway users. Highway neighbors are people who have views of the road. For this project, the non-residential and residential highway neighbors were considered. Highway users are people who have views from the road and include northbound and southbound SR-55 travelers and other local travelers.

2.6.2.8 Viewer Response

Viewer response is a measure or prediction of the viewer's reaction to changes in the visual environment. Each viewer group has its own particular level of viewer exposure and viewer sensitivity, resulting in distinct and predictable visual concerns for each group that help to predict the groups' responses to visual changes.

Viewer Exposure

Viewer exposure is a measure of the viewer's ability to see a particular object. Viewer exposure has three attributes: location, quantity, and duration. Location relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure the viewer has to the object. Quantity refers to how many people see the object. The more people who can see an object or the greater the frequency at which an object is seen, the more exposure the object has to viewers. Duration refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the greater its exposure is. High viewer exposure helps predict that viewers will have a response to a visual change.

Viewer Sensitivity

Viewer sensitivity is a measure of the viewer's recognition of a particular object. It has three attributes: activity, awareness, and local values. Activity relates to the preoccupation of viewers (i.e., whether they are preoccupied and thinking of something else or are truly engaged in observing their surroundings). The more viewers are actually observing their surroundings, the more sensitivity they will have to changes in visual resources. Awareness relates to the focus of view (i.e., whether the focus is wide and the view general, or the focus is narrow and the view specific). The more specific the awareness, the more sensitive a viewer is to change. Local values and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, State, or national designation, it is likely that viewers will be more sensitive to visible changes. High viewer sensitivity helps predict that viewers will have a high concern for any visual change.

Non-residential viewers would have a moderately low level of sensitivity to changes in the visual environment due to their general lack of familiarity with the existing conditions, their frequency of exposure, and their sense of ownership.

Residents are typically highly sensitive to visual changes in proximity to their properties. They develop a sense of ownership, belonging, and familiarity with the existing visual setting. Therefore, residents' sensitivity would rate high even if most of the areas within and adjacent to the project vicinity are not of high visual quality.

Commuters and other regular travelers on SR-55 would be susceptible to visual changes because of their familiarity with the existing visual conditions. Similar to area residents, daily commuters and other regular travelers develop familiarity with the existing surrounding areas and therefore would respond more strongly to changes than infrequent travelers. Infrequent travelers are not familiar with the sights and thus are not susceptible to physical changes in surroundings; therefore, their sensitivity to change is considered low.

Local roadway travelers consist of motorists, bicyclists, and pedestrians. Their sensitivity to change is considered low.

Overall Viewer Response

The narrative descriptions of viewer exposure and viewer sensitivity for each viewer group were merged to establish the overall viewer response of each group.

Viewer exposure for the four viewer groups is summarized in Table 2.6.2.

Table 2.6.2 Viewer Response Summary

Viewer Group	Viewer Exposure	Viewer Sensitivity	Viewer Response
Non-Residential	Moderate	Moderately Low to Moderate	Moderate
Residential	Moderately Low	Moderate Low	Moderate
SR-55 Travelers	Moderately High	Moderate	Moderate
Other Local Travelers	Moderate	Moderately Low	Moderately Low

Source: *Visual Impact Assessment* (2015) and *Supplemental Visual Impact Assessment* (2016).
SR-55 = State Route 55

2.6.3 Environmental Consequences

2.6.3.1 Temporary Impacts

Build Alternatives

Construction of any of the SR-55 Build Alternatives would result in temporary visual changes as a result of removing vegetation, grading, other construction activities, and views of construction equipment, staging areas, temporary construction easements (TCEs), and stockpiling of materials. The Build Alternatives would require TCEs that would be visible from key views; however, the visual effects of the TCEs would be temporary, and no loss of scenic resources would occur. The areas of vegetation do not substantially contribute to the overall visual character and quality of key views, are partially masked, and do not reduce the overall vividness, unity, and intactness of views. After construction is completed, these temporary impacts would no longer occur. Because construction impacts are temporary and disturbed areas would be revegetated upon completion of construction, no permanent change in visual character and quality would occur. The potential visual impacts during construction of the Build Alternatives would not be adverse.

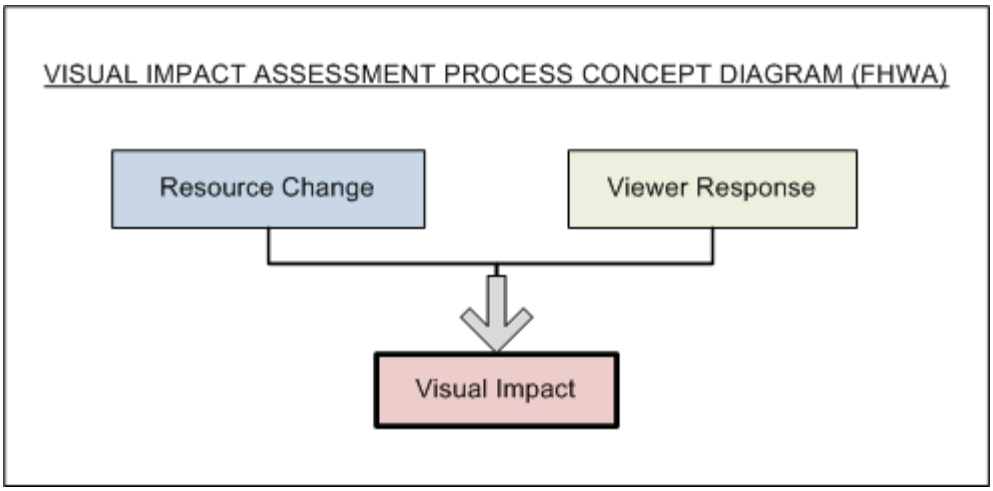
No Build Alternative

The No Build Alternative would not include the construction of any of the project improvements on SR-55 and, therefore, would not result in changes in views to/from the project segment of SR-55. Therefore, the No Build Alternative would not result in short-term visual impacts on and in the vicinity of the project segment of SR-55.

2.6.3.2 Permanent Impacts

Visual Impact Methodology

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. These impacts can be beneficial or detrimental. Cumulative impacts and temporary impacts due to the contractor's operations are also considered. A generalized visual impact assessment process is illustrated in the following diagram.



Source: *Visual Impact Assessment* (2015).

In the diagram above and in the matrix below, note how ***Resource Change*** (i.e., the visual character and visual quality of the visual resources in the project corridor before and after the construction of the proposed project), ***Viewer Response*** (i.e., a measure or prediction of the viewer's reaction to changes in the visual environment that has two dimensions: viewer exposure and viewer sensitivity), and the resulting ***Visual Impact*** (i.e., the correlation between the level of Resource Change and the anticipated Viewer Response) are color-coded to assist the reader in identifying how Visual Impact is determined in this analysis. For example, as shown in bold outline in the following matrix, where Resource Change has been identified as Low and the anticipated Viewer Response is Low, the resulting Visual Impact is Low.

Resource Change	**Viewer Response**				
	Low	**Moderately Low**	**Moderate**	**Moderately High**	**High**
Low	L	ML	ML	M	M
Moderately Low	ML	ML	M	M	MH
Moderate	ML	M	M	MH	MH
Moderately High	M	M	MH	MH	H
High	M	MH	MH	H	H

Source: *Visual Impact Assessment* (2015).
H = High
L = Low
M = Moderate
MH = Moderately High
ML = Moderately Low

Table 2.6.3 summarizes and compares the narrative ratings for visual resource change and viewer response among Alternatives 1 through 4 for each key view. The following section describes and illustrates visual impacts by VAU, compares existing conditions to the proposed alternatives, and includes the predicted viewer response.

Alternative 1

Visual Assessment Unit 1: Southern

Implementation of Alternative 1 would result in additional hardscape surfaces (i.e., additional travel lanes and a new noise barrier) within VAU1; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 1; however, the existing vegetation within VAU1 does not substantially contribute to the overall visual character and quality of the views within VAU1. A majority of the existing vegetation within VAU1 will remain in place. No existing views of scenic resources from within VAU1 would be obstructed. The overall visual resource change in VAU1 as a result of Alternative 1 is expected to be moderately low. Viewers within VAU1 consist of nonresidential viewers, commuters, other regular travelers, and other local travelers. While change would be noticeable to these viewers as a result of a slight widening of SR-55 from Key Views 1 and 2, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU1 and the anticipated group viewer response, the overall visual impact within VAU1 under Alternative 1 is considered to be moderate.

Visual Assessment Unit 2: Central

Implementation of Alternative 1 would result in additional hardscape surfaces (i.e., additional travel lanes) within VAU2; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 1 due to the proposed widening; however, large expanses of turf or mature trees would not remain. The existing vegetation within VAU2 contributes to the overall visual character and quality of the views within VAU2, and the majority of the existing vegetation within VAU2 will remain in place. No existing views of scenic resources from within VAU2 would be obstructed. No new noise barriers are proposed within VAU2. The overall visual resource change in VAU2 as a result of Alternative 1 is expected to be moderately low. Viewers within VAU2 consist of commuters, other regular travelers, and other local travelers. While change would be noticeable to these viewers from Key Views 3A and 3B as a result of widening SR-55, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU2 and the anticipated group viewer response, the overall visual impact in VAU2 under Alternative 1 is considered to be moderate.

The view simulations of Alternative 2 at Key Views 3A and 3B (which are provided on Figures 2.6-6 and 2.6-7, respectively) can also be used to illustrate the improvements proposed in Alternative 1. The difference is the designation of the lane along northbound SR-55 (i.e., Alternative 1 proposes an auxiliary lane while Alternative 2 proposes a general-purpose lane). Both alternatives would result in a total of 6 lanes in each direction (12 lanes total).

Visual Assessment Unit 3: Northern

Implementation of Alternative 1 would result in additional hardscape surfaces (i.e., additional travel lanes, bridge widening, and potentially increased noise barrier height) in VAU3; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 1 due to the proposed widening; however, large expanses of turf or mature trees

would not be removed. The existing vegetation within VAU3 does not contribute to the overall visual character and quality of the views within VAU3, and the majority of the existing vegetation in VAU3 will remain in place. No existing views of scenic resources in VAU3 would be obstructed. The overall visual resource change in VAU3 as a result of Alternative 1 is expected to be moderate. Viewers in VAU3 consist of residential viewers, non-residential viewers, commuters, other regular travelers, and other local travelers. While change would be noticeable to these viewers from Key Views 4, 5, 6, and 7 as a result of widening SR-55, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU3 and the anticipated group viewer response, the overall visual impact in VAU3 under Alternative 1 is considered to be moderately low.

Table 2.6.3 Narrative Ratings for Each Key View

Visual Assessment Unit	Key View	Alternative 1			Alternative 2			Alternative 3			Alternative 4			Alternative 3M (Preferred Alternative)		
		Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact	Resource Change	Viewer Response	Visual Impact
VAU1 Southern	1	L	ML	ML	ML	ML	ML	ML	ML	ML	L	ML	ML	**ML**	**ML**	**ML**
	2	ML	M	M	ML	M	M	ML	M	M	ML	M	M	ML	M	M
VAU2 Central	3A	ML	M	M	ML	M	M	ML	M	M	ML	M	M	ML	M	M
	3B	ML	M	M	ML	M	M	ML	M	M	ML	M	M	ML	M	M
VAU3 Northern	4	L	ML	ML	ML	ML	ML	ML	ML	ML	L	ML	ML	ML	ML	ML
	5	ML	M	M	ML	M	M	ML	M	M	ML	M	M	ML	M	M
	6	ML	M	M	ML	M	M	ML	M	M	ML	M	M	ML	M	M
	7	L	M	ML	L	M	ML	M	M	M	M	M	M	M	M	M

Source: *Visual Impact Assessment* (2015) and *Supplemental Visual Impact Assessment* (2016).

L = Low
M = Moderate
ML = Moderate-Low
VAU1 = Visual Assessment Unit 1
VAU2 = Visual Assessment Unit 2
VAU3 = Visual Assessment Unit 3

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Existing Condition

Alternative 2 Improvements

FIGURE 2.6-6

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3A - Alternative 2

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Existing Condition

Alternative 2 Improvements

FIGURE 2.6-7

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3B - Alternative 2

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Alternative 2

Visual Assessment Unit 1: Southern

Improvements under Alternative 2 are similar to the improvements proposed for Alternative 1 but do not include the proposed auxiliary lane between the MacArthur Boulevard and Dyer Road interchange proposed under Alternative 1. This difference would result in a slightly greater hardscape surface area as viewed from Key View 1 but would appear the same as that viewed from Key View 2. Similarly, some loss of existing vegetation would occur with implementation of Alternative 2. However, the existing vegetation within VAU1 does not substantially contribute to the overall visual character and quality of the views within VAU1. A majority of the existing vegetation within VAU1 will remain in place. Other changes to existing resources would be similar to those described above for Alternative 1 within VAU1. The overall visual resource change in VAU1 as a result of Alternative 2 is expected to be moderately low. While change would be noticeable to these viewers as a result of a slight widening of SR-55 from Key View 1, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU1 and the anticipated group viewer response, the overall visual impact within VAU1 under Alternative 1 is considered to be moderate.

Visual Assessment Unit 2: Central

Figures 2.6-6 and 2.6-7 present comparisons of Key Views 3A and 3B in the existing condition and the proposed changes of Alternative 2. The proposed widening occurring under Alternative 2 would be identical in width to the proposed widening under Alternative 1 within VAU2. Utility relocations would occur under Alternative 2 in VAU2, thereby reducing the amount of intervening man-made features. The same narrative ratings identified for Alternative 1 in VAU2 would apply for Alternative 2 in VAU2. Therefore, in consideration of the anticipated resource change in VAU2 and the anticipated group viewer response, the overall visual impact in VAU2 under Alternative 2 is considered to be moderate.

Visual Assessment Unit 3: Northern

The proposed widening occurring under Alternative 2 would be greater in width when compared to Alternative 1 and would result in a greater amount of new hardscape surface (i.e., additional travel lanes, bridge widening, and potentially increased noise barrier height) within VAU3. However, the same narrative ratings identified for Alternative 1 in VAU3 would apply for Alternative 2 in VAU3, with the exception of Key View 4 because no resources are identified at that location. Therefore, in consideration of the anticipated resource change in VAU3 and the anticipated group viewer response, the overall visual impact in VAU3 under Alternative 2 is considered to be moderate.

Alternative 3

Visual Assessment Unit 1: Southern

Implementation of Alternative 3 would result in a slightly greater hardscape surface area as viewed from Key View 1 (when compared to Alternative 1, but not Alternative 2) and as viewed from Key View 2 (when compared to Alternative 2, but not Alternative 1) within VAU1. Similarly, some loss of existing vegetation would occur with implementation of Alternative 3; however, the existing vegetation within VAU1 does not substantially contribute to the overall visual character and quality of the views within VAU1. A majority of the existing vegetation within VAU1 will remain in place. Other changes to existing resources would be similar to those described above for Alternatives 1 and 2. The same narrative ratings identified for Alternative 2 would apply to Alternative 3; therefore, the overall visual impact within VAU1 under Alternative 3 is considered to be moderate.

Visual Assessment Unit 2: Central

Figures 2.6-8 and 2.6-9 present comparisons of Key Views 3A and 3B, respectively, in the existing condition and the proposed changes as a result of the improvements in Alternative 3. Implementation of Alternative 3 would result in a slightly greater surface hardscape area and vegetation removal compared to Alternative 2. The proposed widening occurring under Alternative 3 would be slightly wider than the proposed widening under Alternative 2 within VAU2. Utility relocations would occur under Alternative 2 in VAU2, thereby reducing the amount of intervening man-made features. The same narrative ratings identified for Alternative 2 in VAU2 would apply for Alternative 3 in VAU2. Therefore, in consideration of the anticipated resource change in VAU2 and the anticipated group viewer response, the overall visual impact in VAU2 under Alternative 3 is considered to be moderate.

Visual Assessment Unit 3: Northern

Figures 2.6-10 and 2.6-11 present a comparison of Key Views 5 and 7 in the existing condition and the proposed changes under Alternative 3. The restriping proposed under Alternative 3 does not require any additional surface area to implement and would only require painting of a solid white stripe separating the SR-55 northbound lanes from the I-5 connector lanes. The proposed widening occurring under Alternative 3 would be identical to that proposed under Alternative 2 within VAU3.

Existing Condition

Alternative 3 Improvements

FIGURE 2.6-8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3A - Alternative 3

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Existing Condition

Alternative 3 Improvements

FIGURE 2.6-9

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3B - Alternative 3

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Existing Condition

Alternative 3 Improvements

FIGURE 2.6-10

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 5 - Alternative 3

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Existing Condition

Alternative 3 Improvements

FIGURE 2.6-11

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 7 - Alternative 3

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The same narrative ratings identified for Alternative 2 in VAU3 would apply for Alternative 3 in VAU3. Therefore, in consideration of the anticipated resource change in VAU3 and the anticipated group viewer response, the overall visual impact in VAU3 under Alternative 3 is considered to be moderate.

Alternative 4

Visual Assessment Unit 1: Southern

Implementation of Alternative 4 would be similar to Alternative 1 within VAU1; however, Alternative 4 includes the addition of northbound and southbound HOV lanes. Some loss of existing vegetation would occur with implementation of Alternative 4; however, the existing vegetation within VAU1 does not substantially contribute to the overall visual character and quality of the views within VAU1. A majority of the existing vegetation within VAU1 will remain in place. Other changes to existing resources would be similar to those described above for Alternative 1 within VAU1. The overall visual resource change in VAU1 as a result of Alternative 4 is expected to be moderately low. While change would be noticeable to these viewers from Key View 2 as a result of widening SR-55, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU1 and the anticipated group viewer response, the overall visual impact in VAU1 under Alternative 1 is considered to be moderate.

Visual Assessment Unit 2: Central

The proposed widening occurring under Alternative 4 would be identical in width to the proposed widening under Alternative 3 within VAU2. The same narrative ratings identified for Alternative 3 in VAU2 would apply for Alternative 4 in VAU2. Therefore, in consideration of the anticipated resource change in VAU2 and the anticipated group viewer response, the overall visual impact in VAU2 under Alternative 4 is considered to be moderate.

The proposed improvements envisioned under Alternative 4 at Key Views 3A and 3B are very similar to that depicted for Alternative 3, except for the designation of lanes. Therefore the view simulation of Alternative 3 at Key View 3A provided earlier in Figures 2.6-8 and 2.6-9 can also be used to illustrate the improvements proposed in Alternative 4. The difference is that Alternative 3 proposes 2 general-purpose lanes and 2 auxiliary lanes (one in each direction) that would be visible at this location, for a total of 7 lanes in each direction (14 lanes total), and Alternative 4 proposes 1 new HOV lane in each direction plus an auxiliary lane in the northbound direction and an additional general-purpose lane in the southbound direction, for a total of 7 lanes in each direction (14 lanes total).

Visual Assessment Unit 3: Northern

The proposed widening occurring under Alternative 4 would be slightly reduced in width compared to the proposed widening under Alternative 3 within VAU3. However, the proposed improvements envisioned under Alternative 4 at Key Views 5 and 7 are identical to those depicted for Alternative 3 on Figures 2.6-10 and 2.6-11. In addition, the same narrative ratings identified for Alternative 3 in VAU3 would apply for Alternative 4 in VAU3, with the exception of Key View 4 because no resources are identified at that location. Therefore, in consideration of the anticipated resource change in VAU3 and the anticipated group viewer response, the overall visual impact in VAU3 under Alternative 4 is considered to be moderate.

Alternative 3M (Preferred Alternative)

Visual Assessment Unit 1: Southern

Implementation of Alternative 3M would result in additional hardscape surfaces (i.e., additional travel lanes) within VAU1; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 3M however, the existing vegetation within VAU1 does not substantially contribute to the overall visual character and quality of the views within VAU1. A majority of the existing vegetation within VAU1 will remain in place. No existing views of scenic resources from within VAU1 would be obstructed. The overall visual resource change in VAU1 as a result of Alternative 3M is expected to be moderately low. Viewers within VAU1 consist of nonresidential viewers, commuters, other regular travelers, and other local travelers. While change would be noticeable to these viewers as a result of a slight widening of SR-55 from Key Views 1 and 2, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU1 and the anticipated group viewer response, the overall visual impact within VAU1 under Alternative 3M is considered to be moderate.

Visual Assessment Unit 2: Central

Implementation of Alternative 3M would result in additional hardscape surfaces (i.e., additional travel lanes) within VAU2; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 3M due to the proposed widening; however, large expanses of turf or mature trees would not remain. The existing vegetation within VAU2 contributes to the overall visual character and quality of the views within VAU2, and the majority of the existing vegetation within VAU2 will remain in place. No existing views of scenic resources from within VAU2 would be obstructed. No new noise barriers are proposed within VAU2. The overall visual resource change in VAU2 as a result of Alternative 3M is expected to be moderately low. Viewers within VAU2 consist of commuters, other regular travelers, and other local travelers. While change would be noticeable to these viewers from Key Views 3A and 3B as a result of widening SR-55, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU2 and the anticipated group viewer response, the overall visual impact in VAU2 under Alternative 3M is considered to be moderate. The view simulations of Alternative 3M at Key Views 3A and 3B (which are provided on Figures 2.6-6 and 2.6-7, respectively) can also be used to illustrate the improvements proposed in Alternative 3M. The difference is the designation of the lane along northbound SR-55 (i.e., Alternative 3M proposes a HOV, general-purpose, and auxiliary lane and would result in a total of 8 lanes in each direction (16 lanes total).

Visual Assessment Unit 3: Northern

Implementation of Alternative 3M would result in additional hardscape surfaces (i.e., additional travel lanes, bridge widening, and potentially increased noise barrier height) in VAU3; however, the visual character and quality of the project corridor would appear similar to existing conditions. Some loss of existing vegetation would occur with implementation of Alternative 3M due to the proposed widening; however, large expanses of turf or mature trees would not be removed. The existing vegetation within VAU3 does not contribute to the overall visual character and quality of the views within VAU3, and the majority of the existing vegetation in VAU3 will remain in place. No existing views of scenic resources in VAU3 would be obstructed. The overall visual resource change in VAU3 as a result of Alternative 3M is expected to be moderate. Viewers in VAU3 consist of residential viewers, non-residential viewers, commuters, other regular travelers, and other local travelers. While

change would be noticeable to these viewers from Key Views 4, 5, 6, and 7 as a result of widening SR-55, the resulting condition would appear similar to the existing condition. In consideration of the anticipated resource change in VAU3 and the anticipated group viewer response, the overall visual impact in VAU3 under Alternative 3M is considered to be moderate.

Figures 2.6-8 and 2.6-9 present a comparison of Key Views 5 and 7 in the existing condition and the proposed changes under Alternative 3M. The restriping proposed under Alternative 3M does not require any additional surface area to implement and would only require painting of a solid white stripe separating the SR-55 northbound lanes from the I-5 connector lanes.

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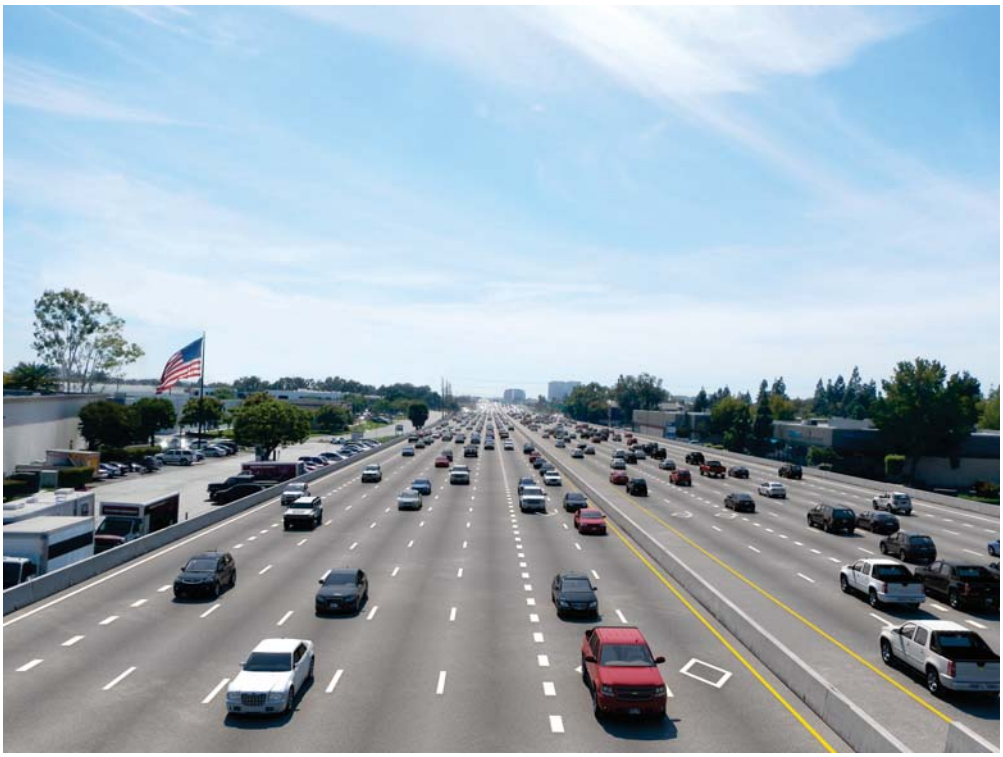
Existing Condition



Alternative 3M Improvements

FIGURE 2.6-12

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3A - Alternative 3M (Preferred Alternative)

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Existing Condition

Alternative 3M Improvements

FIGURE 2.6-13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 3B - Alternative 3M (Preferred Alternative)

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Existing Condition

Alternative 3M Improvements

FIGURE 2.6-14

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 5 - Alternative 3M (Preferred Alternative)

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Existing Condition

Alternative 3M Improvements

FIGURE 2.6-15

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Visual Simulation for Key View 7 - Alternative 3M (Preferred Alternative)

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No Build Alternative

The No Build Alternative would not include the construction of any of the project improvements on SR-55 and, therefore, would not result in changes in views to/from the project segment of SR-55. Therefore, the No Build Alternative would not result in long-term visual impacts on and in the vicinity of the project segment of SR-55.

2.6.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures would minimize the potential visual impacts of the Build Alternatives:

VIS-1 Architectural treatments and features will be included in the final project design to minimize the loss of, and improve the visual quality on, the project segment of State Route 55 (SR-55). The architectural treatments will be developed for retaining walls and noise barriers consistent with the *Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment along Orange County's Transportation Network*.

All wall architectural treatments will be submitted to the California Department of Transportation (Caltrans) District Landscape Architect for review and approval.

During construction, the construction contractor will implement the architectural treatments as shown in the project specifications.

VIS-2 During final design, the Project Engineer will direct a landscape architect to prepare a Landscape Plan to address landscape treatment within the State right of way (ROW) along the project segment of SR-55. The Landscape Plan will include, but not be limited to, the following:

- Identifying/defining the minimum standards for providing landscaping: available land, no conflicts with traffic operations and safety, safe access for maintenance and trash removal, and access to irrigation and water if needed.
- Identifying landscaping and hardscape concepts and materials to maintain or improve the visual character of the existing landscaping in the SR-55 ROW from south of Interstate 5 (I-5) to north of Interstate 405 (I-405), including the mainline, ramps, and along noise barriers and retaining walls. The hardscape concepts and materials shall be consistent with the *Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment along Orange County's Transportation Network*.
- Incorporating applicable procedures and requirements in the Caltrans *Highway Design Manual*, Section 902.1, Planting Guidelines (November 2001 or newer).
- Using drought-resistant plants and xeric (adapted to arid conditions) landscaping techniques.
- Providing low-maintenance, erosion-control groundcover species and low-height shrubs in the palette to preserve existing views and prevent erosion.
- Providing landscaping as soon as possible in the construction process to minimize bare soil and potential erosion effects.

- Ensuring that the landscape plant palette conforms with adopted Caltrans Standard Specifications.
- Replacing landscaping on parcels used for temporary construction easements (TCEs). The Landscape Plan will require coordination with the owner of each TCE regarding replacement of landscaping removed from the property as part of the project construction activities and replacement of that landscaping to its original or better condition after completion of the construction activities requiring the use of that land for TCEs.
- The Landscape Plan will be submitted to the Caltrans District Landscape Architect for review and approval.
- During construction, the construction contractor will implement the provisions of the approved Landscape Plan as shown in the project specifications.

2.7 Cultural Resources

2.7.1 Regulatory Setting

The term "cultural resources" as used in this document refers to all "built environment" resources (structures, bridges, railroads, water conveyance systems, etc.), culturally important resources, and archaeological resources (both prehistoric and historic), regardless of significance. Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for the National Register of Historic Places. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation the opportunity to comment on those undertakings, following regulations issued by the Advisory Council on Historic Preservation (36 Code of Federal Regulations [CFR] 800). On January 1, 2004, a Section 106 Programmatic Agreement (PA) between the Advisory Council, the Federal Highway Administration (FHWA), State Historic Preservation Officer (SHPO), and the California Department of Transportation (Caltrans) went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA (amended January 2014), implements the Advisory Council's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

Historical resources are considered under the California Environmental Quality Act (CEQA), as well as CA Public Resources Code (PRC) Section 5024.1, which established the California Register of Historical Resources. PRC Section 5024 requires state agencies to identify and protect state-owned resources that meet the National Register of Historic Places listing criteria. It further specifically requires Caltrans to inventory state-owned structures in its rights-of-way. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the National Register or are registered or eligible for registration as California Historical Landmarks.

2.7.2 Affected Environment

This section summarizes information from *Historic Property Survey Report* (HPSR; 2015) and the Supplemental Cultural Resources Analysis (2017).

2.7.2.1 Methodology

The methodology to identify previously documented cultural resources included:

- Consultation with a number of Native American Tribes (groups and individuals) in compliance with Section 106 of the NHPA and Assembly Bill 52 (AB 52).
- Consultation with the Native American Heritage Commission (NAHC).
- Communication with the Orange County Historical Society, Santa Ana Historic Preservation Society, Irvine Historical Society, and the Tustin Area Historical Society.
- Records search at the South Central Coastal Information Center (SCCIC), California State University, Fullerton, which included review of the National Register of Historic Places (National Register); California Register of Historical Resources (California Register); California Inventory of Historical Resources; California Historical Landmarks; California Points of Historical Interest; State Historic Resources Commission; California

Historic Highway Bridge Inventory; and archaeological site records search. Based on the records search, no archaeological sites are recorded within the Area of Potential Effects (APE).

- Other sources consulted included the Cities of Santa Ana, Irvine, and Tustin; historic aerial photographs; United States Geological Survey (USGS) maps; and the Caltrans Structure, Maintenance & Investigations, Historic Significance – State Agency Bridges.

A reconnaissance-level field survey of the Area of Potential Effects (APE) was conducted on May 11, 2012. During that survey, the buildings in the APE were observed and notations regarding their apparent age and integrity were made. Based on that survey and basic property-specific research, the majority of buildings and a short segment of the BNSF Railway in the APE were determined to meet the criteria for classification under Property Types 2–4 and 6 in the Caltrans Section 106 PA, and did not require further documentation. Most of the buildings found to be exempt are modern or significantly altered. An intensive field survey of the remaining buildings was conducted on October 4, 2012, and January 15, 2013. During those surveys, the buildings were photographed and detailed notations were made of the structural and architectural characteristics, current conditions, settings, and associated features of each building.

On June 5, June 6, and July 18, 2012, a survey of the APE for archaeological resources was conducted. The APE is in an urban environment and has been extensively disturbed by prior land uses. Ground visibility is generally limited to areas of introduced, recontoured fill. The areas that could be systematically surveyed consisted of the undeveloped parcels adjacent to the east side of State Route 55 (SR-55) between Edinger Avenue and Valencia Avenue, undeveloped parcels on the west side of SR-55 adjacent to Grand Avenue, and an undeveloped parcel on the west side of SR-55 west of Alton Parkway. Nonetheless, very little area that could potentially contain intact, native sediments was identified during the field survey. The parcels adjacent to the east side of SR-55 between Edinger Avenue and Valencia Avenue were covered with extensive artificial fill. Two hotels were constructed on the previously vacant parcel on the east side of SR-55 just south of Edinger Avenue. Parcels on the west side of SR-55 adjacent to Grand Avenue were almost completely covered in a thick layer of mulch, with ground visibility limited to areas near Southern California Edison (SCE) power lines. The remainder of the APE was examined where there was visible ground that could potentially be native soil. These areas included road shoulders and parts of the SR-55 right-of-way that are at or near original grade and contained soil rather than artificial fill.

A supplemental records search was conducted at the SCCIC on February 11, 2014, when the APE was expanded to include the Interstate 5 (I-5)/Newport Avenue and I-5/Redhill Avenue interchanges. That supplemental records search only included the I-5/Newport Avenue interchange because no ground disturbance is proposed at the I-5/Redhill Avenue interchange. No archaeological sites are recorded within the expanded APE based on the supplemental records search.

The APE was revisited as part of the Supplemental Cultural Resources Analysis (2017) and subsequently revised to include minimal project changes associated with Alternative 3M (Preferred Alternative) which included TCE, staging locations, and very minor direct impacts not identified in the previous APE (2014). These minor project changes were within the previous overall APE limits, therefore, no properties requiring evaluation were required as a result of Alternative 3M (Preferred Alternative).

2.7.2.2 Results

Based on the records searches, consultation/communication, and field surveys described above, no archaeological sites have been recorded within the project APE. A total of 17 built environment resources that have been recorded within the project APE were evaluated and determined not to be eligible for the National Register. The State Historic Preservation Officer (SHPO) concurred with this determination on November 12, 2015.

Eleven State agency bridges are within the APE. All these bridges are listed in the California Historical Significance State Agency Bridge List of April 2012 as Category 5 Bridges and are not eligible for the National Register. Therefore, the bridges are not subject to evaluation per the Caltrans Section 106 PA, nor do they meet any criteria outlined in Section 15064.5(a) of the CEQA Guidelines.

Caltrans has determined that all the State-owned resources (built environment and archaeological resources) in the project APE are exempt from evaluation because they meet the criteria set forth in Section 106 PA Attachment 4 (Properties Exempt from Evaluation) or were previously determined not eligible for inclusion in the National Register and/or registration as a California Historical Landmark, and that determination is still valid.

2.7.2.3 Discoveries During Construction

If cultural materials are discovered during construction, all earthmoving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. Pursuant to California PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, who will then notify the Most Likely Descendant (MLD). At this time, the person who discovered the remains will contact the Caltrans Resident Engineer, who will then contact the Caltrans District Environmental Branch so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

2.7.3 Environmental Consequences

2.7.3.1 Archaeological and Historical Resources

Because there are no documented archaeological or historical resources in the project APE, the construction and operation of the Build Alternatives would not temporarily or permanently impact archaeological or historical resources, and a finding of No Historic Properties Affected is appropriate for the proposed project.

2.7.3.2 Previously Undocumented Cultural Materials and Section 4(f)

Although considered unlikely, there is potential for previously undocumented cultural materials or human remains to be unearthed during site preparation, grading, or excavation activities for the Build Alternatives. Those potential effects would be substantially minimized based on implementation of Measures CR-1 and CR-2 described in the following section.

As noted earlier, the study area for National Register listed and eligible resources was defined as the APE delineated in the *Historic Property Survey Report* (HPSR). The HPSR determined there are no National Register listed or eligible cultural resources in the APE for the proposed project. Therefore, there are no National Register listed or eligible cultural resources that would trigger the requirements for protection under Section 4(f), and no

further discussion of those types of resources is provided relative to the requirements of Section 4(f).

2.7.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures avoid and/or minimize potential project effects to cultural materials or human remains, if any, discovered during construction of the Build Alternatives.

CR-1 **Discovery of Cultural Materials.** If cultural materials are discovered during site preparation, grading, or excavation, the construction contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator will be coordinated with to determine appropriate course of action.

CR-2 **Discovery of Human Remains.** If human remains are discovered during site preparation, grading, or excavation, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and that the County Coroner shall be contacted. Pursuant to California Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendant (MLD). At that time, the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator will be contacted so they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.

PHYSICAL ENVIRONMENT

2.8 Hydrology and Floodplains

2.8.1 Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values impacted by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

2.8.2 Affected Environment

This section is based on the *Location Hydraulic Study State Route 55 Widening Project* (2014) and the *Supplemental Location Hydraulic Study* (2017).

2.8.2.1 Regional Hydrology

The project area is under the jurisdiction of the Regional Water Quality Control Board (RWQCB) Santa Ana Region 8. The project segment of State Route 55 (SR-55) is within the Santa Ana River Hydrologic Unit, the Lower Santa Ana River Hydrologic Area, and the East Coastal Plain Subarea. The receiving waters from the project segment of SR-55 are Peters Canyon Channel, San Diego Creek Reach 1, Santa Ana Delhi Channel, Upper Newport Bay and the Pacific Ocean.

2.8.2.2 100-Year Floodplains

There are two floodplains within the project limits as shown on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Nos. 06059C0278J and 06059C0277J. They are Lane Channel (Orange County Flood Control District [OCFCD] Facility No. 8) and the Santa Ana-Santa Fe Channel (OCFCD Facility No. F10). Both facilities are mapped as Zone A, which denotes areas subject to inundation by the 1 percent annual chance flood, otherwise known as the 100-year floodplain. Discharges are contained within the channels in each floodplain. The FEMA FIRMs are included in Appendix H.

2.8.2.3 Lane Channel

Lane Channel is parallel to the west side of SR-55 between MacArthur Boulevard and Dyer Road. This segment (reach) of Lane Channel is a concrete-lined open trapezoidal section that is 8 feet (ft) wide at the bottom and 9 ft high. Lane Channel crosses under SR-55 in a double 10 ft by 9 ft reinforced concrete box (RCB) just north of the MacArthur Boulevard interchange before joining San Diego Creek Reach 1, which flows to Upper Newport Bay, Lower Newport Bay, and the Pacific Ocean. The 3,150-acre (ac) watershed for Lane Channel includes areas in the Cities of Irvine and Santa Ana and a small area in

unincorporated Orange County near John Wayne Airport, and is generally bounded by the Southern California Regional Rail Authority (SCRRA) tracks on the north, the Southern Pacific Railroad (SPRR) and Main Street on the west, Interstate 405 (I-405) and Campus Drive on the south, and Interstate 5 (I-5) and Von Karman Avenue on the east.

No base flood elevation (BFE) has been determined for the segment of Lane Channel in the project area. The normal depth was calculated based on the geometry of the channel in the project area for the 100-year flow discharge to approximate the BFE. Normal depth calculations indicate that the BFE in the project area is contained within the existing Lane Channel.

2.8.2.4 Santa Ana-Santa Fe Channel

The Santa Ana-Santa Fe Channel is a reinforced concrete trapezoidal channel that conveys flows southeast into Peters Canyon Channel, which drains to San Diego Creek, Upper Newport Bay, Lower Newport Bay, and the Pacific Ocean. This channel crosses perpendicularly under SR-55 between the Edinger Avenue and McFadden Avenue interchanges, parallels the northeast side of the SCRRA tracks and Edinger Avenue, and drains areas northeast of the project area before joining Peters Canyon Wash.

As it crosses under SR-55, the Santa Ana-Santa Fe Channel is a double reinforced 8 ft by 8 ft concrete box. Upstream of its crossing of SR-55, the channel is a 6 ft by 9 ft trapezoidal section, but the channel is an 8 ft by 10 ft trapezoidal section downstream of its crossing of SR-55.

Although the Santa Ana-Santa Fe Channel is designated as Zone A and the 100-year discharge is contained in the channel according to FEMA FIRM No. 06059C0277J, the capacity of this channel is deficient according to the OCFCD. No BFE has been determined for the segment of this channel in the project area. Normal depth was calculated based on the geometry of the channel in the project area for the 100-year flow discharge to approximate the BFE. Normal depth calculations indicate that the BFE in the project area is not contained within the existing Santa Ana-Santa Fe Channel.

2.8.2.5 Natural and Beneficial Floodplain Values

Floodplains and wetlands in their natural or relatively undisturbed state provide natural and beneficial floodplain values including, but not limited to, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. The *Natural Environment Study (Minimal Impact)* (2014) and *Supplemental Natural Environment Study (Minimal Impact)* (2016) concluded that there are no fish, wildlife, plants, or forestry supported in or by Lane Channel and the Santa Ana-Santa Fe Channel. Both channels are man-made and have no natural beauty. Both are closed facilities with restricted access and are unlikely to serve as a means for scientific study or recreational activities. Neither channel contributes to groundwater recharge or is suitable for agriculture or water quality maintenance. The only beneficial floodplain value for Lane Channel and the Santa Ana-Santa Fe Channel is “natural moderation of floods.”

According to the Santa Ana RWQCB Santa Ana River Basin Water Quality Control Plan (updated February 2008), the Lane Channel and Santa Ana-Santa Fe Channel are not listed as having beneficial uses.

2.8.3 Environmental Consequences

2.8.3.1 Temporary Impacts

Build Alternatives

During construction of Build Alternatives construction activities would occur in Lane Channel and near Santa Ana-Santa Fe Channel. The only beneficial floodplain value for these channels is the "natural moderation of floods." The project construction activities would not reduce or otherwise affect the flood storage capacity of the Lane Channel and Santa Ana-Santa Fe Channel and would not modify the flood flows in those channels. Furthermore, construction activities would be limited to the dry season. As a result, temporary construction activities under the Build Alternatives would not result in temporary adverse impacts or a significant base floodplain encroachment related to hydrology and floodplains.

No Build Alternative

The No Build Alternative would not include the construction of any of the proposed project improvements. Therefore, the No Build Alternative would not result in temporary impacts to hydrology and floodplains in the project area.

2.8.3.2 Permanent Impacts

Build Alternatives

Hydraulic Analysis

All the Build Alternatives would result in a slight increase in flow discharges as a result of the minor increase in the total impervious surface areas on SR-55. Most of the proposed improvements would be constructed within the Lane Channel watershed, and the increase in flows within the Lane Channel watershed was estimated at 14 cubic feet per second (cfs). The increase in flows in the Santa Ana-Santa Fe watershed was estimated at 2 cfs. These increases would have only minor effects on the BFEs in the Lane and Santa Ana-Santa Fe channels.

As noted earlier, the existing Santa Ana-Santa Fe Channel is identified as being deficient. However, the potential increase in the water surface elevation in this channel as a result of the Build Alternatives would be minor and the freeway road surface would be approximately 25 ft above the top of this channel. Therefore, the Build Alternatives would not have an adverse impact on the Santa Ana-Santa Fe Channel or increase the potential for road flooding at this location.

The analysis of the potential effects of the Build Alternatives related to floodplains and hydrology was based on assessment of the effects of Alternative 3M (Preferred Alternative) because that Build Alternative would result in the largest footprint of the five Build Alternatives. Assessment of the effects under Alternative 3M would result in the most conservative estimate of the project effects related to hydrology and floodplains. The effects of the other four Build Alternatives would be the same or less than the impacts under Alternative 3M.

100 Year Floodplain Encroachment

Potential Risk from Longitudinal Encroachment

The improvements in the Build Alternatives would result in a longitudinal encroachment into the Lane Channel at its crossing of SR-55. At that location, the Lane Channel would be reconfigured and slightly realigned to the west (farther from SR-55), and modified from the existing open trapezoidal concrete-lined section to a rectangular section 20 ft wide at the base and 10 ft high. This section would be sized to carry the 100-year flood discharge flow,

including flows from the project improvements, and would include approximately 4 ft of additional space (freeboard) in the channel above the recorded high water mark. The road surface at the freeway would be approximately 2 ft above the top of the Lane Channel and the surrounding areas. Therefore, there is no potential for water to overtop the channel or flood the SR-55 facility as a result of the proposed improvements.

The Build Alternatives include improvements in the area where the Santa Ana-Santa Fe Channel crosses perpendicularly under SR-55, between the Edinger Avenue and McFadden Avenue interchanges. The geometry of this channel would not be altered, and no structures are proposed in this floodplain as part of the Build Alternatives. Therefore, there would be no physical encroachments into the existing Santa Ana-Santa Fe Channel or floodplain under the Build Alternatives and no longitudinal encroachment at this location.

The Build Alternatives do not propose any other structures in either channel.

In summary, the potential encroachments into the Lane Channel and Santa Ana-Santa Fe Channel floodplains associated with the Build Alternatives would not significantly encroach in the base floodplain.

All the proposed improvements in and near the Lane Channel and Santa Ana-Santa Fe Channel would be designed and constructed in consultation with the OCFCD to contain the base flood with additional freeboard as required by the OCFCD. Those improvements would be within the existing OCFCD parcels and would not affect the adjacent land uses. The Build Alternatives would be designed consistent with the land use and floodplain safety requirements of the Cities of Santa Ana, Tustin, and Irvine, and therefore would not impact those Cities' agreements with the FEMA National Flood Insurance Program (NFIP) for safeguarding against incompatible floodplain development.

Potential Risk to Life and Property

As described above, the floodplain encroachment in the Build Alternatives would not adversely affect the base flood at the Lane Channel. The road surface on SR-55 would be above the 100-year floodplain at the crossing of the Lane Channel. The potential for flows to overtop the channel at this location would be unchanged from existing conditions. Because the base flood would be contained within the Lane Channel, there is no potential for disruptions to school bus or postal service routes, or residential and nonresidential uses in the floodplain.

Potential Risk to Natural and Beneficial Floodplain Values

As described earlier, the only beneficial floodplain value at the Lane Channel and Santa Ana-Santa Fe Channel is "natural moderation of floods." Because the base floods would continue to be contained in these channels under the Build Alternatives, there would be no change in this beneficial floodplain value at these channels.

Potential Risk for Support of Incompatible Floodplain Development

The project improvements at and near the Lane Channel and Santa Ana-Santa Fe Channel and their respective floodplains would be consistent with the existing local General Plans and would meet the required flood control requirements of the OCFCD and the Cities of Santa Ana, Tustin, and Irvine. Therefore, the Build Alternatives would not result in incompatible development in those two floodplains.

Overall Assessment of Risk

As described above, the Build Alternatives would not pose any appreciable risk related to traffic disruption, loss of life and property, or natural or beneficial floodplain values. The

modifications to the Lane Channel would be designed to convey the base flood with minimal impacts to the existing floodplain elevation and would be consistent with OCFCD requirements. In summary, the combined assessed level of risk associated with the longitudinal encroachment at the Lane Channel, risks to life and property, risks to natural and beneficial floodplain values, and risks of probable incompatible floodplain development is Low Risk.

As defined in 23 CFR 650 Subpart A, the encroachment in the Lane Channel under the Build Alternatives would be classified as Minimal.

No Build Alternative

The No Build Alternative would not result in the construction and operation of the improvements in the Build Alternatives and therefore would not result in adverse permanent impacts to hydrology and floodplains in the proposed project area.

2.8.4 Avoidance, Minimization, and/or Mitigation Measures

The Build Alternatives would not result in adverse impacts related to floodplains and hydrology. No avoidance, minimization and/or mitigation measures have been identified.

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2.9 Water Quality and Storm Water Runoff

2.9.1 Regulatory Setting

2.9.1.1 Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source[1] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the United States. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General permits: Regional permits and Nationwide Permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's Section 404 (b)(1) Guidelines (U.S. EPA Code of Federal Regulations [CFR] 40 Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and

[1] A point source is any discrete conveyance such as a pipe or a man-made ditch.

compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[1] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

2.9.1.2 State Laws and Requirements

Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined and this definition is broader than the CWA definition of "pollutant". Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollutant Discharge Elimination System (NPDES) Program**

  Municipal Separate Storm Sewer Systems (MS4s)

  Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4).

[1] The U.S. EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. The Caltrans MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans MS4 Permit (Order No. 2012-0011-DWQ) was adopted on September 19, 2012, and became effective on July 1, 2013. The permit has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. Caltrans storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of Best Management Practices (BMPs). The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

Construction General Permit (Order No. 2009-009-DWQ), adopted on September 2, 2009, became effective on July 1, 2010. The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The 2009 Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the

Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with Caltrans' Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

2.9.2 Affected Environment

This section is based on the *Water Quality Assessment Report* (2014) and the *Supplemental Water Quality Assessment Report* (2016) prepared for the proposed project.

2.9.2.1 Surface Water

The study area is located in the Newport Bay Watershed, which is made up of four sub-watersheds. The study area is located in two of those sub-watersheds – Lower San Diego Creek and Peters Canyon Channel.

The surface waters in the project area consist of nine channelized storm water or drainage features. Three of the channelized storm water or drainage features are named: Lane Channel, Santa Ana-Santa Fe Channel, and Peters Canyon Channel. All nine channelized storm water and drainage features eventually discharge into either the Santa Ana-Delhi Channel or San Diego Creek Reach 1, both of which are tributaries to Upper Newport Bay. Upper Newport Bay connects directly to the Pacific Ocean.

Receiving waters in the project area are not used for drinking water or water recharge. The study area is not located in a "high risk" area, which is defined as a location where spills from the State-owned rights-of-way, activities, or facilities can discharge directly to municipal or domestic water supply reservoirs or groundwater percolation facilities. The surface water quality objectives for all inland waters in the Santa Ana region, including San Diego Creek Channel, as documented in the Basin Plan, are provided in Table A of the *Water Quality Assessment Report* (2014).

Beneficial uses are identified in the Santa Ana RWQCB Basin Plan (*Santa Ana River Basin Water Quality Control Plan*, updated March 2012) for Upper and Lower Newport Bay, Reach 1 of San Diego Creek, and Peters Canyon Channel. The present or potential beneficial uses for Upper and Lower Newport Bay are:

- NAV: shipping, travel, or other transportation by private, commercial, or military vessels
- GWR: Groundwater recharge
- REC-1: Body-contact recreation (swimming/wading)
- REC-2: Non-body contact recreation (boating/fishing)
- BIOL: Habitats or areas designated for the special protection of natural resources
- WILD: Habitat for wild plants and animals
- RARE: Habitat for rare, threatened, or endangered species
- SPWN: Spawning, reproduction and development habitat for fish and wildlife
- MAR: Ecosystems that support marine habitats, vegetation, fish and shellfish, and wildlife
- SHEL: Waters supporting habitat necessary for shellfish that are collected for human consumption, commercial or sport
- EST: Waters that support estuarine ecosystems

The present or potential beneficial uses for Reach 1 of San Diego Creek are:

- REC-1: Body-contact recreation (swimming/wading)
- REC-2: Non-body contact recreation (boating/fishing)
- WARM: Warm water habitat for fish amenable for reproduction in warm water
- WILD: Habitat for wild plants and animals

The present or potential beneficial uses for the Peters Canyon Channel are identified as intermittent and are:

- GWR: Groundwater Recharge
- REC-1: Body-contact recreation (swimming/wading)
- REC-2: Non-body contact recreation (boating/fishing)
- WARM: Warm water habitat for fish amenable for reproduction in warm water
- WILD: Habitat for wild plants and animals

Primary water quality concerns in the Newport Bay Watershed include excess algal blooms (nutrients), aquatic life toxicity, bacterial quality, stream channel erosion and sedimentation in Newport Bay, wetland protection, and Upper Newport Bay being designated as a Critical Coastal Area.

The SWRCB approved the 2010 Integrated Report (CWA Section 303(d) List/305(b) Report) on August 4, 2010. On November 12, 2010, the U.S. EPA approved the 2010 California 303(d) List of Water Quality Limited Segments. Table 2.9.1 lists the 303(d) receiving waters in the study area, the impairment, the potential source of the impairment, and the proposed TMDL completion date. As shown in Table 2.9.1, Peters Canyon Channel is listed as impaired for dichloro-diphenyl-trichloroethane (DDT), indicator bacteria, toxaphene, and pH. The Santa Ana-Delhi Channel is listed as impaired for indicator bacteria. San Diego Creek Reach 1 is listed as impaired for fecal coliform, nutrients, pesticides, sedimentation/siltation,

selenium, and toxaphene. Upper Newport Bay is listed as impaired for chlordane, copper, DDT, indicator bacteria, metals, nutrients, polychlorinated biphenyls (PCBs), pesticides, sedimentation/siltation, and sediment toxicity. Lower Newport Bay is listed as impaired for chlordane, copper, DDT, indictor bacteria, nutrients, PCBs, pesticides, and sediment toxicity. There are TMDLs applicable to San Diego Creek and Upper and Lower Newport Bay, which are downstream receiving waters in the study area for: organochlorine compounds (legacy pesticides, PCBs, and organophosphate pesticides); copper, lead, zinc, and cadmium; nutrients, selenium; sediment; and fecal coliform.

Table 2.9.1 2010 Clean Water Act Section 303(d) Listing for Receiving Waters in the Study Area

Water Body	Pollutant	Expected TMDL Completion Date	Potential Sources
Peters Canyon Channel	DDT	2019	Source Unknown
	Indicator bacteria	2021	Source Unknown
	pH	2021	Unknown Nonpoint Source/Urban Runoff/Storm Sewers
	Toxaphene	2019	Source Unknown
Santa Ana-Delhi Channel	Indicator bacteria	2021	Source Unknown
San Diego Creek Reach 1	Fecal coliform	2019	Urban Runoff/Storm Sewers/Other Urban Runoff
	Nutrients	None	Source Unknown
	Pesticides	None	Source Unknown
	Sedimentation/siltation	None	Source Unknown
	Selenium	2007	Source Unknown
	Toxaphene	2019	Source Unknown
Upper Newport Bay	Chlordane	2019	Source Unknown
	Copper	2007	Source Unknown
	DDT	2019	Source Unknown
	Indicator bacteria	None	Source Unknown
	Metals	2019	Urban Runoff
	Nutrients	None	Source Unknown
	PCBs	2019	Source Unknown
	Pesticides	None	Unknown Nonpoint Source
	Sedimentation/siltation	None	Agriculture
	Sediment Toxicity	2019	Source Unknown
Lower Newport Bay	Chlordane	2019	Source Unknown
	Copper	2007	Source Unknown
	DDT	2019	Source Unknown
	Indicator bacteria	None	Source Unknown
	Nutrients	None	Source Unknown
	PCBs	2019	Source Unknown
	Pesticides	None	Agriculture
	Sediment toxicity	2019	Source Unknown

Source: *Water Quality Assessment Report* (2014)
DDT = dichloro-diphenyl-trichloroethane
PCBs = polychlorinated biphenyls
pH = percentage hydrogen
TMDL = Total Maximum Daily Load

2.9.2.2 Groundwater

As designated by the RWQCB (Region 8), the study area is within the Irvine and Orange County Groundwater Management Zones. In the study area, groundwater was encountered during previous explorations between approximately 11 feet (ft) and 84 ft below ground surface (bgs). Recharge to the Irvine and Orange County Groundwater Management Zones is derived from percolation of the Santa Ana River flow, infiltration of precipitation, and injection wells.

The groundwater quality objectives for the Santa Ana Region as designated in the Basin Plan are provided in Table B of the *Water Quality Assessment Report* (2014). The specific groundwater quality objectives for the Irvine and Orange County Groundwater Management Zones are:

- Total dissolved solids (TDS): 910 milligrams per liter (mg/L)
- Nitrate as nitrogen: 5.9 mg/L

The following present or potential beneficial uses are identified in the Basin Plan for the Irvine and Orange County Groundwater Management Zones:

- MUN: Waters are used for community, military, municipal or individual water supply systems
- AGR: Waters are used for farming, horticulture or ranching
- IND: Waters are used for industrial activities that do not depend primarily on water quality (e.g., mining, cooling, gravel washing)
- PROC: Waters are used for industrial activities that depend primarily on water quality (e.g., food preparation)

Water in the Irvine and Orange County Groundwater Management Zones is primarily sodium-calcium bicarbonate based. TDS range from 232 to 661 mg/L and average 475 mg/L. Groundwater in the study area is impaired by salinity, nitrate, and methyl tertiary-butyl ether (MTBE).

2.9.3 Environmental Consequences

2.9.3.1 Temporary Impacts

Alternative 1

Pollutants of concern during construction include sediments, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Each of these pollutants on its own or in combination with other pollutants can have a detrimental effect on water quality. During construction, Alternative 1 would disturb a total area of 38.9 ac. All aspects of the project (widening the roadway for new general-purpose lanes, high-occupancy vehicle [HOV] lanes, auxiliary lanes, and longer merging lanes, as well as installing roadway utilities and constructing retaining walls) involve grading and earth-moving activities and, in some instances, the removal of existing vegetation. These construction-related activities expose soil; therefore, there would be an increased potential for soil erosion compared to existing conditions. In addition, during a storm event, soil erosion could occur at an accelerated rate. Grading and earth-moving equipment for widening the roadway, installing utilities, and constructing retaining walls would also be a source of chemical, liquid, and petroleum products (such as paints, solvents, and fuels) if the equipment leaks; furthermore, concrete-related waste (i.e., during the construction of retaining walls) may be spilled or leaked on the project site. Therefore, grading and earth-moving activities for the road widening and associated improvements (e.g., installing roadway utilities and constructing retaining walls) have the potential to transport chemical and concrete-related waste via storm runoff into receiving waters.

Temporary or portable sanitary facilities provided for construction workers would be a source of sanitary waste that could be transported to downstream receiving waters. Construction workers would also generate trash and debris (e.g., food wrappers) that could also be transported to receiving waters. If water is detained at the construction site, it has the potential to reach ambient air temperature and, if discharged to receiving waters, could contribute to the increase in water temperatures.

Construction activities associated with Alternative 1 would result in the least amount of disturbed area of all the Build Alternatives. Therefore, Alternative 1 would involve the least amount of exposed soil and result in the least potential for soil erosion and downstream sedimentation and contamination when compared to the other Build Alternatives.

Because Alternative 1 would result in the least amount of disturbed area, the duration of construction would be shorter and there would be less opportunity for construction-related pollutants to spill, leak, and/or affect on-site drainages and downstream receiving waters when compared to the other Build Alternatives.

Dewatering may be required during construction of Alternative 1. If groundwater dewatering becomes necessary during construction, Build Alternative 1 would be required to comply with a groundwater dewatering permit which requires monitoring discharges from groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface water does not exceed surface water effluent limitations for particular pollutant constituents; therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering so long as the groundwater discharge meets the RWQCB dewatering permit requirements.

Under the Construction General Permit, the California Department of Transportation (Caltrans) would be required to prepare a SWPPP and implement the construction BMPs detailed in the SWPPP during construction to minimize erosion and prevent spills. The SWPPP would be developed and construction BMPs selected and implemented to target pollutants of concern during construction. Because the construction BMPs would be designed to retain sediment and other pollutants on the project site so they would not reach receiving waters, storm water discharges and authorized non-storm water discharges are not anticipated to cause or contribute to any violations of applicable water quality standards or objectives, or adversely impact human health or the environment. When construction BMPs are properly designed, implemented, and maintained to address pollutants of concern, the pollutants of concern would be retained on the project site so they would not reach receiving waters.

Alternative 2

During construction, Alternative 2 would disturb a total area of 70.3 ac. Construction of Alternative 2 would disturb a larger area than Alternatives 1 and 4, but a smaller area than Alternative 3 and 3M. Therefore, Alternative 2 would result in greater potential for soil erosion, downstream sedimentation, and opportunity for construction-related pollutants to spill, leak, and/or affect on-site drainages and downstream receiving waters than Alternatives 1 and 4, but less than under Alternative 3.

Dewatering may be required during construction of Alternative 2. If groundwater dewatering becomes necessary during construction, Build Alternative 2 would be required to comply with a groundwater dewatering permit which requires monitoring discharges from groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface water does not exceed surface water effluent limitations for particular pollutant constituents; therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering so long as the groundwater discharge meets the RWQCB dewatering permit requirements.

Alternative 2 would require the preparation and implementation of a SWPPP and construction BMPs detailed in the SWPPP during construction to minimize erosion and prevent spills. Based on implementation of the BMPs, pollutants of concern would be retained on the project site so they would not reach receiving waters.

Alternative 3

During construction, Alternatives 3 and 3M would disturb a total area of 77.2 ac. Both Build Alternatives would involve the greatest amount of disturbed area of all the Build Alternatives.. Alternative 3, therefore, would involve the greatest amount of exposed soil and

result in the greatest potential for soil erosion, downstream sedimentation, and opportunity for construction-related pollutants to spill, leak, and/or affect on-site drainages and downstream receiving waters compared to the other Build Alternatives.

Dewatering may be required during construction of Alternative 3. If groundwater dewatering becomes necessary during construction, Build Alternative 3 would be required to comply with a groundwater dewatering permit which requires monitoring discharges from groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface water does not exceed surface water effluent limitations for particular pollutant; therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering so long as the groundwater discharge meets the RWQCB dewatering permit requirements.

Alternative 3 would require the preparation and implementation of a SWPPP and construction BMPs detailed in the SWPPP during construction to minimize erosion and prevent spills. Based on implementation of the BMPs, pollutants of concern would be retained on the project site so they would not reach receiving waters.

Alternative 4

During construction, Alternative 4 would disturb a total area of 64.9 ac. Construction of Alternative 4 would involve disturbing a larger area than Alternative 1 and a smaller area than Alternatives 2, 3, and 3M. Therefore, Alternative 4 would result in greater potential for soil erosion, downstream sedimentation, and opportunity for construction-related pollutants to spill, leak, and/or affect on-site drainages and downstream receiving waters than Alternative 1, but less than under Alternatives 2, 3, and 3M.

Dewatering may be required during construction of Alternative 4. If groundwater dewatering becomes necessary during construction, Build Alternative 4 would be required to comply with a groundwater dewatering permit which requires monitoring discharges from groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface water does not exceed surface water effluent limitations for particular pollutant; therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering so long as the groundwater discharge meets the RWQCB dewatering permit requirements.

Alternative 4 would require the preparation and implementation of a SWPPP and construction BMPs detailed in the SWPPP during construction to minimize erosion and prevent spills. Based on implementation of the BMPs, pollutants of concern would be retained on the project site so they would not reach receiving waters.

Alternative 3M (Preferred Alternative)

During construction, Alternative 3M would disturb a total area of 77.2 ac. All aspects of Alternative 3M (widening the roadway for new general-purpose lanes, high-occupancy vehicle [HOV] lanes, auxiliary lanes, and longer merging lanes, as well as installing roadway utilities and constructing retaining walls) involve grading and earth-moving activities and, in some instances, the removal of existing vegetation. Alternative 3M would involve exposed soil and result in the potential for soil erosion, downstream sedimentation, and opportunity for construction-related pollutants to spill, leak, and/or affect on-site drainages and downstream receiving waters.

Dewatering may be required during construction of Alternative 3M. If groundwater dewatering becomes necessary during construction, Alternative 3M would be required to comply with a groundwater dewatering permit which requires monitoring discharges from

groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface water does not exceed surface water effluent limitations for particular pollutant; therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering so long as the groundwater discharge meets the RWQCB dewatering permit requirements.

Alternative 3M would require the preparation and implementation of a SWPPP and construction BMPs detailed in the SWPPP during construction to minimize erosion and prevent spills. Based on implementation of the BMPs, pollutants of concern would be retained on the project site so they would not reach receiving waters.

No Build Alternative

The No Build Alternative would not include the construction any of the proposed project improvements and therefore would not result in adverse temporary impacts to water quality and storm water runoff in the study area.

2.9.3.2 Permanent Impacts

Alternative 1

Alternative 1 includes the construction of an additional general-purpose lane, a new auxiliary lane, and lengthening some of the existing merging lanes, which would result in a permanent increase in impervious surface area of 7.3 ac. The additional impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. The additional impervious surface would also increase the total amount of pollutants in storm water and non-storm water runoff and the amount of pollutants traveling to on-site drainages and downstream receiving waters. Pollutants of concern during operation of Alternative 1 include suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris. Alternative 1 results in the smallest increase in impervious surface area and therefore would be expected to contain the lowest concentrations of suspended solids/sediments, nutrients, pesticides, heavy metals, oil and grease, toxic organic compounds, and trash and debris in storm water runoff when compared to the other Build Alternatives.

Currently, storm water runoff from State Route 55 (SR-55) within the proposed project limits is untreated. As part of Alternative 1, Design and Treatment BMPs would be implemented to target constituents of concern in storm water runoff from the new impervious surface area (7.3 ac) to the maximum extent practical. Design Pollution Prevention BMPs are measures that focus on reducing or eliminating runoff and controlling sources of pollutants during operation of the project. Treatment BMPs utilize treatment mechanism to remove pollutants that have entered storm water runoff.

Design Pollution Prevention BMPs identified as features in Alternative 1 include reconstructing dikes, constructing overside drains, installing additional drainage inlets, relocating storm drain systems to reduce velocity and sediment transport, preserving existing vegetation as much as possible, revegetating new slopes, and constructing ditches and berms.

Treatment BMPs identified as features in Alternative 1 include biofiltration strips and swales and, potentially, an infiltration basin. Biofiltration strips are vegetated sections of land over which storm water flows as sheet flow. Biofiltration swales are vegetated channels that convey storm water. Both biofiltration strips and swales remove pollutants by filtration through grass, sedimentation, adsorption to soil particles, and infiltration through soil. Biofiltration strips and swales are effective at removing debris and solid particles, and some

removal of dissolved constituents. An infiltration basin is a shallow artificial pond designed to infiltrate storm water though permeable soils into the groundwater aquifer and remove pollutants as the storm water percolates through the soil. Biofiltration strips and swales are proposed in multiple locations throughout the project limits. The infiltration basin, if included as part of Alternative 1, would potentially be developed on a vacant parcel adjacent to the southbound SR-55 off-ramp to westbound Dyer Road.

The Design and Treatment BMPs would target the constituents of concern from transportation facilities described earlier. Because Treatment BMPs would treat pollutants of concern from runoff from the project-related impervious surface (7.3 ac), Alternative 1 would not impact the Newport Bay Watershed or cause or contribute to a violation of water quality standards or objectives for surface or downstream receiving waters in the study area. In addition, because the proposed BMPs would remove pollutants of concern from storm water runoff associated with Alternative 1, Alternative 1 would not contain pollutants in quantities that would create a condition of nuisance or adversely affect beneficial uses of waters of the State.

Alternative 2

Alternative 2 includes the construction of new general-purpose lanes, new auxiliary lanes, and lengthening some of the existing merging lanes, which would result in a permanent increase in impervious surface area of 11.3 ac. The pollutants of concern during operation of Alternative 2 would be the same as those discussed under Alternative 1. Alternative 2 results in the second smallest increase in impervious surface area and therefore would be expected to contain the second lowest concentration of pollutants of concern in storm water runoff of all the Build Alternatives.

Alternative 2 would include the Design and Treatment BMPs to target constituents of concern in storm water runoff to the maximum extent practical similar to those described under Alternative 1. Because the Design and Treatment BMPs for Alternatives 1 and 2 would be similar, Alternative 2 would also not impact the Newport Bay Watershed or cause or contribute to a violation of water quality standards or objectives for surface or downstream receiving waters within the proposed project area. Furthermore, as with Alternative 1, Alternative 2 would not contain pollutants in storm water runoff in quantities that would create a condition of nuisance or adversely affect beneficial uses of waters of the State.

Alternative 3

Alternative 3 includes the construction of new general-purpose lanes, new auxiliary lanes, and lengthening some of the existing merging lanes, which would result in a permanent increase in impervious surface area of 15.4 ac. The pollutants of concern during operation of Alternative 3 would be the same as those discussed under Alternatives 1 and 2. Alternative 3 would result in the largest increase in impervious surface area of all the Build Alternatives and therefore would be expected to contain the highest concentration of pollutants of concern in storm water runoff of all the Build Alternatives.

Alternative 3 would include the Design and Treatment BMPs to target constituents of concern in storm water runoff to the maximum extent practical similar to those described under Alternatives 1 and 2. Because the Design and Treatment BMPs for Alternative 3 would be similar to those in Alternatives 1 and 2, Alternative 3 would also not impact the Newport Bay Watershed or cause or contribute to a violation of water quality standards or objectives for surface or downstream receiving waters within the proposed project area. Furthermore, Alternative 3 would not contain pollutants in storm water runoff in quantities

that would create a condition of nuisance or adversely affect beneficial uses of waters of the State.

Alternative 4

Alternative 4 includes the construction of new HOV lanes, a new general-purpose lane, and new auxiliary lanes, which would result in a permanent increase in impervious surface area of 15.0 ac. The pollutants of concern during operation of Alternative 4 would be the same as those discussed under the other Build Alternatives. Alternative 4 would result in the second largest increase in impervious surface area of all the Build Alternatives and therefore would be expected to contain the second highest concentration of pollutants of concern in storm water runoff of all the Build Alternatives.

Alternative 4 would include the Design and Treatment BMPs to target constituents of concern in storm water runoff to the maximum extent practical similar to those described for the other Build Alternatives. Because the Design and Treatment BMPs for Alternative 4 would be similar to those in the other Build Alternatives, Alternative 4 would also not impact the Newport Bay Watershed or cause or contribute to a violation of water quality standards or objectives for surface or downstream receiving waters within the proposed project area. Alternative 4 would not contain pollutants in storm water runoff in quantities that would create a condition of nuisance or adversely affect beneficial uses of waters of the State.

Alternative 3M (Preferred Alternative)

Alternative 3M includes the construction of new HOV, general-purpose lanes, new auxiliary lanes, and lengthening some of the existing merging lanes, which would result in a permanent increase in impervious surface area of 15.3 ac. The increase of impervious surface area would increase the amount of pollutants in the stormwater runoff and non-stormwater runoff travel to on-site drainages and downstream receiving waters. Alternative 3M would include the Design and Treatment BMPs to target constituents of concern in storm water runoff to the maximum extent practical and not impact the Newport Bay Watershed or cause or contribute to a violation of water quality standards or objectives for surface or downstream receiving waters within the proposed project area. Furthermore, Alternative 3M would not contain pollutants in storm water runoff in quantities that would create a condition of nuisance or adversely affect beneficial uses of waters of the State.

No Build Alternative

The No Build Alternative would not include the operation of any of the proposed project improvements and therefore would not result in adverse permanent impacts to water quality and storm water runoff in the study area.

2.9.4 Avoidance, Minimization, and/or Mitigation Measures

The measures below are required to reduce potential project impacts to water quality and storm water runoff from construction and operation of all Build Alternatives.

WQ-1 The Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation (Caltrans Permit) Order No. 2012-0011-DWQ as amended by Order WQ 2014-0077-DWQ, NPDES No. CAS000003 (Caltrans Permit) or any subsequent permit.

WQ-2 Construction activities will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land

Disturbance Activities (Construction General Permit) Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ; NPDES No. CAS000002, or any subsequent permit. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management and non-storm water BMPs. All work will conform to the Construction Site BMP requirements specified in the latest edition of the *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* to control and minimize the impacts of construction and construction related activities, material and pollutants on the watershed. These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.

WQ-3 Design Pollution Prevention BMPs (source control) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization and replanting of vegetation) and concentrated flow conveyance systems such as ditches, berms, dikes, swales, overside drains, flared end section and outlet protection/ velocity dissipation devices.

WQ-4 Caltrans-approved Treatment BMPs will be implemented consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements for the State of California, Department of Transportation (Caltrans) Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include biofiltration strips, biofiltration swales, and an infiltration basin.

WQ-5 If dewatering is required during construction, construction site dewatering will comply with one of two orders, or any subsequent orders, that apply to groundwater discharges to surface waters within the Santa Ana Region depending on the nature of the groundwater. Order No. R8-2015-0004 (NPDES No. CAG998001) covers general waste discharge requirements for discharges to surface waters that pose an insignificant (de minimus) threat to water quality within the Santa Ana Region. This Order would be applicable to the project if it can be demonstrated that the groundwater being discharged to surface waters does not contain pollutants of concern (selenium and nitrates) in the discharge. However, if groundwater in the project area is found to contain petroleum hydrocarbons, solvents, metals and/or salts, the project would be subject to Order No. R8-2009-0045 (NPDES No. CAG918002). Order No. R8-2009-0045 (NPDES No. CAG918002) covers general discharge permits for discharges to surface waters of groundwater resulting from groundwater dewatering operations and/or groundwater cleanup activities at sites within the San Diego Creek/ Newport Bay Watershed polluted by petroleum hydrocarbons, solvents, metals and/or salts, or nutrients, selenium and other pollutants of total maximum daily loads concern. Under both orders, permittees are required to monitor their discharges from groundwater extraction waste from construction to ensure that effluent limitations for constituents are not exceeded.

2.10 Geology/Soils/Seismic/Topography

2.10.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using Caltrans Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see Caltrans Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

2.10.2 Affected Environment

This section discusses the existing geologic and soils conditions along the project segment of State Route 55 (SR-55) and provides analysis of the potential impacts of the proposed project that are related to geology and soils. This section also addresses the potential for structural damage to project facilities due to the local geology underlying the project site, as well as slope stability, ground settlement, soils, grading, and seismic conditions. This section summarizes information provided in the following reports:

- *Project Memorandum Preliminary Geotechnical Information*, Proposed Improvements to State Route 55 between Interstate 405 and Interstate 5 (2011)
- *Project Study Report (Project Development Support)* for the SR-55 project (2008)
- *Preliminary Foundation Report for Proposed Widening of Edinger Avenue Undercrossing (Bridge No. 55-393), State Route 55, Orange County, California* (2012)
- *Preliminary Foundation Report for Proposed Widening of South Tustin Overhead (Bridge No. 55-0026), State Route 55, Orange County, California* (2012)
- *Preliminary Foundation Report for Proposed Widening of State Route 55 at the Warner Avenue Overcrossing (Bridge No. 55-394), State Route 55, Orange County, California* (2012)
- *Preliminary Foundation Report for Proposed Widening of Dyer Road Uncrossing (Bridge No. 55-0409), State Route 55, Orange County, California* (2012)
- *Preliminary Foundation Report for Proposed Widening of MacArthur Boulevard Undercrossing (Bridge No. 55-410), State Route 55, Orange County, California* (2012)

2.10.2.1 National Natural Landmarks and Other Geographic and Topographic Features

National Natural Landmarks (NNLs) designated by the United States Department of the Interior are areas that contain important resources such as natural habitats and unusual geological formations. There are no NNLs or unique or unusual geologic features within or in the vicinity of the disturbance limits for the Build Alternatives. The nearest NNL to the project segment of SR-55 is the approximately 20,000-acre (ac) Irvine Ranch NNL, which is

generally bounded by State Route 91 (SR-91) on the north, the Orange County/Riverside County boundary on the east, the City of Irvine to the south, and the Cities of Tustin, Orange, and Anaheim to the west. At its closest point, the project segment of SR-55 is approximately 5 miles (mi) west of the nearest part of the Irvine Ranch NNL.

SR-55 traverses a developed area with no unique or unusual geologic features within or adjacent to the project segment of SR-55.

2.10.2.2 Local Geology, Topography, and Soils

There are 11 geomorphic provinces in California, as defined by the California Geological Survey (CGS). Geomorphic provinces are geologic regions with distinct landforms and geology. The project segment of SR-55 is in the northern Peninsular Ranges geomorphic province of southern California. The project segment of SR-55 is east of the lower reaches of the Santa Ana River. Flooding of the Santa Ana River likely led to the deposition of alluvial materials in the Tustin Basin.

The project segment of SR-55 is on the relatively flat Tustin Plain, which was formed by the Santa Ana River, San Diego Creek, Peters Canyon Wash, and their tributaries. The site topography is a relatively level alluvial plain with natural ground elevations rising gradually at about a 0.5 percent gradient from 35 feet (ft) above mean sea level (amsl) at MacArthur Boulevard to approximately 125 ft amsl at Interstate 5 (I-5).

The Tustin Plain consists of flat-lying basin sediments and Holocene or modern fluvial deposits. The younger fan deposits, which include floodplain deposits, generally consist of unconsolidated sand, sandy silt, silt, and clays. In the Tustin Plain, these deposits consist of approximately 1,400 ft of unconsolidated to semi-consolidated Quaternary-age alluvial sediments. The upper 30 to 40 ft of native soils in this area are typically loose to medium dense granular soils, interbedded with soft to stiff cohesive soils. Soils in the area are generally interbedded alluvial sands, silts, clays, and gravels that increase in density and stiffness with depth. Underlying the Quaternary alluvial deposits are Tertiary-age bedrock units that are approximately 31,000 ft thick and consist of sandstone, siltstone, shale, and conglomerate.

Soils along the project segment of SR-55 are classified by the Natural Resources Conservation Service (NRCS) as follows:

- **Group B:** There are Group B soils along the project segment of SR-55 north of Edinger Avenue. Group B soils are generally characterized as having moderate infiltration rates when thoroughly wetted and consist chiefly of moderately deep to deep, moderately well to well drained sandy-loam soils with moderately fine to moderately coarse textures.
- **Group C:** There are Group C soils along the project segment of SR-55 between Edinger Avenue and MacArthur Boulevard, and on the east side of SR-55 from Interstate 405 (I-405) to MacArthur Boulevard. These soils are generally characterized as having slow infiltration rates when thoroughly wetted and consist chiefly of silty-loam soils with a layer that impedes downward movement of water, or soils with moderately fine to fine textures.
- **Group D:** There are Group D soils along the project segment of SR-55 south of MacArthur Boulevard and west of SR-55 to I-405. Group D soils have very slow infiltration rates when thoroughly wetted and consist chiefly of clay soils with a high swelling potential, soils with a high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over nearly impervious material.

There are no active, potentially active, or inactive volcanoes in Orange County.

2.10.2.3 Faulting and Seismicity

The entire southern California region is seismically active due to the influence of several earthquake fault systems resulting from interaction between the Pacific and North American crustal plates. An active fault is defined by the State of California as a "…sufficiently active and well defined fault that has exhibited surface displacement within the last 11,000 years." A potentially active fault is defined by the State as a "…fault with a history of movement between 11,000 and 1.6 mya [million years ago]."

The project segment of SR-55 is not located in an Alquist-Priolo Earthquake Fault Zone and there are no known active or potentially active faults that are mapped as crossing or in the immediate vicinity of SR-55. The principal seismic hazard in this area is ground shaking resulting from an earthquake occurring along one of several major active or potentially active faults in southern California that could damage the SR-55 facilities and structures. Those faults include the San Joaquin Hills blind thrust fault (approximately 1.4 mi from the nearest part of the project segment of SR-55), the Compton-Los Alamitos blind thrust fault (approximately 6 mi away), and the Newport Inglewood-Rose Canyon fault zone (approximately 3.7 mi away). The blind thrust faults do not have surface traces and the indicated distance is the closest distance to the fault rupture in the subsurface.

2.10.2.4 Landslides

Landslides are rock, earth, or debris flows on slopes due to gravity that are a major geologic hazard because they are widespread and can cause substantial damage to life and property. Although landslides commonly occur in connection with other major natural disasters such as earthquakes, volcanoes, wildfires, and floods, they can occur on any terrain given the right soil, moisture, and angle/slope conditions. Steep bare slopes, clay-rich rock, deposits of stream or river sediment, and heavy rains can contribute to landslides.

There are no seismically induced, mapped landslides or other landslides and mudflows within or in the vicinity of the project segment of SR-55. There are some areas of artificial fill within the freeway right-of-way that could be subject to slumping or failure, but these would not be considered landslides. The artificial fills in the SR-55 right-of-way were constructed to the appropriate standards for fill used in highway construction, and slumping or failure of those areas is not expected to occur.

2.10.2.5 Liquefaction, Lateral Spreading, and Seismic Settlement

Soil liquefaction occurs when saturated, loose soils lose strength due to excess water buildup in the soils during an earthquake. The spaces between the soil particles are completely filled with water. As the shaking action of an earthquake progresses, the soil grains are rearranged and the soil densifies within a short period of time. The water in the spaces between the soil particles is trapped and does not have adequate time to dissipate. As the water pressure builds up rapidly, the strength of the soils is greatly reduced. When liquefaction occurs, the strength of the soil and the ability of the soil to support building and bridge foundations are reduced. The potential impacts of liquefaction may include settlement of the ground surface, additional forces pushing on retaining walls or pushing down on foundation piles as a result of soil settlement above the liquefied layers, reduction of the shear strength of the liquefied soil, reduced load-carrying capacity, sand boils, and lateral spreading.

The primary factors affecting the possibility of liquefaction are the intensity and duration of the earthquake shaking, the soil type, the relative density of that soil, the pressures of material above that soil, and the depth to groundwater. The soils most susceptible to

liquefaction are clean, loose, uniformly graded, fine-grained sands, nonplastic silts that are saturated, and silty sands.

Seismically induced settlement consists of dry dynamic settlement (above the level of the groundwater) and liquefaction-induced settlement (below the groundwater level). Settlement occurs primarily in loose to moderately dense sandy soil as a result of the loss of volume during and shortly after an earthquake.

Soils along the entire project segment of SR-55 are poorly consolidated Quaternary alluvial sediments and groundwater levels are relatively shallow at 5 to 13 ft below ground surface (bgs) at Warner Avenue. Groundwater was encountered at approximately 24 to 26 ft bgs at MacArthur Boulevard during previous exploration in the area. The area along SR-55 from approximately MacArthur Boulevard to McFadden Avenue is a mapped liquefaction zone.

2.10.2.6 Water Resources

Surface and groundwater are discussed briefly in this section as they relate to potential geological and geotechnical conditions such as liquefaction. Detailed discussions of surface water and groundwater are provided in Sections 2.8, Hydrology and Floodplains, and Section 2.9, Water Quality and Storm Water Runoff.

Surface Waters

There are no streams or rivers crossing or in the immediate vicinity of the project segment of SR-55. There are no large inland bodies of water in the vicinity of SR-55. Peters Canyon Wash is approximately 2 mi east of the project segment of SR-55 in the City of Irvine. The Santa Ana River is approximately 4.5 mi west of the closest part of SR-55, at the SR-55/I-405 Interchange.

Two flood control channels parallel and cross the project segment of SR-55: Lane Channel (Orange County Flood Control District [OCFCD] Facility F08) and Santa Ana-Santa Fe Channel (OCFCD Facility F10). Those facilities are described in more detail in Section 2.8.

There are no large bodies of water upstream of the project segment of SR-55 that could result in inundation of the area. The nearest large upstream body of water is in the Prado Basin, which is held behind Prado Dam approximately 15 mi north of the SR-55/I-5 Interchange.

Seiches are large waves generated in enclosed bodies of waters like lakes in response to ground shaking. Tsunamis are waves generated in large bodies of water as a result of fault displacement or major ground movement. There are no enclosed bodies of water near the project site. The Pacific Ocean is approximately 3 mi south of the southern end of the project segment of SR-55. As a result, the existing potential risks to SR-55 related to seiches, tsunamis, and seismically induced inundation are considered negligible.

Groundwater

As noted earlier, groundwater levels along the project segment of SR-55 are as shallow as approximately 5 to 13 ft bgs as encountered during previous exploration in the area. In the winter season or after periods of locally intense rain or storm water runoff, fluctuations in the groundwater level, localized zones of perched water and/or an increase in soil moisture may occur.

2.10.2.7 Contaminated Soils

As described in detail in Section 2.12, Hazardous Waste/Materials, aerially deposited lead (ADL) is generally encountered in unpaved areas (or formerly unpaved areas) adjacent to older roads, primarily as a result of deposition from historical vehicle emissions. Because the

alignment of SR-55 has been used since approximately 1927, the adjacent unpaved surficial soils may contain ADL. In addition, based on the historical agricultural uses in the study area, persistent pesticides may remain in soils in the study area including along SR-55. Other potential areas of soil contamination associated with individual land uses adjacent to SR-55 are discussed in Section 2.12.

2.10.3 Environmental Consequences

2.10.3.1 Temporary Impacts

Build Alternatives

The potential temporary impacts of the five Build Alternatives related to geotechnical issues and resources would be very similar along the project segment of SR-55 and would differ only as a result of improvements being provided in slightly different areas under each Build Alternative. Those impacts are discussed generally in this section and are summarized by alternative in the following sections.

Construction for all five Build Alternatives may temporarily disturb soil outside the project footprint but within the freeway rights-of-way, primarily in the trample zone around work areas, heavy equipment traffic areas, and material laydown areas. Construction activities in temporary construction easements (TCEs) outside the freeway right-of-way would temporarily disturb soils in those areas. Excavated soil in the construction areas would be exposed and, as a result, there would be an increased potential for soil erosion during construction compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. The anticipated total area disturbed during construction is shown in Table 2.10.1 for each of the Build Alternatives.

Table 2.10.1 Total Disturbed Areas During Construction

Alternative	Total Disturbed Area (acres)
Alternative 1	38.9
Alternative 2	70.3
Alternative 3	77.2
Alternative 4	64.9
Alternative 3M (Preferred Alt)	77.2

Source: *Water Quality Assessment Report* (2014) and *Supplemental Water Quality Assessment* (2016).

During all construction activities for the five Build Alternatives, the construction contractor will be required to adhere to the requirements of the General Construction Permit and to implement erosion and sediment control best management practices (BMPs) specifically identified in the project Storm Water Pollution Prevention Plan (SWPPP) to keep sediment from moving off site into receiving waters and impacting water quality in those waters. Refer to Section 2.9 for additional information regarding construction-related water quality impacts and mitigation.

Worker safety hazards resulting from erosion during construction of the five Build Alternatives would be minimized based on implementation of the requirements in the General Construction Permit and erosion and sediment control BMPs in the SWPPP.

Construction activities for the Build Alternatives could be affected by ground motion from seismic activities, possible ground rupture, liquefaction, landslides, and slumping or failures of areas of artificial, engineered fill if an earthquake were to occur during construction. Implementation of safe construction practices and compliance with Caltrans and the California Division of Occupational Safety and Health (Cal-OSHA) requirements would minimize the impacts to worker safety during construction activities.

Disturbance of unpaved areas adjacent to the SR-55 mainline and ramps and the arterial streets crossing SR-55 could disturb ADL and pesticides in the soils. Refer to Section 2.12 for discussion of the potential effects associated with disturbance of soils containing ADL and pesticides during construction of the Build Alternatives and the measures addressing those effects.

There are no NNLs or unique or unusual geologic features within or in the vicinity of the disturbance limits for the five Build Alternatives. As a result, the construction of the five Build Alternatives would not impact NNLs or unique or unusual geologic features.

There are no active, potentially active, or inactive volcanoes in Orange County. Therefore, no impacts related to volcanoes would occur during construction of the five Build Alternatives.

Due to the distance of the Prado Basin and Santa Ana River from the project segment of SR-55, it is unlikely that a failure of Prado Dam would result in inundation impacts on the project segment of SR-55 during construction of the five Build Alternatives. There are no bodies of water in the project vicinity that could result in seiches or tsunami. As a result, no effects related to inundation, seiches, or tsunami would occur during construction of the Build Alternatives.

Alternative 1

As shown earlier on Figure 1-4, Alternative 1 would result in construction on SR-55 between approximately McFadden Avenue and MacArthur Boulevard. The temporary impacts described above related to erosion, water quality, worker safety, seismically induced impacts, and soils containing ADL and pesticides would potentially occur during construction of Alternative 1 on that part of SR-55.

Alternatives 2, 3, 4, and 3M (Preferred Alternative)

As shown earlier on Figures 1-5, 1-6, 1-7, and 1-8 respectively, Alternatives 2, 3, 4, and 3M would each result in construction on SR-55 between approximately McFadden Avenue and I-405. The temporary impacts described above related to erosion, water quality, worker safety, seismically induced impacts, and soils containing ADL and pesticides would potentially occur during construction of these Alternatives on that part of SR-55.

No Build Alternative

Under the No Build Alternative, the temporary construction-related impacts discussed above for the Build Alternatives would not occur because there would be no construction of project improvements on SR-55 under this alternative.

2.10.3.2 Permanent Impacts

Build Alternatives

The potential permanent impacts of the five Build Alternatives related to geotechnical issues and resources along the project segment of SR-55 would be similar and would differ only as a result of the improvements being provided in slightly different areas under each Build

Alternative. Those impacts are discussed generally in this section and are summarized by alternative in the following sections.

National Natural Landmarks and Other Geographic and Topographic Features

There are no NNLs or unique or unusual geologic features within or in the vicinity of the disturbance limits for the Build Alternatives. As a result, the Build Alternatives would not result in permanent impacts to NNLs or unique or unusual geologic features.

Local Geology, Topography, and Soils

The five Build Alternatives would not result in permanent substantive changes in the area topography because the improvements would generally be constructed at or close to the same grade as the existing facility.

Some soils in the project limits may be compressible and/or expansive. Removal and treatment of those types of soils recommended in the *Final Geotechnical Design Report* (required in Measure GEO-1, which is provided later in this section) would substantially reduce this effect to below a level of significance.

The soil and rock material excavated (cut) during construction of the five Build Alternatives is expected to be used as fill elsewhere in the project limits during construction. The amounts of excavated material anticipated to be used as fill in the project construction were summarized by Build Alternative in Table 1.10. In addition to these amounts, soil material would be imported to the project site in areas needing additional fill material. The amounts of imported fill material anticipated to be used during the construction of the Build Alternatives were also summarized in Table 1.10. Any soil imported to the project site for use as fill will be certified as clean prior to its use on the project site.

Because there are no active, potentially active, or inactive volcanoes in Orange County, the improvements to SR-55 provided in the five Build Alternatives would not impact or be impacted by volcanoes.

Faulting and Seismicity

Moderate to severe seismic shaking is likely to occur in the project area during the life of the improvements provided by the Build Alternatives. As a result, the improvements provided by the Build Alternatives would be subject to effects associated with seismic shaking that could damage bridge and ramp structures or the road surfaces. Because the project segment of SR-55 is not crossed by a known fault or is not in an Alquist-Priolo Earthquake Fault Zone, the project improvements are not expected to be exposed to effects associated with fault displacement and ground rupture. Design and construction of the project improvements consistent with the Caltrans *Highway Design Manual* (HDM) and other required standards, and recommendations from the *Final Geotechnical Design Report*, as required in Measure GEO-1 provided later in this section, would substantially reduce the potential for seismic damage to the project facilities.

Landslides

Because there are no mapped landslides within or in the vicinity of the project segment of SR-55, the design and operation of the project improvements provided by the five Build Alternatives would not be affected by known landslides.

Artificial fill used in the construction of the project improvements for the Build Alternatives would be constructed to the appropriate standards for fill used in highway facilities, which would reduce the potential for slumping or failure of those areas.

Liquefaction, Lateral Spreading, and Seismic Compaction

As described earlier, the area along SR-55 from approximately MacArthur Boulevard to McFadden Avenue is a mapped liquefaction zone. Key issues of concern in this area are ground settlement, down drag loads on piles, reduced pile lateral capacity, and lateral spreading of embankments that could damage bridge and ramp structures and the road surfaces. As a result, project improvements on this segment of SR-55 would be potentially subject to effects related to liquefaction, lateral spreading, and seismic settlement. Design and construction of the project improvements in the five Build Alternatives consistent with the Caltrans HDM and other required standards and recommendations from the *Final Geotechnical Design Report* (such as the use of piles, and removal and recompaction of low-density, near-surface soils) would substantially reduce the potential effects of liquefaction, lateral spreading, and seismic settlement on the structures and facilities provided in the five Build Alternatives.

Water Resources

Potential long-term impacts under the Build Alternatives that are related to erosion and may affect the traveling public or the project facilities can be substantially reduced based on the implementation of landscaping and other BMPs. Refer to Section 2.9 for additional discussion regarding operations-related water quality issues and mitigation, including BMPs.

Due to the distances of the Prado Basin and Santa Ana River from the project segment of SR-55, it is unlikely that a failure of the Prado Dam would result in inundation impacts on the improvements provided in the five Build Alternatives. There are no bodies of water in the project vicinity that could result in seiches or tsunami. As a result, the improvements provided in the Build Alternatives would not be impacted by inundation, seiches, or tsunami.

As discussed earlier, groundwater along the project segment of SR-55 is relatively shallow and may fluctuate after periods of intense rainfall or due to other factors. The widened bridge structures in the Build Alternatives would be supported on piles embedded below the groundwater table. As groundwater causes buoyancy that reduces the effective weight of soils, fluctuation of the groundwater table will affect the axial and lateral capacities of the piles. The pile foundations will be designed consistent with the Caltrans Bridge Design Specifications and the *Final Foundation Reports*, which will reduce the impact of groundwater and groundwater fluctuation on the bridge foundation piles.

Contaminated Soils

Lead is no longer used in gasoline, so there is no potential for continued deposition of ADL in soils adjacent to the project segment of SR-55. There are no existing agricultural uses immediately adjacent to the project segment of SR-55; therefore, deposition of pesticides in soils adjacent to SR-55 is not expected to occur during operation of the five Build Alternatives. As a result, the operation of the five Build Alternatives would not result in impacts related to ADL or pesticides.

Alternative 1

As shown earlier on Figure 1-7, Alternative 1 would result in construction on SR-55 between approximately McFadden Avenue and MacArthur Boulevard. The permanent impacts described above related to faulting and seismicity, artificial engineered fill, and seismically induced impacts would potentially occur on that segment of SR-55 under Alternative 1 and could adversely affect the project structures and road surface. Those effects would be addressed through compliance with design and construction standards in the Caltrans HDM

and other required standards, and implementation of recommendations from the *Final Geotechnical Design Report*.

Alternatives 2, 3, 4, and 3M (Preferred Alternative)

As shown earlier on Figures 1-8, 1-9, and 1-10, respectively, Alternatives 2, 3, and 4 would result in construction on SR-55 between approximately McFadden Avenue and I-405. The permanent impacts described above related to faulting and seismicity, artificial engineered fill, and seismically induced impacts would potentially occur on that segment of SR-55 under those three Build Alternatives and could adversely affect the project structures and road surface. Those effects of Alternatives 2, 3, and 4 would be addressed through compliance with design and construction standards in the Caltrans HDM and other required standards, and implementation of recommendations from the *Final Geotechnical Design Report*.

No Build Alternative

Under the No Build Alternative, the permanent impacts discussed above for the Build Alternatives would not occur because none of the permanent improvements on SR-55 provided in the Build Alternatives would be implemented and operated under this alternative.

2.10.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures avoid and/or minimize the potential geological and seismic effects of the Build Alternatives.

GEO-1 During final design, a *Final Geotechnical Design Report* will be prepared as required by Topic 113 in the California Department of Transportation (Caltrans) *Highway Design Manual* (HDM) (May 2012 or more recent version). A *Foundation Report* will also be prepared for each bridge structure along the segment of State Route 55 (SR-55) that will be widened as part of the Build Alternatives. These reports will document soil-related constraints and hazards such as slope instability, settlement, liquefaction, or related secondary seismic impacts that may be present along the project segment of SR-55. The performance standard for these reports will be the Caltrans *Geotechnical Manual* (2012 or most recent version) standards as they apply to the project features and structures. These reports will include but not be limited to:

- Evaluation of expansive soils and recommendations regarding construction procedures and/or design criteria to minimize the effects of these soils on the construction of the project and to minimize effects related to expansive soils on project facilities in the long term.
- Confirmation of potential liquefiable areas within the project limits and recommendations for mitigation.
- Evaluation of the corrosion potential of soils along segments of the project alignment not previously tested.
- Demonstration that the design of all retaining walls is geotechnically suitable for project area soils.
- Demonstration that side slopes can be designed and graded so that surface erosion of the engineered fill is not increased compared to existing conditions.

The measures recommended in the *Final Geotechnical Design Report* and *Foundation Reports* will be incorporated in the final design and project specifications.

During construction, the construction contractor will implement the measures recommended in the *Final Geotechnical Design Report* and *Foundation Reports* as included in the project specifications.

GEO-2 A quality assurance/quality control (QA/QC) plan will be maintained during construction. The QA/QC plan shall include observing, monitoring, and testing by the Project Geotechnical Engineer and/or Project Geologist prior to and during construction to confirm that the geotechnical/geologic recommendations from the *Final Geotechnical Design Report*, *Foundation Reports,* and standard design and construction practices are fulfilled by the construction contractor, or if different site conditions are encountered, appropriate changes are made to accommodate such issues. The Geotechnical Engineer shall submit weekly reports during all project-related grading, excavation, and construction activities.

GEO-3 The construction contractor will be required to certify that any fill material imported to the project site is clean prior to the use of that material in project construction.

Refer also to Section 2.9 for additional measures related to soil erosion, including BMPs.

Refer also to Section 2.12 for additional measures related to hazardous materials and wastes.

Because the construction and operation of the Build Alternatives would not result in any impacts related to NNLs, other geographic or topographic features, landslides, volcanoes, or inundation by flood waters, tsunami, or seiches, no mitigation for those environmental parameters is required.

2.11 Paleontology

2.11.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

2.11.2 Affected Environment

This section is based on the *Paleontological Resources Identification Report* (2014) and the *Supplemental Paleontological Analysis* (2017).

The area studied for this project is the Area of Project Disturbance (APD) for all areas of the project where excavation is proposed. The paleontological locality search included an area extending over 1 mile (mi) from the APD to assist with determining the paleontological sensitivities of geologic sediments that are present within the project study area. The APD is based on the horizontal and vertical extent of anticipated ground-disturbing activities.

A paleontological resource locality search was completed through the Natural History Museum of Los Angeles County (LACM) in November 2011, and a literature review was conducted through museums and data maintained at LSA Associates, Inc. A vehicular survey of most of the project area was conducted on June 5 and 6, 2012, and a pedestrian survey of the undeveloped parcels was conducted on July 18, 2012.

The project area is within the Peninsular Range Geomorphic Province of Southern California. It is in the Los Angeles Basin, which is bounded on the north and northeast by hills and mountains of the Northern Peninsular and Transverse Ranges and on the south and west by the Pacific Ocean. The Los Angeles Basin is a broad, almost level, alluvial plain.

Geologic mapping indicates there are two geologic units mapped as being exposed at the surface in the project area: Young Alluvial Fan Deposits and Young Axial-Channel Deposits. Although not mapped, artificial fill occurs in many areas within the project limits and was observed during the vehicular survey. These three types of sediment, which are present within the surface of the area of project disturbance, do not have the potential to contain paleontological resources within the upper 10 feet (ft) below the ground surface because of their young age (less than 10,000 years) and/or disturbed context. Older Quaternary Alluvial Deposits, which have a good chance of containing significant vertebrate fossils, are likely present in the area at depths greater than 10 ft below the original ground surface.

The findings of the locality search conducted at the LACM indicated that the surface of the project area is located entirely on younger Quaternary Alluvium that is derived from alluvial fan deposits located to the north. The LACM search results state that because of their young age, these sediments usually do not contain fossil remains in the upper layers of sediment, but can overlie older sediment that can contain fossils. The LACM search results further indicate that the closest fossil locality in the Museum's records that contains sediment similar to that which likely exists in the subsurface of the project is for a road cut along State Route 55 (SR-55), approximately 1.6 mi to the southwest, where a turtle (*Testudinata*) and camel (*Camelidae*) were found at a depth of 30 ft below the original ground surface. The next closest locality is 2.9 mi to the west-southwest that contained the remains of a mammoth (*Mammuthus* sp.) and a camel at a depth of 15 ft below the original ground surface.

The vehicular survey indicated that most of the project area is underlain by artificial fill. Other sediments observed are consistent with the Quaternary Alluvium that has been previously

mapped in the project area. The pedestrian survey indicated there were very few areas that could potentially contain intact, native sediments; however, these sediments are consistent with the younger Quaternary Alluvium sediments that are unlikely to contain paleontological resources.

2.11.3 Environmental Consequences

2.11.3.1 Temporary Impacts

Build Alternatives

The Build Alternatives would require similar ground disturbance, excavation, and modifications to existing freeway and local street facilities and structures. If construction requires excavation greater than 10 ft below the original ground surface, those activities could result in impacts to paleontological resources. Those impacts to paleontological resources would be permanent impacts as described later in Section 2.11.3.2, Permanent Impacts.

The construction of the Build Alternatives would not result in temporary impacts to paleontological resources because the impacts to those types of resources during construction would be considered permanent.

No Build Alternative

Under the No Build Alternative, none of the proposed improvements to SR-55 would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the No Build Alternative would not result in temporary adverse impacts related to paleontological resources as a result of construction activities.

2.11.3.2 Permanent Impacts

Build Alternatives

The Build Alternatives would require similar ground disturbance, excavation, and modifications to existing freeway and local street facilities and structures. Therefore, the Build Alternatives would result in similar potential effects to paleontological resources. Specifically, if construction requires excavation greater than 10 ft below the original ground surface, those activities could result in impacts to paleontological resources.

Excavation during the construction of Build Alternatives is not expected to extend deeper than 10 ft below the original ground surface and, as a result, it is unlikely that older sensitive sediments that might contain paleontological resources will be encountered during construction of the Build Alternatives.

However, older alluvial deposits from the Pleistocene may be encountered if project excavation extends deeper than 10 ft beneath the original ground surface. If deeper excavation is needed during construction of the Build Alternatives, that excavation could result in permanent effects to paleontological resources.

The construction plans for the Build Alternatives are not expected to be modified to require construction deeper than 10 ft below the original ground surface. As a result, it is unlikely that paleontological resources would be permanently impacted during the excavation for the Build Alternatives.

No Build Alternative

Under the No Build Alternative, none of the proposed improvements to SR-55 would be constructed. The No Build Alternative would maintain the existing conditions; therefore, the

No Build Alternative would not result in permanent adverse impacts to paleontological resources as a result of construction activities.

2.11.4 Avoidance, Minimization, and/or Mitigation Measures

The following measures provide procedures for the treatment of paleontological resources during construction:

PAL-1 In the unlikely event that paleontological resources are discovered during ground-disturbing activities including excavation, the construction contractor will redirect work in the immediate area of the discovery until the find can be evaluated by a qualified paleontologist, and if necessary, collected from the field. If the find is determined to be significant and there is a potential to encounter sediments similar to those from which the fossil was recovered, the paleontologist will prepare a Paleontological Mitigation Plan (PMP) to guide paleontological mitigation for the remainder of the project. The PMP will follow the guidelines in the Caltrans Standard Environmental Reference (SER), Environmental Handbook, Volume 1, Chapter 8 – Paleontology (February 2012 or more current).

PAL-2 If construction project plans are modified to include excavation deeper than 10 feet below the original ground surface, a qualified paleontologist will be contacted to prepare a Paleontological Evaluation Report (PER). If the PER determines that a PMP is required, the PMP will be prepared following the guidelines in Caltrans SER, Environmental Handbook, Volume 1, Chapter 8 – Paleontology (February 2012 or more current).

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2.12 Hazardous Waste/Materials

2.12.1 Regulatory Setting

Hazardous materials, including hazardous substances and wastes are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

2.12.2 Affected Environment

This section is based on the Initial Site Assessment (ISA) (2013), the *Supplemental Initial Site Assessment* (2017), and the Aerially Deposited Lead Investigation Report (2013).

2.12.2.1 Field Survey and Record Search Methodology

The following were conducted as part of the ISA:

- **Reconnaissance-level Visits:** On May 9 and 10, 2012, and January 24 and 25, 2013, site reconnaissance visits consisting of the observation and documentation of existing conditions along and in the vicinity of the project segment of State Route 55 (SR-55) and the nature of the development within 0.25 mile (mi) of the project segment of SR-55 were conducted. The visits included observations of specific properties for evidence of release(s) and assessment of the potential for on-site releases of hazardous materials and petroleum products. The reconnaissance-level visits were limited to the exterior parts of properties proposed for full or partial acquisition as part of the Build Alternatives.
- **Environmental Database Review:** A records search of federal and State environmental databases for the area within approximately 0.5 mi of the project segment of SR-55 was conducted on May 10, 2012. The search of the National Priority List (NPL) covered an area within 1.0 mi of the project segment of SR-55.
- **Agency Records Review:** The California Department of Toxic Substances Control (DTSC) Hazardous Materials Division and the Santa Ana Regional Water Quality Control Board (RWQCB) were contacted to obtain documentation for properties within and adjacent to the right-of-way limits for the Build Alternatives.
- **Historical Research:** Aerial photographs, Sanborn Fire Insurance Maps, and historical topographic maps of the area along and in the vicinity of the project segment of SR-55 were reviewed.

Based on previous site visits and records searches, several hazardous materials were identified as potentially of concern within the existing SR-55 right of way at properties proposed for full or partial acquisition or use as temporary construction easements (TCEs) under the Build Alternatives, and parcels directly adjacent to those areas. Those types of hazardous materials are described below.

2.12.2.2 Results of the Initial Site Assessment

Proposed Acquisition Parcels

Based on the field survey and database search discussed above in Section 2.12.2.1, the following properties would be fully acquired, partially acquired, or used for TCEs and were identified as having hazardous waste concerns. Refer to Table 2.12.1 below, for more detailed information regarding the type of hazardous concern at each parcel. Refer to Figures 2.12-1 through 2.12-5 for the location of the properties. The Map ID numbers are individual numbers assigned to the properties discussed here, shown in Table 2.12.1 and on Figures 2.12-1 through 2.12-5.

- Team Surgical, Align Med, and Automotive Shop, 2400 South Pullman Street, Santa Ana, CA (Assessor's Parcel Number [APN] 430-012-03, Map ID No. A-1): During the reconnaissance-level visit, the rear part of the building on this parcel was observed to be occupied by an automotive shop, and the front part of the building was vacant. Based on the nature of the automotive shop and the potential presence of hazardous chemicals associated with the automotive shop, the use is considered a Recognized Environmental Concern. In addition, based on the age of the building structure on this parcel, the structure may contain asbestos-containing materials, lead-based paints, mercury, and/or chlorofluorocarbons.
- Various industrial businesses including Fletcher's Drapery Cleaning, Sunny Hills Cleaners, and Monarch Precision Deburring, 1981, 1999, 2011 South Ritchey Street, Santa Ana, CA (APN 403-041-07, Map ID No. A-2): Based on the database search, the businesses at the addresses were listed as small quantity generators; however, no

violations were noted. Recorded dry cleaning operations have been present at 1999 South Ritchey Street since 1992. Based on the past operations (dry cleaning and deburring), hazardous chemicals may be present at these addresses. In addition, contaminated soils and groundwater are reported beneath this parcel from the adjacent parcel occupied by Bell Industries which is considered an off-site Recognized Environmental Concern.

- **Ricoh/Industrial, 1123 Warner Avenue, Santa Ana, CA (APN 430-241-12, Map ID No. A-3):** Based on the database search, a leak of chlorinated hydrocarbons was discovered in 1987 that affected the groundwater beneath the facility. Contaminated soils and groundwater are present in the southeastern portion of this parcel. The leaking underground storage tank and known dissolved contaminant plume in the groundwater are considered Recognized Environmental Concerns.
- **City of Santa Ana Property, South Ritchey Street, Santa Ana, CA (APN 403-072-02, Map ID No. A-4):** Based on the historic agricultural uses on this parcel, there may be residual organochlorine pesticides and arsenical herbicides in the subsurface soils.
- **City of Santa Ana Property, South Ritchey Street, Santa Ana, CA (APN 403-072-01, Map ID No. A-5):** Based on the historic agricultural uses on this parcel, there may be residual organochlorine pesticides and arsenical herbicides in the subsurface soils.
- **Various commercial businesses, 1411 Village Way, Santa Ana, CA (APN 402-111-24, Map ID No. A-6):** A vacant warehouse building and an adjacent asphalt-paved and landscaped area were observed as being present on site. No recorded violations were reported; however, based on the age of the building structure on this parcel, the structure may consist of asbestos-containing materials, lead-based paints, mercury, and/or chlorofluorocarbons.
- **Niagara/Commercial, 17842 Cowan Avenue, Irvine, CA (APN 427-261-08, Map ID No. 7):** The facility located on this parcel has one 12,000-gallon diesel fuel tank that was installed in 1984. A leak of diesel was discovered in 1999 affecting the groundwater beneath the facility. Based on the site reconnaissance, residual contamination from the above dispenser piping leak is still present at the facility as noted in the closure report.

Non-Acquisition Parcels

Based on the field survey and database search discussed above in Section 2.12.2.1, the following properties are located in the vicinity of the maximum disturbance limits of the Build Alternatives and were identified as having hazardous waste concerns. Refer to Table 2.12.2 below, for more detailed information regarding the type of hazardous concern at each parcel. Refer to Figures 2.12-1 through 2.12-5 for the location of the properties. The Map ID numbers are individual numbers assigned to the properties discussed here, shown in Table 2.12.2 and on Figures 2.12-1 through 2.12-5.

- **ITT Cannon, LLC, 666 East Dyer Road, Santa Ana, CA (APN 411-141-12, Map ID No. B-1):** This parcel is located approximately 500 feet west and northwest of the maximum disturbance limits. According to the database search, this facility was previously listed as a large quantity generator from August 1980 to May 2010; however, all violations were corrected. A leak of primarily chlorinated solvents was reported to affect the groundwater beneath the facility consisting of waste, waste oil, and product. In addition, based on groundwater monitoring conducted in 2011, the groundwater quality beneath the site has been affected by contamination from the ITT Cannon property.

- American Food Service Equipment/Western Method Machinery Corporation, 2344 Pullman Street, Santa Ana, CA (APN 430-012-02, Map ID No. B-2): This parcel is adjacent to the maximum disturbance limits. Based on the database search, a gasoline leak occurred at the facility affecting the groundwater aquifer beneath the facility. In addition, a hazardous waste storage area was observed in the northwest corner of the property.
- **Bell Industries ESD, 1831 South Ritchey Street, Santa Ana, CA (APN 403-042-02, Map ID No. B-3):** The parcel is located 200 feet west and northwest of the maximum disturbance limits. Based on the database search, no violations were noted at this property; however, chlorinated solvents associated with an on-site drycleaners were spilt which contaminated the soils and groundwater beneath this parcel.

Hazardous Substances Drums and Other Chemical Containers

During the site reconnaissance visits, no hazardous substances drums or other chemical containers were identified within the existing SR-55 right of way or on the visible areas of properties identified for full or partial acquisition or for use as TCEs. However, a number of hazardous waste drums and containers were observed on the property at 2344 South Pullman Street in Santa Ana (APN 430-012-02), which is not proposed for acquisition or use as a TCE but is adjacent to the project limits. Due to the proximity of that hazardous waste storage area to the project limits, there is potential for the storage area on this parcel to adversely impact the proposed project. If a release has occurred at that property, there is potential for the soil vapor and groundwater beneath the property limits to be impacted, thus presenting an inhalation risk to future occupants or construction workers within the project limits.

Storage Tanks

There is no evidence of any registered underground storage tanks (USTs) such as vent lines, fill, or overfill ports, within the existing SR-55 right of way or on the visible areas of properties identified for full or partial acquisition or for use as TCEs. Based on the database search, current or historic USTs have been identified at properties proposed as full or partial acquisitions under the Build Alternatives, such as 2400 South Pullman Street in Santa Ana (APN 430-241-12) and 17842 Cowan Avenue in Irvine (APN 427-261-08); or properties adjacent to the maximum disturbance and right-of-way limits under the Build Alternatives, such as 666 East Dyer Road in Santa Ana (APN 411-141-12) and 2344 Pullman Street in Santa Ana (APN 430-012-02). Refer to Tables 2.12.1 and 2.12.2 for more detailed information regarding the potential properties contaminated from storage tanks.

Polychlorinated Biphenyls

Multiple pad- and pole-mounted transformers were observed at a number of locations in the construction area within the City-owned right of way adjacent to the SR-55 right of way and parcels proposed for use as TCEs. Those transformers are owned and operated by Southern California Edison (SCE). No staining or leaks were observed beneath the transformers, and all the transformers appear to be in good condition.

Pesticide Use

Based on historical agricultural use of areas adjacent to the project segment of SR-55, persistent pesticides may remain in area soils, including soils within the proposed SR-55 right of way, such as the parcels at South Ritchey Street in Santa Ana (APN 403-072-02 and APN 403-072-01). Refer to Table 2.12.1 for more detailed information regarding the potential properties contaminated with pesticides.

Staining, Discolored Soils, and/or Corrosion

No staining, discolored soils, or corrosion were observed within the SR-55 right of way or the parcels proposed for full or partial acquisition or for use as TCEs.

Lead Chromate

Yellow pavement traffic markings (thermoplastic and paint) on SR-55 and the arterials crossing SR-55 potentially contain hazardous levels of lead chromate.

Lead-Based Paint

There may be lead-based paint in buildings and structures constructed before 1979 located within the SR-55 right of way and on parcels proposed for full or partial acquisition under the Build Alternatives, such as 2400 South Pullman Street in Santa Ana (APN 430-012-03) and 1411 Village Way in Santa Ana (APN 402-111-24). Refer to Table 2.12.1 for more detailed information regarding the potential properties contaminated with lead-based paint.

Asbestos-Containing Materials

The use of asbestos in many building products was banned by the United States Environmental Protection Agency (EPA) by the late 1970s. Asbestos-containing materials (ACMs) represent a concern when they are subject to damage that results in the release of fibers. ACMs may be found in building materials such as rails, bearing pads, support piers, and expansion joint material in bridges, asphalt, and concrete. There may be ACMs in bridge structures along the project segment of SR-55 based on the construction dates of the bridges and in buildings located on parcels proposed for full or partial acquisition under the Build Alternatives. In addition, areas in the vicinity of the project segment of SR-55 were historically used for agriculture. Therefore, the potential exists for buried asbestos containing cementitious pipe or “transite” pipe associated with agricultural uses within the maximum disturbance limits for the Build Alternatives or on parcels proposed for full or partial acquisition under the Build Alternatives, such as 2400 South Pullman Street in Santa Ana (APN 430-012-03) and 1411 Village Way in Santa Ana (APN 402-111-24). Refer to Table 2.12.1 for more detailed information regarding the potential properties contaminated with asbestos-containing materials.

Soil and/or Groundwater Contamination

Soil and/or groundwater contamination has been identified at properties proposed as full or partial acquisitions under the Build Alternatives, or properties adjacent to the maximum disturbance and right-of-way limits under the Build Alternatives. The properties proposed for full or partial acquisitions that were identified as containing groundwater and soil contamination include 1981, 1999, and 2011 South Ritchey Street in Santa Ana (APN 403-041-07) and 1123 Warner Avenue in Santa Ana (APN 430-214-12). In addition, the property at 17842 Cowan Avenue in Irvine was identified as containing contaminated groundwater beneath the facility. The property located in the maximum disturbance limits of the Build Alternatives that were identified as containing contaminated groundwater and soil includes 1831 South Ritchey Street in Santa Ana (APN 403-042-02). In addition, the properties at 666 East Dyer Road in Santa Ana (APN 411-141-12) and 2344 South Pullman Street in Santa Ana (APN 430-012-02) were identified as containing contaminated groundwater beneath the facilities. Refer to Table 2.12.1 for more detailed information regarding the potential properties with groundwater and/or soil contamination.

Gas and Oil, and Groundwater Monitoring Wells

No evidence of oil or gas production wells was observed within the SR-55 right of way. Several groundwater monitoring wells were observed within the City-owned right of way

adjacent to the existing SR-55 right of way. No wells were observed within parcels proposed for full and partial acquisition or the parcels proposed for use as TCEs under the Build Alternatives.

Other Observations

Several dirt piles of unknown origin were observed adjacent to the SR-55 right of way, east of 1717 Dyer Road in Santa Ana.

A dry-cleaning facility, Sunny Hills Cleaners, was observed at 1999 Ritchey Street in Santa Ana, immediately adjacent to a parcel proposed for partial acquisition. Sunny Hills Cleaners has operated at this location for approximately 10 years and specializes in cleaning upholstery and area rugs. Due to the nature of the business and the use of chemicals such as chlorinated solvents, there is potential for this facility to adversely impact the proposed partial acquisition area.

2.12.2.3 Results of the Aerially Deposited Lead Investigation Report

Aerially deposited lead (ADL) is generally encountered in unpaved or formerly unpaved areas adjoining older roads, primarily as a result of deposition from historical vehicle emissions when gasoline contained lead. SR-55 has been used since approximately 1927, resulting in the exposure of the adjacent unpaved surficial soils to ADL.

As part of the *Aerially Deposited Lead Investigation Report*, soil samples were collected at approximately 70 locations within the unpaved areas in the existing SR-55 right of way. Total lead concentrations in the soil samples did not exceed 1,000 milligrams per kilogram. However, the soluble threshold limit concentrations of lead, using citric acid for some soil samples, were higher than 5 milligrams per liter (mg/L). The soluble threshold limit concentrations of lead using the deionized water waste extraction test were below 1.5 mg/L and toxicity characteristic leaching procedure concentrations of lead were below 5 mg/L. As a result, the soils can be reused on site per the guidance in the DTSC variance to the California Department of Transportation (Caltrans). The impacted ADL soil will be managed by the requirements of the Soil Management Agreement (SMA) between DTSC and Caltrans for Aerially Deposited Lead – Contaminated Soil.

2.12.3 Environmental Consequences

2.12.3.1 Temporary Impacts

Build Alternatives

Temporary impacts related to hazardous materials/wastes during project construction could occur within the maximum disturbance limits for all the Build Alternatives and on individual properties identified for TCEs and/or partial or full acquisition, as described in the following sections.

Impacts within the Maximum Disturbance Limits

Aerially Deposited Lead

Based on the *Aerially Deposited Lead Investigation Report*, the soils are not considered RCRA hazardous materials. As a result, those soils can be reused onsite during construction of The Build Alternatives, per the guidance in the DTSC variance to Caltrans, and they may be managed as either nonhazardous material (variance soil type X) and reused onsite without restrictions or non-RCRA hazardous material (variance Y1) and reused onsite with a minimum 1-foot of clean material cover, as required in Measure HAZ-2 (provided later in this section). Measure HAZ-2 specifically requires the construction contractor to reuse or dispose of soil with ADL consistent with the Caltrans lead variance

from the DTSC. As a result, the construction of The Build Alternatives would not result in adverse impacts related to ADL.

Hazardous Materials/Wastes During Construction

Typical hazardous materials anticipated to be used during construction of The Build Alternatives (e.g., solvents, paints, fuels) and hazardous wastes generated during construction would be handled in accordance with applicable federal and State regulations and Caltrans policies regarding the use, storage, handling, disposal, and transport of those materials. As a result, The Build Alternatives would not result in adverse impacts related to the use of hazardous materials or the generation of hazardous wastes during construction.

Polychlorinated Biphenyls

There may be Polychlorinated Biphenyls (PCBs) in pad- and pole-mounted transformers within the maximum disturbance limits for the Build Alternatives. None of those transformers appeared to be leaking during the site reconnaissance visits. If any leaking transformers are noted during the property acquisition for and construction of the Build Alternatives, those leaks will be considered a PCB hazard unless tested and confirmed otherwise, and must be handled accordingly. As a result, The Build Alternatives would not result in adverse impacts related to PCBs.

Pavement Marking Materials

Yellow traffic striping and pavement-marking materials (paint, thermoplastic, permanent tape, and temporary tape) that would be removed from the SR-55 mainline and ramps, and arterials at their crossings of SR-55 during construction of the Build Alternatives may contain elevated concentrations of metals such as lead. Removal of these materials during construction could affect construction workers and the surrounding environment. Measure HAZ-3, provided later, specifically requires the construction contractor to test, remove, and properly dispose of yellow traffic striping and pavement marking materials in accordance with Caltrans *Construction Manual*, Chapter 7, Section 7-106, Environmental Hazards and Safety Procedures. As a result, The Build Alternatives would not result in adverse impacts related to yellow traffic striping and pavement marking materials.

Asbestos Containing Materials related to Bridge Structures

Based on the construction dates of the bridges within the disturbance limits, ACMs may be present in bridges proposed to be widened or replaced as part of the Build Alternatives. ACMs represent a concern when they are subject to damage that results in the release of fibers. Measure HAZ-4, provided later, specifically requires proper testing, removal, and disposal of ACMs. As a result, The Build Alternatives would not result in adverse impacts related to ACMs.

Potentially Contaminated Soil and/or Groundwater

There is potential for all five Build Alternatives to disturb potentially contaminated soil and/or groundwater on land used for TCEs or partial or full acquisitions, as discussed below. In addition, all four Build Alternatives could disturb potentially contaminated soil and/or groundwater originating at properties outside the maximum disturbance limits and the boundaries of property proposed for TCEs or acquisition. Two parcels are outside the maximum disturbance limits for the Build Alternatives, but the land uses on those parcels have contributed to known groundwater impacts. These two parcels are American Food Service Equipment/Western Method Machinery Corporation at 2344 Pullman Street, APN 430-012-02, Map ID No. B-2; and Bell Industries ESD at 1831 South Ritchey Street, APN 403-042-02, Map ID No. B-3. Described in Table 2.12.2 and shown on Figures 2.12-1

through 2.12-5 are outside the maximum disturbance limits for the Build Alternatives, but the land uses on those parcels have contributed to known groundwater impacts. Due to the nature of the businesses and the proximity of these facilities to the maximum disturbance limits for the Build Alternatives, there is potential that contaminated groundwater originating at those parcels would be encountered during the widening or replacement of the bridge structures under The Build Alternatives. Measure HAZ-1, provided later, specifically requires that a Site Investigation be performed on these parcels to identify potential hazards that may occur during project construction associated with contaminated soil and groundwater. The Site Investigation will provide the appropriate avoidance, minimization, or mitigation for those hazards. As a result, The Build Alternatives would not result in adverse impacts related to contaminated soil and/or groundwater at these parcels.

Potentially Contaminated Groundwater and Hazardous Waste Storage Area

There is the potential for all five Build Alternatives to disturb a potentially contaminated groundwater and/or a potentially hazardous waste storage area located at a property outside the maximum disturbance limits and the boundaries of properties proposed for TCEs or full or partial acquisition as described in Table 2.12.2 and shown on Figures 2.12-1 through 2.12-5. This parcel is located at 2344 Pullman Street in Santa Ana (APN 430-012-02) and the potentially hazardous waste storage area is located adjacent to the parcel at 2400 South Pullman Street in Santa Ana (APN 430-012-03), which is proposed for partial acquisition under Alternatives 1 and 2 and full acquisition under Alternatives 3, 4, and 3M. Due to the nature of the business and the proximity of the hazardous waste storage area to the maximum disturbance limits for the Build Alternatives, there is a moderate potential for this parcel to result in an environmental concern during construction of the Build Alternatives. These risks would be addressed by Measure HAZ-8, provided later, which specifically requires that a preliminary site investigation be performed on the parcel to assess the presence or absence of impacts associated with the hazardous waste storage area. As a result, the Build Alternatives would not result in adverse impacts related to the hazardous waste storage area.

Impacts Associated with Temporary Construction Easements

The Build Alternatives would result in the use of land for TCEs at three parcels. Those parcels and the potential risks associated with the use of land from those parcels for TCEs under all the Build Alternatives are:

- **1981, 1999, and 2011 South Ritchey Street, Santa Ana, CA (APN 403-041-07, Map ID No. A-2):** Because contaminated soils and groundwater are reported beneath this parcel, there would be potential for encountering contaminated soil and groundwater during construction of the Build Alternatives. There is also potential to encounter unknown hazardous materials in groundwater if dewatering is necessary during construction. Additional investigation to properly characterize and define the extent of contamination at this parcel is recommended. Measure HAZ-1, provided later, requires that a Site Investigation be performed for this parcel to identify potential hazards that may occur during project construction associated with contaminated soil and groundwater. The Site Investigation will provide the appropriate avoidance, minimization, or mitigation for those hazards. As a result, the Build Alternatives would not result in adverse impacts related to contaminated soil and/or groundwater at this parcel.
- **1123 Warner Avenue, Santa Ana, CA (APN 430-241-12, Map ID No. A-3):** Similar to the conditions at APN 403-041-07 described above, contaminated soils and groundwater are reported beneath this parcel. Measure HAZ-1 requires that a Site Investigation be performed for this parcel to identify potential hazards that may occur during construction

activities associated with contaminated soil and groundwater. As a result, the Build Alternatives would not result in adverse impacts related to contaminated soil and/or groundwater at this parcel.

- **1411 Village Way, Santa Ana, CA (APN 402-111-24, Map ID No. A-6):** Based on the age of the building structure on this parcel, the structures may contain ACMs, LBPs, mercury, and/or chlorofluorocarbons. However, none of the structures on this parcel will be demolished or renovated as part of the Build Alternatives. As a result, the Build Alternatives would not result in adverse effects related to these types of materials.

In addition to the land for TCEs, discussed above, Alternatives 1 and 2 would also require the use of land from one additional parcel for TCEs. That parcel and the risks associated with that parcel are:

- **2400 South Pullman Street, Santa Ana, CA (APN 430-012-03, Map ID No. A-1):** Based on the age of the building structure on this parcel, the structure may contain ACMs, LBPs, mercury, and/or chlorofluorocarbons. However, the structure on this parcel will not be demolished or renovated as part of the Build Alternatives. As a result, Alternatives 1 and 2 would not result in adverse effects related to these types of materials.

In addition to the land for TCEs, discussed above, Alternatives 2, 3, and 3M would also require the use of land from one additional parcel for TCEs. That parcel and the risks associated with that parcel are:

- **17842 Cowan Avenue, Irvine, CA (APN 427-261-08, Map ID No. A-7):** Based on the site reconnaissance, residual contamination from the above dispenser piping leak is still present at the facility as noted in the closure report. Measure HAZ-1 requires that a Site Investigation be performed for this parcel to identify whether any residual contamination from the above dispenser piping leak is still present and to determine if any potential hazards may occur during construction activities associated with residual contamination. As a result, Alternatives 2, 3, and 3M would not result in adverse impacts related to residual contamination from the above dispenser piping leak at this parcel.

Refer to Table 2.12.1 following the last page of text in this section for the types of acquisition (full and partial acquisitions and TCEs) by alternative.

Impacts Associated with Partial Acquisitions

The Build Alternatives would result in the partial acquisition of land from two parcels. Those parcels and the potential risks associated with the partial acquisition of land from those parcels under all the Build Alternatives are:

- **Parcel at 1123 Warner Avenue, Santa Ana, CA (APN 430-241-12, Map ID No. A-3):** The risks associated with the partial acquisition of land from this parcel under the Build Alternatives would be the same as described above for the use of TCEs at this parcel related to contaminated soil and groundwater. Those risks would be addressed based on implementation of Measure HAZ-1. As a result, The Build Alternatives would not result in adverse impacts related to these types of materials at this parcel.
- **Parcel at 1411 Village Way, Santa Ana, CA (APN 402-111-24, Map ID No. A-6):** Based on the age of the building structure on this parcel, the structure may contain ACMs, LBPs, mercury, and/or chlorofluorocarbons. A portion of the structure on this parcel will be demolished or renovated as part of the Build Alternatives. Those risks

would be addressed by Measures HAZ-4 and HAZ-5. As a result, The Build Alternatives would not result in adverse impacts related to these types of materials at this parcel.

In addition to the land for partial acquisitions, discussed above, Alternatives 1 and 2 would also require the partial acquisition of land from one additional parcel. That parcel and the risks associated with that parcel are:

- **Parcel at 2400 South Pullman Street, Santa Ana, CA (APN 430-012-03, Map ID No. A-1):** Based on the age of the building structure on this parcel, the structure on this parcel may contain ACMs, LBPs, mercury, and/or chlorofluorocarbons. However, none of the structure on this parcel will be demolished or renovated as part of the Build Alternatives. As a result, Alternatives 1 and 2 would not result in adverse effects related to these types of materials.

In addition to the land for partial acquisitions, discussed above, Alternatives 2, 3, and 3M would also require the partial acquisition of land from one additional parcel. That parcel and the risks associated with that parcel are:

- **Parcel at 17842 Cowan Avenue, Irvine, CA (APN 427-261-08, Map ID No. A-7):** The risks associated with the partial acquisition of land from this parcel under Alternatives 2 and 3 would be the same as described above for the TCE at this parcel related to residual contamination from the above dispenser piping leak is still present at the facility as noted in the closure report. As mentioned above, Measure HAZ-1 requires that a Site Investigation be performed for this parcel to identify if there is any residual contamination from the above dispenser piping leak is still present and determine if any potential hazards may occur during construction activities associated with residual contamination. As a result, Alternatives 2 and 3 would not result in adverse impacts related to residual contamination from the above dispenser piping leak at this parcel.

In addition to the land for partial acquisitions, discussed above, Alternatives 3, 4, and 3M would also require the partial acquisition of land from one additional parcel. That parcel and the risks associated with that parcel are:

- **Parcel at 1981, 1999, and 2011 South Ritchey Street, Santa Ana, CA (APN 403-041-07, Map ID No. A-2):** The risks associated with the partial acquisition of land from this parcel under the Build Alternatives would the same as described above for the use of TCEs at this parcel related to contaminated soil and groundwater. Those risks would be addressed based on implementation of Measure HAZ-1. As a result, Alternatives 3, 4, and 3M would not result in adverse impacts related to contaminated soil and/or groundwater at this parcel.

Refer to Table 2.12.1 for the types of acquisition (full and partial acquisitions and TCEs) by alternative.

Impacts Associated with Full Acquisitions

Alternatives 3, 4, and 3M would both result in the full acquisition of three parcels. Those parcels and the potential risks associated with the full acquisition of those parcels under Alternatives 3 and 4 are:

- **2400 South Pullman Street, Santa Ana, CA (APN 430-012-03, Map ID No. A-1):** The risks associated with the full acquisition of this parcel under Alternatives 3 and 4 would be the same as described above for the use of TCEs and partial acquisitions at this parcel related to the potential for the building structure on this parcel to contain ACMs, LBPs, mercury, and/or chlorofluorocarbons. In addition, as discussed in Table 2.12.1,

the rear portion of the building at this parcel is occupied by an automotive shop. Based on the nature of the business and the potential presence of hazardous chemicals associated with the business, the use of the building at this parcel is considered as a risk. Those risks would be addressed by Measures HAZ-1, HAZ-4 and HAZ-5. As a result, Alternatives 3, 4, and 3M would not result in adverse impacts related to these types of materials at this parcel.

- **South Ritchey Street, Santa Ana, CA (APN 403-072-02, Map ID No. A-4):** Based on the historic agricultural uses on this parcel, there may be residual organochlorine pesticides (OCPs) and arsenical herbicides in the subsurface soils. Hazardous concentrations of herbicides and pesticides may be encountered during grading or excavation of soils that have remained undisturbed. Disturbance of those soils on this parcel could result in a potential environmental concern during construction of Alternatives 3, 4, and 3M. Measure HAZ-6, provided later, requires soil testing prior to any disturbance of soils on this parcel and requires the construction contractor to properly handle and dispose of all soils exceeding the requirements for State or federal hazardous waste at an appropriate certified landfill. As a result, Alternatives 3, 4, and 3M would not result in adverse effects related to soils contaminated with herbicides and/or pesticides.
- **South Ritchey Street, Santa Ana, CA (APN 403-072-01, Map ID No. A-5):** Similar to the parcel on APN 403-072-02 described above, there may be residual OCPs and arsenical herbicides in the subsurface soils. Disturbance of those soils on this parcel could result in a potential environmental concern during construction of Alternatives 3, 4, and 3M. These risks would be addressed by Measure HAZ-6. As a result, Alternatives 3, 4, and 3M would not result in adverse effects related to soils contaminated with herbicides and/or pesticides.

Alternatives 1 and 2 would not result in the full acquisition of any parcels.

Refer to Table 2.12.1 for the types of acquisition (full and partial acquisitions and TCEs) by alternative.

Summary of Temporary Impacts Under the Build Alternatives

In summary, the total numbers of TCEs and partial and full acquisitions under the Build Alternatives that could result in potential effects related to hazardous materials and wastes are:

- Alternative 1: 4 TCEs, 3 partial acquisitions, and 0 full acquisitions
- Alternative 2: 5 TCEs, 4 partial acquisitions, and 0 full acquisitions
- Alternative 3: 4 TCEs, 4 partial acquisitions, and 4 full acquisitions
- Alternative 4: 3 TCEs, 3 partial acquisitions, and 4 full acquisitions
- Alternative 3M: 4 TCEs, 4 partial acquisitions, and 4 full acquisitions

No Build Alternative

The No Build Alternative would not result in the disturbance or removal of any soils, groundwater, or structures and, therefore, would not result in temporary impacts related to hazardous waste and materials.

2.12.3.2 Permanent Impacts

Build Alternatives

Routine maintenance activities during operation of the Build Alternatives would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the Build Alternatives would not result in adverse impacts related to hazardous waste or materials.

No Build Alternative

The No Build Alternative would not change the existing physical environment and, therefore, there would be no permanent impacts related to hazardous waste under this alternative. Similar to the Build Alternatives, routine maintenance activities would continue under the No Build Alternative, including compliance with applicable regulations regarding the handling and disposal of potentially hazardous materials.

2.12.4 Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures below apply to all five Build Alternatives and will avoid and/or minimize potential effects related to hazardous materials and hazardous wastes during construction of the Build Alternatives.

HAZ-1 Site investigations will be performed at the following properties that may be either partially acquired, fully acquired, or used for temporary construction easements (TCEs) for the project will be initiated prior to completion of the Project Approval and Environmental Documentation (PA&ED) phase and completed during the Project Specifications and Estimates (PS&E) phase. The site investigations will determine whether more extensive subsurface investigation will be needed. If deemed necessary, subsurface investigations will be performed according to the recommendations of the assessment. The following is a list of properties that may be either partially acquired, fully acquired, or used for TCEs for the project and will require site investigations:

- 2400 South Pullman Street (Assessor's Parcel Number [APN] 430-012-03)
- Fetcher's Drapery Cleaning (1981 South Ritchey Street), Sunny Hills Cleaners (1999 South Ritchey Street), and Monarch Precision Deburring Co. (2011 South Ritchey Street) (all on APN 403-041-07)
- 17842 Cowan Avenue (APN 427-261-08)
- Area adjacent to 1123 Warner Avenue (APN 430-241-12)

HAZ-2 During construction, the construction contractor will remove and either reuse or properly dispose of soils, including requiring special handling, treatment, and/or disposal of aerially deposited lead consistent with the California Department of Transportation (Caltrans) lead variance from the California Department of Toxic Substances Control (DTSC).

HAZ-3 During the design phase, the yellow traffic striping and pavement marking materials will be tested for lead and lead chromate. If hazardous materials are discovered, the construction contractor will remove and properly dispose of any materials in accordance with Caltrans *Construction Manual*, Chapter 7, Section 7-106, Environmental Hazards and Safety Procedures.

HAZ-4 The proposed widening along State Route 55 (SR-55) will involve the removal of minor portions of the existing bridge structures. Based on the Preliminary General Plans, items to be removed will mainly consist of existing

concrete railings and bridge-mounted signs. Below is a list of bridge structures that will be modified as a result of implementation of the Build Alternatives:

- Dyer Road undercrossing
- Edinger Avenue undercrossing
- South Tustin overhead bridge structure
- MacArthur Boulevard undercrossing bridge structure

Qualified professionals will initiate an asbestos-containing materials (ACM) survey prior to completion of the PA&ED phase and complete the ACM survey during the PS&E phase. The survey should be conducted in conformance with the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants Title 40 Code of Federal Regulations regulation, and South Coast Air Quality Management District (SCAQMD) Rule 1403. Additionally, notification of the SCAQMD prior to any structure renovation or demolition is mandatory according to Rule 1403 (d)(1)(B).

In addition, based on the age of the structures located on proposed full acquisition parcel at 2400 South Pullman Street (APN 430-012-03) and the partial acquisition area of 1411 Village Way (APN 402-111-24), there is potential for ACM and mercury- and chlorofluorocarbon-containing equipment to be present in the structures. During final design, the qualified professionals will conduct an ACM survey and a survey and sampling for mercury- and chlorofluorocarbon-containing materials in the structures at 2400 South Pullman Street (APN 430-012-03) (full acquisition) and the area for partial acquisition at 1411 Village Way (APN 402-111-24). The ACM survey will be overseen by a California Certified Asbestos Consultant. The ACM survey report will provide a description of the ACMs on those two parcels, their locations, their estimated quantities, and specific requirements for removal, containment, and off-site transport and disposal of ACMs. The requirements from that study will be included in the project specifications for implementation during project construction activities.

During construction, the construction contractor will implement the requirements in the ACM survey report as included in the project specifications.

HAZ-5 Based on the age of the structures located at 2400 South Pullman Street (APN 430-012-03) (proposed full acquisition) and at 1411 Village Way (APN 402-111-24) (proposed partial acquisition), there is potential for lead-based paint (LBP) to be present in the structures on those parcels. The qualified professionals will initiate an LBP survey on the structures on 2400 South Pullman Street (APN 430-012-03) (full acquisition) and the area for partial acquisition at 1411 Village Way (APN 402-111-24) prior to completion of the PA&ED phase and complete the LBP survey during the PS&E phase. The LBP study will be conducted by trained and/or licensed professionals and will comply with the EPA, Housing and Urban Development, and California Department of Public Health guidelines. The LBP study report will provide a description of the LBP locations on the two parcels; the estimated quantities of LBP; and specific requirements for removal, containment, and off-site transport and disposal of materials containing LBP from those two properties.

The requirements from that study will be included in the project specifications for implementation during project construction.

The construction contractor will implement the requirements in the LBP survey report as included in the project specifications.

HAZ-6 Soil sampling for pesticides on former agricultural properties will be initiated prior to completion of the PA&ED phase and completed during the PS&E phase. Soils located in the upper 5 feet of the full acquisition of APNs 403-072-02 and 403-072-01 will be collected and analyzed to evaluate the presence or absence of residual organochlorine pesticides and arsenical herbicides. The soil sampling will be conducted in general accordance with DTSC Interim Guidance for Sampling Agricultural Fields for School Sites (August 26, 2002). The performance standard for this measure complies with applicable federal, State, and local regulations regarding removal, handling, transport, and disposal of soils contaminated with pesticides. The analytical results of the soil sampling will determine the appropriate handling and disposal of the soil.

During construction, the construction contractor will properly dispose of all soils exceeding the criteria for State or federal hazardous waste at an appropriate State-certified landfill facility.

HAZ-7 During construction, the construction contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 in the Caltrans *Construction Manual* (August 2006).

HAZ-8 A preliminary site investigation will be initiated during PA&ED and completed during PS&E on the property at 2344 Pullman Street (APN 430-012-02), which is located adjacent to the maximum limits of disturbance of the Build Alternatives. The preliminary site investigation will assess the presence or absence of impacts associated with the hazardous waste storage area observed in the northwest corner on the site.

As discussed in Section 2.9, Water Quality and Storm Water Runoff, groundwater dewatering during construction may be required. As specified in Measure WQ-5, if dewatering is required, construction site dewatering will comply with one of two orders, or any subsequent orders, that apply to groundwater discharges to surface waters within the Santa Ana Region depending on the nature of the groundwater.

Although the full extent of potential remediation will not be determined until the preliminary site investigations are conducted, the worst-case scenario for each parcel is as follows:

- **17842 Cowan, Irvine (APN 427-261-08):** Removal and off-site disposal of impacted soil.
- **No Address (APNs 403-072-02 and 403-072-01):** Removal and off-site disposal of impacted soil.

- 1981, 1999, and 2011 South Ritchey Street, Santa Ana (APN 403-041-07): Removal and off-site disposal of impacted soil.
- **1123 Warner Avenue, Santa Ana (APN 430-241-12):** Treatment of impacted groundwater prior to its disposal through a sewer system or storm drain.
- **2400 South Pullman Street, Santa Ana (APN 430-012-03):** Removal and off-site disposal of impacted soil, long-term monitoring of impacted groundwater, and installation of a soil vapor barrier system beneath any future structures.

The worst-case remediation activities on the parcels listed above would have little to no impact on public safety (residents and business employees). Adequate protection to construction workers could be provided with the implementation of a Health and Safety Plan and Soil Management Plan.

The cost of remediation for the parcels listed above is not known at this time and will be determined upon completion of the preliminary site investigations.

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Table 2.12.1 Properties Proposed for Full and Partial Acquisitions or TCEs with Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Type of Acquisition by Alternative					Databases	Types of Concern	Proposed for Site Investigation
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M			
Map ID No. A-1 2400 South Pullman Street Santa Ana, CA APN 430-012-03 Team Surgical Align Med Automotive shop Commercial	TCE Partial	TCE Partial	Full	Full	Full	N/A	During the reconnaissance-level visit, the rear part of the building on this parcel was observed to be occupied by an automotive shop. The front part of the building was vacant. It appeared that Team Surgical Align Med had just recently vacated the building and another commercial business specializing in banners and signs would be occupying the front portion of the structure in the future. One pad-mounted transformer was observed in the northeastern part of the parcel. No staining was observed on the concrete pad beneath the transformer. A hazardous waste storage area was observed directly adjacent to the southeast part of the parcel. In addition, a hazardous chemical/waste storage area was observed directly adjacent to the southeast part of the parcel. Based on the nature of the businesses and the potential presence of hazardous chemicals associated with the businesses, the uses on these properties are considered Recognized Environmental Concerns. In addition, based on the age of the structure, LBP and ACM might be contained in the structure, and there is also potential for mercury- and chlorofluorocarbon-containing equipment to be present in the structures.	Yes
Map ID No. A-2 1981, 1999, 2011 South Ritchey Street Santa Ana, CA APN 403-041-07 Various industrial uses, including Fletcher's Drapery Cleaning, Sunny Hills Cleaners, and Monarch Precision Deburring Co.	TCE	TCE	TCE Partial	TCE Partial	TCE Partial	RCRA-SQG Drycleaners	The RCRA-SQG lists these businesses as small quantity generators that generate more than 100 and less than 1,000 kg of hazardous waste during any calendar month and accumulate less than 6,000 kg of hazardous waste at any time. No violations were noted. The waste generated was listed as liquids with halogenated organic compounds greater than 1,000 mg/L, and halogenated solvents. Recorded dry cleaning operations have been present at 1999 South Ritchey Street since 1992. Based on the nature of the businesses (dry cleaning and deburring) at these addresses and the potential presence of hazardous chemicals associated with these businesses, the uses on this parcel are considered Recognized Environmental Concerns. In addition, this parcel is adjacent to the parcel occupied by Bell Industries (Map ID No. B-3) at 1831 South Ritchey. Groundwater and potential soil gas under APN 403-041-07, which is proposed for partial	Yes

Table 2.12.1 Properties Proposed for Full and Partial Acquisitions or TCEs with Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Type of Acquisition by Alternative					Databases	Types of Concern	Proposed for Site Investigation
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M			
							acquisition under all four Build Alternatives, may be impacted by the up-gradient Bell facility since the former Bell Industries is considered an off-site Recognized Environmental Concern. There is potential for the soil vapor and groundwater beneath the property limits to be impacted by this off-site facility, thus presenting an inhalation risk to future occupants or construction workers within the project limits. Additional investigation may be warranted if groundwater is encountered at the Fletcher's Drapery Cleaning parcel during project construction.	
Map ID No. A-3 1123 Warner Avenue Santa Ana, CA APN 430-241-12	TCE Partial	TCE Partial	TCE Partial	TCE Partial	TCE Partial	LUST	The LUST database listing states a leak of chlorinated hydrocarbons was discovered in 1987 that affected the groundwater beneath the facility. The facility status is listed as "open – remediation." The abatement method is listed as "Pump and Treat Groundwater – generally employed to remove dissolved contaminants." In 2005, a dual-phase extraction system was installed and began operation at the facility. Since the system began operating in 2005, approximately 1,632,000 gal of contaminated groundwater have been extracted and approximately 626 gal of liquid-phase solvent have been recovered. From September 2008 to December 2011, approximately 0.01 lb of dissolved-phase solvent, 100 lbs of non-methane vapor phase organic compounds, and 0.1 lb of vapor phase VOCs have been recovered, which indicates the system is reaching its potential limit for removing additional contamination. Elevated concentrations of VOCs above cleanup goals were detected in the groundwater in December 2011. Shutdown of the system was recommended in the *Annual Groundwater Monitoring Report* for the facility dated April 26, 2012. The LUST and known dissolved contaminant plume in groundwater are considered Recognized Environmental Concerns. A majority of the groundwater plume and contaminated soil at this facility is in the southeastern part, which is downgradient from the proposed partial acquisition area and the proposed tieback wall for the Warner Avenue Overcrossing; however, because groundwater will likely be encountered during the installation of tie-back walls beneath the Warner Avenue Overcrossing, additional assessment of the groundwater is recommended to determine proper handling and disposal. Depending on the results of the analysis, groundwater may require off-site treatment and disposal at a licensed facility or could be	Yes

Table 2.12.1 Properties Proposed for Full and Partial Acquisitions or TCEs with Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Type of Acquisition by Alternative					Databases	Types of Concern	Proposed for Site Investigation
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M			
							treated on site prior to discharge to the municipal sewer system or storm drain under an approved NPDES permit.	
Map ID No. A-4 South Ritchey Street Santa Ana, CA APN 403-072-02			Full	Full	Full	N/A	The historical use of this parcel for agricultural uses is considered a Recognized Environmental Concern. There may be residual organochlorine pesticides and arsenical herbicides in the subsurface soils. This parcel has remained primarily undeveloped since its use for agricultural purposes as depicted in the historical aerial photographs. Additional assessment for the presence of organochlorine pesticides and arsenical herbicides should be conducted to evaluate soil conditions with respect to these constituents.	Yes
Map ID No. A-5 South Ritchey Street Santa Ana, CA APN 403-072-01			Full	Full	Full	N/A	The historical use of this parcel for agricultural uses is considered a Recognized Environmental Concern. There may be residual organochlorine pesticides and arsenical herbicides in the subsurface soils. This parcel has remained primarily undeveloped since its use for agricultural purposes as depicted in the historical aerial photographs. Additional assessment for the presence of organochlorine pesticides and arsenical herbicides should be conducted to evaluate soil conditions with respect to these constituents.	Yes
Map ID No. A-6 1411 Village Way Santa Ana, CA APN 402-111-24	TCE Partial	TCE Partial	TCE Partial	TCE Partial	TCE Partial	N/A	A partial acquisition area was observed to be occupied by a vacant warehouse building and an adjacent asphalt-paved and landscaped area. No recorded violation was reported. However, based on the age of the structure, LBP, ACMs, and potential mercury- and chlorofluorocarbon-containing equipment may be present in the structure.	No
Map ID No. A-7 17842 Cowan Avenue Irvine, CA APN 427-261-08		TCE Partial	TCE Partial			N/A	Files were reviewed at the Orange County Health Care Agency. A *Soil and Groundwater Investigation Report* prepared by Pacific Edge Engineering, Inc. (June 30, 1999) stated that the facility has one 12,000 gal diesel fuel tank that was installed in 1984. A leak of diesel discovered in 1999 affected the groundwater beneath the facility. The facility was remediated to the satisfaction of the Orange County Health Care Agency, and closure was granted May 30, 2000. In addition, the dispenser piping was upgraded in 1999. Total petroleum hydrocarbons as gasoline and diesel were detected in the soil at a maximum concentration of 31 mg/kg and 166 mg/kg, respectively. Benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected above the laboratory limits in the soil or groundwater samples analyzed during the investigation. A low concentration of MTBE was detected in	Yes

Table 2.12.1 Properties Proposed for Full and Partial Acquisitions or TCEs with Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Type of Acquisition by Alternative					Databases	Types of Concern	Proposed for Site Investigation
	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 3M			
							the groundwater sample (15.6 ppb); however, because the facility did not use MTBE, this result was attributed to an off-site source. Based on these results, closure was issued by the Orange County Health Care Agency in a letter dated May 30, 2000. Additional information, with the exception of the case closure date, was not found on the SWRCB database. On December 13, 2011, a routine inspection was conducted on the one single-walled, steel-clad Joor tank, piping, dispenser, and sump at the facility. No violations were noted. During the site reconnaissance, the fuel dispenser was noted at a distance of 20 to 30 feet east-southeast of the partial acquisition area. Residual contamination from the above dispenser piping leak is still present at the facility as noted in the closure letter, although it is limited in area and located only in the upper 5 feet below ground surface. Collect and analyze soil samples from one boring drilled along the eastern boundary of the partial acquisition area to assess whether contamination still remains that is associated with the previous dispenser piping leak.	
Total by Alternative	**4 TCE 3 Partial 0 Full**	**5 TCE 4 Partial 0 Full**	**4 TCE 4 Partial 4 Full**	**3 TCE 3 Partial 4 Full**	**4 TCE 4 Partial 4 Full**			

Source: *Initial Site Assessment* (2013) and *Addendum 1 Initial Site Assessment Report* (2017).

[1] The locations of these properties are shown on Figures 2.12-1 through 2.12-5 for the Build Alternatives.

ACMs = asbestos-containing materials
APN = Assessor's Parcel Number
gal = gallons
kg = kilograms
LBP = lead-based paint
lbs = pounds
LUST = leaking underground storage tank
mg/kg = milligrams per kilogram
mg/L = milligrams per liter
MTBE = methyl tertiary-butyl ether
N/A = Not Applicable
NPDES = National Pollutant Discharge Elimination System
ppb = parts per billion
RCRA = Resource Conservation and Recovery Act of 1976
SQG = Small Quantity Generator
SWRCB = State Water Resources Control Board
TCE = temporary construction easement
VOCs = volatile organic compounds

Table 2.12.2 Properties Adjacent to the Maximum Disturbance Limits with Potential Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Distance from the Maximum Disturbance Limits	Databases	Type of Concern
Map ID No. B-1 666 East Dyer Road Santa Ana, CA APN 411- 141-12 ITT Cannon, LLC	500 ft west-northwest of the maximum disturbance limits	RCRA-LQG LUST CA FID UST HIST UST SWEEPS UST EnviroStor	According to the RCRA-LQG listing, this facility was listed as a large quantity generator from August 1980 to May 2010. The waste contains chromium, lead, mercury, selenium, cadmium, silver, methyl ethyl ketones, PCE, TCE, other non-halogenated solvents, spent cyanide, and benzene. Several violations were noted; however, most were regarding record keeping and general violations. All violations were corrected. The LUST listing reported a leak of primarily chlorinated solvents that has affected the groundwater beneath the facility. The HIST UST listing lists up to 20 USTs and/or sumps associated with the facility. The contents of the USTs were listed as waste, waste oil, and product. According to the SWRCB Geotracker database, there are 84 on- and off-site groundwater monitoring wells associated with this property. The most recent groundwater monitoring was conducted in 2011. Based on iso-concentration contour maps prepared in 2011, the groundwater quality beneath several properties where TCEs are proposed and the existing right of way have been affected by contamination from the ITT Cannon property. Based on the current project design, technology to be implemented during the placement of bridge pilings, and the depth of construction (upper 5 ft), the likelihood of groundwater being encountered during the construction phase is low. However, soil vapor in the potentially affected proposed right of way may be impacted, and additional assessment may be warranted. No further investigation is recommended at this time as the groundwater plume is known and regulated by local agencies; however, in order to protect the health and safety of workers, VOC monitoring of the breathing zone is recommended during construction activities.
Map ID No. B-2 2344 Pullman Street Santa Ana, CA APN 430-012-02 American Food Service Equipment/ Western Method Machinery Corporation	Adjacent to the maximum disturbance limits	LUST CA FID UST HIST UST SWEEPS UST	The HIST UST listing indicates two tanks (500 gallons and 1,000 gallons) were installed in 1965. The LUST listing states a gasoline leak occurred at the facility that affected the groundwater aquifer beneath the facility. The LUST case is currently open and being remediated. According to the SWRCB Geotracker database, groundwater beneath this parcel flows to the south-southeast, away from the study area. In addition, iso-concentration maps indicate the contaminant plume is isolated to the southeast part of the property and in an area to the east and south of that property, away from the SR-55 right of way and adjoining areas. A hazardous waste storage area was observed in the northwest corner of this property, adjacent to APN 430-012-03, which is proposed as a full

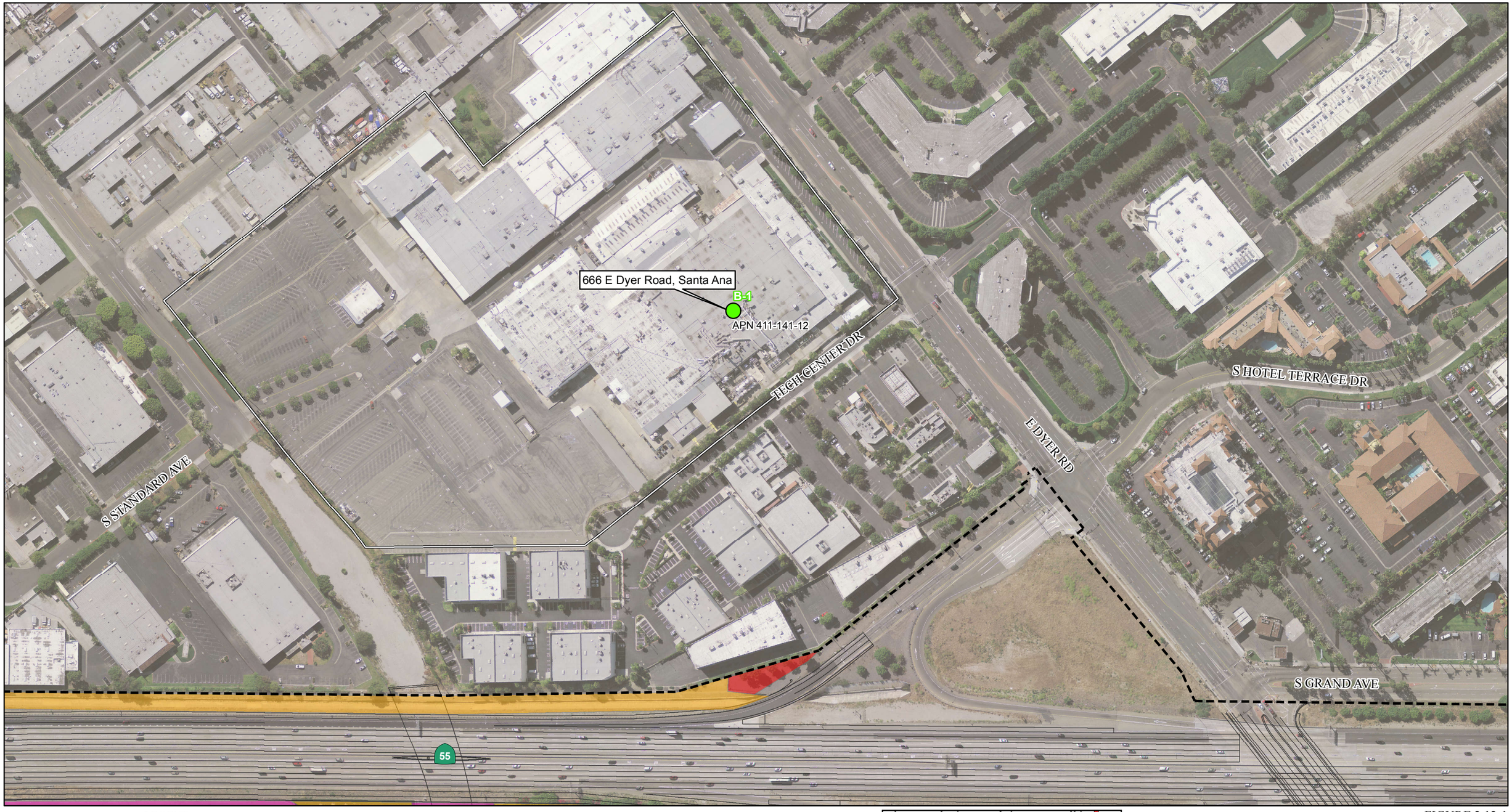
Table 2.12.2 Properties Adjacent to the Maximum Disturbance Limits with Potential Hazardous Waste Concerns

Map ID[1], Address, APN, and Current Occupant/Type of Business	Distance from the Maximum Disturbance Limits	Databases	Type of Concern
			acquisition under the Build Alternatives. As a result of the nature of this business and the location of the cited hazardous waste storage area, there is moderate potential for this property to adversely affect the SR-55 right of way and the adjoining areas.
Map ID No. B-3 1831 South Ritchey Street Santa Ana, CA APN 403-042-02 Bell Industries ESD	200 ft west-northwest of the maximum disturbance limits	RCRA-SQG SLIC Drycleaners	The RCRA-SQG listing does not describe the type of waste generated at this business; however, no violations were noted. The SLIC listing states that a spill of chlorinated solvents (PCE, TCE, 1,4-dioxane) associated with an on-site drycleaners affected the groundwater aquifer under this property. Remediation at the facility includes a large-scale on- and off-site groundwater extraction and treatment system. The plume is listed as remaining undefined, and elevated solvent/dioxane effects persist. According to the SWRCB Geotracker database, the groundwater treatment system treated approximately 91.6 million gallons of groundwater between 2001 and 2012. Although the groundwater flow direction at this property varies as a result of the groundwater extraction system, the overall general direction of the groundwater flow is to the south-southeast. The extraction and remediation of groundwater is ongoing, and there is low to moderate potential for this facility to adversely affect the SR-55 right of way. There is a low to moderate inhalation risk to construction workers working within the project limits.

Source: *Initial Site Assessment*, (2013) and *Addendum 1 Initial Site Assessment Report* (2017).

[1] The locations of these properties are shown on Figures 2.12-1 through 2.12-5 for the Build Alternatives, respectively.

APN = Assessor's Parcel Number
CA FID UST = California Environmental Protection Agency Facility Inventory Database for Active and Inactive Underground Storage Tanks
EnviroStor = California Department of Toxic Substances Control database containing information on environmental cleanups and permitted facilities
ft = feet
HIST UST = State Water Resources Control Board Hazardous Substance Storage Container Database of Historical Listing of Underground Storage Tank Sites
LQG = Large Quantity Generator
LUST = State Water Resources Control Board Leaking Underground Storage Tank Listing
PCE = perchloroethylene
RCRA = Resource Conservation and Recovery Act of 1976
SLIC = Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
SQG = Small Quantity Generator
SR-55 = State Route 55
SWEEPS UST = Statewide Environmental Evaluation and Planning System List of Underground Storage Tanks
SWRCB = State Water Resources Control Board
TCE = temporary construction easement, or trichloroethylene
UST = underground storage tank
VOCs = volatile organic compounds



LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 1
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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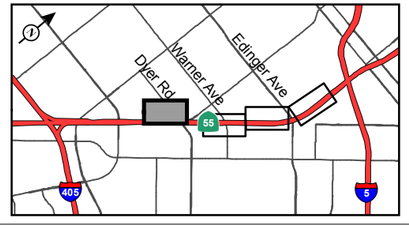

FIGURE 2.12-1
Sheet 1 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 1

12-ORA-55 PM 6.4/10.3
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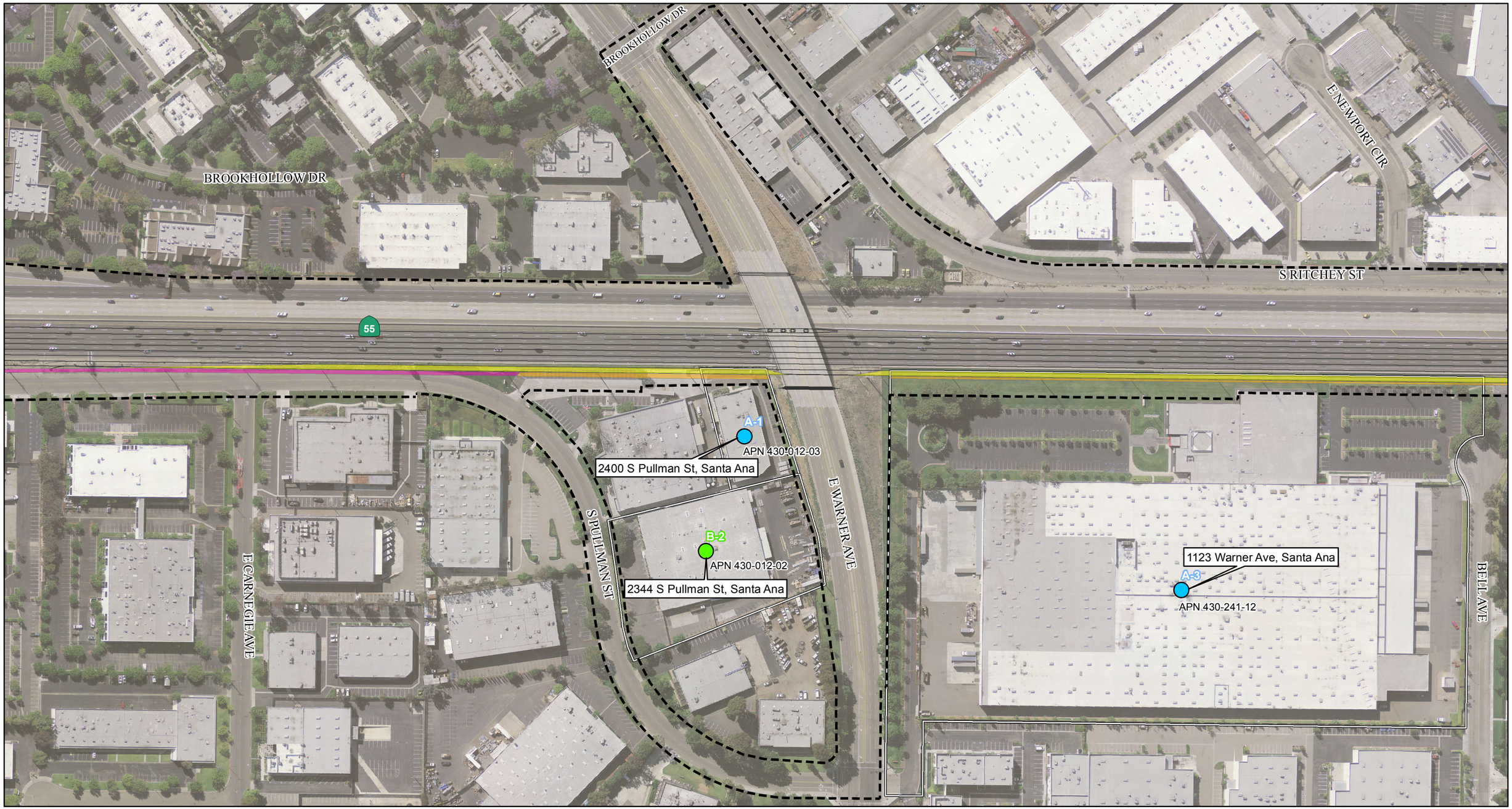
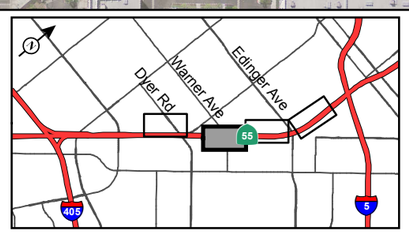


LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 1
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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FIGURE 2.12-1
Sheet 2 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 1

12-ORA-55 PM 6.4/10.3
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LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 1
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

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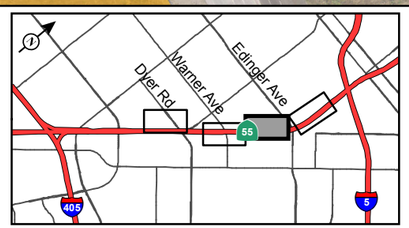

SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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FIGURE 2.12-1
Sheet 3 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 1

12-ORA-55 PM 6.4/10.3
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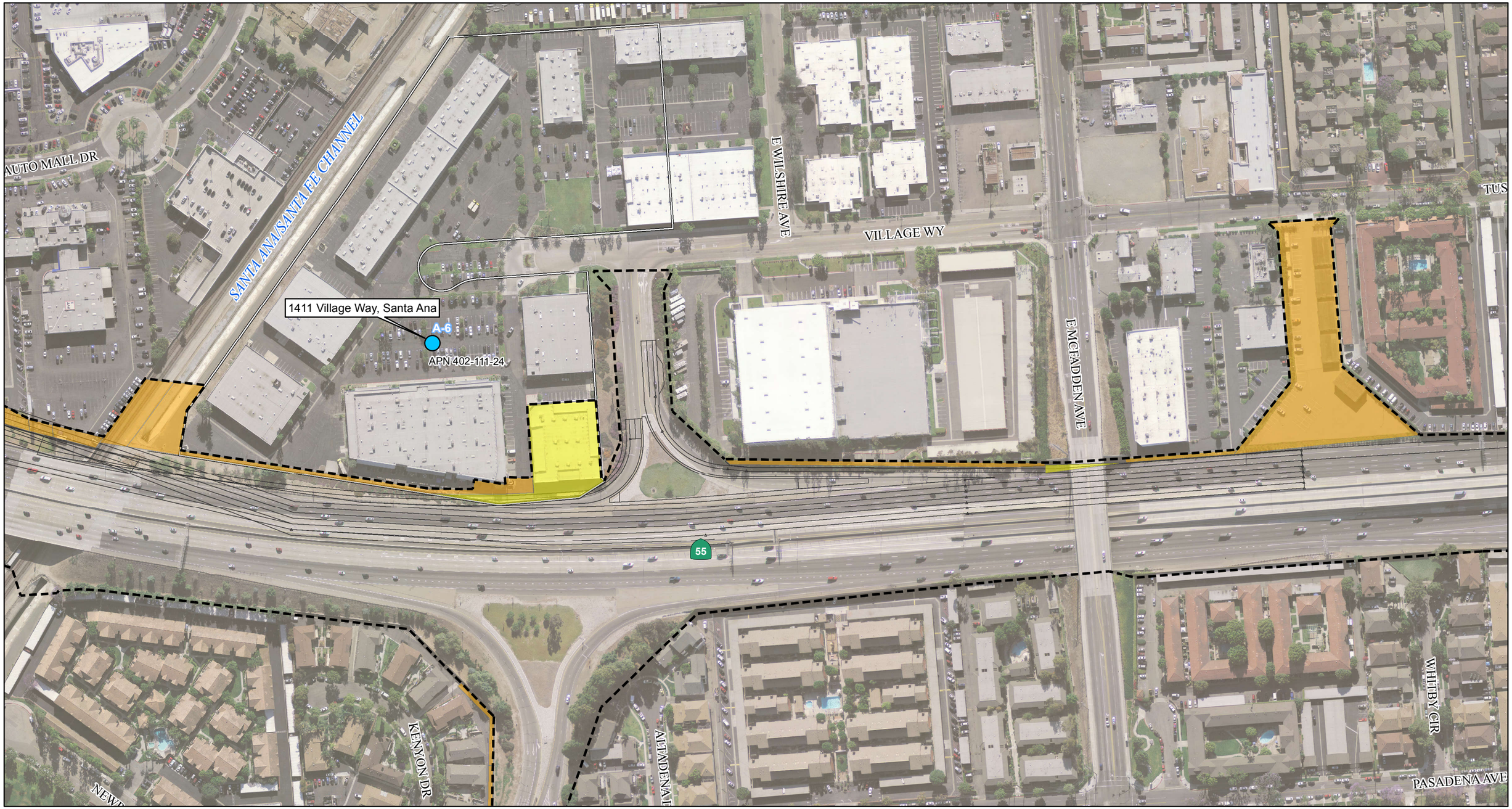
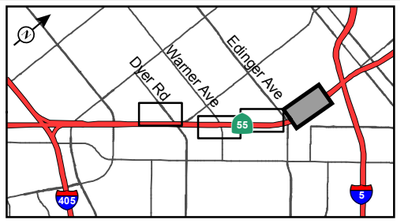


LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 1
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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FIGURE 2.12-1
Sheet 4 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 1

12-ORA-55 PM 6.4/10.3
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LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 2
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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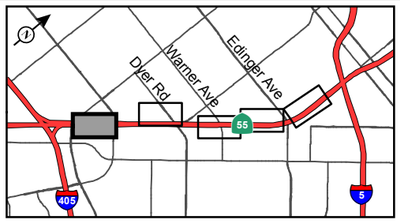

FIGURE 2.12-2
Sheet 1 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 2

12-ORA-55 PM 6.4/10.3
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666 E Dyer Road, Santa Ana

B-1

APN 411-141-12

TECH CENTER DR

E DYER RD

S HOTEL TERRACE DR

S STANDARD AVE

S GRAND AVE

55

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 2
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200

FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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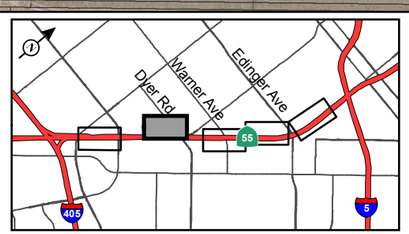

FIGURE 2.12-2

Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 2

12-ORA-55 PM 6.4/10.3

EA 0J3400/EFIS 1200020328

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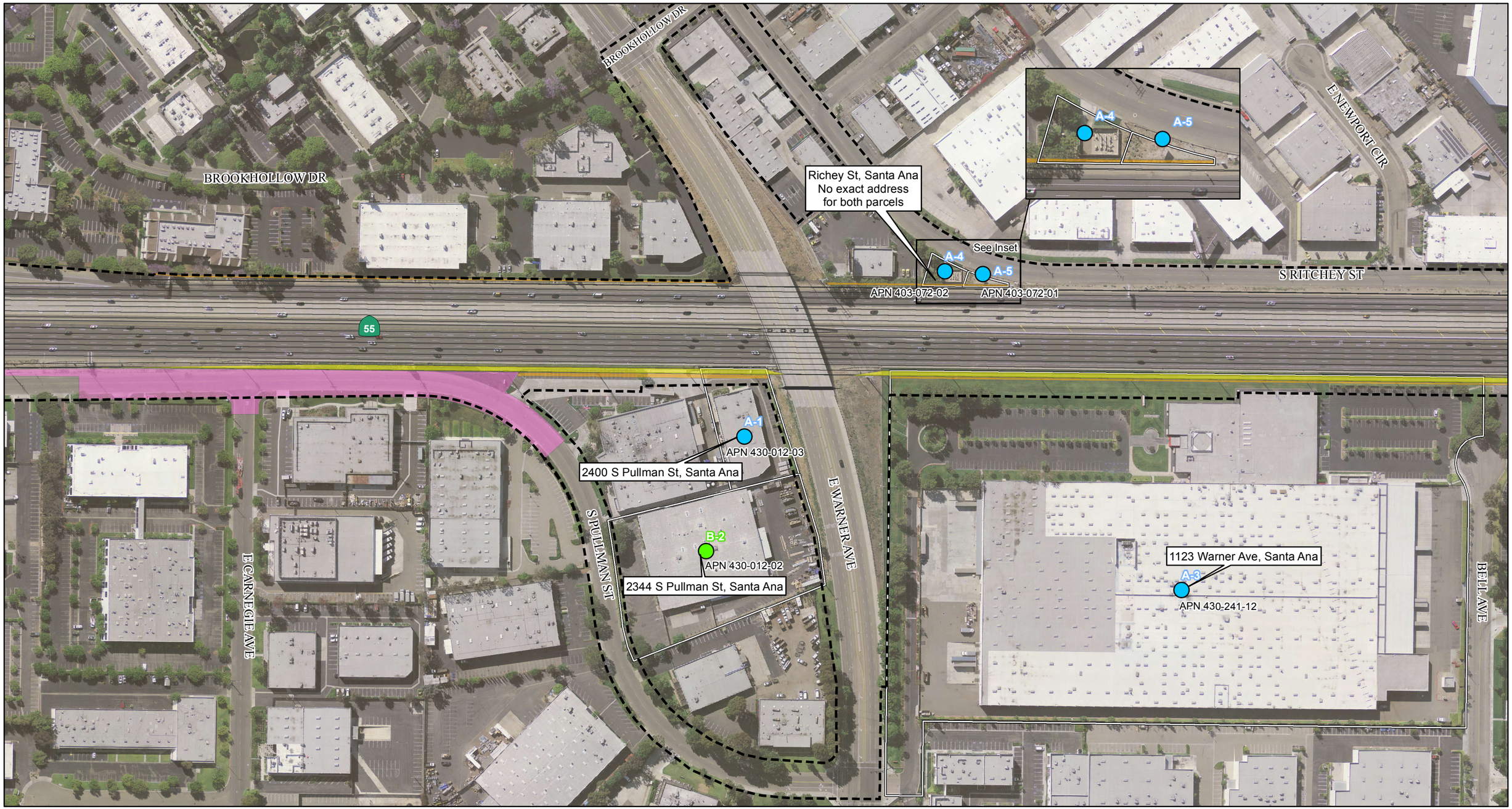

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 2
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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FIGURE 2.12-2
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 2

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 2
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

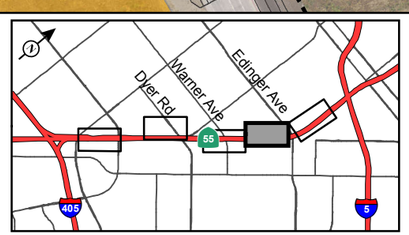

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FIGURE 2.12-2
Sheet 4 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 2

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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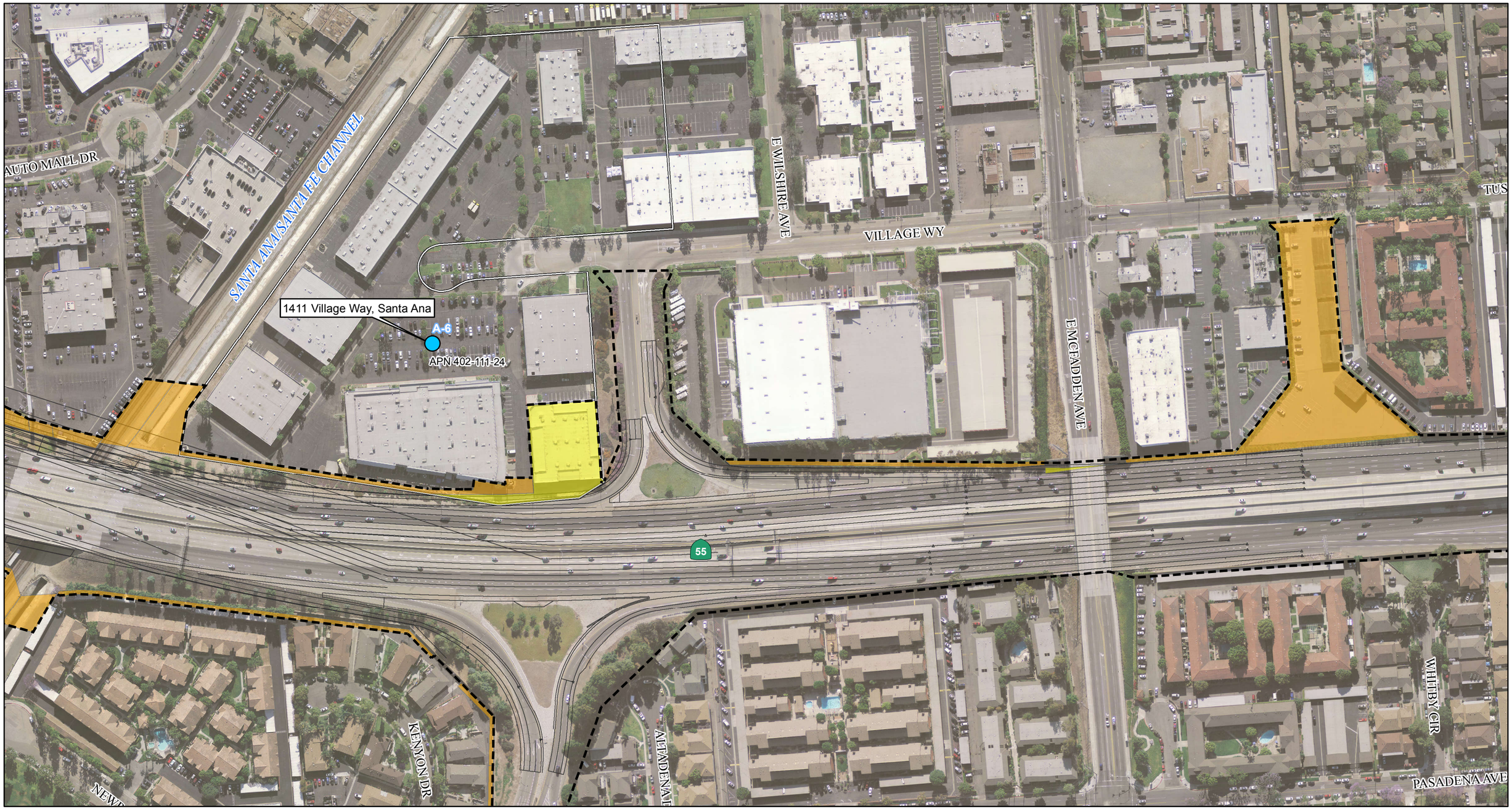

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 2
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

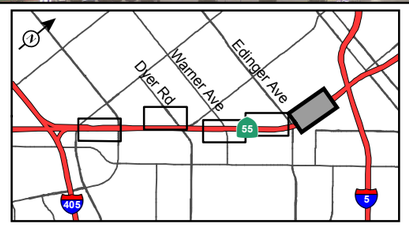

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FIGURE 2.12-2
Sheet 5 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 2

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
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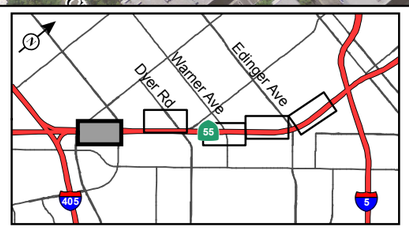

SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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FIGURE 2.12-3
Sheet 1 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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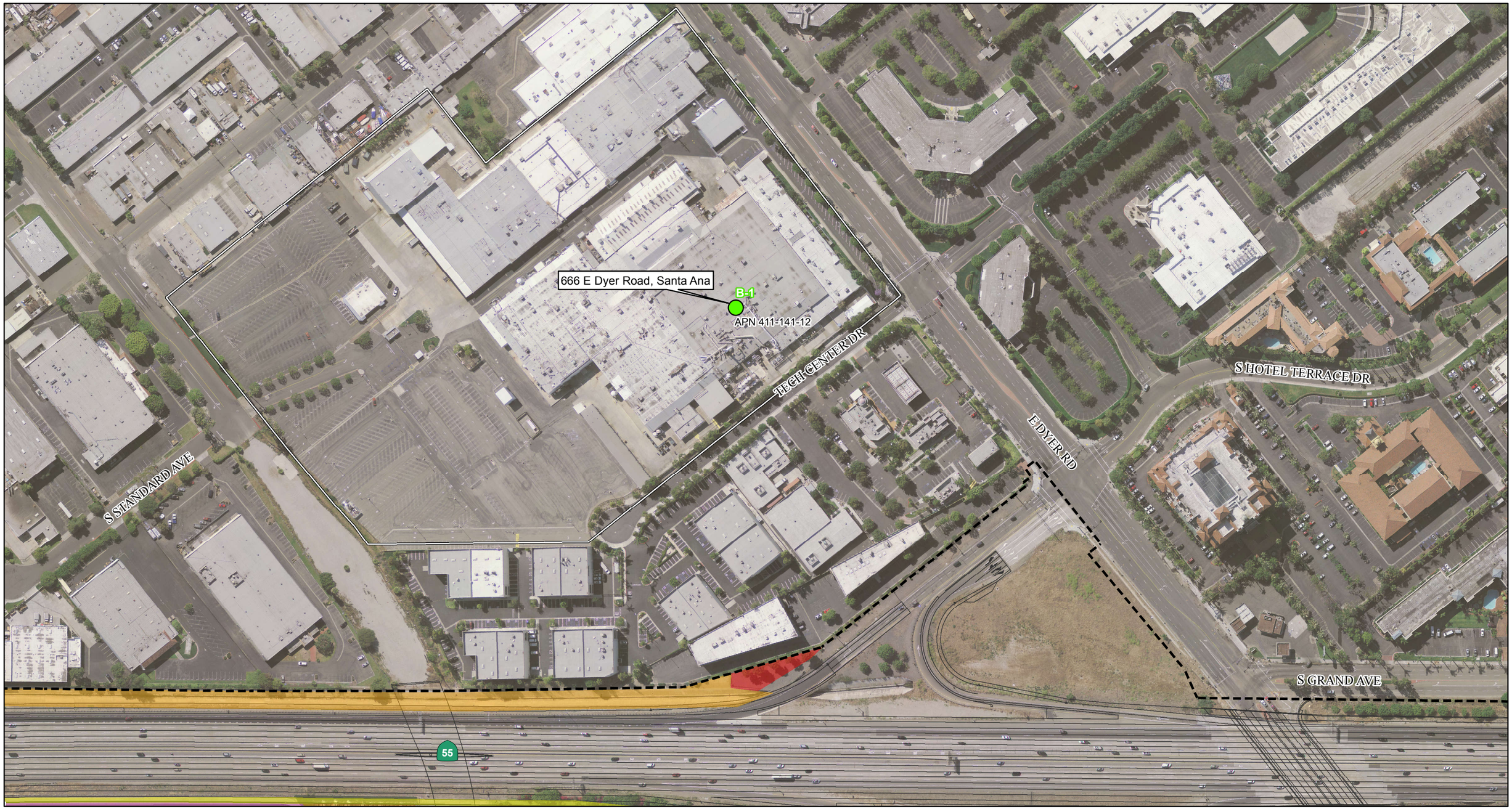

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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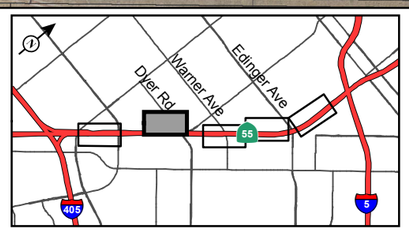

FIGURE 2.12-3
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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BROOKHOLLOW DR

BROOKHOLLOW DR

Richey St, Santa Ana
No exact address
for both parcels

E NEWPORT CIR

A-4

A-5

S RITCHEY ST

APN 403-072-02

APN 403-072-01

55

A-1

APN 430-012-03

2400 S Pullman St, Santa Ana

E WARNER AVE

S PULLMAN ST

B-2

APN 430-012-02

2344 S Pullman St, Santa Ana

1123 Warner Ave, Santa Ana

A-3

APN 430-241-12

BELL AVE

E CARNEGIE AVE

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

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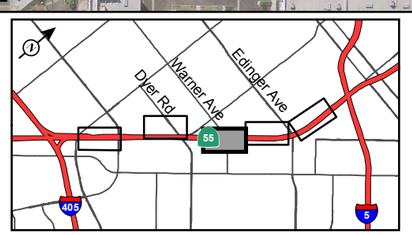

FIGURE 2.12-3
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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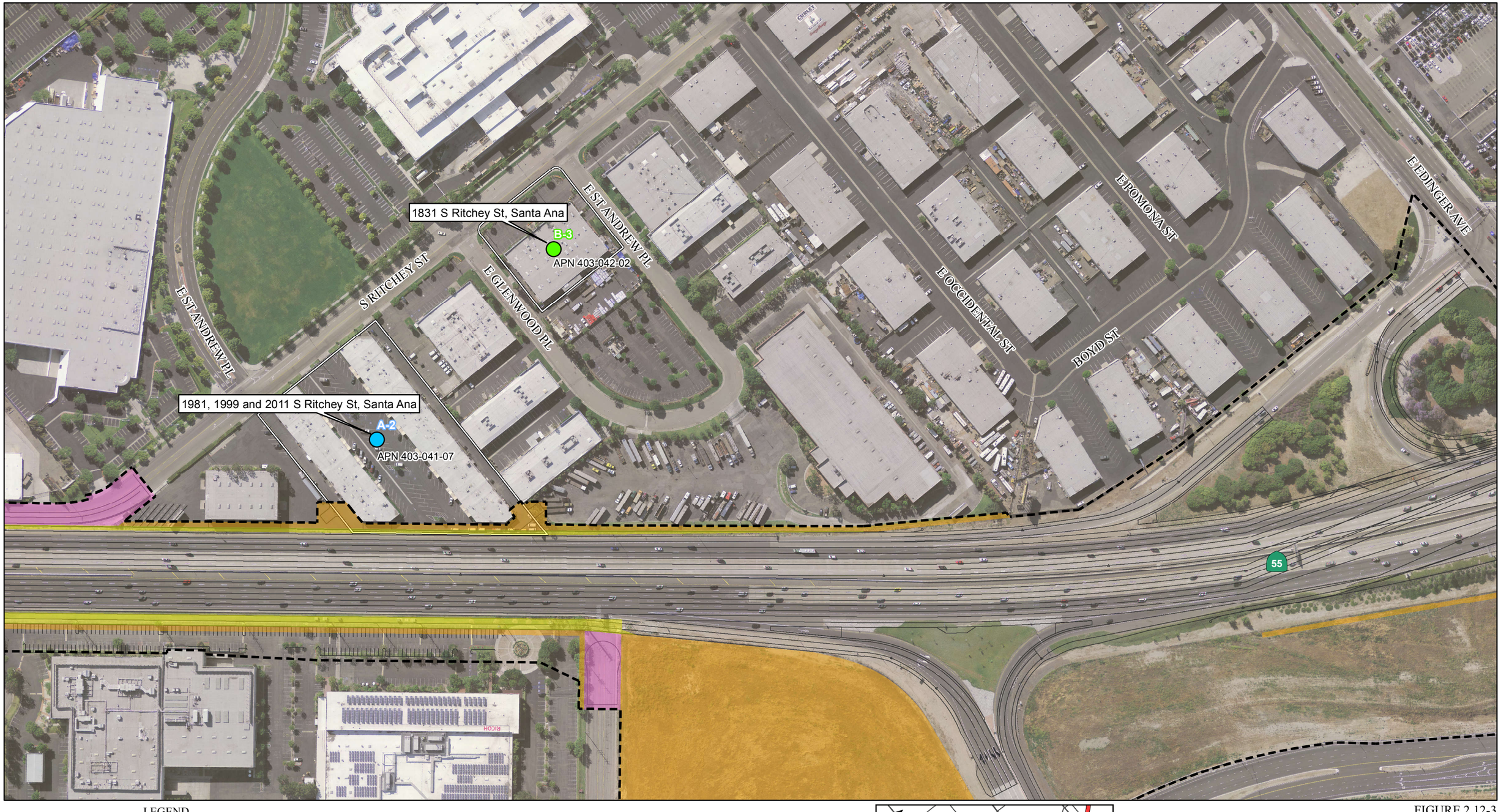

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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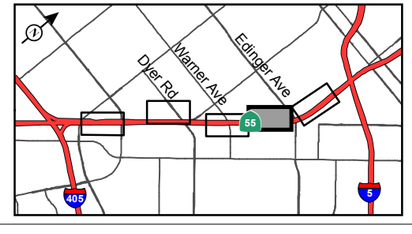

FIGURE 2.12-3
Sheet 4 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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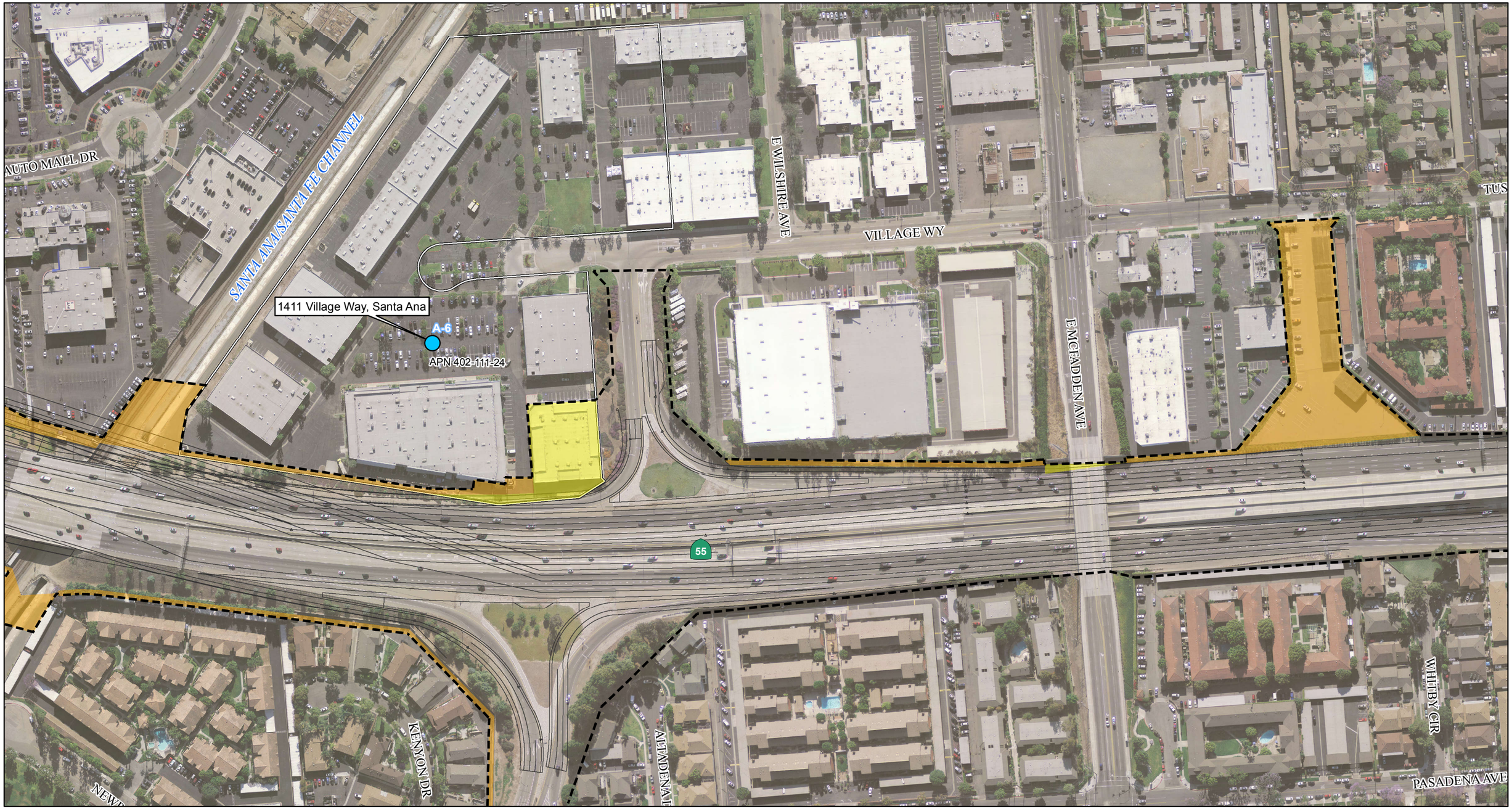
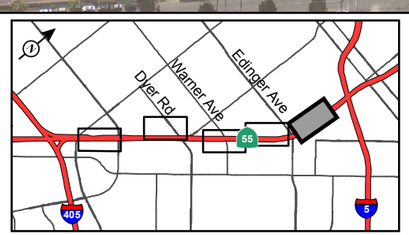


LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); HDR (9/2012, 2/2013, 10/2015)

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FIGURE 2.12-3
Sheet 5 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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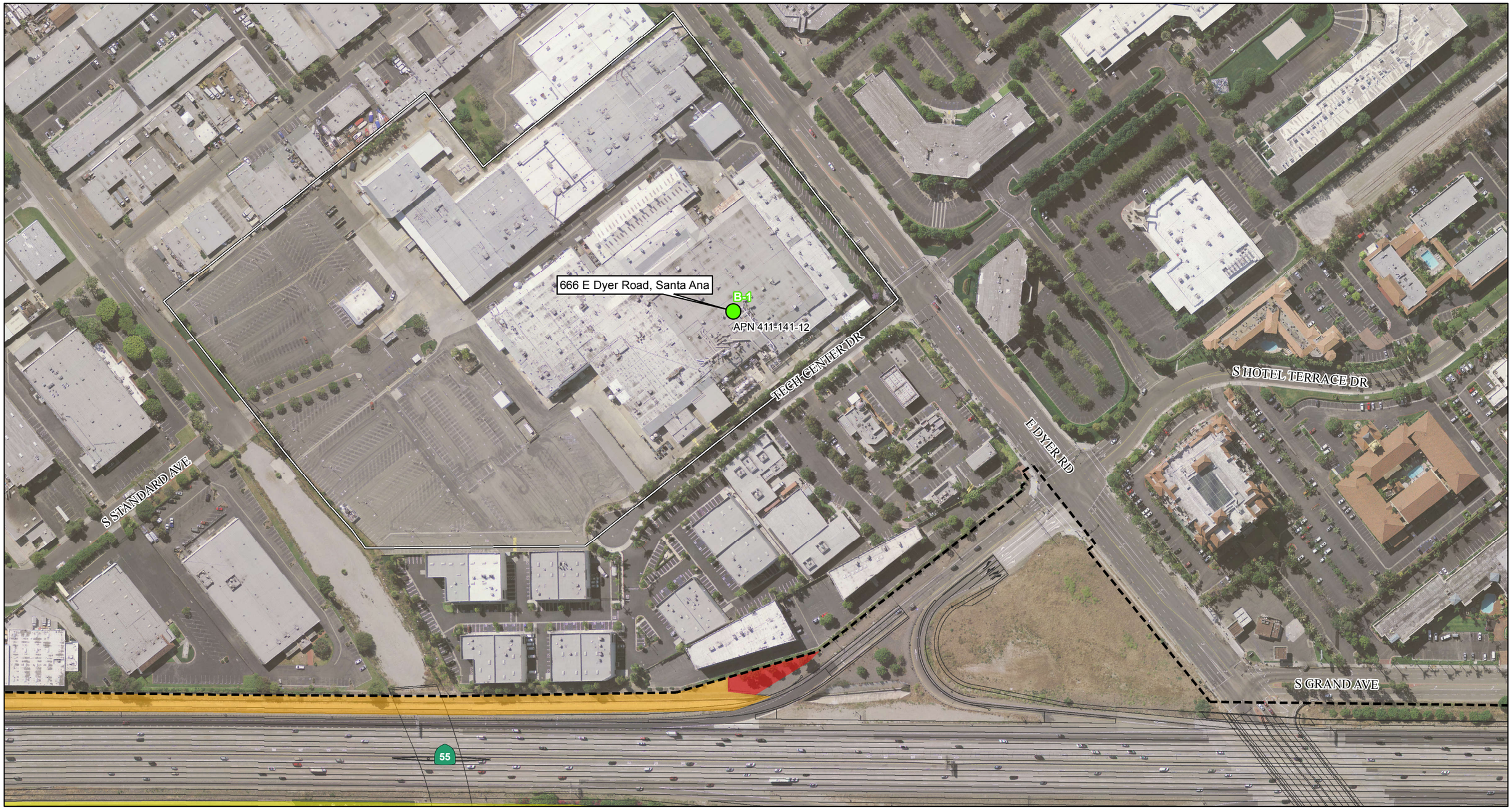
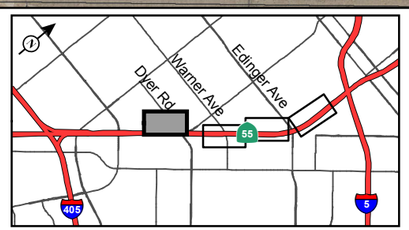


LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 4
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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FIGURE 2.12-4
Sheet 1 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 4

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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BROOKHOLLOW DR

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Richey St, Santa Ana
No exact address
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A-3

APN 430-241-12

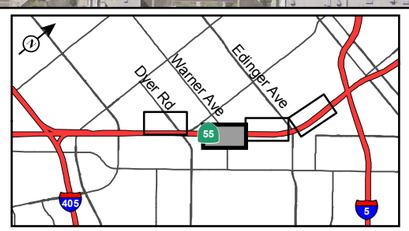
BELL AVE

E CARNEGIE AVE

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 4
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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FIGURE 2.12-4
Sheet 2 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 4

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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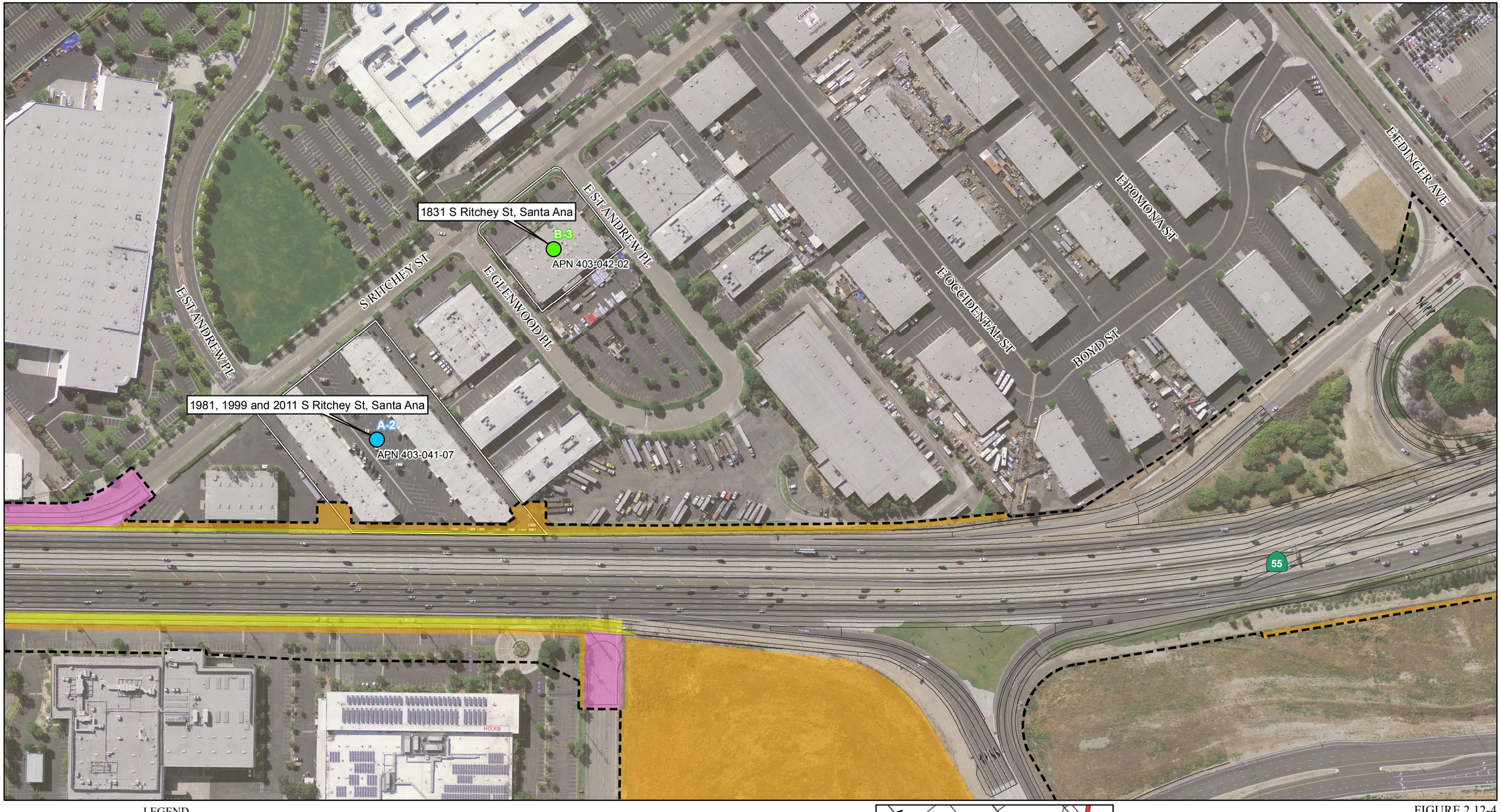

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 4
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET

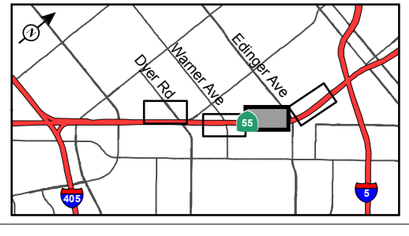

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FIGURE 2.12-4
Sheet 3 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 4

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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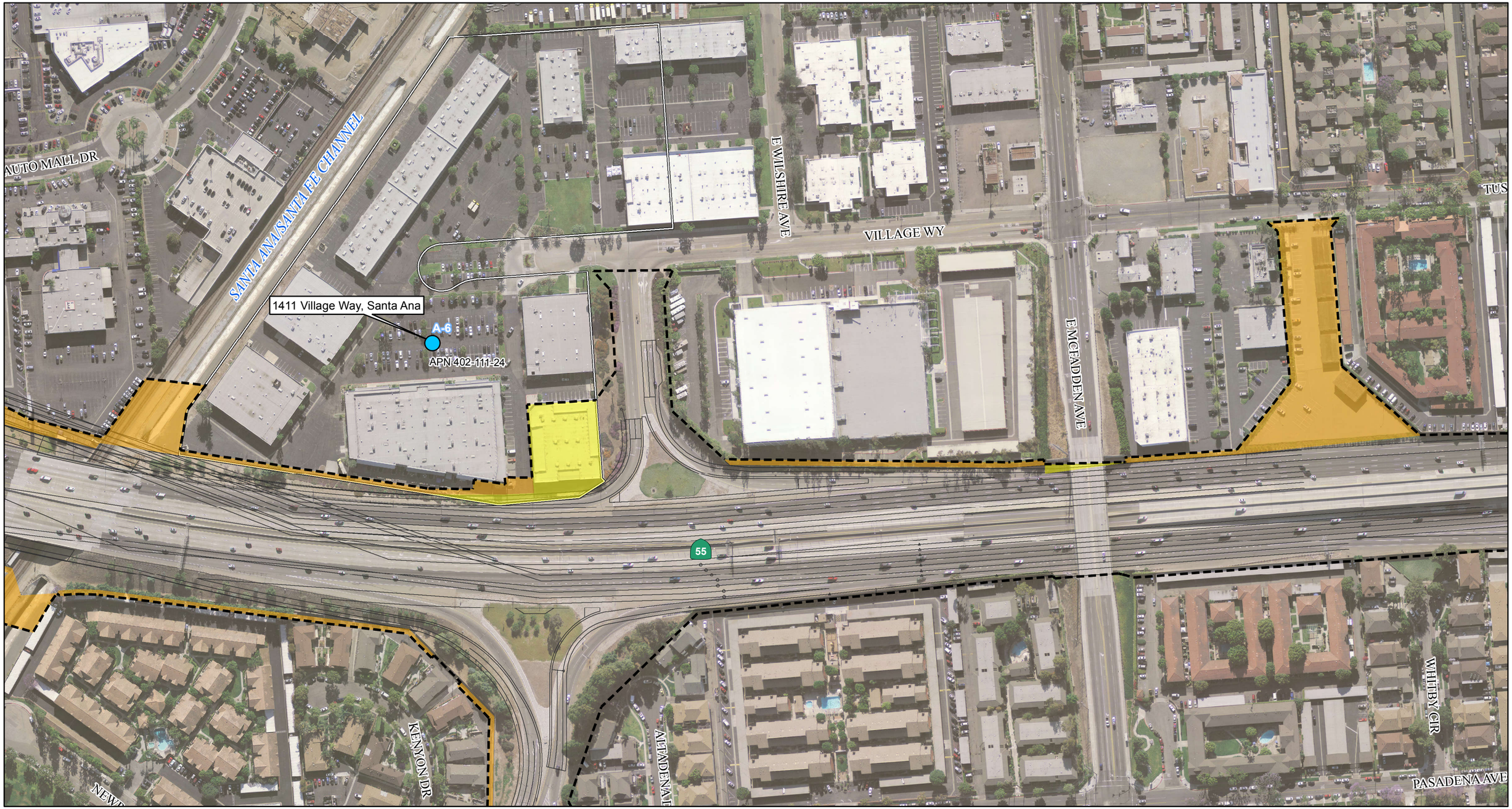
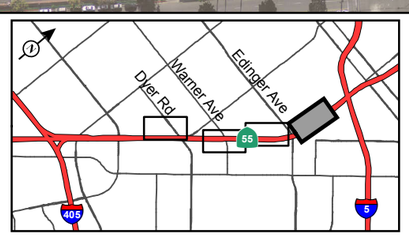


LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 4
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 100 200
FEET



SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (9/2012); Initial Study Assessment Report from HDR Engineering (Feb 2013)

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FIGURE 2.12-4
Sheet 4 of 4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 4

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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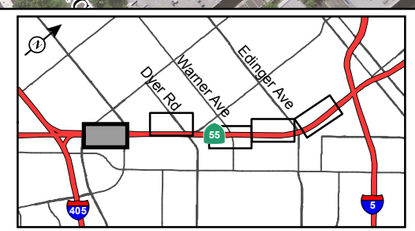
LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits

- Alternative 3M
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement



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SOURCE: Eagle Aerial (4/2011); HDR (1/2017)

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FIGURE 2.12-5
Sheet 1 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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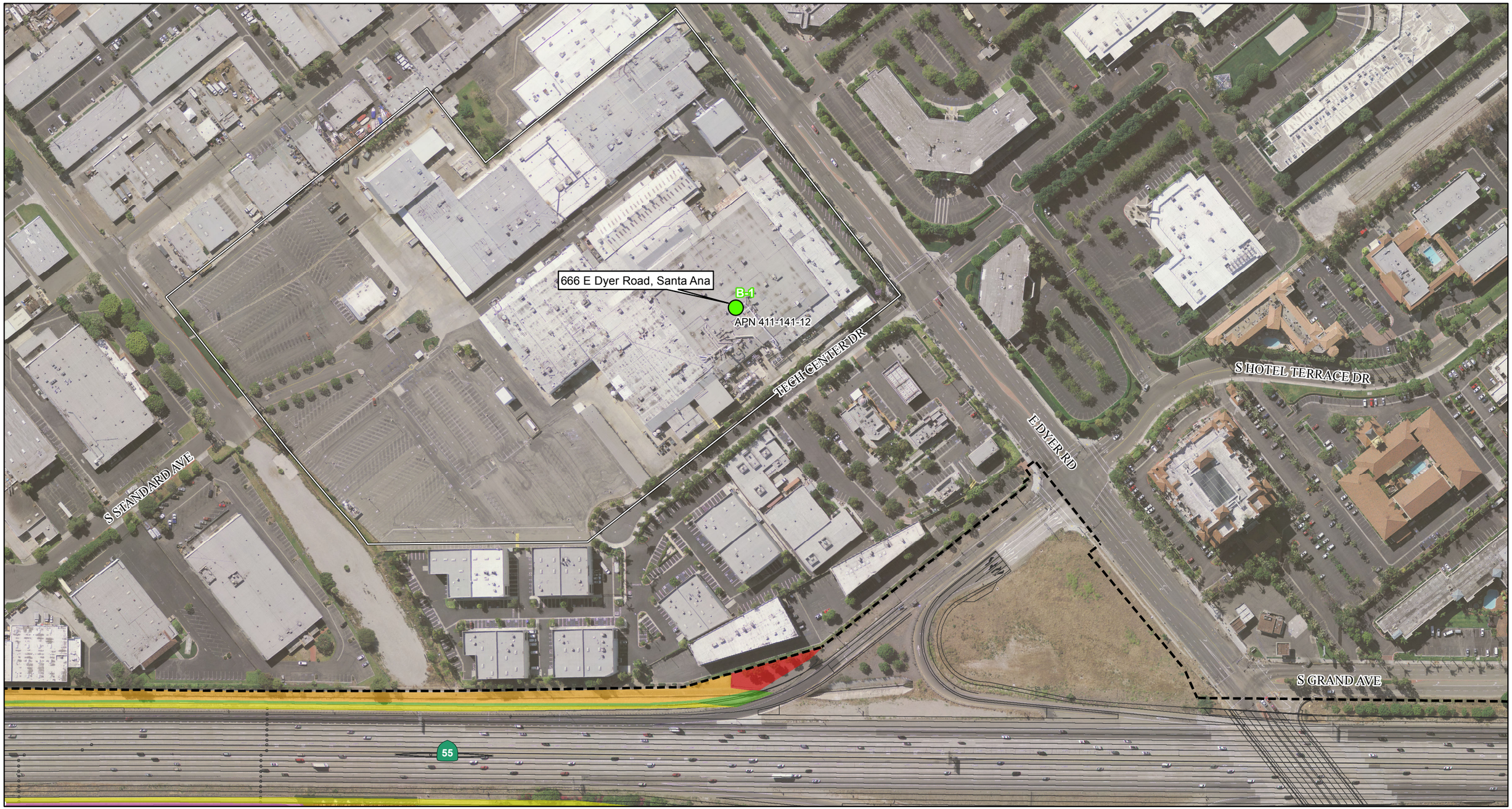

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3M
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (1/2017)

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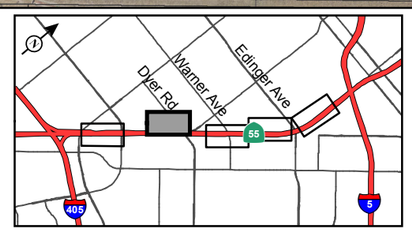

FIGURE 2.12-5
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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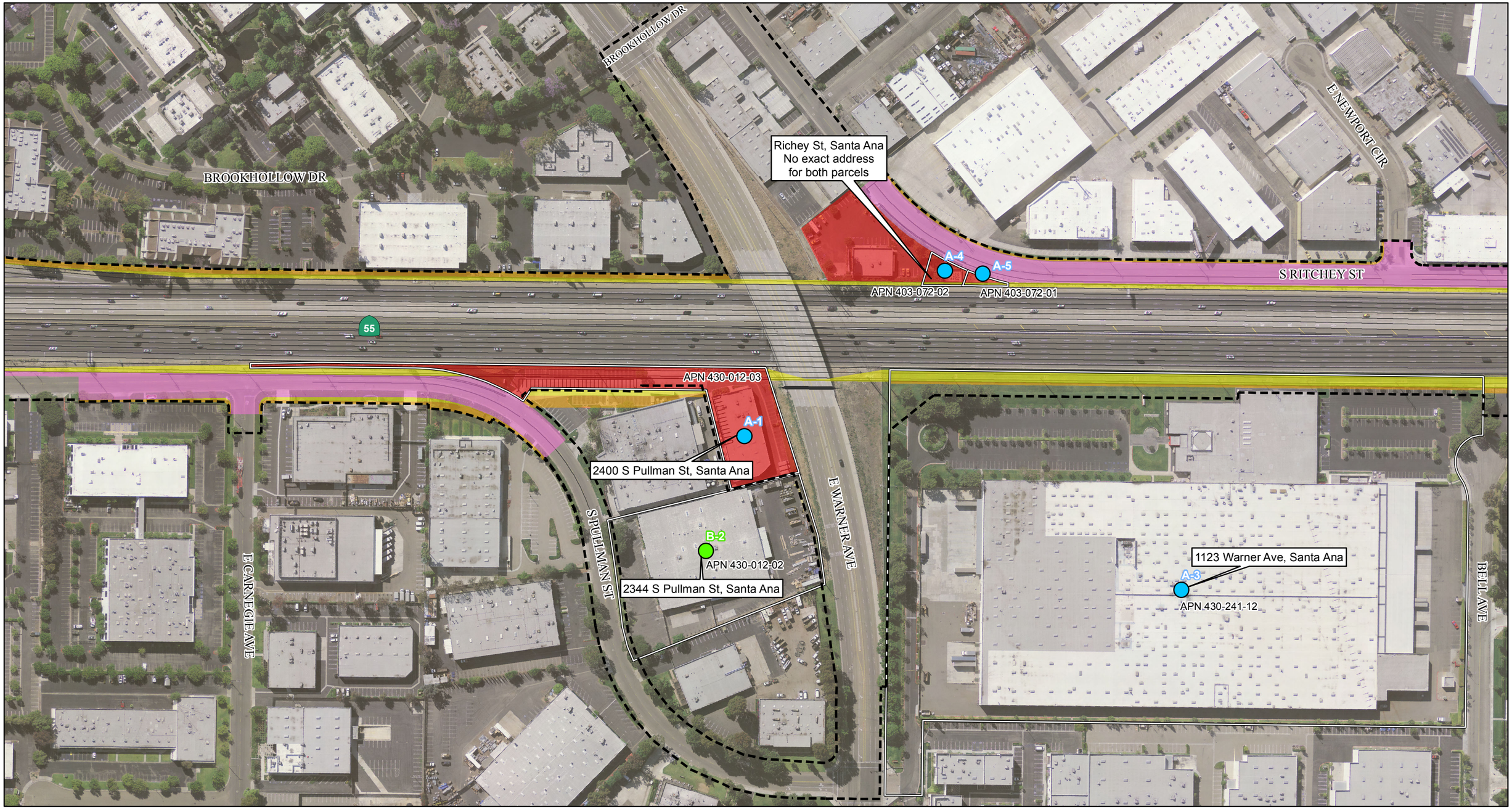

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits

- Alternative 3M
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (1/2017)

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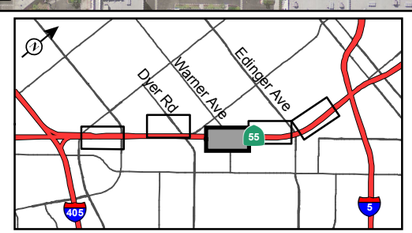

FIGURE 2.12-5
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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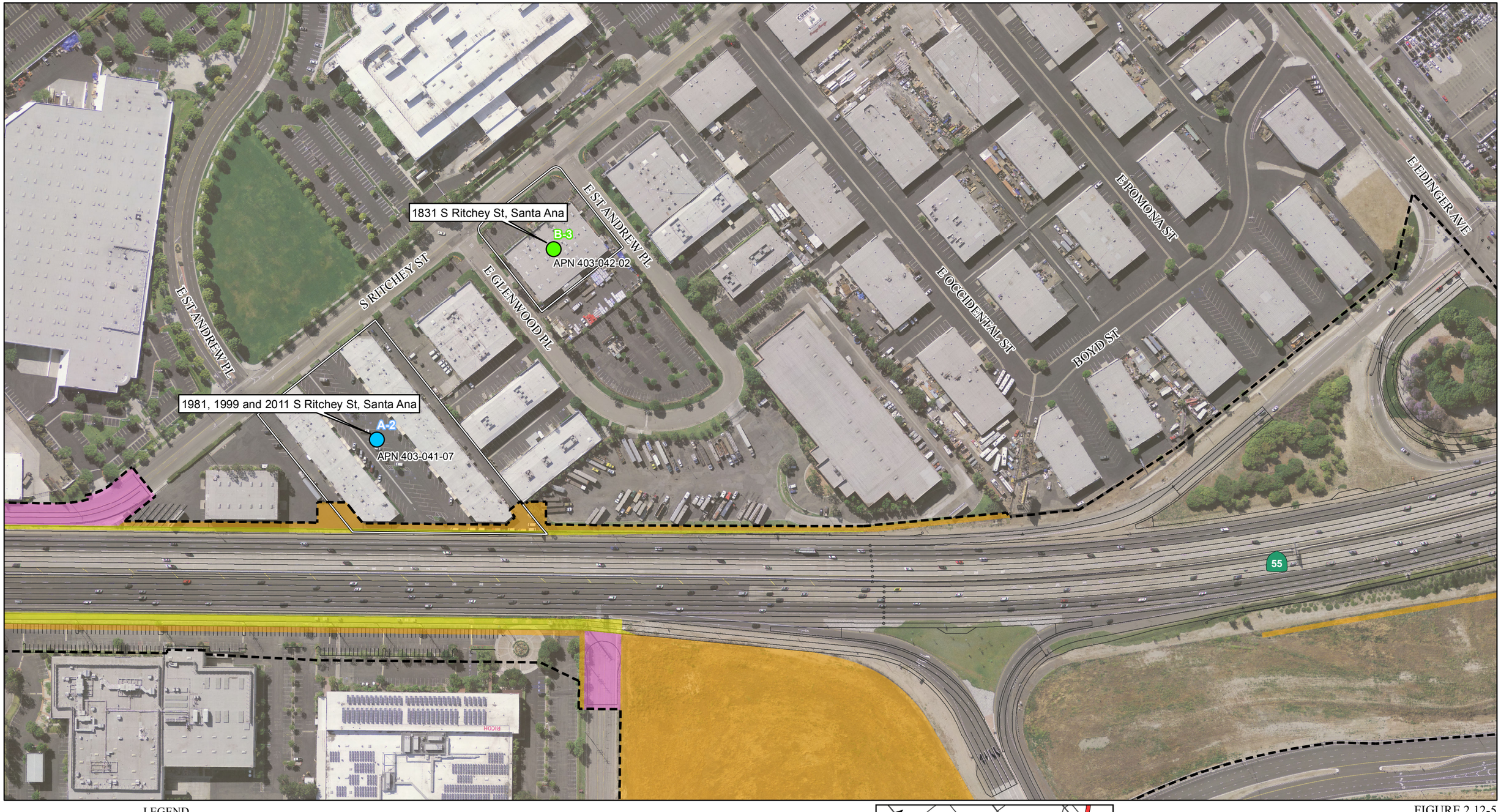

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3M
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (1/2017)

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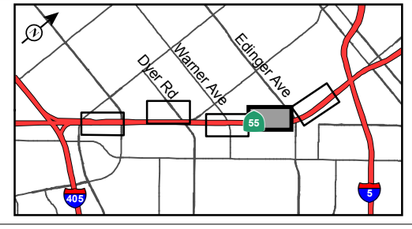

FIGURE 2.12-5
Sheet 4 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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AUTO MALL DR
SANTA ANA/SANTA FE CHANNEL
E WILSHIRE AVE
VILLAGE WY
E MCFADDEN AVE
TUS
1411 Village Way, Santa Ana
A-6
APN 402-111-24
55
KENYON DR
ALTADENA
WHITBY CIR
PASADENA AVE

LEGEND

- Right of way acquisition with hazardous waste concern
- Property adjacent to project limits with potential hazardous waste concern
- Parcel boundary
- Maximum disturbance limits
- Alternative 3M
- Encroachment Area
- Temporary Construction Easement & Possible Staging Area
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition
- Potential Caltrans Highway Easement

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); HDR (1/2017)

I:\HDR1102\GIS\ISEA_Haz_Waste_Alt3M.mxd (6/26/2017)

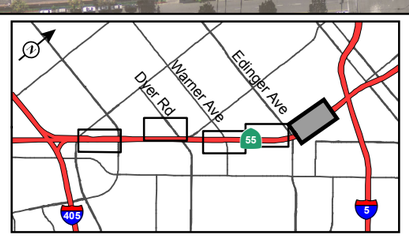

FIGURE 2.12-5
Sheet 5 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Sites of Potential Hazardous Waste Concern for Alternative 3M (Preferred Alternative)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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2.13 Air Quality

2.13.1 Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), which is broken down for regulatory purposes into particles of 10 micrometers or smaller—(PM_{10}) and particles of 2.5 micrometers and smaller—($PM_{2.5}$), and sulfur dioxide (SO_2). In addition, national and state standards exist for lead (Pb) and state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

2.13.1.1 Conformity

The conformity requirement is based on Federal Clean Air Act Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attainting the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional, or planning and programming, level, and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulation (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California) sulfur dioxide (SO_2). California has attainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration

(FHWA), and Federal Transit Administration (FTA), make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Conformity analysis at the project-level includes verification that the project is included in the regional conformity analysis and a "hot-spot" analysis if an area is "nonattainment" or "maintenance" for carbon monoxide (CO) and/or particulate matter (PM_{10} or $PM_{2.5}$). A region is "nonattainment" if one or more of the monitoring stations in the region measures a violation of the relevant standard and the U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by U.S. EPA and are then called "maintenance" areas. "Hot-spot" analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the "hot-spot" related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.13.2 Affected Environment

This section is based on the Air Quality Assessment Report (2015) and the Supplemental Air Quality Analysis (2016) prepared for the project.

2.13.2.1 Climate

The project segment of State Route 55 (SR-55) is located in Orange County, an area within the South Coast Air Basin (Basin), which includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. Air quality regulation in the Basin is administered by the South Coast Air Quality Management District (SCAQMD), a regional agency created for the Basin.

The Basin climate is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern boundary, and high mountains surround the rest of the Basin. The region lies in the semipermanent high pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, and Santa Ana wind conditions do occur.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The climatological station closest to the project site that monitors temperature is the Tustin Irvine Ranch Station. The annual average maximum temperature recorded at that station is 75.4°F, and the annual average minimum is 49.4°F. January is typically the coldest month in this area of the Basin.

The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern part of the Basin along the coastal side of the

mountains. The climatological station closest to the project site that monitors precipitation is the Tustin Irvine Ranch Station. Average rainfall measured at that station varied from 2.67 inches in February to 0.29 inches or less between May and September, with an average annual total of 12.86 inches. Patterns in monthly and yearly rainfall totals are unpredictable due to fluctuations in the weather.

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

Inversion layers are essential in determining O_3 formation. O_3 and its precursors will mix and react to produce higher concentrations under an inversion. The inversion will also simultaneously trap and hold directly emitted pollutants such as CO. PM_{10} is both directly emitted and created indirectly in the atmosphere as a result of chemical reactions. Concentration levels are directly related to inversion layers due to the limitation of mixing space.

Surface or radiation inversions are formed when the ground surface becomes cooler than the air above it during the night. The earth's surface goes through a radiative process on clear nights, when heat energy is transferred from the ground to a cooler night sky. As the earth's surface cools during the evening hours, the air directly above it also cools, while air higher up remains relatively warm. The inversion is destroyed when heat from the sun warms the ground, which in turn heats the lower layers of air; this heating stimulates the ground level air to float up through the inversion layer.

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

2.13.2.2 Monitored Air Quality

The SCAQMD operates several air quality monitoring stations within the Basin. The air quality monitoring station closest to the project site is the Costa Mesa Air Quality Monitoring Station, and its air quality trends are representative of the ambient air quality in the project area. The pollutants monitored at this station are O_3, SO_2, NO_2, and CO. The closest air quality monitoring site that monitors PM_{10} and $PM_{2.5}$ is the Anaheim Station, and its air quality trends are also representative of the ambient air quality in the project area. Air quality trends identified from data collected at both air quality monitoring stations between 2012 and 2014 are listed in Table 2.13.1.

2.13.2.3 Sensitive Receptors

Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive populations in proximity to localized sources of toxics

and CO are of particular concern. Land uses that are considered sensitive receptors include residences, hotels, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes. The sensitive land uses along the project segment of SR-55 consist primarily of residences and hotels. The sensitive land uses in the project area, their addresses, and their distances from the edge of pavement on SR-55 are listed in Table 2.13.2.

2.13.2.4 Criteria Pollutant Attainment/Nonattainment Status

As noted earlier, the six criteria pollutants are O_3, CO, PM (including both $PM_{2.5}$ and PM_{10}), NO_2, SO_2, and lead. The primary standards for these criteria pollutants are shown in Table 2.13.3 along with a brief description of the health effects associated with exposures to these pollutants and the typical sources of these pollutants. The NAAQS are two-tiered: primary, to protect public health, and secondary, to prevent degradation to the environment (e.g., impairment of visibility, damage to vegetation and property).

Table 2.13.1 Local Air Quality Levels

Pollutant	Primary Standard[5]		Year	Maximum Concentration[1]	Number of Days State/Federal Standard Exceeded
	California	Federal			
Carbon Monoxide (CO) (1 hr)	20.0 ppm for 1 hr	35.0 ppm for 1 hr	2012	2.1 ppm	0 / 0
			2013	2.4 ppm	0 / 0
			2014	2.7 ppm	0 / 0
Carbon Monoxide (CO) (8 hrs)	9.0 ppm for 8 hrs	9 ppm for 8 hrs	2012	1.7 ppm	0 / 0
			2013	2.0 ppm	0 / 0
			2014	1.9 ppm	0 / 0
Ozone (O_3) (1 hr)	0.09 ppm for 1 hr	N/A	2012	0.090 ppm	0 / N/A
			2013	0.095 ppm	1 / N/A
			2014	0.096 ppm	1 / N/A
Ozone (O_3) (8 hrs)	0.07 ppm for 8 hrs	0.075 ppm for 8 hrs	2012	0.076 ppm	1 / 1
			2013	0.084 ppm	2 / 1
			2014	0.080 ppm	6 / 4
Nitrogen Dioxide (NO_2)	0.18 ppm for 1 hr	0.100 ppm for 1 hr	2012	0.074 ppm	0 / 0
			2013	0.075 ppm	0 / 0
			2014	0.060 ppm	0 / 0
Sulfur Dioxide (SO_2)	0.25 ppm for 1 hr	0.075 ppm for 1 hr	2012	0.0062 ppm	0 / 0
			2013	0.0041 ppm	0 / 0
			2014	0.0088 ppm	0 / 0
Coarse Particulate Matter (PM_{10})[2,3]	50 µg/m^3 for 24 hrs	150 µg/m^3 for 24 hrs	2012	48.0 µg/m^3	0 / 0
			2013	77.0 µg/m^3	1 / 0
			2014	85.0 µg/m^3	2 / 0
Fine Particulate Matter ($PM_{2.5}$)[2,4]	N/A	35 µg/m^3 for 24 hrs	2012	50.1 µg/m^3	N/A / 4
			2013	37.8 µg/m^3	N/A / 1
			2014	56.2 µg/m^3	N/A / 6

Source: *Air Quality Assessment Report* (2015).

[1] Maximum concentration is measured over the same period as the California standard.

[2] Measurement taken at the Anaheim Air Quality Monitoring Station.

[3] PM_{10} and $PM_{2.5}$ exceedances are derived from the number of samples exceeded, not days.

[4] $PM_{2.5}$ exceedances are based on the U.S. EPA's revision of the standard to 35 µg/m^3.

[5] For more information pertaining to California and Federal Criteria Air Quality Standards, refer to Table 2.13.3.

µg/m^3 = micrograms per cubic meter
ADAM = Aerometric Data Analysis and Management System
hr/hrs = hour/hours
N/A = not applicable
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
ppm = parts per million
U.S. EPA = United States Environmental Protection Agency

Table 2.13.2 Sensitive Land Uses in the Project Area

Land Use Type	Address	Distance from Edge of Pavement on SR-55 (ft)
Hotel	Hutton Centre Drive, Santa Ana, CA	130
Hotel	Grand Avenue, Santa Ana, CA	185
Hotel	Dyer Road, Santa Ana, CA	115
Hotel	Newport Avenue/Edinger Avenue, Tustin, CA	150
Residential	Tustin Grove Drive, Tustin, CA	100
Residential	Kenyon Drive, Tustin, CA	50
Residential	Altadena Drive, Tustin, CA	25
Residential	15863 Pasadena Avenue, Tustin, CA	65
Residential	15829 Pasadena Avenue, Tustin, CA	50
Residential	Medallion Avenue, Tustin, CA	60
Residential	Whitby Circle, Tustin, CA	35
Residential	15641 Pasadena Avenue, Tustin, CA	80
Residential	Boleyn Circle, Tustin, CA	35
Residential	15501 Pasadena Avenue, Tustin, CA	110
Residential	15491 Pasadena Avenue, Tustin, CA	150
Residential	15660 Tustin Village Way, Tustin, CA	50
Residential	15620 Tustin Village Way, Tustin, CA	65
Residential	15580 Tustin Village Way, Tustin, CA	70
Residential	15520 Tustin Village Way, Tustin, CA	135
Residential	15440 Tustin Village Way, Tustin, CA	50
Residential	De Anza Lane, Tustin, CA	35

Source: *Air Quality Assessment Report* (2015).
CA = California
ft = feet
SR-55 = State Route 55

Table 2.13.3 State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[8]	Federal Standard[9]	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Ozone (O_3)[2]	1 hour 8 hours	0.09 ppm 0.070 ppm	---[4] 0.075 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NO_X) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.	Federal: Revoked June 2005 (1-hour) Extreme Nonattainment (8-hour) State: Nonattainment (1-hour and 8-hour)
Carbon Monoxide (CO)	1 hour 8 hours 8 hours (Lake Tahoe)	20 ppm 9.0 ppm[1] 6 ppm	35 ppm 9 ppm ---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Federal: Attainment/ Maintenance State: Attainment
Respirable Particulate Matter (PM_{10})[2]	24 hours Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 ---[2] (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke and vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Federal: Attainment/ Maintenance State: Nonattainment
Fine Particulate Matter ($PM_{2.5}$)[2]	24 hours Annual Secondary Standard (annual)	--- 12 µg/m^3 ---	35 µg/m^3 12.0 µg/m^3 15 µg/m^3 (98th percentile over 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic and other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO_X, sulfur oxides (SO_X), ammonia, and ROG.	Federal: Nonattainment State: Nonattainment
Nitrogen Dioxide (NO_2)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[6] (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NO_X" group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment/ Maintenance State: Nonattainment

Table 2.13.3 State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[8]	Federal Standard[9]	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Sulfur Dioxide (SO_2)	1 hour 3 hours 24 hours	0.25 ppm --- 0.04 ppm	0.075 ppm[7] (98th percentile over 3 years) 0.5 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Lead (Pb)[3]	Monthly Rolling 3-month average	1.5 µg/m^3 ---	--- 0.15 µg/m^3 [10]	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Nonattainment (Los Angeles County only) State: Nonattainment (Los Angeles County only)
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70 percent	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other “Class I” areas.	See particulate matter above.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified

Table 2.13.3 State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State Standard[8]	Federal Standard[9]	Principal Health and Atmospheric Effects	Typical Sources	Attainment Status
Vinyl Chloride[3]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Federal: Attainment/ Unclassified State: Attainment/ Unclassified

Source: *Air Quality Assessment Report* (2015).

1 Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm.

2 Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hour. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. Annual $PM_{2.5}$ NAAQS tightened from 15 µg/m^3 to 12 µg/m^3 December 2012, and secondary standard set at 15 µg/m^3.

3 The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and the EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for substantial health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

4 Prior to June 2005, the 1-hour NAAQS was 0.12 ppm. Emission budgets for 1-hour ozone are still in use in some areas where 8-hour ozone emission budgets have not been developed, such as the San Francisco Bay Area.

5 The 0.08 ppm 1997 ozone standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (July 20, 2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with a emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build vs. no build, build vs. baseline, or compliance with prior emission budgets for the same pollutant.

6 Final 1-hour NO_2 NAAQS published in the Federal Register on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot-spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

7 The EPA finalized a 1-hour SO_2 standard of 75 ppb in June 2010. Nonattainment areas have not yet been designated as of September 2012.

8 State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as described above.

9 Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

10 Lead NAAQS are not considered in Transportation Conformity analysis.

µg/m^3 = micrograms per cubic meter
ARB = California Air Resources Board
EPA = United States Environmental Protection Agency
NAAQS = national ambient air quality standards
NO_X = nitrogen oxides
ppb = parts per billion
ppm = parts per million
ROG = reactive organic gases
VOC = volatile organic compounds

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Air quality monitoring stations are located throughout the nation and maintained by the local air districts and State air quality regulating agencies. Data collected at permanent monitoring stations are used by the U.S. EPA to identify regions as "attainment," "nonattainment," or "maintenance," depending on whether the regions meet the requirements stated in the primary NAAQS. Nonattainment areas are imposed with additional restrictions as required by the U.S. EPA. In addition, different classifications of nonattainment (e.g., marginal, moderate, serious, severe, and extreme) are used to classify each air basin in the State on a pollutant-by-pollutant basis. The classifications are used as a foundation to create air quality management strategies to improve air quality and comply with the NAAQS. The Basin's attainment status for each of the criteria pollutants is listed in Table 2.13.3.

2.13.3 Environmental Consequences

2.13.3.1 Temporary Impacts

Build Alternatives

Construction Air Quality Conformity

Construction activities will not last for more than 5 years at one general location, so construction-related emissions do not need to be included in regional and project-level conformity analysis (40 CFR 93.123(c)(5)).

Construction Emissions

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other construction activities. Emissions from construction equipment are expected and would include CO, NO_X, volatile organic compounds (VOCs), directly-emitted particulate matter (PM_{10} and $PM_{2.5}$), and toxic air contaminants such as diesel exhaust particulate matter. Ozone is a regional pollutant that is derived from NO_X and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction typically involve clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate PM_{10}, $PM_{2.5}$, and small amounts of CO, SO_2, NO_X, and VOCs and cause concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an added source of airborne dust after it dries. PM_{10} emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM_{10} emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment in operation. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. EPA to add 1.2 tons of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The California Department of Transportation (Caltrans) Standard Specifications (Section 14-9.03) regarding dust minimization requirements demand use of water or dust palliative compounds and would reduce potential fugitive dust emissions during construction.

In addition to dust-related PM_{10} emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO_2, NO_X, VOCs, and some soot particulate (PM_{10} and $PM_{2.5}$) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO_2 is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and additional standards as on-road diesel fuel (not more than 15 parts per million [ppm] sulfur), and as such, SO_2-related issues due to diesel exhaust would be minimal.

Some phases of construction, particularly asphalt paving, would result in short-term odors in the immediate area of each paving site(s). Such odors would quickly disperse to below detectable thresholds as distance from the site(s) increases.

The estimated peak-day construction emissions for the Build Alternatives are summarized in Table 2.13.4. Because the construction activities would be similar for each Build Alternative, the peak-day construction emissions would be the same for each Build Alternative.

Table 2.13.5 summarizes the total construction emissions (in tons) generated during the approximately 36-month project construction schedule. The total area disturbed during construction would range from a low of 38.9 acres (ac) for Alternative 1 to a high of 77.2 ac for Alternative 3 and 3M. The construction emission calculations are based on the larger disturbance area required for Alternative 3 and 3M.

Table 2.13.4 Peak-Day Construction Emissions by Construction Phase

Construction Phase	Emissions[1] (lbs/day)				
	CO	VOCs	NO_x	PM_{10}[2]	$PM_{2.5}$[2]
Grubbing/Land Clearing	59	8.2	96	104	25
Grading/Excavation	105	17	256	110	29
Drainage/Utilities/Sub-Grade	67	8.5	81	104	25
Paving	42	4.2	41	2.3	2.1

Source: *Supplemental Air Quality Analysis* (2016).

[1] Emissions calculated using Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (RoadMod), Version 8.1.0.

[2] Total PM_{10} and $PM_{2.5}$ daily emission rate with fugitive dust mitigation measures, providing a 50 percent reduction, implemented.

CO = carbon monoxide
lbs/day = pounds per day
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
VOGs = volatile organic compounds

Table 2.13.5 Total Construction Emissions

	Emissions[1] (tons)					
	CO	**VOCs**	**NO_x**	**PM_{10}[2]**	**$PM_{2.5}$[2]**	**CO_2**
Total Construction	31	4.6	62	36	9	10,360

Source: *Supplemental Air Quality Assessment Analysis* (2016).

[1] Emissions calculated using Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (RoadMod), Version 8.1.0

[2] Total PM_{10} and $PM_{2.5}$ daily emission rate with fugitive dust mitigation measures, providing a 50 percent reduction, implemented.

CO = carbon monoxide
CO_2 = carbon dioxide
NO_X = oxides of nitrogen
PM_{10} = particulate matter less than 10 microns in size
$PM_{2.5}$ = particulate matter less than 2.5 microns in size
VOGs = volatile organic compounds

Naturally Occurring Asbestos

The project is located in Orange County, which is not among the counties listed as containing serpentine and ultramafic rock. Therefore, the impact from naturally occurring asbestos (NOA) during construction of the project would be minimal to none.

No Build Alternative

The No Build Alternative would not result in the construction of any improvements to SR-55 in the project area and, therefore, would not result in temporary impacts to air quality.

2.13.3.2 Permanent Impacts

Build Alternatives

Regional Air Quality Conformity

The proposed project is in the Southern California Association of Governments (SCAG) financially constrained 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which was found to be conforming by the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) on June 1, 2016. The project is also in the 2015 Federal Transportation Improvement Program (FTIP), which was found to be conforming by the FHWA/FTA on December 16, 2016: "Project ID: ORA100511, Description: "SR-55 widening between I-405 and I-5 - add 1 MF and 1 HOV lane each direction and fix chokepoints from I-405 to I-5; add 1 AUX lane each direction between select on/off ramp and non-capacity operational improvements through project limits." Copies of the 2016/2040 RTP/SCS and 2017 FTIP listings for the proposed project are provided in Chapter 3 Comments and Coordination.

Project-Level Conformity

Because the project limits are within an attainment/maintenance area for CO and PM_{10} and a nonattainment area for federal $PM_{2.5}$ federal standards, local hot-spot analyses for CO, $PM_{2.5}$, and PM_{10} are required for conformity purposes. The results of these hot-spot analyses are provided below. An Air Quality Conformity Analysis was prepared and submitted to FHWA for review and concurrence on June 16, 2017. FHWA issued a project-level conformity determination on August 14, 2017 (see Chapter 3 Comments and Coordination).

Carbon Monoxide

The methodology required for a CO local analysis is summarized in the Caltrans Transportation Project-Level Carbon Monoxide Protocol (Protocol), Sections 3 (Determination of Project Requirements) and 4 (Local Analysis). In Section 3, the Protocol provides two conformity requirement decision flowcharts that are designed to assist project sponsors in evaluating the requirements that apply to specific projects. The flowchart in Figure 1 of the Protocol (provided as Appendix B in the *Air Quality Assessment Report*) applies to new projects and was used in this local analysis conformity decision. Below is a step-by-step explanation of the flow chart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the project. The flowchart begins with Section 3.1.1:

- **3.1.1. Is this project exempt from all emissions analyses?**

  NO.

  Table 1 of the Protocol is Table 2 of Section 93.126 of 40 CFR. Section 3.1.1 is inquiring if the project is exempt. Such projects appear in Table 1 of the Protocol. The proposed project would be widening an existing highway; therefore, the project is not exempt from all emissions analyses.

- **3.1.2. Is the project exempt from regional emissions analyses?**

  NO.

  Table 2 of the Protocol is Table 3 of Section 93.127 of 40 CFR. The question is attempting to determine whether the project is listed in Table 2. Projects that are included in Table 2 of the Protocol are exempt from regional conformity. The proposed project would be widening an existing highway; therefore, it is not exempt from regional emissions analysis.

- **3.1.3. Is the project locally defined as regionally significant?**

  YES.

  As mentioned above, the proposed project would be widening an existing highway; therefore, the project is potentially regionally significant.

- **3.1.4. Is the project in a federal attainment area?**

  NO.

  The project is located in an attainment/maintenance area for the federal CO standard; therefore, the project is subject to a regional conformity determination.

- **3.1.5. Are there a currently conforming Regional Transportation Plan [RTP] and transportation improvement program [TIP]?**

  YES.

- **3.1.6. Is the project included in the regional emissions analysis supporting the currently conforming Regional Transportation Plan [RTP] and transportation improvement program [TIP]?**

  YES.

  The project is included in the Southern California Association of Governments (SCAG) 2016-2040 RTP/SCS and the 2017 Federal Transportation Improvement Program

(FTIP). Project ID: ORA100511, Description: "SR-55 widening between I-405 and I-5 - add 1 MF and 1 HOV lane each direction and fix chokepoints from I-405 to I-5; add 1 AUX lane each direction between select on/off ramp and non-capacity operational improvements through project limits." Copies of the 2016/2040 RTP and 2017 FTIP listings are included in Chapter 3 Comments and Coordination.

- **3.1.7. Has the project design concept and/or scope changed significantly from that in the regional analysis?**

  NO.

- **3.1.9. Examine local impacts.**

  Section 3.1.9 of the flowchart directs the project evaluation to Section 4 (Local Analysis) of the Protocol. This includes Figure 1.

Section 4 contains Figure 3 (Local CO Analysis). This flowchart is used to determine the type of CO analysis required for the Build Alternatives. Below is a step-by-step explanation of the flowchart. Each level cited is followed by a response, which in turn determines the next applicable level of the flowchart for the Build Alternatives. The flowchart begins at Level 1:

- **Level 1. Is the project in a CO non-attainment area?**

  NO.

  The project site is located in an area that has demonstrated attainment with the federal CO standard.

- **Level 1 (cont.). Was the area redesignated as "attainment" after the 1990 Clean Air Act?**

  YES.

- **Level 1 (cont.). Has "continued attainment" been verified with the local Air District, if appropriate?**

  YES.

  The Basin was designated as attainment/maintenance by the U.S. EPA on June 11, 2007. (Proceed to Level 7.)

- **Level 7. Does the project worsen air quality?**

  YES.

  Because two of the following conditions (listed in Section 4.7.1 of the CO Protocol) are met, the project would potentially worsen air quality:

  a. The project significantly increases the percentage of vehicles operating in cold start mode. Increasing the number of vehicles operating in cold start mode by as little as 2 percent should be considered potentially significant. It is assumed that all vehicles on the freeway and in the intersections are in a fully warmed-up mode. Therefore, this criterion is not met.
  b. The project significantly increases traffic volumes. Increases in traffic volumes in excess of 5 percent should be considered potentially significant. Increasing the traffic volume by less than 5 percent may still be potentially significant if there is also a reduction in average speeds. As shown in Tables 2.13.6 through 2.13.9, the proposed project would increase traffic volumes along SR-55 by up to 24,900

vehicles per day, which is an increase of 7 percent over the No Build Alternative. Therefore, this criterion is met.

c. The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of 3 to 50 miles per hour [mph]) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered as worsening traffic flow. As shown in Tables 9-A through 9-D in the *Final Traffic Operations Report* (2016), the proposed project would increase the peak-hour delay at several ramps and highway segments along SR-55. These tables are also included in Appendix B in the *Supplemental Air Quality Assessment Report* (2016). Therefore, this criterion is met.

- **Level 7 (cont.). Is the project suspected of resulting in higher CO concentrations than those existing within the region at the time of attainment demonstration?**

  NO.

  Therefore, the project has been determined to be satisfactory. No further analysis is needed.

Table 2.13.6 2020 SR-55 Traffic Volumes

Segment	No Build Alternative		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
South of I-405	172,260	9,991	172,745	10,019	173,285	10,051	173,465	10,061	172,875	10,027	173,600	10,069
Between I-405 and Main St	252,105	14,622	253,620	14,710	256,120	14,855	257,185	14,917	254,230	14,745	257,770	14,951
Between Main St and Dyer Rd	264,465	15,339	266,490	15,456	268,875	15,595	270,425	15,685	268,680	15,583	271,735	15,761
Between Dyer Rd and Edinger Ave	278,260	16,139	281,180	16,308	283,300	16,431	285,070	16,534	283,325	16,433	286,490	16,616
Between Edinger Ave and McFadden Ave	290,280	16,836	293,015	16,995	294,780	17,097	296,370	17,189	295,380	17,132	298,105	17,290
Between McFadden Ave and I-5	253,375	14,696	255,330	14,809	256,770	14,893	258,320	14,983	257,530	14,937	254,065	14,736
North of Irvine Blvd/4th St	219,965	12,758	220,320	12,779	220,735	12,803	221,400	12,841	220,765	12,804	231,275	13,414

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
ADT = average daily trips
Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
I-5 = Interstate 5
Rd = Road
SR-55 = State Route 55
St = Street

Table 2.13.7 2040 SR-55 Traffic Volumes

Segment	No Build Alternative		Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
South of I-405	178,455	10,350	179,315	10,400	180,730	10,482	181,520	10,528	179,660	10,420	182,195	10,567
Between I-405 and Main St	260,950	15,135	265,235	15,384	271,515	15,748	274,590	15,926	266,060	15,431	278,385	16,146
Between Main St and Dyer Rd	270,250	15,675	275,295	15,967	281,480	16,326	285,130	16,538	278,540	16,155	291,330	16,897
Between Dyer Rd and Edinger Ave	281,920	16,351	289,320	16,781	294,815	17,099	299,565	17,375	292,615	16,972	306,820	17,796
Between Edinger Ave and McFadden Ave	293,650	17,032	300,890	17,452	306,055	17,751	309,675	17,961	304,605	17,667	317,170	18,396
Between McFadden Ave and I-5	267,135	15,494	272,925	15,830	276,225	16,021	280,335	16,259	276,980	16,065	266,295	15,445
North of Irvine Blvd/ 4th St	262,025	15,197	263,135	15,262	264,530	15,343	265,255	15,385	264,285	15,329	264,720	15,354

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
ADT = average daily trips
Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
I-5 = Interstate 5
Rd = Road
SR-55 = State Route 55
St = Street

Table 2.13.8 Change in 2020 SR-55 Traffic Volumes Between the No Build and Build Alternatives

Segment	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
South of I-405	485	28	1,025	59	1,205	70	615	36	1,340	78
Between I-405 and Main St	1,515	88	4,015	233	5,080	295	2,125	123	5,665	329
Between Main St and Dyer Rd	2,025	117	4,410	256	5,960	346	4,215	244	7,270	422
Between Dyer Rd and Edinger Ave	2,920	169	5,040	292	6,810	395	5,065	294	8,230	477
Between Edinger Ave and McFadden Ave	2,735	159	4,500	261	6,090	353	5,100	296	7,825	545
Between McFadden Ave and I-5	1,955	113	3,395	197	4,945	287	4,155	241	690	40
North of Irvine Blvd/4th St	355	21	770	45	1,435	83	800	46	11,310	656

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
ADT = average daily trips
Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
I-5 = Interstate 5
Rd = Road
SR-55 = State Route 55
St = Street

Table 2.13.9 Change in 2040 SR-55 Traffic Volumes Between the No Build and Build Alternatives

Segment	Alternative 1		Alternative 2		Alternative 3		Alternative 4		Alternative 3M	
	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT	ADT	Truck ADT
South of I-405	860	50	2,275	132	3,065	178	1,205	70	3,740	217
Between I-405 and Main St	4,285	249	10,565	613	13,640	791	5,110	296	17,435	1,011
Between Main St and Dyer Rd	5,045	293	11,230	651	14,880	863	8,290	481	21,080	1,223
Between Dyer Rd and Edinger Ave	7,400	429	12,895	748	17,645	1,023	10,695	620	24,900	1,444
Between Edinger Ave and McFadden Ave	7,240	420	12,405	719	16,025	929	10,955	635	23,520	1,364
Between McFadden Ave and I-5	5,790	336	9,090	527	13,200	766	9,845	571	-840	-49
North of Irvine Blvd/4th Street	1,110	64	2,505	145	3,230	187	2,260	131	2,695	156

Source: *Air Quality Assessment Report* (2015).
ADT = average daily trips
Ave = Avenue
Blvd = Boulevard
I-405 = Interstate 405
I-5 = Interstate 5
Rd = Road
SR-55 = State Route 55
St = Street

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CO concentrations at the intersections under study would be lower than those reported for the maximum of the intersections analyzed in the CO attainment plan because all the following conditions, listed in Section 4.7.2 of the CO Protocol, are satisfied:

a. The receptor locations at the intersections under study are at the same distance or farther from the traveled roadway than the receptor locations used in the intersections in the attainment plan. The attainment plan evaluates the CO concentrations at a distance of 10 feet (ft) from the edges of the roadways. The CO Protocol does not permit the modeling of receptor locations closer than this distance.
b. The project intersection traffic volumes and geometries are not substantially different from those included in the attainment plan. Also, the intersections under study have less total traffic and the same number of lanes or fewer than the intersections in the attainment plan.
c. The assumed meteorology for the intersections under study is the same as the assumed meteorology for the intersections in the attainment plan. Both use the worst-case scenario meteorology settings in the CALINE4 and/or CAL3QHC models.
d. As shown in Table 2.13.10, traffic lane volumes for all approach and departure segments are lower for the intersections under study than those assumed for the intersections in the attainment plan. The intersections in the attainment plan include Wilshire Boulevard/Veteran Avenue, Sunset Boulevard/Highland Avenue, La Cienega Boulevard/Century Boulevard, and Long Beach Boulevard/Imperial Highway. The intersections under study were selected based on their levels of service (LOS) and the proposed project's contribution to the total traffic volumes.
e. The percentages of vehicles operating in cold start mode are the same or lower for the intersections under study compared to those used for the intersections in the attainment plan. It is assumed that all vehicles in the intersections are operating in fully warmed-up mode.
f. The percentages of heavy-duty gas trucks in the intersections under study are the same or lower than the percentages used for the intersections in the attainment plan analysis. It is assumed that traffic distribution at the intersections under study does not vary from the EMFAC2007 standards.

Table 2.13.10 Traffic Volume Comparison

Attainment Plan Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4	
	AM	PM	AM	PM	AM	PM	AM	PM
Existing Traffic Volumes	Wilshire Blvd/ Veteran Ave		Sunset Blvd/ Highland Ave		La Cienega Blvd/ Century Blvd		Long Beach Blvd/ Imperial Hwy	
Intersection Total	8,062	7,719	6,614	7,374	6,635	8,674	4,212	5,514
Turn Maximum	384	780	200	263	700	1,187	176	202

Build Alternative Maximum Volumes	Intersection 1		Intersection 2		Intersection 3		Intersection 4	
	AM	PM	AM	PM	AM	PM	AM	PM
2040 No Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,920	4,170	4,845	5,060	5,465	5,700	4,955	5,350
Turn Maximum	775	825	500	440	825	1,080	1,035	1,040
2040 Alt 1 Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,785	3,915	4,845	5,075	5,515	5,750	5,015	5,430
Turn Maximum	750	595	500	445	825	1,080	1,035	1,070
2040 Alt 2 Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,785	3,920	4,845	5,110	5,545	5,800	5,045	5,500
Turn Maximum	750	600	500	465	825	1,080	1,035	1,090
2040 Alt 3 Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,795	3,940	4,865	5,140	5,565	5,830	5,080	5,560
Turn Maximum	755	600	520	495	825	1,080	1,035	1,120
2040 Alt 4 Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,800	3,925	4,845	5,085	5,525	5,760	5,050	5,480
Turn Maximum	765	595	500	445	830	1,080	1,035	1,110
2040 Alt 3M Build Conditions	SR-55 NB Ramps/ Irvine Blvd		SR-55 SB Ramps/ Edinger Ave		SR-55 SB Ramps/ MacArthur Blvd		SR-55 NB Ramps/ MacArthur Blvd	
Intersection Total	3,880	4,215	4,850	5,130	5,505	5,690	4,975	5,360
Turn Maximum	790	840	565	505	845	1,080	1,030	1.065

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
Alt = Alternative
Ave = Avenue
Blvd = Boulevard
Hwy = Highway
NB = northbound
SB = southbound
SR-55 = State Route 55

g. Average delay and queue length for each approach are the same or less for the intersections under study compared to those found in the intersections in the attainment plan. The predicted LOS for the intersections under study range from LOS A to LOS F. The LOS for the intersections in the attainment plan are not listed; however, the traffic counts and intersection geometries correspond to LOS F for three of the four intersections in the attainment plan.
h. The background CO concentrations in the area of the intersections under study are 2.7 ppm for 1 hour and 2.0 ppm for 8 hours, which is lower than the background concentrations for the intersections in the attainment plan. These varied from 5.3 to 13.2 ppm for 1 hour and 3.7 to 9.9 ppm for 8 hours.

The project is not expected to result in any concentrations exceeding the 1-hour or 8-hour CO standards. Therefore, a detailed CALINE4 CO hot-spot analysis is not required.

Particulate Matter (PM_{10} and $PM_{2.5}$)

The proposed project is within a nonattainment area for the federal $PM_{2.5}$ and PM_{10} standards. Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. The U.S. EPA specified in 40 CFR 93.123(b)(1) of the 2006 Final Rule that projects of air quality concern (POAQCs) are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ and PM_{10} SIP as a localized air quality concern. The 2006 Final Rule defines the POAQCs that require a $PM_{2.5}$ and PM_{10} hot-spot analysis in 40 CFR 93.123(b)(1) as:

i. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;

ii. Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;

iii. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;

iv. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or

v. Projects in or affecting locations, areas, or categories of sites that are identified in the $PM_{2.5}$ and PM_{10} applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

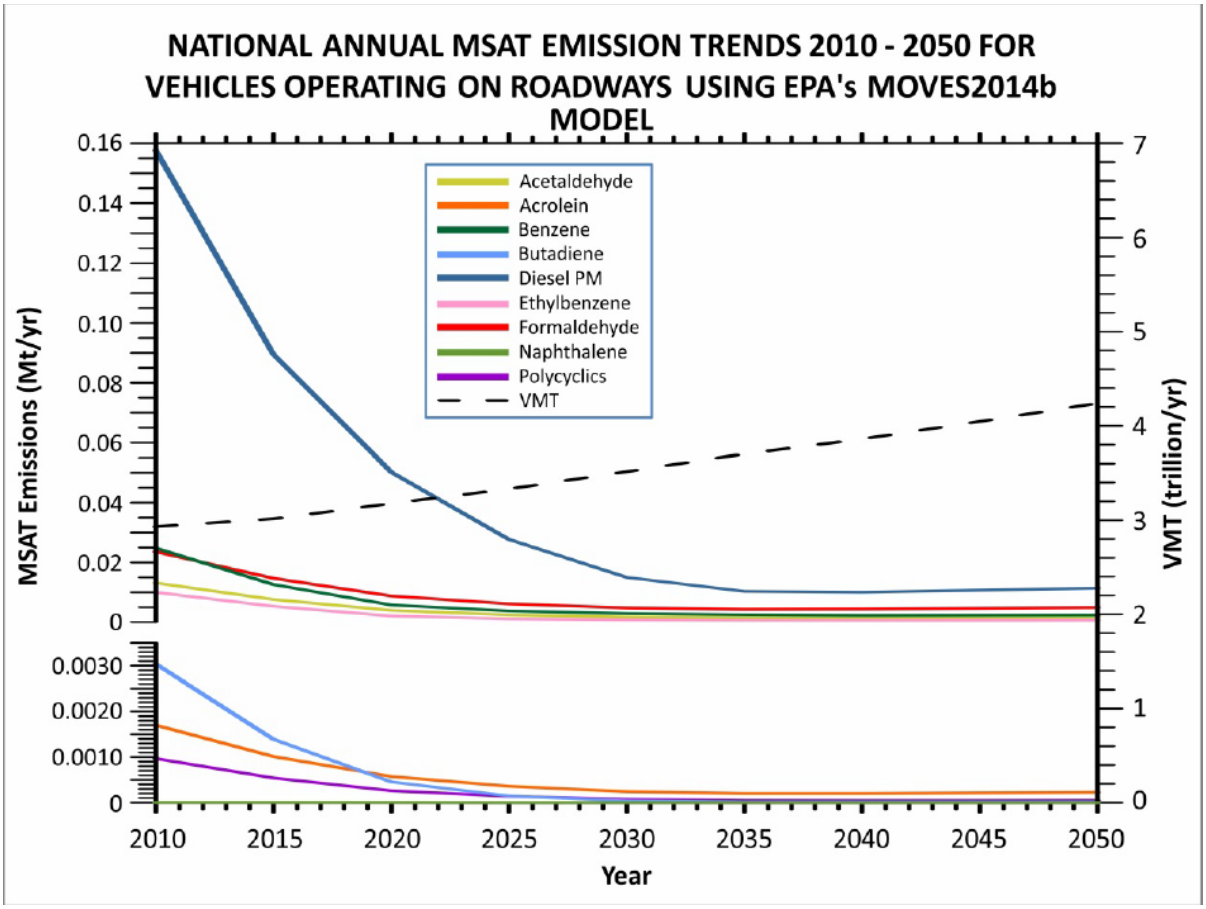
A *PM Conformity Hot Spot Analysis for the SR-55 Improvement Project* was presented to the SCAG Transportation Conformity Working Group (TCWG) on June 26, 2012. The TCWG determined that the proposed project would meet Criterion (i) because it would expand an existing freeway with existing and future high truck volumes. Because the proposed project meets one of the five criteria listed above, it is considered to be a POAQC, and a qualitative project-level $PM_{2.5}$ and PM_{10} hot-spot analysis was conducted to assess whether the project would cause or contribute to any new localized $PM_{2.5}$ or PM_{10} violations, increase the frequency or severity of any existing violations, or delay timely attainment of the $PM_{2.5}$ and PM_{10} NAAQS. A copy of the draft PM hot-spot analysis is provided in Appendix E in the *Air Quality Assessment Report*. At the December 3, 2013, SCAG meeting, the TCWG determined that the detailed analysis was acceptable for NEPA circulation. Subsequent to the TCWG approval, the forecasted SR-55 traffic volumes were updated. On July 28, 2015, the TCWG determined the updated SR-55 traffic volumes would not affect the conclusions of the qualitative PM hot-spot analysis and reaffirmed that the analysis was acceptable for NEPA circulation. On August 23, 2016 the TCWG determined Alternative 3M (Preferred Alternative)SR-55 traffic volumes would not affect the conclusions of the qualitative PM hot-spot analysis and again reaffirmed that the analysis was acceptable for NEPA circulation. Copies of the TCWG determinations are provided in Chapter 3, Comments and Coordination, and are also included in Appendix G of the *Supplemental Air Quality Analysis* (2016). FHWA issued a project-level conformity determination on August 14, 2017 (see Chapter 3 Comments and Coordination.

Mobile-Source Air Toxics

In addition to the criteria air pollutants for which there are NAAQS, the U.S. EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, nonroad mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the Clean Air Act Amendments (CAAA) of 1990, whereby Congress mandated that the U.S. EPA regulate 188 air toxics, also known as hazardous air pollutants. The U.S. EPA has assessed this expansive list in its latest rule on the Control of Hazardous Air Pollutants from Mobile Sources and identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System (IRIS). In addition, the U.S. EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 1999 National Air Toxics Assessment (NATA). These are acrolein, benzene, 1,3-butadiene, diesel particulate matter plus diesel exhaust organic gases (diesel PM), formaldehyde, naphthalene, and polycyclic organic matter (POM). While the FHWA considers these the priority Mobile Source Air Toxics (MSATs), the list is subject to change and may be adjusted in consideration of future U.S. EPA rules.

The 2008 U.S. EPA rule described above requires controls that will dramatically decrease MSAT emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using the U.S. EPA Motor Vehicle Emissions Simulator (MOVES) [2014b] model, even if vehicle activity (in terms of vehicle miles traveled [VMT]) increases by 91 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSATs is projected from 1999 to 2050, as shown on Figure 2.13-1. The projected reduction in MSAT emissions would be slightly different in California due to the use of the CT-EMFAC 2014 (Version 6.0 based on EMFAC2014) emission model in place of the MOVES 2014b model.



Source: Supplemental Air Quality Analysis (2016).

Figure 2.13-1 National MSAT Emission Trends

Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

Nonetheless, air toxics concerns continue to be raised on highway projects during the NEPA process. Even as the science emerges, we are duly expected by the public and other agencies to address MSAT impacts in our environmental documents. The FHWA, the U.S. EPA, the Health Effects Institute, and others have funded and conducted research studies to try to more clearly define potential risks from MSAT emissions associated with highway projects. The FHWA will continue to monitor the developing research in this field.

NEPA requires, to the fullest extent possible, that the policies, regulations, and laws of the federal government be interpreted and administered in accordance with its environmental protection goals. NEPA also requires federal agencies to use an interdisciplinary approach in planning and decision-making for any action that adversely impacts the environment. NEPA requires, and FHWA is committed to, the examination and avoidance of potential impacts to the natural and human environment when considering approval of proposed transportation projects. In addition to evaluating the potential environmental effects, we must

also take into account the need for safe and efficient transportation in reaching a decision that is in the best overall public interest. The FHWA policies and procedures for implementing NEPA are contained in regulations at 23 CFR Part 771.

In December 2012, the FHWA issued guidance to advise FHWA division offices as to when and how to analyze MSATs in the NEPA process for highways. This document is an update to the guidance released in February 2006 and September 2009. The guidance is described as interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance. This analysis follows the FHWA guidance.

Information that is Unavailable or Incomplete

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the Clean Air Act (CAA) and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSATs. The U.S. EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants, and maintains the IRIS (Integrated Risk Information System), which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects." Each report contains assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSATs, including the Health Effects Institute. Two Health Effects Institute studies are summarized in Appendix D in FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents*. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings, cancer in animals, and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations or in the future, as vehicle emissions substantially decrease.

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevent a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified due to required lifetime (i.e., 70-year) exposure methodologies, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affect emissions rates) over that time frame because such information is unavailable. The results produced by the U.S. EPA MOBILE 6.2 model, the California EPA EMFAC2007 model, and the U.S. EPA Draft Motor Vehicle Emission Simulator (MOVES) 2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE 6.2 significantly underestimates diesel particulate matter (Diesel PM) emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of the U.S. EPA's guideline CAL3QHC model was conducted in a National Cooperative Highway Research Program (NCHRP) study, which documents poor model performance at 10 sites across the country: 3 where intensive monitoring was conducted plus an additional 7 with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to reliably forecast MSAT exposure near roads and to determine the amount of time that people are actually exposed at a specific location.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, which is a concern expressed by the Health Effects Institute. As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and for Diesel PM in particular. The U.S. EPA and the Health Effects Institute have not established a basis for quantitative risk assessment of Diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the U.S. EPA as provided by the FCAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards (e.g., benzene emissions from refineries). The decision framework is a two-step process. The first step requires the U.S. EPA to determine a "safe" or "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks to less than 1 per million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 per million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 per million. In a June 2008 decision, the United States Court of Appeals for the District of Columbia Circuit upheld the U.S. EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of these limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts among alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits (e.g., reducing traffic congestion, accident rates, and fatalities, plus improved access for emergency response) that are better suited for quantitative analysis.

Quantitative Project-Level MSAT Analysis

As indicated in Tables 2.13.6 and 2.13.7, average daily traffic (ADT) volumes on SR-55 in the project area would exceed 140,000 vehicles per day. Consequently, this project is

considered to have higher potential MSAT effects, and a quantitative analysis of MSAT emissions is required. The results of this analysis are summarized below.

The results of the analyses are tabulated in Table 2.13.11 and included in Appendix D in the *Supplemental Air Quality Analysis* (2016). As speciation factors are not available for naphthalene and POM, the emissions for these pollutants are not included in Table 2.13.11. However, as with benzene, 1,3-butadiene, and formaldehyde, these pollutants are a subset of total organic gases. Therefore, the future with and without project naphthalene and POM emissions would have a similar increase or decrease as the other MSATs.

Table 2.13.11 MSAT Emissions for the SR-55 Region

	Emissions (lbs/day)						
Alternative	**Diesel PM**	**Benzene**	**1,3-Butadiene**	**Naphthalene**	**POM**	**Acrolein**	**Formaldehyde**
Existing (2011)	147	39	8.2	NA	NA	1.7	72
2020 No Build	26	14	2.9	NA	NA	0.4	16
2020 Alt 1	31	24	3	NA	NA	1	19
2020 Alt 2	31	24	3	NA	NA	1	19
2020 Alt 3	31	24	3	NA	NA	1	19
2020 Alt 4	31	24	3	NA	NA	1	19
2020 Alt 3M	26	14	2.9	NA	NA	0.6	25
2040 No Build	4	9	1.8	NA	NA	0.5	13
2040 Alt 1	21	16	2	NA	NA	0.5	13
2040 Alt 2	21	16	2	NA	NA	0.5	13
2040 Alt 3	21	16	2	NA	NA	0.5	13
2040 Alt 4	21	16	2	NA	NA	0.5	13
2040 Alt 3M	4	9	1.9	NA	NA	0.4	16

Source: *Air Quality Assessment* (2015) and *Supplemental Air Quality Analysis* (2016).

The analysis indicates that a substantial decrease in MSAT emissions can be expected between the existing (2011) and future (2020 and 2040) No Build conditions (No Build Alternative). This decrease is prevalent throughout the highest priority MSATs and the analyzed alternatives. This decrease is also consistent with a U.S. EPA study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, reductions in MSATs expected by 2040 are: 64 percent of Diesel PM, 66 percent of benzene, 77 percent of 1,3-butadiene, 77 percent of acrolein, and 69 percent of formaldehyde. These projected reductions are achieved while total VMTs increase by 5.5 percent between 2011 and 2040 for the No Build Alternative. As shown in Table 2.13.11, implementation of the project alternatives would result in a negligible change in MSAT emissions in the project vicinity.

In summary, while the alternatives for the proposed project would result in a negligible increase in localized MSAT emissions, the U.S. EPA vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time that would cause regionwide MSAT levels to be substantially lower than they are today.

Long-Term Regional Vehicle Emissions Impacts

The Build Alternatives would not generate new vehicular traffic trips because they would not include the construction of new homes or businesses. However, there is a possibility that some traffic currently utilizing other routes would be attracted to the improved facility, thus resulting in a change in regional VMT. Therefore, the potential impact of the proposed SR-

55 project on regional vehicle emissions was calculated using regional traffic data and emission rates from the CT-EMFAC2014 emission model.[1]

Supplemental traffic data estimated the impact that the proposed project would have on regional VMT and vehicle hours traveled (VHT).

The VMT and VHT data from the traffic analysis, along with the CT-EMFAC2014 emission rates, were used to calculate the CO, reactive organic gases (ROGs), NO_X, oxides of sulfur (SO_X), PM_{10}, and $PM_{2.5}$ emissions for the existing (2011), 2020, and 2040 regional conditions. The results of the modeling are listed in Tables 2.13.12 and 2.13.13. As shown in those tables, the Build Alternatives would result in very small increases or decreases in the regional emissions (less than 1 percent) when compared to the No Build Alternative. Therefore, the Build Alternatives would not contribute substantially to regional vehicle emissions.

No Build Alternative

The No Build Alternative would not result in any improvements to SR-55 in the project area. As shown in Tables 2.13.12 and 2.13.13 the No Build Alternative would result in fewer regional vehicle emissions than the Build Alternative in 2020, and in 2040, the Build Alternatives result in fewer regional vehicle emission than the No Build Alternative.

Table 2.13.12 2020 Regional Vehicle Emissions (lbs/day)

Pollutant	Existing Baseline Emissions	2020 Baseline Emissions	Alternative 1 Emissions/ Increase from 2020 Baseline	Alternative 2 Emissions/ Increase from 2020 Baseline	Alternative 3 Emissions/ Increase from 2020 Baseline	Alternative 4 Emissions/ Increase from 2020 Baseline	Alternative 3M Emissions/ Increase from 2020 Baseline
CO	27,476	11,625	11,632 / 7	11,639 / 15	11,643 / 18	11,638 / 13	11,649/25
ROGs	1,154	431	431 / 0	432 / 1	432 / 1	432 / 1	432/1.3
NO_X	8,087	3,171	3,174 / 3	3,178 / 7	3,180 / 8	3,177 / 6	3,182/11
PM_{10}	173	49	49 / 0	49 / 0	49 / 0	49 / 0	49/0.26
$PM_{2.5}$	165	46	46 / 0	46 / 0	46 / 0	46 / 0	46/0.25

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
CO = carbon monoxide
lbs/day = pounds per day
NO_X = oxides of nitrogen
PM_{10} = coarse particulate matter less than 10 microns in diameter
$PM_{2.5}$ = fine particulate matter less than 2.5 microns in diameter
ROGs = reactive organic gases

Table 2.13.13 2040 Regional Vehicle Emissions (lbs/day)

Pollutant	Existing Baseline Emissions	2040 Baseline Emissions	Alternative 1 Emissions/ Increase from 2040 Baseline	Alternative 2 Emissions/ Increase from 2040 Baseline	Alternative 3 Emissions/ Increase from 2040 Baseline	Alternative 4 Emissions/ Increase from 2040 Baseline	Alternative 3M Emissions/ Increase from 2040 Baseline
CO	27,476	7,329	7,240 / -89	7,230 / -99	7,230 / -99	7,220 / -110	7,226/-104
ROGs	1,154	430	413 / -17	409 / -21	411 / -19	410 / -20	409/-21

[1] EMFAC2011 was released by ARB on September 19, 2011. The EPA approved the model with a 6-month grace period for transportation conformity in March 2013. The project-level conformity determination was based on EMFAC2007 since the conformity analysis was begun before the end of the grace period. In order to be consistent with the modeling for the project-level conformity determination, the EMFAC2007 emission model was also used to calculate emissions for the various criteria pollutants.

NO_X	8,087	2,131	2,008 / -123	1,971 / -160	1,982 / -149	1,977 / -154	1,960/-171
PM_{10}	173	21	21 / 0	20 / -1	20 / -1	20 / -1	20/-.84
$PM_{2.5}$	165	20	20 / 0	19 / -1	19 / -1	19 / -1	19/-.77

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).

CO = carbon monoxide
lbs/day = pounds per day
NO_X = oxides of nitrogen
PM_{10} = coarse particulate matter less than 10 microns in diameter
$PM_{2.5}$ = fine particulate matter less than 2.5 microns in diameter
ROGs = reactive organic gases

2.13.4 Avoidance, Minimization, and/or Mitigation Measures

During construction, the contractor will comply with Section 14-9 Air Quality requirements of the Caltrans Standard Specifications. This section requires the contractor to comply with air control rules, regulations, ordinance, and statutes that apply to work performed under the Contract, including air control rules, regulations, and statutes provided in Government Code 11017 (Public Contract Code 10231).

In addition to implementing all applicable best Available Control Measures (BACMs) from the SCAQMD Rule 403 (Section [d2] and Table 1) and Rule 403.1, the following avoidance and minimization measures are included in the Build Alternatives to reduce and otherwise address particulate matter emissions:

AQ-1 During clearing, grading, earth moving, or excavation operations, the construction contractor will control excessive fugitive dust emissions by regular watering or other dust-preventative measures using the following procedures, as specified in the South Coast Air Quality Management District Rule 403.

- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust.
- All material transported on site or off site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust.
- These control techniques shall be indicated in project specifications.

AQ-2 During final design, the project grading plans will show the duration of construction. During construction, the construction contractor will control ozone precursor emissions from construction equipment vehicles by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications.

AQ-3 During construction, the construction contractor will ensure that all trucks to be used to haul excavated or graded material on site comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(f), (e)(2), and (e)(4) as amended, regarding the prevention of such material spilling onto public streets and roads.

AQ-4 During clearing, grading, earth moving, excavation, and construction, the construction contractor will adhere to California Department of Transportation (Caltrans) Standard Specifications for Construction (Section 14-9 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).

AQ-5 Should the project geologist determine that asbestos-containing materials (ACMs) are present in the project disturbance limits during final inspection prior to construction, the construction contractor will implement the appropriate methods to remove the ACMs prior to any ground disturbance or other construction activities in those areas.

2.13.5 Climate Change

Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed for the California Environmental Quality Act (CEQA) in Section 2.20, Climate Change, of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

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2.14 Noise

2.14.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

2.14.1.1 California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA 23 Code of Federal Regulations (CFR) 772 noise analysis. (Please see Appendix A, CEQA Checklist, of this document for further information on noise analysis under CEQA.)

2.14.1.2 National Environmental Policy Act and 23 CFR 772

For highway transportation projects with FHWA (and Caltrans, as assigned) involvement, the federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). Table 2.14.1 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

Figure 2.14-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

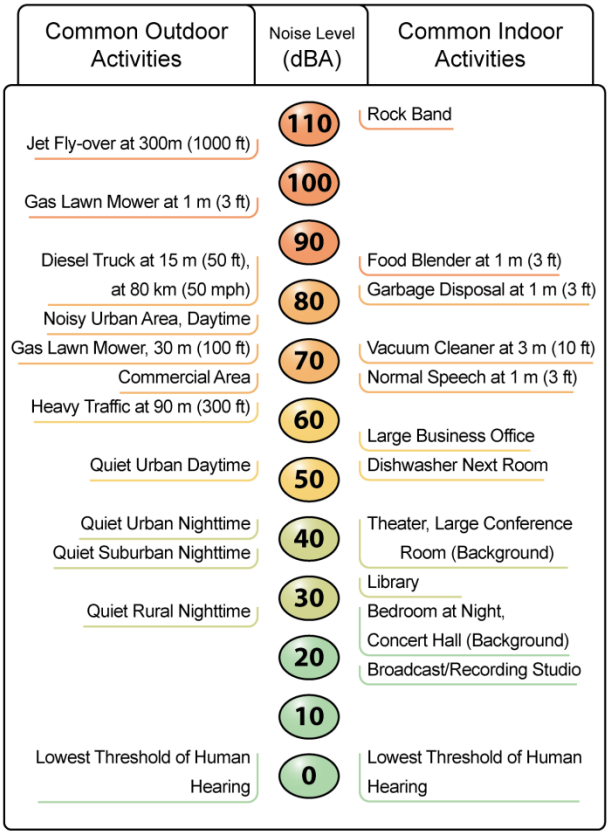
Table 2.14.1 Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, $L_{eq}(h)$	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day-care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day-care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC – reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC – reporting only	Undeveloped lands that are not permitted.

[1] Includes undeveloped lands permitted for this activity category.

dBA $L_{eq}(h)$ = equivalent continuous sound level per hour measured in A-weighted decibels

Figure 2.14-1 Noise Levels of Common Activities



According to Caltrans *Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects*, May 2011, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

Caltrans' *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering consideration. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include: achieving the noise reduction design goal, residents' acceptance, and the cost per benefited residence.

2.14.2 Affected Environment

This section is based on the Noise Study Report (NSR) (2015), the Noise Abatement Decision Report (NADR) (2015), and the Supplemental Noise Analysis and Noise Abatement Decision Memorandum (2017) prepared for the project.

2.14.2.1 Surrounding Land Uses and Sensitive Receptors

Existing land uses in the vicinity of the project segment of State Route 55 (SR-55) include multifamily residences, hotels, a mobile home park, a utility facility, vacant land, and agricultural, office, commercial, and industrial uses as described below.

- **West of SR-55, between Interstate 405 (I-405) and MacArthur Boulevard:** Land uses in this area include a hotel, a utility facility, and agricultural, office, commercial, and industrial uses that are at the same elevation as SR-55 or up to approximately 15 feet (ft) lower than the elevation of SR-55. There are no existing noise barriers in this area. The hotel was evaluated under Activity Category E, which has an exterior NAC of 72 dBA equivalent continuous sound level (L_{eq}). The office and commercial uses were classified under Activity Category E for reporting purposes because there were no outdoor frequent human use areas at those land uses. The utility facility and agricultural and industrial uses were classified under Activity Category F for reporting purposes.
- **East of SR-55, between I-405 and MacArthur Boulevard:** Land uses in this area include office and industrial uses that are approximately 5 ft lower in elevation than SR-55. There are no existing noise barrier walls in this area. The office and industrial uses were classified under Activity Categories E and F for reporting purposes because there are no outdoor frequent human use areas at those land uses.
- **West of SR-55, between MacArthur Boulevard and Dyer Road:** Land uses in this area include office, commercial, and industrial uses that are at elevations similar to the elevation of SR-55. There are no existing noise barriers in this area. The office and commercial uses were classified under Activity Category E for reporting purposes

because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.

- **East of SR-55, between MacArthur Boulevard and Dyer Road:** Land uses in this area include office, commercial, and industrial uses that are at the same elevation as, or up to approximately 20 ft lower in elevation than, SR-55. There are no existing noise barriers in this area. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.
- **West of SR-55, between Dyer Road and Warner Avenue:** Land uses in this area include hotels and office, commercial, and industrial uses that are at the same elevation as, or up to approximately 20 ft lower in elevation than, SR-55. There are no existing noise barriers in this area. The hotels were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.
- **East of SR-55, between Dyer Road and Warner Avenue:** Land uses in this area include a hotel and office, commercial, and industrial uses that are at the same elevation as, or up to approximately 15 ft lower in elevation than, SR-55. There are no existing noise barriers in this area. The hotel was evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.
- **West of SR-55, between Warner Avenue and Edinger Avenue:** Land uses in this area include office, commercial, and industrial uses that are similar in elevation to SR-55. There are no existing noise barriers in this area. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.
- **East of SR-55, between Warner Avenue and Edinger Avenue:** Land uses in this area include two hotels that are currently under construction, and office, commercial, and industrial uses that are at the same elevation as, or up to approximately 25 ft lower in elevation than, SR-55. There are no existing noise barriers in this area. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The hotels were also evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. The industrial uses were classified under Activity Category F for reporting purposes.
- **West of SR-55, between Edinger Avenue and McFadden Avenue:** Land uses in this area include commercial and industrial uses that are at the same elevation as, or up to approximately 25 ft lower in elevation than, SR-55. There are no existing noise barriers in this area. The commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses. The industrial uses were classified under Activity Category F for reporting purposes.

- **East of SR-55, between Edinger Avenue and McFadden Avenue:** Land uses in this area include multifamily residences and industrial uses that are at the same elevation as, or up to approximately 30 ft lower in elevation than, SR-55. There are 5 to 13 ft high existing noise barriers that shield the multifamily residences in this area. The industrial uses were classified under Activity Category F for reporting purposes.
- **West of SR-55, between McFadden Avenue and Interstate 5 (I-5):** Land uses in this area include multifamily residences, a mobile home park, and office and commercial uses that are similar in elevation to SR-55. There are 12 to 20 ft high existing walls that shield this area. The multifamily residences and the mobile home park were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The office and commercial uses were classified under Activity Category E for reporting purposes because there are no outdoor frequent human use areas at those land uses.
- **East of SR-55, between McFadden Avenue and I-5:** Land uses in this area include multifamily residences that are similar in elevation to SR-55. There are 12 to 14 ft high existing noise barriers in this area. The multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}.

A total of 145 receptor locations in the vicinity of the project segment of SR-55 were selected to represent noise-sensitive land uses in the project vicinity. Those receptor locations are shown in Figure 2.14-2. Receptors, as used in this section, are those locations at which noise impacts were evaluated. As shown in Table 2.14.2, the majority of the sensitive receptor locations consist of residential uses; however, some hotels in the project area include outdoor active use areas.

2.14.2.2 Existing Noise Levels

The primary source of noise in the project area is traffic on SR-55. Short-term (i.e., 15-minute) ambient noise measurements were conducted to document existing noise levels at 20 representative receptor locations along the project corridor, to calibrate the noise model, and to predict the noise levels at all 145 modeled sensitive receptors in the project area. Long-term (24-hour) ambient noise monitoring was also conducted on the northbound side of SR-55 between Warner Avenue and Edinger Avenue to identify the peak traffic noise hour and describe sound levels throughout the day rather than absolute levels at a specific receptor location. The short- and long-term noise monitoring and modeled receptor locations are shown on Figure 2.14-2. The existing PM peak-hour traffic volumes were obtained from the *Updated Final Traffic Volume Report* (2016) for the project. Table 2.14.2 shows the existing traffic noise levels at the 145 modeled receptor locations. As shown in Table 2.14.2, of the 145 modeled receptor locations, 1 receptor (Receptor R-4 representing the swimming pool at the DoubleTree Club by Hilton Hotel, Orange County Airport) would approach or exceed the 72 dBA equivalent continuous sound level (L_{eq}) NAC and 25 second-floor receptors (Receptors R-84 through R-87, R-89 through R-91, R-93, R-95, R-101, R-103, R-104, R-106, R-110, R-119, R-125 through R-128, R-130, R-135 through R-138, and R-142) representing residential uses on the north end of the project would approach or exceed the 67 dBA L_{eq} NAC. Figure 2.14-2 shows the locations of the modeled receptors.

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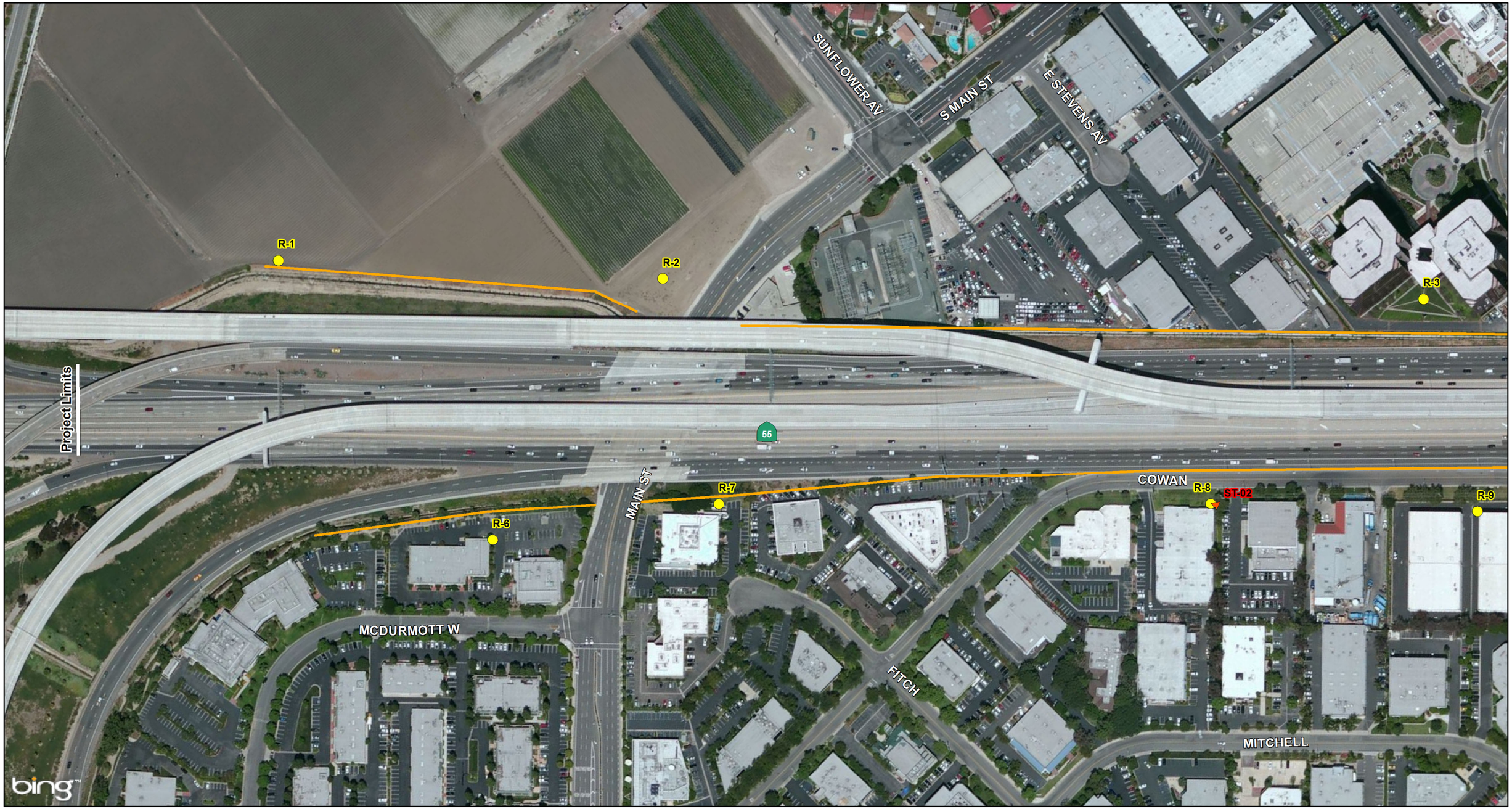

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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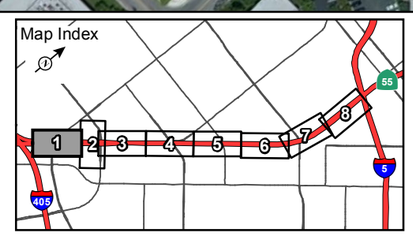

FIGURE 2.14-2
Sheet 1 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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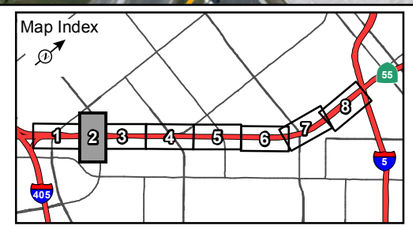

FIGURE 2.14-2
Sheet 2 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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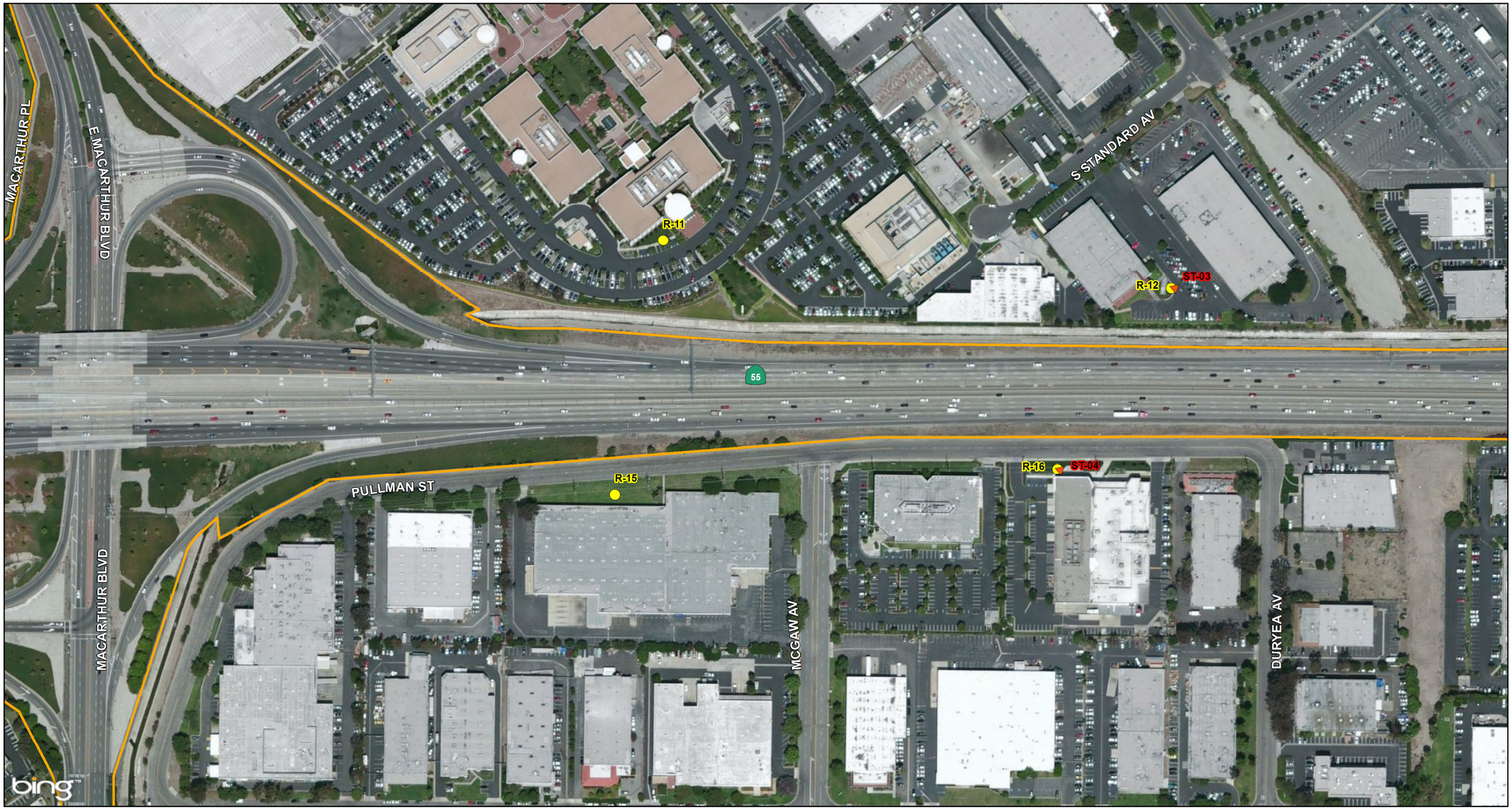

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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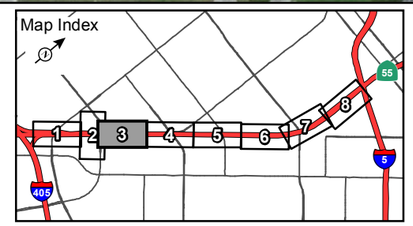

FIGURE 2.14-2
Sheet 3 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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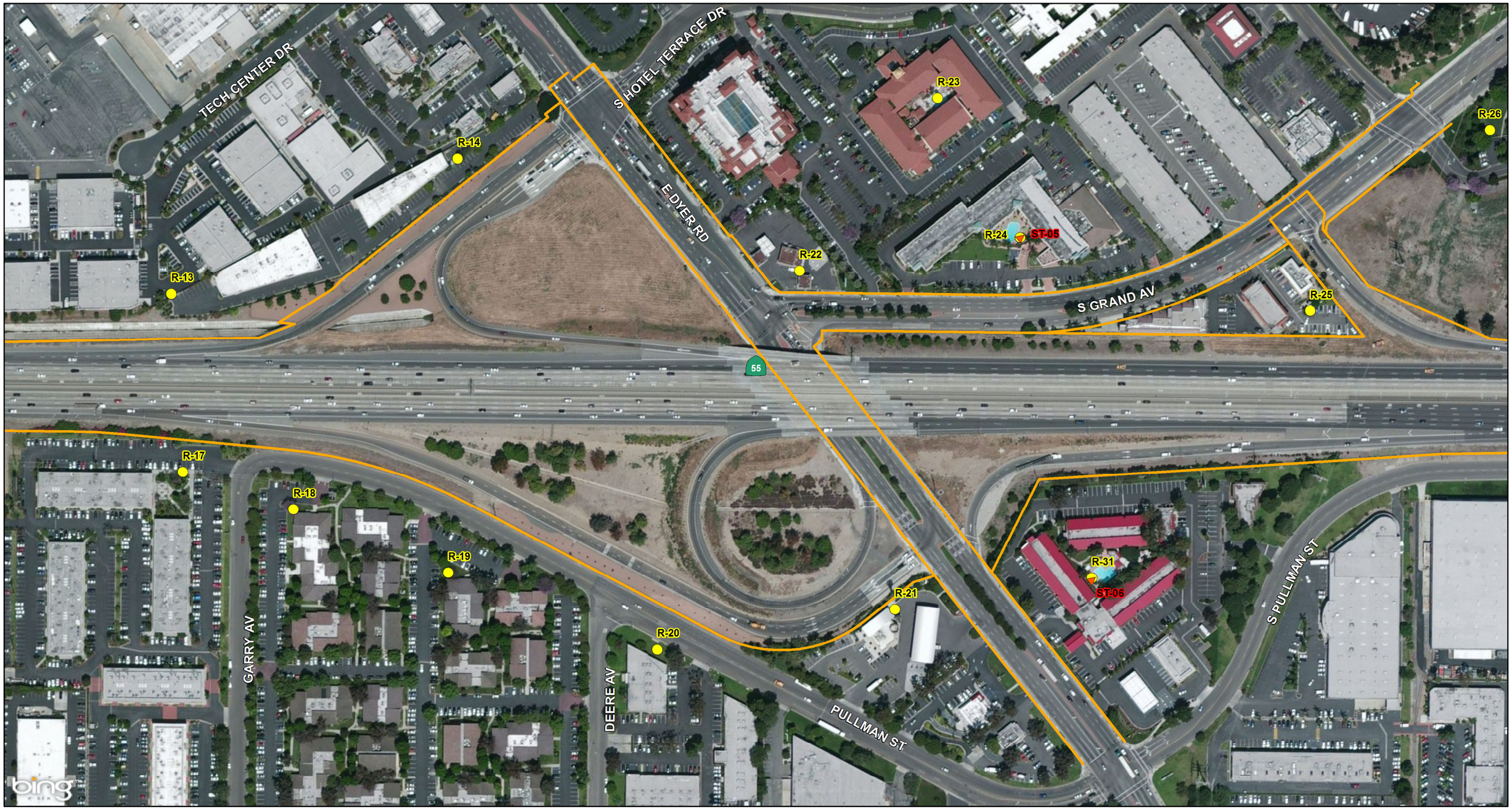

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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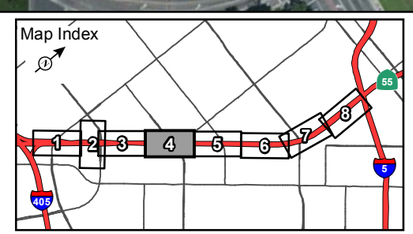

FIGURE 2.14-2
Sheet 4 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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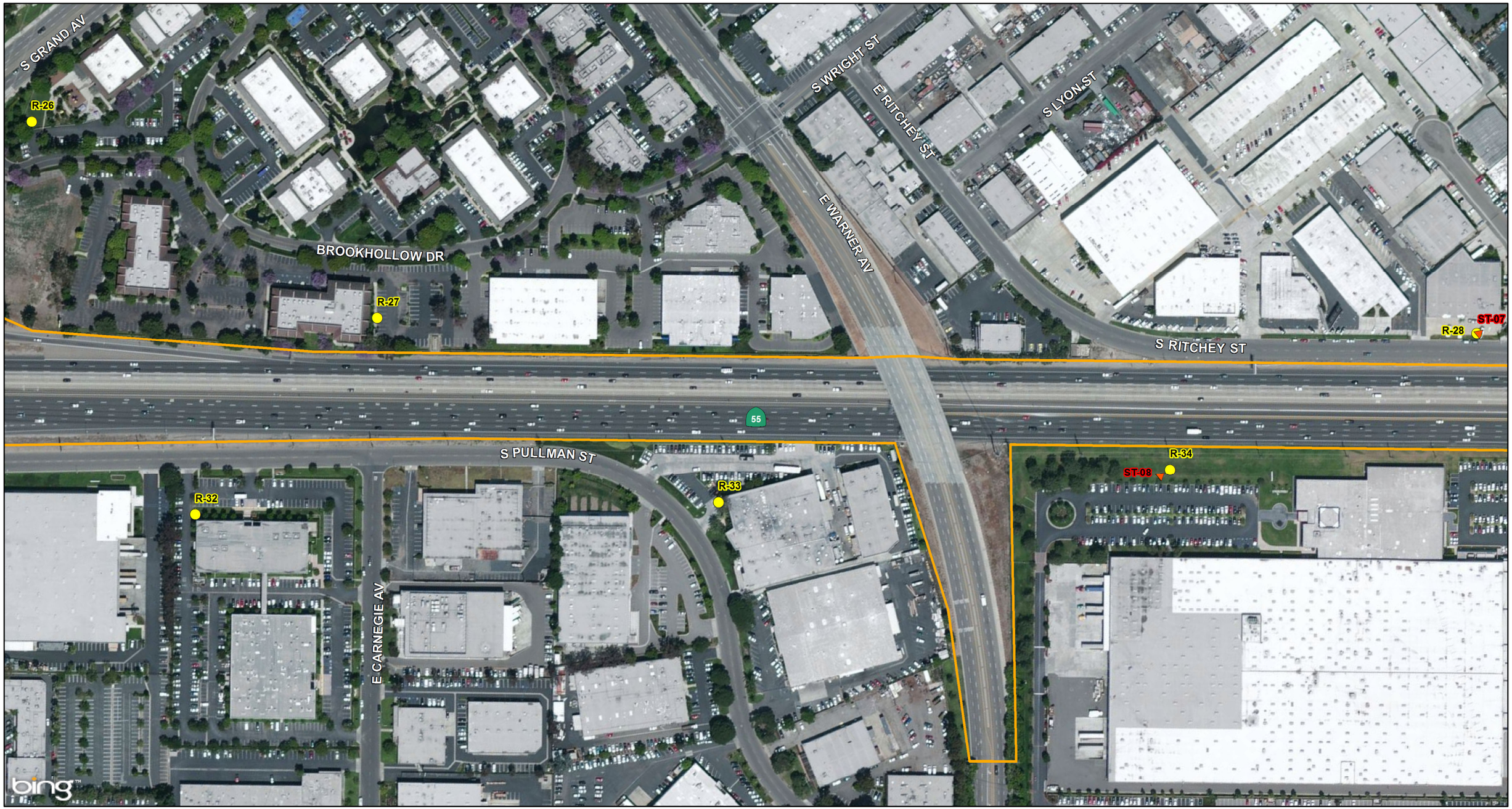

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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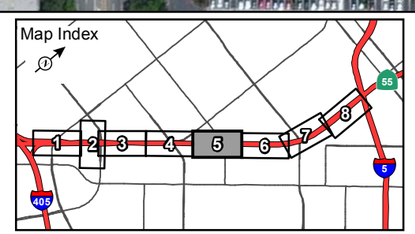

FIGURE 2.14-2
Sheet 5 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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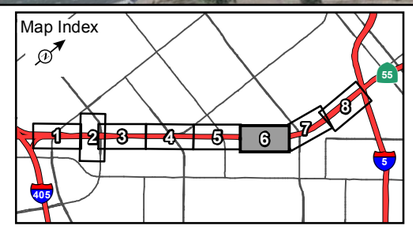

FIGURE 2.14-2
Sheet 6 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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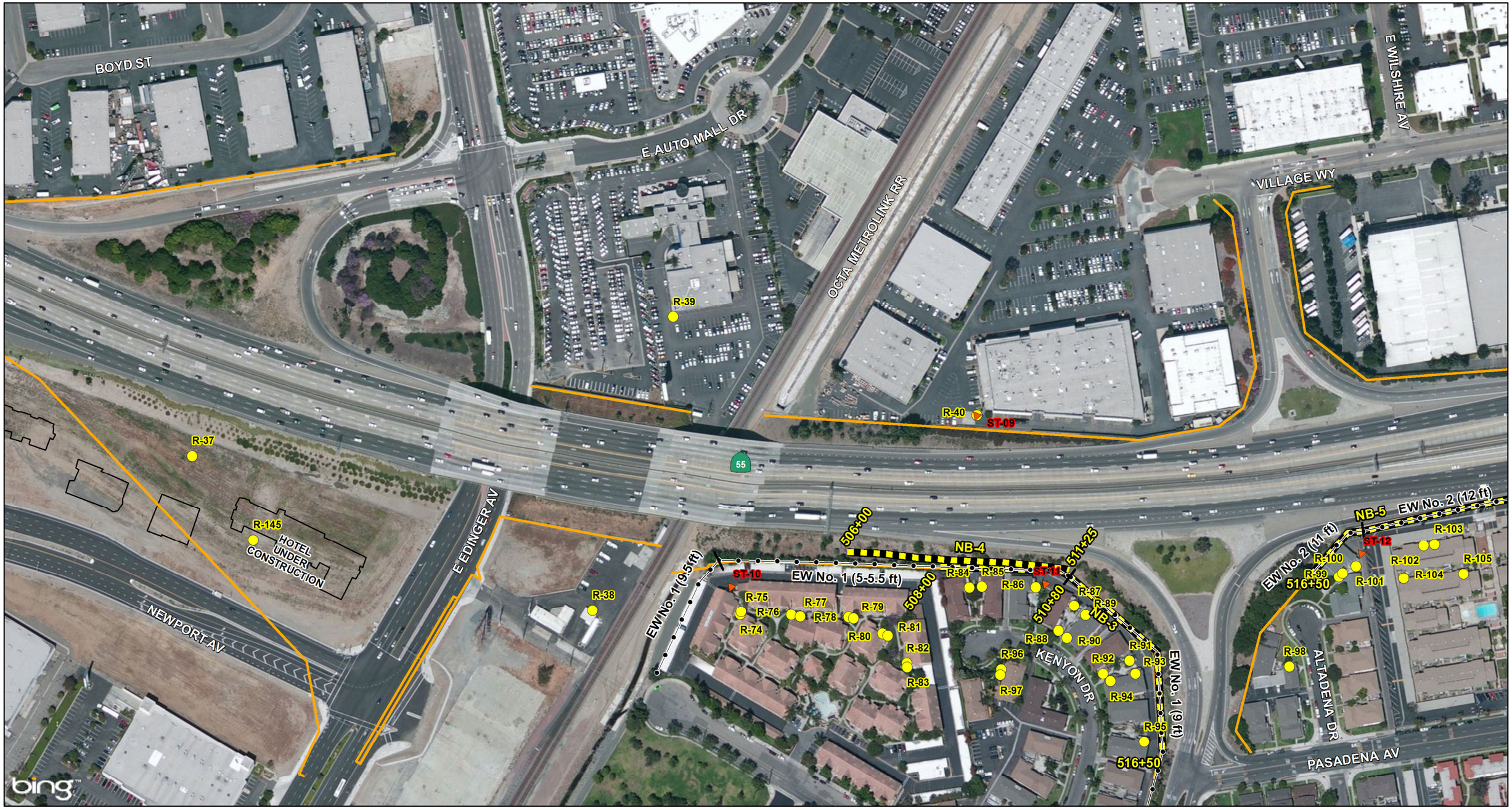

LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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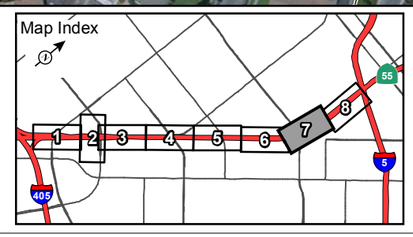

FIGURE 2.14-2
Sheet 7 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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LEGEND

- Project Limits
- Existing Caltrans Right of Way
- Modeled Noise Barriers
- Existing Walls
- Modeled Receptor Location
- Short-Term Monitoring Location
- Long-Term 24-Hour Monitor

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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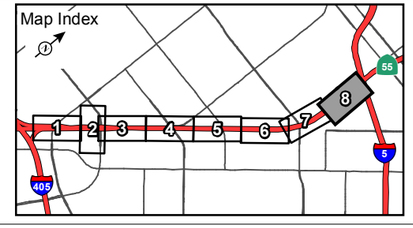

FIGURE 2.14-2
Sheet 8 of 8

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Modeled Noise Barriers and Receptor Locations

12-ORA-55 PM 6.4/10.3
EA No. 0J3400/EFIS 1200020328

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Table 2.14.2 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	First or Second Floor[1]	Noise Abatement Criteria	Existing Noise Level (dBA L_{eq})
R-1	Sunflower Avenue	Agricultural	1	1	F	65.5
R-2	Sunflower Avenue	Agricultural	1	1	F	68.2
R-3	Hutton Center Drive	Office[2]	1	1	E (72)	77.0
R-4	Hutton Center Drive	Hotel	1	1	E (72)	**71.4**[3]
R-5	Hutton Center Drive	Office	1	1	E (72)	68.0
R-6	W. McDurmott	Office	1	1	E (72)	67.4
R-7	Fitch	Office	1	1	E (72)	68.4
R-8	Cowan	Office	1	1	E (72)	77.7
R-9	Cowan	Commercial/Industrial	1	1	F	76.4
R-10	Cowan	Office	1	1	E (72)	74.2
R-11	E. Columbine Avenue	Office	1	1	E (72)	70.3
R-12	S. Standard Avenue	Commercial/Industrial	1	1	F	73.9
R-13	Tech Center Drive	Commercial/Industrial	1	1	F	74.2
R-14	Tech Center Drive	Commercial/Industrial	1	1	F	67.5
R-15	Pullman Street	Commercial/Industrial	1	1	F	77.1
R-16	Pullman Street	Commercial/Industrial	1	1	F	78.7
R-17	E. Garry Avenue	Office	1	1	E (72)	77.7
R-18	Pullman Street	Office	1	1	E (72)	73.7
R-19	Pullman Street	Office	1	1	E (72)	67.8
R-20	Pullman Street	Office	1	1	E (72)	67.8
R-21	Pullman Street	Commercial	1	1	F	72.9
R-22	S. Grand Avenue	Commercial	1	1	F	71.9
R-23	Hotel Terrace Drive	Hotel	1	1	E (72)	46.1
R-24	S. Grand Avenue	Hotel	1	1	E (72)	64.4
R-25	S. Grand Avenue	Commercial	1	1	F	71.7
R-26	S. Grand Avenue	Commercial/Industrial	1	1	F	62.0
R-27	Brookhollow Drive	Office	1	1	E (72)	71.3
R-28	Ritchey Drive	Commercial/Industrial	1	1	F	73.2
R-29	Ritchey Drive	Commercial/Industrial	1	1	F	74.3
R-30	E. Glenwood Place	Commercial/Industrial	1	1	F	74.9
R-31	E. Dyer Road	Hotel	1	1	E (72)	60.7
R-32	Pullman Street	Office	1	1	E (72)	73.4
R-33	Pullman Street	Commercial/Industrial	1	1	F	74.0
R-34	Bell Avenue	Commercial/Industrial	1	1	F	75.4
R-35	Valencia Avenue	Commercial/Industrial	1	1	F	70.4
R-36	Newport Avenue	Vacant Land	1	1	F	67.9
R-37	Newport Avenue	Vacant Land	1	1	F	65.7
R-38	Edinger Avenue	Commercial/Industrial	1	1	F	67.3
R-39	Auto Mall Drive	Commercial/Industrial	1	1	F	67.5
R-40	Village Drive	Commercial	1	1	F	68.9
R-41	Village Drive	Commercial/Industrial	1	1	F	75.7
R-42	Tustin Village Way	Residential	1	1	B (67)	58.5
R-43	Tustin Village Way	Residential	1	2	D (52)[4]	71.0/46.0[5]
R-44	Tustin Village Way	Residential	2	1	B (67)	63.5
R-45	Tustin Village Way	Residential	2	1	B (67)	63.0
R-46	Tustin Village Way	Residential	2	1	B (67)	54.6
R-47	Tustin Village Way	Residential	2	1	B (67)	61.2
R-48	Tustin Village Way	Residential	2	1	B (67)	63.6
R-49	Tustin Village Way	Residential	2	1	B (67)	63.3
R-50	Tustin Village Way	Residential	3	1	B (67)	57.1
R-51	Tustin Village Way	Residential	4	1	B (67)	57.6
R-52	Tustin Village Way	Residential	3	1	B (67)	51.6
R-53	Tustin Village Way	Residential	2	1	B (67)	55.7

Table 2.14.2 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	First or Second Floor[1]	Noise Abatement Criteria	Existing Noise Level (dBA L_{eq})
R-54	Tustin Village Way	Residential	2	1	B (67)	56.2
R-55	Tustin Village Way	Residential	3	1	B (67)	57.2
R-56	Tustin Village Way	Residential	3	1	B (67)	53.3
R-57	Tustin Village Way	Residential	3	1	B (67)	58.7
R-58	Tustin Village Way	Residential	2	1	B (67)	62.2
R-59	Tustin Village Way	Residential	2	1	B (67)	61.0
R-60	Tustin Village Way	Residential	2	1	B (67)	63.8
R-61	Tustin Village Way	Residential	2	1	B (67)	59.8
R-62	Tustin Village Way	Residential	2	1	B (67)	65.1
R-63	Tustin Village Way	Residential	2	1	B (67)	60.1
R-64	Tustin Village Way	Residential	2	1	B (67)	61.8
R-65	Tustin Village Way	Residential	2	1	B (67)	61.5
R-66	Tustin Village Way	Residential	2	1	B (67)	64.1
R-67	Tustin Village Way	Residential	2	1	B (67)	60.5
R-68	Tustin Village Way	Residential	2	1	B (67)	60.8
R-69	Tustin Village Way	Residential	4	1	B (67)	63.3
R-70	Tustin Village Way	Residential	2	1	B (67)	57.8
R-71	Tustin Village Way	Residential	2	1	B (67)	56.4
R-72	Tustin Village Way	Residential	2	1	B (67)	59.3
R-73	De Anza Lane	Residential	3	1	B (67)	62.2
R-74	Tustin Grove Drive	Residential	6	2	B (67)	53.1
R-75	Tustin Grove Drive	Residential	6	1	B (67)	51.3
R-76	Tustin Grove Drive	Residential	8	1	B (67)	51.4
R-77	Tustin Grove Drive	Residential	8	2	B (67)	54.7
R-78	Tustin Grove Drive	Residential	8	1	B (67)	52.4
R-79	Tustin Grove Drive	Residential	8	2	B (67)	54.4
R-80	Tustin Grove Drive	Residential	2	1	B (67)	54.6
R-81	Tustin Grove Drive	Residential	2	2	B (67)	56.4
R-82	Tustin Grove Drive	Residential	4	1	B (67)	56.3
R-83	Tustin Grove Drive	Residential	4	2	B (67)	58.3
R-84	Kenyon Drive	Residential	5	2	B (67)	**67.5**
R-85	Kenyon Drive	Residential	5	2	B (67)	**68.1**
R-86	Kenyon Drive	Residential	5	2	B (67)	**72.2**
R-87	Kenyon Drive	Residential	3	2	B (67)	**72.4**
R-88	Kenyon Drive	Residential	2	1	B (67)	59.0
R-89	Kenyon Drive	Residential	3	2	B (67)	**72.0**
R-90	Kenyon Drive	Residential	2	2	B (67)	**67.5**
R-91	Kenyon Drive	Residential	3	2	B (67)	**68.2**
R-92	Kenyon Drive	Residential	2	1	B (67)	55.4
R-93	Kenyon Drive	Residential	3	2	B (67)	**69.5**
R-94	Kenyon Drive	Residential	2	2	B (67)	64.8
R-95	Kenyon Drive	Residential	3	2	B (67)	**67.1**
R-96	Kenyon Drive	Residential	2	1	B (67)	61.2
R-97	Kenyon Drive	Residential	2	2	B (67)	62.9
R-98	Altadena Drive	Residential	2	1	B (67)	58.7
R-99	Altadena Drive	Residential	2	1	B (67)	60.2
R-100	Altadena Drive	Residential	2	2	B (67)	63.3
R-101	Altadena Drive	Residential	1	2	B (67)	**69.1**
R-102	Pasadena Avenue	Residential	4	1	B (67)	64.1
R-103	Pasadena Avenue	Residential	3	2	B (67)	**75.6**
R-104	Pasadena Avenue	Residential	3	2	B (67)	**67.3**
R-105	Pasadena Avenue	Residential	4	1	B (67)	57.7
R-106	Pasadena Avenue	Residential	3	2	B (67)	**74.9**

Table 2.14.2 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	First or Second Floor[1]	Noise Abatement Criteria	Existing Noise Level (dBA L_{eq})
R-107	Pasadena Avenue	Residential	4	1	B (67)	64.2
R-108	Pasadena Avenue	Residential	3	2	B (67)	61.6
R-109	Pasadena Avenue	Residential	4	1	B (67)	53.2
R-110	Pasadena Avenue	Residential	2	2	B (67)	**72.1**
R-111	Pasadena Avenue	Residential	2	1	B (67)	58.1
R-112	Pasadena Avenue	Residential	2	2	B (67)	61.5
R-113	Pasadena Avenue	Residential	1	2	B (67)	65.8
R-114	Pasadena Avenue	Residential	3	2	B (67)	63.2
R-115	Pasadena Avenue	Residential	3	1	B (67)	58.7
R-116	Pasadena Avenue	Residential	3	2	B (67)	62.9
R-117	Pasadena Avenue	Residential	3	1	B (67)	55.9
R-118	Pasadena Avenue	Residential	2	1	B (67)	64.3
R-119	Pasadena Avenue	Residential	2	2	B (67)	**71.4**
R-120	Medallion Avenue	Residential	8	1	B (67)	59.8
R-121	Medallion Avenue	Residential	2	1	B (67)	63.6
R-122	Medallion Avenue	Residential	6	1	B (67)	61.0
R-123	Medallion Avenue	Residential	2	1	B (67)	63.5
R-124	Medallion Avenue	Residential	3	1	B (67)	61.2
R-125	Whitby Circle	Residential	1	2	B (67)	**71.3**
R-126	Whitby Circle	Residential	1	2	B (67)	**68.9**
R-127	Whitby Circle	Residential	1	2	B (67)	**70.5**
R-128	Whitby Circle	Residential	1	2	B (67)	**72.9**
R-129	Pasadena Avenue	Residential	2	1	B (67)	62.1
R-130	Pasadena Avenue	Residential	2	2	B (67)	**71.9**
R-131	Pasadena Avenue	Residential	4	1	B (67)	62.8
R-132	Pasadena Avenue	Residential	4	2	B (67)	64.2
R-133	Boleyn Circle	Residential	1	1	B (67)	65.7
R-134	Boleyn Circle	Residential	1	1	B (67)	64.6
R-135	Boleyn Circle	Residential	1	2	B (67)	**75.1**
R-136	Boleyn Circle	Residential	1	2	B (67)	**77.6**
R-137	Boleyn Circle	Residential	1	2	B (67)	**69.3**
R-138	Boleyn Circle	Residential	1	2	B (67)	**67.9**
R-139	Pasadena Avenue	Residential	1	2	D (52)[4]	67.3/42.3[5]
R-140	Pasadena Avenue	Residential	4	1	B (67)	62.4
R-141	Pasadena Avenue	Residential	4	1	B (67)	61.5
R-142	Pasadena Avenue	Residential	4	2	B (67)	**74.1**
R-143	Pasadena Avenue	Residential	4	1	B (67)	64.7
R-144	Newport Avenue	Hotel	1	1	E (72)	47.7
R-145	Newport Avenue	Hotel	1	1	E (72)	49.2

Source: *Noise Study Report* (2015).and the *Supplemental Noise Analysis* (2017)

[1] This column defines the height of the receptor. First floor receptors were assumed to have a height of 5 ft while second-floor receptors have an assumed height of 15 ft.

[2] There are no outdoor frequent human uses associated with office land uses within the project area. The highest expected noise level is provided for reporting purposes.

[3] Numbers in **bold** represent noise levels that approach or exceed the NAC and are associated with areas of frequent human use.

[4] Residential uses without exterior noise -sensitive living areas were analyzed to assess interior noise level impacts only.

[5] Exterior/interior noise level. The interior noise level was determined using a standard 20 dB exterior-to-interior noise level reduction.

dB = decibels

dBA L_{eq} = equivalent continuous noise level measured in A-weighted decibels

ft = feet

NAC = Noise Abatement Criteria

2.14.3 Environmental Consequences

The proposed project is classified as a Type 1 project because it would add through-traffic lanes and auxiliary lanes on SR-55. A noise analysis is required for all Type 1 projects. The potential short- and long-term noise impacts of the Build Alternatives and the No Build Alternative are described in the following sections.

2.14.3.1 Temporary Impacts

Build Alternatives

The potential short-term noise impacts associated with construction of the Build Alternatives would be nearly identical for each Build Alternative. The differences would be related to the locations where project construction and, as a result, construction-related noise would occur, and the total length of time each Build Alternative takes to construct.

Two types of short-term noise impacts would occur during project construction. The first would be from construction crew commutes and the transport of construction equipment and materials to and from the project site. These activities would incrementally raise noise levels on access roads leading to the project site. The heavy equipment for grading and construction would be moved onto the project site, would remain for the duration of each construction phase, and would not add to the daily traffic volumes in the project vicinity. A high single-event noise exposure potential at a maximum level of 84 dBA maximum instantaneous sound level (L_{max}) from trucks passing at 50 ft would occur in areas where work and equipment and materials are transported. These noise effects would occur under each Build Alternative in the areas where work and equipment and materials transport would occur. However, the projected construction traffic for all the Build Alternatives would be minimal compared to existing traffic volumes on SR-55 and streets in the project vicinity, and the short-term noise level change resulting from project construction traffic would not be perceptible. Therefore, project-related, short-term, construction worker commutes and equipment transport noise impacts as a result of the Build Alternatives would not be adverse.

The second type of short-term noise impact is related to noise generated during project construction activities. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases would change the character of the noise generated and, therefore, the noise levels along the project alignment as construction progresses. Each Build Alternative will require the use of the same types of construction equipment, but that equipment may be operated in different areas along SR-55 and for shorter or longer periods of time, depending on the specific improvements constructed in each Build Alternative. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase.

Table 2.14.3 lists typical construction equipment noise levels recommended for noise impact assessments based on a distance of 50 ft between a piece of equipment and a noise receptor.

Table 2.14.3 Typical Construction Equipment Noise Levels

Equipment Description	Spec 721.560[1] L_{max} at 50 ft	Actual Measured[2] L_{max} at 50 ft
Backhoes	80	78
Compactor (ground)	80	83
Cranes	85	81
Dozers	85	82
Dump Truck	84	76
Excavators	85	81
Flatbed Trucks	84	74
Front-End Loaders	80	79
Graders	85	N/A[3]
Jackhammer	85	89
Pickup Truck	55	75
Pneumatic Tools	85	85
Pumps	77	81
Rock Drill	85	81
Roller	85	80
Scrapers	85	84
Tractors	84	N/A
Vibratory Pile Driver	95	101

Source: *Noise Study Report* (2015).
Note: Noise levels reported in this table are rounded to the nearest whole number.
1 Maximum noise levels were developed based on Spec 721.560 from the CA/T program to be consistent with the City of Boston's Noise Code for the "Big Dig" project.
2 The maximum noise level was developed based on the average noise level measured for each piece of equipment during the CA/T program in Boston, Massachusetts.
3 Since the maximum noise level based on the average noise level measured for this piece of equipment was not available, the maximum noise level developed based on Spec 721.560 was used.
CA/T = Central Artery/Tunnel
FHWA = Federal Highway Administration
ft = foot/feet
L_{max} = maximum sound level
N/A = Not Applicable

Typical noise levels at 50 ft from an active construction area can reach 88 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment, which includes graders, scrapers, excavators, bulldozers, compactors, and front loaders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full-power operation followed by 3 or 4 minutes at lower power settings.

Construction of the Build Alternatives will require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated at between 75 and 85 dBA L_{max} at a distance of 50 ft from the active construction area for the grading phase. As shown in Table 2.14.3, the maximum noise level generated by each scraper is assumed to be approximately 85 dBA L_{max} at 50 ft from the scraper. Each bulldozer would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks and pickup trucks is approximately 75 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound source with equal strength increases the noise

level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 88 dBA L_{max} at a distance of 50 ft from an active construction area.

The closest sensitive receptor locations are within 50 ft of the project construction areas. Therefore, these receptor locations may be subject to short-term noise levels of 88 dBA L_{max} or higher generated by construction activities along SR-55 and local roads for each of the Build Alternatives.

No Build Alternative

The No Build Alternative would not include the construction of improvements to SR-55 and therefore would not result in temporary construction-related noise impacts.

2.14.3.2 Permanent Impacts

Build Alternatives

Potential long-term noise associated with operations of Build Alternatives 1 through 4 would be solely from traffic noise. Traffic noise impacts occur when either of the following occurs: (1) if the predicted traffic noise level is 12 dBA or more over the corresponding modeled existing noise level at the sensitive receptor locations analyzed, or (2) if the traffic noise level at a sensitive receptor location is predicted to "approach or exceed" the applicable NAC for the affected land use. When traffic noise impacts occur, noise abatement measures must be considered.

The predicted future worst-case noise levels at all 145 sensitive receptor locations in the project area were determined with the existing sound walls and with new modeled noise barriers, using the worst-case traffic volumes (prior to speed degradation) or the future 2040 peak-hour traffic volumes from the *Updated Final Traffic Volume Report* (2016), whichever was higher. This traffic condition is assumed to be level of service (LOS) D/E, which corresponds to 1,950 vehicles per lane per hour (vplph) on the freeway mainline (SR-55 and I-5), 1,500 vplph on the high-occupancy vehicle (HOV) lanes (SR-55 and I-5), 1,000 vplph on the freeway on- and off-ramps, 1,000 vplph on the auxiliary lanes, and 1,000 vplph on local roads (i.e., MacArthur Boulevard, Dyer Road, Warner Avenue, Edinger Avenue, and McFadden Avenue).

The existing and future worst-case traffic noise level results for Alternatives 1 through 4 are shown in Table 2.14.4.

Table 2.14.4 Predicted Traffic Noise Levels (dBA L_{eq})

Receptor No.	Location	Type of Land Use	Number of Receptors	First or Second Floor	Noise Abatement Criteria	Existing Noise Level	Future No Build	Alternative 1	Change from Existing Level	Alternative 2	Change from Existing Level	Alternative 3	Change from Existing Level	Alternative 4	Change from Existing Level	Alternative 3M	Change from Existing Level
R-1	Sunflower Avenue	Agricultural	1	1	F	65.5	65.9	65.9	0.4	66.0	0.5	66.0	0.5	66.2	0.7	66.3	0.8
R-2	Sunflower Avenue	Agricultural	1	1	F	68.2	68.6	68.6	0.4	69.1	0.9	69.1	0.9	68.8	0.6	72.4	4.2
R-3	Hutton Center Drive	Office[1]	1	1	E (72)	77.0	77.0	77.0	0.0	77.8	0.8	77.8	0.8	77.1	0.1	77.4	0.4
R-4	Hutton Center Drive	Hotel	1	1	E (72)	71.4	71.4	**71.4**	0.0	**72.4**	1.0	**72.4**	1.0	**71.4**	0.0	**72.2**	0.8
R-5	Hutton Center Drive	Office	1	1	E (72)	68.0	68.1	68.1	0.0	68.9	0.8	68.8	0.7	68.1	0.0	68.7	0.6
R-6	W. McDurmott	Office	1	1	E (72)	67.4	67.5	67.5	0.1	67.6	0.2	67.6	0.2	67.8	0.4	68.6	1.2
R-7	Fitch	Office	1	1	E (72)	68.4	68.3	68.3	-0.1	68.7	0.3	68.7	0.3	68.5	0.1	71.2	2.8
R-8	Cowan	Office	1	1	E (72)	77.7	77.7	77.7	0.0	79.0	1.3	79.0	1.3	77.8	0.1	78.7	1.0
R-9	Cowan	Commercial/Industrial	1	1	F	76.4	76.5	76.5	0.1	77.5	1.1	77.5	1.1	76.6	0.2	77.5	1.1
R-10	Cowan	Office	1	1	E (72)	74.2	74.1	74.1	-0.1	75.8	1.6	75.8	1.6	74.2	0.0	75.8	1.6
R-11	E. Columbine Avenue	Office	1	1	E (72)	70.3	70.3	70.7	0.4	72.1	1.8	72.2	1.9	71.0	0.7	72.4	2.1
R-12	S. Standard Avenue	Commercial/Industrial	1	1	F	73.9	73.9	74.3	0.4	74.7	0.8	75.3	1.4	75.2	1.3	75.6	1.7
R-13	Tech Center Drive	Commercial/Industrial	1	1	F	74.2	74.3	75.0	0.8	75.9	1.7	76.0	1.8	75.6	1.4	76.3	2.1
R-14	Tech Center Drive	Commercial/Industrial	1	1	F	67.5	68.0	68.0	0.3	69.0	1.3	69.0	1.3	68.2	0.5	69.1	1.4
R-15	Pullman Street	Commercial/Industrial	1	1	F	77.1	76.4	76.7	-0.4	76.7	-0.4	76.8	-0.3	77.3	0.2	77.3	0.2
R-16	Pullman Street	Commercial/Industrial	1	1	F	78.7	77.8	79.6	0.9	80.1	1.4	80.6	1.9	80.3	1.6	80.6	1.9
R-17	E. Garry Avenue	Office	1	1	E (72)	77.7	77.7	78.5	0.8	79.5	1.8	79.6	1.9	79.2	1.5	79.6	1.9
R-18	Pullman Street	Office	1	1	E (72)	73.7	73.6	74.3	0.6	76.1	2.4	76.1	2.4	75.1	1.4	76.3	2.6
R-19	Pullman Street	Office	1	1	E (72)	67.8	67.8	68.2	0.4	69.5	1.7	69.5	1.7	68.6	0.8	70.4	2.6
R-20	Pullman Street	Office	1	1	E (72)	67.8	67.9	68.3	0.4	69.1	1.2	69.1	1.2	68.5	0.6	69.1	1.2
R-21	Pullman Street	Commercial	1	1	F	72.9	73.1	73.3	0.3	73.6	0.6	73.6	0.6	73.5	0.5	73.7	0.7
R-22	S. Grand Avenue	Commercial	1	1	F	71.9	73.0	73.3	1.4	73.5	1.6	73.8	1.9	73.7	1.8	74.0	2.1
R-23	Hotel Terrace Drive	Hotel	1	1	E (72)	46.1	46.0	46.1	-0.1	46.6	0.4	46.7	0.5	46.4	0.2	46.9	0.7
R-24	S. Grand Avenue	Hotel	1	1	E (72)	64.4	66.1	66.8	2.4	67.0	2.6	67.3	2.9	67.4	3.0	67.6	3.2
R-25	S. Grand Avenue	Commercial	1	1	F	71.7	76.1	76.4	4.7	76.5	4.8	76.8	5.1	77.0	5.3	77.0	5.3
R-26	S. Grand Avenue	Commercial/Industrial	1	1	F	62.0	64.8	65.0	3.0	65.2	3.2	65.7	3.7	65.6	3.6	66.2	4.2
R-27	Brookhollow Drive	Office	1	1	E (72)	71.3	75.0	75.4	4.1	75.5	4.2	75.9	4.6	76.2	4.9	76.2	4.9
R-28	Ritchey Drive	Commercial/Industrial	1	1	F	73.2	78.0	78.5	5.3	78.6	5.4	79.0	5.8	79.2	6.0	79.2	6.0
R-29	Ritchey Drive	Commercial/Industrial	1	1	F	74.3	77.8	78.4	4.1	78.5	4.2	79.1	4.8	79.0	4.7	79.0	4.7
R-30	E. Glenwood Place	Commercial/Industrial	1	1	F	74.9	75.2	76.6	1.7	76.7	1.8	76.8	1.9	77.1	2.2	79.6	1.7
R-31	E. Dyer Road	Hotel	1	1	E(72)	60.7	60.7	61.5	0.8	62.3	1.6	62.4	1.7	62.1	1.4	62.6	1.9
R-32	Pullman Street	Office	1	1	E (72)	73.4	73.5	73.9	0.5	74.9	1.5	75.0	1.6	74.6	1.2	75.3	1.9
R-33	Pullman Street	Commercial/Industrial	1	1	F	74.0	74.0	75.6	1.6	75.9	1.9	76.3	2.3	76.3	2.3	76.7	2.7
R-34	Bell Avenue	Commercial/Industrial	1	1	F	75.4	75.5	76.5	1.1	77.1	1.7	77.8	2.4	77.2	1.8	78.2	2.8
R-35	Valencia Avenue	Commercial/Industrial	1	1	F	70.4	70.4	71.9	1.5	72.2	1.8	72.7	2.3	72.5	2.1	72.8	2.4
R-36	Newport Avenue	Vacant Land	1	1	F	67.9	68.0	68.2	0.3	70.0	2.1	70.1	2.2	68.7	0.8	70.2	2.3
R-37	Newport Avenue	Vacant Land	1	1	F	65.7	66.4	66.3	-0.1	67.0	0.6	67.0	0.6	66.7	0.3	67.0	0.6
R-38	Edinger Avenue	Commercial/Industrial	1	1	F	67.3	67.4	67.6	0.3	68.9	1.6	68.8	1.5	67.4	0.1	69.2	1.9
R-39	Auto Mall Drive	Commercial/Industrial	1	1	F	67.5	67.6	67.8	0.3	68.1	0.6	68.0	0.5	68.0	0.5	67.9	0.4
R-40	Village Drive	Commercial	1	1	F	68.9	68.9	68.0	-0.9	68.4	-0.5	68.9	0.0	68.6	-0.3	69.1	0.2
R-41	Village Drive	Commercial/Industrial	1	1	F	75.7	76.0	77.0	1.2	77.2	1.4	77.1	1.3	77.4	1.6	77.3	1.5
R-42	Tustin Village Way	Residential	1	1	B (67)	58.5	58.9	59.0	0.3	59.1	0.4	59.2	0.5	59.1	0.4	59.4	0.7
R-43	Tustin Village Way	Residential	1	2	D (52)[4]	71.0/46.05	71.4/46.4	71.6/46.6	0.4	71.7/46.7	0.5	71.8/46.8	0.6	71.7/46.7	0.5	**71.9**	0.7
R-44	Tustin Village Way	Residential	2	1	B (67)	63.5	63.9	64.2	0.6	64.2	0.6	64.3	0.7	64.2	0.6	64.5	0.9
R-45	Tustin Village Way	Residential	2	1	B (67)	63.0	63.8	64.0	0.8	64.0	0.8	64.0	0.8	63.7	0.5	64.2	1.0
R-46	Tustin Village Way	Residential	2	1	B (67)	54.6	55.1	55.3	0.5	55.3	0.5	55.4	0.6	55.2	0.4	55.5	0.7
R-47	Tustin Village Way	Residential	2	1	B (67)	61.2	61.9	62.1	0.7	62.1	0.7	62.2	0.8	61.9	0.5	62.4	1.0
R-48	Tustin Village Way	Residential	2	1	B (67)	63.6	64.5	64.7	0.9	64.7	0.9	64.7	0.9	64.4	0.6	64.9	1.1

Table 2.14.4 Predicted Traffic Noise Levels (dBA L_{eq})

Receptor No.	Location	Type of Land Use	Number of Receptors	First or Second Floor	Noise Abatement Criteria	Existing Noise Level	Future No Build	Alternative 1	Change from Existing Level	Alternative 2	Change from Existing Level	Alternative 3	Change from Existing Level	Alternative 4	Change from Existing Level	Alternative 3M	Change from Existing Level
R-49	Tustin Village Way	Residential	2	1	B (67)	63.3	64.4	64.5	1.0	64.6	1.1	64.5	1.0	64.2	0.7	64.7	1.2
R-50	Tustin Village Way	Residential	3	1	B (67)	57.1	57.7	57.8	0.5	57.9	0.6	57.9	0.6	57.7	0.4	58.1	0.8
R-51	Tustin Village Way	Residential	4	1	B (67)	57.6	58.3	58.4	0.5	58.5	0.6	58.5	0.6	58.3	0.4	58.6	0.7
R-52	Tustin Village Way	Residential	3	1	B (67)	51.6	52.2	52.3	0.4	52.4	0.5	52.4	0.5	52.1	0.2	52.6	0.6
R-53	Tustin Village Way	Residential	2	1	B (67)	55.7	56.4	56.5	0.5	56.5	0.5	56.5	0.5	56.3	0.3	56.6	0.6
R-54	Tustin Village Way	Residential	2	1	B (67)	56.2	57.0	57.0	0.4	57.1	0.5	57.1	0.5	56.9	0.3	57.2	0.6
R-55	Tustin Village Way	Residential	3	1	B (67)	57.2	58.1	58.2	0.6	58.3	0.7	58.3	0.7	58.0	0.4	58.4	0.8
R-56	Tustin Village Way	Residential	3	1	B (67)	53.3	54.0	54.1	0.4	54.1	0.4	54.1	0.4	53.9	0.2	54.2	0.5
R-57	Tustin Village Way	Residential	3	1	B (67)	58.7	59.5	59.6	0.5	59.6	0.5	59.6	0.5	59.3	0.2	59.7	0.6
R-58	Tustin Village Way	Residential	2	1	B (67)	62.2	62.8	62.8	0.4	62.9	0.5	62.9	0.5	62.7	0.3	62.9	0.5
R-59	Tustin Village Way	Residential	2	1	B (67)	61.0	61.4	61.5	0.3	61.5	0.3	61.5	0.3	61.4	0.2	61.6	0.4
R-60	Tustin Village Way	Residential	2	1	B (67)	63.8	64.5	64.6	0.5	64.6	0.5	64.6	0.5	64.4	0.3	64.7	0.6
R-61	Tustin Village Way	Residential	2	1	B (67)	59.8	60.6	60.6	0.4	60.7	0.5	60.7	0.5	60.5	0.3	60.8	0.6
R-62	Tustin Village Way	Residential	2	1	B (67)	65.1	65.7	65.8	0.3	65.8	0.3	65.8	0.3	65.6	0.1	65.9	0.4
R-63	Tustin Village Way	Residential	2	1	B (67)	60.1	60.8	60.8	0.4	60.9	0.5	60.9	0.5	60.8	0.4	61.0	0.6
R-64	Tustin Village Way	Residential	2	1	B (67)	61.8	62.2	62.2	0.2	62.2	0.2	62.2	0.2	62.2	0.2	62.3	0.3
R-65	Tustin Village Way	Residential	2	1	B (67)	61.5	62.7	62.8	0.6	62.8	0.6	62.8	0.6	62.5	0.3	63.0	0.8
R-66	Tustin Village Way	Residential	2	1	B (67)	64.1	65.0	65.0	0.5	65.1	0.6	65.1	0.6	64.9	0.4	65.2	0.7
R-67	Tustin Village Way	Residential	2	1	B (67)	60.5	61.2	61.3	0.5	61.3	0.5	61.3	0.5	61.1	0.3	61.3	0.5
R-68	Tustin Village Way	Residential	2	1	B (67)	60.8	61.3	61.3	0.3	61.4	0.4	61.4	0.4	61.2	0.2	61.4	0.4
R-69	Tustin Village Way	Residential	4	1	B (67)	63.3	64.2	64.2	0.6	64.2	0.6	64.2	0.6	64.0	0.4	64.3	0.7
R-70	Tustin Village Way	Residential	2	1	B (67)	57.8	58.5	58.6	0.4	58.6	0.4	58.6	0.4	58.4	0.2	58.7	0.5
R-71	Tustin Village Way	Residential	2	1	B (67)	56.4	57.1	57.2	0.4	57.2	0.4	57.2	0.4	57.0	0.2	57.3	0.5
R-72	Tustin Village Way	Residential	2	1	B (67)	59.3	60.1	60.2	0.4	60.2	0.4	60.2	0.4	60.1	0.3	60.3	0.5
R-73	De Anza Lane	Residential	3	1	B (67)	62.2	62.9	63.0	0.4	63.0	0.4	63.1	0.5	62.9	0.3	63.1	0.5
R-74	Tustin Grove Drive	Residential	6	2	B (67)	53.1	53.1	53.3	0.2	54.1	1.0	54.1	1.0	55.4	2.3	54.4	1.3
R-75	Tustin Grove Drive	Residential	6	1	B (67)	51.3	51.4	51.6	0.3	52.6	1.3	52.6	1.3	53.0	1.7	52.9	1.6
R-76	Tustin Grove Drive	Residential	8	1	B (67)	51.4	51.5	51.7	0.3	52.9	1.5	52.9	1.5	53.7	2.3	53.4	2.0
R-77	Tustin Grove Drive	Residential	8	2	B (67)	54.7	54.7	54.9	0.2	56.0	1.3	56.0	1.3	56.8	2.1	56.4	1.7
R-78	Tustin Grove Drive	Residential	8	1	B (67)	52.4	52.5	52.5	0.1	53.5	1.1	53.6	1.2	54.3	1.9	54.1	1.7
R-79	Tustin Grove Drive	Residential	8	2	B (67)	54.4	54.5	54.5	0.1	55.7	1.3	55.7	1.3	56.5	2.1	56.2	1.8
R-80	Tustin Grove Drive	Residential	2	1	B (67)	54.6	54.7	54.8	0.2	55.9	1.3	56.0	1.4	56.5	1.9	56.4	1.8
R-81	Tustin Grove Drive	Residential	2	2	B (67)	56.4	56.4	56.5	0.1	57.8	1.4	57.9	1.5	58.2	1.8	58.2	1.8
R-82	Tustin Grove Drive	Residential	4	1	B (67)	56.3	56.3	56.4	0.1	57.3	1.0	57.4	1.1	58.8	2.5	58.3	2.0
R-83	Tustin Grove Drive	Residential	4	2	B (67)	58.3	58.3	58.5	0.2	59.4	1.1	59.5	1.2	60.8	2.5	60.2	1.9
R-84	Kenyon Drive	Residential	5	2	B (67)	67.5	67.6	**67.7**	0.1	**68.8**	1.2	**69.0**	1.4	**73.5**	5.9	**70.9**	3.3
R-85	Kenyon Drive	Residential	5	2	B (67)	68.1	68.1	**68.3**	0.2	**68.7**	0.6	**68.8**	0.7	**73.2**	5.1	**71.2**	3.1
R-86	Kenyon Drive	Residential	5	2	B (67)	72.2	72.3	**72.3**	0.1	**72.0**	-0.2	**72.5**	0.3	**74.2**	2.0	**72.9**	0.7
R-87	Kenyon Drive	Residential	3	2	B (67)	72.4	72.5	**72.6**	0.2	**74.0**	1.6	**74.5**	2.1	**73.9**	1.5	**74.4**	2.0
R-88	Kenyon Drive	Residential	2	1	B (67)	59.0	59.1	59.2	0.2	60.4	1.4	61.0	2.0	61.1	2.1	61.1	2.1
R-89	Kenyon Drive	Residential	3	2	B (67)	72.0	72.0	**72.1**	0.1	**73.7**	1.7	**74.4**	2.4	**74.7**	2.7	**74.4**	2.4
R-90	Kenyon Drive	Residential	2	2	B (67)	67.5	67.5	**67.6**	0.1	**69.2**	1.7	**69.6**	2.1	**69.5**	2.0	**69.5**	2.0
R-91	Kenyon Drive	Residential	3	2	B (67)	68.2	68.5	**68.5**	0.3	**69.8**	1.6	**70.1**	1.9	**70.3**	2.1	**69.9**	1.7
R-92	Kenyon Drive	Residential	2	1	B (67)	55.4	55.9	56.1	0.5	56.6	1.0	56.7	1.1	56.9	1.3	56.5	0.9
R-93	Kenyon Drive	Residential	3	2	B (67)	69.5	69.7	**69.9**	0.3	**71.3**	1.7	**71.6**	2.0	**71.9**	2.3	**71.5**	1.9
R-94	Kenyon Drive	Residential	2	2	B (67)	64.8	65.0	65.0	0.2	**66.4**	1.6	**66.7**	1.9	**67.0**	2.2	**66.7**	1.9
R-95	Kenyon Drive	Residential	3	2	B (67)	67.1	67.7	**67.9**	0.6	**68.7**	1.4	**68.5**	1.2	**68.5**	1.2	**68.4**	1.1
R-96	Kenyon Drive	Residential	2	1	B (67)	61.2	61.2	61.3	0.1	61.8	0.6	62.1	0.9	63.0	1.8	62.8	1.6

Table 2.14.4 Predicted Traffic Noise Levels (dBA L_{eq})

Receptor No.	Location	Type of Land Use	Number of Receptors	First or Second Floor	Noise Abatement Criteria	Existing Noise Level	Future No Build	Alternative 1	Change from Existing Level	Alternative 2	Change from Existing Level	Alternative 3	Change from Existing Level	Alternative 4	Change from Existing Level	Alternative 3M	Change from Existing Level
R-97	Kenyon Drive	Residential	2	2	B (67)	62.9	63.0	63.1	0.2	64.1	1.2	64.2	1.3	65.9	3.0	65.2	2.3
R-98	Altadena Drive	Residential	2	1	B (67)	58.7	59.0	59.2	0.4	60.3	1.5	60.5	1.7	60.7	1.9	60.7	1.9
R-99	Altadena Drive	Residential	2	1	B (67)	60.2	60.5	60.7	0.4	61.7	1.4	61.5	1.2	64.5	4.2	63.3	3.0
R-100	Altadena Drive	Residential	2	2	B (67)	63.3	63.6	63.7	0.4	64.1	0.8	64.3	1.0	64.5	1.2	64.5	1.2
R-101	Altadena Drive	Residential	1	2	B (67)	69.1	69.4	**69.5**	0.4	**69.9**	0.8	**70.3**	1.2	**70.4**	1.3	**70.4**	1.3
R-102	Pasadena Avenue	Residential	4	1	B (67)	64.1	64.3	64.4	0.3	64.9	0.8	65.4	1.3	65.6	1.5	65.5	1.4
R-103	Pasadena Avenue	Residential	3	2	B (67)	75.6	75.8	**76.1**	0.4	**76.6**	0.9	**76.9**	1.2	**77.2**	1.5	**77.1**	1.4
R-104	Pasadena Avenue	Residential	3	2	B (67)	67.3	67.4	**67.5**	0.2	**68.4**	1.1	**69.0**	1.7	**69.0**	1.7	**69.2**	1.9
R-105	Pasadena Avenue	Residential	4	1	B (67)	57.7	57.9	58.1	0.3	58.5	0.7	58.7	0.9	58.9	1.1	58.9	1.1
R-106	Pasadena Avenue	Residential	3	2	B (67)	74.9	75.1	**75.6**	0.7	**76.0**	1.1	**76.3**	1.4	**76.4**	1.5	**76.4**	1.5
R-107	Pasadena Avenue	Residential	4	1	B (67)	64.2	64.5	64.6	0.3	65.3	1.0	65.6	1.3	65.5	1.2	65.5	1.2
R-108	Pasadena Avenue	Residential	3	2	B (67)	61.6	61.9	62.1	0.4	62.4	0.7	62.6	0.9	62.7	1.0	62.8	1.1
R-109	Pasadena Avenue	Residential	4	1	B (67)	53.2	58.7	58.8	0.4	59.1	0.7	59.3	0.9	59.3	0.9	59.4	1.0
R-110	Pasadena Avenue	Residential	2	2	B (67)	72.1	72.4	**72.7**	0.6	**73.2**	1.1	**73.4**	1.3	**73.4**	1.3	**73.4**	1.3
R-111	Pasadena Avenue	Residential	2	1	B (67)	58.1	58.4	58.7	0.5	59.0	0.8	59.1	0.9	59.2	1.0	59.3	1.1
R-112	Pasadena Avenue	Residential	2	2	B (67)	61.5	61.9	62.2	0.6	62.5	0.9	62.6	1.0	62.7	1.1	62.7	1.1
R-113	Pasadena Avenue	Residential	1	2	B (67)	65.8	66.1	**66.4**	0.6	**66.8**	1.0	**67.0**	1.2	**67.1**	1.3	**67.1**	1.3
R-114	Pasadena Avenue	Residential	3	2	B (67)	63.2	63.6	63.8	0.5	64.1	0.8	64.3	1.0	64.3	1.0	64.3	1.0
R-115	Pasadena Avenue	Residential	3	1	B (67)	58.7	59.0	59.2	0.4	59.4	0.6	59.6	0.8	59.6	0.8	59.7	0.9
R-116	Pasadena Avenue	Residential	3	2	B (67)	62.9	63.1	63.4	0.5	63.9	1.0	64.2	1.3	64.2	1.3	64.3	1.4
R-117	Pasadena Avenue	Residential	3	1	B (67)	55.9	56.1	56.3	0.4	56.7	0.8	57.0	1.1	57.0	1.1	57.0	1.1
R-118	Pasadena Avenue	Residential	2	1	B (67)	64.3	64.5	64.6	0.2	64.8	0.4	65.3	0.9	64.9	0.5	65.0	0.6
R-119	Pasadena Avenue	Residential	2	2	B (67)	71.4	71.6	**71.7**	0.3	**72.1**	0.7	**72.5**	1.1	**72.4**	1.0	**72.5**	1.1
R-120	Medallion Avenue	Residential	8	1	B (67)	59.8	60.1	60.2	0.3	60.5	0.6	60.9	1.0	60.9	1.0	60.9	1.0
R-121	Medallion Avenue	Residential	2	1	B (67)	63.6	64.0	64.0	0.2	64.4	0.6	64.9	1.1	64.7	0.9	64.7	0.9
R-122	Medallion Avenue	Residential	6	1	B (67)	61.0	61.3	61.4	0.3	61.7	0.6	62.3	1.2	62.0	0.9	62.0	0.9
R-123	Medallion Avenue	Residential	2	1	B (67)	63.5	63.9	64.0	0.3	64.3	0.6	64.8	1.1	64.6	0.9	64.5	0.8
R-124	Medallion Avenue	Residential	3	1	B (67)	61.2	61.5	61.6	0.2	61.9	0.5	62.5	1.1	62.2	0.8	61.9	0.5
R-125	Whitby Circle	Residential	1	2	B (67)	71.3	71.7	**71.9**	0.4	**71.9**	0.4	**72.1**	0.6	**71.9**	0.4	**72.1**	0.6
R-126	Whitby Circle	Residential	1	2	B (67)	68.9	69.5	**69.6**	0.4	**69.6**	0.4	**69.8**	0.6	**69.6**	0.4	**69.8**	0.6
R-127	Whitby Circle	Residential	1	2	B (67)	70.5	71.0	**71.2**	0.4	**71.3**	0.5	**71.5**	0.7	**71.2**	0.4	**71.4**	0.6
R-128	Whitby Circle	Residential	1	2	B (67)	72.9	73.3	**73.5**	0.4	**73.5**	0.4	**73.8**	0.7	**73.6**	0.5	**73.7**	0.6
R-129	Pasadena Avenue	Residential	2	1	B (67)	62.1	62.9	63.0	0.5	63.2	0.7	63.3	0.8	62.9	0.4	63.3	0.8
R-130	Pasadena Avenue	Residential	2	2	B (67)	71.9	72.4	**72.5**	0.4	**72.5**	0.4	**72.5**	0.4	**72.4**	0.3	**72.7**	0.6
R-131	Pasadena Avenue	Residential	4	1	B (67)	62.8	63.8	63.9	0.5	64.0	0.6	64.1	0.7	63.7	0.3	64.0	0.6
R-132	Pasadena Avenue	Residential	4	2	B (67)	64.2	64.6	64.7	0.2	64.8	0.3	64.8	0.3	64.7	0.2	64.8	0.3
R-133	Boleyn Circle	Residential	1	1	B (67)	65.7	66.2	**66.3**	0.4	**66.4**	0.5	**66.4**	0.5	**66.2**	0.3	**66.5**	0.6
R-134	Boleyn Circle	Residential	1	1	B (67)	64.6	65.5	65.6	0.2	65.6	0.2	65.6	0.2	65.5	0.1	65.8	0.4
R-135	Boleyn Circle	Residential	1	2	B (67)	75.1	75.7	**75.8**	0.3	**75.8**	0.3	**75.9**	0.4	**75.7**	0.2	**76.0**	0.5
R-136	Boleyn Circle	Residential	1	2	B (67)	77.6	78.0	**78.2**	0.3	**78.2**	0.3	**78.2**	0.3	**78.2**	0.3	**78.4**	0.5
R-137	Boleyn Circle	Residential	1	2	B (67)	69.3	70.2	**70.3**	0.4	**70.3**	0.4	**70.5**	0.6	**70.3**	0.4	**70.5**	0.6
R-138	Boleyn Circle	Residential	1	2	B (67)	67.9	68.8	**68.9**	0.3	**68.9**	0.3	**69.0**	0.4	**68.9**	0.3	**69.1**	0.5
R-139	Pasadena Avenue	Residential	1	2	D (52)[4]	67.3/42.3	68.1/43.1	68.2/43.2	0.3	68.2/43.2	0.3	68.2/43.2	0.3	68.1/43.1	0.2	68.3	0.4
R-140	Pasadena Avenue	Residential	4	1	B (67)	62.4	63.5	63.5	0.4	63.5	0.4	63.5	0.4	63.4	0.3	63.7	0.6
R-141	Pasadena Avenue	Residential	4	1	B (67)	61.5	62.8	62.9	0.4	62.9	0.4	62.9	0.4	62.8	0.3	63.1	0.6
R-142	Pasadena Avenue	Residential	4	2	B (67)	74.1	74.4	**74.4**	0.1	**74.4**	0.1	**74.4**	0.1	**74.3**	0.0	**74.4**	0.1
R-143	Pasadena Avenue	Residential	4	1	B (67)	64.7	65.5	65.5	0.1	65.5	0.1	65.5	0.1	65.5	0.1	65.6	0.2
R-144	Newport Avenue	Hotel	1	1	E (72)	47.7	48.2	48.2	0.3	48.6	0.7	48.4	0.5	48.5	0.6	48.6	0.7

Table 2.14.4 Predicted Traffic Noise Levels (dBA L_{eq})

Receptor No.	Location	Type of Land Use	Number of Receptors	First or Second Floor	Noise Abatement Criteria	Existing Noise Level	Future No Build	Alternative 1	Change from Existing Level	Alternative 2	Change from Existing Level	Alternative 3	Change from Existing Level	Alternative 4	Change from Existing Level	Alternative 3M	Change from Existing Level
R-145	Newport Avenue	Hotel	1	1	E (72)	49.2	50.3	51.4	1.1	51.4	2.2	50.4	1.2	50.4	1.2	50.5	1.3

Source: *Noise Study Report* (2015) and *Supplemental Noise Analysis and Noise Abatement Decision Memorandum* (2017).

[1] This column defines the height of the receptor. First-floor receptors were assumed to have a height of 5 ft while second-floor receptors have an assumed height of 15 ft.

[2] There are no outdoor frequent human use areas associated with office land uses within the project area. The highest expected noise level is provided for reporting purposes.

[3] Numbers in **bold** represent noise levels that approach or exceed the NAC and contain an area of frequent human use.

[4] Residential uses without exterior noise-sensitive living areas were analyzed to assess interior noise level impacts only.

[5] Exterior/interior noise level. The interior noise level was determined using a standard 25 dB exterior-to-interior noise level reduction.

dB = decibels

dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

ft = foot/feet

NAC = Noise Abatement Criteria

Alternative 1

As shown in Table 2.14.4, no substantial noise increase of 12 dBA or more over the corresponding existing noise level would result under Alternative 1. Of the 145 modeled receptors, one first-floor receptor with noise-sensitive outdoor uses (Receptor R-4 representing the swimming pool area of the DoubleTree Club by Hilton Hotel, Orange County Airport) would approach or exceed the 72 dBA L_{eq} NAC and 1 first-floor receptor (Receptor R-133) and 26 second-floor receptors (Receptors R-84 through R-87, R-89 through R-91, R-93, R-95, R-101, R-103, R-104, R-106, R-110, R-113, R-119, R-125 through R-128, R-130, R-133, R-135 through R-138, and R-142) representing residential uses on the north end of the project would approach or exceed the 67 dBA L_{eq} NAC under Build Alternative 1. The same receptors would also exceed the NAC for Future No Build Conditions.

Alternative 2

The permanent noise impacts of Alternative 2 would be similar to those that would occur under Alternative 1 except that under Alternative 2, R-94 would approach the NAC of 67 dBA L_{eq} for residential uses, whereas R-94 would not approach the NAC at this receptor under Alternative 1. Receptor R-94 is within a cluster of other receptors (i.e., R-84 through R-97) that all represent multifamily residences with private patios and balconies that would be exposed to noise levels approaching or exceeding the NAC and for which noise barriers were modeled. As shown in Table 2.14.4, no substantial increase of 12 dBA or more over the corresponding existing noise level would result under Alternative 2. Of the 145 modeled receptor locations, 1 first-floor receptor with noise-sensitive outdoor uses would approach or exceed the 72 dBA L_{eq} NAC and 1 first-floor receptor and 27 second-floor receptors would approach or exceed the 67 dBA L_{eq} NAC under Alternative 2.

Alternative 3

The permanent noise impacts of Alternative 3 would cause the same receptors as Alternative 2, as described above, to approach or exceed the NAC; however, the overall noise levels would be greater than or equal to the NAC at all locations.

Alternative 4

The permanent noise impacts of Alternative 4 would cause the same receptors as Alternative 2, and 3 as described above to approach or exceed the NAC; however, the overall noise levels would be worst-case scenario at more locations than Alternative 3.

The following receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC under Activity Categories B and E under Alternative 4. Noise barriers were analyzed for each of these receptor locations. Figure 2.14-2 shows the receptor locations, the locations of the existing noise barriers, the land uses, the existing Caltrans right-of-way limits, and the modeled noise barriers.

Alternative 3M (Preferred Alternative)

The permanent noise impacts of Alternative 3M would cause the same receptors as Alternative 2, 3, and 4 as described above to approach or exceed the NAC; however, the overall noise levels would be a slightly worst-case scenario at more locations than Alternatives 3 and 4.

These receptor locations would be or would continue to be exposed to noise levels that approach or exceed the NAC under Activity Categories B and E under Alternative 3M. Noise barriers were analyzed for each of these receptor locations. Figure 2.14-2 shows the

receptor locations, the locations of the existing noise barriers, the land uses, the existing Caltrans right-of-way limits, and the modeled noise barriers.

No Build Alternative

Potential long-term noise impacts under the No Build Alternative would be solely from traffic noise. Future noise levels under the No Build Alternative are shown in Table 2.14.4. Of the 145 modeled receptors, one first-floor receptor with noise-sensitive outdoor uses would approach or exceed the 72 dBA L_{eq} NAC and 26 second-floor receptors would approach or would continue to approach or exceed the NAC under the No Build Alternative 2040 conditions.

2.14.4 Avoidance, Minimization, and/or Abatement Measures

2.14.4.1 Noise Abatement Consideration

Noise Barrier Modeling

Noise abatement measures such as noise barriers were considered to shield receivers in the project area, where receptors would be or would continue to be exposed to traffic noise levels approaching or exceeding the NAC. All properties requiring abatement consideration are within Activity Categories B (67 dBA L_{eq} NAC) and E (72 dBA L_{eq} NAC). The **bold numbers** in Table 2.14.4 show receptor locations that would approach or exceed the 67 dBA L_{eq} NAC and 72 dBA L_{eq} NAC under future worst-case traffic conditions for Alternatives 1, 2, 3, and 4. Noise barriers were analyzed for each of those receptor locations. Depending on the location of the potential barrier and existing barrier height, noise barriers from 6 to 22 ft in height were analyzed. For this project, per Caltrans, a full barrier analysis was only completed for Alternative 4, a worst-case scenario. All noise barrier heights modeled for Alternative 4 would provide adequate noise abatement for the same receptors for all alternatives. The results of the noise barrier modeling are shown in Table 2.14.5. The locations of the noise barriers are shown in Figure 2.14-2.

The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding the 67 dBA L_{eq} NAC under Activity Category B and 72 dBA L_{eq} NAC under Activity Category E for all Build Alternatives:

- **NB No. 1:** A 236 ft long barrier along the perimeter of the swimming pool area at the DoubleTree Club by Hilton Hotel, Orange County Airport, located at 7 Hutton Center Drive, was analyzed to shield Receptor R-4.
- **NB No. 2:** A 643 ft long barrier along the edge of shoulder on the southbound side of SR-55 was analyzed to shield Receptor R-4.
- **NB No. 3:** A 1,021 ft long barrier along the Caltrans right-of-way/property line on the northbound side of SR-55 near the northbound McFadden Avenue off-ramp at Sycamore Avenue was analyzed to shield Receptors R-84 through R-87, R-89 through R-91, and R-93 through R-95.
- **NB No. 3 Reduced:** A reduced version of NB No. 3 (i.e., a 766 ft long barrier along the Caltrans right-of-way/property line on the northbound side of SR-55 near the northbound McFadden Avenue off-ramp at Sycamore Avenue) was analyzed to shield Receptors R-84 through R-87, R-89 through R-91, and R-93 through R-95.
- **NB No. 4:** A 478 ft long barrier along the edge of shoulder on the northbound side of SR-55 near the northbound McFadden Avenue off-ramp at Sycamore Avenue was

analyzed to shield Receptors R-84 through R-87, R-89 through R-91, and R-93 through R-95.

- **NB No. 5:** A 959 ft long barrier along the Caltrans right-of-way/property line on the northbound side of SR-55 was analyzed to shield Receptors R-101, R-103, R-104, R-106, R-110, R-113, and R-119.
- **NB No. 6:** A 1,754 ft long barrier along the Caltrans right-of-way/property line on the northbound side of SR-55 was analyzed to shield Receptors R-125 through R-128, R-130, R-133, and R-135 through R-138.
- **NB No. 7:** A 614 ft long barrier along the Caltrans right-of-way/property line of the Las Casas Apartment complex on the northbound side of SR-55 was analyzed to shield Receptor R-142.

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Table 2.14.5 Summary of Abatement Key Information

Noise Barrier No.	Figure Sheet	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Noise Attenuation Range (dBA)	Number of Benefited Units/ Receptors[1]	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
NB-1	Sheet 2	PL	10[3]	236	5.8	1	$80,000	--[4]	No	--	No
			12	236	7.4	1	$80,000	$120,402	No	$104,826	No
			14	236	9.0	1	$80,000	$137,225	No	$121,649	No
			16	236	9.8	1	$80,000	$154,047	No	$138,471	No
			18	236	10.8	1	$80,000	$221,335	No	$205,759	No
NB-2	Sheet 2	EOS	12[3]	643	6.2	1	$80,000	--	No	N/A[6]	N/A
			14	643	7.1	1	$80,000	$320,831	No	N/A	N/A
			16	643	7.8	1	$80,000	$366,664	No	N/A	N/A
			18	643	8.4	1	$80,000	$549,996	No	N/A	N/A
NB-3	Sheet 7	ROW/PL	16	1,021	5.6 to 7.1	12	$960,000	$941,167	Yes	$803,007	Yes
			18	1,021	5.5 to 9.1	19	$1,520,000	$1,232,275	Yes	$1,094,115	Yes
			20	1,021	6.0 to 10.5	19	$1,520,000	$1,329,310	Yes	$1,191,150	Yes
			22[5]	1,021	5.1 to 11.6	24	$1,920,000	$1,426,346	Yes	$1,288,186	Yes
NB-3 Red. & NB-4	Sheet 7	EOS/ROW/PL	10	766 & 478	5.1 to 11.2	17	$1,360,000	$821,661	Yes	$683,501	Yes
			12[3]	766 & 478	5.0 to 12.2	19	$1,520,000	$910,333	Yes	$772,173	Yes
			14	766 & 478	5.0 to 12.9	19	$1,520,000	$999,005	Yes	$860,845	Yes
			16	766 & 478	5.3 to 14.0	34	$2,720,000	$1,087,678	Yes	$949,518	Yes
			18	766 & 478	5.6 to 14.1	38	$3,040,000	$1,425,331	Yes	$1,287,171	Yes
			20	766 & 478	5.7 to 15.5	38	$3,040,000	$1,543,561	Yes	$1,405,401	Yes
			22	766 & 478	5.9 to 15.6	38	$3,040,000	$1,661,791	Yes	$1,523,631	Yes
NB-5	Sheets 7 & 8	ROW	18[3]	959	5.6 to 5.9	8	$640,000	--	No	--	No
			20	959	6.9 to 7.5	8	$640,000	$1,104,939	No	$1,059,359	No
			22	959	5.0 to 8.6	13	$1,040,000	$1,196,082	No	$1,150,503	No
NB-6	Sheet 8	ROW	16[3]	1,754	5.1 to 7.3	2	$160,000	$1,322,216	No	$1,196,255	No
			18	1,754	5.3 to 8.9	3	$240,000	$2,274,054	No	$2,148,093	No
			20	1,754	5.7 to 10.0	7	$560,000	$2,440,754	No	$2,314,793	No
			22	1,754	5.2 to 11.1	8	$640,000	$2,607,455	No	$2,481,494	No
NB-7	Sheet 8	ROW	18[3]	614	5.1	4	$320,000	--	No	--	No
			20	614	6.9	4	$320,000	--	No	--	No
			22	614	8.6	4	$320,000	$662,162	No	N/A	N/A

Source: *Noise Study Report* (2015) and *Supplemental Noise Analysis and Noise Abatement Decision* (2017)

1 Number of residences that are attenuated 5 dBA or more by the modeled barrier.

2 The estimated noise barrier construction cost information was provided by HDR Engineering, Inc. (February 2017.

3 The minimum wall height required for noise barriers to break the line of sight between the receptor and a truck exhaust stack.

4 Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

5 Denotes that the maximum feasible barrier height would not break the line of sight between the receptor and a truck exhaust stack.

6 Denotes that the proposed barrier does not have Right-Of-Way Costs associated with the total construction costs.

dBA =A-weighted decibels EOS = edge of shoulder ft = feet PL = property line ROW = right of way Red. = Reduced

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Noise Barrier Feasibility

A minimum noise reduction of 5 dBA must be achieved at impacted receptors for the proposed noise abatement measures (i.e., noise barriers) to be considered feasible. The feasibility criterion is not necessarily a noise abatement design goal. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may be restricted by the following factors:

- Geometric standards
- Safety
- Maintenance contracts with private property owners
- Security
- Underground utilities
- Drainage
- Geotechnical considerations

As shown in Table 2.14.5, seven noise barriers were determined to be feasible, reducing noise levels by 5 dBA or more at one or more receptor locations. Table 2.14.5 also lists the height, approximate length, noise attenuation range, number of benefited receptors, total reasonable allowance, and the cost associated with each height analyzed, both with and without right-of-way cost, for each noise barrier that was considered feasible and reasonable.

Noise Barrier Reasonableness

All the noise barriers that were considered feasible were analyzed to determine their reasonableness. The overall reasonableness of noise abatement is determined by considering the noise reduction goal combined with the construction cost of the barrier. For a noise barrier to be considered reasonable, the noise level reduction design goal of 7 dBA must be achieved at one or more of the benefited receptors. For any noise barrier to be considered reasonable from a cost perspective, the estimated construction cost of the noise barrier would be equal to or less than the total cost allowance calculated for the barrier. The total reasonable allowance was determined based on the number of benefited receptors multiplied by the reasonable allowance per residence. The reasonable allowance per residence is based on a 2016 allowance of $80,000 per benefited unit/receptor. If the estimated noise barrier construction cost exceeds the total reasonable allowance, the noise barrier is determined to be not reasonable. For the purpose of determining the reasonableness of the proposed noise barriers for the proposed project, the following two scenarios were considered:

- The construction cost of the noise barrier and the cost of the right-of-way for the noise barrier
- The construction cost of the noise barrier only (requires the property owner to donate the right-of-way for the proposed noise barrier)

A preliminary reasonableness determination of providing noise abatement for exteriors of residential areas in Activity Category B (which includes residential areas) and outdoor activity areas for commercial uses under Activity Category E was conducted. As shown in Table 2.14.5, when the noise barrier construction cost is considered, two of the seven feasible noise barriers were found to be reasonable, the NB No. 3 and the combined NB No. 3 Reduced and NB No. 4.

2.14.4.2 Recommended Avoidance, Minimization, and/or Abatement Measures

Construction

The following measures would avoid and/or minimize construction noise impacts:

N-1 During construction, the construction contractor will be required to control noise from construction activities in conformance with the California Department of Transportation Standard Specifications, Section 14-8.02, "Noise Control." The noise level from the contractor's operations, between the hours of 9:00 PM and 6:00 AM, will not exceed 86 A-weighted decibels at a distance of 50 feet. In addition, the construction contractor will equip all internal combustion engines with the manufacturer-recommended mufflers and will not operate any internal combustion engine on the job site without the appropriate muffler.

Operation

Based on the studies completed to date, including the Noise Survey Report (2017), Caltrans intends to incorporate noise abatement in the form of a barrier at two potential locations. The first being NB No. 3 at the multifamily residences along Kenyon Drive, with a length of 1,021 ft and a height of 16-22 ft as shown in Table 2.14.5. Calculations based on the preliminary design data show that the barriers will reduce noise levels by 5.1 to 11.6 dBA for 12-24 residences at a cost of $803,007 to $1,426,346. The second option is the combined NB No. 3 Reduced and NB No. 4 at the multifamily residences along Kenyon Drive, with a length of 1,244 ft and a height of 10–22 ft as shown in Table 2.14.5. Calculations based on the preliminary design data show that the barriers will reduce noise levels by 5.1 to 15.6 dBA for 17–38 residences at a cost of $683,501 to $1,661,791. If, during final design, conditions have substantially changed, noise abatement may not be necessary. The final decision on noise abatement will be made on completion of the project design and public involvement processes.

The following abatement measure would avoid and/or minimize operational noise impacts of the Build Alternatives:

N-2 Prior to completion of final design, Noise Barrier (NB) No. 3 and the combined NB No. 3 Reduced and NB No. 4 will be coordinated with the affected property owners (owners of the multifamily residences along Kenyon Drive).

BIOLOGICAL ENVIRONMENT

2.15 Wetlands and Other Waters

2.15.1 Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344) is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army of Engineers (USACE) with oversight by the United States Environmental Protection Agency (U.S. EPA).

USACE issues two types of 404 permits: Standard and General permits. There are two types of General permits, Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE's Standard permits. There are two types of Standard permits: Individual permits and Letters of Permission. For Standard permits, the USACE decision to approve is based on compliance with U.S. EPA's Section 404(b)(1) Guidelines (U.S. EPA 40 Code of Federal Regulations [CFR] Part 230), and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, this EO states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction, and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCB), and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or Tahoe Regional Planning Agency) may also be involved. Sections 1600–1607 of the California Fish and

Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see Section 2.9, Water Quality and Storm Water Runoff, for additional details.

2.15.2 Affected Environment

The information in this section is based on the Natural Environment Study (Minimal Impacts) (NES[MI], 2015), the Supplemental Natural Environmental Study (Minimal Impacts) (NES[MI], 2017), and the Jurisdictional Delineation (2014) for the proposed project. The Jurisdictional Delineation, which was conducted in accordance with current USACE and CDFW criteria, is provided in Appendix C in the NES(MI).

All channelized storm water and drainage features along the project segment of State Route 55 (SR-55) eventually discharge into Peters Canyon Channel, San Diego Creek, or the Santa Ana-Delhi Channel, all of which are tributaries to Upper Newport Bay. The Upper Newport Bay connects directly to the Pacific Ocean (a navigable water of the United States), thereby establishing a nexus to navigable waters as defined by USACE guidance.

Nine drainage features identified within the Biological Study Area (BSA) are designated as Drainage Features A through I and are shown on Figure 2.15-1, included at the end of the section. Features A, C, D, F, G, and I are entirely surrounded by urban development, lack associated riparian habitat, and were excavated on dry land. These six features convey sheet flows from adjacent areas to the storm drain system that eventually leads to San Diego Creek or Upper Newport Bay. The USACE is not expected to assert jurisdiction over Drainages A, C, D, F, G, and I.

Drainages B, E, and H are human-altered and surrounded by urban habitat but convey flows from large drainage areas and likely historically contained flows. These three drainage features eventually flow to Upper Newport Bay. The USACE is expected to assert jurisdiction over Drainages B, E, and H.

The *Jurisdictional Delineation* indicated there are a total of 1.24 acres (ac) of nonwetland waters that are potentially subject to USACE jurisdiction and 0.09 ac of nonwetland drainage features that are not considered to be subject to USACE jurisdiction in the BSA. There are no areas in the BSA satisfying the USACE wetland criteria.

There is no public guidance on determining RWQCB jurisdictional areas. For this study, RWQCB jurisdiction was determined based on the Federal definition of wetlands (three-parameter) and other waters of the U.S. ordinary high water mark (OHWM) as recommended by the September 2004 Workplan. Since there are areas within the BSA subject to USACE and CDFW jurisdiction, RWQCB jurisdiction in this case is coincident with

USACE jurisdiction for purposes of Section 401 certification. The total area of potential RWQCB jurisdiction is the same as the USACE jurisdiction (i.e., 1.24 ac).

Tables 2.15.1 and 2.15.2 provide the width in feet and area in acres of each of the nine potentially jurisdictional and nonjurisdictional drainage features, respectively, in the BSA.

Table 2.15.1 Potentially Jurisdictional Drainage Feature Length and Area Measurements

Drainage Feature	Length (linear feet)	USACE		CDFW	
		Average Width (feet)	Potential Jurisdictional Nonwetland Area (acres)	Average Width (feet)	Potential Jurisdictional Area (acres)
B	3,360	2	0.19	5	0.40
E (Lane Channel)	3,60	14	1.01	34	2.46
H	270	7	0.04	34	0.21
Total	**7,530**	**N/A**	**1.24**	**N/A**	**3.07**

Source: *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study (Minimal Impacts)* (2017).
CDFW = California Department of Fish and Wildlife
N/A = Not Applicable
USACE = United States Army Corps of Engineers

Table 2.15.2 Potentially Nonjurisdictional Drainage Feature Length and Area Measurements

Drainage Feature	Length (linear feet)	USACE		CDFW	
		Average Width (feet)	Potential Nonjurisdictional Nonwetland Area (acres)	Average Width (feet)	Potential Nonjurisdictional Area (acres)
A	635	1	0.01	3	0.04
C	150	4	0.02	8	0.03
D	60	2	0.01	8	0.05
F	860	1	0.02	3	0.06
G	850	1	0.02	12	0.23
I	200	1	0.01	2	0.01
Total	**2,755**	**N/A**	**0.09**	**N/A**	**0.42**

Source: *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study (Minimal Impacts)* (2017).
CDFW = California Department of Fish and Wildlife
N/A = Not Applicable
USACE = United States Army Corps of Engineers

All the areas satisfying the USACE jurisdictional criteria for waters of the U.S. listed in Table 2.15.1 are also subject to CDFW jurisdiction pursuant to Section 1602 of the California Fish and Game Code. In addition, streambed banks extending beyond the limits of USACE jurisdiction are considered subject to CDFW jurisdiction. There were no areas within the BSA where riparian vegetation, potentially subject to CDFW jurisdiction, extended beyond the streambed banks. The total area in the BSA subject to CDFW jurisdiction is 3.07 ac as shown in Table 2.15.1.

The drainages that are likely to be considered nonjurisdictional by the USACE and that also lack riparian vegetation are concrete-lined, do not appear to support any aquatic or terrestrial wildlife, do not appear to function as a river, lake, or stream, and are also unlikely to be considered jurisdictional by the CDFW. Those drainages are listed in Table 2.15.2.

2.15.3 Environmental Consequences

The discussions regarding the potential temporary and permanent project impacts on jurisdictional and nonjurisdictional waters in the following sections should be considered preliminary until verified by the USACE, CDFW, and RWQCB.

2.15.3.1 Temporary Impacts

Build Alternatives

USACE Jurisdictional and Nonjurisdictional Areas

Table 2.15.3 shows the temporary and permanent impacts to USACE jurisdictional and nonjurisdictional areas in the BSA by Build Alternative.

All the Build Alternatives are expected to result in 1.01 ac of temporary impacts to nonwetland waters subject to USACE jurisdiction due to the realignment of Lane Channel (Drainage E). As shown in Table 2.15.3, all the Build Alternatives propose to realign and reconfigure Lane Channel (Drainage E) between Dyer Road and MacArthur Boulevard. Lane Channel is currently a trapezoidal channel with 1.01 ac of potential USACE jurisdiction within the BSA. Due to the reconfiguration of Lane Channel, the new channel will be a rectangular channel, which will enlarge the potential USACE jurisdiction to 1.53 ac within the BSA. Therefore, there will be a net increase to area subject to USACE jurisdiction in the amount of 0.52 ac as a result of the Build Alternatives.

The Build Alternatives would not result in any temporary impacts to nonjurisdictional USACE areas as shown on Table 2.15.3.

Table 2.15.3 Temporary and Permanent Project Impacts to USACE Jurisdictional and Nonjurisdictional Areas

Build Alternative	Potential Jurisdictional Areas		Potential Nonjurisdictional Areas	
	Temporary Effects (acres)[1]	Permanent Effects (acres)	Temporary Effects (acres)	Permanent Effects (acres)[2]
Alternative 1	1.01	0.00	0.00	0.01
Alternative 2	1.01	0.00	0.00	0.01
Alternative 3	1.01	0.00	0.00	0.02
Alternative 4	1.01	0.00	0.00	0.02
Alternative 3M	1.01	0.00	0.00	0.02

Source: *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study (Minimal Impacts)* (2017).

[1] All temporary effects to USACE potential jurisdictional areas are to Drainage E (Lane Channel).

[2] All permanent effects to USACE potential non-jurisdictional areas are to Drainage F.

USACE = United States Army Corps of Engineers

CDFW Jurisdictional Areas

The results of the delineation indicated a total of 3.07 ac CDFW potentially jurisdictional streambeds within the BSA, of which 2.46 ac occur in Drainage E (Lane Channel) as shown in Table 2.15.4. Table 2.15.4 shows the amount of temporary and permanent impacts to CDFW jurisdictional and non-jurisdictional areas in the BSA by Build Alternative. As shown, all four Build Alternatives will result in the temporary removal of 1.01 ac of nonwetland water

subject to CDFW jurisdiction as a result of the realignment and reconfiguration of Lane Channel (Drainage E) between Dyer Road and MacArthur Boulevard. Due to the reconfiguration of Lane Channel, as described for the USACE jurisdiction above, CDFW jurisdiction within the new channel will be the same as the USACE jurisdiction, 1.53 ac. Therefore, there will be a net decrease of 0.93 ac of area subject to CDFW jurisdiction associated with Drainage E (Lane Channel).

Table 2.15.4 Temporary and Permanent Project Impacts to CDFW Jurisdictional and Nonjurisdictional Areas

Build Alternative	Potential Jurisdictional Areas		Potential Nonurisdictional Areas	
	Temporary Impacts (acres)[1]	Permanent Impacts (acres)[2]	Temporary Impacts (acres)	Permanent Impacts (acres)
Alternative 1	1.01	0.93	0	0.04
Alternative 2	1.01	0.93	0	0.04
Alternative 3	1.01	0.93	0	0.04
Alternative 4	1.01	0.93	0	0.04
Alternative 3M	1.01	0.93	0	0.04

Source: *Natural Environment Study (Minimal Impacts)* (2015) and *Supplemental Natural Environment Study (Minimal Impacts)* (2017).

[1] The temporary impacts to CDFW potential jurisdictional areas are to Drainage E (Lane Channel).

[2] The permanent impacts include the net loss of CDFW jurisdictional area as a result of the reconfiguration of Drainage E (Lane Channel).

[3] All permanent impacts to CDFW potential non-jurisdictional areas are to Drainage F.

ac = acres

CDFW = California Department of Fish and Wildlife

RWQCB Jurisdictional and Nonjurisdictional Areas

As noted earlier, Table 2.15.3 shows the temporary impacts to USACE areas by Build Alternative. The temporary impacts to RWQCB areas would be the same as shown in Table 2.15.3 for the USACE areas, 1.01 ac.

No Build Alternative

None of the proposed improvements to SR-55 would be constructed under the No Build Alternative. Therefore, the No Build Alternative would not result in adverse temporary impacts to USACE, CDFW, or RWQCB areas in the BSA.

2.15.3.2 Permanent Impacts

Alternative 1

USACE Jurisdictional and Nonjurisdictional Areas

The Build Alternatives will not result in the permanent loss of any nonwetland waters potentially subject to USACE jurisdiction (i.e., Drainages B, E, and H).

All the Build Alternatives will result in permanent impacts to Drainage F, a drainage considered not to be subject to USACE jurisdiction. These impacts would result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and undergrounding of the existing portion of Drainage F located south of the on-ramp.

As part of the permanent reconfiguration of Lane Channel under all four Build Alternatives, the new channel would be a rectangular channel, which will enlarge the potential USACE jurisdictional area from the existing 1.01 ac (which would be temporarily removed during construction as described earlier) to a total of 1.53 ac (which represents a permanent net increase in the area subject to USACE jurisdiction of 0.52 ac). As a result, all four Build

Alternatives, including Alternative 1, would result in a permanent net increase to areas subject to USACE jurisdiction (nonwetland waters of the U.S.) in Drainage E (Lane Channel). As shown in Table 2.15.3, Alternative 1 would not result in any permanent impacts to nonwetland waters potentially subject to USACE jurisdiction.

CDFW Jurisdictional Areas

As part of the permanent reconfiguration of Drainage E (Lane Channel) under all four Build Alternatives, the new channel would be a rectangular channel. The changes at Drainage E (Lane Channel) under all four Build Alternatives would result in a permanent reduction in the total CDFW jurisdictional acreage in Lane Channel from 2.46 ac to 1.53 ac, which represents a permanent net decrease in the area subject to CDFW jurisdiction of 0.93 ac, as shown in Table 2.15.4. As also shown in Table 2.15.4, Alternative 1 would result in permanent impacts to 0.93 ac of area subject to CDFW jurisdiction associated with Drainage E (Lane Channel).

As shown earlier, all four Build Alternatives will result in permanent impacts to Drainage F, a drainage considered not to be subject to CDFW jurisdiction. These impacts will result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and the undergrounding of the existing portion of Drainage F that is located south of the on-ramp.

RWQCB Jurisdictional and Nonjurisdictional Areas

The permanent impacts to RWQCB areas under Alternative 1 would be the same as shown in Table 2.15.3 for the USACE areas.

Alternative 2

USACE Jurisdictional and Nonjurisdictional Areas

Similar to Alternative 1, Alternative 2 would also result in a 0.52 ac permanent net increase in the USACE jurisdictional area at Drainage E (Lane Channel).

Alternative 2 would also result in permanent impacts up to 0.01 ac in Drainage F, a drainage considered not to be subject to USACE jurisdiction as shown in Table 2.15.3. Those impacts would result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and undergrounding of the existing portion of Drainage F located south of the on-ramp.

CDFW Jurisdictional Areas

Similar to Alternative 1, Alternative 2 would result in a 0.93 ac permanent net decrease in the USACE jurisdictional area at Drainage E (Lane Channel). As shown in Table 2.15.4, Alternative 2 would also permanently affect 0.04 ac of CDFW nonjurisdictional areas associated with Drainage F as a result of the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55.

RWQCB Jurisdictional and Nonjurisdictional Areas

The permanent impacts to RWQCB areas under Alternative 2 would be the same as discussed earlier under Alternative 1 for the USACE jurisdictional and nonjurisdictional areas.

Alternative 3

USACE Jurisdictional and Nonjurisdictional Areas

Similar to Alternative 1, Alternative 3 would result in a 0.52 ac permanent net increase in the USACE jurisdictional area at Drainage E (Lane Channel).

Alternative 3 would also result in permanent impacts up to 0.02 ac in Drainage F, a drainage considered not to be subject to USACE jurisdiction as shown in Table 2.15.3. Those impacts would result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and undergrounding of the part of Drainage F located south of the on-ramp.

CDFW Jurisdictional Areas

Similar to Alternative 1, Alternative 3 would result in a 0.93 ac permanent net decrease in the USACE jurisdictional area at Drainage E (Lane Channel). As shown in Table 2.15.4, Alternative 3 would also permanently affect 0.04 ac of CDFW nonjurisdictional areas associated with Drainage F as a result of the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55.

RWQCB Jurisdictional and Nonjurisdictional Areas

The permanent impacts to RWQCB areas under Alternative 3 would be the same as discussed earlier under Alternative 1 for the USACE jurisdictional and nonjurisdictional areas.

Alternative 4

USACE Jurisdictional and Nonjurisdictional Areas

Similar to Alternative 1, Alternative 4 would result in a 0.52 ac permanent net increase in the USACE jurisdictional area at Lane Channel.

Alternative 4 would also result in permanent impacts up to 0.02 ac in Drainage F, a drainage considered not to be subject to USACE jurisdiction as shown in Table 2.15.3. Those impacts would result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and undergrounding of the existing portion of Drainage F located south of the on-ramp.

CDFW Jurisdictional Areas

Similar to Alternative 1, Alternative 4 would result in a 0.93 ac permanent net decrease in the USACE jurisdictional area at Lane Channel. As shown in Table 2.15.4, Alternative 4 would also permanently affect 0.04 ac of CDFW nonjurisdictional areas associated with Drainage F as a result of the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55.

RWQCB Jurisdictional and Nonjurisdictional Areas

The impacts to RWQCB areas under Alternative 4 would be the same as discussed earlier under Alternative 1 for the USACE jurisdictional and nonjurisdictional areas.

Alternative 3M (Preferred Alternative)

USACE Jurisdictional and Nonjurisdictional Areas

Similar to Alternative 1, Alternative 3M would result in a 0.52 ac permanent net increase in the USACE jurisdictional area at Drainage E (Lane Channel).

Alternative 3M would also result in permanent impacts up to 0.02 ac in Drainage F, a drainage considered not to be subject to USACE jurisdiction as shown in Table 2.15.3. Those impacts would result from the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and undergrounding of the part of Drainage F located south of the on-ramp.

CDFW Jurisdictional Areas

Similar to Alternative 1, Alternative 3 would result in a 0.93 ac permanent net decrease in the USACE jurisdictional area at Drainage E (Lane Channel). As shown in Table 2.15.4, Alternative 3M would also permanently affect 0.04 ac of CDFW nonjurisdictional areas associated with Drainage F as a result of the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55.

No Build Alternative

None of the proposed project improvements would be constructed or operated under the No Build Alternative. Therefore, the No Build Alternative would not result in adverse permanent impacts to USACE, CDFW, or RWQCB areas in the BSA.

2.15.4 Avoidance, Minimization, and/or Mitigation Measures

The USACE has the authority to develop Special Area Management Plans (SAMPs) for certain areas designated by that agency. With a SAMP, the USACE undertakes a comprehensive review of aquatic resources in an entire watershed. The goal is to analyze potential impacts at the watershed scale in order to identify priority areas for preservation, identify potential restoration areas, determine the least environmentally damaging locations for proposed projects, and establish alternative permitting processes appropriate for the SAMP areas. The alternative permitting process facilitates reasonable economic development and infrastructure while also providing for aquatic resource protection. SAMPS are designed to be conducted in geographic areas of special sensitivity under development pressure. A SAMP for the San Diego Creek Watershed implementation was completed in March 2012.

The San Diego Creek Watershed SAMP (2012) identifies restoration priorities and compensatory mitigation areas in the San Diego Creek Watershed as Aquatic Resource Integrity Areas. The Build Alternatives would not impact any Aquatic Resource Integrity Areas.

The potential project impacts on waters are subject to an abbreviated alternative permitting process associated with the SAMP because the Build Alternatives do not affect any Aquatic Resource Integrity Areas. After consultation with the USACE and other applicable agencies (the RWQCB and the CDFW), if the project is found to be consistent with the San Diego Creek Watershed SAMP by the resource agencies, a Letter of Permission (LOP)/Watershed Streambed Alteration Agreement (WSAA) would be issued to authorize the discharge of dredged and/or fill materials into waters of the U.S. and waters of the State, respectively. After consultation with the resource agencies, if the project is found not to be consistent with the San Diego Creek Watershed SAMP, an Individual Permit from the USACE and a standard Streambed Alteration Agreement (SAA) from the CDFW would be required.

While specific compensatory mitigation is not expected to be required by the resource agencies for the Build Alternatives, measures are expected to be required as conditions of the LOP/WSAA. “Proposed General Conditions for the San Diego Creek Watershed Letter of Permission” included in the SAMP list specific conditions that may be included in an LOP for a project. A detailed list of those conditions is provided in Appendix E of the NES(MI) and summarized in Table 2.15.5. Although these conditions have not yet been approved, it is likely some or all of these will be conditions of the LOP/WSAA for any of the Build Alternatives.

Table 2.15.5 Summary of Proposed General Conditions for the San Diego Creek Watershed Letter of Permission Procedures

LOP Condition Number	Summary of LOP Conditions
1	Description of measures to minimize discharges to jurisdictional waters
2	Identification of whether the project is ineligible due to potential effects on compensatory mitigation sites or soft-bottomed channels
3	Compliance with the SAMP mitigation framework and the Strategic Mitigation Plan
4	Incorporation of soil erosion and siltation controls in the project
5	Measures to reduce soil disturbance by construction equipment
6	No discharge of unsuitable materials into jurisdictional waters
7	Management of water flows to approximate or maintain pre-construction conditions
8	Removal of temporary fill and restoration of areas affected by temporary fill
9	Measures to prevent pollutants from entering watercourses
10	Siting of staging areas to avoid material entering waterways
11	Fencing of project disturbance limits
12	Avoidance of avian breeding seasons
13	Invasive species management and removal
14	Site inspections by the USACE
15	Posting of the LOP conditions at the project site and inclusion in all bid packages
16	Post-project maps of affected and avoided water and photographs
17	401 Water Quality Certification
18	California state coastal zone management consistency determination
19	Protection of endangered species
20	Compliance with the requirements of Section 106
21	Air quality emission and impact analysis

Source: *Natural Environment Study (Minimal Impacts)* (2015).
LOP = Letter of Permission
SAMP = Special Area Management Plan
USACE = United States Army Corps of Engineers

If compensatory mitigation is ultimately required by the resource agencies for the project impacts on waters, that mitigation will be determined in coordination with the regulatory agencies based on the quality and quantity of jurisdictional resources affected by the project. If required, compensatory mitigation will be provided through the Measure M2 Freeway Environmental Mitigation Program.

In order to implement the above requirements, the measures below would be implemented to avoid, minimize, and/or mitigate impacts to wetlands and other waters:

WET-1 Prior to initiation of construction, a permit will be obtained through the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. As part of coordination with the USACE, a Letter of Permission (LOP) will be pursued, if appropriate.

WET-2 Prior to initiation of construction, either a Watershed Streambed Alteration Agreement (WSAA; in combination with an LOP) or a Streambed Alternation Agreement (SAA; in combination with an Individual Permit) with the California Department of Fish and Wildlife (CDFW) will be obtained and any specifications in the WSAA or SAA will be implemented.

WET-3 Prior to initiation of construction, a Section 401 Water Quality Certification from the Santa Ana Regional Water Quality Control Board (RWQCB) will be obtained and any specifications in the Certification will be implemented.

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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

N

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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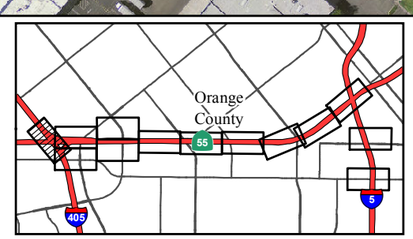

FIGURE 2.15-1
Sheet 1 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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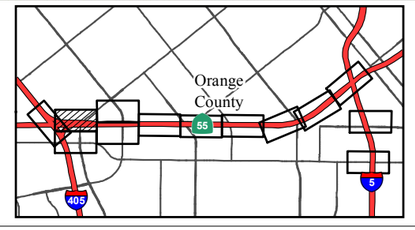

FIGURE 2.15-1
Sheet 2 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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FIGURE 2.15-1
Sheet 3 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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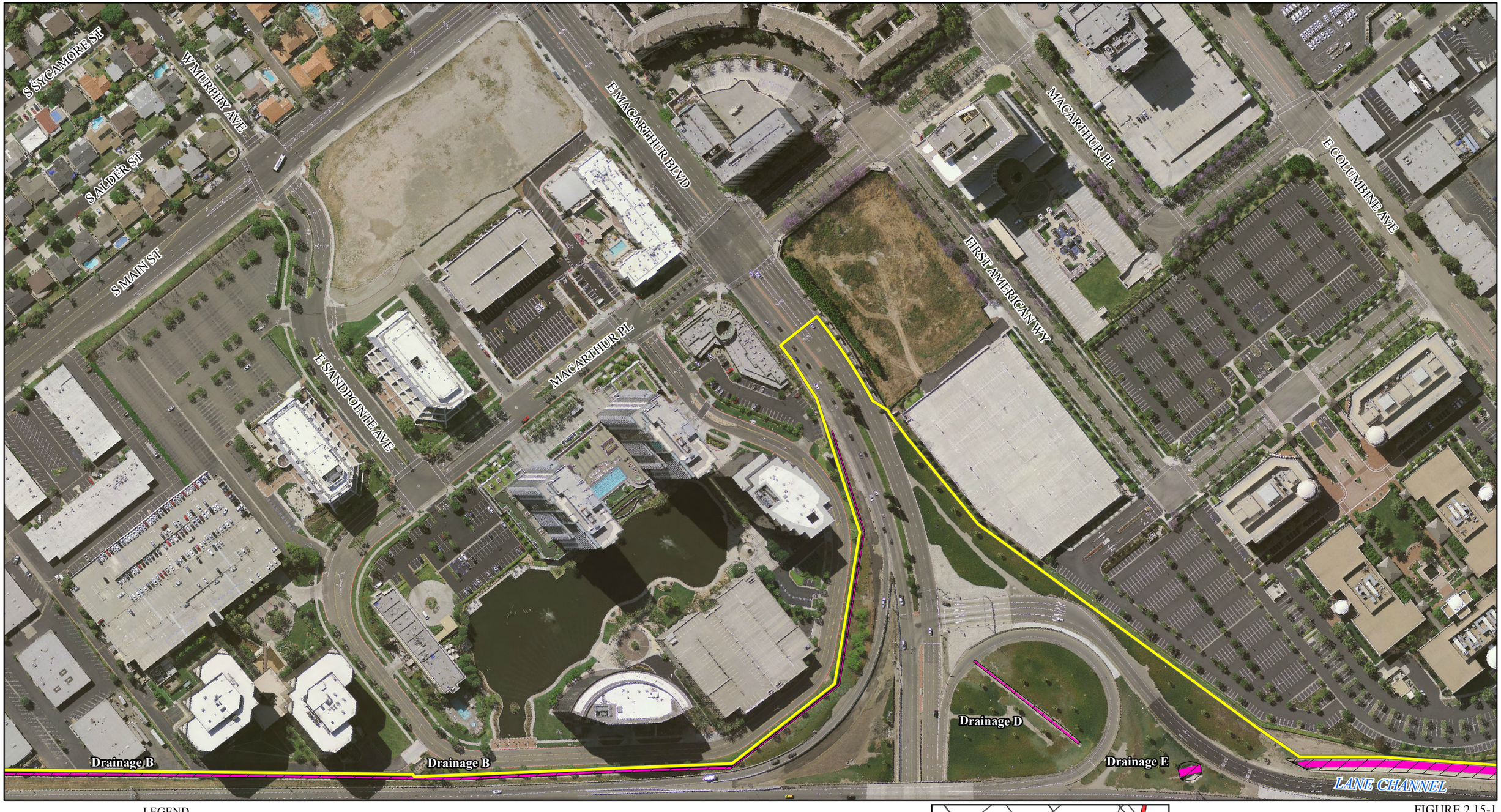

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

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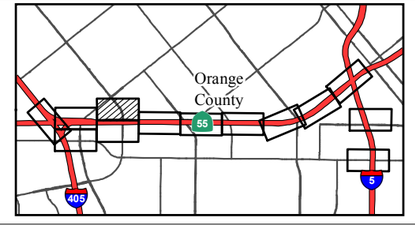

FIGURE 2.15-1
Sheet 4 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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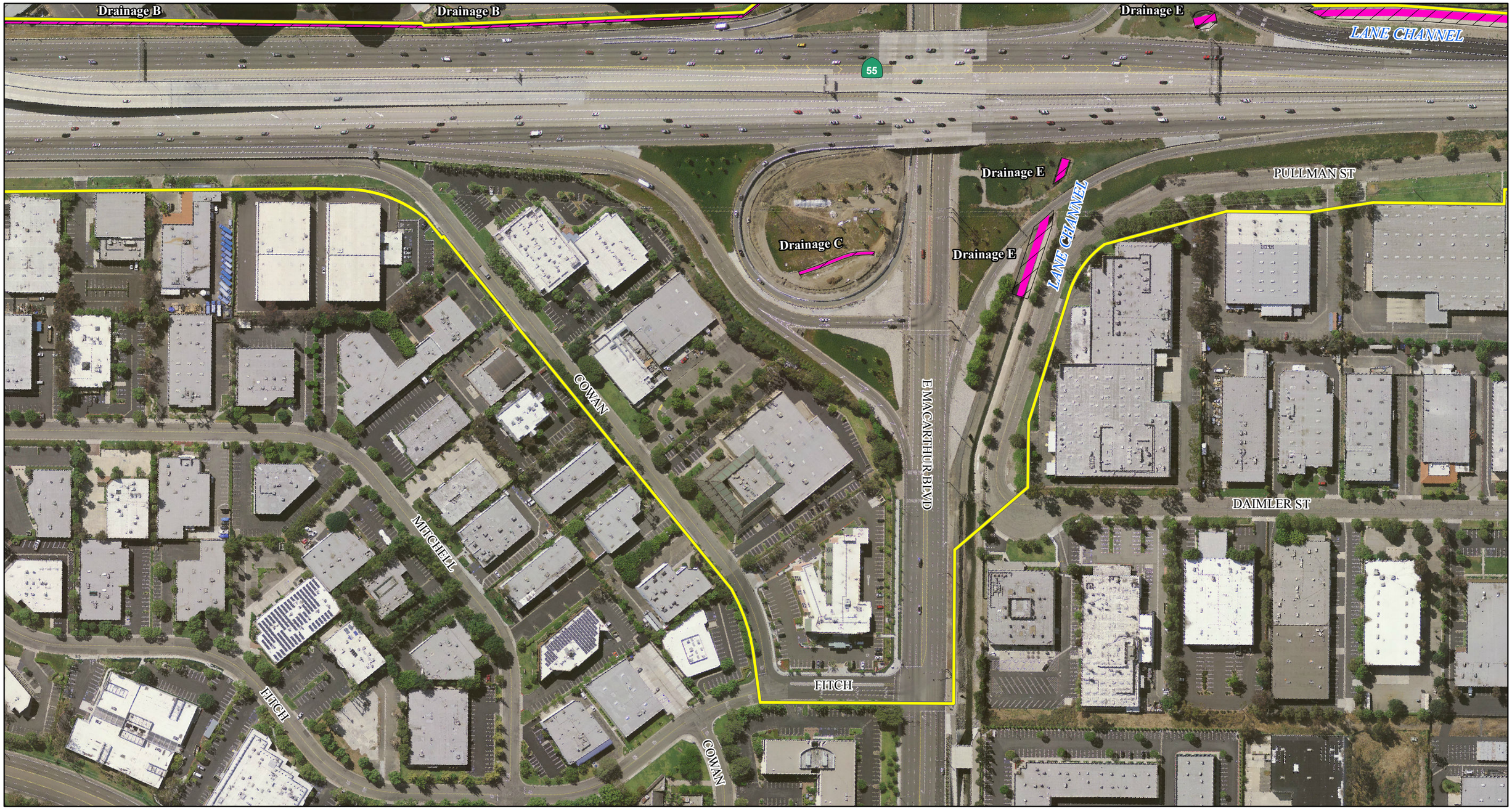

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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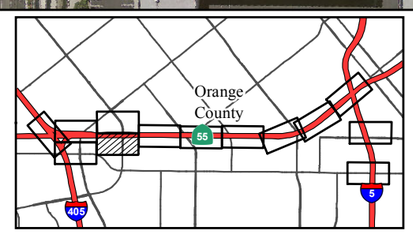

FIGURE 2.15-1
Sheet 5 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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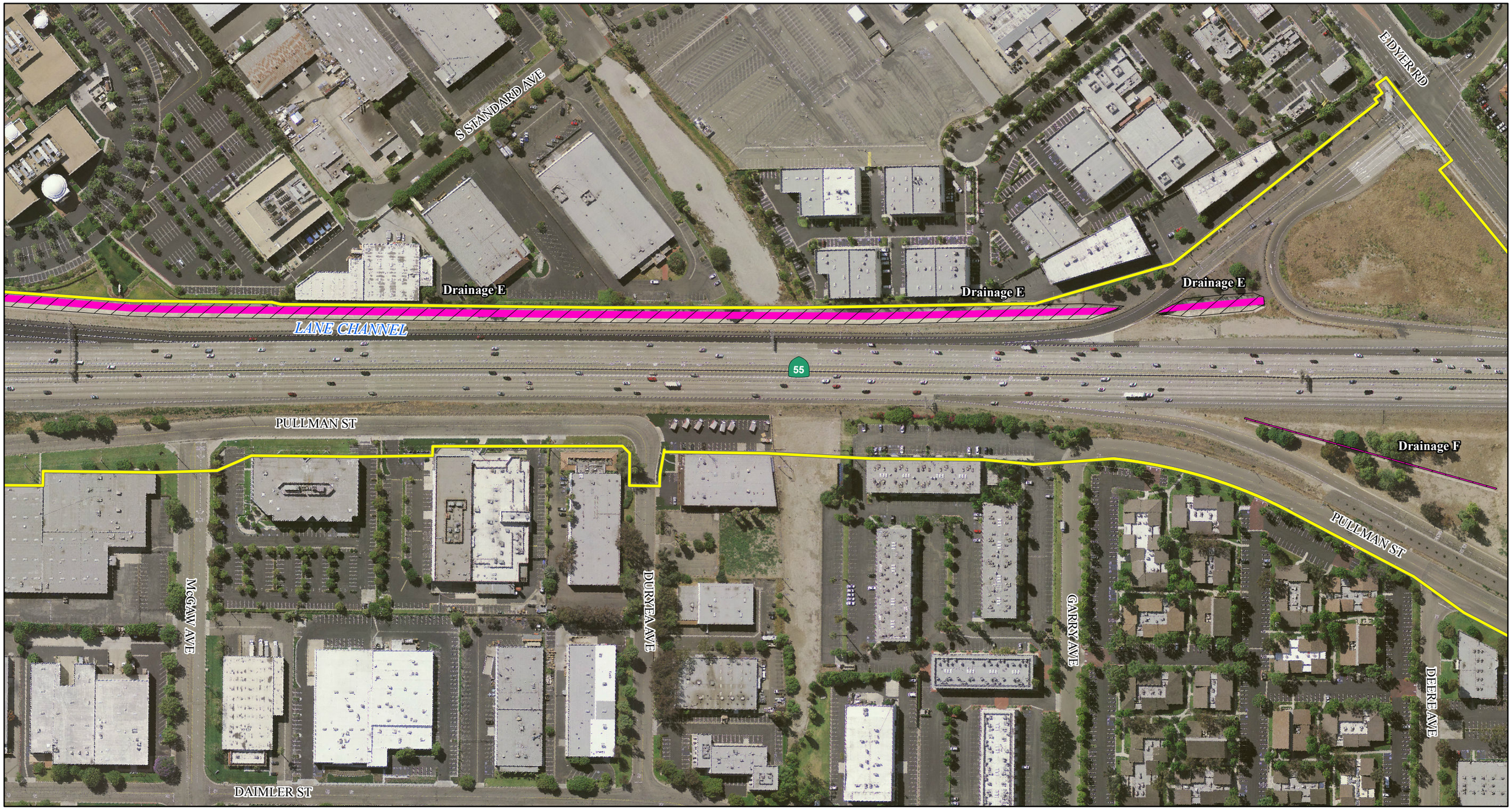

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

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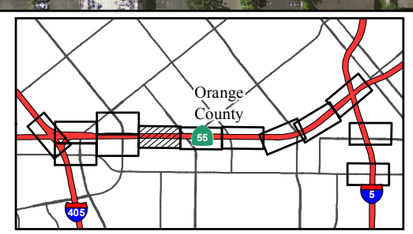

FIGURE 2.15-1
Sheet 6 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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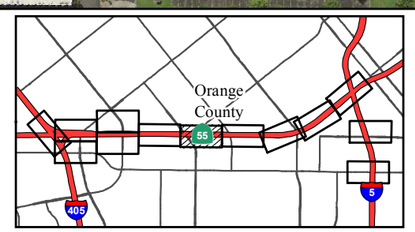

FIGURE 2.15-1
Sheet 7 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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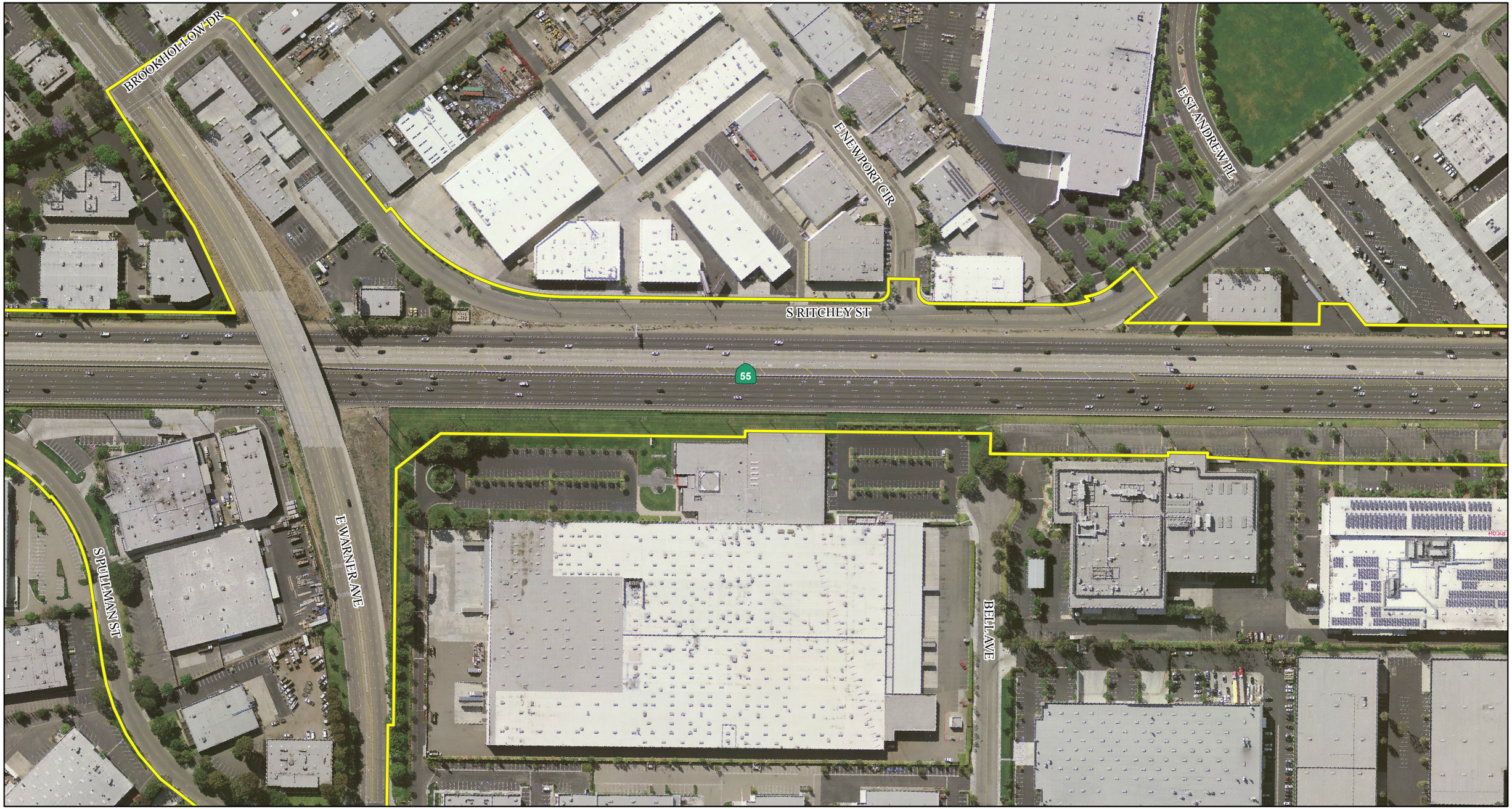

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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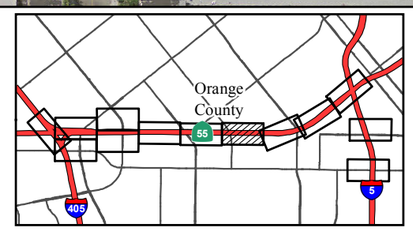

FIGURE 2.15-1
Sheet 8 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

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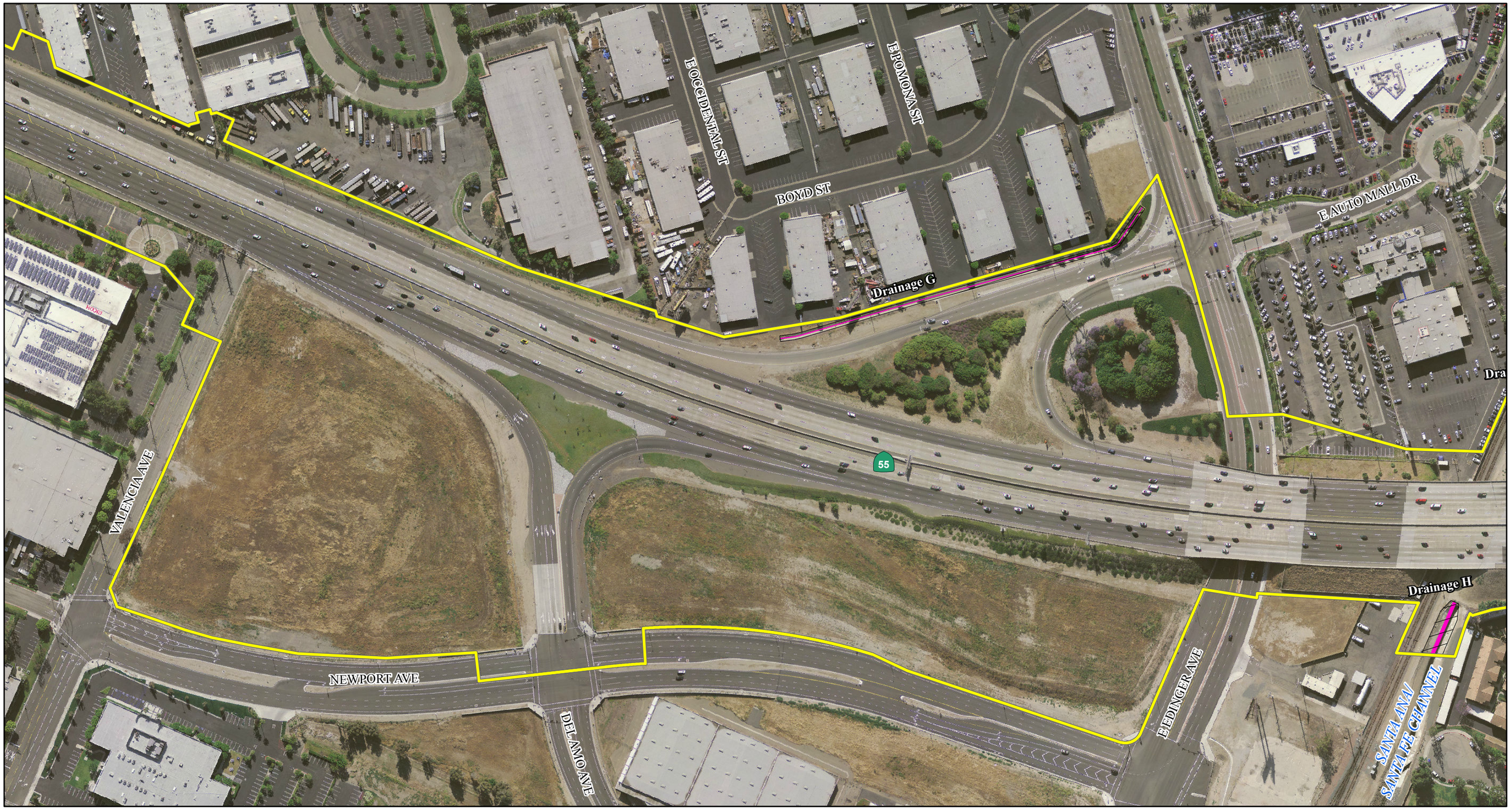

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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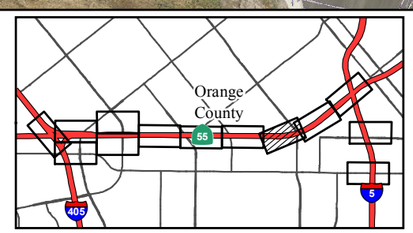

FIGURE 2.15-1
Sheet 9 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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E AUTO MALL DR
SANTA ANA/SANTA FE CHANNEL
E WILSHIRE AVE
VILLAGE WY
E MCFADDEN AVE
Drainage H
55
Drainage H
SANTA ANA/ SANTA FE CHANNEL
KENYON DR
NEWPORT AVE
SYCAMORE AVE
ALTADENA DR
PASADENA AVE
WHITTIER BLVD

LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

0 100 200
FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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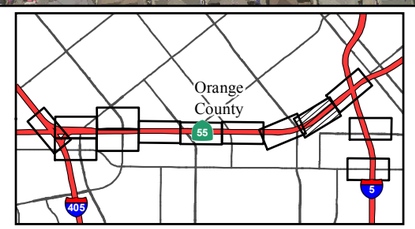

FIGURE 2.15-1
Sheet 10 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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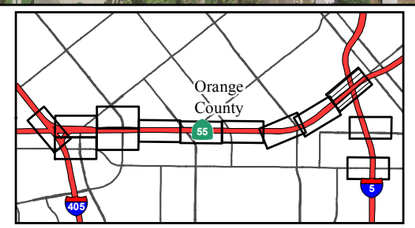

FIGURE 2.15-1
Sheet 11 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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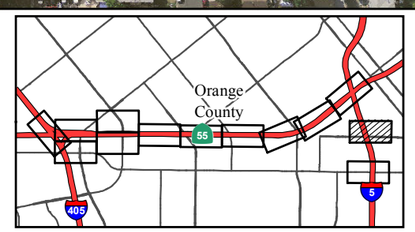

FIGURE 2.15-1
Sheet 12 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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LEGEND

- Biological Study Area
- Potential USACE Jurisdiction
- Potential CDFG Jurisdiction

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FEET

SOURCE: Eagle Aerial (4/2011); ESRI (2008); TBM (2008)

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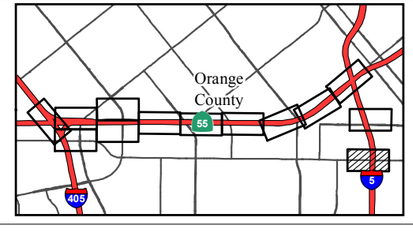

FIGURE 2.15-1
Sheet 13 of 13

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Drainage Features

12-ORA-55 PM 6.4/10.3
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2.16 Plant Species

2.16.1 Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. "Special-status" species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). The proposed project would not impact any species listed or proposed for listing as threatened or endangered as discussed earlier in the introduction to Chapter 2.

This section of the document discusses all the other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at United States Code 16 (USC), Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Caltrans projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), CA Public Resources Code, Sections 2100-21177.

2.16.2 Affected Environment

The information in this section is based on the *Natural Environment Study (Minimal Impacts)* (2015) and the *Supplemental Environment Study (Minimal Impacts)* (2017) prepared for the project.

A literature review and records search were conducted to identify the existence or potential occurrence of sensitive or special status plant species located within or in the vicinity of the Biological Study Area (BSA). The results of the literature review indicated 14 special-status plant species as potentially occurring in the BSA.

Of the 16 special-status plant species, 5 are federally and/or State-listed endangered or threatened species and are not discussed in this section. As noted earlier in the introduction to Chapter 2, there are no threatened or endangered species in or near the BSA; therefore, the Build Alternatives will not impact any threatened or endangered species. As a result, threatened and endangered species are not discussed further in this document. The remaining 8 special-status plant species identified as potentially occurring in or near the vicinity of the BSA, which are discussed in this section, are:

- Coulter's saltbush (*Atriplex coulteri*);
- Intermediate mariposa lily (*Calochortus weedii* var. *intermedius*);
- Southern tarplant (*Centromadia parryi* ssp. *australis*);
- Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*);
- Vernal barley (*Hordeum intercedens*);
- Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*);
- Allen's pentachaeta (*Pentachaeta aurea* ssp. *allenii*)
- San Bernardino aster (*Symphyotrichum defoliatum*)
- Davidson's saltscale

- Catalina mariposa lily; and
- Small-flowered morning glory

None of these special-status plant species were observed or otherwise detected in the BSA at the time of the surveys. The BSA does not contain, nor is it adjacent to, suitable habitat for any special-status plant species identified in the literature search, with the possible exception of southern tarplant.

In addition to the literature review, a reconnaissance-level field survey was conducted on November 7, 2011, to characterize the general biological resources and to ascertain the presence or absence of special-status plant species and the likelihood of their occurrence in or near the BSA. A follow-up field survey on vacant land south of State Route 55 (SR-55) at the northbound Edinger Avenue on- and off-ramps at Del Amo Avenue and at the southbound Dyer Road off-ramp at South Grand Avenue was conducted on July 18, 2012, to determine the presence of southern tarplant. No special-status plant species (i.e., listed, proposed for listing, or candidate species) were observed or otherwise detected in the BSA during the 2011, 2012, and most recent October 2015 NES (MI) field surveys.

The BSA is composed of disturbed habitat, and landscaped and nonvegetated urban/developed areas. Plant species occurring in the BSA are characteristic of those found in landscaped and regularly disturbed areas, including castor bean (*Ricinus communis*), shortpod mustard (*Hirschfeldia incana*), Russian-thistle (*Salsola tragus*), cheeseweed (*Malva parviflora*), brome grass (*Bromus* sp.), perennial sowthistle (*Sonchus arvensis*), Bermuda grass (*Cynodon dactylon*), annual bluegrass (*Poa annua*), western sycamore (*Platanus racemosa*), eucalyptus (*Eucalyptus* sp.), Hottentot-fig (*Carpobrotus edulis*), English ivy (*Hedera helix*), lantana (*Lantana camara*), Peruvian pepper (*Schinus molle*), Brazilian pepper (*Schinus terebinthifolius*), and Mexican fan palm (*Washingtonia robusta*).

2.16.2.1 Southern Tarplant

The southern tarplant is not a federally or State-listed species, but it has a CNPS Rare Plant Rank of 1B. Plants with a Rare Plant Rank of 1B are rare throughout their range and have declined significantly over the last century. The majority of them are endemic to California. All the plants constituting California Rare Plant Rank 1B meet the definitions of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (CESA) of the California Fish and Game Code, and are eligible for State listing.

Southern tarplant occurs in wet areas such as edges of marshes and vernal pools, at the edges of roads and trails, and in other areas of compacted, poorly drained, or alkaline soils below 1,400 feet (ft) in elevation, where competition from other plants is limited. There is potentially suitable habitat for southern tarplant in the field at South Grand Avenue, and the northernmost and southernmost parts of the field at Del Amo Avenue. However, during the July 18, 2012 site visit, it was determined that there are not suitable habitat conditions at the South Grand Avenue field or at the southernmost part of the Del Amo Avenue to support southern tarplant. Specifically, well-drained soils in the southernmost field do not allow sufficient ponding, and the dense, nonnative vegetation precludes opportunities for southern tarplant to become established.

The July 18, 2012, site visit did determine that suitable habitat and/or conditions exist in the northernmost part of the field at Del Amo Avenue to support southern tarplant. However, subsequent to that visit, construction began on a new commercial project in that northernmost field. As a result of this development, there is no longer potential for the southern tarplant to become established in that area.

In summary, there is no potential for the southern tarplant or any other special-status plant species to occur in the BSA.

2.16.3 Environmental Consequences

The proposed project has been determined to have no effect on any of the federally listed species identified as potentially occurring within the vicinity of the proposed project (refer to Table 2.16.1).

2.16.3.1 Temporary Impacts

Build Alternatives

Based on the literature search, suitable habitat for southern tarplant may be present on vacant land in two parts of the BSA. However, based on field surveys conducted in those areas, it was determined that suitable habitat conditions do not exist to support southern tarplant, and there is no potential for southern tarplant to occur in the BSA. As a result, the construction of Build Alternatives would not result in temporary impacts on southern tarplant or other special-status plant species.

No Build Alternative

The No Build Alternative would not include construction of any of the proposed project improvements and, as noted above, there is no suitable habitat for the southern tarplant in the BSA. Therefore, the No Build Alternative would not result in temporary impacts to southern tarplant or other special-status plant species.

2.16.3.2 Permanent Impacts

Build Alternatives

As noted above, it was determined that suitable habitat does not exist to support southern tarplant; therefore, there is no potential for southern tarplant to occur in the BSA. As a result, the construction and operation of Alternatives 1, 2, 3, and 4 would not result in permanent impacts on southern tarplant or other special-status plant species.

No Build Alternative

The No Build Alternative would not include construction of any of the proposed project improvements and, as noted above, there is not suitable habitat for southern tarplant in the BSA. Therefore, the No Build Alternative would not result in adverse permanent impacts to southern tarplant or special-status plant species.

2.16.4 Avoidance, Minimization, and/or Mitigation Measures

There is no potential for southern tarplant to occur in the BSA, and the Build Alternatives would not result in temporary or permanent impacts to southern tarplant or other special status plant species. No mitigation is required.

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Table 2.16.1 United States Fish and Wildlife Service Species Effect Determination for Plant Species

Common/Scientific Name	Federal Status	Species Requirements	Species Habitat Present/Absent	Rationale	Effect Determination
Flowering Plants					
Big-leaved crownbeard/ *Verbesina dissita*	Threatened	Steep, rocky, primarily north-facing slopes in maritime chaparral at 45 to 210 m (150 to 700 ft) elevation within 1.5 mi of the ocean, and rarely in coastal sage scrub near the bottoms of south-facing slopes opposite north-facing slopes of maritime chaparral. Known only from Orange County in central and southern areas of Laguna Beach, and from Baja California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Laguna Beach liveforever/ *Dudleya stolonifera*	Threatened	Rocky areas (generally north-facing sandstone cliffs) at 10 to 260 m (30 to 850 ft) elevation. Known only from Orange County, California near Laguna Beach, with most occurrences in Laguna Canyon west of SR-73.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Salt marsh bird's-beak/ *Chloropyron maritimum ssp. maritimum* (formerly *Cordylanthus maritimus* ssp. *maritimus*)	Endangered	Typically associated with coastal dunes or coastal salt marshes and swamps. Occurs from 0 to 30 m (0 to 99 ft) elevation. Known only from Los Angeles, Orange, Santa Barbara, San Bernardino, San Diego, San Luis Obispo and Ventura Counties, California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
San Diego button-celery/ *Eryngium aristulatum* var. *parishii*	Endangered	Vernal pools and similar mesic habitats in coastal scrub and grassland at 15 to 620 m (50 to 2,000 ft) elevation. In California, known only from Riverside and San Diego Counties. In Riverside County, this species is known only from the Santa Rosa Plateau. Also occurs in Mexico.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.

Table 2.16.1 United States Fish and Wildlife Service Species Effect Determination for Plant Species

Common/Scientific Name	Federal Status	Species Requirements	Species Habitat Present/Absent	Rationale	Effect Determination
Thread-leaved brodiaea/ *Brodiaea filifolia*	Threatened	Usually on clay or associated with vernal pools or alkaline flats; occasionally in vernally moist sites in fine soils (clay loam, silt loam, fine sandy loam, loam, loamy fine sand). Typically associated with needlegrass or alkali grassland or vernal pools. Occurs from 25 to 1,120 m (80 to 3,700 ft) elevation. Known only from Los Angeles, Orange, Riverside, San Bernardino, San Diego, and San Luis Obispo Counties, California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Ventura marsh milk-vetch/ *Astragalus pycnostachyus* var. *lanosissimus*	Endangered	Coastal salt marsh within reach of high tide or protected by barrier beaches, or more rarely near seeps on sandy bluffs, below 35 m (120 ft) elevation. Known only from Santa Barbara and Ventura Counties. Believed extirpated from Los Angeles and Orange Counties.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.

ft = feet
m = meters
mi = miles
SR-73 = State Route 73

2.19 Cumulative Impacts

2.19.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the CEQ Regulations.

2.19.2 Methodology

The cumulative impact analysis methodology utilized was based on the eight-step process set forth in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER) Guidance for Preparers of Cumulative Impact Analysis (2005). The eight-step process is as follows:

- Identify resources to be analyzed
- Define the study area for each resource (i.e., Resource Study Area [RSA])
- Describe the current health and historical context for each resource
- Identify direct and indirect impacts of the proposed project
- Identify other reasonably foreseeable actions that affect each resource
- Assess potential cumulative impacts
- Report results
- Assess the need for mitigation

2.19.3 Resources Excluded from Cumulative Impacts Analysis

As specified in the Caltrans guidance, if the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource and need not be evaluated with respect to potential cumulative impacts.

Those resources for which cumulative effects are not anticipated or for which the impacts were already analyzed in a cumulative context are briefly discussed below.

- **Coastal Zones:** The project area is not located within the Coastal Zone. Therefore, the proposed project would not contribute to cumulative adverse impacts to coastal zones.

- **Wild and Scenic Rivers:** There are no wild and scenic rivers in the project area. Therefore, the proposed project would not contribute to cumulative adverse impacts to wild and scenic rivers.
- **Farmlands or Timberlands:** The designated farmland adjacent to the State Route 55 (SR-55)/Interstate 405 (I-405) interchange would not be impacted by the Build Alternatives. There are no timberlands in the project area. Therefore, the proposed project would not contribute to cumulative adverse impacts to farmlands or timberlands.
- **Land Use:** The freeway improvements to accommodate the Build Alternatives are consistent with local and regional goals to improve traffic operations and reduce congestion in the area. The project improvements would occur in an area already designated and currently used for transportation. Therefore, no adverse cumulative impacts related to land use are expected.
- **Parks and Recreation:** The Build Alternatives would not impact parks, recreational facilities, or Section 4(f) resources. Therefore, the proposed project would not contribute to cumulative adverse impacts related to parks and recreation.
- **Growth:** The Build Alternatives would improve existing and future traffic operations, reduce congestion, and accommodate existing and future planned growth. The Build Alternatives do not induce growth or remove obstacles to growth in the area and therefore would not contribute to cumulative adverse impacts related to growth.
- **Utilities and Emergency Services:** With the exception of short-term effects during construction, the Build Alternatives would not result in adverse effects to utilities and emergency services. Because the proposed project would not adversely affect utilities or emergency services, it would not contribute to cumulative adverse effects to utility facilities and emergency service providers.
- **Traffic/Transportation:** The Build Alternatives would improve traffic operations and reduce congestion. The analysis of future traffic conditions in Section 2.5 of this Initial Study/Environmental Assessment (IS/EA) for 2020 (Opening Year) and 2040 (Horizon Year) is a cumulative analysis in that it considers traffic generated by existing and future planned land uses and the effect of future planned transportation improvements.
- **Visual/Aesthetics:** The Build Alternatives would not substantially change the existing views of and from SR-55. Therefore, the proposed project would not contribute to cumulative adverse effects to visual resources.
- **Cultural Resources:** Construction of the Build Alternatives would not impact known cultural resources. While cultural resources in the study area outside the project area may be directly or indirectly impacted by other projects, the proposed project would not directly or indirectly impact those resources and therefore would not contribute to adverse impacts related to cultural resources.
- **Floodplains:** Although the Build Alternatives would encroach in the Lane Channel floodplain, the change in the water surface elevation in this channel as a result of the Build Alternatives would be minor, and the base flood would still be contained within the channel. Therefore, the proposed project would not contribute to cumulative adverse effects related to hydrology and floodplains.
- **Geology and Soils:** The potential impacts of the Build Alternatives related to geologic conditions and soils would be avoided or minimized based on implementation of

geotechnical design features and Soil Management Best Management Practices (BMPs). As a result, the Build Alternatives would not contribute to cumulative adverse impacts related to geology and soils.

- **Paleontological Resources:** Excavation during the construction of Build Alternatives is not expected to extend deeper than 10 feet (ft) below the original ground surface and, as a result, it is unlikely that older sensitive sediments that might contain paleontological resources would be encountered. Therefore, the proposed project would not contribute to cumulative adverse effects related to paleontological resources.
- **Air Quality:** The analysis of air quality provided in Section 2.13 of this IS/EA is a cumulative analysis in that it considers the emissions of traffic generated by existing and future planned land uses and the effects of other future planned transportation improvements. Temporary air quality impacts would be minimized through implementation of dust control and equipment management measures. The proposed project would not contribute to cumulative air quality impacts because it would not violate any air quality standard, would not contribute substantially to an existing air quality violation, and would not expose sensitive receptors to substantial pollutant concentrations.
- **Noise:** The analysis of noise impacts provided in Section 2.14 of this IS/EA is a cumulative analysis in that it considers the traffic noise generated by existing and future planned land uses and the effects of other future planned transportation improvements on the noise environment. After implementation of noise abatement, the noise level increase attributable to the Build Alternatives will barely be perceptible to the human ear in an outdoor environment; therefore, the proposed project would not contribute to cumulative adverse effects related to noise.
- **Natural Communities:** The project area does not contain any natural communities. The five habitat types present include ruderal, ornamental landscaping, clear or graded, urban, and transportation. As a result, the Build Alternatives would not impact natural communities and therefore would not contribute to cumulative adverse effects related to natural communities.
- **Wetlands and Other Waters:** The proposed project would not impact wetlands. The potential California Department of Fish and Wildlife (CDFW) jurisdictional area that would be impacted by the Build Alternatives through the realignment and reconfiguration of Lane Channel is concrete-lined. No conversion of natural streambeds would occur. The Build Alternatives would result in an increase in United States Army Corps of Engineers (Corps) jurisdiction within Lane Channel. Therefore, the proposed project would not contribute to cumulative adverse effects related to wetlands and other waters.
- **Plant Species:** The project area does not contain suitable habitat for any special-status plant species, and no special-status plants were observed or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact special-status plant species and therefore would not contribute to cumulative adverse effects related to special-status plant species.
- **Animal Species:** The project area does not contain suitable habitat for any special-status animal species, and no special-status animal species were observed or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact special-status animal species and therefore would not contribute to cumulative adverse effects related to special-status animal species.

- **Threatened and Endangered Species:** The project area does not contain suitable habitat for any threatened or endangered species, and no threatened or endangered plant or animal species were observed or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact threatened and endangered species and therefore would not contribute to cumulative adverse effects related to threatened and endangered species.
- **Invasive Species:** The Build Alternative would not substantially increase the potential for the spread of invasive species. Compliance with standard procedures would address this impact. Therefore, the proposed project would not contribute to cumulative adverse effects related to invasive species.
- **Climate Change:** The analysis of air quality provided in Section 2.20, Climate Change, is a cumulative analysis in that it considers the emissions of traffic generated by existing and future planned land uses and the effects of other future planned transportation improvements. The Build Alternatives would result in a small increase (substantially less than 1 percent) in carbon dioxide (CO_2) emissions in the region in 2020 and 2040 when compared to 2020 and 2040 without the project. However, as discussed in Section 2.20, it is too speculative to make a determination regarding the project's direct impact and its contribution on a cumulative scale to climate change.

2.19.4 Resources Evaluated for Cumulative Impacts

The following discussion of potential cumulative impacts is presented by environmental resource area. The reasonably foreseeable projects considered in this analysis are presented in Table 2.19.1 and are shown on Figure 2.19-1. Most of the projects are infill projects, while the transportation projects are all along existing facilities. The following resources are evaluated in this section for cumulative impacts: community impacts and surface water quality. In the context of the respective RSA, the four Build Alternatives studied would have a similar potential contribution to cumulative impacts for these resources.

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
1	Tustin Ranch Road Extension	City of Tustin	The project involves construction of the extension of Tustin Ranch Road from its current terminus at Walnut Avenue to Warner Avenue. It includes a bridge over the Santa Ana-Santa Fe Channel, the OCTA/SCRRA Railway, and Edinger Avenue.	Completed
2	Tustin Legacy (MCAS Tustin Specific Plan)	City of Tustin	Specific Plan for the maximum development of 4,199 DUs, 8.2 million sf of commercial development, 2.0 million sf of institutional/recreational development, and 133,294 sf of transitional housing. A Specific Plan Amendment is currently being studied that would permit development of 2,212 additional DUs, and 1,755,306 less square feet of non-residential land uses than the Adopted Specific Plan.	3,2465 DUs, 1,016,000 sf of commercial development, 128,122 sf of institutional uses, and transitional housing completed
3	Tustin Fire Station No. 37 at Tustin Legacy – 15011 Kensington Park Drive	City of Tustin	New 9,670 sf fire station with three apparatus bays, served by 21 on-site parking spaces.	Completed
4	Pacific Center East Specific Plan	City of Tustin	Maximum of 2.2 million sf of new commercial, office, hotel, and research and development uses.	57,151 sf in Pacific Business Center, 66,578 sf in Pacific Office Plaza, and two hotels completed (see below for additional information)
5	Hotel and Commercial Mixed-Use – Newport Avenue	City of Tustin	Four-story Residence Inn with 149 guest rooms; four-story Fairfield Inn with 144 guest rooms, 8,900 sf restaurant building, and 7,300 sf retail building. Part of Pacific Center East Specific Plan.	Completed
6	Residential development at 1872 San Juan Street	City of Tustin	Residential development consisting of demolition of 6 single-family DUs and construction of 26 detached condominium DUs.	Approved
7	Residential development at 1381 & 1392 San Juan Street	City of Tustin	Residential development consisting of demolition of 1 single-family DU and construction of 6 detached condominium DUs.	Under review
8	Residential development at 1051 Bonita Street	City of Tustin	Residential development consisting of demolition of 1 single-family DU and construction of an apartment building with 4 DUs.	Under review

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
9	Red Hill Apartments - 13751 & 13841 Red Hill Avenue	City of Tustin	Mixed-use development consisting of 201 apartment DUs, 10,000 sf of retail space, and parking structure.	Under review
10	The Met at South Coast Multifamily Residential Project, 200 East First American Way	City of Santa Ana	The project consists of 284 multifamily DUs in five- and six-story condominium buildings over parking.	Approved
11	Bristol Street Widening	City of Santa Ana	Widening of Bristol Street to six lanes. Phase I will extend from McFadden Avenue to Pine Street. Phase II will extend from Pine Street to Civic Center Drive. Phase III will extend from Civic Center Drive to 17th Street. Phase IV will extend from Warner Street to St. Andrew Place.	Design construction, ROW phases of certain segments
12	Lyon Homes, 100 East MacArthur Boulevard	City of Santa Ana	Four-story apartment/condominium project with 300 DUs.	Completed
13	Legado at the MET, 200 East First American Way	City of Santa Ana	Project consists of 281 DUs (apartments) within a five-story building.	Approved
14	The Heritage, 2001 East Dyer Road	City of Santa Ana	Project consists of 1,221 DUs (apartments), approximately 20,000 sf of commercial space and 60,000 sf of office.	Under Construction
15	Grand Avenue Grade Separation	City of Santa Ana	Grade separation along Grand Avenue from Wakeham Avenue to Chestnut Avenue.	PRE completed
16	Alton Avenue Overcrossing	City of Santa Ana	The proposed project would consist of Alton Avenue as a four-lane overcrossing with a 14 ft median connecting each side of SR-55 and the addition of HOV direct access drop ramps to support circulation between the Cities of Santa Ana and Irvine, relieve local traffic congestion, support planned development and growth in both cities, and improve HOV access.	PS&E completed
17	Warner Avenue Widening from Main Street to Grand Avenue	City of Santa Ana	The proposed project is the widening of an approximately 1 mi long segment of Warner Avenue between Main Street and Grand Avenue from four lanes to six.	Preliminary design
18	Grand Avenue Widening from 1st Street to 4th Street	City of Santa Ana	The project is the widening of Grand Avenue from two lanes to three in each direction, an additional turn lane at First Street, a raised median, and bike lanes.	Completed
19	Grand Avenue Widening from 4th Street to 17th Street	City of Santa Ana	The proposed project is the widening of an approximately 1 mi long segment of Grand Avenue.	Preliminary design
20	Edwards Life Science,	City of Irvine	36,000 sf office building and parking structure.	Under construction

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
	1 Edwards Way			
21	Pacific Dental, 17000 Red Hill Avenue	City of Irvine	Conversion of industrial space to office uses.	Completed
22	Dyer Road Widening	City of Irvine and City of Santa Ana	Phase II widening of Dyer Road to eight lanes from Red Hill Avenue to SR-55.	Planned
23	Red Hill Avenue Widening	City of Irvine	Widen Red Hill Avenue to six lanes from Main Street to MacArthur Boulevard.	Planned
24	Jamboree Road/ Barranca Parkway	City of Irvine	Intersection improvements at Jamboree Road/Barranca Parkway, including adding a fifth northbound through lane.	Preliminary design
25	Jamboree Road/Main Street	City of Irvine	Intersection improvements at Jamboree Road/Main Street, including adding a fifth northbound through lane, a fifth southbound through lane, and conversion of the westbound right-turn lane to a standard right-turn lane.	Preliminary design
26	Jamboree Road Widening at I-5	City of Irvine, City of Tustin	Widening of Jamboree Road to eight through lanes between El Camino Real and Michelle Drive.	Completed
27	Newport Extension Project – Phase II	City of Tustin	The project consists of the extension of Newport Avenue from its present cul-de-sac north of the OCTA/SCRRA Railway Line to Edinger Avenue.	EIR approved. Final design @ 90% completion level.
28	SR-55 (I-5 to SR-22)	City of Orange, City of Santa Ana, and City of Tustin	The objective of the proposed improvements to SR-55 is to determine the preliminary geometric design and operational characteristics of providing new mainline lanes on SR-55 from I-5 to SR-22. Operational improvements and possible capacity enhancements on SR-55 from SR-22 to SR-91 will be studied. The goal of this study is to identify proposed improvements that could be constructed generally within existing ROWs. Specific improvements will be coordinated with Caltrans, local jurisdictions, and affected cities.	In PSR/PDS phase

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
29	Southbound SR-55 Project to Widen Freeway and Bridge and Construct Retaining/Tieback Wall	City of Irvine, City of Santa Ana	The project will consist of adding an auxiliary lane on southbound SR-55 from Edinger Avenue to Dyer Road, widening the bridge on Dyer Road, and constructing a retaining/tieback wall at Warner Avenue. This project will improve the weaving operation of vehicles entering and exiting the freeway, help reduce overall traffic delay, and relieve traffic congestion on this portion of southbound SR-55. This will also allow for dissipation of traffic flow coming from the I-5/SR-55 interchange.	Completed
30	San Diego I-405 Improvement Project	Cities of Costa Mesa, Fountain Valley, Huntington Beach, Westminster, Garden Grove, Seal Beach, Los Alamitos, Long Beach, and Community of Rossmoor	The project consists of improving the mainline freeway and interchanges on I-405 in Orange and Los Angeles counties by adding a Tolled Express Lane and one GP Lane in each direction. The proposed project would relieve congestion and improve operational efficiency on I-405 between State Route (SR)-73 and Interstate 605 (I-605).	Approved/Design
31	2851 Alton Parkway	City of Irvine	170 DUs (condominiums).	Approved, in for building permits
32	2801 Kelvin Avenue	City of Irvine	381 DUs (apartments; 305 base/76 density bonus).	Under construction
33	2501 Alton Parkway	City of Irvine	344 DUs (apartments).	Under construction
34	2500 Main Street	City of Irvine	457 DUs (apartments; 368 base/89 density bonus).	Under construction
35	16952 Millikan Avenue	City of Irvine	156 DUs (apartments; 126 base/30 density bonus).	Under construction
36	17150 Von Karman Avenue	City of Irvine	434 DUS (apartments/condominiums; 347 base/87 density bonus).	Approved
37	17275 Derian Avenue	City of Irvine	80 DUs (apartments; all affordable).	Approved
38	2852 McGaw Avenue	City of Irvine	280 DUs (apartments; 224 base/56 density bonus).	Under construction
39	17422 Derian Avenue	City of Irvine	371 DUs (apartments; 297 base/74 density bonus).	Approved
40	Park Place Apartments, 3395 Michelson Drive	City of Irvine	1,776 DUs (apartments).	Completed
41	2699 Main Street	City of Irvine	388 DUs (apartments; 310 base/78 density bonus).	Approved
42	Jamboree Road Widening	City of Irvine	Widen Jamboree Road from eight to ten lanes between Main Street and Barranca Parkway.	Planned

Caltrans = California Department of Transportation
DU = dwelling unit
EIR = Environmental Impact Report
PRE = Project Report Equivalent
PS&E = Plans, Specifications, and Estimates
PSR/PDS = Project Study Report/Project Development Support

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status

ft = feet
HOV = high-occupancy vehicle
I-5 = Interstate 5
MCAS = Marine Corps Air Station
mi = miles
OCTA = Orange County Transportation Authority
ROW = right-of-way
SCRRA = Southern California Regional Rail Authority
sf = square feet
SR-22 = State Route 22
SR-55 = State Route 55
SR-91 = State Route 91

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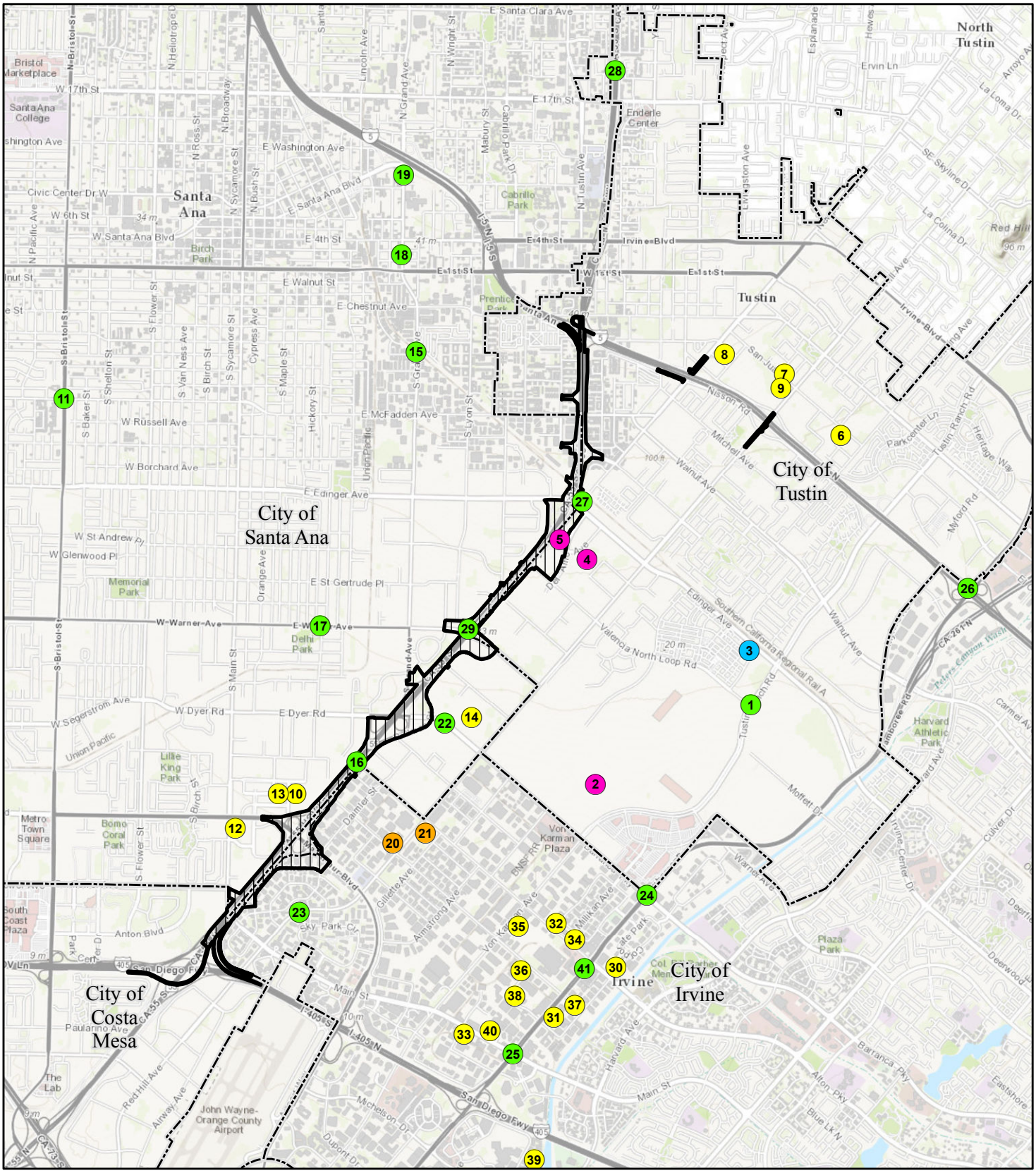
City of Santa Ana
City of Tustin
City of Costa Mesa
City of Irvine
Santa Ana
Tustin
Irvine
North Tustin
Orange
Garden Grove
Lake Forest
Rancho Santa Margarita
Mission Viejo
Laguna Woods
Laguna Hills
Aliso Viejo
Laguna Niguel
Dana Point
San Juan Capistrano
San Clemente
Trabuco Canyon
Foothill Ranch
Coto de Caza
Ladera Ranch
Las Flores
Rancho Mission Viejo
Modjeska Canyon
Silverado Canyon
Irvine Lake
Santiago Canyon
Villa Park
Orange County Great Park
Irvine Spectrum
Irvine Regional Park
Bristol Marketplace
Santa Ana College
Civic Center Dr W
W 6th St
W Santa Ana Blvd
E 4th St
E 17th St
E Washington Ave
E Santa Clara Ave
E Santa Ana Blvd
E Walnut St
E Chestnut Ave
W Russell Ave
W Borchard Ave
E Edinger Ave
W St Andrew Pl
W Glenwood Pl
E St Gertrude Pl
W Warner Ave
E Warner Ave
W Segerstrom Ave
W Dyer Rd
E Dyer Rd
Anton Blvd
Paularino Ave
Main St
Jamboree Rd
Irvine Blvd
Barranca Pkwy
Alton Pkwy
Red Hill Ave
Airway Ave
Harvard Ave
Culver Dr
Moffett Dr
Valencia North Loop Rd
Southern California Regional Rail A
Union Pacific
Enderle Center
Cabrillo Park
Birch Park
Memorial Park
Delhi Park
Lillie King Park
Bomo Coral Park
Metro Town Square
South Coast Plaza
Plaza Park
Harvard Athletic Park
Von Karman Plaza
Prentice Park
John Wayne-Orange County Airport
The Lab
Ervin Ln
Nisson Rd
Mitchell Ave
Walnut Ave
Edinger Ave
Myford Rd
Tustin Ranch Rd
Parkcenter Ln
Heritage Way
Irvine Center Dr
Deerwood
Eastshore
Red Hill
La Loma Dr
La Colina Dr
SE Skyline Dr
Esplanade
Hewes
Arroyo Ave
Enderle Center
I-5 N/I-5 S
I-405 N/I-405 S
San Diego Fwy
CA-55 N
CA-73 S
CA-261 N
Santa Ana River
Peters Canyon Wash
Bristol St
Main St
Grand Ave
Tustin Ave
Newport Blvd
Gillette Ave
Armstrong Ave
Milliken Ave
Daimler St
Michelson Dr
Dupont Dr
Sand Canyon Ave
Culver Dr
Carmel Ave
Deerfield
Deerwood
Blue Lk N
Barranca Pkwy
Alton Pkwy
Main St
Harvard Ave
Michelson Dr
San Diego Fwy
Airway Ave
Red Hill Ave
Paularino Ave
Anton Blvd
Moffett Dr
Irvine Center Dr
Culver Dr
Jamboree Rd
Tustin Ranch Rd
Myford Rd
Heritage Way
Parkcenter Ln
Nisson Rd
Mitchell Ave
Walnut Ave
Edinger Ave
Valencia North Loop Rd
Southern California Regional Rail A
Peters Canyon Wash
Santa Ana River

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2.19.4.1 Community Impacts

Community Character and Cohesion

The RSA for cumulative community impacts consists of Census Tracts 740.03, 740.04, and 744.03 in the City of Santa Ana; Census Tracts 525.02, 744.08, 755.05, 755.08, 755.12, 755.13, and 755.14 in the City of Tustin; and Census Tract 755.15 in the Cities of Santa Ana and Tustin. Census tracts provide established boundaries for community demographics. The demographics of the City of Santa Ana are more of an average of the demographics of the three RSA census tracts in this city. In the City of Tustin, the demographics are specific to each census tract and do not correlate well with the city overall. In other words, the demographics in the RSA are more defined by neighborhoods rather than individual city limits. The community impact RSA is shown on Figure 2.19-2.

The RSA was historically ranchland and farmland.[1] The City of Santa Ana was incorporated in 1886 and takes its name from the vast Rancho Santiago de Santa Ana. By 1887–1888, Santa Fe trains reached Santa Ana, and in 1906, a Pacific Electric line connected the city to Los Angeles. By the 1980s, huge apartment houses and high rises became prolific. A redevelopment program for downtown Santa Ana was also undertaken using federal aid in an attempt to bring back lost business and encourage new business activity.

Although "Tustin City" was established in 1868, the city was not incorporated until 1927. By the 1890s, the City of Tustin was a well-established agricultural community. Tustin's proximity to three military bases during World War II greatly benefited it during the 1940s and into the 1950s. All three bases (i.e., Santa Ana Army Air Base, El Toro Marine Corps Air Station [MCAS], and Santa Ana Naval Air Station) were activated in 1942. These bases introduced thousands of military personnel to Tustin and Santa Ana. As a result, many returned to the area after the war, spurring the biggest growth in Tustin's history to that time. As the population increased, more and more orchards were sold for development.

Currently, almost all the orchards are gone, and the RSA is predominantly an urban area.

[1] Information was summarized from the *Historical Resources Evaluation Report, SR-55 Improvement Project* (2014), which was based on information from several different sources.

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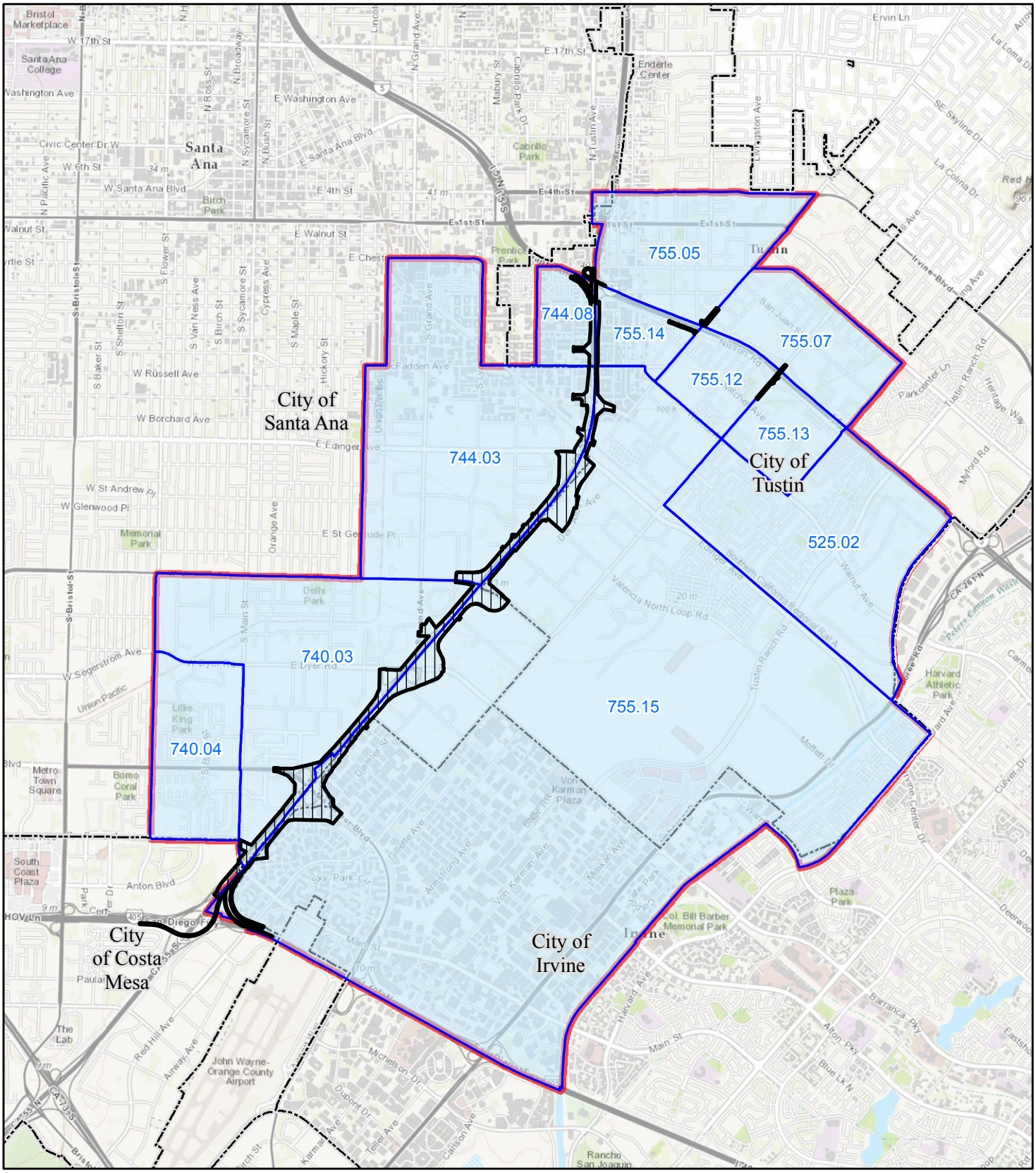

LEGEND

- Project Area
- 2010 Census Tract Boundaries
- Community Impact RSA
- City Boundary

0 2000 4000
FEET

SOURCE: USGS 7.5' QUAD - Newport Beach (1981); Tustin (1981), CA

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FIGURE 2.19-2

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Community Impact Resource Study Area (RSA)

12-ORA-55 PM 6.4/10.3
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The RSA is an urban community bisected by SR-55 and bounded by Interstate 5 (I-5), I-405, and Jamboree Road. The former MCAS occupies a large area in the RSA. Based on the analysis of demographic data and community cohesion indicators included in Section 2.3, Community Impacts, and the mix of land uses, the RSA does not exhibit a pronounced degree of community character and cohesion overall, although Census Tracts 525.02 and 744.03 demonstrate a reasonably high level of community cohesion. Community cohesion is relatively low within all the other RSA census tracts.

The Build Alternatives would not divide an established community or substantially modify the character of the area. The project is consistent with the Circulation/Mobility and Land Use Elements of the General Plans for the Cities of Santa Ana, Tustin, and Irvine.

In summary, because the RSA is largely developed and the project would not change the fundamental nature of the community, the project contribution to cumulative impacts to community character and cohesion is minimal.

General Plans

The planned projects shown on Figure 2.19-1 are infill projects surrounded by existing residential and commercial development. Approval of those projects by the respective local jurisdictions would be consistent with the respective City General Plans and visions for development of the area. Therefore, the planned development projects would not divide existing communities and would instead contribute toward improving community establishment and cohesion. The SR-55 (I-5 to State Route 91 [SR-91]) project may displace freeway-adjacent businesses and residences. Although this project combined with the local roadway projects may result in impacts to community cohesion, those impacts are not anticipated to be substantial based on the nature of the RSA, as described above.

Because the RSA does not display a pronounced degree of community cohesion, the planned development projects have the potential to support community character and cohesion, and the planned transportation projects would not divide the community or change community character. Therefore, the potential project contribution to cumulative community character and cohesion would not be substantial.

Displacements

Alternatives 1 and 2 would result in one displacement. Alternatives 3, 4, and 3M would displace four businesses. The types of businesses that would be potentially displaced are not key to community vitality. In addition, neighborhood residents do not depend solely on those two businesses for essential goods and services because there are similar types of businesses in the project vicinity. Therefore, there are replacement businesses available to the local community in case the displaced businesses could not be relocated in the local area.

Based on the results of the *Draft Relocation Impact Statement* (2014), *Draft Relocation Impact Statement – Alternative 3M* (2017), and the *Final Relocation Impact Statement* (2017), it is anticipated there will be sufficient properties available for relocation of the displaced businesses in the Cities of Santa Ana, Tustin, and Irvine.

Based on the business types that would be displaced by the project, the displaced businesses are expected to serve local as well as adjacent communities and would therefore be able to maintain their clientele after relocation.

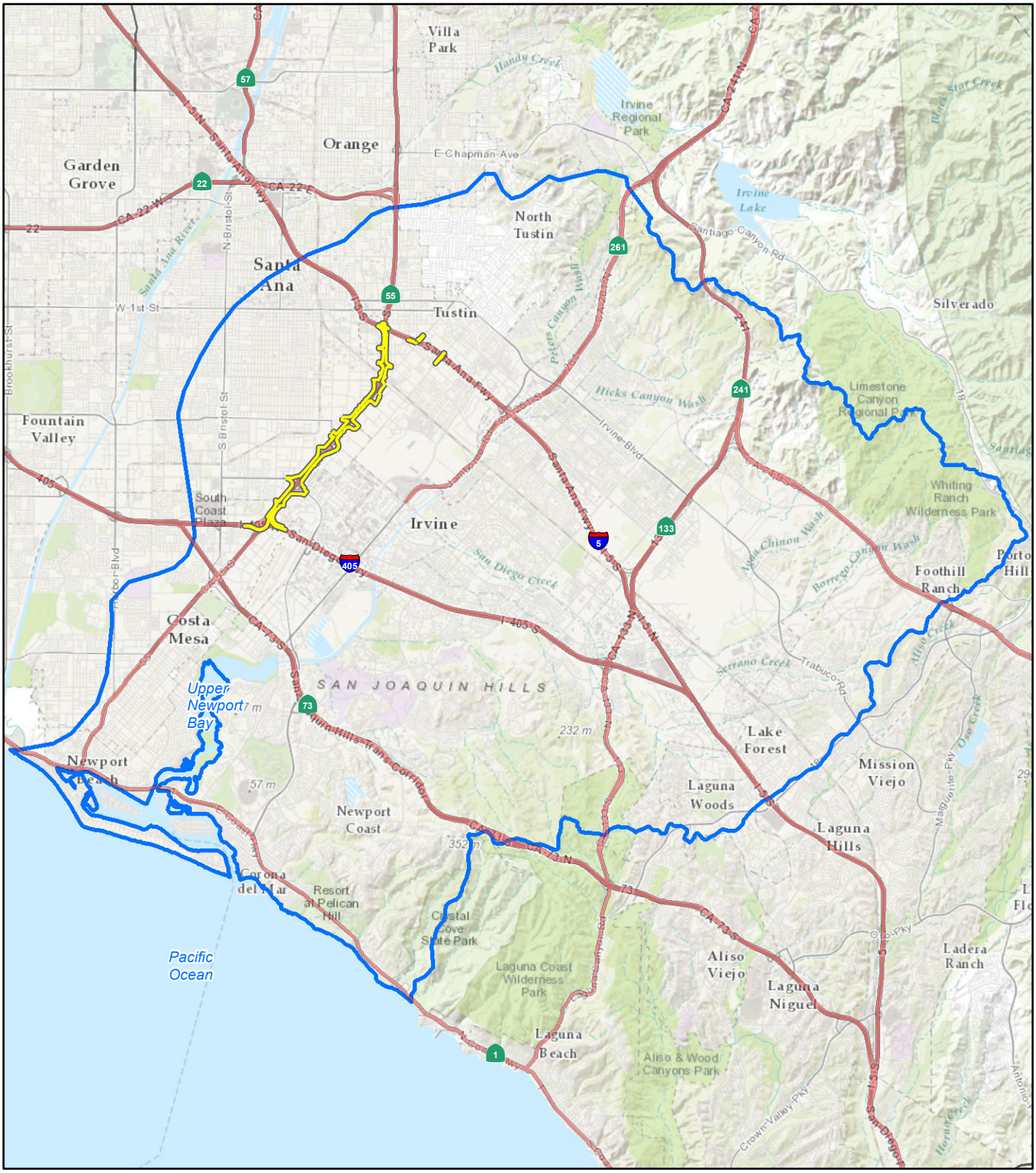
The health of the RSA is not dependent on the businesses anticipated to be displaced as part of Alternatives 3, 4, and 3M. The community does not rely solely on the businesses potentially being displaced. In addition, the businesses would still be accessible to the

community once relocated. Displacement of the businesses would not affect the health of the neighborhood, and no diminishment of the community would result. Only two businesses would be displaced, which is a very small part of the total number of existing businesses in the community. Because the project would provide adequate relocation resources for the two displaced businesses, the project's contribution to cumulative displacement impacts would be minimal.

The planned land development projects would add or modify businesses or residences. The SR-55 (I-5 to SR-91) project and a few of the local road projects have the potential to displace some businesses and/or residents. However, similar to the SR-55 Improvement Project, it is anticipated that the affected businesses and/or residents could be relocated to surrounding areas. Therefore, the SR-55 Improvement Project, in combination with other planned projects, would not result in substantial cumulative impacts with respect to displacements in the community.

2.19.4.2 Surface Water Quality

The RSA for cumulative impacts to surface water quality is the Newport Bay Watershed because the project site is within this watershed. The Newport Bay Watershed is defined by the foothills of the Santa Ana Mountains to the east and the San Joaquin Hills to the west and southwest as shown on Figure 2.19-3. San Diego Creek is the primary receiving water in the RSA. With the exception of Upper Newport Bay itself, the RSA is highly urbanized. The existing trend of urbanization in the Newport Bay Watershed is projected to continue. Conversion of undeveloped land to transportation, commercial/industrial, retail, and residential uses results in hydromodification and an increased loading of pollutants into surface waters and indirectly into groundwater. It also introduces new sources of pollutants associated with the new land uses.



LEGEND

Project Area

Surface Water Quality RSA

FIGURE 2.19-3

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Surface Water Quality Resource Study Area (RSA)

12-ORA-55 PM 6.4/10.3

EA 0J3400/EFIS 1200020328

0 1.25 2.5

Miles

SOURCE: USGS 7.5' QUAD - Newport Beach (1981); Tustin (1981), CA

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in the Newport Bay Watershed is projected to continue. Conversion of undeveloped land to transportation, commercial/industrial, retail, and residential uses results in hydromodification and an increased loading of pollutants into surface waters and indirectly into groundwater. It also introduces new sources of pollutants associated with the new land uses.

As discussed in the *Water Quality Assessment Report* (2014) and the *Supplemental Water Quality Assessment Report* (2016), the primary water quality concerns in the Newport Bay Watershed include excess algal blooms (nutrients), aquatic life toxicity, bacterial quality, stream channel erosion, sedimentation, and wetland protection. Upper Newport Bay is a designated Critical Coastal Area. The 2010 California 303(d) List of Water Quality Limited Segments designates San Diego Creek (Reach 1) as impaired by fecal coliform, nutrients, pesticides, sedimentation/siltation, selenium, and toxaphene. Upper Newport Bay is listed as impaired by chlordane, copper, dichlorodiphenyltrichloroethane (DDT), indicator bacteria, metals, nutrients, polychlorinated biphenyls (PCBs), pesticides, sedimentation/siltation, and sediment toxicity. Lower Newport Bay is listed as impaired by chlordane, copper, DDT, indictor bacteria, nutrients, PCBs, pesticides, and sediment toxicity.

The Build Alternatives would reconfigure Lane Channel from a trapezoidal channel to a rectangular channel and would realign this channel approximately 2 ft west of its current location due to the proposed road widening in this area. In addition, the Build Alternatives would replace several roadside ditches running parallel to SR-55 with pipe conduits. The project would only affect water quality during storm events because the project would not generate dry weather discharge or disturb natural drainages. The project would comply with the requirements of the Construction General Permit, the Caltrans Storm Water Management Plan (SWMP), and Caltrans and City National Pollutant Discharge Elimination System (NPDES) permit requirements. In addition, the project includes treatment BMPs to target pollutants of concern in storm water runoff during construction and operations. Based on an urbanized RSA, limited impacts, and application of regulatory requirements, the contribution of the project to cumulative impacts to surface water quality is not considerable.

The SR-55 (I-5 to SR-91) project is expected to impact concrete channels in the RSA through the extension of culverts. Planned local road projects in the RSA may directly impact existing channels/streams and have the potential to increase concentrations of pollutants in runoff. Land development projects may result in minor impacts to improved channels to accommodate changes in drainage patterns. They also have the potential to increase concentrations of pollutants in runoff.

Because of the urban nature of the RSA, impacts to surface waters would mostly occur to engineered flood control channels. The planned projects are also expected to impact only small drainage areas. Each project is responsible for addressing its impacts to surface water quality and must comply with water quality regulations. The NPDES program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Since its introduction in 1972, the NPDES program has resulted in surface water quality improvements in the State.[1] The planned land use and transportation projects would be required to comply with NPDES regulations, implement BMPs, and mitigate for direct impacts to surface waters through habitat replacement, restoration, or enhancement. Therefore, the project, in combination with other planned projects would not result in substantial cumulative water quality impacts.

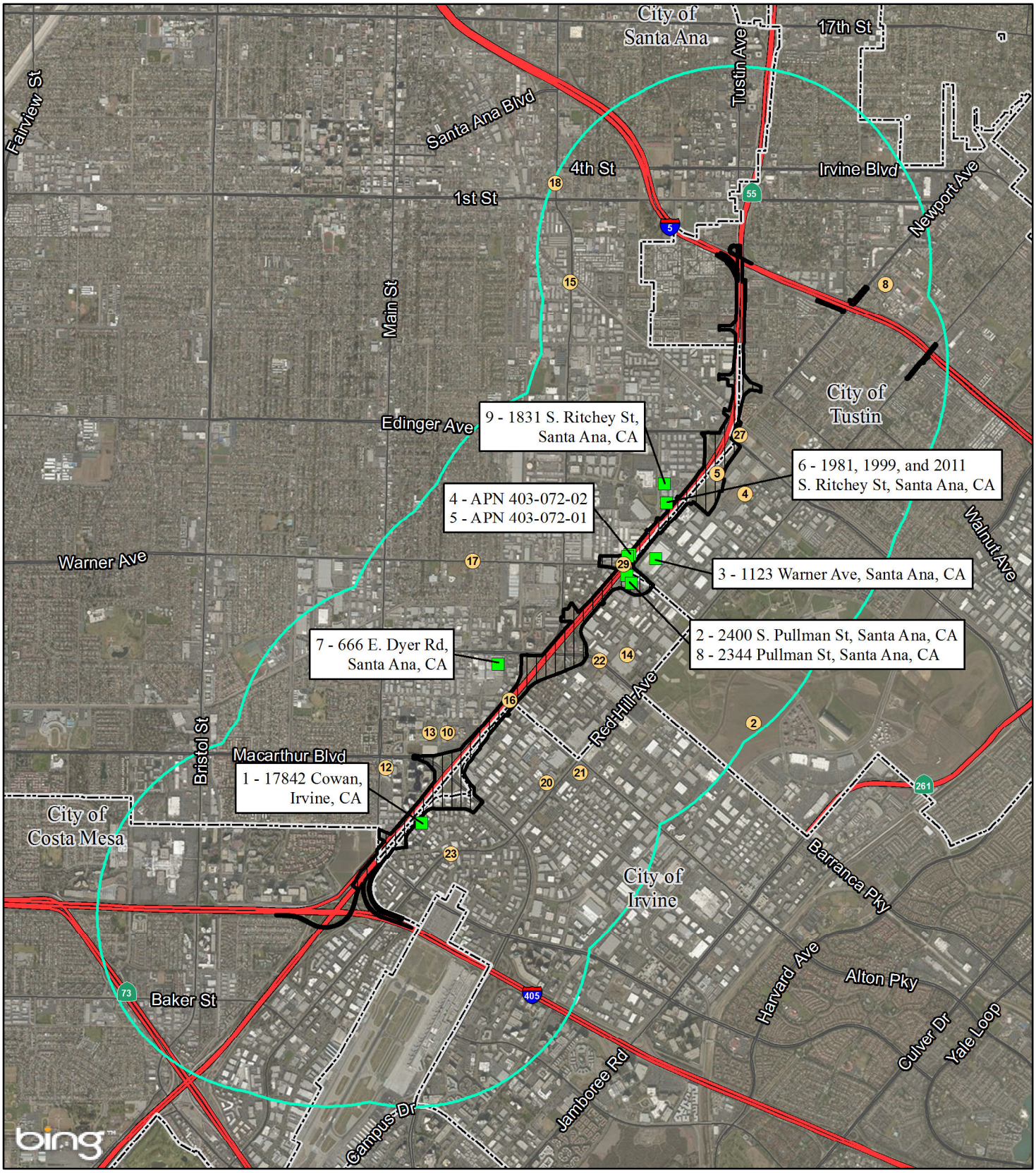
[1] State Water Resources Control Board. National Pollutant Discharge Elimination System (NPDES) (http://www.waterboards.ca.gov/water_issues/programs/npdes/, accessed October 28, 2013).

2.19.4.3 Hazardous Waste/Materials

The RSA for hazardous waste/materials is approximately 1 mile (mi) from the project segment of SR-55, consistent with the records search area for the Initial Site Assessment, and is shown on Figure 2.19-4.

As discussed in Section 2.19.4.1, the RSA was historically ranchland and farmland up until the early 20th century. The construction of military bases in Tustin and surrounding areas in the 1940s led to substantial growth in the surrounding areas, and orchards were converted to housing and commercial and industrial facilities.

Currently, the RSA is built out, with mostly commercial and industrial uses south of Edinger Avenue and primarily residential properties north of Edinger Avenue. The former MCAS Tustin is within the RSA.



LEGEND

- Resource Study Area
- Maximum Limit of Disturbance
- Planned Projects
- Recognized Environmental Concern

0 2000 4000
FEET

SOURCE: Bing Maps (2013); HDR (9/2012, 2/2013, 10/2015)

I:\HDR1102\GIS\ISEA_Haz_Waste_Overview.mxd (11/3/2015)

FIGURE 2.19-4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Hazardous Waste/Materials Resource Study Area

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The use and generation of hazardous waste/materials is a normal function of commercial and industrial operations. Historically, poor business practices and inadequate storage facilities have resulted in contaminated soil and groundwater in the RSA, which is typical of southern California cities. In addition, many buildings and other infrastructure were constructed with building materials that are now considered hazardous and are typically removed during renovation, demolition, or after detection of leakage or exposure.

The Build Alternatives would require excavation, reconstruction of existing infrastructure, and demolition of acquired buildings. Through excavation activities, the Build Alternatives have the potential to encounter contaminated soil and groundwater (petroleum hydrocarbons and chlorinated solvents) from adjacent or nearby properties. In addition, reconstruction of transportation facilities and demolition of buildings associated with the Build Alternatives may involve exposure to hazardous building materials such as lead asbestos, mercury, PCBs, and chlorofluorocarbons, as well as pesticides from historic agricultural use.

Prior to project approval, site investigations will be conducted at several properties with hazardous waste releases that could impact the Build Alternatives in order to determine the extent of any subsurface investigations required to quantify and delineate the extent of contamination in the method detection limit (MDL). The site investigations will identify any site-specific steps that would be needed for construction of the Build Alternatives, consistent with regulatory requirements. In addition, the Build Alternatives would be required to adhere to State and federal regulations with respect to the use, generation, and disposal of hazardous waste/materials during construction and operation of the project. Based on an urbanized RSA and adherence to regulatory requirements, the contribution of the project to cumulative hazardous waste/materials impacts is not considerable.

The planned projects in Table 2.19.1 consist primarily of residential and transportation uses, which are low risk uses with respect to hazardous waste/materials impacts. Commercial and industrial facilities present a higher risk with respect to hazardous waste/materials impacts depending on the type of operations and the degree to which these materials are used. Regardless, there is an existing regulatory framework in place for use, generation, and disposal of hazardous waste/materials and penalties for noncompliance.

Like the Build Alternatives, each of the planned projects has the potential to be exposed to hazardous waste/materials through releases at adjacent or nearby properties or through renovation or demolition of buildings or other structures. Likewise, the planned projects would be required to comply with State and federal regulations with respect to the use, generation, and disposal of hazardous materials/waste during construction and operation. Therefore, the project, in combination with other planned projects, would not result in substantial cumulative hazardous waste/materials impacts.

2.19.5 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures for cumulative impacts are required.

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2.17 Animal Species

2.17.1 Regulatory Setting

Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries Service) and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in Sections 2.17.2 and 2.17.3 below. The proposed project would not impact any animal species listed or proposed for listing as threatened or endangered as discussed earlier in the introduction to Section 2.0. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries Service candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Endangered Species Act
- Marine Mammal Protection Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 – 1603 of the California Fish and Game Code
- Section 4150 and 4152 of the California Fish and Game Code

2.17.2 Affected Environment

The information in this section is based on the Natural Environment Study (Minimal Impacts) (2015) and the Supplemental Natural Environment Study (Minimal Impacts) (2017) prepared for the project.

2.17.2.1 Literature Review, Records Search, and Field Visits

A literature review and records search were conducted to identify the presence or potential occurrence of sensitive or special-interest animal species within or in the vicinity of the Biological Study Area (BSA). Official species lists were obtained from the USFWS on December 17, 2012, September 1, 2015, January 4, 2017, and June 14, 2017; and the National Marine Fisheries Service (NMFS) on June 14, 2017. The following fourteen animal species including federally and/or State-listed endangered or threatened species were identified in the literature and record searches as potentially occurring in or near the BSA:

- Burrowing owl (*Athene cunicularia*)
- Mexican long-tongued bat (*Choeronycteris mexicana*)
- White-tailed kite (*Elanus leucurus*)
- California horned lark (*Eremophila alpestris actia*)
- Western mastiff bat (*Eumops perotis californicus*)
- San Diego fairy Shrimp (*Branchinecta sandiegonenis*)
- Western snowy plover (*Charadrius nivosus nivosus*)
- Southwestern willow flycatcher (*Empidonax traillii extimus*)
- Pacific pocket mouse (*Perognathus lonimembris pacificus*)

- Coastal California gnatcatcher (*Polioptila californica californica*)
- Light-footed clapper rail (*Rallus longirostris levipes*)
- California least tern (*Sterna antillarum browni*)
- Least Bell's vireo (*Vireo bellii pusillus*)
- Southern California Steelhead *(Oncorhynchus mykiss)*

A reconnaissance-level field survey was conducted on November 7, 2011, to characterize the general biological resources and to ascertain the presence or absence of special-status animal species and the likelihood of their occurrence in and near the BSA. A field survey on the vacant parcel south of State Route 55 (SR-55) at the northbound Edinger Avenue on- and off-ramps at Del Amo Avenue and at the southbound Dyer Road off-ramp at South Grand Avenue was conducted on July 18, 2012, to determine the presence of burrowing owls or whether conditions are suitable for potential future occurrence of burrowing owls.

A habitat suitability assessment for bats was conducted on September 4 and 8, 2015, to examine suitable roosting habitat (e.g., crevices or cavities) at various bridge and culvert structures, as well as for the presence of bats or bat sign (e.g., guano, staining, or vocalizations) within the BSA. Adjacent arterial streets and concrete culverts situated within 200 feet (ft) of the BSA were also surveyed.

No special-status animal species (i.e., listed, proposed for listing, or candidate species) were observed or otherwise detected in the BSA during the field surveys. The BSA does not contain, nor is it adjacent to, suitable habitat for any special-status animal species identified in the literature search, with the possible exception of burrowing owls and bats. Due to the presence of suitable site conditions and the occurrence of small mammal burrows on the vacant land described above, there is potential for burrowing owls to move onto that parcel in the future.

The BSA consists of disturbed habitat and nonvegetated urban/developed areas. Wildlife species occurring in the BSA are characteristic of those found in a well-developed urban setting and are adapted to noise and other human-related disturbances. During the site visits for the bat habitat suitability assessment, a coyote was observed in Lane Channel (a 31.5 ft wide concrete trapezoidal channel adjacent to the west side of SR-55 between the MacArthur Boulevard and Dyer Road interchanges), which is discussed further below. Common animal species in the BSA include bushtit (*Psaltriparus minimus*), common raven (*Corvus corax*), rock pigeon (*Columba livia*), red-tailed hawk (*Buteo jamaicensis*), house finch (*Haemorhous mexicanus*), mourning dove (*Zenaida macroura*), lesser goldfinch (*Spinus psaltria*), American kestrel (*Falco sparverius*), black phoebe (*Sayornis nigricans*), great egret (*Ardea alba*), Myotis bat (likely Yuma myotis [*Myotis yumanensis*]), coyote (*Canis latrans*), and California ground squirrel (*Spermophilus beecheyi*).

2.17.2.2 Burrowing Owl and Other Avian Species

The burrowing owl is a California Species of Concern. It is also protected under the Migratory Bird Treaty Act (MBTA; 16 United States Code [USC] Sections 703–711) and under Sections 3503 and 3800 of the California Fish and Game Code.

The BSA does not contain, nor is it adjacent to, suitable habitat for any special-status species with the exception of burrowing owls and bats. The July 18, 2012, visit determined that suitable conditions did not exist in the South Grand Avenue field or at the northernmost field at Del Amo Avenue to support burrowing owls. However, as described earlier, there are suitable conditions for the burrowing owl at the southernmost field at Del Amo Avenue. The available habitat for burrowing owls on that southernmost field is of marginal quality, and no owls or owl signs (burrows, scat, tracks, or feathers) were observed during the field surveys.

Therefore, the probability of burrowing owls occurring on the southernmost field at Del Amo Avenue is low. Nonetheless, due to the presence of suitable site conditions and small mammal burrows (which the burrowing owl may use) on the site, it is possible for burrowing owl to move onto this site.

Migratory birds are protected under the MBTA. In addition, Sections 3503, 3503.5, and 3800 of the California Fish and Game Code prohibit the take, possession, or destruction of migratory birds, their nests, or their eggs.

2.17.2.3 Special-Status Bridge/Culvert- and Crevice-Dwelling Animal Species

Special-status bridge/culvert and crevice-dwelling wildlife species identified as potentially occurring in the area, but not necessarily within the BSA, include Mexican long-tongued bat (*Choeronycteris mexicana*) and western mastiff bat (*Eumops perotis californicus*). Both of these species are considered Species of Special Concern by the CDFW. The Mexican long-tongued bat occurs in Orange County only as a rare migrant and is not expected to occur within the BSA. There is a low probability that the western mastiff bat may forage or roost within the BSA. The Yuma myotis (*Myotis yumanensis*), a California Special Animal,[1] is also known to occur in the area, and several myotis individuals that likely belong to this species were observed during the bat habitat suitability assessment.

There were 21 structures (11 bridge undercrossing/overcrossing structures and 10 concrete double-box culverts) within the BSA that were examined during the daytime bat habitat assessment for the presence of structural features that may be used by day- and/or night-roosting bats, and for the presence of bats or bat sign (e.g., guano, urine staining, or vocalizations) indicating potential use by bats. Structural features suitable as day roosts for bats include crevices, such as those found in expansion joints and hinges, and cavities of any size that provide shelter from wind and light.

Potential day-roosting habitat is present within 6 of the 7 bridge undercrossing structures within the project area. Based on the relatively low quality of the surrounding habitat for foraging and the lack of bats or bat sign (e.g., guano, urine staining, or vocalizations) observed at these structures, there is a low probability that bats utilize any of these structures for day or night roosting. The majority of suitable day-roosting habitat in the BSA was observed in expansion joints inside 6 of the 10 culverts along the various channels, particularly around the I-405/SR-55 interchange, along Lane Channel, and at the Santa Ana/Santa Fe Channel (adjacent to the South Tustin Overhead). Small numbers of roosting myotis bats (likely Yuma myotis) were observed day roosting in some of the expansion joints. In addition, there is potential for maternity roosting in these structures due to the availability of crevice habitat in close proximity to high-quality foraging habitat. In addition, night-roosting habitat is present in all 10 of the culvert structures examined, and bat guano confirming night-roosting activity was observed in one of the culverts.

Although roosts in anthropogenic structures such as bridges and culverts can be relatively easy to identify, tree roosts are more cryptic and require close examination. Since roosting activity in trees is difficult to confirm (foliage-roosting species tend to roost singly, beneath leaves, and may roost in a different location each night), trees were not closely examined during the bat habitat suitability assessment. However, mature palm trees (*Washingtonia*

[1] The Special Animals List is comprised of taxa that are tracked by the CDFW via the California Natural Diversity Database (CNDDB) and are being monitored due to decline or potential decline. Species from that list that are referred to as “Special Animals” are those taxa that are tracked by CDFW but are not officially designated as Species of Special Concern or otherwise listed (e.g., under the California Endangered Species Act [CESA]).

spp.) with untrimmed fronds that were observed throughout the right-of-way may provide roosting habitat for western yellow bat (*Lasiurus xanthinus*), a CDFW Species of Special Concern that roosts in the dead fronds of palm trees. Western mastiff bats have also been documented occasionally roosting in palm trees.

There are no special-status bridge- and crevice-dwelling bird species with the potential to occur within the BSA. However, as discussed below, there is a potential for non-listed bird species to roost or nest in the BSA.

Since bats and other bridge- and crevice-nesting species (i.e., white-throated swifts [*Aeronautes saxatilis*], swallows [*Hirundinidae* sp.], and black phoebes) are highly mobile animals, it is possible they may begin roosting or nesting in suitable habitat at any time. Small numbers of bats may begin roosting within abutment crevices or weep holes of bridge structures within the BSA.

2.17.2.4 Wildlife Movement

Wildlife crossings are generally structural passages beneath or above roadways. "Wildlife crossing" is the umbrella term encompassing underpasses, overpasses, and culverts. All of these structures provide seminatural corridors above or below roads, and in some cases adjacent to roads, so that animals can safely cross without endangering themselves and motorists. Species of primary interest in this wildlife corridor assessment are medium-sized mammals such as coyote (*Canis latrans*).

Wildlife movement in the BSA has been substantially constrained for many years by human-made barriers (e.g., lack of suitable vegetative cover, existing roadways, storm water conveyance structures, and fencing, along with the associated surrounding development). The urban setting of the BSA provides limited opportunities for habitat continuity. Nevertheless, evidence of coyote presence was observed in Lane Channel during the site visits for the bat habitat suitability assessment in September 2015. However, coyotes are well adapted to the urban environment and are increasingly present in urban drainage channels such as Lane Channel. Lane Channel does not connect to any upstream natural habitat and therefore does not serve as a corridor. Beginning just south of Dyer Road and continuing northward, Lane Channel becomes an underground storm drain. The section of Lane Channel that is within the BSA is likely to be the northernmost extent that is used by coyotes, which likely travel up the channel from San Diego Creek.

2.17.3 Environmental Consequences

The proposed project has been determined to have no effect on any of the federally listed species identified as potentially occurring within the vicinity of the proposed project (refer to Table 2.17.1).

2.17.3.1 Temporary Impacts

Build Alternatives

All five Build Alternatives include construction in the vicinity of the southernmost field at Del Amo Avenue that may used as a staging area for equipment during construction. Alternatives 3, 4, and 3M would require a temporary construction easement (TCE) on a portion of the parcel that includes the field. No burrowing owls or owl signs were observed during the field survey of the southernmost field at Del Amo Avenue; however, due to the presence of suitable site conditions and the occurrence of small mammal burrows, burrowing owls may move onto this site prior to construction. Therefore, if any burrowing owls are present on the site, all four Build Alternatives would temporarily impact those owls

during construction. The temporary impacts could include removal of burrows and, potentially, the need to relocate owls away from areas proposed for staging and TCEs.

Construction of the four Build Alternatives could also impact nesting birds protected under the MBTA and the California Fish and Game Code either directly as a result of the removal of trees occupied by nesting birds or disturbances to bridge and crevice habitat, or indirectly as a result of disturbances near trees occupied by nesting birds.

Construction activities associated with the four Build Alternatives at the 6 undercrossings or 10 culvert structures described above could result in temporary impacts to bats and other bridge- and crevice-nesting special-status species. During construction activities, indirect temporary impacts to bats and bat-roosting habitat include impacts from dust, lighting, and noise in the vicinity of the roost sites. Direct temporary impacts include destruction or loss of roosting habitat through demolition or removal of a structure or portions of a structure that contain roost features.

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Table 2.17.1 United States Fish and Wildlife Service Species Effect Determination for Animal Species

Common/Scientific Name	Federal Status	Species Requirements	Species Habitat Present/Absent	Rationale	Effect Determination
Fish					
Southern California Steelhead/ *Oncorhynchus mykiss*	Endangered	Occurs in cool water streams; spawns in areas of gravelly substrate in riffles or pool tails (UCDANR). Not historically or currently known from San Diego Creek.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Crustaceans					
Riverside fairy shrimp/ *Streptocephalus woottoni*	Endangered	Warm-water vernal pools (i.e., large, deep pools that retain water into the warm season) with low to moderate dissolved solids, in annual grassland areas interspersed through chaparral or coastal sage scrub vegetation. Suitable habitat includes some artificially created or enhanced pools, such as some stock ponds, that have vernal pool like hydrology and vegetation. Known from areas within about 50 mi of the coast from Ventura County south to San Diego County and Baja California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
San Diego fairy shrimp/ *Branchinecta sandiegonensis*	Endangered	Small, shallow (usually less than 30 centimeters deep), relatively clear but unpredictable vernal pools on coastal terraces. Pools must retain water for a minimum of 13 days for this species to reproduce (3 to 8 days for hatching, and 10 to 20 days to reach reproductive maturity). Known from Orange and San Diego Counties, and Baja California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.

Table 2.17.1 United States Fish and Wildlife Service Species Effect Determination for Animal Species

Common/Scientific Name	Federal Status	Species Requirements	Species Habitat Present/Absent	Rationale	Effect Determination
Birds					
California least tern/ *Sterna antillarum browni*	Endangered	Nests along the coast from San Francisco Bay south to northern Baja California. Forages in shallow water. Colonial breeder on bare or sparsely vegetated, flat substrates, sand beaches, alkali flats, landfills, or paved areas.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Coastal California gnatcatcher/ *Polioptila californica californica*	Threatened	Inhabits coastal sage scrub in low-lying foothills and valleys up to about 500 m (1,640 ft) elevation in cismontane southwestern California and Baja California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Least Bell's vireo/ *Vireo bellii pusillus*	Endangered	Riparian forests and willow thickets. The most critical structural component of Least Bell's vireo habitat in California is a dense shrub layer 2 to 10 ft (0.6–3.0 m) above ground. Nests from central California to northern Baja California. Winters in southern Baja California.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Light-footed clapper rail/ *Rallus longirostris levipes*	Endangered	Found in salt marshes traversed by tidal sloughs, where cordgrass and pickleweed are the dominant vegetation. Requires dense growth of either pickleweed or cordgrass for nesting or escape cover; feeds on mollusks and crustaceans.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Southwestern willow flycatcher/ *Empidonax traillii extimus*	Endangered	Rare and local breeder in extensive riparian areas of dense willows or (rarely) tamarisk, usually with standing water, in the southwestern U.S. and possibly extreme northwestern Mexico. Winters in Central and South America. Below 6,000 ft elevation.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.
Western snowy plover/ *Charadrius alexandrinus nivosus*	Threatened	Sandy coastal beaches, lakes, alkaline playas. Scattered locations along coastal California and Channel Islands, inland at Salton Sea and at various alkaline lakes.	Absent	Suitable habitat for this species does not occur in the proposed project	The proposed project would have no effect on this species.

Table 2.17.1 United States Fish and Wildlife Service Species Effect Determination for Animal Species

Common/Scientific Name	Federal Status	Species Requirements	Species Habitat Present/Absent	Rationale	Effect Determination
				area.	
Mammals					
Pacific pocket mouse/ *Perognathus longimembris pacificus*	Endangered	Historically occupied open habitats on sandy soils along the coast from Los Angeles to the Mexican border. Now known from only four sites in Orange and San Diego Counties.	Absent	Suitable habitat for this species does not occur in the proposed project area.	The proposed project would have no effect on this species.

ft = feet
m = meters
mi = miles

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Humane eviction and exclusion of bats from a roost would be considered a temporary impact if alternative habitat is provided and if the bats are permitted to recolonize the original roost site following construction. In addition, construction of the four Build Alternatives could also impact tree-roosting habitat for bats through the removal of palm trees or their fronds within the BSA.

Construction activities associated with the four Build Alternatives within Lane Channel would temporarily discourage coyote presence in that relatively short section of the channel, but coyotes would likely continue to utilize the channel south of the BSA to San Diego Creek and beyond. Therefore, construction of the four Build Alternatives would not result in any adverse temporary impacts to wildlife movement.

No Build Alternative

The No Build Alternative would not include construction of any improvements and would not result in any disturbance on or near the southernmost field at Del Amo Avenue or to any structures with suitable bat habitat. Therefore, the No Build Alternative would not result in temporary impacts to special-status animal species in the BSA, including burrowing owls, bats, and nesting birds.

2.17.3.2 Permanent Impacts

Build Alternatives

No permanent project improvements would be constructed on the southernmost field at Del Amo Avenue, and the Build Alternatives would not result in the permanent use of any part of that field. As a result, the four Build Alternatives would not result in permanent direct impacts on the burrowing owl. Indirect noise impacts on the owl from traffic on SR-55 and area streets would be expected to be the same as existing conditions. In summary, the operation of the four Build Alternatives would not result in permanent impacts to burrowing owl and burrowing owl habitat.

With the implementation of avoidance and minimization measures listed under section 2.17.4, the Build Alternatives would not result in any permanent direct impacts on nesting birds. Indirect noise impacts on nesting birds from traffic on SR-55 and area streets would be expected to be the same as existing conditions.

Construction activities that may result in permanent impacts to bats and bat-roosting habitat include destruction or loss of roosting habitat through demolition or removal of a structure (6 undercrossing or 10 culvert structures) or portions of a structure that contain roost features. Humane eviction and exclusion of bats from a roost would be considered a permanent impact if the roost site remained sealed. However, with the implementation of avoidance and minimization measures listed under Section 2.17.4, the project will avoid and minimize permanent impacts to bats.

Indirect noise impacts to bat species from traffic on SR-55 and area streets would be expected to be the same as from existing conditions.

Since the BSA does not appear to function as a wildlife movement corridor, the Build Alternatives would not result in any permanent impacts to coyotes or to wildlife movement.

No Build Alternative

The No Build Alternative would not include the operation of any of the project improvements. Therefore, the No Build Alternative would not result in permanent impacts to special-status animal species in the BSA, including burrowing owls, bats, and nesting birds.

2.17.4 Avoidance, Minimization, and/or Mitigation Measures

The following measure would avoid and/or minimize potential impacts to burrowing owls and migrating birds during construction of the Build Alternatives.

AS-1 Within 30 days prior to the commencement of any phase of construction, a qualified biologist will conduct pre-construction surveys to determine if any burrowing owls are present within the construction limits that could be adversely affected by construction activities. If the pre-construction surveys determine burrowing owls are present within the construction limits, the qualified biologist will coordinate with the California Department of Fish and Wildlife (CDFW) immediately to determine the specific measures that will be implemented regarding the burrowing owls present in the construction limits.

If burrowing owls are determined to be present within the construction limits, one or more of the following measures may be required based on the coordination with CDFW:

1. Avoidance of active nests and surrounding buffer area during construction activities
2. Passive relocation of individual owls
3. Active relocation of individual owls
4. Preservation of on-site habitat with long-term conservation value for the owl

The following measure would reduce potential impacts to tree or vegetation nesting birds during construction of the Build Alternatives.

AS-2 To avoid effects to nesting birds, the construction contractor will conduct any vegetation or tree (native or exotic) trimming or removal activities outside the nesting bird season (i.e., February 15 through August 31). In the event that vegetation clearing or trimming is necessary during the nesting season, a qualified biologist will conduct a pre-construction survey to identify the locations of any active bird nests. Should birds be found actively nesting in the construction limits, an exclusionary buffer will be installed where indicated by the biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction or clearing activity will not be conducted within the buffer area until the biologist determines the young have fledged or the nest is no longer active.

The following measures would avoid and/or minimize potential impacts to bats and bridge- and crevice-nesting species during construction of the Build Alternatives.

AS-3 If during final design it is determined that construction activities will directly impact weep holes or crevice habitat on any undercrossing structure except Newport Avenue, additional surveys will be required to be performed by a qualified bat biologist prior to construction to ascertain whether roosting bats are present in the affected areas.

AS-4 Prior to the initiation of construction activities, pre-construction nighttime surveys will be conducted by a qualified biologist during the summer months (June through mid-August) when bat foraging activity is highest and when maternity roosting occurs, in order to more accurately determine the presence and approximate number and species of bats utilizing the culvert

structures for day and/or night roosting. Nighttime surveys will include acoustic monitoring and exit counts at each culvert structure that will be subject to direct impacts from project construction. If maternity roosting is confirmed within any of the culverts structures, construction activities would be prohibited at those structures during the recognized bat maternity season (April 1 through August 31).

AS-5 During construction activities, nighttime work will be avoided at all of the culverts to the greatest extent practicable. If nighttime work cannot be avoided, the following measures will be implemented:

- Night lighting shall only be used on the portions of the structure actively being worked on, and shall be focused on the direct areas of work.
- Airspace access to and from the roost features of the structures shall not be obstructed except in direct work areas.
- Construction personnel shall not be present in non-active areas beneath the structure.

AS-6 If bat day-roosting habitat at any structure will be directly affected by modification or removal during project construction, a humane eviction or exclusion will be performed by a qualified bat biologist to avoid potential direct mortality to roosting bats. The eviction/exclusion will be performed in the fall (September or October) preceding construction to avoid potential direct impacts to bats. The materials used for the eviction/exclusion are at the discretion of the qualified bat biologist. All humane bat eviction/exclusion techniques will be coordinated between the California Department of Transportation (Caltrans) District Biologist and the CDFW.

AS-7 If bats are evicted or excluded from roosting habitat within any of the six culverts identified as containing day-roosting habitat, the placement of alternate roosting habitat will be needed to mitigate for temporary and/or permanent loss of roosting habitat. The alternate roosting habitat must be in place prior to the eviction/exclusion, and should be placed on or within an adjacent culvert structure. Inclusion of bat roosting habitat in the design of the new structures may also serve as mitigation for permanent impacts to bat-roosting habitat.

The following measure would avoid and/or minimize potential impacts to tree-roosting bat species during construction of the Build Alternatives.

AS-8 During construction, the removal of palm trees or their fronds will be avoided to the maximum extent practicable. If palm tree removal or palm frond trimming is necessary for project construction, this activity will be performed outside the bat maternity season (April 1 through August 31) to avoid impacts to flightless young. In the event that palm tree removal or trimming is necessary during the bat maternity season, a qualified biologist will monitor the removal or trimming and will examine the fronds for nonvolant (nonflying) juvenile bats prior to disposal. Any injured or potentially injured bats should be transported by the qualified biologist to a CDFW-licensed bat rehabilitator within 48 hours.

The following measure would reduce potential impacts to bridge- and crevice-nesting birds during construction of the Build Alternatives.

AS-9 All construction work conducted between February 15 and September 1 (during the nesting bird season) on existing bridges or culverts with areas of potential habitat will require the removal of all unoccupied bird nests prior to construction under the guidance and observation of a qualified biologist prior to February 15 of that year, which would be before the nests become active (i.e., containing eggs). Removal of nests that are under construction must be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed (such as netting or a similar mechanism that keeps birds from building nests). Nest removal and exclusion device installation will be monitored by a qualified biologist. Such exclusion efforts must be continued to keep the structures free of nesting birds until September 1 or the completion of construction. All nest exclusion techniques would be coordinated between the Caltrans District Biologist and the CDFW.

2.18 Invasive Species

2.18.1 Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as “any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999, directs the use of the State’s invasive species list currently maintained by the California Invasive Species Council to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

2.18.2 Affected Environment

The information in this section is based on the *Natural Environment Study (Minimal Impacts)* (2015) prepared for the project.

The California Invasive Plant Council (Cal-IPC) 2006 Invasive Plant Inventory highlights nonnative plants that are serious problems in wildlands (i.e., natural areas that support native ecosystems, including national, State, and local parks, ecological reserves, wildlife areas, national forests, Bureau of Land Management lands). The inventory categorizes plants as High, Moderate, or Limited based on each species’ negative ecological impact in California. Plants categorized as High have severe ecological impacts. Plants categorized as Moderate have substantial and apparent, but not severe, ecological impacts. Plants categorized as Limited are invasive, but their ecological impacts are minor on a statewide level.

As shown in Table 2.18.1, a total of 11 nonnative plant species occurring on the Cal-IPC Invasive Plant Inventory (3 High, 4 Moderate, and 4 Limited) were identified in the Biological Study Area (BSA).

No invasive animal species were observed in the BSA.

Table 2.18.1 Invasive Plant Species in the Biological Study Area

Scientific Name	Common Name	Rating
Aizoaceae	**Carpet-Weed Family**	
Carpobrotus edulis	Hottentot-fig	High
Anacardiaceae	**Sumac Family**	
Schinus molle	Peruvian pepper tree	Limited
Schinus terebinthifolius	Brazilian pepper tree	Limited
Araliaceae	**Ginseng Family**	
Hedera helix	English Ivy	High
Arecaceae	**Palm family**	
Washingtonia robusta	Mexican fan palm	Moderate
Brassicaceae	**Mustard family**	
Hirschfeldia incana	Shortpod mustard	Moderate
Chenopodiaceae	**Goosefoot Family**	
Salsola tragus	Russian-thistle	Limited
Euphorbiaceae	**Spurge family**	
Ricinus communis	Castor bean	Limited
Myrtaceae	**Myrtle family**	
Eucalyptus sp.	Eucalyptus	Moderate
Tamaricaceae	**Tamarisk Family**	
Tamarix ramosissima	Mediterranean tamarisk	High
Poaceae	**Grass family**	
Cynodon dactylon	Bermuda grass	Moderate

Source: Personal observation in February 2013 by Elizabeth Hohertz, Field Biologist, LSA Associates, Inc.

2.18.3 Environmental Consequences

2.18.3.1 Temporary Impacts

Build Alternatives

Potential impacts from invasive species associated with construction and operation of transportation projects are considered permanent. Refer to Section 2.18.3.2, Permanent Impacts, for discussion regarding invasive species.

No Build Alternative

The No Build Alternative would not include the construction of any of the proposed project improvements. As a result, as described under permanent impacts, the No Build Alternative would not result in new impacts related to invasive species. Locations in the SR-55 right-of-way where invasive species currently occur would not be modified under the No Build Alternative.

2.18.3.2 Permanent Impacts

Build Alternatives

As noted earlier, potential impacts from invasive species associated with construction and operation of transportation projects are considered permanent because the introduction of invasive species into previously undisturbed areas would result in permanent impacts to any affected native habitats. However, although invasive plant species are present in the BSA as described earlier, the BSA is not located adjacent to any native or open space areas. Because the BSA is fully developed and not adjacent to any native habitats or open space areas, the Build Alternatives are not expected to cause an increase in the spread of invasive

species into native and open space areas. As a result, construction and operation of the Build Alternatives would not result in adverse impacts related to invasive species.

No Build Alternative

The No Build Alternative would not include the construction or operation of any of the proposed project improvements. Therefore, the No Build Alternative would not result in impacts related to invasive species.

2.18.4 Avoidance, Minimization, and/or Mitigation Measures

The following avoidance and minimization measures would reduce the potential impacts of the Build Alternatives related to invasive species:

IS-1 The final design plans will include specifications that species listed as having a High or Moderate rating on the California Invasive Plant Council Invasive Plant Inventory will not be planted in any revegetated areas or used in any landscaping installed as part of the project.

IS-2 During construction, the construction contractor will perform weed control Best Management Practices to minimize the importation of nonnative plant material during and after construction.

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2.20 Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity, including carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF6), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation.[1] In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles) are the largest contributors of GHG emissions.[2] The dominant GHG emitted is CO2, mostly from fossil fuel combustion.

Two terms are typically used when discussing how we address the impacts of climate change: “greenhouse gas mitigation” and “adaptation.” "Greenhouse gas mitigation" is a term for reducing GHG emissions to reduce or "mitigate" the impacts of climate change. “Adaptation" refers to planning for and responding to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).

2.20.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

2.20.1.1 Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices.[3] This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values—“the triple bottom line of sustainability.”[4] Program and project elements that foster

1 https://www.epa.gov/ghgemissions/us-greenhouse-gas-inventory-report-1990-2014
2 https://www.arb.ca.gov/cc/inventory/data/data.htm
3 https://www.fhwa.dot.gov/environment/sustainability/resilience/
4 https://www.sustainablehighways.dot.gov/overview.aspx

sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life. Addressing these factors up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making.

Various efforts have been promulgated at the federal level to improve fuel economy and energy efficiency to address climate change and its associated effects.

The Energy Policy Act of 1992 (EPACT92, 102nd Congress H.R.776.ENR): With this act, Congress set goals, created mandates, and amended utility laws to increase clean energy use and improve overall energy efficiency in the United States. EPACT92 consists of 27 titles detailing various measures designed to lessen the nation's dependence on imported energy, provide incentives for clean and renewable energy, and promote energy conservation in buildings. Title III of EPACT92 addresses alternative fuels. It gave the U.S. Department of Energy administrative power to regulate the minimum number of light-duty alternative fuel vehicles required in certain federal fleets beginning in fiscal year 1993. The primary goal of the Program is to cut petroleum use in the United States by 2.5 billion gallons per year by 2020.

Energy Policy Act of 2005 (109th Congress H.R.6 (2005–2006): This act sets forth an energy research and development program covering: (1) energy efficiency; (2) renewable energy; (3) oil and gas; (4) coal; (5) Indian energy; (6) nuclear matters and security; (7) vehicles and motor fuels, including ethanol; (8) hydrogen; (9) electricity; (10) energy tax incentives; (11) hydropower and geothermal energy; and (12) climate change technology.

Energy Policy and Conservation Act of 1975 (42 USC Section 6201) and Corporate Average Fuel Standards: This act establishes fuel economy standards for on-road motor vehicles sold in the United States. Compliance with federal fuel economy standards is determined through the Corporate Average Fuel Economy (CAFE) program on the basis of each manufacturer's average fuel economy for the portion of its vehicles produced for sale in the United States.

Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, 74 Federal Register 52117 (October 8, 2009): This federal EO set sustainability goals for federal agencies and focuses on making improvements in their environmental, energy, and economic performance. It instituted as policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities.

Executive Order 13693, Planning for Federal Sustainability in the Next Decade, 80 Federal Register 15869 (March 2015): This EO reaffirms the policy of the United States that federal agencies measure, report, and reduce their GHG emissions from direct and indirect activities. It sets sustainability goals for all agencies to promote energy conservation, efficiency, and management by reducing energy consumption and GHG emissions. It builds on the adaptation and resiliency goals in previous executive orders to ensure agency operations and facilities prepare for impacts of climate change. This order revokes Executive Order 13514.

U.S. EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in Massachusetts v. EPA (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing Clean Air Act and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, U.S. EPA finalized an endangerment finding in December 2009. Based

on scientific evidence it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and EPA's assessment of the scientific evidence that form the basis for EPA's regulatory actions.

U.S. EPA in conjunction with the National Highway Traffic Safety Administration (NHTSA) issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010[5] and significantly increased the fuel economy of all new passenger cars and light trucks sold in the United States. The standards required these vehicles to meet an average fuel economy of 34.1 miles per gallon by 2016. In August 2012, the federal government adopted the second rule that increases fuel economy for the fleet of passenger cars, light-duty trucks, and medium-duty passenger vehicles for model years 2017 and beyond to average fuel economy of 54.5 miles per gallon by 2025. Because NHTSA cannot set standards beyond model year 2021 due to statutory obligations and the rules' long timeframe, a mid-term evaluation is included in the rule. The Mid-Term Evaluation is the overarching process by which NHTSA, EPA, and ARB will decide on CAFE and GHG emissions standard stringency for model years 2022–2025. NHTSA has not formally adopted standards for model years 2022 through 2025. However, the EPA finalized its mid-term review in January 2017, affirming that the target fleet average of at least 54.5 miles per gallon by 2025 was appropriate. In March 2017, President Trump ordered EPA to reopen the review and reconsider the mileage target.[6]

NHTSA and EPA issued a Final Rule for "Phase 2" for medium- and heavy-duty vehicles to improve fuel efficiency and cut carbon pollution in October 2016. The agencies estimate that the standards will save up to 2 billion barrels of oil and reduce CO2 emissions by up to 1.1 billion metric tons over the lifetimes of model year 2018–2027 vehicles.

Presidential Executive Order 13783, Promoting Energy Independence and Economic Growth, of March 28, 2017, orders all federal agencies to apply cost-benefit analyses to regulations of GHG emissions and evaluations of the social cost of carbon, nitrous oxide, and methane.

2.20.1.2 State

With the passage of legislation including State Senate and Assembly bills and executive orders, California has been innovative and proactive in addressing GHG emissions and climate change.

Assembly Bill 1493, Pavley Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (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 the 2009-model year.

Executive Order S-3-05 (June 1, 2005): The goal of this executive order (EO) is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill 32 in 2006 and SB 32 in 2016.

Assembly Bill 32 (AB 32), Chapter 488, 2006: Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules

[5] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

[6] http://www.nbcnews.com/business/autos/trump-rolls-back-obama-era-fuel-economy-standards-n734256 and https://www.federalregister.gov/documents/2017/03/22/2017-05316/notice-of-intention-to-reconsider-the-final-determination-of-the-mid-term-evaluation-of-greenhouse

to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code Section 38551(b)). The law requires ARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order sets forth the low carbon fuel standard (LCFS) for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by the year 2020. ARB re-adopted the LCFS regulation in September 2015, and the changes went into effect on January 1, 2016. The program establishes a strong framework to promote the low-carbon fuel adoption necessary to achieve the Governor's 2030 and 2050 GHG reduction goals.

Senate Bill 97 (SB 97), Chapter 185, 2007, Greenhouse Gas Emissions: This bill requires the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

Senate Bill 391 (SB 391), Chapter 585, 2009, California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Executive Order B-16-12 (March 2012) orders State entities under the direction of the Governor, including ARB, the California Energy Commission, and the Public Utilities Commission, to support the rapid commercialization of zero-emission vehicles. It directs these entities to achieve various benchmarks related to zero-emission vehicles.

Executive Order B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 in order to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs ARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent (MMTCO2e). Finally, it requires the Natural Resources Agency to update the state's climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

Senate Bill 32, (SB 32) Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

2.20.2 Environmental Setting

In 2006, the Legislature passed the California Global Warming Solutions Act of 2006 (AB 32), which created a comprehensive, multi-year program to reduce GHG emissions in

California. AB 32 required ARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020. The Scoping Plan was first approved by ARB in 2008 and must be updated every 5 years. ARB approved the First Update to the Climate Change Scoping Plan on May 22, 2014. ARB is moving forward with a discussion draft of an updated Scoping Plan that will reflect the 2030 target established in EO B-30-15 and SB 32.

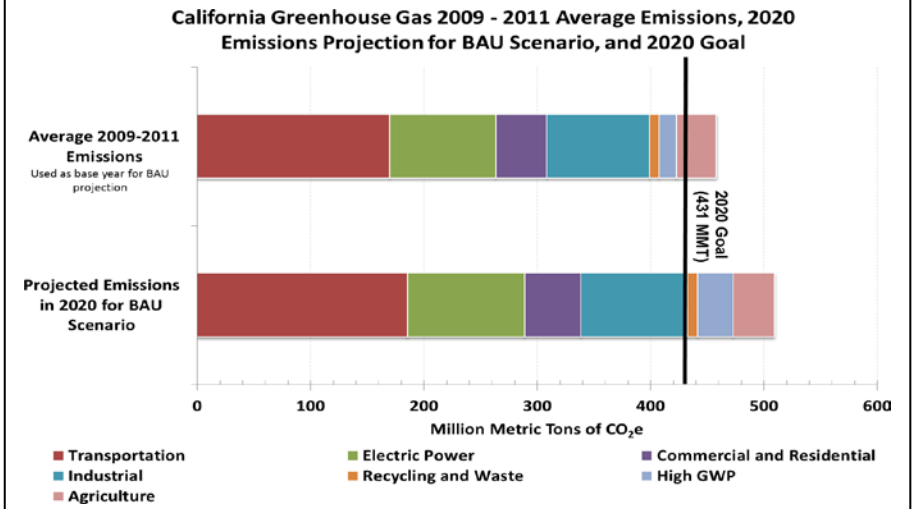
The AB 32 Scoping Plan and the subsequent updates contain the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California.[7] ARB is responsible for maintaining and updating California's GHG Inventory per H&SC Section 39607.4. The associated forecast/projection is an estimate of the emissions anticipated to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented.

An emissions projection estimates future emissions based on current emissions, expected regulatory implementation, and other technological, social, economic, and behavioral patterns. The projected 2020 emissions provided in Figure ## represent a business-as-usual (BAU) scenario assuming none of the Scoping Plan measures are implemented. The 2020 BAU emissions estimate assists ARB in demonstrating progress toward meeting the 2020 goal of 431 MMTCO2e[8]. The 2017 edition of the GHG emissions inventory (released June 2017) found total California emissions of 440.4 MMTCO2e, showing progress towards meeting the AB 32 goals.

The 2020 BAU emissions projection was revisited in support of the First Update to the Scoping Plan (2014). This projection accounts for updates to the economic forecasts of fuel and energy demand as well as other factors. It also accounts for the effects of the 2008 economic recession and the projected recovery. The total emissions expected in the 2020 BAU scenario include reductions anticipated from Pavley I and the Renewable Electricity Standard (30 MMTCO2e total). With these reductions in the baseline, estimated 2020 statewide BAU emissions are 509 MMTCO2e.

[7] 2017 Edition of the GHG Emission Inventory Released (June 2017): https://www.arb.ca.gov/cc/inventory/data/data.htm

[8] The revised target using Global Warming Potentials (GWP) from the IPCC Fourth Assessment Report (AR4)



https://www.arb.ca.gov/cc/inventory/data/bau.htm

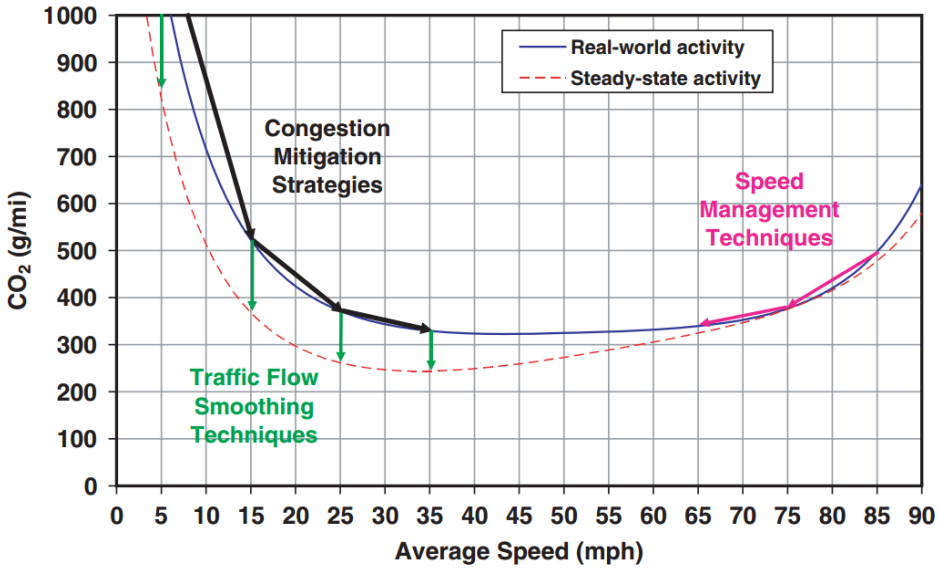
Figure 2.20-1 2020 Business as Usual (BAU) Emissions Projection 2014 Edition

2.20.3 Project Analysis

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.[9] In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

GHG emissions for transportation projects can be divided into those produced during operations and those produced during construction. The following represents a best faith effort to describe the potential GHG emissions related to the proposed project.

[9] This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).



Source: Matthew Barth and Kanok Boriboonsomsin, University of California, Riverside, May 2010 (http://uctc.berkeley.edu/research/papers/846.pdf)

Figure 2.20-2 Possible Effect of Traffic Operation Strategies in Reducing On-Road CO_2 Emissions

Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective all four strategies should be pursued concurrently.

FHWA supports these strategies to lessen climate change impacts, which correlate with efforts that the state of California is undertaking to reduce GHG emissions from the transportation sector.

The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 2.20-2 above). To the extent that a project relieves congestion by enhancing operations and improving travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced.

The proposed project would increase the capacity of SR-55. Therefore, the following quantitative GHG emissions assessment was conducted for the Build Alternatives.

2.20.3.1 Operational Emissions

The purpose of the proposed project is to reduce traffic congestion and improve mobility and traffic operations in the project study area. The Build Alternatives would not generate new vehicular traffic trips since new homes or businesses would not be constructed. However, there is a possibility that some traffic currently utilizing other routes would be attracted to use the new highway facilities, thereby resulting in slight changes in vehicle miles traveled (VMT). The impact of GHG emissions is a global rather than local issue. However, due to a lack of global models for project-level analysis, the impact of the Build Alternatives on GHG emissions was calculated using traffic data for the project study area.

The *Final Traffic Operations Report* (2015) and *Final Traffic Operations Report* (2016) for the State Route 55 (SR-55) Improvement Project calculated the daily VMT and vehicle hours traveled (VHT) for all the vehicle trips within the project area. This traffic data, in conjunction with the CT-EMFAC 2014 (Version 6.0 based on EMFAC2014) emission model, was used to calculate the CO_2 emissions for the existing (2011), 2020, and 2040 regional conditions. As shown in Table 2.20.1, under all Build Alternatives, CO_2 emissions would be less than under existing conditions in both 2020 and 2040. Table 2.20.1 also shows that the Build Alternatives would result in a marginal increase in CO_2 when compared to the 2020 and 2040 No Build Alternatives, with the greatest increase being less than 1.3 percent.

Table 2.20.1 Change in Regional CO_2 Emissions

Alternative	Daily CO_2 Emissions (metric tons/day)	Increase from No Build (metric tons/day)	Percent Increase from No Build
2011 Existing	2,760	--	--
2020 No Build	2,395	--	--
2020 Alt 1	2,398	3	0.3
2020 Alt 2	2,402	7	0.3
2020 Alt 3	2,405	10	0.6
2020 Alt 4	2,401	6	0.3
2020 Alt 3M	2,408	12	0.52
2040 No Build	1,809	--	--
2040 Alt 1	1,814	5	0.28
2040 Alt 2	1,821	12	0.66
2040 Alt 3	1,829	20	1.09
2040 Alt 4	1,820	11	0.62
2040 Alt 3M	1,832	23	1.27

Source: *Air Quality Assessment Report* (2015) and *Supplemental Air Quality Analysis* (2016).
Alt = Alternative
CO_2 = carbon dioxide

While EMFAC has a rigorous scientific foundation and has been vetted through multiple stakeholder reviews, its emission rates are based on tailpipe emission test data. The numbers are estimates of CO_2 emissions and not necessarily the actual CO_2 emissions. The model does not account for factors such as the rate of acceleration and the vehicles' aerodynamics, which would influence CO_2 emissions. To account for CO_2 emissions, ARB's GHG Inventory follows the IPCC guideline by assuming complete fuel combustion, while still using EMFAC data to calculate CH_4 and N_2O emissions. Though EMFAC is currently the best available tool for use in calculating GHG emissions, it is important to note that the CO_2 numbers provided are only useful for a comparison of alternatives.

The Southern California Association of Governments (SCAG) included an SCS and adopted a Program Environmental Impact Report (PEIR) as part of its 2016-2040 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS). Under SB 375, the primary goal of the SCS is to provide a vision for future growth that will decrease per capita GHG emissions from automobiles and light trucks. The PEIR determined that the 2016-2040 RTP would result in a less than significant impact in relation to GHG. The RTP/SCS provides for new or improved transit, improved intersections, and/or new freeway

connections to achieve the improved access and mobility goals of the RTP/SCS. The proposed project is consistent with the type of project included in the RTP/SCS.

The proposed project is included in the 2016-2040 RTP/SCS as follows:

> "SR-55 widening between I-405 and I-5 - add 1 MF and 1 HOV lane each direction and fix chokepoints from I-405 to I-5; add 1 AUX lane each direction between select on/off ramp and non-capacity operational improvements through project limits."

The project Build Alternatives are consistent with the scope of the RTP listing and associated GHG analysis in the PEIR. Therefore, the proposed project would be consistent with the GHG reduction goals of the RTP/SCS and its PEIR.

2.20.3.2 Construction Emissions

Construction GHG emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Construction GHG emissions were calculated using Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (RoadMod), Version 8.1.0. Because the construction activities would be similar for each Build Alternative, construction emissions would be the same for each Build Alternative. The model calculated that 10,360 tons of CO_2 would be produced during the approximately 36-month project construction schedule, as shown in Table 2.13.5 in Section 2.13, Air Quality.

As discussed below in Section 2.20.5, Greenhouse Gas Reduction Strategies, idling times would be restricted to 10 minutes in each direction for passenger cars during lane closures and 5 minutes for construction vehicles. Restricting idling times reduces harmful emissions from passenger cars and diesel-powered construction vehicles.

2.20.3.3 Limitations and Uncertainties with Modeling

EMFAC

Although EMFAC can calculate CO_2 emissions from mobile sources, the model does have limitations when it comes to accurately reflecting changes in CO_2 emissions due to impacts on traffic. According to the National Cooperative Highway Research Program report, *Development of a Comprehensive Modal Emission Model* (April 2008) and a 2009 University of California study,[10] brief but rapid accelerations, such as those occurring during congestion, can contribute significantly to a vehicle's CO_2 emissions during a typical urban trip. Current emission-factor models do not distinguish the emission of such modal events (i.e., acceleration, deceleration) in the operation of a vehicle and instead estimate emissions by average trip speed. It is difficult to model this because the frequency and rate of acceleration or deceleration that drivers chose to operate their vehicles depend on each

[10] Matthew Bartha, Kanok Boriboonsomsin. 2009. *Energy and emissions impacts of a freeway-based dynamic eco-driving system.* Transportation Research Part D: Transport and Environment, Volume 14, Issue 6, August 2009, Pages 400–410

individual's human behavior, their reaction to other vehicles' movements around them, and their acceptable safety margins. Currently, the EPA and the CARB have not approved a modal emissions model that is capable of conducting such detailed modeling. This limitation is a factor to consider when comparing the model's estimated emissions for various project alternatives against a baseline value to determine impacts.

Other Variables

With the current understanding, project-level analysis of greenhouse gas emissions has limitations. Although a greenhouse gas analysis is included for this project, there are numerous external variables that could change during the design life of the proposed project and would thus change the projected CO2 emissions.

First, vehicle fuel economy is increasing. The EPA's annual report, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 through 2012*,[11] which provides data on the fuel economy and technology characteristics of new light-duty vehicles including cars, minivans, sport utility vehicles, and pickup trucks, confirms that average fuel economy improves each year with a noticeable rate of change beginning in 2005. Corporate Average Fuel Economy (CAFE) standards remained the same between model years 1995 and 2003, subsequently increasing to higher fuel economy standards for future vehicle model years. The EPA estimates that light duty fuel economy rose by 16% from 2007 to 2012. Table 2-44 shows the increases in required fuel economy standards for cars and trucks between Model Years 2012 and 2025 as available from the National Highway Traffic Safety Administration for the 2012–2016 and 2017–2025 CAFE Standards.

Table 2.20.2 Average Required Fuel Economy (mpg)

	2012	2013	2014	2015	2016	2018	2020	2025
Passenger Cars	33.3	34.2	34.9	36.2	37.8	41.1–41.6	44.2–44.8	55.3–56.2
Light Trucks	25.4	26	26.6	27.5	28.8	29.6–30.0	30.6–31.2	39.3–40.3
Combined	29.7	30.5	31.3	32.6	34.1	36.1–36.5	38.3–38.9	48.7–49.7
Source: EPA 2013, http://www.epa.gov/fueleconomy/fetrends/1975-2012/420r13001.pdf								

Second, new lower emissions and zero emissions vehicles will come into the market within the expected design life of this project. According to the 2013 Annual Energy Outlook (AEO2013):

> LDVs that use diesel, other alternative fuels, hybrid-electric, or all-electric systems play a significant role in meeting more stringent GHG emissions and CAFE standards over the projection period. Sales of such vehicles increase from 20 percent of all new LDV sales in 2011 to 49 percent in 2040 in the AEO2013 Reference case.[12]

The greater percentage of lower emissions and zero emissions vehicles on the road in the future will reduce overall GHG emissions as compared to scenarios in which vehicle technologies and fuel efficiencies do not change.

Third, California adopted a low-carbon transportation fuel standard in 2009 to reduce the carbon intensity of transportation fuels by 10 percent by 2020. The regulation became

[11] http://www.epa.gov/oms/fetrends.htm

[12] http://www.eia.gov/forecasts/aeo/pdf/0383(2013).pdf

effective on January 12, 2010 (codified in title 17, California Code of Regulations, Sections 95480-95490). As of January 1, 2011, transportation fuel producers and importers must meet specified average carbon intensity requirements for fuel in each calendar year.

2.20.3.4 Limitations and Uncertainties with Impact Assessment

Taken from page 5-22 of the National Highway Traffic Safety Administration Final EIS for MY2017-2025 CAFE Standards (July 2012), Figure 2.20-3 illustrates how the range of uncertainties in assessing greenhouse gas impacts grows with each step of the analysis:

> Moss and Schneider (2000) characterize the "cascade of uncertainty" in climate change simulations [Figure 2.20-3]. As indicated in [Figure 2.20-3], the emission estimates used in this EIS have narrower bands of uncertainty than the global climate effects, which are less uncertain than regional climate change effects. The effects on climate are, in turn, less uncertain than the impacts of climate change on affected resources (such as terrestrial and coastal ecosystems, human health, and other resources. Although the uncertainty bands broaden with each successive step in the analytic chain, all values within the bands are not equally likely; the mid-range values have the highest likelihood.[13]

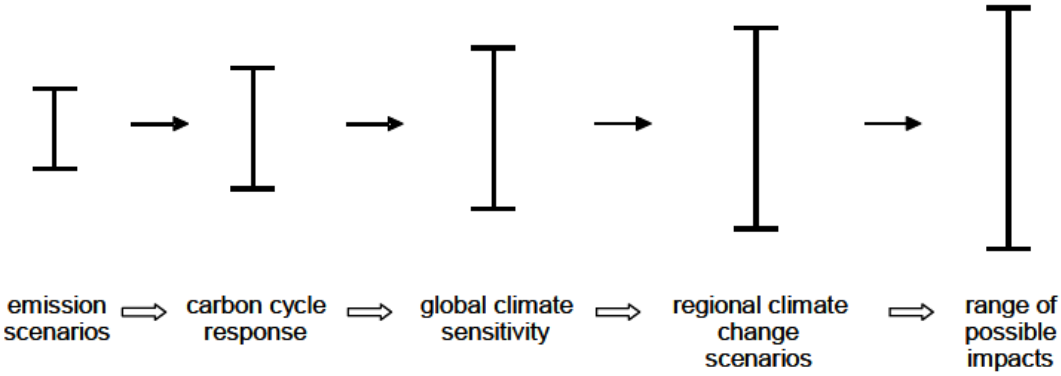


Figure 2.20-3 Cascade of Uncertainties

Much of the uncertainty in assessing an individual project's impact on climate change surrounds the global nature of the climate change. Even assuming that the target of meeting the 1990 levels of emissions is met, there is no regulatory or other framework in place that would allow for a ready assessment of what any modeled increase in CO_2 emissions would mean for climate change given the overall California GHG emissions inventory of approximately 430 million tons of CO_2 equivalent. This uncertainty only increases when viewed globally. The IPCC has created multiple scenarios to project potential future global GHG emissions as well as to evaluate potential changes in global temperature, other climate changes, and their effect on human and natural systems. These scenarios vary in terms of the type of economic development, the amount of overall growth, and the steps taken to reduce GHG emissions. Non-mitigation IPCC scenarios project an increase in global GHG emissions by 9.7 billion metric tons of CO_2, up to 36.7 billion metric tons of CO_2, from 2000 to 2030, which represents an increase of between 25 and 90 percent.[14]

The assessment is further complicated by the fact that changes in GHG emissions can be difficult to attribute to a particular project because the projects often cause shifts in the

[13] http://www.nhtsa.gov/staticfiles/rulemaking/pdf/cafe/FINAL_EIS.pdf. page 5-22

[14] Intergovernmental Panel on Climate Change (IPCC). February 2007. Climate Change 2007: The Physical Science Basis: Summary for Policy Makers. http://www.ipcc.ch/SPM2feb07.pdf.

locale for some types of GHG emissions rather than causing "new" GHG emissions. It is difficult to assess the extent to which any project level increase in CO_2 emissions represents a net global increase, reduction, or no change; there are no models approved by regulatory agencies that operate at the global or even statewide scale.

2.20.4 CEQA Conclusion

As discussed above, Build Alternatives for the proposed project would result in a marginal increase CO_2 emissions in the region in 2020 and 2040 when compared to the 2020 and 2040 No Build Alternative conditions. In addition, as discussed above, there are limitations with EMFAC and with assessing what a given CO_2 emissions increase means for climate change. Therefore, it is Caltrans' determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a determination regarding the significance of the project's direct impact and its contribution on the cumulative scale to climate change. However, Caltrans is firmly committed to implementing measures to help reduce the potential effects of the project related to GHG emissions. Those measures are outlined in the following section.

2.20.5 Greenhouse Gas Reduction Strategies

2.20.5.1 Statewide Efforts

In an effort to further the vision of California's GHG reduction targets outlined an AB 32 and SB 32, Governor Brown identified key climate change strategy pillars (concepts). These pillars highlight the idea that several major areas of the California economy will need to reduce emissions to meet the 2030 GHG emissions target. These pillars are (1) reducing

Figure 2.20-4 The Governor's Climate Change Pillars: 2030 Greenhouse Gas Reduction Goals

today's petroleum use in cars and trucks by up to 50 percent; (2) increasing from one-third to 50 percent our electricity derived from renewable sources; (3) doubling the energy efficiency savings achieved at existing buildings and making heating fuels cleaner; (4) reducing the release of methane, black carbon, and other short-lived climate pollutants; (5)

managing farm and rangelands, forests, and wetlands so they can store carbon; and (6) periodically updating the state's climate adaptation strategy, *Safeguarding California*.

The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that we build on our past successes in reducing criteria and toxic air pollutants from transportation and goods movement activities. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled. One of Governor Brown's key pillars sets the ambitious goal of reducing today's petroleum use in cars and trucks by up to 50 percent by 2030.

Governor Brown called for support to manage natural and working lands, including forests, rangelands, farms, wetlands, and soils, so they can store carbon. These lands have the ability to remove carbon dioxide from the atmosphere through biological processes, and to then sequester carbon in above- and below-ground matter.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set a new interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

California Transportation Plan (CTP 2040)

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future statewide, integrated, multimodal transportation system. It serves as an umbrella document for all of the other statewide transportation planning documents.

SB 391(Liu 2009) requires the CTP to meet California's climate change goals under AB 32. Accordingly, the CTP 2040 identifies the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs. While MPOs have primary responsibility for identifying land use patterns to help reduce GHG emissions, CTP 2040 identifies additional strategies in Pricing, Transportation Alternatives, Mode Shift, and Operational Efficiency.

Caltrans Strategic Management Plan

The Strategic Management Plan, released in 2015, creates a performance-based framework to preserve the environment and reduce GHG emissions, among other goals. Specific performance targets in the plan that will help to reduce GHG emissions include:

- Increasing percentage of non-auto mode share
- Reducing VMT per capita
- Reducing Caltrans' internal operational (buildings, facilities, and fuel) GHG emissions

Funding and Technical Assistance Programs

In addition to developing plans and performance targets to reduce GHG emissions, Caltrans also administers several funding and technical assistance programs that have GHG reduction benefits. These include the Bicycle Transportation Program, Safe Routes to School, Transportation Enhancement Funds, and Transit Planning Grants. A more extensive description of these programs can be found in *Caltrans Activities to Address Climate Change* (2013).

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) is intended to establish a department policy that will ensure coordinated efforts to incorporate climate change into departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013) provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

2.20.5.2 Project-Level Greenhouse Gas Reduction Strategies

The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project:

GHG-1 Landscaping reduces surface warming and, through photosynthesis, decreases carbon dioxide (CO_2). The final design plans will provide landscaping where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the project. The landscape planting would help offset any project CO_2 emissions.

GHG-2 The final design plans will incorporate the use of energy-efficient lighting, such as light-emitting diode (LED) traffic signals, to the extent feasible. LED bulbs cost $60 to $70 each but last 5 to 6 years, compared to the 1-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.

GHG-3 During construction, the construction contractor will comply with Caltrans Standard Specification Provisions that restrict idling time for lane closure during construction to 10 minutes in each direction. In addition, the construction contractor must comply with Title 13, California Code of Regulations Section 2449(d)(3), which was adopted by the California Air Resources Board on June 15, 2008. That regulation restricts idling of construction vehicles to no longer than 5 consecutive minutes. Compliance with this regulation reduces harmful emissions from diesel-powered construction vehicles.

2.20.6 Adaptation Strategies

"Adaptation strategies" refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage—or, put another way, planning and design for resilience. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. These types of impacts to the transportation infrastructure may also have economic and strategic ramifications.

2.20.6.1 Federal Efforts

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the CEQ, the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on

October 28, 2011[15], outlining the federal government's progress in expanding and strengthening the nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provided an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as fresh water, and providing accessible climate information and tools to help decision-makers manage climate risks.

The federal Department of Transportation issued *U.S. DOT Policy Statement on Climate Adaptation* in June 2011, committing to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely and that transportation infrastructure, services and operations remain effective in current and future climate conditions."[16]

To further the DOT Policy Statement, in December 15, 2014, FHWA issued order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*).[17] This directive established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. The FHWA will work to integrate consideration of these risks into its planning, operations, policies, and programs in order to promote preparedness and resilience; safeguard federal investments; and ensure the safety, reliability, and sustainability of the nation's transportation systems.

FHWA has developed guidance and tools for transportation planning that fosters resilience to climate effects and sustainability at the federal, state, and local levels.[18]

2.20.6.2 State Efforts

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea-level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea-level rise and directed all state agencies planning to construct projects in areas vulnerable to future sea-level rise to consider a range of sea-level rise scenarios for the years 2050 and 2100, assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea-level rise. Sea-level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, and storm surge and storm wave data.

Governor Schwarzenegger also requested the National Academy of Sciences to prepare an assessment report to recommend how California should plan for future sea-level rise. The final report, *Sea-Level Rise for the Coasts of California, Oregon, and Washington* (Sea-Level Rise Assessment Report)[19] was released in June 2012 and included relative sea-level rise projections for the three states, taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge, and land subsidence rates; and the range of uncertainty in selected sea-level rise projections. It provided a synthesis of existing information on projected sea-level rise impacts to state infrastructure (such as roads, public facilities, and beaches), natural areas, and coastal and marine ecosystems; and a discussion of future research needs regarding sea-level rise.

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15 https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/resilience

16 https://www.fhwa.dot.gov/environment/sustainability/resilience/policy_and_guidance/usdot.cfm

17 https://www.fhwa.dot.gov/legsregs/directives/orders/5520.cfm

18 https://www.fhwa.dot.gov/environment/sustainability/resilience/

19 *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

In response to EO S-13-08, the California Natural Resources Agency (Resources Agency), in coordination with local, regional, state, federal, and public and private entities, developed *The California Climate Adaptation Strategy* (Dec 2009),[20] which summarized the best available science on climate change impacts to California, assessed California's vulnerability to the identified impacts, and outlined solutions that can be implemented within and across state agencies to promote resiliency. The adaptation strategy was updated and rebranded in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan).

Governor Jerry Brown enhanced the overall adaptation planning effort by signing EO B-30-15 in April 2015, requiring state agencies to factor climate change into all planning and investment decisions. In March 2016, sector-specific Implementation Action Plans that demonstrate how state agencies are implementing EO B-30-15 were added to the Safeguarding California Plan. This effort represents a multi-agency, cross-sector approach to addressing adaptation to climate change-related events statewide.

EO S-13-08 also gave rise to the *State of California Sea-Level Rise Interim Guidance Document* (SLR Guidance), produced by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), of which Caltrans is a member. First published in 2010, the document provided "guidance for incorporating sea-level rise (SLR) projections into planning and decision making for projects in California," specifically, "information and recommendations to enhance consistency across agencies in their development of approaches to SLR." The March 2013 update[21] finalizes the SLR Guidance by incorporating findings of the National Academy's 2012 final Sea-Level Rise Assessment Report; the policy recommendations remain the same as those in the 2010 interim SLR Guidance. The guidance will be updated as necessary in the future to reflect the latest scientific understanding of how the climate is changing and how this change may affect the rates of SLR.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation, and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is actively engaged in in working towards identifying these risks throughout the state and will work to incorporate this information into all planning and investment decisions as directed in EO B-30-15.

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

[20] http://www.climatechange.ca.gov/adaptation/strategy/index.html
[21] http://www.opc.ca.gov/2013/04/update-to-the-sea-level-rise-guidance-document/

Chapter 3 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and to identify potential impacts and avoidance, minimization and/or mitigation measures and related environmental requirements. Agency consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings, interagency coordination meetings, and consultation with interested parties. This chapter summarizes the results of the California Department of Transportation (Caltrans) efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.1 Notice of Initiation of Studies

On November 16, 2011, a Notice of Initiation of Environmental Process (NOIS) was distributed to agencies and interested parties that may have an interest in the project. The NOIS requested feedback pertaining to potential environmental effects of the project, as well as existing facilities or planned projects that may be impacted by the project. Feedback was received from AT&T, Metrolink, the Orange County Sanitation District, Network Infrastructure Services, and Southern California Gas Company. The feedback was considered during development of the alternatives and analysis of project impacts.

3.2 Interagency Coordination and Consultation

The formulation of project alternatives and mitigation has been carried out through a cooperative dialogue among representatives of the following agencies or organizations:

- Orange County Transportation Authority (OCTA)
- City of Santa Ana
- City of Irvine
- City of Tustin
- Native American representatives
- Historical groups
- State Historic Preservation Officer (SHPO)
- Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG)
- United States Fish and Wildlife Service (USFWS)
- United States Army Corps of Engineers (Corps)

The following sections summarize the results of Caltrans efforts to fully identify, address, and resolve project-related issues through early and continuing coordination.

3.2.1 Native American Consultation

Consultation with a number of Native American Tribes (groups and individuals) was conducted between November 2011 and January 2012 in compliance with Section 106 of the National Historic Preservation Act. Assembly Bill 52 (AB 52), which amended CEQA to require consultation with Native American Tribes, became effective July 1, 2015. As a result, additional Native American coordination under AB 52 was initiated in July 2015. The consultation with the Native American Heritage Commission (NAHC) and Native American representatives is summarized in Table 3.1. A copy of the NAHC correspondence is included at the end of this chapter. As evaluated in Supplemental Draft IS/EA, Alternative 3M does not extend outside the existing Area of Potential Effect (APE), therefore follow-up

Native American Consultation as part of the Supplemental evaluation process was determined unnecessary.

3.2.2 Historical Consultation

Consultation with agencies and interested parties regarding historical resources is summarized below:

- Orange County Historical Society, letter sent October 8, 2012. No response received.
- Santa Ana Historical Preservation Society, letter sent October 8, 2012. No response received.
- Irvine Historical Society, letter sent October 8, 2012. No response received.
- Tustin Area Historical Society, letter sent October 8, 2012. No response received.
- City of Santa Ana, letter sent October 8, 2012. No response received.
- City of Irvine, letter sent October 8, 2012. Response received via telephone on November 2, 2012 from Sherman Jones, who stated that the City has no historic resources in the project Area of Potential Effects (APE). A letter from the City dated November 5, 2012 stated the same thing.
- City of Tustin, letter sent October 8, 2012. No response received.
- City of Santa Ana Planning and Building Agency, building permit research (October 2012).
- City of Tustin Community Development Department, Building Permits and Inspections Division (Flor Williams), building permit research (October 2012 and January 2013).
- Historic aerial photographs accessed online at historicaerials.com in May and October 2012.
- United States Geological Survey topographic maps.
- Caltrans Structure, Maintenance & Investigations, Historical Significance – State Agency Bridges dated September 2012.

Table 3.1 Summary of Native American Consultation

Agency and Agency Representative	Date of First Contact (Formal Letter)	Date of Reply	Date of Follow-up Contact (Phone Call)	Consultation Topic
Native American Heritage Commission (NAHC) Dave Singleton, Program Analyst	November 10, 2011	November 15, 2011	Formal letter	**November 10, 2011:** A letter was sent to the NAHC requesting a search of the Sacred Lands File (SLF) in order to identify areas of religious or cultural significance to Native Americans. The NAHC request letter is included at the end of this chapter. **November 15, 2011:** The NAHC responded on November 15, 2011, to say that the SLF search was negative for the immediate Area of Potential Effects (APE), but recommended that 12 Native American individuals representing the Gabrielino, Gabrielino Tongva, and Juaneño groups be contacted for possible additional information. **November 28, 2011**: Letters discussing the project and requesting information on Native American heritage resources were sent via certified letter and email to NAHC listed contacts on November 28, 2011.
Ti'At Society/Inter-Tribal Council of Pimu Cindi M. Alvitre, Chairwoman-Manisar Gabrielino	November 28, 2011 July 28, 2015 (AB 52)	None Letter returned to sender (Caltrans).	December 12, 2011 December 20, 2011 January 23, 2012	**November 28, 2011:** A letter that discussed the project and requested information on cultural resources in the area that may be significant was sent via certified mail. **December 12, 2011:** A follow up email was sent to Ms. Alvitre. **December 20, 2011:** A second follow up email was sent to Ms. Alvitre. **January 23, 2012:** The letter was returned as "unclaimed."
Gabrieleno/Tongva Indians Sam Dunlap, Chairperson	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 14, 2011 December 15, 2011	**November 28, 2011:** A letter that discussed the project and requested information on cultural resources in the area that may be significant was sent via certified mail. **December 12, 2011:** A follow up email was sent to Mr. Dunlap. **December 14, 2011:** Mr. Dunlap responded by email to say that in 2007, an intact, deeply buried habitation site (approximately 5 feet below the ground surface) was discovered in the southwest quadrant of the Marine Corps Air Station in Tustin, about 3,500 feet east of the project area in the vicinity of Redhill Avenue and Barranca Parkway. **December 15, 2011:** In a follow up telephone call, Mr. Dunlap stated that due to the presence of this site, he considers the area to be sensitive for buried cultural resources and recommends that archaeological monitoring be part of the mitigation to ensure proper recording of any historic discoveries. He also recommends that if native soils are to be impacted, a Native American monitor

Table 3.1 Summary of Native American Consultation

Agency and Agency Representative	Date of First Contact (Formal Letter)	Date of Reply	Date of Follow-up Contact (Phone Call)	Consultation Topic
				be selected from his group because the project is within the traditional tribal territory of the Gabrielino Tongva Nation.
Juaneño Band of Mission Indians Acjachemen Nation David Belardes, Chairperson	November 28, 2011 July 28, 2015 (AB 52)	December 8, 2011 None	January 27, 2012	**December 8, 2011:** Joyce Perry, Representing Tribal Chairperson, stated in a telephone call that her group has no comments or concerns. **January 27, 2012:** The letter was returned as "unclaimed."
Juaneño Band of Mission Indians Acjachemen Nation Anthony Rivera, Chairman	November 28, 2011 July 28, 2015 (AB 52)	No response received None	December 12, 2011 December 19, 2011	**December 12, 2011:** A follow up email was sent to Mr. Rivera. **December 19, 2011:** A second follow up email was sent to Mr. Rivera.
Tongva Ancestral Territorial Tribal Nation John Tommy Rosas, Tribal Administrator	November 28, 2011 (via email) July 28, 2015 (AB 52; via email)	None July 29, 2015 July 30, 2015	December 12, 2011	**December 12, 2011:** A follow up email was sent to Mr. Rosas. Mr. Rosas emailed back to acknowledge that he received the information. No further comment has been received. **July 29, 2015:** Mr. Rosas, Tribal Administrator, e-mailed Caltrans that he would weigh in within a few days. **July 30, 2015:** Mr. Rosas requested additional project information that was provided by the project team. No additional response received.
Gabrielino Tongva Indians of California Tribal Council Robert F. Dorame, Tribal Chair/Cultural Resources	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 19, 2011 December 22, 2011	**December 12, 2011:** A follow up email was sent to Mr. Dorame. **December 19, 2011:** A voicemail was left for Mr. Dorame. **December 22, 2011:** Mr. Dorame stated in a telephone call that he forwarded the information to a Native American from his group in Orange County, and will respond if he finds there are concerns.
Gabrieleno/Tongva San Gabriel Band of Mission Indians Anthony Morales, Chairperson	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 19, 2011	**December 12, 2011:** A follow up email was sent to Mr. Morales. **December 19, 2011:** In a telephone call, Mr. Morales requested that the project proponent be vigilant in identifying and protecting cultural resources. He is aware of buried sites in the vicinity and considers that most modern thoroughfares like SR-55 to mirror prehistoric trails. He recommends archaeological and Native American monitoring using a monitor from his group when construction is in native soil.
Juaneño Band of Mission Indians Alfred Cruz, Cultural Resources Coordinator	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 19, 2011 December 22, 2011	**December 12, 2011:** A follow up email was sent to Mr. Cruz. **December 19, 2011:** A voicemail was left for Mr. Cruz. **December 22, 2011:** Mr. Cruz returned the call to say that he is aware of sites in the vicinity and he recommends monitoring by an archaeologist and Native American when construction activities are in intact native soil.

Table 3.1 Summary of Native American Consultation

Agency and Agency Representative	Date of First Contact (Formal Letter)	Date of Reply	Date of Follow-up Contact (Phone Call)	Consultation Topic
Gabrielino-Tongva Tribe Bernie Acuna	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 20, 2011	**December 12, 2011:** A follow up email was sent to Ms. Candelaria. **December 20, 2011:** Mr. Acuna's voicemail box was full so a second follow up email was sent.
Juaneño Band of Mission Indians Acjachemen Nation Joyce Perry, Representing Tribal Chairperson	November 28, 2011 July 28, 2015 (AB 52)	December 8, 2011 None	None	**December 8, 2011:** Ms. Perry stated in a telephone call that her group has no comments or concerns.
Gabrielino-Tongva Tribe Linda Candelaria, Chairwoman	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 19, 2011	**December 12, 2011:** A follow up email was sent to Ms. Candelaria. **December 19, 2011:** Ms. Candelaria stated in a telephone call that her group has no concerns or comment.
Gabrieleno Band of Mission Indians Andrew Salas	November 28, 2011 July 28, 2015 (AB 52)	None None	December 12, 2011 December 19, 2011	**December 12, 2011:** A follow up email was sent to Mr. Salas. **December 19, 2011:** A second follow up email was sent to Mr. Salas. Mr. Salas replied to say that he will comment shortly. No further comments have been received.
Soboba Band of Luiseño Indians Joseph Ontiveros, Director of Cultural Resources (requested consultation with District 12 following the passage of AB 52)	July 28, 2015 (AB 52)	August 27, 2015		**August 27, 2015:** Mr. Ontiveros responded by letter that they would like to consult on this project and asked for a meeting. **September 2, 2015**: Caltrans requested meeting availability. **September 2, 2015**: Soboba responded that a field meeting was not needed at this time as long as the reports and maps can be referenced. **September 3, 2015**: Caltrans requested meeting availability. **September 14, 2015**: Soboba responded with next meeting availability (September 29 or 30, 2015). **September 14, 2015**: Caltrans responded with alternate dates. **September 15, 2015**: Soboba responded that Fridays are not available. **September 15, 2015**: Caltrans requested meeting availability in mid-October. **September 21, 2015**: Soboba responded they have an opening tomorrow and need the results of the CHRIS record search and maps. Caltrans sent the information electronically. **September 22, 2015**: Meeting with Caltrans and Mr. Joseph

Table 3.1 Summary of Native American Consultation

Agency and Agency Representative	Date of First Contact (Formal Letter)	Date of Reply	Date of Follow-up Contact (Phone Call)	Consultation Topic
				Ontiveros at the Soboba Administration Office in San Jacinto. Project scope and location were briefly discussed. Results of the record search, consultation, and field survey did not identify any cultural resources within the APE. Soboba inquired about mitigation and Caltrans replied that as proposed, no historic properties would be affected and that, based on the potential for only a few small areas of native soil to be impacted, no mitigation was required. Soboba requested they be retained to monitor construction activities in native soil if any present and requested that Caltrans coordinate with other districts. Caltrans indicated that they would re-examine the cultural studies regarding potential impacts to native soil and discuss negative findings and monitoring requests with other districts and Headquarters. **September 29, 2015**: Caltrans responded via e-mail and letter providing engineering information for native soil to only potentially be disturbed during the construction of bridge bents at a few locations. Since no cultural resources had been identified in the APE, Caltrans notified the Soboba that after discussions with other districts and Headquarters, District 12 had decided that the Soboba may voluntarily monitor construction activities in native soil if present, but it would be unpaid and contingent upon any required liability insurance. The Soboba were informed that construction was slated for 2017 and to let Caltrans know if they were interested or if they have any information that may warrant reconsideration. **October 1, 2015**: The Soboba sent Caltrans a formal letter concluding consultation stating that they have no specific concerns and requesting that appropriate consultation continue to take place between concerned tribes, project proponents, and local agencies.

Source**:** *Historic Property Survey Report* (2015).
AB = Assembly Bill
APE = Area of Potential Effects
Caltrans = California Department of Transportation
CHRIS = California Historical Resources Information System
SR-55 = State Route 55

3.2.3 State Historic Preservation Officer

As assigned by the Federal Highway Administration (FHWA), Caltrans has determined that there are properties evaluated as a result of the project that are not eligible for inclusion in the National Register of Historic Places within the project APE. Under Section 106 Programmatic Agreement (PA) Stipulation VIII.C, Caltrans requested SHPO's concurrence on this determination on October 5, 2015. SHPO concurrence was received on November 12, 2015. The proposed Alternative 3M evaluated in the Supplemental Draft IS/EA does not extend outside the existing Area of Potential Effect (APE), therefore no additional properties were evaluated. The SHPO concurrence determination on November 12, 2015 remains valid.

3.2.4 Transportation Conformity Working Group

The project-level particulate matter hot-spot analysis was presented to the SCAG TCWG for discussion and review on June 26, 2012. Per Caltrans Headquarters policy, all nonexempt projects need to go through review by the TCWG. The TCWG determined that the proposed project would meet the criteria for a project of air quality concern because it would expand an existing freeway with high existing and future truck volumes. Therefore, a qualitative project-level PM2.5 and PM10 hot-spot analysis was conducted to assess whether the project would cause or contribute to any new localized PM2.5 or PM10 violations, increase the frequency or severity of any existing violations, or delay timely attainment of the PM2.5 and PM10 national ambient air quality standards. On December 3, 2013, the TCWG determined that the qualitative project-level PM2.5 and PM10 hot-spot analysis was acceptable for National Environmental Policy Act (NEPA) circulation. Subsequent to the TCWG approval, the forecasted SR-55 traffic volumes were updated. On July 28, 2015, the TCWG determined that the updated SR-55 traffic volumes would not affect the conclusions of the qualitative PM hot-spot analysis and reaffirmed that the analysis was acceptable for NEPA circulation. On August 23, 2016, the TCWG determined Alternative 3M (Preferred Alternative) SR-55 traffic volumes would not affect the conclusions of the qualitative PM hot-spot analysis and again reaffirmed that the analysis was acceptable for NEPA circulation. FHWA issued a project-level conformity determination on August 14, 2017. Copies of the TCWG determinations and FHWA's project-level conformity determination are included at the end of this chapter. Copies of the 2016 RTP and 2017 FTIP are also attached at the end of this chapter following the TCWG and FHWA project-level conformity determination.

3.2.5 United States Fish and Wildlife Service/National Marine Fisheries Service

Official species lists were obtained from the United States Fish and Wildlife Service (USFWS) on December 17, 2012, September 1, 2015, January 4, 2017, and June 14, 2017; and the National Marine Fisheries Service (NMFS) on June 14, 2017. The species lists provide information about the threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur in the vicinity of a proposed project. The USFWS and NMFS species lists are included at the end of this chapter.

3.2.6 United States Army Corps of Engineers

On July 14, 2004, as part of the Alton Avenue Overcrossing Project, a letter was sent to the Corps requesting a Department of the Army determination of Corps jurisdiction over the Orange County Flood Control District channel known as Lane Channel, which is tributary to San Diego Creek, in the City of Santa Ana, Orange County California. The Corps August 20, 2004 response is provided at the end of this chapter.

3.3 Community Outreach and Public Involvement

3.3.1 Project Development Team

The Cities of Tustin, Santa Ana, and Irvine participate in the regular PDT meetings conducted by OCTA and Caltrans for the SR-55 widening project. The PDT meetings cover a wide range of topics related to the proposed project, including development and evaluation of alternatives, engineering considerations, environmental issues, and the environmental document and documentation process.

3.3.2 Orange County Transportation Authority Project Website

The OCTA has a webpage (http://www.octa.net/Projects-and-Programs/All-Projects/Freeway-Projects/Costa-Mesa-Freeway-(SR-55)/SR-55-(I-405-to-I-5)/?frm=3555) that provides information to the public regarding the proposed SR-55 project and the status of the environmental document and the environmental documentation process for the project.

3.3.3 Public Review/Circulation of Draft IS/EA and Supplemental IS/EA

3.3.3.1 Draft IS/EA Public Circulation Review

The public participation methods used for the Draft IS/EA included: mailing lists, newspaper notices/articles, direct mailings, public hearing, and web-based information.

Public circulation of the Draft IS/EA began on November 25, 2015 for a 45-day review period and ended on January 8, 2016. Due to several local stakeholders expressing concern about the public circulation period during the holiday season, the 45-day public review duration was extended an additional 15-days, which officially concluded January 23, 2016.

As required by CEQA Guidelines Section 15072, a public Notice of Intent (NOI) to Adopt a Mitigated Negative Declaration and Availability of Initial Study, Notice of Public Meeting for the proposed SR-55 Improvement Project between Interstate I-405 and I-5 was submitted to the with the State Clearinghouse and Orange County Clerk on November 24, 2015. The NOI was also mailed to all of the agencies and persons that requested to be notified.

Printed copies of the Draft IS/EA were mailed to responsible agencies and other agencies and were made available for public review at the following locations:

*Caltrans District 12
3347 Michelson Drive
Suite 100
Irvine, CA 92612

Orange County Transportation Authority
550 South Main Street
Orange, CA 92868

Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, CA 92701

City of Irvine
1 Civic Center Plaza
Irvine, CA 92606-5207

Tustin Library
345 East Main Street
Tustin, CA 92780

*As of The Department of Transportation District 12 has relocated to the following address:

Department of Transportation District 12
1750 East 4th Street
Santa Ana, CA 92705

The Draft IS/EA was also published on the District 12 website at:
http://www.dot.ca.gov/dist12/DEA/SR55IMPROV/

A public hearing was held during the 45-day public review on December 10, 2015 from 6:00 p.m. to 8:00 p.m. at the Boy Scouts of America in Santa Ana, CA. The meeting was held in an open house format with no formal presentation. Approximately 45 members of the public

attended the meeting. Comment cards were provided at the meeting for the public to write their comments. A total of 7 comments cards were received during the public hearing. A court reporter was also present and officially recorded 2 verbal comments. Representatives from the Department District 12, the environmental consultant team (LSA Associates. Inc.) , the design consultant team (HDR Consulting), and OCTA also attended the public hearing. A total of 40 comment letters consisting of letters, emails, comment cards, officially recorded verbal comments were received during the public review period. Responses to comments received during the Draft IS/EA and Supplemental Draft IS/EA are provided in Appendix H of this Final IS/EA.

3.3.3.2 Supplemental Draft IS/EA Public Circulation Review

Subsequent to public circulation of the Draft IS/EA, an inconsistency regarding traffic volume assumptions was identified. Several OCTA Measure M funded projects were not included in the Traffic Model used to determine future traffic volumes and this resulted in an inaccurate projected future travel demand. An Updated Traffic Volumes Report and Traffic Operations Report were prepared which include the additional Measure M funded projects in the forecasted traffic model. In addition, to improve accommodation of future travel demand along the SR-55 corridor between I-405 and I-5, meet the project purpose and need to increase capacity and improve operations, and to meet requirements under the Fixing America's Surface Transportation Act (FAST Act), Division A, Title 1, Sec. 1411 related to HOV degradation, Alternative 3M was developed.

The public participation methods used for the Supplemental Draft IS/EA where similar to those Draft IS/EA which also included: mailing lists, newspaper notices/articles, direct mailings, public hearing, and web-based information.

Public circulation of the Supplemental Draft IS/EA began on April 3, 2017 and ended on May 3, 2017. As required by CEQA Guidelines Section 15072, a public Notice of Intent (NOI) to Adopt a Mitigated Negative Declaration and Availability of Initial Study, Notice of Public Meeting for the proposed SR-55 Improvement Project between Interstate I-405 and I-5 was submitted to the with the State Clearinghouse and Orange County Clerk on April 2, 2017. The NOI was also mailed to all of the agencies and persons that requested to be notified.

Printed copies of the Supplemental Draft IS/EA were mailed to responsible agencies and other agencies and were made available for public review at the following locations:

Caltrans District 12
1750 E 4th Street
Suite 100
Santa Ana, CA 92705

Orange County Transportation Authority
550 South Main Street
Orange, CA 92868

Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, CA 92701

City of Irvine
1 Civic Center Plaza
Irvine, CA 92606-5207

Katie Wheeler Library
13109 Old Myford Rd
Irvine, CA 92602

The Draft IS/EA was also published on the District 12 website at:
http://www.dot.ca.gov/d12/DEA/55/0J340/

A public hearing was held during the 30-day public review on April 20, 2017 from 6:00 p.m. to 8:00 p.m. at the Delhi Center at 505 East Central Avenue, Santa Ana, CA 92707. Like the previous public meeting, the meeting was held in an open house format with no formal presentation. Approximately 23 members of the public attended the meeting. Comment cards were provided at the meeting for the public, however the only formal comment provided during the public meeting was one verbal comment to the court recorder. A total of

17 comment letters consisting of letters, emails and officially recorded verbal comments were received during the public review period. Responses to comments received during the Draft IS/EA public circulation period and the Supplemental Draft IS/EA are provided in Appendix H of this Final IS/EA.

3.3.4 Noise Barrier Survey Coordination

In accordance with the Caltrans Traffic Noise Analysis Protocol (May 2011), letters were sent by registered mail to all property owners and non-owner occupants of benefited receptors on June 23, 2017 to solicit their position either in favor of or in opposition to the proposed noise abatement. A public meeting specific to noise abatement proposed by the project was held at OCTA on July 17, 2017.

The viewpoints of the benefited receptors were received and evaluated. All (100%) property owners were in favor of the proposed sound barriers either for Nose Barrier No. NB-3 (11.5%) or the combined NB No. NNB-3 Reduced and NB No. NB-4 (88.5%).

Native American Heritage Commission Correspondence

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LSA

LSA ASSOCIATES, INC.
20 EXECUTIVE PARK, SUITE 200
IRVINE, CALIFORNIA 92614
949.553.0666 TEL
949.553.8076 FAX

BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
S. SAN FRANCISCO

November 10, 2011

Dave Singleton
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Subject: Sacred Lands File Search for the State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5), Orange County, California

Dear Mr. Singleton:

Attached please find a portion of one United States Geological Survey (USGS) 7.5-minute topographic quadrangle map. Plotted on the map is the location of the proposed SR-55 Improvement Project between I-405 and I-5 in Orange County, California. Specifically, the project is situated in Township 5 South, Range 9 West, in an unsectioned portion of the *Tustin, California* USGS topographic quadrangle map (San Bernardino Baseline and Meridian). A map showing the project area is attached.

There will be ground disturbance associated with this project. Per Section 106 of the National Historic Preservation Act, LSA is requesting a Sacred Lands File search for the project area. Please notify LSA of any Native American cultural resources that may be impacted.

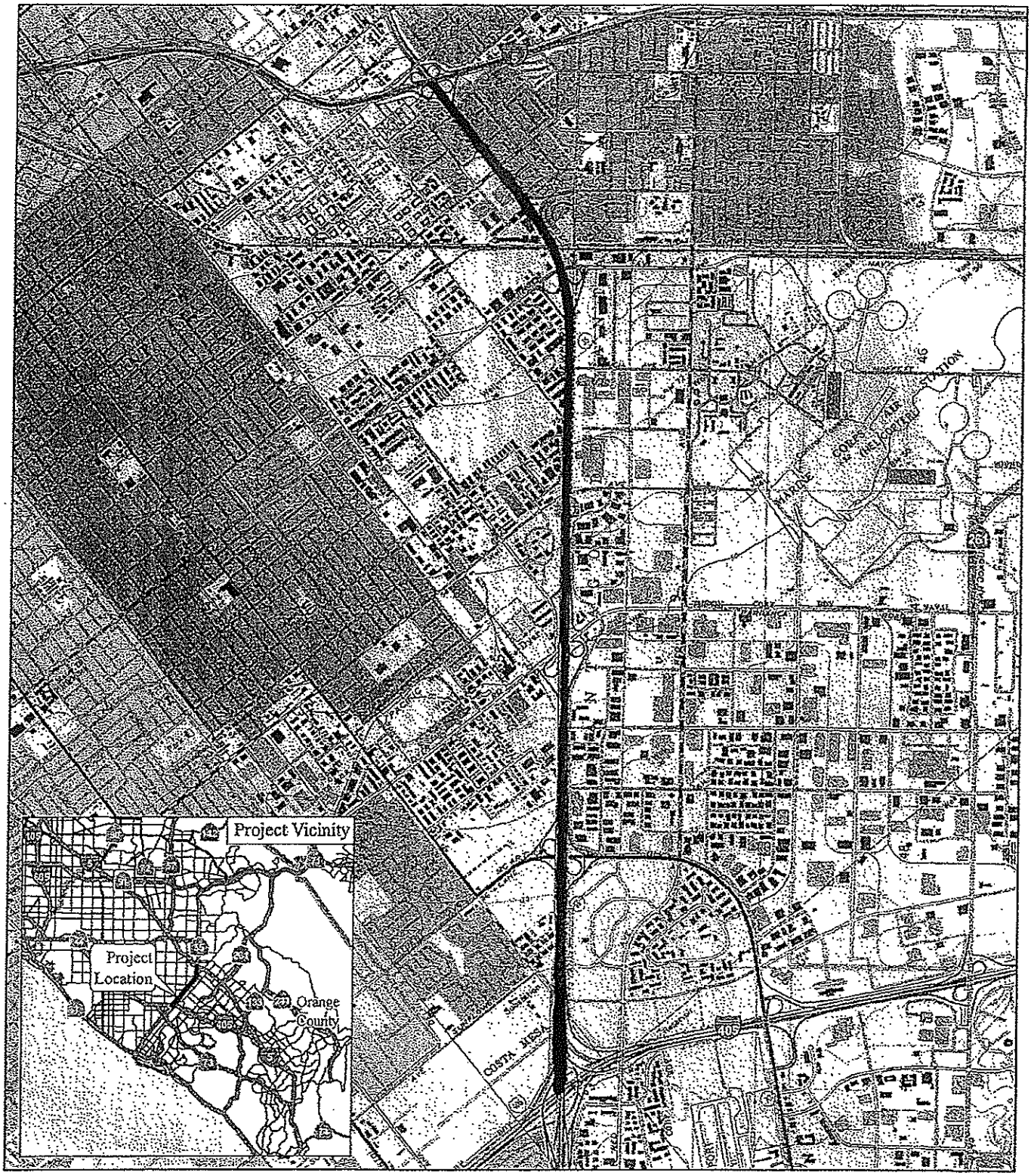
I will anticipate a response within 10 working days from your receipt of this request. If you have any questions or comments, please contact me at (949) 553-0666 or you may e-mail me at terri.fulton@lsa-assoc.com. As always, thank you very much for your assistance with this project.

Best Regards,

LSA ASSOCIATES, INC.

Terri Fulton
Archaeologist/Senior Cultural Resources Manager
Native American Consultation Coordinator

Attachments: Portion of one USGS map



LEGEND

Project Limits

FIGURE 1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Project Location

0 1500 3000

FEET

SOURCE: USGS 7.5' Quad. (Tustin, 1981)

I:\HDR1102\GIS\ProjectLocation.mxd (11/2/2011)

TRANSMISSION VERIFICATION REPORT

TIME : 11/10/2011 11:51
NAME :
FAX :
TEL :
SER.# : 000C5J225683

DATE,TIME	11/10 11:50
FAX NO./NAME	NAHC
DURATION	00:00:49
PAGE(S)	02
RESULT	OK
MODE	STANDARD ECM

LSA

LSA ASSOCIATES, INC.
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IRVINE, CALIFORNIA 92614

949.553.0666 TEL
949.553.8076 FAX

BERKELEY
CARLSBAD
FORT COLLINS
FRESNO
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO
S. SAN FRANCISCO

November 10, 2011

Dave Singleton
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915 Capitol Mall, Room 364
Sacramento, CA 95814

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There will be ground disturbance associated with this project. Per Section 106 of the National Historic Preservation Act, LSA is requesting a Sacred Lands File search for the project area. Please notify LSA of any Native American cultural resources that may be impacted.

I will anticipate a response within 10 working days from your receipt of this request. If you have any questions or comments, please contact me at (949) 553-0666 or you may e-mail me at terri.fulton@lsa-assoc.com. As always, thank you very much for your assistance with this project.

Best Regards,

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STATE OF CALIFORNIA Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

November 15, 2011

Ms. Teri Fulton, RPA, Senior Cultural Resources Manager
LSA ASSOCIATES, INC.
20 Executive Park, Suite 200
Irvine, CA 92614

Sent by FAX to: 949-553-8076
No. of Pages: 5

Re: Sacred Lands File Search and Native American Contacts list for the **"Proposed State Route 55 (SR 55) Improvement Project, between the I-405 and I-5;"** located in; Orange County, California

Dear Ms. Fulton:

The Native American Heritage Commission (NAHC) conducted a Sacred Lands File search of the 'area of potential effect,' (APEs) based on the USGS coordinates provided and **Native American cultural resources were not identified** in the project area of potential effect (e.g. APE) you specified. Also, please note; the NAHC Sacred Lands Inventory is not exhaustive and does not preclude the discovery of cultural resources during any project groundbreaking activity.

California Public Resources Code §§5097.94 (a) and 5097.96 authorize the NAHC to establish a Sacred Land Inventory to record Native American sacred sites and burial sites. These records are exempt from the provisions of the California Public Records Act pursuant to. California Government Code §6254 (r). The purpose of this code is to protect such sites from vandalism, theft and destruction.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources, impacted by proposed projects including archaeological, places of religious significance to Native Americans and burial sites

The California Environmental Quality Act (CEQA – CA Public Resources Code §§ 21000-21177, amendments effective 3/18/2010) requires that any project that causes a substantial adverse change in the significance of an historical resource, that includes archaeological resources, is a 'significant effect' requiring the preparation of an Environmental Impact Report (EIR) per the CEQA Guidelines defines a significant impact on the environment as 'a substantial, or potentially substantial, adverse change in any of physical conditions within an area affected by the proposed project, including ...objects of historic or aesthetic significance." In order to comply with this provision, the lead agency is required to assess whether the project will have an adverse impact on these resources within the 'area of potential effect (APE), and if so, to mitigate that effect. CA Government Code §65040.12(e) defines "environmental justice" provisions and is applicable to the environmental review processes.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Local Native Americans may have knowledge of the religious and cultural significance of the historic properties of the proposed project for the area (e.g. APE). Consultation with Native American communities is also a matter of environmental justice as defined by California Government Code §65040.12(e). We urge consultation with those tribes and interested Native Americans on the list the NAHC has attached in order to see if your proposed project might impact Native American cultural resources. Lead agencies should consider avoidance as defined in §15370 of the CEQA Guidelines when significant cultural resources as defined by the CEQA Guidelines §15064.5 (b)(c)(f) may be affected by a proposed project. If so, Section 15382 of the CEQA Guidelines defines a significant impact on the environment as "substantial," and Section 2183.2 which requires documentation, data recovery of cultural resources.

The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The aforementioned Secretary of the Interior's *Standards* include recommendations for all 'lead agencies' to consider the historic context of proposed projects and to "research" the cultural landscape that might include the 'area of potential effect.'

Partnering with local tribes and interested Native American consulting parties, on the NAHC list, should be conducted in compliance with the requirements of federal NEPA (42 U.S.C 4321-43351) and Section 106 4(f), Section 110 (f)(k) of federal NHPA (16 U.S.C. 470 *et seq*), 36 CFR Part 800.3 (f) (2) & .5, the President's Council on Environmental Quality (CSQ, 42 U.S.C 4371 *et seq.* and NAGPRA (25 U.S.C. 3001-3013) as appropriate. The 1992 *Secretary of the Interiors Standards for the Treatment of Historic Properties* were revised so that they could be applied to all historic resource types included in the National Register of Historic Places and including cultural landscapes. Also, federal Executive Orders Nos. 11593 (preservation of cultural environment), 13175 (coordination & consultation) and 13007 (Sacred Sites) are helpful, supportive guides for Section 106 consultation. The NAHC remains concerned about the limitations and methods employed for NHPA Section 106 Consultation.

Also, California Public Resources Code Section 5097.98, California Government Code §27491 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery', another important reason to have Native American Monitors on board with the project.

To be effective, consultation on specific projects must be the result of an ongoing relationship between Native American tribes and lead agencies, project proponents and their contractors, in the opinion of the NAHC. An excellent way to reinforce the relationship between a project and local tribes is to employ Native American Monitors in all phases of proposed projects including the planning phases.

Confidentiality of "historic properties of religious and cultural significance" may also be protected under Section 304 of he NHPA or at the Secretary of the Interior discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C., 1996) in issuing a decision

on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibility threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton

Attachment: Native American Contact List

California Native American Contacts
Orange County
November 15, 2011

TI'At Society/Inter-Tribal Council of Pimu
Cindi M. Alvitre, Chairwoman-Manisar
3098 Mace Avenue, Aapt. D Gabrielino
Costa Mesa, , CA 92626
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Nation
Sam Dunlap, Chairperson
P.O. Box 86908 Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net

(909) 262-9351 - cell

Juaneno Band of Mission Indians Acjachemen Nation
David Belardes, Chairperson
32161 Avenida Los Amigos Juaneno
San Juan Capistrano CA 92675
chiefdavidbelardes@yahoo.
(949) 493-4933 - home
(949) 293-8522

Juaneno Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street Juaneno
San Juan Capistrano CA 92675-2674
arivera@juaneno.com
(949) 488-3484
(949) 488-3294 - FAX
(530) 354-5876 - cell

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address Gabrielino Tongva
,
tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-761-6417- fax

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 Gabrielino Tongva
San Gabriel , CA 91778
GTTribalcouncil@aol.com
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 -FAX

Juaneno Band of Mission Indians
Alfred Cruz, Cultural Resources Coordinator
P.O. Box 25628 Juaneno
Santa Ana , CA 92799
alfredgcruz@sbcglobal.net
714-998-0721
714-998-0721 - FAX
714-321-1944 - cell

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed State Route 55 Improvement Project, between the I-405 and I-5 in Orange County, California for which a Sacred Lands File search and Native American Contacts list were requested.

California Native American Contacts
Orange County
November 15, 2011

Gabrielino-Tongva Tribe
Bernie Acuna
1875 Century Pk East #1500 Gabrielino
Los Angeles , CA 90067
(619) 294-6660-work
(310) 428-5690 - cell
(310) 587-0170 - FAX
bacuna1@gabrielnotribe.org

Juaneno Band of Mission Indians Acjachemen Nation
Joyce Perry; Representing Tribal Chairperson
4955 Paseo Segovia Juaneno
Irvine , CA 92612
949-293-8522

Gabrielino-Tongva Tribe
Linda Candelaria, Chairwoman
1875 Century Park East, Suite 1500
Los Angeles , CA 90067 Gabrielino
lcandelaria1@gabrielinoTribe.org
626-676-1184- cell
(310) 587-0170 - FAX
760-904-6533-home

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
P.O. Box 393 Gabirelino
Covina , CA 91723
(626) 926-4131
gabrielenoindians@yahoo.com

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is applicable for contacting local Native Americans with regard to cultural resources for the proposed State Route 55 Improvement Project, between the I-405 and I-5 in Orange County, California for which a Sacred Lands File search and Native American Contacts list were requested.

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State Historic Preservation Officer Concurrence

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DEPARTMENT OF TRANSPORTATION
District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692
PHONE (949) 724 -2252
FAX (949) 724 - 2256

October 2, 2015

Julianne Polanco
State Historic Preservation Officer
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, CA 95816

SR-55 Widening
EA 0J3400
PM 6.4/10.3

Re: Historic Property Survey Report (HPSR) for the SR-55 Widening Project, in the cities of Tustin, Santa Ana, and Irvine, in Orange County, California (EA 0J3400; EFIS 1200020328)

Dear Ms. Polanco:

The California Department of Transportation (Caltrans), is initiating consultation with the State Historic Preservation Officer (SHPO) regarding the SR-55 Widening Project from just north of the I-405/SR-55 interchange, to just south of the I-5/SR-55 interchange in the cities of Tustin, Santa Ana, and Irvine, in Orange County, California. This consultation is undertaken in accordance with the January 2014 *First Amended* Section 106 *Programmatic Agreement among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation* (PA). We are consulting with you at the present time under Stipulation VIII.C of the PA, which requires that we seek your concurrence on Caltrans' determinations of eligibility for potential historic properties.

Enclosed you will find a Historic Property Survey Report (HPSR) for the proposed undertaking. Caltrans, in cooperation with the Orange County Transportation Authority (OCTA), proposes the SR-55 Widening Project between Postmiles (PM) 6.4 and 10.3. Four build alternatives (Alternatives 1-4) have been proposed, each of which would add at least one general-purpose lane. Auxiliary lanes would also be added or converted, and Alternative 4 includes high-occupancy vehicle (HOV) lanes. All of the build alternatives include right-of-way acquisition (R/W), temporary construction easements (TCEs), bridge work, approximately one soundwall, retaining walls, drainage improvements, utility relocations, and the relocation/reconfiguration of Lane Channel. The HPSR was put on hold between April 2014 and September 2015 due to management discussions regarding traffic modeling.

A full project scope description and discussion of the Area of Potential Effects (APE) can be found on page 1 in the enclosed HPSR, with a depiction of the APE listed as Map 3.

Consultation and identification efforts for the SR-55 Widening Project resulted in one historic built environment resource (30-176663/30-176664/BNSF Railway) traversing the APE. This segment of the railway has been evaluated previously as ineligible for the National Register of Historic Places (NRHP) and was exempted in this study. No archaeological resources were identified within the APE as a result of the archaeological field surveys, archival research, and Native American consultation.

Identification and evaluation efforts for the SR-55 Widening Project (HPSR Attachment C) resulted in 17 historic-period built environmental properties being evaluated within the APE as depicted in Section 5. Properties Identified within the HPSR (pg. 5). These properties were evaluated for the NRHP and Caltrans concluded that they are not eligible. Pursuant to Stipulation VIII.C.6 of the PA, Caltrans is requesting your concurrence with the eligibility determinations as follows:

Not Eligible for the NRHP

- 2321 Pullman Street (APE Map Reference Number 1)
- 2311 Pullman Street (APE Map Reference Number 2)
- 2322 Pullman Street (APE Map Reference Number 3)
- 1601 Warner Avenue, 2229 Wright Street, 2253–2259 Ritchey Street, and 2261–2271 Ritchey Street (APE Map Reference Number 4)
- 2231–2241 Ritchey Street and 2245–2251 Ritchey Street (APE Map Reference Number 5)
- 1969–2019 Ritchey Street (APE Map Reference Number 6)
- 17021–17041 Kenyon Drive (APE Map Reference Number 7)
- 17051–17061 Kenyon Drive (APE Map Reference Number 8)
- 17071–17081 Kenyon Drive (APE Map Reference Number 9)
- 17091–17101 Kenyon Drive (APE Map Reference Number 10)
- 15991–16001 Pasadena Avenue (APE Map Reference Number 11)
- 17022 Whitby Circle (APE Map Reference Number 12)
- 17021 Whitby Circle (APE Map Reference Number 13)
- 15641 Pasadena Avenue (APE Map Reference Number 14)
- 17042 Carlann Circle (APE Map Reference Number 15)
- 15591 Boleyn Circle (APE Map Reference Number 16)
- 15581 Boleyn Circle (APE Map Reference Number 17)

All other properties within the APE, met the criteria for the Section 106 PA Attachment 4 (Properties Exempt from Evaluation). The HPSR was reviewed by Caltrans Cultural Studies Office (CSO) Professionally Qualified Staff (PQS).

This consultation is being undertaken in accordance with the January 1, 2014, Federal-Aid Highway Programmatic Agreement (PA). Caltrans is initiating consultation as part of its NEPA assignment of federal responsibilities by the Federal Highway Administration

(FHWA), effective October 1, 2012, and pursuant to 23 USC 327. Please direct all future correspondence on this project to Caltrans.

We are kindly requesting a response within 30 days of your receipt of this submittal, in accordance with Stipulation VIII.C.6(a) of the PA. This letter also serves as notification that Caltrans' finding for the undertaking (pursuant to Stipulation IX.A.2) is "No Historic Properties Affected", due to the absence of identified historic properties within the undertaking's APE.

If you need any additional information, please do not hesitate to me (phone: 949.724.2252; fax: 949.724.2256; e-mail: Charles.Baker@dot.ca.gov. Finally, thank you for your assistance with this undertaking.

Sincerely,

Charles Baker, Specialist Branch Chief
Environmental Analysis
California Department of Transportation, District 12, Irvine

Attachment: *October 2015 Historic Property Survey Report for the SR-55 Widening Project between just north of I-405 to just south of I-5 within the cities of Tustin, Santa Ana, and Irvine, in Orange County (12-ORA-55; PM 6.4/10.3; EA 0J3400)*

c: Kelly Hobbs – Caltrans CSO, Section 106 Coordinator

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OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
www.ohp.parks.ca.gov

November 12, 2015 Reply To: FHWA_2015_1013_001

Charles Baker, Specialist Branch Chief
Environmental Analysis
Caltrans District 12, Irvine
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

Re: Determinations of Eligibility for the Proposed SR-55 Widening Project, in the cities of Tustin, Santa Ana, and Irvine, Orange County, CA

Dear Mr. Baker:

Thank you for consulting with me about the subject undertaking in accordance with the January 1, 2014 *First Amended Programmatic Agreement Among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California* (PA).

Caltrans, in cooperation with the Orange County Transportation Authority, proposes the SR-55 Widening Project between Postmiles (PM) 6.4 and 10.3. Four build alternatives have been proposed, each of which would add at least one general-purpose lane. Auxiliary lanes would also be added or converted, and Alternative 4 includes high-occupancy vehicle lanes. All of the build alternatives include right-of-way acquisition, temporary construction easements, bridge work, approximately one soundwall, retaining walls, drainage improvements, utility relocations, and the relocation/reconfiguration of Lane Channel. A full project scope description and discussion of the Area of Potential Effects (APE) can be found on page 1 on the HPSR.

Consultation and identification efforts for the project resulted in the identification of 17 historic-period built environment properties within the APE. Caltrans has determined that the following properties are not eligible for the National Register of Historic Places either individually or as part of a potential historic district (NRHP):

- 2321 Pullman Street
- 2311 Pullman Street
- 2322 Pullman Street
- 1601 Warner Avenue, 2229 Wright Street, 2253-2259 Ritchey Street, and 2261-2271 Ritchey Street
- 2231 Ritchey Street and 2245-2251 Ritchey Street
- 1969-2019 Ritchey Street
- 17021-17041 Kenyon Drive
- 17051-17061 Kenyon Drive
- 17071-17081 Kenyon Drive
- 17091-17101 Kenyon Drive
- 15991-16001 Pasadena Avenue
- 17022 Whitby Circle
- 17021 Whitby Circle
- 15641 Pasadena Avenue

- 17042 Carlann Circle
- 15591 Boleyn Circle
- 15581 Boleyn Circle

All other properties within the APE, met the criteria for the Section 106 PA Attachment 4 (Properties Exempt from Evaluation).

Based on my review of the submitted documentation I concur with the foregoing determinations.

If you have any questions, please contact Natalie Lindquist of my staff at (916) 445-7014.

Sincerely,

Julianne Polanco
State Historic Preservation Officer

Transportation Conformity Working Group Determinations

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December 2013

TCWG Review of Qualitative Analyses

Qualitative PM Hot Spot Analysis Review

December, 2013	Determination
ORA100511 December 2013 Memo ORA100511 December 2013 Markup ORA100511 December 2013 Rev	Reaffirmed to be acceptable for NEPA circulation (FHWA and EPA concurrence received via email after meeting)

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July 2015

TCWG Review of Qualitative Analyses

Qualitative PM Hot Spot Analysis Review

July, 2015	Determination
ORA100511 July 2015 Memo	Reaffirmed to be acceptable for NEPA circulation

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TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

August 23, 2016
Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF THE MEETING OF THE TRANSPORTATION CONFORMITY WORKING GROUP. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Meeting of the Transportation Conformity Working Group was held at the SCAG office in Los Angeles.

In Attendance:

Castro, Fernando	Caltrans, District 7
Chiou, Wayne	Caltrans, District 12
Huddleston, Lori	LA Metro
Sherwood, Arnie	UC Berkeley

SCAG:

Asuncion, John
Au, Anita
Luo, Yunsheng
Tran, Daniel

Via Teleconference:

Aurasteh, Reza	Caltrans, District 12
Alvarez, Grace	RCTC
Behtash, Arman	Caltrans, District 12
Brugger, Ron	LSA Associates
Cacatian, Ben	VCAPCD
Cheng, Jack	SCAQMD
Dano, Neil	Parsons
Durbin, Martha	RCTC
Gallo, Ilene	Caltrans, District 11
King, Steven	OCTA
Lee, Jeannie	OCTA
Liptak, Zach	Dokken Engineering
Lombard, Susan	RCTC
Marksit, John	County of Riverside
Mejia, James	SANBAG
Nguyendo, Kevin	Caltrans Headquarters
Odufalu Olufemi	Caltrans, District 8
Pereira, Melina	Caltrans, District 11
Rajar, Camilla	HDR
Sheehy, Erin	OCTA

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

August 23, 2016
Minutes

Silverman, Sam	Terry A. Hayes Associates
Speirs, David	Parsons
Suderland, John	Terry A. Hayes Associates
Tax, Wienke	EPA, Region 9
Tavitas, Rodney	Caltran Headquarters
Vanben, Mary	RCTC
Vaughn, Joseph	FHWA
Walecka, Carla	TCA
Yoon, Andrew	Caltrans, District 7

1.0 CALL TO ORDER AND SELF-INTRODUCTION

Lori Huddleston, Acting Chair, called the meeting to order at 10:17 am.

2.0 PUBLIC COMMENT PERIOD

There were no public comments.

3.0 CONSENT CALENDAR

None.

4.0 INFORMATION ITEMS

4.1 Review of PM Hot Spot Interagency Review Forms

1) **ORA131304**
It was determined that this is not a POAQC (EPA concurrence was received via email prior to meeting).

2) **RIV011232**
It was determined that this is not a POAQC (EPA concurrence was received via email prior to meeting).

4.2 Review of PM Hot Spot Qualitative/Quantitative Analysts

1) **18790**
It was determined that the analysis is acceptable for NEPA circulation (EPA concurrence was received via email prior to meeting).

2) **ORA100511**
It was reaffirmed that the analysis is acceptable for NEPA circulation (EPA concurrence was received via email prior to meeting).

4.3 FTIP Update

John Asuncion, SCAG, reported the following:

- 2017 FTIP public comment period concluded on August 8, 2016. All 14 comments received had been addressed in Proposed Final 2017 FTIP.
- 2017 FTIP would be presented to SCAG's Regional Council for adoption on September 1, 2016 and due to Caltrans Headquarters by September 30, 2016.
- State and federal approval of 2017 FTIP was anticipated in mid-November and mid-December respectively.

4.4 RTP Update

Daniel Tran, SCAG, reported the following:

- SCAG had decided to move forward with Amendment No. 1 to 2016-2040 RTP/SCS in response to input received from CTCs. RTP Amendment Project List spreadsheets had been distributed to CTCs for update.
- SCAG was also accepting modeling updates to 2017 FTIP through FTIP database until September 14, 2016.

4.5 EPA Update

Wienke Tax, EPA Region 9, reported that Final $PM_{2.5}$ SIP Implementation Rule was signed on July 29, 2016.

4.6 ARB Update

None.

4.7 Air Districts Update

Ben Cacatian, VCAPCD, reported the following:

- VCAPCD was planning to release Draft 2016 Ventura County AQMP for 2008 8-hour Ozone standards in September for a 30-day public review period.
- VCAPCD Board approval was anticipated in November 2016, followed by transmittal to ARB and final SIP submittal to EPA.

Jack Cheng, SCAQMD, reported that Draft 2016 South Coast AQMP public comment period concluded on August 19, 2016 but SCAQMD was still taking comments on a rolling basis.

5.0 INFORMATION SHARING

None.

6.0 ADJOURNMENT

The meeting was adjourned at 10:50 am.

The next Transportation Conformity Working Group meeting will be held on Tuesday, September 27, 2016 at the SCAG office in downtown Los Angeles.

Federal Highway Administration Air Quality Project-Level Conformity Determination

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U.S. Department of Transportation
Federal Highway Administration

Federal Highway Administration
California Division

650 Capitol Mall, Suite 4-100
Sacramento, CA 95814
(916) 498-5001
(916) 498-5008 (fax)

August 14, 2017

In Reply Refer To:
HDA-CA

Ryan Chamberlain
Director, California Department of Transportation
District 12
1750 E., 4th St., Suite 100
Santa Ana, CA 92705

Attention: Arman Behtash

SUBJECT: Project Level Conformity Determination for the State Route 55 Improvement Project (FTIP ID ORA100511)

Dear Mr. Chamberlain:

On August 1, 2017, the California Department of Transportation (Caltrans) submitted to the Federal Highway Administration (FHWA) a complete request for a project level conformity determination for the State Route 55 Improvement Project. The project is in an area that is designated Non-Attainment or Maintenance for Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Ozone and Particulate Matter (PM_{10}, $PM_{2.5}$).

The project level conformity analysis submitted by Caltrans indicates that the project-level transportation conformity requirements of 40 CFR Part 93 have been met. The project is included in the Southern California Association of Governments' (SCAG) current Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP), as amended. The design concept and scope of the preferred alternative have not changed significantly from those assumed in the regional emissions analysis.

As required by 40 CFR 93.116 and 93.123, the localized $PM_{2.5}$ and PM_{10} analyses are included in the documentation. The analyses demonstrate that the project will not create any new violations of the standards or increase the severity or number of existing violations.

Based on the information provided, FHWA finds that the State Route 55 Improvement Project conforms with the State Implementation Plan (SIP) in accordance with 40 CFR Part 93.

If you have any questions pertaining to this conformity finding, please contact Joseph Vaughn at (916) 498-5346 or by email at Joseph.Vaughn@dot.gov.

Sincerely,

For: Tashia J. Clemons
Director Program Director
Federal Highway Administration

SCAG 2016 Regional Transportation Plan (RTP)

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TABLE 1 FTIP Projects - Continued

County	System	FTIP ID	Route #	Description	Project Cost ($1,000's)
ORANGE	STATE HIGHWAY	ORA111801	5	I-5 (ALICIA PARKWAY TO EL TORO ROAD) SEGMENT 3 - THE PROJECT WILL ADD ONE GENERAL PURPOSE LANE ON THE I-5 IN EACH DIRECTION BETWEEN ALICIA PARKWAY AND EL TORO ROAD (APPROXIMATELY 1.7 MILES), EXTEND THE 2ND HOV LANE IN BOTH DIRECTIONS AND ADD AUXILIARY LANES WHERE NEEDED.	$122,642
ORANGE	STATE HIGHWAY	ORA131105	5	I-5 / LOS ALISOS. ADD RAMPS AT LOS ALISOS OR EL TORO (UTILIZE TOLL CREDIT MATCH FOR RSTP) PA&ED.	$57,954
ORANGE	STATE HIGHWAY	ORA130302	5	I-5 (I-405 TO SR-55) - IN THE CITIES OF IRVINE AND TUSTIN. ADD 1 MF LANE NB FROM TRUCK BYPASS ON RAMP TO SR-55, ADD 1 MF LANE SB FROM SR-55 TO ALTON AND 1 AUX LANE FROM ALTON TO TRUCK BYPASS. (PA&ED AND PS&E PHASE) PROJECT WILL UTILIZE $917,600 TOLL CREDIT MATCH	$452,000
ORANGE	STATE HIGHWAY	ORA111210	5	I-5 FROM SR 55 TO SR 57 - ADD 1 HOV LANE EACH DIRECTION (PPNO 2883A)	$37,058
ORANGE	STATE HIGHWAY	ORA130060	5	INTERSTATE 5 CONTINUOUS ACCESS HIGH OCCUPANCY VEHICLE LANE STRIPING FROM STATE ROUTE 57 INTERCHANGE TO STATE ROUTE 91/BEACH BOULEVARD INTERCHANGE	$4,790
ORANGE	STATE HIGHWAY	ORA150401	5	THREE HOV OVERHEAD SIGNS WITHIN THE MEDIAN OF THE I-5 SOUTH OF AVENDIA PICO IN THE CITY OF SAN CLEMENTE. THESE IMPROVEMENTS ARE SUPPLEMENTS TO THE I-5 HOV WIDENING PROJECT AND PROVIDE NORTHBOUND I-5 TRAFFIC ADVANCE NOTIFICATION OF A HOV LANE THAT IS ADDED TO THE GP LANES. (RELATED TO ORA990929)	$1,250
ORANGE	STATE HIGHWAY	ORA000193	22	HOV CONNECTORS FROM SR-22 TO I-405, BETWEEN SEAL BEACH BLVD. (I-405 PM 022.558) AND VALLEY VIEW ST. (SR-22 PM R000.917), WITH A SECOND HOV LANE IN EACH DIRECTION ON I-405 BETWEEN THE TWO DIRECT CONNECTORS. TOLL CREDIT MATCH FOR CMAQ.	$119,295
ORANGE	STATE HIGHWAY	ORA131301	55	SR-55 (I-5 TO SR-91) – ADD CAPACITY FROM I-5 TO SR-22 AND IMPROVE OPERATIONS FROM I-5 TO SR-91 (UTILIZE TOLL CREDIT MATCH FOR RSTP) (STUDY ONLY)	$148,490
ORANGE	STATE HIGHWAY	ORA015	55	BAKER STREET AND SR-55; N/B & S/B FRONTAGE ROAD IMPROVEMENTS. S/B FREE RIGHT TURN, N/B LEFT-TURN AND 2ND E/B LEFT.	$900
ORANGE	STATE HIGHWAY	ORA016	55	PAULARINO AVE (SR-55 NB FRONTAGE ROAD @ PAULARINO AVE) IN COSTA MESA INTERSECTION IMPROVEMENT. ADDING A N/B RAMP AND W/B RIGHT-TURN-LANE.	$505
ORANGE	STATE HIGHWAY	ORA017	55	PAULARINO AVE IN SR-55 SB FRONTAGE ROAD COSTA MESA. INTERSECTION IMPROVEMENT ADD S/B RIGHT-TURN LANE.	$270
ORANGE	STATE HIGHWAY	ORA100511	55	SR-55 WIDENING BETWEEN I-405 AND I-5 - ADD 1 MF LANE EACH DIRECTION AND FIX CHOKEPOINTS FROM I-405 TO I-5; ADD 1 AUX LANE EA DIR BTWN SELECT ON/OFF RAMP AND NON-CAPACITY OPERATIONAL IMPROVEMENTS THROUGH PROJECT LIMITS (PS&E AND PAED). CONSISTENT WITH THE 2012 RTP. TOLL CREDIT FOR RSTP.	$274,900
ORANGE	STATE HIGHWAY	ORA000146	55	CONSTRUCT NEW INTERCHANGE ON SR 55 @ MEATS AVENUE. CONSTRUCT ON-RAMP/OFF-RAMPS. CONSTRUCTION OF AUXILIARY LANES BETWEEN KATELLA AVENUE AND LINCOLN AVENUE/NOEL RANCH ROAD BOTH NORTHBOUND AND SOUTHBOUND ON SR-55. WIDEN TAFT AVENUE UNDERCROSSING ON NORTHBOUND SIDE OF SR-55. WIDEN MEATS AVENUE FROM PARK LANE TO BRECKENRIDGE STREET. REALIGN 1820' OF THE SR 55 MEDIAN BARRIER. WIDEN SANTIAGO AVENUE AT MEATS AVENUE FOR TURNING LANES	$50,000
ORANGE	STATE HIGHWAY	ORA110302	57	IN PLACENTIA AND FULLERTON, N/B SR-57 FROM 0.4 MI N/O SR-91 TO 0.1 MI N/O LAMBERT RD (5.1 MILES). REPLACEMENT PLANTING AS THE RESULT OF THE SR-57 NORTHBOUND WIDENING. REPLACEMENT PLANTING RELATED TO ORA081901 AND ORA120332	$2,688
ORANGE	STATE HIGHWAY	ORA131303	57	SR-57 ORANGEWOOD TO KATELLA-ADD 1 MF LANE NORTHBOUND BETWEEN ORANGEWOOD AND KATELLA (UTILIZE TOLL MATCH FOR RSTP)ENG ONLY.	$6,500
ORANGE	STATE HIGHWAY	ORA120320	57	SR-57/LAMBERT RD INTERCHANGE IMPROVEMENTS - RECONFIG EXISTING DIAMOND INTERCHANGE TO LOOP RAMP, ADD SB LN ON OFFRAMP (PPNO 3834)	$59,300
ORANGE	STATE HIGHWAY	ORA000820	57	SR-57 TRUCK CLIMBING AUX LANE FROM LAMBERT TO LA CO. LINE PPNO 3847A EA 0C120 (PE ONLY)	$124,600
ORANGE	STATE HIGHWAY	10254	73	SAN JOAQUIN HILLS TRANSPORTATION CORRIDOR (SJHTC – SR 73). 15 MI TOLL RD BETWEEN 1-5 IN SAN JUAN CAPISTRANO & RTE 73 IN IRVINE, CONSISTENT WITH SCAG/TCA MOU 4/5/01. EXISTING 3 M/F EA DIR. 1 ADDITIONAL M/F EA DIR, PLUS CLIMBING & AUX LANES BY 2020.	$351,188
ORANGE	STATE HIGHWAY	ORA020808	90	IN ORANGE COUNTY, ON RTE 90 IMPERIAL HIGHWAY, IN THE CITIES OF YORBA LINDA AND ANAHEIM ON ROUTE 90 FROM EAST OF KELLOGG DRIVE UNDERCROSSING TO LA PALMA AVENUE. THE PROJECT IS TO PROVIDE ENHANCEMENT AND MITIGATION PLANTING. PPNO 4434B EA 12-056221	$1,669
ORANGE	STATE HIGHWAY	ORA000822	91	CONNECT EXISTING AUXILIARY LANE THROUGH INTERCHANGES ON WB SR-91 BETWEEN SR-57 AND I-5 WITH ITS ELEMENTS PPNO 4516A EA 0C5700	$65,677
ORANGE	STATE HIGHWAY	ORA130301	91	SR-91 (SR-57 TO SR-55) - ADD 1 MF LANE EASTBOUND; IMPROVE INTERCHANGE AT SR-91/SR-55 AND LAKEVIEW AVE; OPERATIONAL, NO INCREASE IN CAPACITY	$425,000

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SCAG 2017 Federal Transportation Improvement Program (FTIP)

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2017 Federal Transportation Improvement Program

Orange County
State Highway
Including Amendment 1 - 6 and 8 - 10
(In $000`s)

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
ORA015	Orange	SCAB		ORA015	NCRH1	55	5.3	5.3	S	EXEMPT - 93.127	0
Description:							PTC	900	Agency	COSTA MESA	

BAKER STREET AND SR-55; N/B & S/B FRONTAGE ROAD IMPROVEMENTS. S/B FREE RIGHT TURN, N/B LEFT-TURN AND 2ND E/B LEFT.

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
CITY FUNDS	150		750	900		150	750					900
ORA015 Total	150		750	900		150	750					900

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
ORA016	Orange	SCAB		ORA016	CARH3	55	5.8	5.8	S	NON-EXEMPT	0
Description:							PTC	505	Agency	COSTA MESA	

PAULARINO AVE (SR-55 NB FRONTAGE ROAD @ PAULARINO AVE) IN COSTA MESA INTERSECTION IMPROVEMENT. ADDING A N/B RAMP AND W/B RIGHT-TURN-LANE.

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
CITY FUNDS	60	170	275	505	230	275						505
ORA016 Total	60	170	275	505	230	275						505

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
ORA100511	Orange	SCAB		2M0733	CAN69	55	6.29	10.32	S	TCM	10
Description:							PTC	369,400	Agency	ORANGE COUNTY TRANS AUTHORITY (OCTA)	

SR-55 WIDENING BETWEEN I-405 AND I-5 - ADD 1 MF AND 1 HOV LANE EACH DIRECTION AND FIX CHOKEPOINTS FROM I-405 TO I-5; ADD 1 AUX LANE EA DIR BTWN SELECT ON/OFF RAMP AND NON-CAPACITY OPERATIONAL IMPROVEMENTS THROUGH PROJECT LIMITS (PS&E and PAED). Toll Credit for RSTP.

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
STP LOCAL - REGIONAL	13,800			13,800					13,800			13,800
ORANGE CO. MEASURE M2 - REGIONAL CAPACITY	6,523			6,523	6,523							6,523
SHOPP - ADVANCE CONSTRUCTION	3,700			3,700		3,700						3,700
ORA100511 Total	24,023			24,023	6,523	3,700			13,800			24,023

ProjectID	County	Air Basin	Model	RTP ID	Program	Route	Begin	End	System	Conformity Category	Amendment
ORA131301	Orange	SCAB		2121002	PLN40	55	10.4	17.9	S	EXEMPT/MODELED	8
Description:							PTC	227,350	Agency	ORANGE COUNTY TRANS AUTHORITY (OCTA)	

SR-55 (I-5 to SR-91) – Add 1 MF lane each direction and fix chokepoints from I-5 to SR-22; and other operational improvements throughout project limits (Utilize toll credit match for RSTP) (Study Only)

Fund	ENG	R/W	CON	Total	Prior	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021	2021/2022	Total
STP LOCAL - REGIONAL	5,000			5,000		5,000						5,000
ORA131301 Total	5,000			5,000		5,000						5,000

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United States Fish and Wildlife Service Species Lists

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
CARLSBAD FISH AND WILDLIFE OFFICE
6010 HIDDEN VALLEY ROAD, SUITE 101
CARLSBAD, CA 92011
PHONE: (760)431-9440 FAX: (760)431-5901
URL: www.fws.gov/carlsbad/

Consultation Tracking Number: 08ECAR00-2013-SLI-0102 December 17, 2012
Project Name: SR-Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project.

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having

similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: SR-Improvement Project

Official Species List

Provided by:

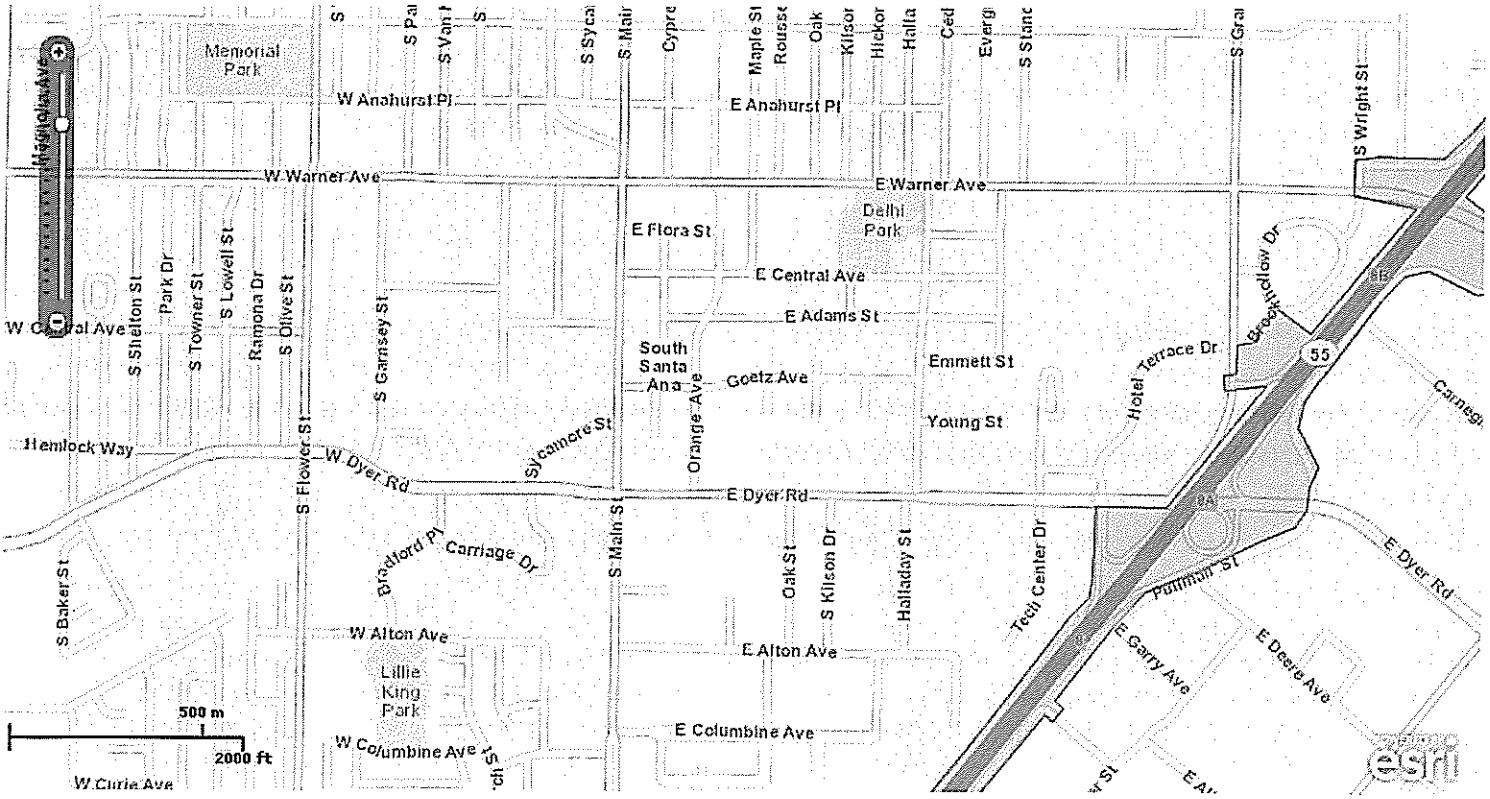
CARLSBAD FISH AND WILDLIFE OFFICE
6010 HIDDEN VALLEY ROAD, SUITE 101
CARLSBAD, CA 92011
(760) 431-9440
http://www.fws.gov/carlsbad/

Consultation Tracking Number: 08ECAR00-2013-SLI-0102
Project Type: Transportation
Project Description: California Department of Transportation (Caltrans), in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route 55 (SR-55) in both directions from just north of the Interstate 405 (I-405)/SR-55 interchange to Just South of the Interstate 5 (I-5)/SR-55 interchange in the Cities of Irvine, Santa Ana, and Tustin Orange County California.

United States Department of Interior
Fish and Wildlife Service

Project name: SR-Improvement Project

Project Location Map:



Project Coordinates: MULTIPOLYGON (((-117.8759352 33.6831251, -117.8767398 33.6836176, -117.8766656 33.6836711, -117.8757756 33.6849656, -117.8753679 33.686385, -117.8764618 33.6869562, -117.8764838 33.6879382, -117.8758707 33.6878581, -117.8743365 33.6880099, -117.8730168 33.6885366, -117.8721049 33.6888401, -117.8708279 33.6899826, -117.8686717 33.6921788, -117.8674379 33.6933839, -117.8665796 33.6939999, -117.8655281 33.6949637, -117.8627387 33.6980614, -117.8626528 33.6985077, -117.8627065 33.6986862, -117.8630712 33.6993378, -117.8634682 33.6995609, -117.8644445 33.6997841, -117.8649702 33.6998376, -117.864981 33.7001322, -117.8646484 33.7001947, -117.8638437 33.7000608, -117.8628781 33.6998015, -117.8623309 33.700221, -117.8611722 33.7003639, -117.8603246 33.7005156, -117.8590264 33.7017652, -117.8580394 33.7027827, -117.8551962 33.7058266, -117.8546273 33.7062996, -117.8545522 33.7066834, -117.8544664 33.7084238, -117.8524494 33.708397, -117.8496277 33.7112708, -117.8508186 33.7111459, -117.8508508 33.7115029, -117.8504967 33.7115475, -117.8504646 33.7122168, -117.8499818 33.7122971, -117.8497672 33.7126898, -117.8493166 33.7130825, -117.8483724 33.7125113, -117.8453791 33.7154743, -

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Project Counties: Orange, CA

United States Department of Interior
Fish and Wildlife Service

Project name: SR-Improvement Project

Endangered Species Act Species List

Species lists are not entirely based upon the current range of a species but may also take into consideration actions that affect a species that exists in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Please contact the designated FWS office if you have questions.

Big-Leaved crownbeard *(Verbesina dissita)*

Listing Status: Threatened

California Least tern *(Sterna antillarum browni)*

Listing Status: Endangered

Coastal California gnatcatcher *(Polioptila californica californica)*

Listing Status: Threatened

Laguna Beach liveforever *(Dudleya stolonifera)*

Listing Status: Threatened

Least Bell's vireo *(Vireo bellii pusillus)*

Listing Status: Endangered

Light-Footed Clapper rail *(Rallus longirostris levipes)*

Population: U.S.A. only

Listing Status: Endangered

Pacific Pocket mouse *(Perognathus longimembris pacificus)*

Population: Entire

Listing Status: Endangered

Riverside fairy shrimp *(Streptocephalus woottoni)*

Listing Status: Endangered

Salt Marsh bird's-beak *(Cordylanthus maritimus ssp. maritimus)*

Listing Status: Endangered

San Diego fairy shrimp *(Branchinecta sandiegonensis)*

Listing Status: Endangered

Southwestern Willow flycatcher *(Empidonax traillii extimus)*

Listing Status: Endangered

Thread-Leaved brodiaea *(Brodiaea filifolia)*

Listing Status: Threatened

Western Snowy plover *(Charadrius alexandrinus nivosus)*

Population: Pacific coastal pop.

Listing Status: Threatened

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
PHONE: (760)431-9440 FAX: (760)431-5901
URL: www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0699 September 01, 2015
Event Code: 08ECAR00-2015-E-01397
Project Name: SR-55 Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: SR-55 Improvement Project

Official Species List

Provided by:

Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
(760) 431-9440
http://www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0699
Event Code: 08ECAR00-2015-E-01397

Project Type: TRANSPORTATION

Project Name: SR-55 Improvement Project
Project Description: California Department of Transportation (Caltrans), in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route (SR) 55 in both directions from Just north of the Interstate 405 (I-405)/SR-55 interchange to just south of Interstate 5 (I-5)/SR-55 interchange in the Cities of Irvine, Santa Ana, and Tustin Orange County California.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:

Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Orange, CA

Endangered Species Act Species List

There are a total of 13 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	**Status**	**Has Critical Habitat**	**Condition(s)**
California Least tern *(Sterna antillarum browni)*	Endangered		
Coastal California gnatcatcher *(Polioptila californica californica)* Population: Entire	Threatened	Final designated	
Least Bell's vireo *(Vireo bellii pusillus)* Population: Entire	Endangered	Final designated	
Light-Footed Clapper rail *(Rallus longirostris levipes)* Population: U.S.A. only	Endangered		
Southwestern Willow flycatcher *(Empidonax traillii extimus)* Population: Entire	Endangered	Final designated	
western snowy plover *(Charadrius nivosus ssp. nivosus)* Population: Pacific coastal pop.	Threatened	Final designated	
Crustaceans			

San Diego fairy shrimp *(Branchinecta sandiegonensis)*	Endangered	Final designated	
Flowering Plants			
Big-Leaved crownbeard *(Verbesina dissita)*	Threatened		
Laguna Beach liveforever *(Dudleya stolonifera)*	Threatened		
Salt Marsh bird's-beak *(Cordylanthus maritimus ssp. maritimus)*	Endangered		
San Diego button-celery *(Eryngium aristulatum var. parishii)*	Endangered		
Ventura Marsh Milk-vetch *(Astragalus pycnostachyus var. lanosissimus)*	Endangered	Final designated	
Mammals			
Pacific Pocket mouse *(Perognathus longimembris pacificus)* Population: Entire	Endangered		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
PHONE: (760)431-9440 FAX: (760)431-5901
URL: www.fws.gov/carlsbad/

Consultation Code: 08ECAR00-2015-SLI-0699 January 04, 2017
Event Code: 08ECAR00-2017-E-00485
Project Name: SR-55 Improvement Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

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Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment

United States Department of Interior
Fish and Wildlife Service

Project name: SR-55 Improvement Project

Official Species List

Provided by:

Carlsbad Fish and Wildlife Office
2177 SALK AVENUE - SUITE 250
CARLSBAD, CA 92008
(760) 431-9440
http://www.fws.gov/carlsbad/

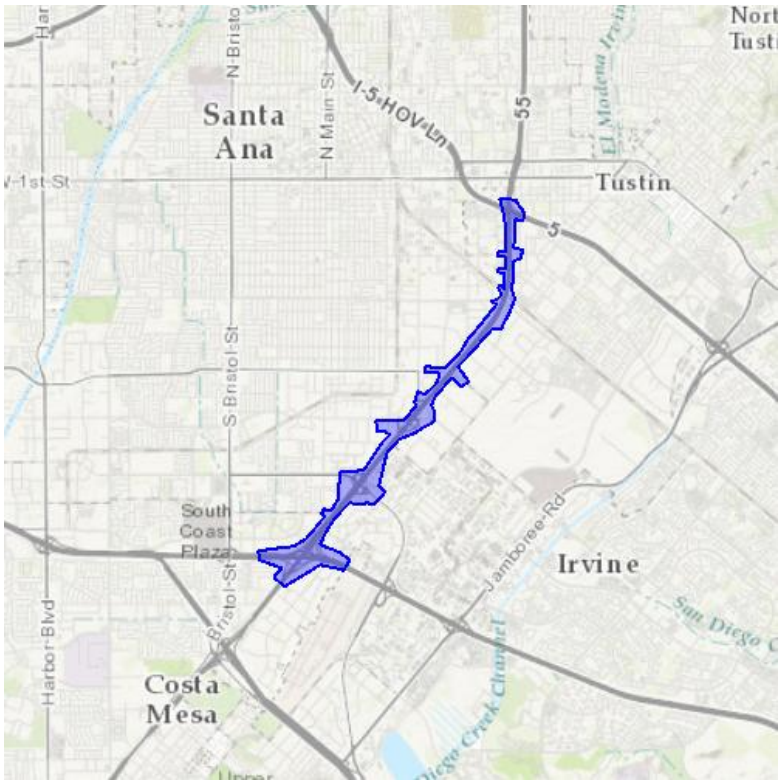
Consultation Code: 08ECAR00-2015-SLI-0699
Event Code: 08ECAR00-2017-E-00485

Project Type: TRANSPORTATION

Project Name: SR-55 Improvement Project
Project Description: California Department of Transportation (Caltrans), in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route (SR) 55 in both directions from Just north of the Interstate 405 (I-405)/SR-55 interchange to just south of Interstate 5 (I-5)/SR-55 interchange in the Cities of Irvine, Santa Ana, and Tustin Orange County California.

Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Orange, CA

Endangered Species Act Species List

There are a total of 13 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
California Least tern *(Sterna antillarum browni)* Population: Wherever found	Endangered		
Coastal California gnatcatcher *(Polioptila californica californica)* Population: Wherever found	Threatened	Final designated	
Least Bell's vireo *(Vireo bellii pusillus)* Population: Wherever found	Endangered	Final designated	
Light-Footed Clapper rail *(Rallus longirostris levipes)* Population: Wherever found	Endangered		
Southwestern Willow flycatcher *(Empidonax traillii extimus)* Population: Wherever found	Endangered	Final designated	
western snowy plover *(Charadrius nivosus ssp. nivosus)* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast)	Threatened	Final designated	

Crustaceans			
San Diego fairy shrimp *(Branchinecta sandiegonensis)* Population: Wherever found	Endangered	Final designated	
Flowering Plants			
Big-Leaved crownbeard *(Verbesina dissita)* Population: Wherever found	Threatened		
Laguna Beach liveforever *(Dudleya stolonifera)* Population: Wherever found	Threatened		
Salt Marsh bird's-beak *(Cordylanthus maritimus ssp. maritimus)* Population: Wherever found	Endangered		
San Diego button-celery *(Eryngium aristulatum var. parishii)* Population: Wherever found	Endangered		
Ventura Marsh Milk-vetch *(Astragalus pycnostachyus var. lanosissimus)* Population: Wherever found	Endangered	Final designated	
Mammals			
Pacific Pocket mouse *(Perognathus longimembris pacificus)* Population: Wherever found	Endangered		

Critical habitats that lie within your project area

There are no critical habitats within your project area.

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United States Department of the Interior

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Carlsbad, CA 92008-7385
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http://www.fws.gov/carlsbad/

In Reply Refer To: June 14, 2017
Consultation Code: 08ECAR00-2015-SLI-0699
Event Code: 08ECAR00-2017-E-02128
Project Name: SR-55 Improvement Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

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human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2015-SLI-0699

Event Code: 08ECAR00-2017-E-02128

Project Name: SR-55 Improvement Project

Project Type: TRANSPORTATION

Project Description: California Department of Transportation (Caltrans), in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen State Route (SR) 55 in both directions from Just north of the Interstate 405 (I-405)/SR-55 interchange to just south of Interstate 5 (I-5)/SR-55 interchange in the Cities of Irvine, Santa Ana, and Tustin Orange County California.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/33.71251021197207N117.84782074411405W

Counties: Orange, CA

Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area. Please contact the designated FWS office if you have questions.

Mammals

NAME	STATUS
Pacific Pocket Mouse *(Perognathus longimembris pacificus)*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8080

Birds

NAME	STATUS
California Least Tern *(Sterna antillarum browni)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Coastal California Gnatcatcher *(Polioptila californica californica)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *(Vireo bellii pusillus)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Light-footed Clapper Rail *(Rallus longirostris levipes)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6035	Endangered
Southwestern Willow Flycatcher *(Empidonax traillii extimus)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered
Western Snowy Plover *(Charadrius alexandrinus nivosus)* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Crustaceans

NAME	STATUS
San Diego Fairy Shrimp *(Branchinecta sandiegonensis)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6945	Endangered

Flowering Plants

NAME	STATUS
Big-leaved Crownbeard *(Verbesina dissita)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8049	Threatened
Laguna Beach Liveforever *(Dudleya stolonifera)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7919	Threatened
Salt Marsh Bird's-beak *(Cordylanthus maritimus ssp. maritimus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6447	Endangered
San Diego Button-celery *(Eryngium aristulatum var. parishii)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5937	Endangered
Ventura Marsh Milk-vetch *(Astragalus pycnostachyus var. lanosissimus)* There is a **final** critical habitat designated for this species. Your location is outside the designated critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1160	Endangered

Critical habitats

There are no critical habitats within your project area.

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National Marine Fisheries Service Species List

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SR-55 Widening (I405 to I-5) 0J340 NMFS Species list obtained on 06/14/17

Quad Name **Tustin**
Quad Number **33117-F7**

ESA Anadromous Fish

SONCC Coho ESU (T) -
CCC Coho ESU (E) -
CC Chinook Salmon ESU (T) -
CVSR Chinook Salmon ESU (T) -
SRWR Chinook Salmon ESU (E) -
NC Steelhead DPS (T) -
CCC Steelhead DPS (T) -
SCCC Steelhead DPS (T) -
SC Steelhead DPS (E) - **X**
CCV Steelhead DPS (T) -
Eulachon (T) -
sDPS Green Sturgeon (T) -

ESA Anadromous Fish Critical Habitat

SONCC Coho Critical Habitat -
CCC Coho Critical Habitat -
CC Chinook Salmon Critical Habitat -
CVSR Chinook Salmon Critical Habitat -
SRWR Chinook Salmon Critical Habitat -
NC Steelhead Critical Habitat -
CCC Steelhead Critical Habitat -
SCCC Steelhead Critical Habitat -
SC Steelhead Critical Habitat -
CCV Steelhead Critical Habitat -
Eulachon Critical Habitat -
sDPS Green Sturgeon Critical Habitat -

ESA Marine Invertebrates

Range Black Abalone (E) -
Range White Abalone (E) -

ESA Marine Invertebrates Critical Habitat

Black Abalone Critical Habitat -

ESA Sea Turtles

East Pacific Green Sea Turtle (T) -
Olive Ridley Sea Turtle (T/E) -
Leatherback Sea Turtle (E) -
North Pacific Loggerhead Sea Turtle (E) -

ESA Whales

Blue Whale (E) -
Fin Whale (E) -
Humpback Whale (E) -
Southern Resident Killer Whale (E) -
North Pacific Right Whale (E) -
Sei Whale (E) -
Sperm Whale (E) -

ESA Pinnipeds

Guadalupe Fur Seal (T) -

Essential Fish Habitat

Coho EFH -
Chinook Salmon EFH -
Groundfish EFH -
Coastal Pelagics EFH -
Highly Migratory Species EFH -

MMPA Species (See list at left)

ESA and MMPA Cetaceans/Pinnipeds
See list at left and consult Monica DeAngelis
monica.deangelis@noaa.gov
562-980-3232

MMPA Cetaceans -
MMPA Pinnipeds -

According to NMFS West Coast Region, Any item on the list that has an X next to it indicates that species may be present within the quad. Therefore all technical studies are discuss only the species that has X

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United States Army Corps of Engineers Letter on Determination of Corps Jurisdiction

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DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
P.O. BOX 532711
LOS ANGELES, CALIFORNIA 90053-2325

August 20, 2004

REPLY TO
ATTENTION OF:
Office of the Chief
Regulatory Branch

David Biondolillo
City of Santa Ana
Public Works Agency M-93
P.O. Box 1988
Santa Ana, California 92702

Dear Mr. Biondolillo:

Reference is made to your letter request (No. 200401677-SJH) dated July 14, 2004 for a Department of the Army determination of Corps jurisdiction over the Orange County Flood Control Channel (OCFCC), also-known-as "Lane Channel", which is tributary to San Diego Creek, in the city of Santa Ana, Orange County, California.

Based on the Corps Los Angeles District regulatory staff's working knowledge of the OCFCC as well as information furnished in your letter, we have determined that your proposed project does discharge dredged or fill material into a water of the United States (U.S.) or an adjacent wetland. Therefore, the project is subject to our jurisdiction under Section 404 of the Clean Water Act and a Section 404 permit is required from our office. In addition, since the project has the potential to impact 2.36 acres of waters of the U.S., an "Individual Permit" would be required. Individual Permits are required for projects whose impacts to waters of the U.S. are in excess of 0.50 acre.

If you have any questions, please contact Stephanie J. Hall of my staff at (213) 452-3410.

Sincerely,

Mark Durham
for Chief, South Coast Section
Regulatory Branch

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Chapter 4 List of Preparers

The following persons were principally responsible for preparation of this Initial Study/ Environmental Assessment and supporting technical studies.

4.1 California Department of Transportation, District 12

Charles Baker, Senior Environmental Planner

Brian Liu, Associate Environmental Planner

Bob Bazargan, Unit Project Manager

Bang Nguyen, Project Engineer

Bassem Barsoum, Traffic Operations

Reza Aurasteh, Ph.D., Chief, Environmental Engineering Branch

Tara Ziaeian, Environmental Engineering

Ricardo Caraig, Environmental Engineering

Kedest Ketsela, Associate Environmental Planner/Biologist

Mitch Khalilifar, Environmental Engineering

Arman Behtash, Environmental Engineering

Eric Dickson, District Landscape Architect

Cheryl Sinopoli, Archeologist

Grace Pina-Garrett, Stormwater Coordinator

Bartolome Rivera, Traffic Engineer

Gustavo Ortega, C.E.G., C.H.G., Special Geological Studies

Vathana Chy, District Landscape Associate

Edward Dolan, Associate Environmental Planner

Hector Salas, Water Quality Specialist

Gabriela Duran, Associate Environmental Planner

Kathleen Dove, Associate Environmental Planner

4.2 Orange County Transportation Authority

Steven King, Project Manager

Dan Phu, Section Manager, Project Development

4.3 HDR Engineering, Inc.

Camilo Rocha, Project Manager

Steve Crouch, Engineer

4.4 LSA Associates, Inc.

Nicole West, Associate, Project Manager

Deborah Pracilio, Principal in Charge

Christine Huard-Spencer, Senior Environmental Planner

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Bridget Lillis, Assistant Environmental Planner

Beverly Inloes, Editor

Erin Martinelli, Senior Biologist

Jennette Bosseler, Word Processor

Lauren Johnson, Editor

Gary Dow, Graphics

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Casey Tibbet, Principal Architectural Historian

David Atwater, Environmental Planner, Visual

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J.T. Stephens, Senior Noise Specialist

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Keith Lay, Associate, Air Quality

Pam Reading, Senior Environmental Planner, Water Quality

Phil Fulton, Senior Cultural Resources Manager

Tung-chen Chung, Principal, Air Quality and Noise Study Reports Technical Review

Ryan Bensley, Environmental Planner, Community Impact Assessment

4.5 Fehr & Peers

Anna Luo, Associate, Traffic Engineer

4.6 Leighton Consulting, Inc.

Djan Chandra, Senior Principal

Brynn McCulloch, Project Geologist

Chapter 5 Distribution List

The Draft and Supplemental Draft Initial Study/Environmental Assessment (IS/EA) were distributed to the state, regional, and local agencies; interested parties; and utilities, services, and businesses listed in this section. In addition, all property owners and occupants within a 0.25-mile radius of the project limits were provided the Notice of the Availability of the IS/EA. The distribution list for the following parties is provided below:

- Federal Agencies
- State Agencies
- Regional Agencies
- County Agencies
- Local Agencies (Irvine)
- Local Agencies (Tustin)
- Local Agencies (Santa Ana)
- Federal Legislators
- State Legislators
- Local Elected Officials
- Interested Groups, Organizations, and Individuals
- Utilities, Services, and Businesses

5.1 Federal Agencies

Mark Cohen
United States Army Corps of Engineers
915 Wilshire Blvd., Ste. 1101
Los Angeles, CA 90017

G. Mendel Stewart, Field Supervisor
United States Fish and Wildlife Service
Carlsbad Field Office
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

Alessandro Amaglio, Environment and Historic Preservation, Region IX
Federal Emergency Management Agency
1111 Broadway, Suite 1200
Oakland, CA 94607

Environmental Protection Agency (EPA), Office of Federal Activities
(Mail Code 2251-A)
EIS Filing Section
1200 Pennsylvania Ave
Washington, DC 20460

5.2 State Agencies

David Bunn, Director
California Department of Conservation
801 K. Street, MS 24-01
Sacramento, CA 95814

Mark Cowin, Director
California Department of Water Resources
1416 9th Street
Sacramento, CA 95814

Richard Corey, Executive Officer
California Air Resources Board
1001 I Street
Sacramento, CA 95812

Darrin Polhemus, Deputy Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Joshua Shaw, Director
California Transit Association
1415 L Street, Suite 1000
Sacramento, CA 95814

Chief-Cy Oggins
State Lands Commission
Sacramento Office
100 Howe Ave., Ste. 100 South
Sacramento, CA 95825-8202

Ed Pert, Regional Manager
State of California, Dept. of Fish & Wildlife, Region 5
3883 Ruffin Road
San Diego, CA 92123

California Highway Patrol
Border Division (601)
9330 Farnham Street
San Diego, CA 92123-1216

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Executive Officer
State Clearinghouse
Office of Planning and Research
1400 Tenth St.
Sacramento, CA 95814

California Transportation Commission
1120 N Street, Room 2221 (MS-52)
Sacramento, CA 95814

California Energy Commission
Attn: Executive Director,
Environmental Office
1516 Ninth Street
Sacramento, CA 95814

California Public Utilities Commission
Attn: Director
320 West 4th Street, Suite 500
Los Angeles, CA 90013

California Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

5.3 Regional Agencies

Southern California Association of Governments
Attn: Intergovernmental Review
818 W. 7th Street, 12th Floor
Los Angeles, CA 90017-3435

Mark G. Adelson, Section Chief
Water Quality Control Board
Santa Ana Region
3737 Main St. #500
Riverside, CA 92501

IGR Coordinator
South Coast AQMD
21865 Copley Drive
Diamond Bar, CA 91765

5.4 County Agencies

Kevin Onuma, Deputy Director-OC Infrastructure Programs Manager
OC Infrastructure
OC Flood Division
300 North Flower St., 7th Floor
Santa Ana, CA 92703

Jeff Bowman, Fire Chief
Orange County Fire Authority
1 Fire Authority Rd.
Irvine, CA 92602

Jim Herberg, General Manager
Orange County Sanitation District
10844 Ellis Ave
Fountain Valley, CA 92708

Paul Cook, General Manager
Irvine Ranch Water District
15600 Sand Canyon Avenue
Irvine, CA 92618

Steve Franks, Director, Community Resources
County of Orange
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Sandra Hutchens, Sheriff - Coroner
Orange County Sheriff's Department
840 N. Eckhoff Street, Suite 104
Orange, CA 92868

Shane Silsby, Director
OC Public Works
300 North Flower Street
Santa Ana, CA 92703

Orange County Transportation Authority
Attn: Steven King
550 S. Main Street
Orange, CA 92863

Orange County Transportation Authority
Attn: Dan Phu
550 S. Main Street
Orange, CA 92863

5.5 Local Agencies

5.5.1 Irvine

Jaimiee Bourgeois,
Public Works Department
City of Irvine
P.O. Box 19575
Irvine, CA 92623

Susan Emery, Director
Community & Development Department
City of Irvine
1 Civic Center Plaza
Irvine, CA 92606

David L. Maggard, Jr.
Chief of Police
Irvine Police Department
1 Civic Center Plaza
Irvine, CA 92606

Manuel Gomez, Director
Public Works Department
City of Irvine
1 Civic Center Plaza
Irvine, CA 92606

Terry L. Walker, Superintendent
Irvine Unified School District
5050 Barranca Parkway
Irvine CA 92604

City of Irvine City Hall
1 Civic Center Plaza
Irvine, CA 92606-5207

5.5.2 Tustin

Eric Johnson, Principal Engineer
Department of Public Works
City of Tustin
300 Centennial Way
Tustin, CA 92780

Elizabeth Binsack, Director
Community Development Department
City of Tustin
300 Centennial Way
Tustin, CA 92780

Charles Celano, Chief of Police
Tustin Police Department
300 Centennial Way
Tustin, CA 92780

Helen Fried, County Librarian
Tustin Library
345 E. Main Street
Tustin, CA 92780

Doug Stack, Director
Public Works Department
City of Tustin
300 Centennial Way
Tustin, CA 92780

Dr. Gregory Franklin,
Superintendent
Tustin Unified School District
300 South C Street
Tustin, CA 92780

5.5.3 Santa Ana

Kenny Nguyen
Public Works Agency
City of Santa Ana
20 Civic Center Plaza, M-36
Santa Ana, CA 92702

Kelly Reenders, Executive Director
Community Development Agency
City of Santa Ana
20 Civic Center Plaza, M-25
Santa Ana, CA 92701

Carlos Rojas, Chief of Police
City of Santa Ana Police Department
60 Civic Center Plaza
Santa Ana, CA 92701

Heather Folmar, Library Operations Manager
Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, CA 92701

Rick Miller, Ph.D., Superintendent
Santa Ana Unified School District
1601 East Chestnut Avenue
Santa Ana, CA 92701

Fred Mousavipour, Executive Director
Public Works Agency
City of Santa Ana
20 Civic Center Plaza, M-21
Santa Ana, CA 92701

5.5.4 Costa Mesa

Ernesto Munoz, Public Services Director
City of Costa Mesa
Public Services Department
77 Fair Drive
Costa Mesa, CA 92626

Gary Armstrong, Economic Development Services Director
City of Costa Mesa
Development Services Department
77 Fair Drive
Costa Mesa, CA 92626

Robert Sharpnack, Chief of Police
City of Costa Mesa Police Department
P.O. Box 1200
Costa Mesa, CA 92628-1200

Dr. Frederick Navarro, Superintendent
Newport-Mesa Unified School District
2985 Bear Street
Costa Mesa, CA 92626

5.6 Federal Legislators

Hon. Dianne Feinstein, Member
United States Senate
11111 Santa Monica Blvd., Suite 915
Los Angeles, CA 90025-3343

Hon. Kamala Harris, Member
United States Senate
300 South Spring Street
Los Angeles, CA 90013

Hon. Lou Correa
46th Congressional District
United States House of Representatives
50 S. Anaheim Boulevard, Suite 90
Anaheim, CA 92805

Hon. Mimi Walters
45th Congressional District
United States House of Representatives
3333 Michelson Drive, Suite 230
Irvine, CA 92612

Hon. Dana Rohrabacher
48th Congressional District
United States House of Representatives
101 Main Street, Suite 380
Huntington Beach, CA 92648

5.7 State Legislators

Hon. Matthew Harper, Member
74th Assembly District
1503 South Coast Drive, Suite 205
Costa Mesa, CA 92626

Hon. Tom Daly, Member
69th Assembly District
2400 E. Katella Avenue, Suite 640
Anaheim, CA 92806

Steven Choi, Member
68th Assembly District, State of California
17821 E. 17th Street, Suite #150
Tustin, CA 92780

Hon. Janet Nguyen, Member
34th Senate District, State of California
10971 Garden Grove Building
Garden Grove, CA 92843

Hon. John Moorlach, Member
37th Senate District, State of California
30 Executive Park, Suite 250
Irvine, CA 92614

5.8 Local Elected Officials

Hon. Andrew Do
Orange County Supervisor
1st District Supervisor
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Hon. Michelle Steel
Orange County Supervisor
2nd District Supervisor
10 Civic Center Plaza
Santa Ana, CA 92701

Hon. Todd Spitzer, Chairmen
OC Board of Supervisors
3rd District Supervisor
333 W. Santa Ana Blvd.
Santa Ana, CA 92701

Vincent Sarmiento
Mayor Pro Tem, Ward 1
City of Santa Ana
20 Civic Center Plaza
Santa Ana, CA, 92701

Jeffrey Lalloway
Mayor Pro Tem, City of Irvine
P.O. Box 19575
Irvine, California 92623-9575

Dr. Allan Bernstein
Major, City of Tustin
300 Centennial Way
Tustin, CA 92780

Sal Tinajero
City of Santa Ana Councilmember (Ward 6)
20 Civic Center Plaza
Santa Ana, CA, 92701

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City of Santa Ana Councilmember (Ward 2)
20 Civic Center Plaza
Santa Ana, CA, 92701

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City of Santa Ana Councilmember (Ward 3)
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P.O. Box 19575
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Irvine, California 92623-9575

Christina Shea
City of Irvine Councilmember
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Al Murray
Mayor Pro Tem, City of Tustin
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300 Centennial Way
Tustin, CA 92780

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City of Tustin Councilmember
300 Centennial Way
Tustin, CA 92780

Charles E. “Chuck” Puckett
City of Tustin Councilmember
300 Centennial Way
Tustin, CA 92780

Donald P. Wagner,
Mayor, City of Irvine
P.O. Box 19575
Irvine, CA 92623-9575

Miguel Pulido
Mayor, City of Santa Ana
20 Civic Center Plaza
Santa Ana, CA 92701

5.9 Interested Groups, Organizations, and Individuals

Cindi M. Alvitre
Ti'At Society
3098 Mace Avenue, Apt. D
Costa Mesa, CA 92626

Tongva Nation
Gabrielino/Tongva
Council/Gabrielino
Sam Dunlap, Tribal Secretary
P.O. Box 86908
Los Angeles, CA 90086

David Belardes, Chairperson
Juaneno Band of Mission Indians
Acjachemen Nation
31411 La Matanza St, Suite A
San Juan Capistrano, CA 92675

Anthony Rivera, Chairman
Juaneno Band of Mission Indians
Acjachemen Nation
31411 La Matanza Street, Suite A
San Juan Capistrano, CA 92675

John Tommy Rosas, Tribal Admin.
Tongva Ancestral Territorial Tribal Nation
tattnlaw@gmail.com

Anthony Morales, Chairperson
Gabrieleno/Tongva San Gabriel Band of Mission
1875 Century Park East, Suite 1500
Los Angeles, CA 90067

Alfred Cruz, Cultural Resources Coordinator
Juaneno Band of Mission Indians
PO Box 25628
Santa Ana, CA 92799

Bernie Acuna, Tribal Chairman
Gabrielino-Tongva Tribe
1999 Avenue of the Stars, Ste. 1100
Los Angeles, CA 90067-4618

Joyce Perry, Representing Tribal Chairperson
Juaneno Band of Mission Indians
Acjachemen Nation
4955 Paseo Segovia
Irvine, CA 92612

Gabrielino-Tongva Tribe
Linda Candelaria, Chairwoman
1875 Century Park East
Los Angeles, CA 90067

Gabrieleno Band of Mission Indians
Andrew Salas, Chairperson
PO Box 393
Covina, CA 91723

Dave Singleton, Program Analyst
Native American Heritage Commission
915 Capitol Mall, Room 364
Sacramento, CA 95814

Soboba Band of Luiseño Indians
Joseph Ontiveros, Director of Cultural Resources
23906 Soboba Road
P.O. Box 487
San Jacinto, CA 92583

Gabrielino Tongva Indians of California Tribal Council
Robert F. Dorame, Tribal Chair/Cultural Resources
P.O. Box 490
Bellflower, CA 90707

Rob Wood
Native American Heritage Commission Analyst
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Gabrielino Tongva Nation
Sam Dunlap
P.O. Box 86908
Los Angeles, CA 90086

5.10 Utilities, Services, and Businesses

Metropolitan Water District of Southern California
700 North Alameda Street
Los Angeles, CA 90012-2944

Malcolm Brown
Airtouch Cellular (Utiliquest)
15505 Sand Canyon Ave
Irvine, CA 92618

Becky Brandon
AT&T California
1265 N. Van Buren St., Room 180
Anaheim, CA 92807

Walter Werstiuk
AT&T Transmission
22311 Brookhurst St., Ste. 203
Huntington Beach, CA 92646

OSP Engineer
AT&T Transmission TCG
700 S. Flower St #340
Los Angeles, CA 90017

Joseph Carillo
Cox Communications
29947 Avenida De Las Banderas
Rancho Santa Margarita, CA 92688

Dean Ruffridge, Sr. Vice President
CR & R Waste Services – Tustin
11292 Western Ave.
PO Box 125
Stanton, CA 90680

Scott Wells,
Chief Executive Officer
Eller Media Company
19320 Harborgate Way
Los Angeles, CA 90501

David Daigle
Wilcon
4505 Glencoe Ave.
Marina Del Ray, CA 90402

Gerry Issasi
Golden State for Time Warner–Irvine
7 Mason
Irvine, CA 92618

Aura Buluran
Level 3 Communications
14452 Franklin Avenue
Tustin, CA 92780

Dean Boyers
MCI (Verizon Business)
2400 N. Glenville
Richardson, TX 75082

Mark Pelka
Mesa Consolidated Water
1965 Placentia
Costa Mesa, CA 92627

Kevin Sullivan
Metromedia Fiber Network Services Inc
530 W. 6th St.
Los Angeles, CA 90014

Mark Denning
Mpower Communications - ITC Locates
72 Corporate Park.
Irvine, CA 92606

Daisy Covarrubias
Sanitation Districts of Orange County
10844 Ellis Ave
Fountain Valley, CA 92708

Dave Youngblood
Orange County Water District (Utiliquest)
PO Box 8300
Fountain Valley, CA 92728

Sue Beam
CenturyLink
700 W. Mineral Ave.
Littleton, CO 80120

Daniel Leyva
Redflex Traffic Systems
23751 N 23rd Ave. #150
Phoenix, AZ 85085

Joe Lanzisera
Southern California Gas – Transmission
9400 Oakdale Ave.
Chatsworth, CA 91311

Stefan Faber
Southern California Gas – Santa Ana
1919 State College Blvd.
Anaheim, CA 92806

Kim Gurule
Southern California Edison
1241 S. Grand Ave.
Santa Ana, CA 92705

Telekenex
3221 20th St.
San Francisco, CA 94110

Dave Dolney
Time Warner Cable – Orange County
1500 Auto Center Dr.
Ontario, CA 92841

Chrystal Denning
Waste Management
1800 S. Grand Ave
Santa Ana, CA 92705

Lee Arnold
XO Communications – Los Angeles
818 W. 7th Street #980
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Appendix A CEQA Checklist

The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated December 23, 2016 and executed by FHWA and Caltrans. The Department is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) *as a whole* has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

CEQA Environmental Checklist

12-ORA-55	**6.4/10.3**	**EA 0J3400/EFIS 1200020328**
Dist.-Co.-Rte.	P.M/P.M.	E.A.

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

	Potentially Significant Impact	**Less Than Significant with Mitigation**	**Less Than Significant Impact**	**No Impact**
I. AESTHETICS: Would the project:				
a) Have a substantial adverse effect on a scenic vista	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐
II. AGRICULTURE AND FOREST RESOURCES: In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) 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?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) 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))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) 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?	☐	☐	☐	☒
III. AIR QUALITY: Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES: Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	☐	☐	☒	☐
c) 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?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d)	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?	☐	☐	☒	☐
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒
V. CULTURAL RESOURCES: Would the project:					
a)	Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☐	☐	☒	☐
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐
d)	Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐
VI. GEOLOGY AND SOILS: Would the project:					
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
	i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	☐	☐	☐	☒
	ii) Strong seismic ground shaking?	☐	☐	☒	☐
	iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
	iv) Landslides?	☐	☐	☐	☒
b)	Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c)	Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d)	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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒

VII. GREENHOUSE GAS EMISSIONS: Would the project:

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	An assessment of the greenhouse gas emissions and climate change is included in the body of the environmental document. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		

VIII. HAZARDS AND HAZARDOUS MATERIALS: Would the project:

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) 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?	☐	☒	☐	☐
e) 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 for people residing or working in the project area?	☐	☐	☐	☒
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
h)	Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	☐	☐	☐	☒
IX. HYDROLOGY AND WATER QUALITY: Would the project:					
a)	Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
b)	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
c)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐
d)	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	☐	☐	☒	☐
e)	Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	☐	☐	☒	☐
f)	Otherwise substantially degrade water quality?	☐	☐	☒	☐
g)	Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	☐	☐	☐	☒
h)	Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☒	☐
i)	Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	☐	☐	☒	☐
j)	Inundation by seiche, tsunami, or mudflow	☐	☐	☐	☒
X. LAND USE AND PLANNING: Would the project:					
a)	Physically divide an established community?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b)	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c)	Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒
XI. MINERAL RESOURCES: Would the project:					
a)	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?	☐	☐	☐	☒
b)	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?	☐	☐	☐	☒
XII. NOISE: Would the project result in:					
a)	Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b)	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c)	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d)	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
f)	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIII. POPULATION AND HOUSING: Would the project:					
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☐	☒
b)	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XIV. PUBLIC SERVICES:					
a)	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
	i. Fire protection?	☐	☐	☒	☐
	ii. Police protection?	☐	☐	☒	☐
	iii. Schools?	☐	☐	☒	☐
	iv. Parks?	☐	☐	☒	☐
	v. Other public facilities?	☐	☐	☒	☐
XV. RECREATION:					
a)	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?	☐	☐	☐	☒
b)	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?	☐	☐	☐	☒
XVI. TRANSPORTATION/TRAFFIC: Would the project:					
a)	Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	☐	☐	☒	☐
b)	Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	☐	☒	☐	☐
c)	Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
d)	Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e)	Result in inadequate emergency access?	☐	☐	☒	☐
f)	Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐
XVII. UTILITIES AND SERVICE SYSTEMS: Would the project:					
a)	Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☒	☐
b)	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
c)	Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d)	Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e)	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?	☐	☐	☒	☐
f)	Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g)	Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE					
a)	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☐	☒	☐

		Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
b)	Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c)	Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

I. AESTHETICS

The potential for the Build Alternatives to result in adverse impacts related to aesthetics was assessed in the *Visual Impact Assessment* (2015), *Supplemental Visual Impact Assessment Memo* (2016), and Section 2.6, Visual/Aesthetics, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. The study area viewshed includes distant views of the San Bernardino Mountains to the north and the Santa Ana Mountains to the east. However, the Build Alternatives would not affect either of those distant scenic views, impact views to those areas from the State Route (SR-55) corridor, or result in the loss of any scenic resources in the area. Therefore, the Build Alternatives would not result in adverse impacts related to scenic vistas. No mitigation is required.

b) No Impact. SR-55 is not a State-designated Scenic Highway, and there are no State-designated Scenic Highways crossing or in the vicinity of the project segment of SR-55. Views along the SR-55 corridor include distant views of the San Bernardino Mountains to the north and the Santa Ana Mountains to the east. The Build Alternatives would not affect either of those distant views and would not impact views to those areas from the SR-55 corridor. Therefore, the Build Alternatives would not result in adverse impacts related to scenic highways or resources. No mitigation is required.

c) Less Than Significant Impact. The construction of the Build Alternatives would result in temporary visual changes as a result of truck hauling, excavation activity, removal of vegetation, grading, detour signage, other construction activities, and views of construction equipment, staging areas, temporary construction easements (TCEs), and materials. However, after construction is completed, these temporary impacts would no longer occur. Areas identified for revegetation would be revegetated at the completion of construction. Because construction impacts are temporary and disturbed areas would be revegetated on completion of construction, no permanent change in visual character and/or quality would occur. Therefore, the potential visual impacts during construction and operation of the Build Alternatives would not be adverse. Implementation of Measures V-1 and V-2, provided in Section 2.6, would minimize visual impacts during construction and operation of the project.

d) Less Than Significant Impact. Existing light sources in the study area include traffic, street lighting, and lighted parking lots; signalization at intersections and freeway on- and off-ramps; commercial/industrial/business park areas; and limited light sources from residential areas. Some existing light fixtures within the freeway right-of-way along the project segment of SR-55 would be relocated as part of the Build Alternatives. The relocated light fixtures would be designed and installed consistent with existing California Department of Transportation (Caltrans) standards. The relocated light fixtures would be similar in location, function, and light intensity as the existing lighting. As a result, the changes in light fixtures under the Build Alternatives would not result in impacts related to lighting, and no mitigation is required.

Existing sources of glare in the SR-55 corridor consist mostly of reflective surfaces from vehicles traveling along SR-55. Other sources include reflective surfaces of wet pavement and on adjacent buildings. The Build Alternatives would introduce a new source of glare through the addition of new travel lanes; however, these would be the same as the existing sources of glare on SR-55. As a result, the Build Alternatives would not result in adverse impacts related to glare, and no mitigation is required.

II. AGRICULTURE AND FOREST RESOURCES

As discussed in the introduction to Chapter 2, Affected Environment, Environmental Consequences, and Avoidance, Minimization, and Mitigation Measures, the *Community Impact Assessment* (CIA 2015), and the *Supplemental Community Impact Assessment* (2017), there is a parcel of land immediately west of the SR-55/Interstate 405 (I-405) interchange that has been and continues to be used for agricultural uses. That parcel is designated as Farmland of Statewide Importance by the California Department of Conservation Farmland Mapping and Monitoring Program and is shown on the City of Costa Mesa General Plan Land Use Map (City of Costa Mesa, July 2004) as Urban Center Commercial.

With the exception of the parcel described above, there are no farmlands, agricultural resources, forest lands, or timberlands within or immediately adjacent to the disturbance limits of the Build Alternatives. There are no Williamson Act contracts applicable to the parcel of land described above or elsewhere along the project segment of SR-55.

a), b), and e) No Impact. The Build Alternatives would not result in the use of any land from the parcel designated as Farmland of Statewide Importance in the City of Costa Mesa and, therefore, would not convert any land to a nonagricultural use, conflict with zoning or a Williamson Act contract, or result in the conversion of other agricultural land to non-agricultural uses. No mitigation is required.

c) and d) No Impact. There are no designated timber or forest lands or existing timber or forest uses along the project segment of SR-55. As a result, the Build Alternatives would not conflict with zoning or result in a change in zoning on forest lands, the loss of forest land, or the conversion of forest land to non-forest land uses. No mitigation is required.

III. AIR QUALITY

The potential for the Build Alternatives to adversely impact air quality was assessed in the *Air Quality Assessment Report* (2015), *Supplemental Air Quality Analysis* (2016), and Section 2.13, Air Quality, in this IS/EA. The following discussion is based on those analyses.

a) No Impact. The project is included in the 2016/2040 financially constrained Regional Transportation Plan (RTP) and the 2017 Federal Transportation Improvement Program (FTIP), and would not conflict with or obstruct the implementation of any applicable air quality plan (AQMP). No mitigation is required.

b) Less Than Significant Impact. SR-55 is in an attainment/maintenance area for carbon monoxide (CO). Using the Caltrans Transportation Project-Level Carbon Monoxide Protocol, a CO screening analysis was conducted. That analysis determined the Build Alternatives would not result in any CO concentrations that would exceed the 1-hour or 8-hour CO standards. No mitigation is required.

The project segment of SR-55 is in a nonattainment area for the federal standards for particulate matter less than 2.5 microns and 10 microns in size ($PM_{2.5}$ and PM_{10}, respectively). Based on a PM hot-spot analysis, it is not expected that changes to $PM_{2.5}$ and PM_{10} emissions levels associated with the Build Alternatives would result in new violations of the federal ambient air quality standards (AAQSs) for the following reasons:

- Based on the projected $PM_{2.5}$ concentrations in the 2007 AQMP, without the proposed project, 24-hour $PM_{2.5}$ concentrations in the project area would be reduced to 14 percent below the federal AAQS by 2015.

- Based on the projected $PM_{2.5}$ concentrations in the 2007 AQMP, without the proposed project, the annual average $PM_{2.5}$ concentrations in the project area would be reduced to 18 percent below the federal AAQS by 2014.
- With the exception of 2007, the ambient PM_{10} concentrations have not exceeded the 24-hour or annual federal AAQS.
- Based on the projected PM_{10} concentrations in the 2007 AQMP, without the proposed project, the 24-hour PM_{10} concentrations would be 55 percent below the federal AAQS by 2015.
- When compared to the No Build conditions, the largest increase in regional $PM_{2.5}$ and PM_{10} emissions is 1.00 percent.

As a result, future new or worsened $PM_{2.5}$ and PM_{10} violations of any AAQS are not anticipated. Therefore, the project meets the conformity hot-spot requirements in 40 Code of Federal Regulations (CFR) 93-116 and 93-123 for $PM_{2.5}$ and PM_{10}. The estimated peak-day construction emissions by construction phase and total construction emissions for all build alternatives were shown in Tables 2.13.4 in Section 2.13 in the IS/EA. Because Alternative 3 and 3M would result in the largest disturbed area, at 77.2 acres (ac), the construction-related emissions in Table 2.13.5 were calculated for that alternative. Alternatives 1, 2, and 4 would result in slightly lower construction-related emissions because they would result in smaller disturbed areas. Compliance with South Coast Air Quality Management District (SCAQMD) Rule 403 (refer to Measure AQ-1) and Measures AQ-2 through AQ-5 (provided in Section 2.13) during construction would avoid and/or minimize construction-related air quality impacts from fugitive dust emissions and construction equipment emissions.

A quantitative mobile source air toxics (MSAT) emissions analysis was conducted. As shown in Table 2.13.11 in the IS/EA, the analysis indicates a substantial decrease in MSAT emissions can be expected between the existing (2011) condition and the future (2020 and 2040) No Build Alternative. This is consistent with a United States Environmental Protection Agency (EPA) study that projects a substantial reduction in on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde between 2000 and 2050. Based on the analysis for this project, reductions in MSATs expected by 2040 are: 64 percent of diesel particulate matter (diesel PM), 66 percent of benzene, 77 percent of 1,3-butadiene, 77 percent of acrolein, and 69 percent of formaldehyde. These projected reductions are achieved while total vehicle miles traveled increase by 5.5 percent between 2011 and 2040 for the No Build Alternative. As shown in Table 2.13.11, the Build Alternatives would result in a negligible change in MSAT. As a result, while the Build Alternatives would result in a negligible increase in localized MSAT emissions, the EPA vehicle and fuel regulations, coupled with fleet turnover, would result in substantial reductions in MSAT over time that would result in regionwide MSAT levels substantially lower than they are today. No mitigation is required.

c) Less Than Significant Impact. The Build Alternatives would not result in concentrations exceeding the 1-hour or 8-hour CO standards and would not delay the attainment of the $PM_{2.5}$ or PM_{10} AAQS in the South Coast Air Basin. No mitigation is required.

d) Less Than Significant Impact. As shown in Table 2.13.2 in Section 2.13 in the IS/EA, the sensitive receptors in the vicinity of the project segment of SR-55 are residential and hotel uses. The Build Alternatives may result in temporary, short-term construction-related increases in pollutant concentrations associated with construction equipment emissions and fugitive dust. However, implementation of Measures AQ-1 through AQ-5 provided in Section 2.13 would minimize those potential short-term air quality impacts on sensitive receptors.

The operation of the Build Alternatives would not result in adverse impacts related to CO, $PM_{2.5}$, and PM_{10}. No mitigation is required.

e) Less Than Significant Impact. The Build Alternatives may result in temporary, short-term construction-related objectionable odors from sources such as equipment emissions and asphalt paving. Measures AQ-1 through AQ-5 would minimize those potential short-term odor impacts.

IV. BIOLOGICAL RESOURCES

The potential for the Build Alternatives to result in adverse impacts to biological resources was assessed in the *Natural Environment Study (Minimal Impacts)* (NES(MI)), 2015), the *Supplemental Natural Environment Study (Minimal Impacts)* (2017), the *Jurisdictional Delineation* (2014), and Sections 2.15, Wetlands and Other Waters; 2.16, Plant Species; 2.17, Animal Species; and 2.18, Invasive Species, in this IS/EA. The following discussions are based on those analyses.

a) Less than Significant Impact. The biological study area (BSA) is highly disturbed and does not contain high quality suitable habitat for many special-status species; however, there is marginally suitable habitat for burrowing owl at the southernmost field at Del Amo Avenue. In addition, no owls or owl signs (burrows, scat, tracks, or feathers) were observed during the field surveys. Therefore, the probability of burrowing owls occurring on the southernmost field at Del Amo Avenue is low. Nevertheless, burrowing owls may move onto this site prior to construction. The Build Alternatives may use the southernmost field at Del Amo Avenue as a staging area for equipment during construction. Alternatives 3 and 4 would require a temporary construction easement (TCE) on a portion of the parcel that includes that field. Therefore, if any burrowing owls are present on the site, the Build Alternatives would temporarily impact those owls during construction. The temporary impacts could include removal of burrows and, potentially, the need to relocate owls away from areas proposed for staging and TCEs. Compliance with Measure AS-1, provided in Section 2.17, would avoid and/or minimize any potential impacts to burrowing owls during construction. No mitigation is required.

In addition, special-status bridge/culvert and crevice-dwelling wildlife species have the potential to occur within the BSA. The majority of suitable bat roosting habitat in the BSA was observed in expansion joints within culverts along the various channels, particularly around the I-405/SR-55 interchange, along Lane Channel, and at the Santa Ana/Santa Fe Channel (adjacent to the South Tustin Overhead). Small numbers of roosting myotis bats (likely *Yuma myotis*) were observed in some of the expansion joints, and there is potential for maternity roosting in these structures due to the availability of crevice habitat in close proximity to high-quality foraging habitat. In addition, mature palm trees with untrimmed fronds that were observed throughout the right-of-way may provide roosting habitat for western yellow bat, a California Department of Fish and Wildlife (CDFW) Species of Special Concern that roosts in the dead fronds of palm trees.

Construction activities of the Build Alternatives could impact bats and other bridge- and crevice-nesting special-status species directly as a result of disturbances to weep holes and crevice habitat, and through modifications to culverts and other drainage structures. In addition, construction of the Build Alternatives could also impact tree-roosting habitat for bats through the removal of palm trees or their fronds within the BSA. Compliance with Measures AS-4 and AS-5, provided in Section 2.17, would avoid and/or minimize potential impacts to special-status bat species. No mitigation is required.

b) and c) Less Than Significant Impact. The Build Alternatives would impact United States Army Corps of Engineers (USACE) jurisdictional and nonjurisdictional areas and CDFW jurisdictional areas. The Build Alternatives would temporarily remove 1.01 ac of nonwetland waters subject to USACE jurisdiction as a result of the realignment and reconfiguration of Lane Channel (Drainage E) between Dyer Road and MacArthur Boulevard. As a result of the reconfiguration of Lane Channel, the new channel would enlarge the potential USACE jurisdiction to 1.53 ac within the BSA. Therefore, there would be a 0.52 ac net increase in the area subject to USACE jurisdiction. The Build Alternatives would not result in permanent impacts to USACE jurisdictional areas or temporary impacts to USACE nonjurisdictional areas. Alternatives 1 and 2 would result in approximately 0.01 ac of permanent impacts, and Alternatives 3, 4, and 3M would result in approximately 0.02 ac of permanent impacts to USACE nonjurisdictional areas as a result of the modifications to Lane Channel.

The impacts to waters under the jurisdiction of the Regional Water Quality Control Board (RWQCB) would be the same as described above for the USACE.

The Build Alternatives would temporarily remove 1.01 ac of nonwetland waters subject to CDFW jurisdiction as a result of the realignment and reconfiguration of Lane Channel. As described for the USACE jurisdiction above, CDFW jurisdiction within the new channel would be the same as the USACE jurisdiction, 1.53 ac. Therefore, there would be a net decrease of 0.93 ac of area subject to CDFW jurisdiction associated with Drainage E (Lane Channel). The Build Alternatives would result in 0.93 ac of permanent impacts to nonwetland water subject to CDFW jurisdiction as a result of the modifications to Lane Channel. The Build Alternatives would not result in temporary impacts to CDFW nonjurisdictional areas. The Build Alternatives would result in 0.04 ac of permanent impacts to CDFW nonjurisdictional areas associated with Drainage F as a result of the realignment of the eastbound East Dyer Road on-ramp to northbound SR-55 and the undergrounding of the existing portion of Drainage F that is located south of the on-ramp.

The *San Diego Creek Watershed Special Area Management Plan* (SAMP, 2012) identified restoration priorities and compensatory mitigation areas in the San Diego Creek Watershed as Aquatic Resource Integrity Areas. Because the Build Alternatives would not result in any impacts to any Aquatic Resource Integrity Areas, the potential project impacts on waters are subject to an abbreviated alternative permitting process associated with the SAMP. If the project is found to be consistent with the San Diego Creek Watershed SAMP by the resource agencies, a Letter of Permission (LOP)/Watershed Streambed Alteration Agreement (WSAA) would be issued to authorize the discharge of dredged and/or fill materials into waters of the U.S. and waters of the State, respectively. If the project is found not to be consistent with the San Diego Creek Watershed SAMP, an Individual Permit from the USACE and a standard Streambed Alteration Agreement (SAA) from the CDFW would be required.

While specific compensatory mitigation is not expected to be required by the resource agencies for the proposed project, measures are expected to be required as conditions of the LOP/WSAA. “Proposed General Conditions for the San Diego Creek Watershed Letter of Permission” included in the SAMP list specific conditions that may be included in a LOP for a project. A summary of those conditions was provided in Table 2.15.5 in Section 2.15. Although these conditions have not yet been approved, it is likely some or all of these would be conditions of the LOP/WSAA for any of the Build Alternatives. If compensatory mitigation is ultimately required by the resource agencies for the project impacts on waters, that mitigation would be determined in coordination with the regulatory agencies based on the quality and quantity of jurisdictional resources affected by the project. If required,

compensatory mitigation would be provided through the Measure M2 Freeway Transportation Mitigation Program. In addition, Measures WET-1 through WET-3 would minimize potential impacts to areas under USACE and CDFW jurisdiction. No mitigation is required.

d) Less than Significant Impact. The Build Alternatives would not interfere with the movement of any native resident or migratory fish or impede the use of native wildlife nursery sites. As discussed in the NES(MI), during the site visits for the bat habitat suitability assessment, a coyote was observed in Lane Channel, and additional (tracks and scat) suggest that coyotes use the channel. However, coyotes are adapted to urban areas and are increasingly present in urban drainage channels such as Lane Channel. Although coyotes are evidently present in Lane Channel, the overall project site does not appear to function as a wildlife movement corridor. Therefore, the Build Alternatives would not affect wildlife movement corridors or interfere with established native resident migratory wildlife corridors.

The BSA may contain potentially suitable habitat for migratory birds protected under the Migratory Bird and Treaty Act (MBTA) and the California Fish and Game Code. These species may nest in trees or within bridges and crevices. Construction of the Build Alternatives could impact nesting birds either directly as a result of the removal of trees occupied by nesting birds or disturbances to bridge and crevice habitat, or indirectly as a result of disturbances near trees occupied by nesting birds. Compliance with Measures AS-2, AS-3, and AS-6, provided in Section 2.17, would avoid and/or minimize potential impacts to migratory birds. No mitigation is required.

e) No Impact. There are no local policies or ordinances protecting biological resources that are relevant to the BSA. Therefore, the Build Alternatives would not conflict with local policies or ordinances protecting biological resources. No mitigation is required.

f) No Impact. There are no Multispecies Habitat Conservation Plans (MSHCPs) or other adopted Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) applicable to the area within and in the vicinity of the BSA. As a result, the Build Alternatives would not conflict with any MSHCPs, HCPS, or NCCPs. No mitigation is required.

V. CULTURAL RESOURCES

The potential for the project to result in adverse impacts related to cultural and paleontological resources was assessed in the *Historic Property Survey Report* (HPSR 2015), the *Supplemental Historic Resources Analysis* (2017), the attachments to the HPSR, and Sections 2.7, Cultural Resources; and the *Paleontological Resources Identification Report* (PIR 2014), *Supplemental Paleontological Anlaysis* (2017), and Section 2.11, Paleontology, in this IS/EA. The following discussions are based on those analyses.

a) and b) Less Than Significant Impact. It was determined that the only cultural resources within the project Area of Potential Effects (APE) do not appear to be eligible for inclusion in the National Register of Historic Places (National Register), do not qualify as historical resources pursuant to CEQA, or are exempt per the Section 106 Programmatic Agreement (PA). In addition, it has been determined that a finding of No Historic Properties Affected is appropriate because there are no historical resources within the project limits or there are no impacts to historical resources pursuant to CEQA Guidelines Section 15064.5(b)(3).

No archaeological resources requiring evaluation were identified through archival research, consultation, or field survey, and the APE does not appear to be sensitive in terms of archaeological resources.

However, there is the potential to encounter unknown buried cultural resources or archaeological materials within the project disturbance limits during construction of the Build Alternatives. If buried cultural resources or archaeological materials are exposed during construction, it is Caltrans policy that work in the area must halt until a qualified archaeologist can evaluate the nature and significance of the find. In the event that previously unknown buried cultural materials are encountered during construction, compliance with Measure CR-1, provided in Section 2.7, potential impacts to previously unknown cultural resources would be less than significant. No mitigation is required.

c) Less than Significant Impact. Geologic mapping shows that Older Quaternary Alluvial Deposits, which may contain significant vertebrate fossils, are likely present under the project segment of SR-55 and the surrounding areas at depths greater than 10 feet (ft) below ground surface (bgs). Soils above 10 ft within the project disturbance limits are either Artificial Fill or Younger Quaternary Alluvium that likely does not contain fossil remains. Excavation during project construction is not anticipated to extend more than 10 ft bgs and, therefore, it is not expected that sensitive sediments that might contain paleontological resources would be encountered. However, if excavation exceeds 10 ft in depth, that deeper excavation would likely result in permanent effects on paleontological resources. Measure PAL-1, provided in Section 2.11 in this IS/EA, requires preparation and implementation of a Paleontological Mitigation Plan (PMP) in the event paleontological resources are encountered during project excavation. If project impacts extend more than 10 ft bgs, Measure PAL-2 requires the preparation of a Paleontological Evaluation Report (PER), and if required based on the PER, the preparation and implementation of a PMP to avoid and/or minimize impacts if necessary.

d) Less Than Significant Impact. No human remains are known to exist within the project APE. Therefore, construction of the Build Alternatives would not impact known human remains. If human remains are exposed during construction, Measure CR-2 in Section 2.7 requires compliance with State Health and Safety Code Section 7050.5, which states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains and that the County of Orange (County) Coroner shall be contacted. Pursuant to California Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner would notify the Native American Heritage Commission, which would then notify the Most Likely Descendant (MLD). At the same time, the Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator would be contacted so they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC Section 5097.98 are to be followed as applicable. No mitigation is required.

VI. GEOLOGY AND SOILS

The potential for the project to result in adverse impacts related to geology and soils was assessed in the following reports:

- *Project Memorandum Preliminary Geotechnical Information*, Proposed Improvements to State Route 55 between Interstate 405 and Interstate 5 (August 15, 2011)
- *Project Study Report (Project Development Support)* for the SR-55 project (November 2008)

- *Preliminary Foundation Report for Proposed Widening of Edinger Avenue Undercrossing (Bridge No. 55-393), State Route 55, Orange County, California* (July 16, 2012)
- *Preliminary Foundation Report for Proposed Widening of South Tustin Overhead (Bridge No. 55-0026), State Route 55, Orange County, California* (July 16, 2012)
- *Preliminary Foundation Report for Proposed Widening of State Route 55 at the Warner Avenue Overcrossing (Bridge No. 55-394), State Route 55, Orange County, California* (July 16, 2012)
- *Preliminary Foundation Report for Proposed Widening of Dyer Road Uncrossing (Bridge No. 55-0409), State Route 55, Orange County, California* (July 16, 2012)
- *Preliminary Foundation Report for Proposed Widening of MacArthur Boulevard Undercrossing (Bridge No. 55-410), State Route 55, Orange County, California* (July 16, 2012)
- *Revised Preliminary Geotechnical Report/Structures Design Report* (March 4, 2009)
- *Revised Addendum to Structure Preliminary Geotechnical Report* (June 2011)

The findings of those reports are discussed in Section 2.10, Geology/Soils/Seismic/ Topography, in this IS/EA. The following discussions are based on those analyses.

a, i) No Impact. The project segment of SR-55 is not in an Alquist-Priolo Earthquake Fault Zone, and there are no known active or potentially active faults mapped as crossing or in the immediate vicinity of SR-55. Because the project segment of SR-55 is not crossed by a known fault and is not in an Alquist-Priolo Earthquake Fault Zone, the improvements in the Build Alternatives are not expected to be exposed to effects associated with fault displacement and ground rupture. No mitigation is required.

a, ii) and iii) Less Than Significant Impact. The principal seismic hazard in the vicinity of the project segment of SR-55 is ground shaking resulting from an earthquake along one of several major active or potentially active faults that could damage the SR-55 facilities and structures. Those faults include the San Joaquin Hills blind thrust fault (approximately 1.4 miles [mi] from the nearest part of the project segment of SR-55), the Compton-Los Alamitos blind thrust fault (approximately 6 mi away), and the Newport Inglewood-Rose Canyon fault zone (approximately 3.7 mi away). Moderate to severe seismic shaking is likely to occur in the project area during the life of the improvements provided by the Build Alternatives. As a result, the Build Alternatives would be subject to effects associated with seismic shaking that could damage bridges, ramps, other structures, or the road surfaces. Design and construction of the Build Alternatives consistent with the Caltrans *Highway Design Manual* (HDM), other required standards, and recommendations from the *Final Geotechnical Design Report*, as required in Measure GEO-1 provided in Section 2.10, would avoid and/or minimize the potential for seismic damage to the project facilities. No mitigation is required.

a, iv) No Impact. Because there are no mapped landslides within or in the vicinity of the project segment of SR-55, no permanent effects on the Build Alternative related to landslides are expected. Fill used in the construction of the Build Alternatives would be constructed to appropriate standards for fill in highway facilities, which would reduce the potential for slumping or failure of those areas. No mitigation is required.

b) Less Than Significant Impact. Construction of the Build Alternatives may temporarily disturb soil outside the footprint of the road and structures but within the freeway rights-of-way, primarily in the trample zone around work areas, heavy equipment traffic areas, and material laydown areas. Construction activities in TCEs and staging areas outside the freeway right-of-way would temporarily disturb soils in those areas. Excavated soil in construction areas would be exposed resulting in increased potential for soil erosion during

construction compared to existing conditions. During a storm event, soil erosion could occur at an accelerated rate. The anticipated total area disturbed during construction was shown earlier in Table 2.10.1 in Section 2.10 in the IS/EA for the Build Alternatives. During all project construction activities, the construction contractor would be required to adhere to the requirements of the General Construction Permit and to implement erosion and sediment control best management practices (BMPs) specifically identified in the project Storm Water Pollution Prevention Plan to keep sediment from moving off site into receiving waters and impacting water quality in those waters. Erosion impacts related to water quality are specifically evaluated in Section 2.8, Water Quality and Storm Water Runoff, in this IS/EA. Measures WQ-1 and WQ-2, described in Section 2.8, would minimize impacts during construction and operation of the Build Alternatives related to erosion. No mitigation is required.

c) Less Than Significant Impact. The area along SR-55 from approximately MacArthur Boulevard to McFadden Avenue is a mapped liquefaction zone. Key issues in this area are ground settlement, down drag loads on piles, reduced pile lateral capacity, and lateral spreading of embankments that could damage bridge and ramp structures and the road surfaces. As a result, project improvements on this segment of SR-55 would be potentially subject to effects related to liquefaction, lateral spreading, and seismic settlement. Design and construction of the project improvements in the Build Alternatives consistent with the Caltrans HDM, other required standards, and recommendations from the *Final Geotechnical Design Report* (e.g., the use of piles, and removal and recompaction of low-density, near-surface soils as required in Measure GEO-1) would avoid and/or minimize the potential effects of liquefaction, lateral spreading, and seismic settlement on the structures and facilities provided in the Build Alternatives. No mitigation is required.

d) Less Than Significant Impact. Some soils within the disturbance limits for the Build Alternatives may be compressible and/or expansive. Removal and treatment of those types of soils as recommended in the *Final Geotechnical Design Report* (required in Measure GEO-1) would avoid and/or minimize this effect. No mitigation is required.

e) No Impact. The Build Alternatives would not use septic tanks or alternative methods for disposal of wastewater into subsurface soils, and would not connect to existing public wastewater infrastructure. Therefore, the Build Alternatives would not result in impacts related to septic tanks or alternative wastewater disposal methods. No mitigation is required.

VII. GREENHOUSE GAS EMISSIONS

As noted in the CEQA Environmental Checklist at the beginning of this Appendix, an assessment of greenhouse gas (GHG) emissions and climate change is provided in Section 2.20, Climate Change, in this IS/EA. Carbon dioxide emissions are projected to increase over existing levels under both the No Build and Build Alternatives. While Caltrans has included this good-faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's potential direct and indirect impacts with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in Section 2.20 in the IS/EA.

VIII. HAZARDS AND HAZARDOUS MATERIALS

The potential for the project to result in adverse impacts related to hazards and hazardous materials was assessed in the *Initial Site Assessment* (ISA 2013), the *Addendum 1 Initial Site Assessment Report* (2017), and the *Aerially Deposited Lead Investigation Report* (2013), and in Section 2.12, Hazardous Waste/Materials, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant with Mitigation. During construction, there is the potential to encounter hazardous materials in soils and existing road and structures materials. Construction of the Build Alternatives would disturb soils, demolish existing buildings and structures, and remove pavement markings. As a result, contaminants such as aerially deposited lead (ADL) and structural materials (polychlorinated biphenyls, lead chromate, lead-based paint [LBP], and asbestos-containing material [ACM]) may be encountered during construction. Soils with a potential for ADL within the Maximum Disturbance Limits (MDLs) are not considered Resource Conservation and Recovery Act of 1976 hazardous materials. As a result, those soils can be reused on site during construction of the Build Alternatives per guidance in the California Department of Toxic Substances Control variance to Caltrans, and they may be managed as nonhazardous for lead or reused on site without restrictions as specified in Measure HAZ-2 in Section 2.12 in the IS/EA. Therefore, with implementation of Measure HAZ-2, construction of the Build Alternatives would result in less than significant impacts related to ADL. In addition, contaminated soil, groundwater, and old structures could be encountered at properties proposed for full or partial acquisition or use as TCEs for the project.

Typical hazardous materials anticipated to be used during construction of the Build Alternatives (e.g., solvents, paints, fuels) and hazardous wastes generated during construction would be handled in accordance with applicable federal and State regulations and Caltrans policies regarding the use, storage, handling, disposal, and transport of these materials.

Measures HAZ-1 through HAZ-8 require further testing and proper handling of hazardous waste and materials. With implementation of these measures, potential impacts related to hazardous materials would be reduced to less than significant levels.

Routine maintenance activities during operation of the Build Alternatives would comply with applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the Build Alternatives would not result in adverse impacts related to hazardous waste or materials. No mitigation is required.

b) Less Than Significant Impact. The Build Alternatives would not create a substantial hazard to the public or the environment through any reasonably foreseeable upset or accident conditions involving the release of hazardous materials. As discussed above in response “a” above, routine hazardous materials such as paint, solvents, and fuel would be used, handled, stored, disposed of, and transported during construction of the Build Alternatives in accordance with applicable local, State, and federal regulations. No mitigation is required.

c) No Impact. There are no existing or proposed schools within 0.25 mi of the alignment of the Build Alternatives. Furthermore, the Build Alternatives do not involve the potential for release of hazardous emissions or handling of acutely hazardous materials. Refer also to responses “a” and “b” above. Therefore, the Build Alternatives would not result in impacts related to schools and hazardous materials. No mitigation is required.

d) Less Than Significant with Mitigation. None of the parcels identified for full or partial acquisition or for the use of TCEs are included on the Cortese List pursuant to Government Code Section 65962.5.[1] However, there are registered underground storage tanks (USTs) currently on or historically reported on parcels within or adjacent to the project area. Due to the nature of the businesses and the proximity of these facilities to the MDLs for the Build Alternatives, there is the potential that contaminated soil and groundwater originating at those parcels would be encountered. A Site Investigation would be required on those parcels to identify potential hazards that may occur during project construction associated with contaminated soil and groundwater as specified in Measures HAZ-1 and HAZ-8. Therefore, with implementation of Measures HAZ-1 and HAZ-8, impacts related to contaminated soil and groundwater would be reduced to less than significant levels. In addition, as specified in Measures HAZ-4, HAZ-5, and HAZ-6, an ACM survey and LBP survey would be required for existing structures, as well as soil sampling for pesticides on the former agricultural properties. With implementation of these measures, potential impacts related to hazardous material sites would be reduced to less than significant levels.

e) No Impact. John Wayne Airport (JWA) is south and east of the southern terminus of the project segment of SR-55, south of I-405 and east of SR-55. Access to JWA is available to/from SR-55 via I-405. The Build Alternatives would not result in safety hazards for people using SR-55 or living or working in the areas surrounding SR-55 that would be different than that which would occur under existing conditions. Although the Build Alternatives would result in a wider SR-55 facility and improved ramps, the risk of safety hazards associated with JWA would not differ along the project segment of SR-55 with or without the project. The Build Alternatives do not include structures or project features that would be at a substantially higher elevation than the existing freeway structures and facilities. The improvements in the Build Alternatives would not extend into the designated air space for JWA and, therefore, would not result in hazards to air traffic using JWA. Therefore, the Build Alternatives would not result in aviation-related safety impacts. No mitigation is required.

f) No Impact. There are no private airports or airstrips in the vicinity of the project segment of SR-55. As a result, the Build Alternatives would not affect or be affected by aviation activities associated with private airports or airstrips. No mitigation is required.

g) Less Than Significant Impact. As described in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, in this IS/EA, the construction of the Build Alternatives would result in temporary impacts to traffic circulation, and pedestrian and bicycle access in the vicinity of the project segment of SR-55. Those impacts could include short-term closures of freeway and arterial facilities and modifications to the existing facilities as described in detail in Section 2.5. The temporary closures and detours may result in short-term effects on emergency response and evacuation along and in the vicinity of the project segment of SR-55 and arterials in the vicinity of SR-55. Specifically, emergency responders would need to use designated detour routes to get around freeway ramp or lane closures or lane reductions on arterials at their crossings of SR-55. This could result in increased travel times for emergency service providers. Similarly, in the event evacuations are required during the temporary facility closures or lane reductions, there could be delays for traffic evacuating from the area due to the detours and/or temporary reduction in the available road capacity. Measure TR-1, provided in Section 2.5, requires the preparation

[1] California Department of Toxic Substances Control. 2007. Hazardous Waste and Substances Site List. Last Accessed on April 10, 2014, from http://www.envirostor.dtsc.ca.gov/public/search.asp?cmd=search&reporttype=CORTESE&site_type=CSITES,OPEN,FUDS,CLOSE&status=ACT,BKLG,COM&reporttitle=HAZARDOUS+WASTE+AND+SUBSTANCES+SITE+LIST.

prior to construction and implementation during construction of a Transportation Management Plan (TMP). The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. In addition, Measure CI-3, provided in Section 2.4 in the IS/EA, requires coordination of the project detour plans with fire protection and emergency medical service providers to minimize temporary delays in emergency response times. With implementation of these measures, potential impacts related to emergency response times and plans would not be adverse.

h) No Impact. Wildland fires occur in geographic areas that contain the types and conditions of vegetation, topography, weather, and structure density susceptible to risks associated with uncontrolled fires that can be started by lightning, improperly managed camp fires, cigarettes, sparks from automobiles, and other ignition sources. The project segment of SR-55 and the surrounding areas are developed in urban and suburban uses and do not include brush- and grass-covered areas typically found in areas susceptible to wildfires. As a result, the Build Alternatives would not expose people or structures to a significant risk of loss, injury, or death associated with wildland fires. No mitigation is required.

IX. HYDROLOGY AND WATER QUALITY

The potential for the Build Alternatives to adversely impact hydrology and water quality was assessed in the *Water Quality Assessment Report* (WQAR 2014), the *Supplemental Water Quality Assessment* (2016), the *Location Hydraulic Study State Route 55 Widening Project* (2014) and Section 2.8, Hydrology and Floodplains, and 2.9, Water Quality and Storm Water Runoff, of this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. During construction of the Build Alternatives, excavated soil would be exposed and there would be an increased potential for soil erosion compared to existing conditions. The total disturbed areas under Alternatives 1, 2, 3, 4, and 3M would be 38.9 ac, 70.3 ac, 77.2 ac, 64.9 ac, and 77.2 ac respectively. In addition, chemicals, liquid products, petroleum products (such as paints, solvents, and fuels), concrete-related waste, sanitary waste, and trash and debris may be spilled or leaked during construction with the potential for those pollutants of concern to be transported via storm runoff into receiving waters. Measure WQ-2, provided in Section 2.9, requires the design, implementation, and maintenance of construction BMPs that would address the potential effects of soil erosion and pollutants of concern on receiving waters. The project construction would also be required to comply with the requirements of the applicable National Pollutant Elimination System (NPDES) permit. Based on compliance with Measure WQ-1 and the NPDES permit requirements, no adverse water quality impacts are anticipated during construction of the Build Alternatives.

Alternatives 1, 2, 3, 4, and 3M would result in permanent increases in impervious surface area by 7.3 ac, 11.3 ac, 15.4 ac, 15.0 ac, and 15.3 ac respectively, compared to the existing freeway facility. An increase in impervious area would increase the volume of runoff during a storm, which would more effectively transport pollutants to receiving waters. As shown in Measures WQ-1, WQ-3, and WQ-4 in Section 2.9, the operation of the Build Alternatives would be required to comply with the Caltrans Statewide Storm Water Management Plan (SWMP) and follow the procedures outlined in the Storm Water Quality Handbooks, Project Planning and Design Guide for implementing Design Pollution Prevention and Treatment BMPs (latest edition). This would include coordination with the Santa Ana RWQCB with respect to feasibility, maintenance, and monitoring of Treatment BMPs as set forth in the Caltrans Statewide SWMP. Based on compliance with these Caltrans requirements as

shown in Measures WQ-1, WQ-3, and WQ-4, no adverse water quality impacts are anticipated during operation of the Build Alternatives.

b) Less than Significant Impact. Dewatering may be required during construction of the Build Alternatives. If groundwater dewatering becomes necessary during construction, the Build Alternatives would be required to comply with a groundwater dewatering permit as described in Measure WQ-5, which requires monitoring the discharges from groundwater extraction waste from construction to ensure that groundwater effluent that is pumped and ultimately discharged to surface waters does not exceed surface water effluent limitations for particular pollutants. Therefore, it is not anticipated that surface water would be impacted during construction activities as a result of site dewatering, as long as the groundwater discharge meets the RWQCB dewatering permit.

c) and d) Less Than Significant Impact. There are no natural drainages within the disturbance limits of the Build Alternatives. There are extensive storm drain facilities throughout the SR-55 corridor, some of which would be affected during project construction in order to contain storm water flows within the project limits or to accommodate the project improvements. The changes to drainage facilities as a result of the Build Alternatives include relocation, extension, and/or adjustment of the existing drainage systems; additional inlet, down drains, and/or overside drains; and abandonment and/or removal of system components that are no longer serviceable. The Build Alternatives would require the relocation of existing culverts and concrete pipe storm drains in the SR-55 right-of-way described earlier in Table 1.8 in Chapter 1 in the IS/EA. In addition, the Build Alternatives would reconfigure Lane Channel (Drainage E) from a trapezoidal channel to a rectangular channel and would realign that channel 2 ft to the west. Lane Channel is an Orange County Flood Control District (OCFCD) facility. None of the storm drain modifications would substantially alter existing drainage patterns in and adjacent to the project disturbance limits or the capacity of the storm drain facilities. Erosion during project construction and operation would be addressed based on compliance with the applicable NPDES permit and Measures WQ-1 and WQ-2. Therefore, the Build Alternatives do not include drainage modifications that would result in substantial erosion, siltation, or flooding on or off the project site. No mitigation is required.

e) Less Than Significant Impact. The Build Alternatives propose to modify an existing transportation facility. The Build Alternatives would not substantively increase the total impervious surface areas as noted in response “a” in Section IX, Hydrology and Water Quality, above, and, therefore, would not increase peak storm flows such that they would impact downstream drainage facilities. Compliance with the requirements of the Caltrans NPDES permit, Measure WQ-1, and Measure WQ-2 would minimize any incremental pollutant loading associated with the increased impervious surface areas in the Build Alternatives. No mitigation is required.

f) Less Than Significant Impact. As discussed above, runoff associated with the Build Alternatives would be treated to remove pollutants of concern as required in Measures WQ-1 and WQ-2 in Section 2.9 in the IS/EA. In addition, refer to responses “a” and “e” in Section IX, Hydrology and Water Quality, above. No substantial degradation to water quality would occur as a result of the Build Alternatives.

g) No Impact. According to Federal Emergency Management Agency Flood Insurance Rate Map Nos. 06059C0278J and 06059C0277J, the two floodplains in the project area are Lane Channel (OCFCD Facility No. 8) and the Santa Ana-Santa Fe Channel (OCFCD Facility No. F10). The Build Alternatives do not propose the construction of housing in a 100-year flood

hazard area. Therefore, the Build Alternatives project would not result in impacts related to the placement of housing in the 100-year floodplain. No mitigation is required.

h) Less than Significant Impact. The Build Alternatives would include construction activities in Lane Channel and near the Santa Ana-Santa Fe Channel. The construction activities would not reduce or otherwise modify the flood storage capacity or flood flows in these two channels. As a result, construction activities under the Build Alternatives would not result in temporary adverse impacts related to hydrology and floodplains.

The Build Alternatives would result in a longitudinal encroachment into Lane Channel at its crossing of SR-55. Lane Channel would be reconfigured and slightly realigned to the west (farther from SR-55), and modified from the existing open trapezoidal concrete-lined section to a rectangular section. This section would be sized to carry the 100-year flood discharge flow, including flows from the project improvements, and would include approximately 4 ft of additional space (freeboard) in the channel above the recorded high water mark. The road surface on the freeway would be approximately 2 ft above the top of Lane Channel and the surrounding areas. Therefore, there is no potential for water to overtop the channel or flood SR-55 as a result of the improvements provided in the Build Alternatives.

The Build Alternatives include improvements in the Santa Ana-Santa Fe Channel where it crosses perpendicularly under SR-55. The geometry of this channel would not be altered, and no structures would be constructed in this floodplain as part of the Build Alternatives. Therefore, there would be no longitudinal or other physical encroachments into the Santa Ana-Santa Fe Channel or floodplain under the Build Alternatives.

As defined in 23 CFR 650 Subpart A, the encroachment in Lane Channel under the Build Alternatives would be classified as Minimal. The potential encroachments into the Lane Channel and Santa Ana-Santa Fe Channel floodplains associated with the Build Alternatives would be classified as “insignificant encroachments” and would not be adverse.

The proposed improvements in and near Lane Channel and the Santa Ana-Santa Fe Channel would be designed and constructed in consultation with the OCFCD to contain the base flood with additional freeboard as required by the OCFCD. Those improvements would be within existing OCFCD parcels and would not affect the adjacent land uses. No mitigation is required.

i) Less Than Significant Impact. The Santa Ana River Project is an extensive system of dams, levees, and other components, which provides flood protection to San Bernardino, Riverside, and Orange Counties along the entire 75-mile length of the Santa Ana River from its headwaters to the Pacific Ocean. Seven Oaks Dam and Prado Dam on the Santa Ana River are two major components of the Santa Ana River Project.[1]

In the event one or both of those dams failed, the water in the reservoirs behind those dams would be released to the Santa Ana River. The release of that large a volume of water could result in flooding in low-lying areas in central and coastal Orange County. The nearest part of the project segment of SR-55 to the Santa Ana River is approximately 4 mi west of SR-55. The Build Alternatives would not modify the two floodplains crossed by SR-55. As a result, the Build Alternatives would not expose people or structures to a significant risk of loss, injury, or death as a result of flooding. No mitigation is required.

j) No Impact. The southern terminus of the project segment of SR-55 is approximately 4 mi from the northernmost part of Upper Newport Bay, which drains to the Pacific Ocean. The

[1] Orange County Public Works Flood Division. Santa Ana River Project. Last accessed April 15, 2014, from http://ocflood.com/sarp/.

Tsunami Map for Emergency Planning for the Newport Beach Quadrangle[1] shows that the nearest tsunami inundation area to the project segment of SR-55 is Upper Newport Bay. Based on the distance from the project improvements to Upper Newport Bay, there is no anticipated risk of inundation from a tsunami under the Build Alternatives.

A seiche is a tsunami-like condition in an enclosed body of water like a lake or reservoir. The nearest enclosed bodies of water to the project segment of SR-55 are Upper Newport Bay and Prado Dam. Prado Dam is more than 15 mi northeast of the northernmost part of the project segment of SR-55. Based on the distances of SR-55 to these two bodies of water, there is no anticipated risk of inundation from a seiche under the Build Alternatives.

Mudflows occur when soil is saturated and flows downhill. There are no hills adjacent to or in the vicinity of the project segment of SR-55. As a result, there is no anticipated risk to the Build Alternatives as a result of a mudflow.

No mitigation is required.

X. LAND USE AND PLANNING

The potential for the Build Alternatives to result in adverse impacts related to land use and planning was assessed in the CIA (2015), the Supplemental Community Impact Assessment (2017), and in Sections 2.1, Land Use, and 2.3, Community Impacts, in this IS/EA. The following discussions are based on those analyses.

a) No Impact. The project segment of SR-55 is an existing freeway with interchanges/ramps, retaining walls, sound walls, and other structural features. The areas adjacent to both sides of the project segment of SR-55 are developed in residential and nonresidential urban and suburban uses. Existing land uses in the southern part of the study area between I-405 and Edinger Avenue are generally commercial and industrial uses with a small number of multifamily residential uses. The north part of the study area between Edinger Avenue and I-5 is dominated by multifamily residential and commercial uses. Construction of the Build Alternatives would require TCEs on residential, commercial, and industrial properties in the project area but would not result in the acquisition of any residences. Because most of the TCEs would be on land currently being used for landscaping and parking lots adjacent to the existing SR-55 right-of-way, the temporary use of such land for construction activities would not adversely affect community character, divide existing land uses or existing communities, or create barriers between existing communities. No mitigation is required.

b) Less than Significant Impact. The proposed project is listed in the 2016/2040 financially constrained RTP/SCS, which was found to conform by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) in June 2016. The project is also included in the Southern California Association of Governments financially constrained 2017 FTIP (FTIP ID ORA100511), which was found to conform by the FHWA and FTA December 16, 2016. The design concept and scope of the proposed project are consistent with the project description in the 2016/2040 RTP/SCS and 2017 FTIP, and is intended to meet the traffic needs in the area based on local land use plans. Thus, the Build Alternatives are consistent with these regional and federal transportation plans.

The Build Alternatives would be consistent with the goals and policies in the General Plans of the affected cities. The Build Alternatives would not change existing land use patterns

[1] California Department of Conservation. March 15, 2009. *Tsunami Map for Emergency Planning for the Newport Beach Quadrangle*. Last accessed April 15, 2014, from http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/Orange/Documents/Tsunami_Inundation_NewportBeach_Quad_Orange.pdf.

along SR-55 because SR-55 is an existing transportation facility in a highly developed area, and the Build Alternatives would result in a limited amount of property acquisition. The Build Alternatives would not require amendment of the affected cities' General Plans.

Additonally, as shown in Table 2.1.3, two properties have a net reduction of parking spaces. However, based on the City of Santa Ana and City of Tustin municipal parking regulations, these business currently have a surplus of parking, with or without the project. Therefore, the Build Alternatives are consistent with local plans and policies. No mitigation is required.

c) No Impact. As discussed earlier in the response to checklist question "f" in Section IV, Biological Resources, there are no MSHCPs or any other adopted HCPs or NCCPs applicable to the area within and in the vicinity of the BSA. As a result, the Build Alternatives would not conflict with any MSHCPs, HCPS, or NCCPs. No mitigation is required.

XI. MINERAL RESOURCES

The potential for the Build Alternatives to result in adverse impacts related to mineral resources was assessed based on information in the Cities of Tustin, Irvine, and Santa Ana General Plans.

a) and b) No Impact. According to the City of Santa Ana General Plan Land Use Element (1998, page A-51), there are no energy or mineral extraction activities or known Significant Mineral Aggregate Resources Areas or oil or gas fields in the City.

The City of Irvine General Plan (2012) does not discuss mineral resources or extraction activities. As a result, it is expected that there are no known mineral resources or extraction activities in the City of Irvine.

The only identified mineral resource in the City of Tustin is a mercury-barite deposit in an area referred to as Red Hill as discussed in the General Plan Conservation/Open Space/Recreation Element (2008, page 40). Although the General Plan does not indicate where Red Hill is, it would seem reasonable to assume it is the low foothills of the Santa Ana Mountains in the east part of the City. No extraction of this resource is currently occurring.

As a result, the Build Alternatives would not result in impacts on known mineral resources or resource extraction activities. No mitigation is required.

XII. NOISE

The potential for the project to result in adverse noise impacts was assessed in the *Noise Study Report* (NSR 2015), the *Supplemental Noise Analysis,* Section 2.14, Noise, in the IS/EA and Supplemental IS/EA, and in the CEQA-specific analyses conducted in September 2015 and December 2016. The following discussion is based on those analyses.

a) Less Than Significant Impact. Noise levels during construction of the Build Alternatives may impact commercial, industrial, and noise sensitive receptors. Typical construction noise levels may reach 88 A-weighted decibels (dBA) maximum instantaneous noise level (L_{max}) at a distance of 50 ft from the noise sources. The following minimization measures, described in detail in Section 2.14.4, would minimize construction noise impacts under the Build Alternatives:

- **Measure N-1:** During construction, the construction contractor will be required to control noise from construction activities in conformance with the California Department of Transportation Standard Specifications, Section 14-8.02, "Noise Control." The noise level from the contractor's operations, between the hours of 9:00 PM and 6:00 AM, will

not exceed 86 A-weighted decibels at a distance of 50 feet. In addition, the construction contractor will equip all internal combustion engines with the manufacturer-recommended mufflers and will not operate any internal combustion engine on the job site without the appropriate muffler.

- **Measure N-2:** Prior to completion of final design, Noise Barrier (NB) No. 3 and the combined NB No. 3 Reduced and NB No. 4 will be coordinated with the affected property owners (owners of the multifamily residences along Kenyon Drive).

Some residents in the City of Tustin in the study area are currently and would continue to be exposed to traffic noise approaching or exceeding Caltrans Noise Abatement Criteria (NAC) and noise standards in the General Plan of the City of Tustin. However, because the Build Alternatives would not result in any substantial increases in noise levels in the study area, no significant noise impact would occur under CEQA. Noise abatement measures, including noise barriers, have been evaluated to minimize the noise impacts. With implementation of the noise abatement measures, the noise levels would be minimized. Therefore, long-term noise impacts with the proposed project are considered less than significant.

b) Less Than Significant Impact. The closest sensitive receptors are approximately 50 ft from the construction areas for the Build Alternatives. The use of a large bulldozer during construction of the Build Alternatives would generate the highest vibration level of 0.089 peak particle velocity (PPV) inches per second (in/sec) at a distance of 25 ft.

The sensitive receptors may be subject to a ground-borne vibration level of 0.042 PPV (in/sec). This vibration level is considered distinctly perceptible to humans and would not result in community annoyance. Also, this vibration level would be well below the damage threshold of 0.3 PPV (in/sec) for older residential structures and would not have the potential to damage nearby residential structures. In addition, compliance with local Noise Ordinances and the Caltrans Standard Specifications required in minimization Measures N-1 through N-4 in Section 2.14 would minimize vibration impacts. Therefore, groundborne vibration and noise impacts are considered less than significant.

Groundborne vibration from vehicles driving on the project facilities would not result in any measurable changes in vibration levels compared to the existing conditions. Therefore, vibration impacts are considered less than significant.

c) Less Than Significant Impact. The noise level increases along SR-55 during the operation of the Build Alternatives from existing conditions are shown in Table 2.14.4 in Section 2.14, which show that noise levels would increase by up to 6 dBA as a result of the Build Alternatives.

In addition to the noise impact analysis along the limits of physical improvements completed in the Noise Study Report (September 2015), Noise Abatement Decision Report (October 2015), and the Supplemental Noise Analysis and Noise Abatement Decision for the SR-55 Improvement Project Between I-405 and I-5 (12-ORA-55, PM 6.4/10.3, EA OJ3400, EFIS 1200020328 – Alternative 3 Modified (February 2017), an off-site CEQA noise analysis was completed. The potential noise level increases along local roadways were calculated from average daily traffic volumes obtained from the Final Traffic Operations Report (2016). Table A-1 presents the traffic noise levels on local roadways for Existing conditions, Opening Year (2020) with and without the project, and Horizon Year (2040) with and without the project for Alternative 3M. Table A-1 shows that the permanent noise increase from Existing to the Opening Year (2020) for Alternative 3M would range from 0.0 to 0.4 A-weighted decibel (dBA). The permanent noise increase from Existing to the Horizon Year (2040) would range from 0.0 to 6.8 dBA for Alternative 3M. In addition to the comparison to existing noise levels,

Table A-1 shows that the project contribution, or comparison of no build to build conditions, to the permanent noise level increase along local roadways for Alternative 3M is less than 1 dBA. Therefore, the permanent increase in noise levels as a result of the Build Alternatives is not considered substantial and impacts are considered less than significant under CEQA. No mitigation measures are required. The results of this analysis are similar to the previously completed analysis for Alternatives 3 and 4 in the Draft IS/EA.

d) Less Than Significant Impact. Refer to the response to comment XII.a, above, which indicates that noise levels during construction of the Build Alternatives may impact sensitive receptors and that Measures N-1 through N-4 would minimize construction noise impacts under the Build Alternatives, to a less than significant level.

e) No Impact. As discussed earlier, JWA is south and east of the southern terminus of the project segment of SR-55, south of I-405 and east of SR-55. The Build Alternatives would not result in any changes in the takeoff and landing patterns or total volumes of flights at JWA. As a result, the Build Alternatives would not expose people using SR-55 or living or working in the areas surrounding SR-55 to aviation-related noise levels different than would occur under existing conditions. Therefore, the Build Alternatives would not result in aviation-related noise impacts. No mitigation is required.

f) No Impact. There are no private airports or airstrips in the vicinity of the project segment of SR-55. As a result, the Build Alternatives would not affect or be affected by aviation noise levels associated with private airports or airstrips. No mitigation is required.

XIII. POPULATION AND HOUSING

The potential for the Build Alternatives to result in adverse impacts related to population and housing was assessed in the CIA (2015) the *Supplemental Community Impact Assessment* (2017), and Sections 2.2, Growth, and 2.3, Community Impacts, in this IS/EA. The following discussions are based on those analyses.

a) No Impact. As discussed in detail in Section 2.2, the potential growth-related impacts of the Build Alternatives were considered in the context of the first-cut screening analysis approach to assessing the potential for growth-inducing effects. That analysis determined that the Build Alternatives would:

- Not provide new transportation facilities or create new access points to areas not previously accessible and, therefore, would not result in changes in accessibility to the transportation system in the area.

Table A-1 Traffic Noise Levels on Local Roadways – Alternative 3M, dBA CNEL

Roadway	Segment	Existing	Year 2020 Future No Build	Year 2020 Build	Year 2020 Increase over Existing	Year 2020 Increase over No Build	Year 2040 Future No Build	Year 2040 Build	Year 2040 Increase over Existing	Year 2040 Increase over No Build
Newport Ave	Edinger Ave to Sycamore Ave	58.2	58.2	58.2	0.0	0.0	65.9	65.0	6.8	-0.9
	Sycamore Ave to Walnut Ave	63.2	63.6	63.6	0.4	0.0	66.7	66.8	3.6	0.1
	Walnut Ave to SB I-5	67.3	67.5	67.7	0.4	0.2	68.0	68.2	0.9	0.2
	SB I-5 to NB I-5	68.0	68.1	68.3	0.3	0.2	68.5	68.6	0.6	0.1
Red Hill Ave	Edinger Ave to Sycamore Ave	69.8	70.0	69.8	0.0	-0.2	69.8	69.4	-0.4	-0.4
	Sycamore Ave to Walnut Ave	69.3	69.4	69.5	0.1	0.0	69.4	69.3	0.0	-0.1
	Walnut Ave to Nisson Rd	68.8	68.9	69.2	0.4	0.3	68.9	69.1	0.3	0.2
	Nisson Rd to SB I-5	69.9	69.9	70.2	0.3	0.3	69.9	70.2	0.3	0.3
	SB I-5 to NB I-5	69.8	69.8	69.9	0.1	0.1	69.8	69.8	0.0	0.0
	NB I-5 to El Camino Real	69.5	69.6	69.6	0.1	0.0	69.7	69.7	0.2	0.0

Source: *LSA Associates, Inc.* (2017).

3M = 3 Modified
Ave = avenue
CNEL = Community Noise Equivalent Level
dBA = A-weighted decibel(s)
I-5 = Interstate 5
NB = northbound
Rd = Road
SB = southbound

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Accommodate existing and planned growth and would not influence growth beyond what is currently planned.

- Would not influence growth beyond those projects that are currently planned for the area and would not change the rate, type, or amount of growth and reasonably foreseeable growth in the Cities of Tustin, Santa Ana, and Irvine.

No mitigation is required.

b) and c) No Impact. The Build Alternatives would not result in the acquisition of any residential units, displacement of any residents, or the need for replacement housing and, therefore, would not result in impacts related to population and housing. No mitigation is required.

XIV. PUBLIC SERVICES

The potential for the Build Alternatives to impact public services and facilities is assessed in the CIA (2015), the *Supplemental Community Impact Assessment* (2017), and Sections 2.1, Land Use, and 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

a, i) and ii) Less Than Significant Impact. Fire protection and emergency medical/paramedic services in the Cities of Santa Ana, Tustin, and Irvine are provided by the Orange County Fire Authority under contract to those cities. Police protection services in the study area are provided by the Cities of Tustin, Santa Ana, and Irvine Police Departments. As described earlier in the response to checklist question "g" in Section VIII, Hazards and Hazardous Materials, construction of the Build Alternatives would result in temporary impacts to traffic circulation. Those impacts could include short-term closures of freeway and arterial facilities and modifications to the existing facilities that could result in short-term effects on emergency response (fire and police) times in the vicinity of the project segment of SR-55 and arterials in the vicinity of SR-55. Specifically, emergency responders would need to use designated detour routes to get around freeway ramp or lane closures or lane reductions on arterials at their crossings of SR-55. This could result in increased travel times for those emergency service providers. Measure TR-1, provided in Section 2.5 in the IS/EA, requires the preparation prior to construction and implementation during construction of a TMP. The TMP will specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. In addition, Measure CI-3, provided in Section 2.4 in the IS/EA, requires the coordination of detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times. No mitigation is required.

In the long term, the Build Alternatives would reduce traffic congestion and result in decreased travel times on SR-55 between I-5 and I-405. These improvements in traffic flow are likely to improve emergency response times on the project segment of SR-55. Therefore, operation of the Build Alternatives would not result in adverse effects on the delivery of emergency services in the long term.

a, iii), iv), and v) Less than Significant Impact. During construction of the Build Alternatives, access to schools, parks, and other public and community facilities in the vicinity of the project segment of SR-55 (including Sandpointe Park, McFadden-Pasadena Parkette, Hillview High School/Tustin Adult School, Jeane Thorman Elementary School, A.G. Currie Middle School, Tustin Family and Youth Center, and Industrial Santa Ana Post Office) would not be affected. MacArthur Boulevard, McFadden Avenue, Sycamore Avenue,

Red Hill Avenue, and Grand Avenue have been identified as potential detour routes for overnight mainline, ramp, and arterial closures. Because those closures would occur outside the hours of operation for those community facilities, none of the community facilities would be adversely affected by travel delays or increased noise levels as a result of temporary overnight detours during construction. The TMP described earlier would further minimize traffic-related impacts during construction. No mitigation is required.

The Build Alternatives would not result in direct or indirect adverse visual/aesthetic, air quality, water quality, or noise effects on schools, parks, and the other community facilities in the vicinity of the project segment of SR-55. No mitigation is required.

XV. RECREATION

The potential for the Build Alternatives to adversely impact recreation resources was assessed in the CIA (2015), the *Supplemental Community Impact Assessment* (2017), and Section 2.1, Land Use, in this IS/EA. The following discussions are based on the findings of that analysis.

a) No Impact. The Build Alternatives propose modifications to the existing SR-55 freeway mainline, ramps, and arterial interchanges. The Build Alternatives would not result in the construction of residential or other land uses that would attract visitors to parks in the cities adjacent to the project segment of SR-55 or to regional parks and other recreation facilities. As a result, the Build Alternatives would not result in increased demand for those resources and, therefore, would not contribute to substantial or accelerated deterioration of those facilities. No mitigation is required.

b) No Impact. The Build Alternatives do not include the construction of new recreational facilities or expansion of existing recreational facilities. Therefore, the Build Alternatives would not result in adverse effects related to constructing new or expanded recreation facilities. No mitigation is required.

XVI. TRANSPORTATION/TRAFFIC

The potential for Build Alternatives to result in adverse traffic impacts was assessed in the *Revised Traffic Operations Report* (2015), the *Traffic Operations Report* (2016) and in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, in this IS/EA. The following discussions are based on those analyses.

a) Less Than Significant Impact. Construction of the Build Alternatives would temporarily impact traffic circulation and pedestrian and bicycle access in the vicinity of the project segment of SR-55. Those impacts could include short-term closures of freeway and arterial facilities as summarized in Tables 2.5.1, 2.5.2, and 2.5.3 in Section 2.5 in the IS/EA, and modifications to the existing facilities. Temporary closures would be limited to overnight (between 10 PM and 5 AM) with limited durations of 2 to 10 days. Temporary modifications to the freeway mainline, connector and ramp facilities, and arterial streets could include narrowing the widths of the travel lanes and shoulders, and reductions in the number of available travel lanes and speed limits. These temporary modifications would allow for traffic to pass through the project area on SR-55, the ramps, and the arterials, but those travelers would be expected to experience some delays as they travel on those facilities. The temporary ramp closures are not expected to occur for longer than 10 nights at any given ramp. No two consecutive on- or off-ramps in the same direction would be closed at the same time to minimize inconvenience to the traveling public.

The temporary closures of arterial roads would include closure of the sidewalks along those roads at their crossings of SR-55. The detours for vehicular traffic to travel around the

closed arterials would also be signed for use by pedestrians and bicyclists. As a result, pedestrians and bicyclists who use those arterials would be required to travel north or south of the closed arterial to reach the closest open arterial crossing at SR-55. This would result in a longer travel path for both pedestrians and bicyclists and would substantially increase their travel times. However, the arterials would be closed only overnight and for very limited periods, which would minimize the effects of the closures on pedestrians and bicyclists.

Pedestrians and bicyclists are not allowed to travel on the SR-55 mainline or ramps. The temporary mainline and ramp closures and the temporary detours associated with those closures would not affect the existing Class I bike paths on the east and west sides of SR-55. The temporary arterial closures and the temporary detours associated with those closures would not affect the existing Class I bike paths on the east and west sides of SR-55. As a result, those closures under all the Build Alternatives would not impact those Class I bike paths and the pedestrians and bicyclists using those bike paths.

The temporary impacts on motorists, pedestrians, and bicyclists would be avoided and/or minimized based on implementation of the TMP during construction as required in Measure T-1. The TMP would address short-term traffic and transportation impacts during construction. No mitigation is required.

Tables 2.5.4 through 2.5.14 in Section 2.5 in the IS/EA show the levels of service, travel times, and travel speeds for the Build Alternatives and the No Build Alternatives in the AM and PM peak hours in 2020 and 2040. As shown, for most segments and ramps, the Build Alternatives perform better than the No Build Alternative for these performance measures in both 2020 and 2040. No mitigation is required.

The Build Alternatives are consistent with the applicable local General Plans and regional transportation plans to reduce congestion and improve operation on the project segment of SR-55. In addition to the improvements on the SR-55 mainline and ramps, the Build Alternatives include design features to improve the intersections between the freeway ramps and the local arterial streets including accommodating pedestrians, bicycles, and mass transit. No mitigation is required.

b) Less Than Significant Impact with Mitigation SR-55 is not included in the highway system in the 2013 Orange County Congestion Management Program (CMP, Orange County Transportation Authority) but two intersections between SR-55 ramps and local arterials are included in the CMP Highway System. The level of service (LOS) standard for CMP intersections is LOS E. The performances of the two ramp interchanges included in the CMP and as forecasted in the traffic report for 2020 and 2040 are:

- **SR-55 northbound ramp at Edinger Avenue in Tustin:** The 2013 CMP shows this intersection operating at LOS A in the AM and PM peak hours. Table 2.5.6 in Section 2.5 shows this intersection operating at LOS C in the AM and PM peak hours under the No Build and all the Build Alternatives in 2020. Table 2.5.12 shows this intersection operating at LOS C in the AM and PM peak hours under the No Build Alternative and all of the Build Alternatives in 2040.
- **SR-55 northbound ramp at Irvine Boulevard in Tustin:** The 2013 CMP shows these ramps operating at LOS A in the AM peak hour and LOS B in the PM peak hour. Table 2.5.6 in Section 2.5 shows this intersection operating at LOS C in the AM peak hour and LOS B in the PM peak hour under the No Build and all the Build Alternatives in 2020. Table 2.5.12 in Section 2.5 shows this intersection operating at LOS C in the AM peak hour under the No Build Alternative and all of the Build Alternatives, and LOS B in the

PM peak hour under the No Build and Alternatives 1, 2, 3, and 3M, and LOS C under Alternative 4 in 2040.

Because the Build Alternatives would not exceed the LOS E standard in the CMP, they would not conflict with the Orange County CMP. No mitigation is required.

As discussed in Section 2.5 in the IS/EA, the limited access at the McFadden Avenue on-ramp proposed under both Alternatives 3, 4, and 3M would divert more traffic to the local arterials. The resulting increased delay and degradation in LOS would result in potentially significant impacts to the Northbound I-5 On-ramp/Newport Avenue intersection in 2020 and 2040. With implementation of Measure T-3, which requires operational improvements at this intersection, this long-term traffic impact would be mitigated to a less than significant level.

c) No Impact. As discussed earlier, JWA is south and east of the southern terminus of the project segment of SR-55, south of I-405, and east of SR-55. The runways at JWA are generally oriented north-south, and planes can take off to the south or north or land from the south or north. Aircraft leaving or approaching JWA on the north follow a flight path that passes over part of the project segment of SR-55. The Build Alternatives do not include any structures or project features that would be at a substantially higher elevation than the existing freeway structures and facilities. The improvements in the Build Alternatives would not extend into the designated air space for JWA and, therefore, would not result in changes in air traffic patterns or flight paths at JWA. The Build Alternatives do not include the construction of residential or nonresidential uses that could result in increased demand for air travel services at JWA. Therefore, the Build Alternatives would not result in safety risks associated with aviation operations at JWA. No mitigation is required.

d) Less Than Significant Impact. The Build Alternatives would be designed, constructed, and operated consistent with the Caltrans HDM and other applicable standards and specifications for freeways, ramps, arterial intersections, retaining walls, sound walls, drainage features, and utility relocations/modifications. The Build Alternatives would not include hazardous design features. Farm equipment, pedestrians, and bicyclists would not be allowed to operate on the SR-55 mainline and ramps. Pedestrians and bicyclists would be allowed to use arterial streets at their crossings of SR-55. Therefore, the Build Alternatives would not include any hazardous design features or incompatible uses. No mitigation is required.

e) Less Than Significant Impact. As described earlier in responses to checklist questions “a i” and “a ii” in Section XIV, Public Services, construction of the Build Alternatives would result in temporary impacts to traffic circulation including emergency services. Those impacts would be avoided and/or minimized based on implementation of the TMP during construction required in Measure T-1. The TMP would specifically address requirements for coordination with emergency service providers and accommodation of emergency travel routes and access to, through, and around active construction areas. In addition, Measure CI-3, provided in Section 2.4 in the IS/EA, requires the coordination of detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times. No mitigation is required.

In the long term, the Build Alternatives would reduce traffic congestion and travel times on SR-55 between I-5 and I-405. The improvements in the Build Alternatives are likely to improve emergency response times on SR-55. Therefore, the Build Alternatives would not result in adverse effects on the delivery of emergency services in the long term.

f) Less than Significant Impact. As discussed in the CIA and Section 2.1, Land Use, in the IS/EA, the Build Alternatives would not conflict with adopted policies, plans, or programs

supporting alternative transportation modes. The design of the freeway and ramp improvements in the Build Alternatives would accommodate public and private buses. The improvements to arterials at their crossings of SR-55 would be designed to accommodate transit vehicles, pedestrians, and bicyclists. The arterial improvements would also include features consistent with Americans with Disabilities Act requirements. As a result, the Build Alternatives would not conflict with alternative transportation modes. No mitigation is required.

XVII. TRIBAL CULTURAL RESOURCES

The potential for the Build Alternatives to adversely impact Tribal Cultural Resources was assessed in the Historic Property Survey Report (HPSR 2015), the Supplemental Cultural Resources Analysis (2017), the attachments to the HPSR, Section 2.7, Cultural Resources; and by adhereing to the Assembly Bill (AB) 52. AB 52, which went into effect on July 1, 2015, proposed to include tribal cultural resources in the California Environmental Quality Act (CEQA) analysis, and introduced a new class of resources: Tribal Cultural Resources. The California Office of Administrative Law approved the changes to the CEQA checklist to incorporate the Tribal Cultural Resources questions on September 27, 2016. The Project is subject to the requirements of AB 52, the CEQA Tribal Consultation law. As such, in addition to the initial Native American coordination, consultation under AB 52 was subsequently conducted by Caltrans on July 28, 2015. Only one tribe responded to the AB 52 Tribal Consultation letters.

The Soboba Band of Luiseño Indians responded by letter dated August 20, 2015, that they wished to consult and requested a meeting. A meeting at the Soboba Band of Luiseño Indians Administration Office in San Jacinto was held on September 22, 2015. Following a discussion of the project limits and results of the record search, consultation, and field survey, which did not identify any cultural resources within the APE, the Soboba Band of Luiseño Indians requested that a monitor from their tribe be retained to monitor construction activities in native soil. Caltrans indicated that they would re-examine the cultural study efforts and discuss with Headquarters and other districts. Following this review and engineering information pertaining to potential native soil disturbance, it was determined that only small areas of native soil may be disturbed for bridge activities. Based on the cultural study, no resources had been identified within the APE and it was considered unlikely they would be encountered. Caltrans notified the Soboba Band of Luiseño Indians on September 29, 2015, that as proposed no mitigation was required, however, if the Tribe wished to volunteer to monitor, please respond if interested. No further response was received.

a) and b) Less Than Significat Impact. The 2015 HPSR determined that all the State-owned resources (built environment and archaeological resources) within the project APE are exempt from evaluation because they meet the criteria set forth in Section 106 PA Attachment 4 (Properties Exempt from Evaluation) or were previously determined not eligible for inclusion in the National Register and/or registration as a California Historical Landmark. Caltrans has determined a finding of no impact is appropriate because there are no historical resources within the project area limits, or there are no impacts to historical resource(s), pursuant to the California Environmental Quality Act Guidelines 15064.5(b)(3). The APE has not been changed by the addition of Alternative 3M. Therefore, the findings of the 2015 HPSR are also unchanged. In the event that previously unknown buried cultural materials and human remains are encountered during construction, compliance with Measure CR-1 and CR-2, provided in Section 2.7, would avoid and/or minimize potential impacts to previously unknown cultural resources.

XVII. UTILITIES AND SERVICE SYSTEMS

The potential for the Build Alternatives to adversely impact utilities and service systems was assessed in the CIA (2015), the *Supplemental Community Impact Assessment* (2017), and Section 2.4, Utilities and Emergency Services, in this IS/EA. The following discussions are based on those analyses.

a), b), and e) Less Than Significant Impact. The Build Alternatives would not generate wastewater or discharge wastewater to the area sewer system. As a result, the Build Alternatives would not exceed wastewater treatment requirements, require or result in the construction of new wastewater treatment facilities, or result in the need for a determination by a wastewater treatment provider that it has adequate capacity to serve the project. No mitigation is required.

Existing Orange County Sanitation District (OCSD) vitrified clay sewer pipes in the disturbance limits for the Build Alternatives would be extended under the highway and road facilities as needed to accommodate the widened freeway and modified ramp facilities. Those modifications to the existing sewer facilities would not change the capacity of those pipes. The modifications would be coordinated with the OCSD as required in Measure CI-1.

c) Less Than Significant Impact. Refer to responses “c,” “d,” and “e” in Section IX, Hydrology and Water Quality, for discussion of the existing storm water drainage facilities that would be extended or modified to accommodate the widened freeway and modified ramp facilities under the Build Alternatives. Those modifications would not require the construction of new storm water drain facilities or substantial increases in the capacity of the existing storm drain facilities. No mitigation is required.

d) Less Than Significant Impact. The use of water during project construction would be limited to water trucked to the site for dust control. The amount of water used during construction would be minimal. The use of water during project operations would be limited to areas in which new landscaping requires short-term watering while the plant material becomes established and areas in which limited use of water for landscaping requires permanent watering. The amount of landscaping provided in the Build Alternatives would not differ substantially from the existing amount of landscaping in the limits of SR-55 and, therefore, the amount of water needed for landscaping would be approximately the same as the existing demand. As a result, the Build Alternatives would not require the water districts serving the project area to provide new or expanded entitlements to meet the need for water during construction and operation of the Build Alternatives.

f) Less Than Significant Impact. During project construction, two types of waste materials would be collected: vegetation, other plant material, and some excess soils; and solid waste such as concrete, asphalt, and wood. The waste collected during construction would be properly disposed of at an existing landfill or recycled. The amount of waste that would be generated during the construction of the Build Alternatives would be limited and would occur only during the construction period. That amount of waste would be only a very small amount of the total waste disposed of or recycled at area recycling facilities and landfills, on both a daily and annual basis. Therefore, the amount of waste generated during construction of the Build Alternatives is anticipated to be accommodated by the existing recycling and landfill facilities in Orange County.

The waste collected during operation of the Build Alternatives would be properly disposed of at an existing landfill or recycled. The amount of waste that would be generated during the operation of the Build Alternatives would be only a very small amount of the total waste disposed of or recycled at area recycling facilities and landfills, on both a daily and annual

basis. Therefore, the amount of waste generated during operation of the Build Alternatives is anticipated to be accommodated by the existing recycling and landfill facilities in Orange County.

Because the amount of waste generated during construction and operation of the Build Alternatives is anticipated to be accommodated by the existing recycling and landfill facilities in Orange County, no mitigation is required.

g) Less than Significant Impact. Any hazardous waste generated during construction of the Build Alternatives, collected during normal waste collection activities, or collected as a result of an accidental release on the SR-55 freeway or ramp facilities would be collected, handled, transported, and disposed of consistent with applicable federal, State, regional, and local regulations. Hazardous wastes would not be comingled with greenwaste nonhazardous trash. No mitigation is required.

Waste materials generated during construction and operation of the Build Alternatives would be disposed of in accordance with federal, State, and local regulations related to recycling, which would minimize the amount of waste material entering local landfills. No mitigation is required.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

a) Less Than Significant Impact. The potential for the Build Alternatives to result in significant impacts to biological or cultural resources, specifically, is discussed in Sections 2.7, 2.10, 2.11, 2.15, 2.16, 2.17, and 2.18 in the IS/EA. The Build Alternatives would not degrade the quality of the environment or impact any animal or plant species or associated habitat. The Build Alternatives would result in only minimal impacts to areas under the jurisdiction of the CDFW, the RWQCB, and the USACE but would not impact any wetlands.

Based on the results of the HRSR (2014) and the attachments to that report, it was determined that the cultural resources within the APE do not appear to be eligible for inclusion in the National Register, do not qualify as historical resources pursuant to CEQA, or are exempt per the Section 106 PA. In addition, it has been determined that a finding of no impact is appropriate because there are no historical resources within the project limits or there are no impacts to historical resources pursuant to CEQA Guidelines Section 15064.5(b)(3). However, there is the potential to encounter unknown buried cultural resources or archaeological materials within the project disturbance limits during construction of the Build Alternatives. In the event that previously unknown buried cultural materials are encountered during construction, compliance with Measure CR-1, provided in Section 2.7, would avoid and/or minimize potential impacts to previously unknown cultural resources.

To avoid impacts to paleontological resources that may be present where excavation may occur in areas of undisturbed soils, a PMP, detailed in Measure PAL-1, provided in Section 2.11 of this IS/EA, would be developed during the final design phase of the project and implemented during the construction phase of the project. In addition, if the project construction plans are modified to include excavation deeper than 10 ft bgs, a PER, detailed in Measure PAL-2 in Section 2.11, would be developed. The potential to impact subsurface prehistoric resources would be avoided and/or minimized with implementation of Measures CR-1 and CR-2, provided in Section 2.7 of this IS/EA.

b) Less Than Significant Impact. As discussed in Section 2.19, Cumulative Impacts, in the IS/EA, several transportation projects may be under construction and operation at the same time as the Build Alternatives. However, the Build Alternatives would result in improved

operating conditions compared to the No Build Alternative and would not contribute to cumulative adverse effects. Therefore, the impacts of the Build Alternatives are not considered cumulatively considerable and are less than significant.

c) Less Than Significant Impact with Mitigation. As discussed in Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.9, 2.10, 2.12, 2.13, and 2.14, in this IS/EA, the Build Alternatives would not result in environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. Furthermore, the Build Alternatives would reduce traffic congestion and travel times on the SR-55 between I-5 and I-405. This would reduce traffic delay, thereby reducing travel time and improving the human environment.

However, as discussed in Section 2.5 in the IS/EA, the limited access at the McFadden Avenue on-ramp proposed under both Alternatives 3, 4, and 3M would divert more traffic to the local arterials. The resulting increased delay and degradation in LOS would result in potentially significant impacts to the Northbound I-5 On-ramp/Newport Avenue intersection in 2020 and 2040. Measure T-3, which requires operational improvements at this intersection, would mitigate this impact of long-term traffic effects to a less than significant level.

Appendix B Resources Evaluated Relative to the Requirements of Section 4(f)

B.1 Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

Section 4(f) specifies that the Secretary [of Transportation] may approve a transportation program or project . . . requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance (as determined by the federal, state, or local officials having jurisdiction over the park, area, refuge, or site) only if:

- There is no prudent and feasible alternative to using that land; and
- The program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.

Section 4(f) further requires consultation with the Department of the Interior and, as appropriate, the involved offices of the Department of Agriculture and the Department of Housing and Urban Development in developing transportation projects and programs that use lands protected by Section 4(f). If historic sites are involved, then coordination with the State Historic Preservation Officer (SHPO) is also needed.

This appendix provides an evaluation of whether the proposed State Route 55 (SR-55) Improvement Project (project) would trigger the requirements for protection under Section 4(f) for any publicly owned parks, recreational facilities, wildlife refuges, and/or National Register of Historic Places (National Register) listed or eligible historic properties. The proposed project did not trigger the requirements for protection under Section 4(f) for any of those types of resources because:

1. They are not publicly owned.
2. They are not open to the public.
3. They are not eligible historic properties.
4. The project does not permanently or temporarily use the property and does not hinder the preservation of the property.
5. The proximity impacts do not result in constructive use.

The environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by the California Department of Transportation (Caltrans) under its assumption of responsibility pursuant to 23 USC 327.

B.2 Project Description

Caltrans District 12, in cooperation with the Orange County Transportation Authority (OCTA), proposes to widen SR-55 in both directions from just north of the Interstate 405 (I-405)/SR-55 Interchange to just south of the Interstate 5 (I-5)/SR-55 Interchange. The project area is in the Cities of Santa Ana, Tustin, and Irvine in Orange

County, California. SR-55 currently has four general-purpose lanes and one high-occupancy vehicle (HOV) lane in each direction on the project segment of SR-55, with auxiliary lanes between ramps at various locations.

SR-55 begins in Newport Beach west of State Route 1 (SR-1) (Post Mile [PM] 0.2) and ends at State Route 91 (SR-91) in the City of Anaheim (PM 17.876). SR-55 is a major link to other freeway systems within Orange County by providing access between central Orange County and the coastal region. SR-55 is one of the most congested freeway systems in Orange County and currently operates at unacceptable levels of service (LOS) during peak periods. The demand in the future is anticipated to increase traffic volumes by approximately 20 percent, consequently increasing a.m. and p.m. peak-period delays. The purpose of the proposed project is to provide congestion relief, improve traffic flow, and increase mobility on SR-55.

B.2.1 Build Alternatives

B.2.1.1 Alternative 1 (Additional Auxiliary Lanes)

Alternative 1 proposes a new auxiliary lane in the northbound direction on SR-55 at two locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges

In the southbound direction on SR-55, a general-purpose lane would be created between the southbound I-5 connector and the east Dyer Road off-ramp, and the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored. Additionally, the transition length for merging between the existing southbound HOV lane on SR-55 and the southbound I-5/SR-55 Connector HOV lane would be extended past Edinger Avenue.

B.2.1.2 Alternative 2 (One New General-Purpose Lane)

Alternative 2 proposes to create one general-purpose lane in the northbound and southbound directions on SR-55.

In the northbound direction on SR-55, two existing auxiliary lanes would be restored between the northbound I-405 connector and the MacArthur Boulevard interchange, and between the Edinger Avenue and McFadden Avenue interchanges.

In the southbound direction on SR-55, the existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored. Additionally, the transition length for merging between the existing southbound HOV lane on SR-55 and the southbound I-5/SR-55 Connector HOV lane would be extended past Edinger Avenue.

B.2.1.3 Alternative 3 (One New General-Purpose Lane and Additional Auxiliary Lanes)

Alternative 3 proposes to add one general-purpose lane in the northbound and southbound directions on SR-55 and restore existing auxiliary lanes.

Additionally, in the northbound direction on SR-55, new auxiliary lanes would be constructed at two locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector, and the northbound McFadden Avenue on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction on SR-55, the transition length for merging between the existing southbound SR-55 HOV lane and the southbound I-5/SR-55 HOV connector would be extended past Edinger Avenue.

B.2.1.4 Alternative 4 (One New HOV Lane and Additional Auxiliary Lanes)

Alternative 4 proposes to add a second HOV lane in each direction on SR-55 between the I-405 and I-5 HOV direct connectors.

Additionally, in the northbound direction on SR-55, a new auxiliary lane would be constructed at three locations:

- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges
- From just south of the Tustin Overhead to the northbound I-5 connector

The northbound McFadden Avenue on-ramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would be eliminated.

In the southbound direction on SR-55, a general-purpose lane would be created between the southbound I-5 connector and the east Dyer Road off-ramp. The existing auxiliary lane between the McFadden Avenue and Edinger Avenue interchanges would be restored.

Figure B.1 shows the project segment of SR-55 from Interstate 405 (I-405) to Interstate 5 (I-5) and shows the maximum disturbance limits for the proposed project. Figure B.1 does not show the areas on SR-55 south of I-405 and north of I-5 where the advanced signage would be located. The advanced signage would consist of standard freeway information, directional, and speed limit signage to assist motorists during the project construction and then when using the improved segment of SR-55. The advanced signage would be installed within the existing Caltrans right of way; therefore, there would be no disturbance outside the Caltrans right of way and no maximum disturbance limits in those areas along SR-55.

B.2.1.5 Alternative 3M (New HOV and General Purpose Lanes and Additional Auxiliary Lanes) – Preferred Alternative

Alternative 3M proposes to add one general-purpose lane in the northbound and southbound directions and a second HOV lane in each direction between the I-405 and I-5 HOV direct connectors. Additionally, in the northbound direction, auxiliary lanes will be constructed at two locations:

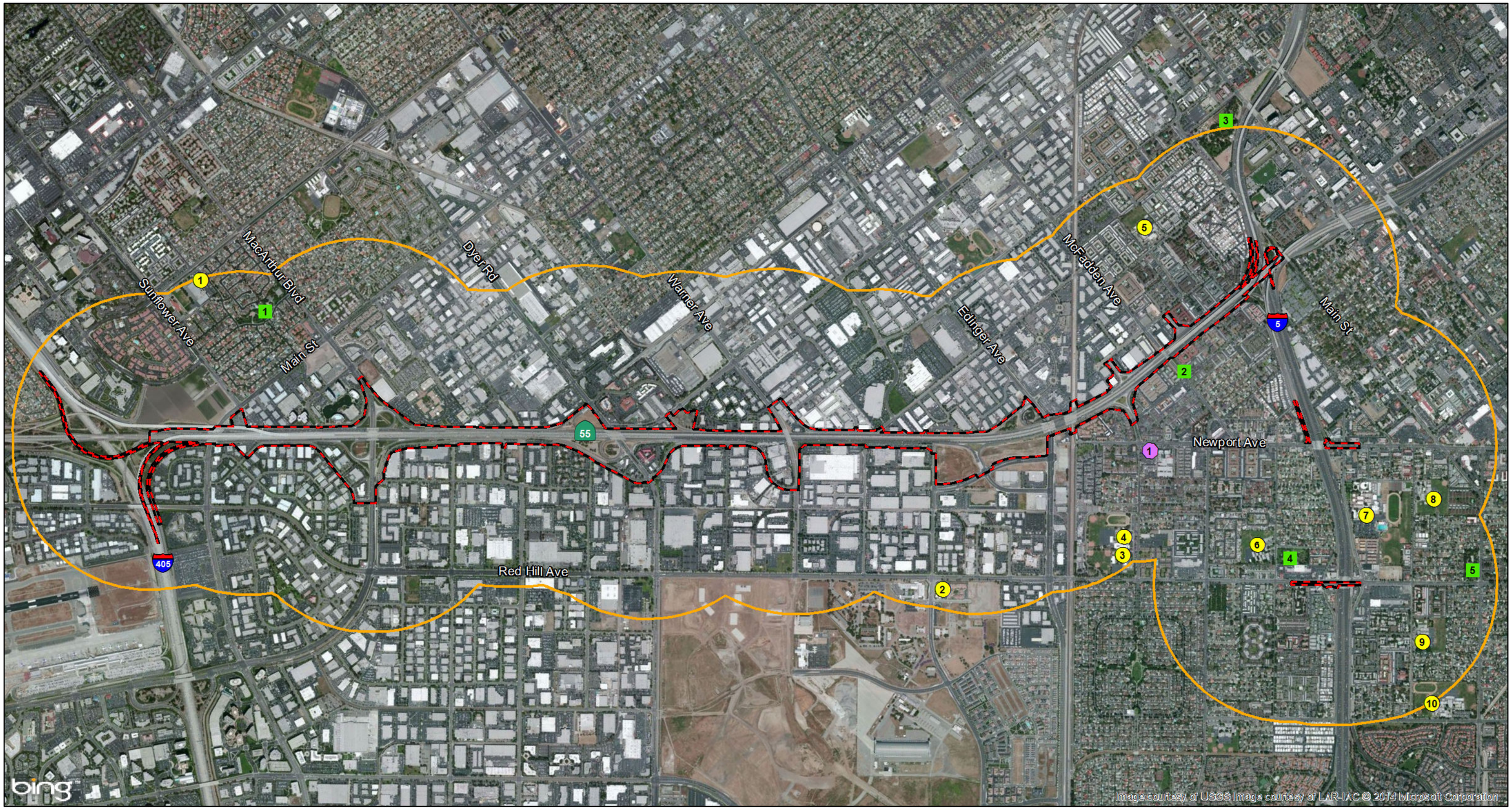
- Between the MacArthur Boulevard and Dyer Road interchanges
- Between the Dyer Road and Edinger Avenue interchanges

The restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges would be extended to the northbound I-5 connector and the northbound McFadden Avenue onramp would be restricted to the northbound I-5 connector only. As a result, access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would be eliminated. In the southbound direction, the existing auxiliary lane between the

McFadden Avenue and Edinger Avenue interchanges would be restored to match the existing condition.

B.2.2 No Build Alternative

The No Build Alternative does not include improvements to the existing mainline lane configuration on the project segment of SR-55.



LEGEND

- Project Area
- 0.5 Mile Study Area

Schools

1. Taft Elementary School
2. Hillview High School (Continuation School)
3. Jeane Thorman Elementary School
4. A. G. Currie Middle School
5. Robert Heideman Elementary School
6. Benjamin F. Beswick Elementary School
7. Tustin High School
8. C.C. Lambert Elementary School
9. Marjorie Veeh Elementary School
10. C.E. Utt Middle School

Parks

1. Sandpointe Park
2. McFadden-Pasadena Parkette
3. Santa Ana Zoo at Prentice Park
4. Frontier Park
5. Pine Tree Park

Other

1. Tustin Family and Youth Center

0 900 1800
FEET

SOURCE: Bing (c. 2009); TBM (2008)

I:\HDR1102\GIS\4F_Parks_Schools.mxd (4/21/2014)

FIGURE B.1

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Publicly Owned Parks and Schools

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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B.3 Resources Evaluated Relative to the Requirements of Section 4(f)

Table B.1 (provided at the end of this appendix) lists and describes publicly owned parks and recreation resources, including off-street trails, within 0.5 mile (mi) of the project limits along SR-55. Those resources include one family and youth center, and parks and public schools with recreation facilities available for use by the public outside school hours. The locations of those resources are shown on Figure B.1.

There are no publicly owned wildlife and waterfowl refuges within 0. 5 mi of the project limits.

The study area for National Register listed and eligible resources was defined as the Area of Potential Effects (APE) delineated in the *Historic Property Survey Report* (HPSR; 2013). The HPSR determined there are no National Register listed or eligible cultural resources in the APE for the proposed project. Therefore, there are no National Register listed or eligible cultural resources that would trigger the requirements for protection under Section 4(f), and no further discussion of those types of resources is provided in this evaluation.

As shown in Table B.1, the potential for the following types of impacts on each Section 4(f) resource were assessed:

- Permanent use of land from the resource
- Permanent aerial, surface, or subsurface easement at the resource
- Temporary construction easement at the resource
- Potential for short- or long-term proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify the resource for protection under Section 4(f) related to access, visual and aesthetics, water quality, air quality, noise, and natural communities, plant species, and animal species.

The potential for those types of impacts were assessed for the following resources which were determined, based on the analysis in Table B.1 not to trigger the requirements for protection under Section 4(f):

- Sandpointe Park and Sandpointe Recreation Center
- McFadden-Pasadena Parkette
- Santa Ana Zoo at Prentice Park
- Frontier Park
- Pine Tree Park
- Taft Elementary School
- Hillview High School
- Jeane Thorman Elementary School
- A.G. Currie Middle School
- Robert Heideman Elementary School
- Benjamin F. Beswick Elementary School
- Tustin High School
- C.C. Lambert Elementary School

- Marjorie Veeh Elementary School
- Tustin Family and Youth Center

Specifically, as discussed in Table B.1, the proposed project would not result in the permanent use of land from, temporary occupancies of land at, or permanent aerial, surface, or subsurface easements at any of the resources listed above. The proposed project would not result in proximity or constructive use at any of those resources that would substantially impair the activities, features, and/or attributes that qualify the resources for protection under Section 4(f). Because the Build Alternatives would not impact these resources, no mitigation is needed. As a result, as discussed in detail in Table B.1, the proposed project would not trigger the requirements for protection under Section 4(f) at any publicly owned parks and recreation resources.

B.4 Section 6(f) and Public Park Preservation Act

B.4.1 Section 6(f)

State and local governments can obtain grant funds through the federal Land and Water Conservation Fund Act (L&WCF Act) to acquire or make improvements to parks and recreation areas. Section 6(f) of the L&WCF Act prohibits the conversion of property acquired or developed with these grants to a non-recreational purpose without the approval of the United States Department of the Interior (DOI) National Park Service (NPS).

As described in Table B.1, the Build Alternatives would not result in the permanent use of property from any park and, therefore, would also not result in the conversion of any property acquired or developed with grants provided under the L&WCF Act.

B.4.2 Public Park Preservation Act of 1971

In addition to the requirements of Sections 4(f) and 6(f), the Public Park Preservation Act of 1971 (Public Resources Code [PRC] Section 5400 et seq.), which applies to any park operated by a public agency, provides in part that:

> "No city, city and county, county, public district, or agency of the state, including any division, department or agency of the state government, or public utility, shall acquire (by purchase, exchange, condemnation, or otherwise) any real property, which property is in use as a public park at the time of such acquisition, for the purpose of utilizing the property for any nonpark purpose, unless the acquiring entity pays or transfers to the legislative body of the entity operating the park sufficient compensation or land, or both, as required by the provisions of this chapter to enable the operating entity to replace the parkland and the facilities thereon."

As described later in Table B.1, the Build Alternatives would not result in the permanent use of property from any park and, therefore, would also not result in the need for any compensation to park owners/operators under the Public Park Preservation Act of 1971.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Publicly Owned Parks and Other Recreation Resources	
Sandpointe Park and Sandpointe Recreation Center (also referred to in this evaluation as the "park") 450 West MacArthur Boulevard Santa Ana, CA 92707 (Shown as Park #1 on Figure B.1) Owner/Operator: City of Santa Ana The Sandpointe Park and Recreation Center is approximately 1,600 ft west of the maximum project disturbance limits. The 7.0 ac park includes a basketball court, volleyball court, hiking/exercise trail, playground equipment, tennis courts, and restrooms. Access to the park is available from MacArthur Boulevard on the north and Birch Street on the east.	The Sandpointe Park and Sandpointe Recreation Center are outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this park and recreation center under the Build Alternatives. As a result, the requirements for protection of this park and recreation center under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify this park and recreation center for protection under Section 4(f) was evaluated as follows: • **Access:** Access to this park is currently available from MacArthur Boulevard on the north and Birch Street to the east. Pedestrians and bicyclists can also access the park using a sidewalk from a neighborhood southwest of the park. Although MacArthur Boulevard is proposed to be used as a detour route during temporary mainline and ramp closures, those closures are expected to occur during the night hours. The detoured traffic on MacArthur Boulevard would not adversely affect access to this park because the park is closed overnight. None of the proposed improvements to SR-55 would result in temporary or permanent changes to access to the park from MacArthur Boulevard, Birch Street, or sidewalks adjacent to and entering the park. As a result, the Build Alternatives would not result in adverse impacts to access to/from the Sandpointe Park and Sandpointe Recreation Center. • **Visual and Aesthetics:** This park is in a developed area approximately 1,600 ft west of the maximum project disturbance limits. The Build Alternatives do not include new features that would be tall enough to be visible from the park or that would substantively change views from the park. In addition, existing land uses provide a visual buffer between the park and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on Sandpointe Park and Sandpointe Recreation Center. • **Water Quality:** There are no water features at this park and there is no potential for runoff from the project facilities to enter the park property or indirectly affect the park property and amenities in the short- or long-term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	would not result in short- or long-term adverse air quality impacts on Sandpointe Park and Sandpointe Recreation Center. • **Noise:** As noted above, this park is in a developed area approximately 1,600 ft west of the maximum disturbance limits for the project. Existing intervening land uses provide a buffer between the park and SR-55 that substantially shields the park from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although MacArthur Boulevard is proposed to be used as a detour route during temporary mainline closures and ramp closures at MacArthur Boulevard, those closures are expected to occur during the night hours. The detoured traffic on MacArthur Boulevard would not result in noise levels that would adversely affect the park because the park is not open overnight. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Sandpointe Park and Recreation Center. • **Natural Communities, Plant Species, and Animal Species:** This park is characterized by nonnative and ornamental vegetation, with large grassy areas and a number of mature trees scattered throughout the site. There would be no project construction on or in the immediate vicinity of this park and, therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline and on- and off-ramps, and therefore would not result in any direct or indirect effects on the vegetation in the park. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at Sandpointe Park and Sandpointe Recreation Center. In summary, the proximity impacts of the Build Alternatives at Sandpointe Park and Sandpointe Recreation Center would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this park.

McFadden-Pasadena Parkette (also referred to in this evaluation as the "parkette") McFadden Avenue and Pasadena Avenue Tustin, CA (Shown as Park #2 on Figure B.1) Owner/Operator: City of Tustin This parkette is approximately 260 ft east of the maximum project disturbance limits. This 0.4 ac park includes green space, a playground, and picnic tables. There is no on-site parking provided at this parkette. There is on-street parking available on Medallion Avenue to the north. Pedestrians and bicyclists can access this parkette from Medallion Avenue to the north, Pasadena Avenue to the east, and McFadden Avenue to the south.	McFadden-Pasadena Parkette Park is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this parkette under the build alternatives. As a result, the requirements for protection of the McFadden-Pasadena Parkette under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify the McFadden-Pasadena Parkette for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this parkette is currently available from Medallion Avenue on the north, Pasadena Avenue on the east, and McFadden Avenue on the south. Parking for the parkette is available on-street along Medallion Avenue. Although McFadden Avenue is proposed to be used as a detour route during temporary mainline and ramp closures, those closures are expected to occur during the night hours. The detoured traffic on McFadden Avenue would not adversely affect access to this parkette because use of the parkette is likely very limited overnight. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this parkette from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from the McFadden-Pasadena Parkette. • **Visual and Aesthetics:** This parkette is in a developed area approximately 260 ft east of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the parkette and SR-55. The Build Alternatives do not include new features that would be tall enough to be visible from the park or to substantively change views from the parkette. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this parkette. • **Water Quality:** There are no water features at this parkette and there is no potential for runoff from the project facilities to enter the parkette property or otherwise indirectly affect the parkette property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on the McFadden-Pasadena Parkette. • **Noise:** As noted above, this parkette is in a developed area approximately 260 ft east of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the Parkette and SR-55 that partially shields the parkette from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although McFadden Avenue is proposed to be used as a detour route during temporary mainline and ramp closures, those closures are expected to occur during the night hours. The detoured traffic on

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	McFadden Avenue would not result in noise levels that would adversely affect the parkette because use of the parkette is likely very limited overnight. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on the McFadden-Pasadena Parkette. • **Natural Communities, Plant Species, and Animal Species**: This parkette is characterized by nonnative and ornamental vegetation that includes grassy areas and a few mature trees. There would be no project construction on or in the immediate vicinity of this parkette; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline and ramps and would not result in any direct or indirect effects on the vegetation in the parkette. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this parkette. In summary, the proximity impacts of the Build Alternatives at the McFadden-Pasadena Parkette would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this parkette.
Santa Ana Zoo at Prentice Park (also referred to in this evaluation as the "zoo/park") 1801 East Chestnut Avenue Santa Ana, CA 92707 (Shown as Park #3 on Figure B.1) Owner/Operator: City of Santa Ana Prentice Park occupies the north half of this site and the Santa Ana Zoo occupies the south half. The zoo/park are immediately southwest of and adjacent to I-5 and approximately 2,200 ft northwest of the maximum project disturbance limits (the area where the advanced signage on SR-55 in and north of the I-5 interchange would be approximately 1,300 ft east of the boundary of the zoo/park, but would not result in any activities outside the existing State ROW). The 19 ac zoo features over 80 species of animals, a children's farm, a train ride, and a carousel. There is on-site	The zoo/park is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this park under the Build Alternatives. As a result, the requirements for protection of this resource under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify the zoo/park for protection under Section 4(f) was evaluated as follows: • **Access:** Access to the zoo/park is currently available from Elk Lane to the west and West Main Street to the south. Pedestrians and bicyclists can also access the site from 1st Street to the north. There is no access from the east because that part of the zoo/park property is immediately adjacent to I-5. There is on-site parking and there is also on-street parking available along Elk Lane and West Main Street. West Main Street and 1st Street are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no impacts to access to the zoo/park during detours are anticipated. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this zoo/park from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from the Santa Ana Zoo at Prentice Park.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
parking at the zoo/park. Access to the site is available from West Main Street on the south and Elk Lane on the west.	• **Visual and Aesthetics:** The zoo/park is in a developed area and is immediately adjacent to I-5. It is approximately 2,200 ft northwest of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the zoo/park and SR-55. The Build Alternatives do not include new features that would be tall enough to be visible from the zoo/park or that would substantively change views from the zoo/park. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on the Santa Ana Zoo at Prentice Park. • **Water Quality:** There are no water features at the zoo/park and there is no potential for runoff from the SR-55 facilities to enter the zoo/park property or otherwise indirectly affect the zoo/park property and amenities in the short- or long-term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, project construction would not result in short- or long-term adverse air quality impacts on the Santa Ana Zoo at Prentice Park. • **Noise:** As noted above, the zoo/park is in a developed area immediately adjacent to I-5 and approximately 2,200 ft northwest of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the zoo/park and SR-55. In addition, existing noise on I-5 masks noise generated on SR-55. West Main Street and 1st Street are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the zoo/park due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on the Santa Ana Zoo at Prentice Park.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	• **Natural Communities, Plant Species, and Animal Species**: The zoo/park is characterized by nonnative and ornamental vegetation with grassy areas with a large number of mature trees. There would be no project construction on or in the immediate vicinity of the zoo/park; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline and ramps and would not result in any direct or indirect effects on the vegetation in the zoo/park. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at the Santa Ana Zoo at Prentice Park. In summary, the proximity impacts of the Build Alternatives at the zoo/park would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of the Santa Ana Zoo at Prentice Park.
Frontier Park (also referred to in this evaluation as the "park") 1400 Mitchell Avenue Tustin, CA 92780 (Shown as Park #4 on Figure B.1) Owner/Operator: City of Tustin Frontier Park is approximately 300 ft northwest of the maximum project disturbance limits. The approximately 4.5 ac park consists of green space with large trees, a playground, Frisbee golf course, outdoor fitness equipment, restrooms, and shaded picnic areas. Access to this park is available from Mitchell Avenue to the southwest and Utt Drive to the northwest.	Frontier Park is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this park under the Build Alternatives. As a result, the requirements for protection of Frontier Park under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Frontier Park for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this park is currently available from Mitchell Avenue to the southwest and Utt Drive to the northwest. Parking for the park is available on-street along Mitchell Avenue and Utt Drive. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this park from, and parking along, the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Frontier Park. • **Visual and Aesthetics:** This park is in a developed area approximately 300 ft northwest of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the park and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the park or to substantively change views from the park. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this park.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	• **Water Quality:** There are no water features at this park and there is no potential for runoff from the project facilities to enter the park property or otherwise indirectly affect the park property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Frontier Park. • **Noise:** As noted above, this park is in a developed area approximately 300 ft east of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the park and SR-55 that partially shields the park from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of Frontier Park are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the park due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Frontier Park. • **Natural Communities, Plant Species, and Animal Species**: This park is characterized by nonnative and ornamental vegetation that includes grassy areas and a number of mature trees. There would be no project construction on or in the immediate vicinity of this park; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the park. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this park. In summary, the proximity impacts of the Build Alternatives at Frontier Park would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this park.
Pine Tree Park (also referred to in this evaluation as the "park") 1402 Bryan Avenue Tustin, CA 92780 (Shown as Park #5 on Figure B.1)	Pine Tree Park is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this park under the Build Alternatives. As a result, the requirements for protection of Pine Tree Park under Section 4(f) are not triggered by the Build Alternatives.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Owner/Operator: City of Tustin Pine Tree Park is approximately 1,900 ft north of the maximum disturbance limits. The approximately 4.2 ac park consists of green space with a playground, one sand volleyball court, portable skate park, restrooms, and a picnic shelter. Access to the park is available from Bryan Avenue to the northeast and Red Hill Avenue to the southeast.	The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Pine Tree Park for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this park is currently available from Bryan Avenue to the northeast and Red Hill Avenue to the southeast. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this park from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Pine Tree Park. • **Visual and Aesthetics:** This park is in a developed area approximately 1,900 ft north of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the park and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the park or to substantively change views from the park. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this park. • **Water Quality:** There are no water features at this park and there is no potential for runoff from the project facilities to enter the park property or otherwise indirectly affect the park property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Pine Tree Park. • **Noise:** As noted above, this park is in a developed area approximately 1,900 ft east of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the park and SR-55 that partially shields the park from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of Pine Tree Park are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the park due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Pine Tree Park. • **Natural Communities, Plant Species, and Animal Species**: This park is characterized by nonnative and ornamental vegetation that includes grassy areas and a number of mature trees. There would be no project construction on or in the immediate vicinity of this park; therefore,

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the park. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this park. In summary, the proximity impacts of the Build Alternatives at Pine Tree Park would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this park.
Publicly Owned Schools	
Taft Elementary School (also referred to in this evaluation as the "school") 500 Keller Avenue Santa Ana, CA 92707 (Shown as School #1 on Figure B.1) Owner/Operator: Santa Ana Unified School District This school is located approximately 2,000 ft west of the maximum disturbance limits for the project. This school has approximately 750 students in grades K–6. Recreation amenities include outdoor playgrounds and basketball courts. Access to this school is available from Keller Avenue to the north. Access for the general public to the recreation amenities after school hours at this school is limited. Specifically, the public may only use the basketball courts after school hours by reserving them in advance through the Santa Ana Unified School District.	Taft Elementary School is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of this school under Section 4(f) are not triggered by the Build Alternatives. The potential for the Build Alternatives to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Taft Elementary School for protection under Section 4(f) was evaluated as follows: • **Access:** Vehicular, pedestrian, and bicycle access to Taft Elementary School is currently available from Keller Avenue on the north side of the school site. There is no access from the west due to the presence of the Santa Ana Delhi Channel and to the south and east due to land uses in those areas adjacent to the school site. There is on-site parking at the school. MacArthur Boulevard, which is approximately 0.2 mi north of the school, is proposed to be used as a detour route during temporary mainline and ramp closures. However, that detoured traffic would not adversely affect access to the school because the closures would occur overnight, and traffic detoured onto MacArthur Boulevard is not expected to travel through the residential area between the school and MacArthur Boulevard because that would be a longer route than staying on MacArthur Boulevard to detour around a closure. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this school from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Taft Elementary School • **Visual and Aesthetics:** This school is in a developed area approximately 2,000 ft west of the maximum project disturbance limits. The Build Alternatives do not include new features that would be tall enough to be visible from the school or that would substantively change views

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	from the school. In addition, existing land uses provide a visual buffer between the school and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on Taft Elementary School. • **Water Quality:** There are no water features at this school, and there is no potential for runoff from the SR-55 project facilities to enter the school property or otherwise indirectly affect the school property and the recreational amenities on that property in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Taft Elementary School. • **Noise:** As noted above, this school is in a developed area approximately 2,000 ft west of the maximum disturbance limits for the project. Existing intervening land uses provide a buffer between the school and SR-55 that substantially shield the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although MacArthur Boulevard is proposed to be used as a detour route during temporary mainline and ramp closures, that detoured traffic would not result in noise effects at the school because the detours would occur overnight, and the noise generated on MacArthur Boulevard would be shielded by the existing land uses between that street and the school. As a result, the Build Alternatives would not result in short- or long-term indirect adverse noise effects on Taft Elementary School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation with grassy play areas and a few mature trees on the school site. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would not result in any direct or indirect effects on the vegetation at the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at Taft Elementary School. In summary, the proximity impacts of the Build Alternatives at Taft Elementary School would not substantively impair the protected activities, features. or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
Hillview High School (also referred to in this evaluation as the "school")	Hillview High School is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
15400 Landsdowne Road Tustin, CA 92782 (Shown as School #2 on Figure B.1) Owner/Operator: Tustin Unified School District This school is approximately 1,850 ft southeast of the maximum project disturbance limits. This is a continuation high school offering an alternate program for students in grades 9–12. Recreation amenities at this school include an outdoor lunch area, a soccer field, a grass area, and basketball courts. Vehicular access to this school is available from Keller Road on the east. Pedestrian and bicycle access to the site is also available from Red Hill Avenue to the west and Landsdowne Road to the south. Access for the general public to the recreation amenities after school hours at this school is limited. Specifically, the public may only use the soccer field after school hours by reserving it in advance through the Tustin Unified School District.	requirements for protection of this school under Section 4(f) are not triggered by the Build Alternatives. The potential for the Build Alternatives to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Hillview High School for protection under Section 4(f) was evaluated as follows: • **Access:** Access to Hillview High School is currently available from Red Hill Avenue, Landsdowne Road, and Keller Road. There is on-site parking at the school. Red Hill Avenue is proposed to be used as a detour route during temporary mainline and ramp closures. However, that detoured traffic would not adversely affect access to the school because the closures would occur overnight when the sports fields at the school would not be in use. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this school from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Hillview High School. • **Visual and Aesthetics:** This school is in a developed area approximately 1,850 ft southeast of the maximum disturbance limits for the project. The Build Alternatives do not include new features that would be tall enough to be visible from the school or that would substantively change views from the school. In addition, existing land uses provide a visual buffer between the school and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on Hillview High School. • **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and the recreational amenities on that property in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Hillview High School. • **Noise:** As noted above, this school is in a developed area approximately 1,850 ft southeast of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that substantially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although Red Hill Avenue is proposed to be used as a detour route during temporary mainline and ramp

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	closures, that detoured traffic would not result in noise effects at the school because the detours would occur overnight and the sports fields would not be in use. As a result, the Build Alternatives would not result in short- or long-term indirect adverse noise effects on Hillview High School.
	• **Natural Communities, Plant Species, and Animal Species:** This school is characterized by nonnative and ornamental vegetation with limited landscaping, including mature trees, on the west and south sides of the school site. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would not result in any direct or indirect effects on the vegetation at the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at Hillview High School. In summary, the proximity impacts of the Build Alternatives at Hillview High School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
Jeane Thorman Elementary School and A.G. Currie Middle School (because this elementary school and middle school are adjacent to each other, they are discussed together in this evaluation) Jeane Thorman Elementary School 1402 Sycamore Avenue Tustin, CA 92780 (Shown as School #3 on Figure B.1) Owner/Operator: Tustin Unified School District Jeane Thorman Elementary School has approximately 700 students in grades K–5. Recreation amenities at this school include an outdoor lunch area, an outdoor stage, a garden, a baseball/softball field, and basketball courts. Access to this school is available from Sycamore Avenue to the northeast, Red Hill Avenue to the southwest, and Service Road to the southwest. Access for the general public to the recreation amenities after school hours at this school is limited.	These schools are both outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at either school under the Build Alternatives. As a result, the requirements for protection of these schools under Section 4(f) are not triggered. The potential for the Build Alternatives to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Jeane Thorman Elementary School and A.G. Currie Middle School for protection under Section 4(f) was evaluated as follows: • **Access:** Access to the two schools is currently available from Sycamore Avenue, Red Hill Avenue, Service Road, and School Lane. There is on-site parking at each school. Red Hill Avenue and Sycamore Avenue are proposed to be used as a detour route during temporary mainline and ramp closures. However, that detoured traffic would not adversely affect access to these schools because the closures would occur overnight when the sports and ball fields and basketball courts at the schools would not be in use. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to either school from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Jeane Thorman Elementary School and A.G. Currie Middle School.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Specifically, the public may only use the baseball/softball field and the basketball courts after school hours by reserving them in advance through the Tustin Unified School District. A.G. Currie Middle School 1402 Sycamore Avenue Tustin, CA 92780 (Shown as School #4 on Figure B.1) Owner/Operator: Tustin Unified School District A.G. Currie Middle School has approximately 660 students in grades 6–8. Recreation amenities at this school include an outdoor lunch area, a playground, a sports field, basketball courts, a baseball/softball field, and a soccer field. Access to this school is available from Sycamore Avenue to the northeast, School Lane to the northwest, and Service Road to the southwest. Access for the general public to the recreation amenities after school hours at this school is limited. Specifically, the public may only use the sports field, basketball courts, and baseball/softball field after school hours by reserving them in advance through the Tustin Unified School District.	• **Visual and Aesthetics:** These schools are in a developed area. A.G. Currie Middle School is approximately 1,600 ft east of and Jeane Thorman Elementary School is approximately 2,300 ft east of the maximum project disturbance limits. The Build Alternatives do not include new features that would be tall enough to be visible from these schools or that would substantively change views from the schools. In addition, existing land uses provide a visual buffer between the schools and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on Jeane Thorman Elementary School and A.G. Currie Middle School. • **Water Quality:** There are no water features at these schools, and there is no potential for runoff from the project facilities to enter the school properties or otherwise indirectly affect the school properties and the recreational amenities on those properties in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Jeane Thorman Elementary School and A.G. Currie Middle School. • **Noise:** As noted above, these schools are in a developed area. At the closet points, A.G. Currie Middle School is 1,600 ft east of and Jeane Thorman Elementary School is 2,300 ft east of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the schools and SR-55 that substantially shields the schools from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although Red Hill Avenue is proposed to be used as a detour route during temporary mainline and ramp closures, that detoured traffic would not result in noise effects at these schools because the detours would occur overnight and the recreational amenities at the schools would not be in use. As a result, the Build Alternatives would not result in short- or long-term indirect adverse noise effects on Jeane Thorman Elementary School and A.G. Currie Middle School. • **Natural Communities, Plant Species, and Animal Species:** These schools are characterized by nonnative and ornamental vegetation with some grassy areas and a few mature trees on each school property. There would be no project construction on or in the immediate vicinity of these schools and, therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would not result in any direct or indirect effects on the vegetation at these schools. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at Jeane Thorman Elementary School and A.G. Currie Middle School.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	In summary, the proximity impacts of the Build Alternatives at Jeane Thorman Elementary School and A.G. Currie Middle School would not substantively impair the protected activities, features, or attributes of these resources in terms of their Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of either of these schools.
Robert Heideman Elementary School (also referred to in this evaluation as the "school") 15571 Williams Street Tustin, CA 92780 (Shown as School #5 on Figure B.1) Owner/Operator: Tustin Unified School District This school is approximately 1,300 ft west of the maximum project disturbance limits. It has approximately 500 students in grades K–5. Recreation amenities at this school include basketball courts, a sports field, and green space with a playground. Access to this school is available from Williams Street to the east. Access for the general public to the recreation amenities after school hours at this school is limited. Specifically, the public may only use the sports field and basketball courts by reserving them in advance through the Tustin Unified School District.	Robert Heideman Elementary School is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of this school under Section 4(f) are not triggered by the Build Alternatives. The potential for the Build Alternatives to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Robert Heideman Elementary School for protection under Section 4(f) was evaluated as follows: • **Access:** Vehicular, pedestrian, and bicycle access to this school is currently available from Williams Street on the east side of the school site. There is on-site parking at the school. McFadden Avenue, which is approximately 0.3 mi south of the school, is proposed to be used as a detour route during temporary mainline and ramp closures. However, that detoured traffic would not adversely affect access to the school because the closures would occur overnight, and traffic detoured onto McFadden Avenue is not expected to travel through the residential area between the school and McFadden Avenue. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this school from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Robert Heideman Elementary School. • **Visual and Aesthetics:** This school is in a developed area approximately 1,300 ft west of the maximum project disturbance limits. The Build Alternatives do not include new features that would be tall enough to be visible from the school for that would change views from this school. In addition, existing land uses provide a visual buffer between the school and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on Robert Heideman Elementary School.
	• **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and the recreational amenities on that property in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Robert Heideman Elementary School. • **Noise:** As noted above, this school is in a developed area approximately 1,300 ft west of SR-55. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although McFadden Avenue is proposed to be used as a detour route during temporary mainline and ramp closures, that detoured traffic would not result in noise effects at the school because the detours would occur overnight, and the noise generated on McFadden Avenue would be shielded by the existing land uses between that street and the school. As a result, the Build Alternatives would not result in short- or long-term indirect adverse noise effects on Robert Heideman Elementary School. • **Natural Communities, Plant Species, and Animal Species:** This school is characterized by nonnative and ornamental vegetation with a large grassy area on the west part of the site and a few mature trees on the site. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would not result in any direct or indirect effects on the vegetation at the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at Robert Heideman Elementary School. In summary, the proximity impacts of the Build Alternatives at Robert Heideman Elementary School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Benjamin F. Beswick Elementary School (also referred to in this evaluation as` the "school") 1362 Mitchell Avenue Tustin, CA 92780 (Shown as School #6 on Figure B.1) Owner/Operator: Tustin Unified School District Benjamin F. Beswick Elementary School is approximately 450 ft west of the maximum project disturbance limits. This school has a number of paved sports courts as well as a large grassy play area. Access to the school is available from Mitchell Avenue to the northeast.	This school is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of Benjamin F. Beswick Elementary School under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Benjamin F. Beswick Elementary School for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this school is currently available from Mitchell Avenue to the northeast. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this school from the adjacent street. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Benjamin F. Beswick Elementary School. • **Visual and Aesthetics:** This school is in a developed area approximately 450 ft west of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the school and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the school or to substantively change views from the school. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this school. • **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Benjamin F. Beswick Elementary School. • **Noise:** As noted above, this school is in a developed area approximately 450 ft west of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of Benjamin F. Beswick Elementary School are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the school due to

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Benjamin F. Beswick Elementary School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation that includes grassy areas and a few trees. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this school. In summary, the proximity impacts of the Build Alternatives at Benjamin F. Beswick Elementary School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
Tustin High School (also referred to in this evaluation as the "school") 1171 East El Camino Real Tustin, CA 92780 (Shown as School #7 on Figure B.1) Owner/Operator: Tustin Unified School District Tustin High School is approximately 400 ft north of the maximum project disturbance limits. This school has a number of paved sports courts and grassy sports fields. Access to the school is available from San Juan Street to the northeast, El Camino Real to the southwest, and Orange Street to the northwest.	This school is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of Tustin High School under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Tustin High School for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this school is currently available from San Juan Street to the northeast, El Camino Real to the southwest, and Orange Street to the northwest. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this school from the adjacent street. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Tustin High School. • **Visual and Aesthetics:** This school is in a developed area approximately 400 ft north of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the school and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the school or to substantively change views from the school. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this school.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	• **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Tustin High School. • **Noise:** As noted above, this school is in a developed area approximately 400 ft north of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of Tustin High School are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the school due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Tustin High School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation that includes grassy areas and a few trees. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this school.
	In summary, the proximity impacts of the Build Alternatives at Tustin High School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
C.C. Lambert Elementary School (also referred to in this evaluation as the “school”) 1151 San Juan Street Tustin, CA 92780 (Shown as School #8 on Figure B.1)	This school is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of C.C. Lambert Elementary School under Section 4(f) are not triggered by the Build Alternatives.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Owner/Operator: Tustin Unified School District C.C. Lambert Elementary School is approximately 1,600 ft northwest of the maximum project disturbance limits. This school has a number of paved sports courts as well as a large grassy play area. Access to the school is available from San Juan Street to the southwest and Andrews Street to the east.	The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify C.C. Lambert Elementary School for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this school is currently available from San Juan Street to the southwest and Andrews Street to the east. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this school from the adjacent street. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from C.C. Lambert Elementary School. • **Visual and Aesthetics:** This school is in a developed area approximately 1,600 ft northwest of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the school and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the school or to substantively change views from the school. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this school. • **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and amenities in the short or long term.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	• **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on C.C. Lambert Elementary School. • **Noise:** As noted above, this school is in a developed area approximately 1,600 ft northwest of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of C.C. Lambert Elementary School are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the school due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on C.C. Lambert Elementary School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation that includes grassy areas and a few trees. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this school. In summary, the proximity impacts of the Build Alternatives at C.C. Lambert Elementary School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
Marjorie Veeh Elementary School (also referred to in this evaluation as the "school") 1701 San Juan Street Tustin, CA 92780 (Shown as School #9 on Figure B.1) Owner/Operator: Tustin Unified School District Marjorie Veeh Elementary School is approximately 1,150 ft northeast of the maximum project disturbance limits. This school has a number of paved sports courts as well as a large grassy play area. Access to the school is available from San Juan Street to the southwest.	This school is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of Marjorie Veeh Elementary School under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify Marjorie Veeh Elementary School for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this school is currently available from San Juan Street to the southwest. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this school from the adjacent street. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from Marjorie Veeh Elementary School. • **Visual and Aesthetics:** This school is in a developed area approximately 1,150 ft northeast of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the school and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the school or to substantively change views from the school. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this school. • **Water Quality:** There are no water features at this school and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on Marjorie Veeh Elementary School. • **Noise:** As noted above, this school is in a developed area approximately 1,150 ft northeast of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of Marjorie Veeh Elementary School are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the school due to

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on Marjorie Veeh Elementary School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation that includes grassy areas and a few trees. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this school. In summary, the proximity impacts of the Build Alternatives at Marjorie Veeh Elementary School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
C.E. Utt Middle School (also referred to in this evaluation as the "school") 13601 Browning Ave Tustin, CA 92780 (Shown as School #10 on Figure B.1 in Appendix B) Owner/Operator: Tustin Unified School District C.E. Utt Middle School is approximately 2,230 ft northeast of the maximum project disturbance limits. This school has a number of paved sports courts, sports fields, and a track. Access to the school is available from San Juan Street to the southwest, Browning Avenue to the southeast, and Bryan Avenue to the northeast.	This school is outside the project limits and there would be no permanent use, temporary occupancy, or permanent easements at this school under the Build Alternatives. As a result, the requirements for protection of C.E. Utt Middle School under Section 4(f) are not triggered by the Build Alternatives. The potential for the proposed project to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify C.E. Utt Middle School for protection under Section 4(f) was evaluated as follows: • **Access:** Pedestrian and bicycle access to this school is currently available from San Juan Street to the southwest, Browning Avenue to the southeast, and Bryan Avenue to the northeast. None of the proposed improvements in the Build Alternatives would result in temporary or permanent changes to access to this school from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from C.E. Utt Middle School.
	• **Visual and Aesthetics:** This school is in a developed area approximately 2,230 ft northeast of the maximum disturbance limits for the project. Existing land uses provide a visual buffer between the school and project improvements. The Build Alternatives do not include new features that would be tall enough to be visible from the school or to substantively change views from the school. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this school.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	• **Water Quality:** There are no water features at this school, and there is no potential for runoff from the project facilities to enter the school property or otherwise indirectly affect the school property and amenities in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on C.E. Utt Middle School. • **Noise:** As noted above, this school is in a developed area approximately 2,230 ft northeast of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the school and SR-55 that partially shields the school from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Streets in the vicinity of C.E. Utt Middle School are not proposed to be used as detour routes during temporary mainline and ramp closures; therefore, no noise impacts at the school due to detoured traffic are anticipated. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse noise effects on C.E. Utt Middle School. • **Natural Communities, Plant Species, and Animal Species**: This school is characterized by nonnative and ornamental vegetation that includes grassy areas and a few trees. There would be no project construction on or in the immediate vicinity of this school; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would be limited to the SR-55 mainline, ramps, and local street improvements and would not result in any direct or indirect effects on the vegetation in the school. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at this school.
	In summary, the proximity impacts of the Build Alternatives at C.E. Utt Middle School would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this school.
Other Resource	
Tustin Family and Youth Center (also referred to in this evaluation as the “Center”) 14722 Newport Avenue Tustin, CA 92780	The Tustin Family and Youth Center is outside the project limits, and there would be no permanent use, temporary occupancy, or permanent easements at this Center under the Build Alternatives. As a result, the requirements for protection of this resource under Section 4(f) are not triggered.

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
(Shown as Other Resource #1 on Figure B.1) Owner/Operator: City of Tustin The Tustin Family and Youth Center is approximately 460 ft east of the maximum project disturbance limits. The 6,000 sf Center serves the specialized needs of the residents of southwest Tustin. The facility provides a full range of family and youth-oriented social, educational, and recreational programs, and serves as a resource/referral center for families in need, youth-at-risk, and for individuals seeking self-improvement and vocational opportunities. Access to this Center is available from Red Hill Avenue to the west and Sycamore Avenue to the east.	The potential for the Build Alternatives to result in proximity or constructive use impacts that would substantially impair the activities, features, and/or attributes that qualify the Tustin Family and Youth Center for protection under Section 4(f) was evaluated as follows: • **Access:** Access to the Center is currently available from Newport Avenue and Sycamore Avenue. There is on-site parking at the Center. Sycamore Avenue is proposed to be used as a detour route during temporary mainline and ramp closures. However, that detoured traffic would not adversely affect access to the Center because the closures would occur overnight when the Center would not be in use. None of the proposed improvements to the SR-55 mainline and ramps would result in temporary or permanent changes to access to this Center from the adjacent streets. As a result, the Build Alternatives would not result in temporary or permanent indirect adverse effects on access to/from the Tustin Family and Youth Center. • **Visual and Aesthetics:** This Center is in a developed area approximately 460 ft east of the maximum project disturbance limits. The Build Alternatives do not include new features that would be tall enough to be visible from the Center or that would substantively change views from the Center. In addition, existing land uses provide a visual buffer between the Center and SR-55. As a result, the Build Alternatives would not result in adverse visual or aesthetic effects on this Center. • **Water Quality:** There are no water features at this Center, and there is no potential for runoff from the project facilities to enter the Center property or otherwise indirectly affect the Center property and the recreational amenities on that property in the short or long term. • **Air Quality:** The project construction activities would produce exhaust and fugitive dust emissions. With the implementation of measures included in the project to control and reduce equipment emissions and fugitive dust, the project construction would not result in any adverse air quality impacts. The operation of the proposed project would not result in impacts related to regional and project-level conformity, CO, particulate matter, and MSAT. Therefore, the project would not result in short- or long-term adverse air quality impacts on the Tustin Family and Youth Center. • **Noise:** As noted above, this Center is in a developed area approximately 460 ft east of the maximum project disturbance limits. Existing intervening land uses provide a buffer between the Center and SR-55 that partially shields the Center from noise generated on SR-55 and would continue to shield noise in the future with the Build Alternatives. Although Sycamore Avenue is proposed to be used as a detour route during temporary mainline and ramp closures, that detoured traffic would not result in noise effects at the Center because the detours would occur overnight and the Center would not be in use overnight. As a result, the

Table B.1 Resources Determined Not to Trigger the Requirements for Protection Under Section 4(f)

Name, Location, Owner/Operator, Description	Section 4(f) Evaluation
	Build Alternatives would not result in short- or long-term indirect adverse noise effects on the Tustin Family and Youth Center. • **Natural Communities, Plant Species, and Animal Species:** This Center is characterized by nonnative and ornamental vegetation with a small grassy area and a few mature trees on the site. There would be no project construction on or in the immediate vicinity of this Center; therefore, there would be no temporary disturbance to the existing vegetation. The operation of the proposed project would not result in any direct or indirect effects on the vegetation at the Center. As a result, the construction and operation of the proposed project would not result in short- or long-term impacts to the vegetation at the Tustin Family and Youth Center. In summary, the proximity impacts of the Build Alternatives at the Tustin Family and Youth Center would not substantively impair the protected activities, features, or attributes of this resource in terms of its Section 4(f) significance. As a result, the Build Alternatives would not result in constructive use of this Center.

Sources: Tustin Unified School District, www.tustin.k12.ca.us; Santa Ana Unified School District, www.sausd.us; and California Department of Education, Education Demographics Unit, http://dq.cde.ca.gov/dataquest.

ac = acres
CO = carbon monoxide
ft = feet
I-5 = Interstate 5
K–5 = Kindergarten through 5th Grade
K–6 = Kindergarten through 6th Grade
mi= miles
MSAT = Mobile Source Air Toxics
ROW = right of way
sf = square feet
SR-55 = State Route 55

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Appendix C Title VI Policy Statement

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DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
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Flex your power!
Be energy efficient!

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

MALCOLM DOUGHERTY
Director

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Appendix D Summary of Relocation Benefits

Declaration of Policy

"The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons shall not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations (CFR) Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments, as discussed below.

Fair Housing

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the United States to provide, within constitutional limitations, for fair housing. This act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require Caltrans to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Caltrans relocation advisor.

Relocation Assistance Advisory Services

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, Caltrans will provide relocation advisory assistance to any person, business, farm or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the United States. Caltrans will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are "decent, safe and sanitary." Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced, and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin, and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning federal and state assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable "decent, safe and sanitary" replacement dwelling, available on the market, is offered to them by Caltrans.

Residential Relocation Payments

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles, or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 180 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property), may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate. The maximum combination of these three supplemental payments that the owner-occupant can receive is $22,500. If the total entitlement (without the moving payments) is in excess of $22,500, the Last Resort Housing Program will be used (see the explanation of the Last Resort Housing Program below).

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by Caltrans prior to the date of the initiation of negotiations may

qualify to receive a rent differential payment. This payment is made when Caltrans determines that the cost to rent a comparable "decent, safe and sanitary" replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the Down Payment section below. The maximum amount payable to any eligible tenant and any owner-occupant of less than 180 days, in addition to moving expenses, is $5,250. If the total entitlement for rent supplement exceeds $5,250, the Last Resort Housing Program will be used.

To receive any relocation benefits, the displaced person must buy or rent and occupy a "decent, safe and sanitary" replacement dwelling within one year from the date the Department takes legal possession of the property, or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 180 days and tenants in legal occupancy prior to Caltrans' initiation of negotiations. The down payment and incidental expenses cannot exceed the maximum payment of $5,250. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 CFR 24) contain the policy and procedure for implementing the Last Resort Housing Program on federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the $22,500 and $5,250 limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, Caltrans will within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced.
- Specific arrangements needed to accommodate any family member(s) with special needs.
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family.
- Preferences in area of relocation.
- Location of employment or school.

Nonresidential Relocation Assistance

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms and nonprofit organizations in locating suitable replacement property, and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible

businesses, farms and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

The moving of inventory, machinery, equipment and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items acquired in the right-of-way contract may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.

Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.

Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $10,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $20,000.

Additional Information

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954, or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act, or any other law, except for any federal law providing local “Section 8” Housing Programs.

Any person, business, farm or nonprofit organization that has been refused a relocation payment by the Caltrans relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from Caltrans Right-of-Way. California’s law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

Your Rights and Benefits as a Displaced Business, Farm or Nonprofit Organization Under the Uniform Relocation Assistance Program

Introduction

In building a modern transportation system, the displacement of a small percentage of the population is often necessary. However, it is the policy of Caltrans that displaced persons shall not suffer unnecessarily as a result of programs designed to benefit the public as a whole.

Displaced businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and payments.

This brochure provides information about available relocation services and payments. If you are required to move as the result of a Caltrans transportation project, a Relocation Agent will contact you. The Relocation Agent will be able to answer your specific questions and provide additional information.

Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 As Amended "The Uniform Act"

The purpose of this Act is to provide for uniform and equitable treatment of persons displaced from their business, farm or nonprofit organization, by federal and federally assisted programs and to establish uniform and equitable land acquisition policies for federal and federally assisted programs.

49 Code of Federal Regulations Part 24 implements the "Uniform Act" in accordance with the following relocation assistance objective:

> To ensure that persons displaced as a direct result of federal or federally-assisted projects are treated fairly, consistently and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole.

While every effort has been made to assure the accuracy of this booklet, it should be understood that it does not have the force and effect of law, rule, or regulation governing the payment of benefits. Should any difference or error occur, the law will take precedence.

Relocation Services

The California Department of Transportation has two programs to aid businesses, farms and nonprofit organizations which must relocate.

These are:

1. The Relocation Advisory Assistance Program, which is to aid you in locating a suitable replacement property, and

2. The Relocation Payments Program, which is to reimburse you for certain costs involved in relocating. These payments are classified as:

    - Moving and Related Expenses (costs to move personal property not acquired).

    - Reestablishment Expenses (expenses related to the replacement property).

    - In-Lieu Payment (a fixed payment in lieu of moving and related expenses, and reestablishment expenses).

NOTE: *Payment of loss of goodwill is considered an acquisition cost. California law and the federal regulations mandate that relocation payments cannot duplicate other payments such as goodwill. You will* **not** *be eligible to receive any relocation payments until the State has actually made the first written offer to purchase the property. You will also receive at least 90 days' written notice before you must move.*

Some Important Definitions...

Your relocation benefits can be better understood if you become familiar with the following terms:

Business: Any lawful activity, with the exception of a farm operation, conducted primarily for the purchase, sale, lease and rental of personal or real property, or for the manufacture, processing, and/or marketing of products, commodities, or any other personal property, or for the sale of services to the public, or solely for the purpose of this Act, and outdoor advertising display or displays, when the display(s) must be moved as a result of the project.

Displaced Person or Displacee: Any person who moves from real property or moves personal property from real property as a result of the acquisition of the real property, in whole or in part, or as the result of a written notice from the agency to vacate the real property needed for a transportation project. In the case of a partial acquisition, Caltrans shall determine if a person is displaced as a direct result of the acquisition.

Owners and tenants **not lawfully present** in the United States are not eligible to receive relocation payments and assistance.

Contributes Materially: A business or farm operation must have had average annual gross receipts of at least $5,000 **or** average annual net earnings of at least $1,000, or their income must have contributed at least 33 1/3 percent of the owner's or operator's average annual gross income form all sources, in order to qualify as a bona-fide operation.

Farm Operation: Any activity conducted solely or primarily for the production of one or more agricultural products or commodities, including timber, for sale and home use, and customarily producing such products or commodities in sufficient quantity to be capable of contributing materially to the operator's support.

Nonprofit Organization: A public or private entity that has established its nonprofit status under applicable law.

MOVING EXPENSES

If you qualify as a displaced business, farm or nonprofit organization, you are entitled to reimbursement of your moving costs and certain related expenses incurred in moving. To qualify you must legally occupy the property as the owner or lessee/tenant when Caltrans initiates negotiations for the acquisition of the property **OR** at the time Caltrans acquires title or takes possession of the property. However, to assure your eligibility and prompt payment of moving expenses, you should contact your Relocation Agent before you move.

You Can Choose Either:

Actual Reasonable Moving Costs – You may be paid for your actual reasonable moving costs and related expenses when a commercial mover performs the move. Reimbursement will be limited to a move of 50 miles or less. Related expenses, with limitations, ***may*** include:

- Transportation.
- Packing and unpacking of personal property.
- Disconnecting and reconnecting personal property related to the operation.
- Temporary storage of personal property.
- Insurance while property is in storage or transit, or the loss and damage of personal property if insurance is not reasonably available.
- Expenses in finding a replacement location.
- Professional services to plan and monitor the move of the personal property to the new location.
- Licenses, permits and fees required at the replacement location.

OR

Self-Move Agreement – You may be paid to move your own personal property based on the lower of two acceptable bids obtained by Caltrans.

Under this option, you will still be eligible for reimbursement of related expenses listed above that were not included in the bids.

OR

In-Lieu Payment – You can accept a fixed payment between $1,000 and $20,000, based on your annual earnings IN LIEU OF the moving cost, related expenses and reestablishment cost.

Actual Reasonable Moving Costs

You may be paid the actual reasonable and necessary costs of your move when a professional mover performs the move. All of your moving costs must be supported by paid receipts or other evidence of expenses incurred. In addition to the transportation costs of your personal property, certain other expenses may also be reimbursable, such as packing, crating, unpacking and uncrating, and the disconnecting, dismantling, removing, reassembling, and reinstalling relocated machinery, equipment, and other personal property.

Other expenses such as professional services necessary for planning and carrying out the move, temporary storage costs, and the cost of licenses, permits and certifications may also be reimbursable. This is not intended to be an all-inclusive list of moving related expenses. Your Relocation Agent can provide you with a complete explanation of reimbursable expenses.

Self-Move Agreement

If you agree to take full responsibility for all or part of the move of your business, farm, or nonprofit organization, the Department may approve a payment not to exceed the lower of two acceptable bids obtained by the Department from qualified moving firms or a qualified Department staff employee. A low-cost or uncomplicated move may be based on a single bid or estimate at the Department's discretion. The advantage of this moving option is the fact that it relieves the displaced business, farm or nonprofit organization operator from documenting all moving expenses. The Department may make the payment without additional documentation as long as the payment is limited to the amount of the lowest acceptable bid or estimate. Other expenses, such as professional services for planning, storage costs, and the cost of licenses, permits, and certifications may also be reimbursable if determined to be necessary. These latter expenses must be pre approved by the Relocation Agent.

Requirements:

Before you move, you must provide Caltrans with the:

- Certified inventory of all personal property to be moved.
- Date you intend to vacate the property.
- Address of the replacement property.
- Opportunity to monitor and inspect the move from the acquired property to the replacement property.

Related Expenses

1. **Searching Expenses for Replacement Property:** Displaced businesses, farms and nonprofit organizations are entitled to reimbursement for actual reasonable expenses incurred in searching for a replacement property, not to exceed $2,500. Expenses may include transportation, meals, and lodging when away from home; the reasonable value of the time spent during the search; fees paid to the real estate agents, brokers or consultants; and other expenses determined to be reasonable and necessary by the Department.

2. **Direct Loss of Tangible Personal Property:** Displaced businesses, farms, and nonprofit organizations may be eligible for a payment for the actual direct loss of tangible personal property which is incurred as a result of the move or discontinuance of the operation. This payment will be based upon the lesser of:

    a. The fair market value of the item for continued use at the displacement site minus the proceeds from its sale.

    OR

    b. The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expense4s, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

EXAMPLE:
You determine that the "document shredder" cannot be moved to the new location because of its condition, and you will not replace it at the new location.

Fair Market Value of the Document Shredder Based on its use at the current location	$ 1,500
Proceeds: Price received from selling the Document Shredder	- $ 500
Net Value	$ 1,000

OR

Estimated cost to move	$ 1,050

Based on the "lesser of", the amount of the "Loss of Tangible Personal Property" =	**$ 1,000**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the document shredder (e.g. advertisement).

3. Purchase of Substitute Personal Property: If an item of personal property, which is used as part of the business, farm, or nonprofit organization, is not moved but is promptly replaced with a substitute item that performs a comparable function at the replacement site, the displacee is entitled to payment of the lesser of:

    a. The cost of the substitute item, including installation costs at the replacement site, minus any proceeds from the sale or trade-in of the replaced item;

    OR

    b. The estimated cost of moving and reinstalling the replaced item, based on the lowest acceptable bid or estimate obtained by the Department for eligible moving and related expenses, including dismantling and reassembly, but with no allowance for storage, cost of code requirement betterments or upgrades at the replacement site.

EXAMPLE A:

You determine that the copying machine cannot be moved to the new location because it is now obsolete and you will replace it.

Cost of a substitute copy machine		
Including installation costs at the replacement site		$ 3,000
Trade-in Allowance	-	$ 2,500
Net Value		$ 500

OR

Estimated cost to move	$ 550

Based on the "lesser of", the amount of the	
"Substitute Personal Property" =	**$ 500**

EXAMPLE B:

You determine that the chairs will not be used at the new location because they no longer match the décor and you will replace them.

Cost of substitute chairs		$ 1,000
Proceeds from selling the chairs	-	$ 100
Net Value		$ 900

OR

Estimated cost to move	$ 200

Based on the "lesser of", the amount of the	
"Substitute Personal Property" =	**$ 200**

Note: You are also entitled to all reasonable costs incurred in attempting to sell the copy machine and/or chairs.

4. **Disconnecting and Reinstallation:** You will be reimbursed for your actual and reasonable costs to disconnect, dismantle, remove, reassemble and reinstall any machinery, equipment or other personal property in relation to its move to the new location. This includes connection to utilities available nearby and any modifications to the

personalty that is necessary to adapt it to utilities at the replacement site.

5. **Physical changes at the new location:** You may be reimbursed for certain physical changes to the replacement property if the changes are necessary to permit the reinstallation of machinery or equipment necessary for the continue operation of the business. ***Note:*** *The changes cannot increase the value of the building for general purposes, nor can they increase the mechanical capability of the buildings beyond its normal requirements.*

6. The cost of installing utilities from the right of way line to the structure(s) or improvements on the replacement site.

7. Marketing studies, feasibility surveys and soil testing.

8. Professional real estate services needed for the purchase or lease of a replacement site.

9. One-time assessments or impact fees for anticipated heavy utility usage.

Reestablishment Expenses

A small business, farm or nonprofit organization may be eligible for a payment, not to exceed $10,000, for expenses actually incurred in relocating and reestablishing the enterprise at a replacement site.

Reestablishment expenses may include, but are not limited to, the following:

1. Repairs or improvements to the replacement real property required by Federal, State or local laws, codes or ordinances.

2. Modifications to the replacement real property to make the structure(s) suitable for the business operation.

3. Construction and installation of exterior signing to advertise the business.

4. Redecoration or replacement such as painting, wallpapering, paneling or carpeting when required by the condition of the replacement site or for aesthetic purposes.

5. Advertising the new business location.

6. The estimated increased costs of operation at the replacement site during the first two years, for items such as:

    a) Lease or rental charges
    b) Personal or real property taxes
    c) Insurance premiums, and
    d) Utility charges (excluding impact fees).

7. Other items that the Department considers essential for the reestablishment of the business or farm.

Note: *A nonprofit organization must substantiate that it cannot be relocated without a substantial loss of existing patronage (membership or clientele). The payment is based on the average of two years annual gross revenues less administrative expenses.*

In-Lieu Payment (Fixed)

Displaced businesses, farms and nonprofit organizations may be eligible for a fixed payment in lieu of (in place of) actual moving expenses, personal property losses, searching expense, and reestablishment expenses. The fixed payment may not be less than $1,000 or more than $20,000.

For a business to be eligible for a fixed payment, the Department must determine the following:

1. The business owns or rents personal property that must be moved due to the displacement.

2. The business cannot be relocated without a substantial loss of existing patronage.

3. The business is not part of a commercial enterprise having more than three other businesses engaged in the same or similar activity, which are under the same ownership and are not being displaced by the department.

4. The business contributed materially to the income of the displaced business operator during the two taxable years prior to displacement.

Any business operation that is engaged solely in the rental of space to others is not eligible for a fixed payment. This includes the rental of space for residential or business purposes.

Eligibility requirements for farms and nonprofit organizations are slightly different than business requirements. If you are being displaced from a farm or your represent a nonprofit organization and are interested in a fixed payment, please consult your relocation counselor for additional information.

The Computation of Your In-Lieu Payment:

The fixed payment for a displaced business or farm is based upon the average annual net earnings of the operation for the two taxable years immediately preceding the taxable year in which it is displaced. Caltrans can use a different two year period if it is determined that the last two taxable years do not accurately reflect the earnings of the operation.

EXAMPLE: Caltrans acquires your property and you move in 2005:

2003 Annual Net Earnings	$ 10,500
2004 Annual Net Earnings	$ 12,500
TOTAL	$ 23,000
Average over two years	**$ 11,500**

This would be the amount of your in-lieu payment. Remember – this is in-lieu of all other moving benefits, including reestablishment expenses. You must provide the Department with proof of net earnings to support your claim.

Proof of net earnings can be documented by income tax returns, certified financial statements, or other reasonable evidence of net earnings acceptable to the Department.

Note: The computation for nonprofit organizations differs in that the payment is computed on the basis of average annual gross revenues less administrative expenses for the two year period specified above.

Before You Move:

A. Request a determination of entitlement for in-lieu payment from your Relocation Agent.
B. Include a written statement of the reasons the business cannot be relocated without a substantial loss in net earnings.

C. Provide certified copies of tax returns for the two tax years immediately preceding the tax year in which you move. (If you move anytime in the year 2005, regardless of when negotiations began or the State took title to the property, the taxable years would be 2003 and 2004).
D. You will be notified of the amount you are entitled to after the application is received and approved.
E. You cannot receive the payment until after you vacate the property, AND submit a claim for the payment within 18 months of the date of your move.

Relocation Advisory Assistance

Any business, farm or nonprofit organization displaced by Caltrans shall be offered relocation advisory assistance for the purpose of locating a replacement property. Relocation services are provided by qualified personnel employed by Caltrans. It is their goal and desire to be of service to you and assist in any way possible to help you successfully relocate.

A Relocation Agent from Caltrans will contact you personally. Relocation services and payments will be explained to you in accordance with your eligibility. During the initial interview with you, your needs and desires will be determined as well as your need for assistance.

You can expect to receive the following services, advice and assistance from your Relocation Agent who will:

- Determine your needs and preferences.
- Explain the relocation benefits and eligibility requirements.
- Provide information on replacement properties for your consideration.
- Provide information on counseling you can obtain to help minimize hardships in adjusting to your new location.
- Assist you in completing loan documents, rental applications or Relocation Claims Forms.

AND provide information on:

- Security deposits
- Interest rates and terms
- Typical down payments
- Permits, fees and local planning
- SBA loan requirements
- Real property taxes.
- Consumer education literature

If you desire, your Relocation Agent will give you current listings of other available replacement property. Transportation will be provided to inspect available property, especially if you are elderly or handicapped. Though you may use the services of a real estate broker, Caltrans cannot provide a referral.

Your Relocation Agent is familiar with the services provided by others in your community and will provide information on other federal, state, and local programs offering assistance to displaced persons. If you have special needs, your Relocation Agent will make every effort to secure the services of those agencies with trained personnel who have the expertise to help you.

If the highway project will require a considerable number of people to be relocated, Caltrans will establish a temporary Relocation Field Office on or near the project. Project relocation offices will be open during convenient hours and evening hours if necessary.

In addition to these services, Caltrans is required to coordinate its relocation activities with other agencies causing displacements to ensure that all persons displaced receive fair and consistent relocation benefits.

Remember - YOUR RELOCATION AGENT is there to offer advice and assistance. Do not hesitate to ask questions. And be sure you fully understand all of your rights and available benefits.

YOUR RIGHTS AS A DISPLACEE

It is important to remember that your relocation benefits will not have an adverse affect on your:

- Social Security Eligibility
- Welfare Eligibility
- Income Taxes

In addition, the Title VIII of the Civil Rights Act of 1968 and later acts and amendments make discriminatory practices in the purchase and rental of most residential units illegal if based on race, color, religion, sex, or national origin.

Caltrans' Non-Discrimination Policy ensures that all services and/or benefits will be administered to the general public without regard to race, color, national origin, or sex in compliance with Title VI of the 1964 Civil Rights Act (42 USC 2000d. et seq.).

And you always have the Right to Appeal any decision by Caltrans regarding your relocation benefits and eligibility.

Your Right of Appeal is guaranteed in the "Uniform Act" which states that any person may file an appeal with the head of the responsible agency if that

person believes that the agency has failed to properly determine the person's eligibility or the amount of a payment authorized by the Act.

If you indicate your dissatisfaction, either verbally or in writing, Caltrans will assist you in filing an appeal and explain the procedures to be followed. You will be given a prompt and full opportunity to be heard. You have the right to be represented by legal counsel or other representative in connection with the appeal (but solely at your own expense).

Caltrans will consider all pertinent justifications and materials submitted by you and other available information needed to ensure a fair review. Caltrans will provide you with a written determination resulting from the appeal with an explanation of the basis for the decision. If you are still dissatisfied with the relief granted, Caltrans will advise you that you may seek judicial review.

NOTES

Sus Derechos y Beneficios Como Negocio, Operación Agrícola o Organización No Lucrativa Desplazada Bajo el Departmento de Transportación de California, Programa para Asistencia de Reubicación

Introducción

Cuando se está construyendo un sistema de transporte moderno, el desplazamiento de un pequeño porcentaje de la población es a veces necesario. Sin embargo, es el procedimiento de Caltrans que las personas desplazadas no deben de sufrir innecesariamente como resultado de los programas diseñados para el benificio del público en general.

Los negocios, operaciones agrícolas, y organizaciones no-lucrativas desplazadas pueden ser elegibles para servicios de reubicación y pagos.

Este libreto le provee información acerca de los servicios y pagos de reubicación disponibles. Si usted tiene que mudarse como resultado de un proyecto de transportación de Caltrans, un Agente de Reubicación lo contactará. El Agente de Reubicación estará disponible para responderle preguntas específicas y darle información adicional.

Acta de Procedimiento Uniforme de Asistencia para Reubicación y Adquisición de Bienes Raíces de 1970, Emendada
"El Acta Uniforme"

El propósito de esta Acta es de proveer uniformidad e igualdad de tratamiento a personas desplazadas de sus negocios, operaciones agrícolas, u organización no-lucrativa, por programas federales o programas asistidos con fondos federales, y de establecer uniformidad e igualdad en los procedimientos para adquisición de tierras para los programas federales y programas asistidos con fondos federales.

El Código de Regulaciones Federales 49, Parte 24 implementa el "Acta Uniforme" de acuerdo a los siguientes objetivos de asistencia de relocalización:

> Para asegurar que las personas desplazadas como resultado directo de proyectos federales o proyectos asistidos con fondos federales sean tratados con justicia, consistencia e igualdad de tal manera que esas personas no sufran daños desproporcionados como resultado de los proyectos diseñados para el beneficio del público en general.

Mientras se ha hecho todo esfuerzo para asegurar la veracidad de este folleto, debe entenderse que no tiene la fuerza ni efecto de la ley, regla o regulaciones que gobiernan el pago de los beneficios. Si alguna diferencia o error resulta, la ley tomará precedencia.

Servicios de Reubicación

El Departamento Transportación tiene dos programas para de ayudar a negocios, granjas y organizaciones no-lucrativas que tienen que reubicarse. Estas son:

1. El Programa de Consejos de Asistencia de Reubicación, que es para ayudarle en localizar una propiedad de reemplazo conveniente, y

2. El Programa de Pagos para Reubicación, que le reembolsará de ciertos costos envueltos en la reubicación. Estos pagos están clasificados como:

    - Gastos Relacionados a Mudanza (costos de mover propiedad personal no adquirida).
    - Gastos de Reestablecimiento (gastos relacionados a la propiedad de reemplazo.)
    - Pagos Fijos (pago fijo en vez de los gastos de mudanzas y otros gastos relacionados, y gastos de reestablecimiento).

Nota: *Pagos por pérdida de clientela es considerado un costo de adquisición. La ley de California y las regulaciones federales mandan que los pagos de reubicación no pueden duplicar otros pagos, como los pagos de pérdida de clientela.*

Usted **no** puede ser elegible a recibir ningún pago de reubicación hasta que el Estado haya hecho la primera oferta escrita para comprar su propiedad. Usted tambien recibirá un aviso escrito por lo menos 90 días antes que se tenga que mover.

Algunas Definiciones Importantes…

Sus beneficios de relocalización pueden ser entendidos mejor si usted se familiariza con los siguientes términos:

Negocio: Cualquier actividad legal, con la excepción de operaciones agrícolas, conducida principalmente para la compra, venta, arrendamiento, y alquiler de bienes personales o bienes raices, o para la fabricación, elaboración y/o mercadotecnia de productos, mercancías, u otros bienes personales, o solamente para el propósito de ésta Acta, un rótulo con anuncio o anuncios, cuando el rótulo(s) tenga(n) que ser movido(s) como resultado del proyecto.

Negocios Pequeños: Un negocio que tenga no más de 500 empleados trabajando en el lugar que esta siendo adquirido o desplazado por un programa o proyecto.

Contribuye Materialmente: Un negocio u operación agrícola debe de haber tenido un ingreso bruto en recibos de al menos $5,000 o un promedio anual de ingreso netos de al menos $1,000, para poder calificar como una operación de buena fé.

Operación Agrícola: Cualquier actividad conducida sola o primarialemente para la producción de uno o más productos de agricultura o mercancías, incluyendo venta de madera, para la venta y uso en casa, y producción ordinaria de tales productos o mercancía en cantidades suficientes para tener la capacidad de contribuir materialmente al soporte del operario.

Organización No-lucrativa: Una entidad pública o privada que haya establecido su estado de organización no-lucrativa bajo las leyes aplicables.

Persona desplazada: Cualquier individuo o familia que se muda de una propiedad o mueva sus bienes personales de una propiedad como resultado de la acquisición de bienes raíces, en todo o en parte, o como resultado de una notificación escrita de una agencia para desocupar la propiedad que se necesita para un proyecto de transportación. En el caso de una adquisición parcial, Caltrans determinará si la persona es desplazada directamente como resultado de la adquisición.

Los residentes que no están legalmente en los Estados Unidos no son elegibles para recibir pagos y asistencia de reubicación.

Los beneficios de reubicación varían según el tipo y tiempo de ocupación. Como una persona desplazada de un unidad residencial usted puede ser clasificado como:

- Un dueño ocupante de una propiedad residencial (incluye casas movibles)
- Un inquilino ocupante de una propiedad Residencial (incluye casas movibles y cuartos para dormir)

GASTOS DE MUDANZA

Si usted califica como un negocio, operación agrícola, u organización no-lucrativa desplazada, usted puede recibir reembolso de los gastos de mudanza y ciertos gastos relacionados incurridos en la mudanza. Para calificar, usted tiene que ocupar la propiedad legalmente como dueño o inquilino cuando Caltrans inicie negociaciones para la adquisición de la propiedad, O al tiempo que Caltrans adquiera título, o tome posesión de la propiedad. Sin embargo, para asegurar su elegibilidad y el pronto pago de los gastos de mudanza, usted tiene que haber contactado a su Agente de Reubicación antes de que se mude.

Usted Puede Escoger Entre:

Gastos Razonables de Mudanza Actual – Usted tiene que haber pagado por sus gastos de mudanza razonables y gastos relacionados cuando una compañia comercial hace la mudanza.

El reembolso será limitado a mudanza de 50 millas o menos. Los gastos relacionados, con limitaciones, ***pueden*** incluir:

- Transportación.
- Empacamiento y desempacamiento de la propiedad personal.
- Desconnección y reconneción relacionada a la operación de la propiedad personal.
- Almacenamiento temporal de la propiedad personal.

Seguros mientras la propiedad está en almacenamiento o en tránsito, o la propiedad personal es perdida y dañada, si los seguros no son razonablemente disponible.

- Gastos en encontrar un lugar de reemplazamiento.
- Servicios profesionales para planificar y supervisar la mudanza de la propiedad personal al nuevo lugar.
- Licencias, permisos y honorarios requiridos en el lugar de reemplazamiento.

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Contrato de Mudanza Propia – Usted puede ser pagado por mover su propia propiedad personal basado en la más baja de dos ofertas aceptables obtenidas por Caltrans. Bajo esta opción, usted deberá todavía ser elegible para el reembolsamiento de los gastos arriba relacionados que no fueron incluídos en la oferta

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Pago Fijo – Usted puede aceptar un pago fijo entre $1,000 y $20,000 basado en sus ganancias anuales EN VEZ de los costos y gastos relacionados de la mudanza.

Costos Actuales Razonables de Mudanza:

Pueden pagársele los gastos actuales razonables y necesarios de su mudanza si lo transporta con una compañía comercial de muebles y mudanzas. Todos sus gastos deben de ser respaldados con recibos u otra evidencia de gastos incurridos. Además de los gastos de transportación de su propiedad personal, ciertos otros gastos también pueden ser reembolsados, tales como empaque, embalaje, desempaque y desembalaje, desconexión, desmantelación, removimiento, reensamblamiento, y reinstalación de maquinaria relocalizada, equipos y otras propiedades personales. Otros gastos necesarios tales como servicios profesionales para planificar y supervisar la mudanza, almacenaje temporal y el costo para licencias, permisos y certificados también pueden ser reembolsables. Esta no es la intención de ser una lista inclusiva de todos los gastos relacionados de mudanza. Su Agente de Reubicación puede proveerle una explicación completa de los gastos reembolsables.

Contrato de Mudanza Propia

Si usted elige tomar la responsabilidad total o parcial para la mudanza de su negocio, operación agrícola, u organización no-lucrativa, Caltrans puede aprobar un pago sin exceder el presupuesto mas bajo de dos ofertas aceptables de una compañía comercial de muebles y mudanzas o por el Agente de Reubicación. Una mudanza a costo bajo o sin complicaciones puede ser basada en una sola oferta o estimado. En realidad, la ventaja de esta opción es que releva de la obligación al operador del negocio, operación agrícola u organización no-lucrativa desplazadas de documentar todos los gastos de mudanza. Caltrans puede hacer el pago sin documentación adicional siempre y cuando el pago sea limitado a la cantidad más baja aceptable de la oferta o del estimado. Otros gastos tales como servicios profesionales para planificar, costos de almacenaje y el costo de licencias, permisos, y certificados también pueden ser reembolsables si son necesarios. Estos gastos tienen que ser aprobados de ante mano por el Agente de Reubicación.

Requisitos:

Antes de que se mueva, usted tiene que proveer a Caltrans con:

- El inventario certificado de toda la propiedad personal que va a mover.
- La fecha que usted intenta desalojar la propiedad.
- La dirección de la propiedad de reemplazamiento.
- La oportunidad de supervisar e inspeccionar la mudanza desde la propiedad adquirada a la propiedad de reemplazo.

Gastos Relacionados

(1) **Gastos Para la Búsqueda de una Propiedad de Reemplazo** – Negocios, operaciones agrícolas, y organizaciones no-lucrativas tienen derecho a un reembolso por gastos actuales razonables, incurridos en la búsqueda de una propiedad de reemplazo, sin exceder $1,000. Los gastos pueden incluir transportación, alimento y alojamiento cuando esté lejos de su casa; el valor razonable del tiempo que ha gastado buscando una propiedad de reemplazo; los honorarios pagados a agentes de bienes raíces o asesores; y otros gastos determinados por Caltrans como razonables y necesarios.

(2) **Pérdidas Directas de Bienes Personales Tangibles:** Los negocios, operaciones agrícolas, y organizaciones no-lucrativas desplazadas pueden ser elegibles para un pago por pérdidas directas de bienes personales tangibles incurrido como resultado de la mudanza o descontinuación de la operación. Este pago deberá ser basado en el menor de:

(a) El valor de mercado de un producto para uso continuo en el sitio de desplazamiento menos la ganancia por su venta.

O

(b) El costo estimado de mudanza y reinstalación de los objetos reemplazados es basado en la oferta mas baja o el estimado obtenido por Caltrans para mudanza elegible y costos relacionados, incluyendo desmantelamiento y reemsamblaje, pero sin pago por almacenamiento.

POR EJEMPLO:

Usted determina que el “cortador de documentos” no puede ser movido a la nueva localidad por su condición, y usted no lo va a reemplazar en la nueva localidad.

El Valor de Mercado del Cortador de Documentos basado en su uso actual en la localidad actual es de	$1,500
Ganancia: Precio recibido por la venta del Cortador de Documentos	– $ 500
Valor Neto	$1,000
Ó	
El costo estimado de moverlo	$ 1,050
Basado en el “menor de”, la cantidad de la “Perdida de Propiedad Personal Tangible”	= **$ 1,000**

Nota: *Usted tambien tiene derecho a todos los costos rasonables incurrido en su esfuerzo por vender el cortador de documentos (por ejemplo, anuncio commercial)*

(3) Compra de Substitución de la Propiedad Personal: Si un objeto de propiedad personal, el cual es usado como parte del negocio, la operación agrícola, o la organización no-lucrativa, no es movido pero es prontamente reemplazado con un objeto substituto que hace una función comparable en el sitio de reemplazo, el desplazado tiene derecho al menor de:

(a) El costo de un objeto substituto, incluyendo los costos de instalación en el sitio de reemplamiento, menos cualquier ganacia por la venta o intercambio del objeto reemplazado.

O

(b) El costo estimado de mudanza y reinstalación del objeto de reemplazo, basado en la oferta mas baja aceptable o el estimado obtenido por Caltrans para una mudanza elegible y gastos relacionados, incluyendo el desmantelamiento y reensamblaje, pero sin pago por almacenamiento

EJEMPLO A:

Usted puede determinar que la máquina copiadora no puede ser movida a la nueva localidad porque es ahora obsoleta y la va a reemplazar.

Costo de substuitir una Máquina Copiadora incluyendo costos de instalación en el sitio de reemplazamiento.	$ 3,000
Pago por el Intercambio	– $ 2,500
Valor Neto	$ 500
O	
Costo estimado de la mudanza	$ 550
Basado en el “menor de” la cantidad de “La Propiedad Personal Substituida”	**$ 500**

EJEMPLO B:

Usted determina que las sillas no van a ser usadas en la nueva localidad, porque ya no combinan con la decoración, y usted las quiere reemplazar.

Costo de la sillas substitutas	$ 1,000
Ganancias: Por la venta de las Sillas	– $ 100
Valor Neto	$ 900
O	
Costo estimado de la mudanza	$ 200
Basado en el “menor de”, la cantidad de “La Propiedad Personal de Substitución”	**$ 200**

NOTA: *Usted tambien tiene derecho a todos los gastos razonables incurridos en su esfuerzo por vender la copiadora (Ejemplo A) o las sillas (Ejemplo B).*

(4) **Desconección y Reinstalación:** Usted va a ser reembolsado por los costos actuales y razonables de desconección, desmantelamiento, mudanza, reem-samblaje, e reinstalación de cualquier maquinaria, equipo u otra propiedad personal en relación a la mudanza a su nuevo local. Esto incluye conección a los servicios públicos disponibles en el lugar y a cualquier modificación de los objectos personales que sean necesario para adaptar a los servicios públicos en el sitio de reemplazamiento.

(5) **Cambios Físicos en el nuevo local:** Usted puede ser reembolsado por ciertos cambios físicos de la propiedad de reemplazamiento si los cambios son necesarios para permitir la reinstalación de la maquinaria o equipo necesario para la continua operación del negocio.

Nota: *Los cambios no pueden incrementar el valor del edificio para propósitos generales, tampoco pueden incrementar la capacidad mecánica de los edificios más alla de los requerimientos normales.*

Gastos De Reestablecimiento

Un pequeño negocio, operación agrícola, u organización no-lucrativa puede ser elegible para un pago, que no exceda $10,000, para los gastos actuales incurridos en la reubicación y el reestablecimiento en el sitio de reemplazo.

Gastos de reestablecimiento pueden incluir, pero no están limitados a, lo siguiente:

1. Reparación y mejoramiento de la propiedad de reemplazamiento requerido por las leyes, códigos, u ordenanzas federales, estatales o locales.

2. Modificaciones de la propiedad de reemplazamiento para hacer la estructura(s) apropiado para la operación del negocio.

3. Construcción e instalación de los letreros exteriores para anunciar el negocio.

4. El costo de instalación de servicios públicos desde la línea del derecho de vía a la estructura(s) o mejoramientos en el sitio de reemplazamiento.

5. Redecoración o reemplazamiento como pintura, tapizado de pared, paneles, o carpetas cuando sean requeridas por la condición del sitio de reemplazo o con propósitos estéticos.

6. El costo de licencias, honorarios, y permisos cuando no sean cubiertos como gastos de mudanza.

7. Estudios de mercado, estudios de factibilidad y exámen de suelo.

8. Anunciar la localidad del nuevo negocio.

9. Servicios profesionales de bienes raíces necesarios para la compra o la renta de un lugar de reemplazo.

10. El aumento del costo estimado de operación en el lugar de reemplazo durante los primeros dos años, por objectos como:

    a. Cargas de rentas,
    b. Impuestos de propiedad personal o propiedad real
    c. Prima de seguros, y
    d. Carga de servicios públicos (excluyendo honorarios de impacto).

11. Evaluación de una-vez o honorarios de impacto por alta utilización de servicios públicos.

12. Otros objetos que el Departmento considere esenciales para el reestablecimiento del negocio ú operación agrícola.

Pago De Una Vez (O Pago Fijo)

Negocios que han sido desplazados, operaciones agrícolas, y organizaciones no-lucrativas podrían ser elegibles para un pago fijo (en vez de) por los gastos actuales de mudanza, pérdida de propiedad personal, gastos de búsqueda, y gastos de reestablecimiento. Los pagos fijos no podrán ser menos de $1,000 o más de $20,000.

Para que un negocio sea elegible por un pago fijo, Caltrans debe de determinar lo siguiente:

1. El negocio posee o renta propiedad personal que debe de ser movida debido al desplazamiento.

2. El negocio no puede ser relocalizado sin una pérdida substancial de la clientela existente.

3. El negocio no es parte de un empresa comercial que tiene mas de tres otros negocios conectados en una misma o actividad similar, las cuales están bajo el mismo dueño y no están siendo desplazadas por el Departamento.

4. El negocio contribuyó materialmente a las ganancias del operador del negocio desplazado durante los dos años anteriores al desplazamiento.

Cualquier operación del negocio que está conectado solamente en la renta del espacio de otros, no es elegible para un pago fijo. Esto incluye la renta de espacio con propósitos residenciales o de negocios.

Los requerimientos de elegibilidad para las operaciones agrícolas y organizaciones no-lucrativas son un poco diferentes a los requerimientos para negocios. Si usted está siendo desplazado de una granja o usted representa una organización no-lucrativa y está interesado en un pago fijo, por favor consulte con su consejero de reubicación para información adicional.

La computación de Su Pago Fijo

El pago fijo para un negocio desplazado o una operación agrícola es basado en el promedio anual neto de ganancias de la operación por los dos años immediatamente precedentes al año en el cual fue desplazado. Caltrans puede usar un período de dos años diferentes, si se determina que los dos últimos años no reflejan con certeza las ganacias de la operación.

EJEMPLO: Caltrans adquiere su propiedad y usted se mueve en el 2001:

1999 Ganancias Netas Anuales	$10,500
2000 Ganancias Netas Anuales	$12,500
TOTAL	$23,000
Promedio de los dos años	$11,500

Este podría ser la cantidad de su pago fijo. Recuerde – esto es “en vez de” todos los otros beneficios de mudanza. Usted tendrá que proveer Caltrans pruebas de las ganacias netas para verificar su reclamo.

Prueba de las ganancias netas pueden ser documentas con sus declaraciones de impuestos, cartas financieras certificadas, u otra evidencia razonable de las ganancias netas aceptables por Caltrans.

Nota: *La computación de las organizaciones no-lucrativas difiere en que los pagos son computados en la base del promedio anual grueso de las ganancias menos los gastos administrativos por el período de los dos años especificados arriba.*

Antes de que se Mueva:

A. Complete una forma de “Aplicación para Determinación de sus Derechos” que la puede obtener de su Agente de Reubicación, y devuélvala con la mayor prontitud posible.

B. Incluya una declaración escrita de las razones por las cuales su negocio no puede ser reubicado sin una pérdida substancial en la ganancias netas.

C. Provea una copia certificada de su declaración de impuestos de los dos años immediatamente precedentes al año en el que se va a mover. (Si usted se mueve en cualquier momento en el año 2001, sin importar de cuando comenzaron las negociaciones o cuando el Estado tomó título de su propiedad, los años serán el de 1999 y el 2000.

D. Usted deberá ser notificado de la cantidad a la que tiene derecho después que la aplicación es recibida y aprobada.

E. Usted no puede recibir un pago hasta que se haya movido de la propiedad, Y que haya entregado un reclamo de pago dentro de los 18 meses de la fecha de mudanza.

Asistencia de Asesoría de Reubicación

A cualquier negocio, operación agrícola, u organización no-lucrativa, desplazado por Caltrans debe de ofrecerle los servicios de asistencia de reubicación con el propósito de localizar una propiedad de reemplazamiento. Los servicios de reubicación deben de ser proveídos por un empleado de Caltrans. Es la meta y el deseo de nosotros de servirle y asistirle en cualquier manera posible para ayudarle a reubicarse exitosamente.

Un Agente de Reubicación de Caltrans se comunicará con usted personalmente. Los servicios de reubicación y los pagos deberán ser explicados a usted de acuerdo con su elegibilidad. Durante la entrevista inicial con usted, sus necesidades y deseos deberán determinarse así como su necesidad de asistencia.

Usted puede esperar recibir los siguientes servicios, consejos, y asistencia de su Agente de Reubicación quien le:

- Determinará sus necesidades y preferencias.
- Explicará los beneficios de reubicación y su elegibilidad.
- Proveerá información en las propiedades de reemplazo para su consideración.
- Proveerá información en aconsejarle como puede obtener ayuda para minimizar la adversidad en ajustarse a su nuevo local.
- Asistirá en completar los documentos de préstamos, aplicaciones de rentas o Formas de Reclamos de Reubicación.

Y puede proveerle información en:

- Depósitos de seguridad.
- Taza de intereses y términos.
- Pagos típicos de enganches.
- Permisos, honorarios, y ordenanzas locales.
- Requirimientos de préstamos SBA
- Impuestos de bienes raíces.
- Literatura de educación al consumidor.

Si usted desea, su Agente de Reubicación le dará una lista actual de otras propiedades de reemplazamiento que esten disponibles. Se le proveerá transportación para inspeccionar la propiedad disponible, especialmente si usted es anciano o desabilitado. Aunque usted puede usar los servicios de un vendedor de bienes raíces, Caltrans no lo puede referir a un agente específico.

Su Agente de Reubicación está familiarizado con los servicios proveído por otros en su comunidad y le proveerá información de otros programas federales, estatales y locales que ofrecen asistencia a las personas desplazadas. Si usted tiene necesidades especiales, su Agente de Reubicación hará un esfuerzo para asegurar los servicios del personal entrenado de estas agencias que tienen la experiencia para ayudarle.

Si el proyecto de carreteras requiere que un número considerable de personas sean reubicadas, Caltrans establecerá Oficinas temporales de Reubicación en o cerca del proyecto. Las oficinas de projectos de reubicación serán abiertas durante las horas convenientes y hasta horas de la noche si es necesario.

Además de estos servicios, Caltrans será requerido a coordinar las actividades de reubicación con otras agencias causantes de desplazamiento para asegurar que todas las personas desplazadas reciban beneficios de reubicación iguales y consistentes.

Recuerde – Su Agente de Reubicación está ahí para ofrecer consejos y asistencia. No tenga dudas en preguntar. Y esté seguro que usted entiende completamente todos los derechos y beneficios disponibles.

SUS DERECHOS COMO UNA PERSONA DESPLAZADA

Es importante que recuerde que los beneficios de reubicación no tendrán un efecto adverson en su:

- Elegibilidad para Seguro Social
- Elegibilidad para Asistencia Social
- Declaración de Impuestos.

Además, el **Título VIII del Acta de Derechos Civiles de 1968**, y las actas anteriores y sus enmiendas hacen ilegal las prácticas en la venta y renta de las unidades residenciales que estén basadas en la raza, color, religion, sexo, u origen nacional.

Los Procedimientos No-Descriminatorios de Caltrans aseguran que todos los servicios y/o beneficios sean administrados al público en general sin diferencia de raza, color, origen nacional, o sexo en cumplimiento con el Título VI del Acta de Derechos Civiles de 1964. (42 USC 2000 (d.) et seq.).

Y usted siempre tiene el **Derecho de Apelar** una decisión de Caltrans en relación a sus beneficios de reubicación y elegibilidad.

Su Derecho de Apelación es garantizado en la “Ley Uniforme” que establece que una persona puede apelar con el responsible de la agencia si esta persona cree que la agencia ha fallado en determinar apropiadamente la elegibilidad de la persona o la cantidad de un pago autorizado por la Ley.

Si usted indica su disatisfacción, ya sea verbalmente o por escrito, Caltrans puede asistirle en entregar su caso y explicar los procedimientos a seguir. A usted le darán la oportunidad de ser oído pronta y totalmente. Usted tiene el derecho de ser representado por un consejero legal u otro representante en conección con la apelación (pero solamente a su propio costo.)

Caltrans puede considerar todas las justificaciones pertinentes y materiales entregadas por usted y cualquier otra información disponible que sea necesaria para asegurar una revisión justa. Caltrans le proveerá con una determinación de la apelación por escrito con una explicación de la base de la decisión. Si usted todavía no está satisfecho con la asistencia prestada, Caltrans le aconsejará que usted puede buscar una revisión judicial.

Noticiero de la Ley para Americanos con Incapacidades Físicas (ADA):

Para personas con incapacidades físicas, este documento es disponible en formatos alternativos. Para Información llame al número (916) 654-5413 Voz, CRS: 1-800-735-2929, o escriba a Derecho de Vía, MS 37, 1120 N Street, Sacramento, CA 95814.

NOTAS:

Appendix E Environmental Commitments Record

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Task and Brief Description		Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
						Initials	Date		Initials	Date
HUMAN ENVIRONMENT										
Land Use										
LU-1	Prior to the commencement of construction activities above or within the Los Angeles-San Diego rail corridor (LOSSAN rail corridor), the Orange County Transportation Authority (OCTA) will coordinate with Metrolink, Amtrak, the Union Pacific Railroad, the BNSF Railway, and any other passenger or freight rail operators using the LOSSAN rail corridor to minimize railroad service delays associated with such construction activities.	OCTA	Prior to construction							
LU-2	During property acquisition, in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act), an application will be submitted to the City of Irvine, the City of Tustin, and the City of Santa Ana to obtain parking and/or landscaping variances for properties where the project would reduce the number of off-street parking stalls and/or the required amount of landscaping below the applicable municipal off-street parking and/or landscaping requirements.	OCTA,	During property acquisition							
LU-3	During final design, design modifications that will minimize or avoid the loss of parking stalls on affected properties will continue to be researched. If such losses cannot be minimized or avoided, affected property owners will be compensated by redesigning and reconfiguring parking areas to recoup some or all of the lost parking stalls, if feasible, within existing municipal codes for setbacks, landscaping, and other site requirements. If those efforts to reduce off-street parking impacts have been exhausted and the project still results in the loss of parking stalls, all affected property owners will be compensated for the loss of parking stalls on their properties in compliance with the Uniform Act.	OCTA Project Engineer	During final design							
Growth										
No mitigation is required.										
Community Impacts										
REL-1	Property acquisition will be conducted in compliance with the requirements of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act) (Public Law 91-646, 84 Statutes 1894). The Uniform Act mandates that certain relocation services and payments be made available to eligible residents, businesses, and nonprofit organizations displaced by federal or federally assisted projects. The Uniform Act provides for uniform and equitable treatment by federal or federally assisted programs of persons displaced from their homes, businesses, or farms and establishes uniform and equitable land acquisition policies.	OCTA	During property acquisition							
Utilities and Emergency Services										
UES-1	During final design, utility relocation plans will be prepared in consultation with the affected utility providers/owners for those utilities that will need to be relocated, removed, or protected in-place. If relocation is necessary, the final design will focus on relocating utilities within the State right of way (ROW) or other existing public ROWs and/or easements. If relocation outside of existing ROWs or additional public ROWs and/or easements required for the project are necessary, the	OCTA Project Engineer	During final design							

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	final design will focus on relocating those facilities to minimize environmental impacts as a result of project construction and ongoing maintenance and repair activities. The utility relocation plans will be included in the project specifications. Prior to and during construction, the contractor will implement the components of the utility relocation plans provided in the project specifications. Prior to utility relocation activities, the contractor will coordinate with affected utility providers regarding potential utility relocations and inform affected utility users in advance about the date and timing of potential service disruptions.	OCTA Project Engineer Construction Contractor	Prior to and during construction Prior to utility relocation activities							
UES-2	Prior to and during construction, the contractor will coordinate all temporary mainline, ramp, and arterial roadway closures and detour plans with law enforcement, fire protection, and emergency medical service providers to minimize temporary delays in emergency response times, including the identification of alternative routes for emergency vehicles and routes across the construction areas that are developed in coordination with the affected agencies.	Construction Contractor	Prior to and during construction							
Traffic and Transportation/Pedestrian and Bicycle Facilities										
T-1	**Transportation Management Plan.** A Transportation Management Plan (TMP) will be developed during final design and will be implemented by the construction contractor during project construction to address short-term traffic circulation and access effects during project construction. Specifically, during final design, a qualified traffic engineer will prepare the TMP, which will include, but not be limited to, the elements described below to reduce traveler delays and enhance traveler safety during project construction. The TMP will be approved by the Orange County Transportation Authority (OCTA) and the California Department of Transportation (Caltrans) District 12 during final design and will be incorporated into the plans, specifications, and estimates. The purpose of the TMP is to address the short-term traffic and transportation impacts during construction of the project. The objectives of the TMP are to: • Maintain traffic safety during construction • Effectively maintain an acceptable level of traffic flow throughout the transportation system during construction • Minimize traffic delays and facilitate reduction of the overall duration of construction activities • Minimize detours and impacts to pedestrians and bicyclists • Foster public awareness of the project and related transportation and traffic impacts • Achieve public acceptance of construction of the project and the TMP measures	OCTA Project Engineer, Construction Contractor	During final design and project construction							

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The TMP will contain, but not be limited to, the following elements intended to reduce traveler delay and enhance traveler safety. These elements will be refined during final design and incorporated in the TMP for implementation during project construction.
 	
• **Public Information/Public Awareness Campaign (PAC).** The primary goal of the PAC is to educate motorists, business owners and operators, residents, elected officials, and government agencies about project construction activities and associated transportation impacts. The PAC is an important tool for reaching target audiences with important construction project information and is anticipated to include, but not be limited to:
 	
  • Rideshare information
  • Brochures and mailers
  • Media releases
  • Paid advertising
  • Public meetings
  • Broadcast fax and email services
  • Telephone hotline
  • Notification to targeted groups
  • Commercial traffic reporters/feeds
  • Project website
  • Visual information
  • Local cable television and news
  • Internet postings
	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	During final design and prior to and during project construction							

• **Traveler Information Strategies.** The effective implementation of a traveler information system during construction is crucial for enabling motorists to make informed decisions about their travel plans and options with real-time traffic information. That real-time traffic information will include information on mainline, ramp, lane, and arterial closures and detours; travel delays; access to adjacent land uses; “businesses are open” signing; and other signing and information to assist travelers in navigating through, around, and in construction areas. Key components of the traveler information system are anticipated to include, but not be limited to:
 	
  • Fixed and portable changeable message signs
  • Ground-mounted signs
  • Automated work zone information systems
  • Highway advisory radio
  • Lane closure website
  • Caltrans highway information network
  • Bicycle and pedestrian information
  • Commute Smart website
	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	During final design and prior to and during project construction							

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• **Incident Management.** Effective incident management will ensure that incidents in and near construction areas are cleared quickly and do not result in substantial delays for the traveling public in the vicinity of work zones. Incident management includes, but is not limited to: • Caltrans Construction Zone Enhanced Enforcement Program (COZEEP) • Freeway Service Patrol • Traffic surveillance stations • Caltrans Transportation Management Center • Traffic management team • Towing services	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	During final design and prior to and during project construction							
• **Construction Strategies.** The TMP will include procedures to lessen the transportation effects of project-related construction activities and will include, but not be limited to, consideration of the following: • Conflicts with other projects and special events • Construction staging alternatives • Mainline lane closures • Local road closures • Ramp and connector closures (no two consecutive on- or off-ramps in the same direction would be closed at the same time) • Pedestrian and bicycle detours and facility closures • Traffic control improvements • Coordination with other projects • Project phasing • Traffic screens • Truck traffic restrictions	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	During final design and prior to and during project construction							
• **Demand Management.** Temporarily reducing the overall traffic volumes on the project segment of State Route 55 (SR-55) could reduce the short-term adverse effects of construction on traffic operations. The TMP will include, but not be limited to, the following strategies that could reduce vehicular demand in the study area during project construction: • Rideshare incentives • Transit services • Shuttle services • Variable work hours and telecommuting • Park-and-ride lots	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	During final design and prior to and during project construction							
• **Alternate Route Strategies.** The TMP will provide strategies for notifying motorists, pedestrians, and bicyclists of planned construction activities. This notification will allow travelers to make informed decisions about their travel plans, including the consideration of possible alternate routes. The TMP will finalize the detour and alternate routes for motorists, specifically addressing the following:	OCTA Project Engineer, Construction Contractor	During final design and prior to and during project construction							

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	• Mainline lane closures • Ramp/connector closures • Local road closures • Temporary highway or shoulder use • Local street improvements • Temporary detours and closures of bicycle and pedestrian facilities • Traffic signal coordination The design/build contractor will implement the measures in the TMP during construction.									
T-2	Prior to and during construction, the construction contractor will coordinate with OCTA Central Communications regarding all temporary mainline ramp and arterial closures and detour plans that would affect OCTA bus routes to minimize temporary delays to OCTA bus service.									
T-3	The following improvements will be included in the design of the selected alternative, to be constructed as part of that alternative by 2020 (Opening Year): • **Northbound I-5 On-Ramp/Newport Avenue:** Installation of a traffic signal at this intersection.	OCTA Project Engineer	During final design							
Visual/Aesthetic										
VIS-1	Architectural treatments and features will be included in the final project design to minimize the loss of, and improve the visual quality on, the project segment of State Route 55 (SR-55). The architectural treatments will be developed for retaining walls and noise barriers consistent with the *Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment along Orange County's Transportation Network.* All wall architectural treatments will be submitted to the California Department of Transportation (Caltrans) District Landscape Architect for review and approval. During construction, the construction contractor will implement the architectural treatments as shown in the project specifications.	OCTA Project Engineer, Landscape Architect Caltrans Resident Engineer, Construction Contractor	During final design During construction							

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VIS-2 During final design, the Project Engineer will direct a landscape architect to prepare a Landscape Plan to address landscape treatment within the State right of way (ROW) along the project segment of SR 55. The Landscape Plan will include, but not be limited to, the following: • Identifying/defining the minimum standards for providing landscaping: available land, no conflicts with traffic operations and safety, safe access for maintenance and trash removal, and access to irrigation and water if needed. • Identifying landscaping and hardscape concepts and materials to maintain or improve the visual character of the existing landscaping in the SR-55 ROW from south of Interstate 5 (I-5) to north of Interstate 405 (I-405), including the mainline, ramps, and along noise barriers and retaining walls. The hardscape concepts and materials will be consistent with the *Master Plan of Freeway and Transit Corridor Enhancements: Creating a Quality Environment along Orange County's Transportation Network.* • Incorporating applicable procedures and requirements in the Caltrans *Highway Design Manual,* Section 902.1, Planting Guidelines (November 2001 or newer). • Using drought-resistant plants and xeric (adapted to arid conditions) landscaping techniques. • Providing low-maintenance, erosion-control groundcover species and low-height shrubs in the palette to preserve existing views and prevent erosion. • Providing landscaping as soon as possible in the construction process to minimize bare soil and potential erosion effects. • Ensuring that the landscape plant palette conforms with adopted Caltrans standard specifications. • Replacing landscaping on parcels used for temporary construction easements (TCEs). The Landscape Plan will require coordination with the owner of each TCE regarding replacement of landscaping removed from the property as part of the project construction activities and replacement of that landscaping to its original or better condition after completion of the construction activities requiring the use of that land for TCEs. • The Landscape Plan will be submitted to the Caltrans District Landscape Architect for review and approval. • During construction, the construction contractor will implement the provisions of the approved Landscape Plan as shown in the project specifications.	OCTA Project Engineer, Landscape Architect, Construction Contractor	During final design and construction							
Cultural Resources									
CR-1 **Discovery of Cultural Materials.** If cultural materials are discovered during site preparation, grading, or excavation, the construction contractor will divert all earthmoving activity within and around the immediate discovery area until a qualified archaeologist can assess the nature and significance of the find. At that time, the	Caltrans Resident Engineer, Construction Contractor/Caltrans Archaeologist	During construction and post construction (if necessary)	No						

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	Caltrans District 12 Environmental Branch Chief or the District 12 Native American Coordinator will be coordinated with to determine appropriate course of action.									
CR-2	**Discovery of Human Remains.** If human remains are discovered during site preparation, grading, or excavation, State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and that the County Coroner will be contacted. Pursuant to California Public Resources Code (PRC) Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the Native American Heritage Commission, which will then notify the Most Likely Descendant (MLD). At that time, the Caltrans District12 Environmental Branch Chief or the District 12 Native American Coordinator will be contacted so they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of California PRC 5097.98 are to be followed as applicable.	Caltrans Resident Engineer, Construction Contractor, Caltrans Archaeologist	During construction and post construction (if necessary)	No						
PHYSICAL ENVIRONMENT										
Hydrology and Floodplains										
No mitigation is required.										
Water Quality and Storm Water Runoff										
WQ-1	The Project will comply with the provisions of the National Pollutant Discharge Elimination System (NPDES) Permit, Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for the State of California, Department of Transportation Order No. 2012-0011-DWQ, NPDES No. CAS000003 (Caltrans Permit) or any subsequent permit.	OCTA Project Engineer	During final design and operation							
WQ-2	Construction activities will comply with the provisions of the NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit) Order No. 2009-009-DWQ, as amended by 2010-0014-DWQ; NPDES No. CAS000002, or any subsequent permit. A Storm Water Pollution Prevention Plan (SWPPP) will be prepared to address all construction-related activities, equipment, and materials that have the potential to impact water quality for the appropriate Risk Level. The SWPPP will identify the sources of pollutants that may affect the quality of storm water and include Best Management Practices (BMPs) to control the pollutants, such as sediment control, catch basin inlet protection, construction materials management and non-storm water BMPs. All work will conform to the Construction Site BMP requirements specified in the latest edition of the *Storm Water Quality Handbooks: Construction Site Best Management Practices Manual* to control and minimize the impacts of construction and construction related activities, material and pollutants on the watershed. These include, but are not limited to temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-storm water BMPs.	Construction Contractor	Prior to and during construction							

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WQ-3	Design Pollution Prevention BMPs (source control) will be implemented such as preservation of existing vegetation, slope/surface protection systems (permanent soil stabilization and replanting of vegetation) and concentrated flow conveyance systems such as ditches, berms, dikes, swales, overside drains, flared end section and outlet protection/ velocity dissipation devices.	OCTA Project Engineer	During final design and operation							
WQ-4	Caltrans-approved Treatment BMPs will be implemented consistent with the requirements of the National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements for the State of California, Department of Transportation (CALTRANS) Order No. 2012-0011-DWQ, NPDES No. CAS00003 and any subsequent permits in effect at the time of construction. Treatment BMPs may include biofiltration strips, biofiltration swales, and an infiltration basin.	OCTA Project Engineer	Prior to and during construction							
WQ-5	If dewatering is required during construction, construction site dewatering comply with one of two orders, or any subsequent orders, that apply to groundwater discharges to surface waters within the Santa Ana Region depending on the nature of the groundwater. Order No. R8-2015-0004 (NPDES No. CAG998001) covers general waste discharge requirements for discharges to surface waters that pose an insignificant (de minimus) threat to water quality within the Santa Ana Region. This Order would be applicable to the project if it can be demonstrated that the groundwater being discharged to surface waters does not contain pollutants of concern (selenium and nitrates) in the discharge. However, if groundwater in the project area is found to contain petroleum hydrocarbons, solvents, metals and/or salts, the project would be subject to Order No. R8-2009-0045 (NPDES No. CAG918002). Order No. R8-2009-0045 (NPDES No. CAG918002) covers general discharge permits for discharges to surface waters of groundwater resulting from groundwater dewatering operations and/or groundwater cleanup activities at sites within the San Diego Creek/Newport Bay Watershed polluted by petroleum hydrocarbons, solvents, metals and/or salts, or nutrients, selenium and other pollutants of total maximum daily loads concern. Under both orders, permittees are required to monitor their discharges from groundwater extraction waste from construction to ensure that effluent limitations for constituents are not exceeded.	Construction Contractor	During construction							
Geology/Soils/Seismic/Topography										
GEO-1	During final design, a *Final Geotechnical Design Report* will be prepared as required by Topic 113 in the California Department of Transportation (Caltrans) *Highway Design Manual* (HDM) (May 2012 or more recent version). A *Foundation Report* will also be prepared for each bridge structure along the segment of State Route 55 (SR-55) that will be widened as part of the Build Alternatives. These reports will document soil-related constraints and hazards such as slope instability, settlement, liquefaction, or related secondary seismic impacts that may be present along the project segment of SR-55. The performance standard for this report will be the Caltrans *Geotechnical Manual* (2012 or most recent	OCTA Project Engineer, Construction Contractor	During final design and construction							

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	version) standards as they apply to the project features and structures. These reports will include but not be limited to: • Evaluation of expansive soils and recommendations regarding construction procedures and/or design criteria to minimize the effects of these soils on the construction of the project and to minimize effects related to expansive soils on project facilities in the long term. • Confirmation of potential liquefiable areas within the project limits and recommendations for mitigation. • Evaluation of the corrosion potential of soils along segments of the project alignment not previously tested. • Demonstration that the design of all retaining walls is geotechnically suitable for project area soils. • Demonstration that side slopes can be designed and graded so that surface erosion of the engineered fill is not increased compared to existing conditions. The measures recommended in the *Final Geotechnical Design Report* and *Foundation Reports* will be incorporated in the final design and project specifications. During construction, the construction contractor will implement the measures recommended in the *Final Geotechnical Design Report* and *Foundation Reports* as included in the project specifications.									
GEO-2	A quality assurance/quality control (QA/QC) plan will be maintained during construction. The QA/QC plan will include observing, monitoring, and testing by the Project Geotechnical Engineer and/or Project Geologist prior to and during construction to confirm that the geotechnical/geologic recommendations from the *Final Geotechnical Design Report*, *Foundation Reports*, and standard design and construction practices are fulfilled by the construction contractor, or if different site conditions are encountered, appropriate changes are made to accommodate such issues. The Geotechnical Engineer will submit weekly reports during all project-related grading, excavation, and construction activities.	Construction Contractor	During construction							
GEO-3	The construction contractor will be required to certify that any fill material imported to the project site is clean prior to the use of that material in project construction.	Construction Contractor	During construction							
Paleontology										
PAL-1	In the unlikely event that paleontological resources are discovered during ground-disturbing activities including excavation, the construction contractor will redirect work in the immediate area of the discovery until the find can be evaluated by a qualified paleontologist, and if necessary, collected from the field. If the find is determined to be significant and there is a potential to encounter sediments similar to those from which the fossil was recovered, the paleontologist will prepare a Paleontological Mitigation Plan (PMP) to guide paleontological mitigation for the remainder of the project. The PMP will follow the guidelines in the Caltrans Standard Environmental Reference (SER),	Construction Contractor, Caltrans Archaeologist, Caltrans Resident Engineer	During construction and post construction (if necessary)							

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	Environmental Handbook, Volume 1, Chapter 8 – Paleontology (February 2012 or more current).									
PAL-2	If construction project plans are modified to include excavation deeper than 10 feet below the original ground surface, a qualified paleontologist will be contacted to prepare a Paleontological Evaluation Report (PER). If the PER determines that a PMP is required, the PMP will be prepared following the guidelines in Caltrans SER, Environmental Handbook, Volume 1, Chapter 8 – Paleontology (February 2012 or more current).	Construction Contractor, Caltrans Archaeologist, Caltrans Resident Engineer, OCTA Project Engineer	During final design and construction and post construction (if necessary)							
Hazardous Waste/Materials										
HAZ-1	Site investigations at the following properties that may be either partially acquired, fully acquired, or used for TCEs for the project will be initiated prior to completion of the Project Approval and Environmental Documentation (PA&ED) phase and completed during the Project Specifications and Estimates (PS&E) phase. The site investigations will determine whether more extensive subsurface investigation will be needed. If deemed necessary, subsurface investigations will be performed according to the recommendations of the assessment. The following is a list of properties that may be either partially acquired, fully acquired, or used for TCEs by the project and will require site investigations: • 2400 South Pullman Street (Assessor's Parcel Number [APN] 430-012-03) • Fetcher's Drapery Cleaning (1981 South Ritchey Street), Sunny Hills Cleaners (1999 South Ritchey Street), and Monarch Precision Deburring Co. (2011 South Ritchey Street) (all on APN 403-041-07) • 17842 Cowan Avenue (APN 427-261-08) • Area adjacent to 1123 Warner Avenue (APN 430-241-12)	OCTA	During PA&ED and PS&E							
HAZ-2	During construction, the construction contractor will remove and either reuse or properly dispose of soils, including requiring special handling, treatment, and/or disposal of aerially deposited lead consistent with the California Department of Transportation (Caltrans) lead variance from the California Department of Toxic Substances Control (DTSC).	Construction Contractor	During construction							
HAZ-3	During the design phase, the yellow traffic striping and pavement marking materials will be tested for lead and lead chromate. If hazardous materials are discovered, the construction contractor will remove and properly dispose of any materials in accordance with Caltrans *Construction Manual*, Chapter 7, Section 7-106, Environmental Hazards and Safety Procedures.	OCTA Project Engineer	During the design phase							
HAZ-4	The proposed widening along SR-55 will involve the removal of minor portions of the existing bridge structures. Based on the Preliminary General Plans, items to be removed will mainly consist of existing concrete railings and bridge-mounted signs. Below is a list of bridge structures that will be modified as a result of implementation of the Build Alternatives: • Dyer Road undercrossing • Edinger Avenue undercrossing • South Tustin overhead bridge structure	OCTA, Qualified Professionals, Construction Contractor	During PA&ED, during PS&E and during construction							

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• MacArthur Boulevard undercrossing bridge structure Qualified professionals will initiate an asbestos-containing materials (ACM) survey prior to completion of the PA&ED phase and complete the ACM survey during the PS&E phase. The survey should be conducted in conformance with the United States Environmental Protection Agency (EPA) National Emission Standards for Hazardous Air Pollutants Title 40 Code of Federal Regulations regulation, and South Coast Air Quality Management District (SCAQMD) Rule 1403. Additionally, notification of the SCAQMD prior to any structure renovation or demolition is mandatory according to Rule 1403 (d)(1)(B). In addition, based on the age of the structures located on proposed full acquisition parcel at 2400 South Pullman Street (APN 430-012-03) and the partial acquisition area of 1411 Village Way (APN 402-111-24), there is potential for ACM and mercury- and chlorofluorocarbon-containing equipment to be present in the structures. During final design, the qualified professionals will conduct an ACM survey and a survey and sampling for mercury- and chlorofluorocarbon-containing materials in the structures at 2400 South Pullman Street (APN 430-012-03) (full acquisition) and the area for partial acquisition at 1411 Village Way (APN 402-111-24). The ACM survey will be overseen by a California Certified Asbestos Consultant. The ACM survey report will provide a description of the ACMs on those two parcels, their locations, their estimated quantities, and specific requirements for removal, containment, and off-site transport and disposal of ACMs. The requirements from that study will be included in the project specifications for implementation during project construction activities. During construction, the construction contractor will implement the requirements in the ACM survey report as included in the project specifications.									
HAZ-5 Based on the age of the structures located at 2400 South Pullman Street (APN 430-012-03) (proposed full acquisition) and at 1411 Village Way (APN 402-111-24) (proposed partial acquisition), there is potential for lead-based paint (LBP) to be present in the structures on those parcels. The qualified professionals will initiate an LBP survey on the structures at 2400 South Pullman Street (APN 430-012-03) (full acquisition) and the area for partial acquisition at 1411 Village Way (APN 402-111-24) prior to completion of the PA&ED phase and complete the LBP survey during the PS&E phase. The LBP study will be conducted by trained and/or licensed professionals and will comply with the EPA, Housing and Urban Development, and California Department of Public Health guidelines. The LBP study report will provide a description of the LBP locations on the two parcels; the estimated quantities of LBP; and specific requirements for removal, containment, and off-site transport and disposal of materials containing LBP from those two properties. The requirements from that study will be included in the project specifications for implementation during project construction.	OCTA, Construction Contractor	During PA&ED, during PS&E, and during construction							

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	The construction contractor will implement the requirements in the LBP survey report as included in the project specifications.									
HAZ-6	Soil sampling for pesticides on former agricultural properties will be initiated prior to completion of the PA&ED phase and completed during the PS&E phase. Soils located in the upper 5 feet of the full acquisition of APNs 403-072-02 and 403-072-01 will be collected and analyzed to evaluate the presence or absence of residual organochlorine pesticides and arsenical herbicides. The soil sampling will be conducted in general accordance with DTSC Interim Guidance for Sampling Agricultural Fields for School Sites (August 26, 2002). The performance standard for this measure complies with applicable federal, State, and local regulations regarding removal, handling, transport, and disposal of soils contaminated with pesticides. The analytical results of the soil sampling will determine the appropriate handling and disposal of the soil. During construction, the construction contractor will properly dispose of all soils exceeding the criteria for State or federal hazardous waste at an appropriate State-certified landfill facility.	OCTA, Construction Contractor	During PA&ED and during PS&E							
HAZ-7	During construction, the construction contractor will monitor soil excavation for visible soil staining, odor, and the possible presence of unknown hazardous material sources (e.g., buried 55-gallon drums and underground tanks). If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 in the Caltrans *Construction Manual* (August 2006).	Construction Contractor	During construction							
HAZ-8	A preliminary site investigation will be initiated during PA&ED and completed during PS&E on the property at 2344 Pullman Street (APN 430-012-02), which is located adjacent to the maximum limits of disturbance of the Build Alternatives. The preliminary site investigation will assess the presence or absence of impacts associated with the hazardous waste storage area observed in the northwest corner on the site.	OCTA	During PA&ED and during PS&E							
Air Quality										
AQ-1	During clearing, grading, earth moving, or excavation operations, the construction contractor will control excessive fugitive dust emissions will be controlled by regular watering or other dust-preventative measures using the following procedures, as specified in the South Coast Air Quality Management District Rule 403. • All material excavated or graded will be sufficiently watered to prevent excessive amounts of dust. • All material transported on site or off site will be either sufficiently watered or securely covered to prevent excessive amounts of dust. • The area disturbed by clearing, grading, earth moving,	Caltrans Resident Engineer, Construction Contractor	During construction							

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	or excavation operations will be minimized so as to prevent excessive amounts of dust. • These control techniques will be indicated in project specifications.									
AQ-2	During final design, the project grading plans will show the duration of construction. During construction, the construction contractor will control ozone precursor emissions from construction equipment vehicles by maintaining equipment engines in good condition and in proper tune per manufacturers' specifications.	OCTA Project Engineer, Caltrans Resident Engineer, Construction Contractor	Prior and during construction							
AQ-3	During construction, the construction contractor will ensure that trucks to be used to haul excavated or graded material on site comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(f), (e)(2) as amended, regarding the prevention of such material spilling onto public streets and roads.	Caltrans Resident Engineer, Construction Contractor	During construction							
AQ-4	During clearing, grading, earth moving, excavation, and construction, the construction contractor will adhere to the California Department of Transportation (Caltrans) Standard Specifications for Construction (Section 14-9 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).	Caltrans Resident Engineer, Construction Contractor	During construction							
AQ-5	Should the project geologist determine that asbestos-containing materials (ACMs) are present in the project disturbance limits during final inspection prior to construction, the construction contractor will implement the appropriate methods to remove the ACMs prior to any ground disturbance or other construction activities in those areas.	Caltrans Resident Engineer, Construction Contractor, Project Geologist	During final inspection and prior and during construction							
Noise										
N-1	During construction, the construction contractor will be required to control noise from construction activities in conformance with the California Department of Transportation Standard Specifications, Section 14-8.02, "Noise Control." The noise level from the contractor's operations, between the hours of 9:00 PM and 6:00 AM, will not exceed 86 A-weighted decibels at a distance of 50 feet. In addition, the construction contractor will equip all internal combustion engines with the manufacturer-recommended mufflers and will not operate any internal combustion engine on the job site without the appropriate muffler.	Caltrans Resident Engineer, Construction Contractor	During construction							
N-2	Prior to completion of final design, Noise Barrier (NB) No. 3 and the combined NB No. 3 Reduced and NB No. 4 will be coordinated with the affected property owners (owners of the multifamily residences along Kenyon Drive).	OCTA Resident Engineer	Prior to completion of final design							
BIOLOGICAL ENVIRONMENT										
Wetlands and Other Waters										
WET-1	Prior to initiation of construction, a permit will be obtained through the United States Army Corps of Engineers (USACE) pursuant to Section 404 of the Clean Water Act. As part of coordination with the USACE, a Letter of Permission (LOP) will be pursued, if appropriate.	OCTA PE, and Caltrans PE, Environmental, and biologist	Prior to initiation of construction							

Task and Brief Description		Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
						Initials	Date		Initials	Date
WET-2	Prior to initiation of construction, either a Watershed Streambed Alteration Agreement (WSAA; in combination with an LOP) or a Streambed Alteration Agreement (SAA; in combination with an Individual Permit) with the California Department of Fish and Wildlife (CDFW) will be obtained, and any specifications in the WSAA or SAA will be implemented.	OCTA PE, and Caltrans PE, Environmental, and biologist	Prior to initiation of construction							
WET-3	Prior to initiation of construction, a Section 401 Water Quality Certification from the Santa Ana Regional Water Quality Control Board (RWQCB) will be obtained, and any specifications in the Certification will be implemented.	OCTA PE, and Caltrans PE, Environmental, and biologist	Prior to initiation of construction							
Plant Species										
No mitigation is required.										
Animal Species										
AS-1	Within 30 days prior to the commencement of any phase of construction, a qualified biologist will conduct pre-construction surveys to determine if any burrowing owls are present within the construction limits that could be adversely affected by construction activities. If the pre-construction surveys determine burrowing owls are present within the construction limits, the qualified biologist will coordinate with the California Department of Fish and Wildlife (CDFW) immediately to determine the specific measures that will be implemented regarding the burrowing owls present in the construction limits. If burrowing owls are determined to be present within the construction limits, one or more of the following measures may be required based on the coordination with CDFW: 1. Avoidance of active nests and surrounding buffer area during construction activities 2. Passive relocation of individual owls 3. Active relocation of individual owls	Caltrans Resident Engineer, a Qualified Biologist, Construction Contractor	Prior to construction							
AS-2	To avoid effects to nesting birds, the construction contractor will conduct any vegetation or tree (native or exotic) trimming or removal activities outside the nesting bird season (i.e., February 15 through August 31). In the event that vegetation clearing or trimming is necessary during the nesting season, a qualified biologist will conduct a pre-construction survey to identify the locations of any active bird nests. Should birds be found actively nesting in the construction limits, an exclusionary buffer will be installed where indicated by the biologist. This buffer will be clearly marked in the field by construction personnel under the guidance of the biologist, and construction or clearing activity will not be conducted within the buffer area until the biologist determines the young have fledged or the nest is no longer active.	Caltrans Resident Engineer, Construction Contractor, a Qualified Biologist	During construction							
AS-3	If during final design it is determined that construction activities will directly impact weep holes or crevice habitat, additional surveys will be required to be performed by a qualified biologist prior to construction to ascertain whether roosting bats or nesting birds are present in affected areas. If roosting bats or nesting birds are present or if their absence cannot be confirmed, a humane eviction or exclusion will be performed by a qualified biologist to avoid potential direct mortality to									

Task and Brief Description		Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
						Initials	Date		Initials	Date
	roosting bats or birds. The eviction/exclusion will be performed prior to construction, outside the recognized bat maternity season (April 1 through August 31) and the nesting bird season (February 15 through August 31).									
AS-4	Prior to the initiation of construction activities, nighttime surveys will be conducted by a qualified biologist during the summer months (June through mid-August) when bat foraging activity is highest and when maternity roosting occurs, in order to more accurately determine whether bats utilize the culvert structures for maternity roosting. Nighttime surveys will include acoustic monitoring and exit counts at each drainage structure that will be subject to direct impacts from project construction. The information gained from these nighttime surveys will then be used to determine the appropriate mitigation that would avoid or minimize direct impacts to roosting bats and bat maternity colonies. This mitigation may include, but is not limited to: • The eviction of bats from day roosts through the placement of exclusionary devices in the fall (September or October) preceding construction to avoid potential direct impacts to bats • Placement of alternate roosting habitat to mitigate for temporary or permanent loss of roosting habitat • Inclusion of roosting habitat in the design of the new structures • Seasonal restrictions on particular activities • Construction monitoring All humane bat eviction/exclusion techniques will be coordinated between the California Department of Transportation (Caltrans) District Biologist and the CDFW.									
AS-5	During construction, the removal of palm trees or their fronds will be avoided to the maximum extent practicable. If palm tree removal or palm frond trimming is necessary for project construction, this activity will be performed outside the bat maternity season (April 1 through August 31) to avoid impacts to flightless young.									
AS-6	All construction work conducted between February 15 and September 1 (during the nesting bird season) on existing bridges or culverts with areas of potential habitat will require the removal of all unoccupied bird nests prior to construction under the guidance and observation of a qualified biologist prior to February 15 of that year and before the nests become active (i.e., contain eggs). Removal of nests that are under construction must be repeated as frequently as necessary to prevent nest completion or until a nest exclusion device is installed (such as netting or a similar mechanism that keeps birds from building nests). Nest removal and exclusion device installation will be monitored by a qualified biologist. Such exclusion efforts must be continued to keep the structures free of nesting birds until September 1 or the completion of construction. All nest exclusion techniques would be coordinated between the Caltrans District Biologist and the CDFW.									

Task and Brief Description		Responsible Branch, Staff	Timing / Phase	NSSP Req.	Action Taken to Comply with Task	Task Completed		Remarks	Environmental Compliance	
						Initials	Date		Initials	Date
Invasive Species										
IS-1	The final design plans will include specifications that species listed as having a High or Moderate rating on the California Invasive Plant Council Invasive Plant Inventory will not be planted in any revegetated areas or used in any landscaping installed as part of the project.	OCTA Project Engineer	During preparation of the final project specifications							
IS-2	During construction, the construction contractor will perform weed control best management practices (BMPs) to minimize the importation of nonnative plant material during and after construction.	Construction Contractor, Caltrans Maintenance	Ongoing during construction and operation of the project improvements							
Greenhouse Gas Emissions										
GHG-1	Landscaping reduces surface warming and, through photosynthesis, decreases carbon dioxide (CO_2). The final design plans will provide landscaping where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the project. The landscape planting would help offset any project CO_2 emissions.	OCTA Project Engineer	During final design							
GHG-2	The final design plans will incorporate the use of energy-efficient lighting, such as light-emitting diode (LED) traffic signals, to the extent feasible. LED bulbs cost $60 to $70 each but last 5 to 6 years, compared to the 1-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO_2 emissions.	OCTA Project Engineer	During final design							
GHG-3	During construction, the construction contractor will comply with the Caltrans Standard Specification Provisions that restrict idling time for lane closure during construction to 10 minutes in each direction. In addition, the construction contractor must comply with Title 13, California Code of Regulations Section 2449(d)(3), which was adopted by the California Air Resources Board on June 15, 2008. That regulation restricts idling of construction vehicles to no longer than 5 consecutive minutes. Compliance with this regulation reduces harmful emissions from diesel-powered construction vehicles.	Caltrans Resident Engineer, Construction Contractor	During construction							

Appendix F List of Technical Studies

The technical studies listed below were used in the preparation of this Final Initial Study/ Environmental Assessment.

Aerially Deposited Lead Investigation Report (October 2013)
Prepared by Leighton Consulting, Inc.

Air Quality Assessment Report (October 2015)
Prepared by LSA Associates, Inc.

Supplemental Air Quality Analysis (December 2016)
Prepared by LSA Associates, Inc.

Archaeological Survey Report (September 2015)
Prepared by LSA Associates, Inc.

Community Impact Assessment (October 2015)
Prepared by LSA Associates, Inc.

Supplemental Community Impact Assessment (February 2017)
Prepared by LSA Associates, Inc.

Draft Relocation Impact Statement (September 2015)
Prepared by LSA Associates, Inc.

Draft Relocation Impact Statement- Alternative 3M (March 2017)
Prepared by LSA Associates, Inc.

Final Relocation Impact Statement (August 2017)
Prepared by LSA Associates, Inc.

Final Traffic Operations Report (October 2015)
Prepared by Fehr & Peers

Final Traffic Operations Report (December 2016)
Prepared by Fehr & Peers

Historical Resources Evaluation Report (September 2015)
Prepared by LSA Associates, Inc.

Historic Property Survey Report (October 2015)
Prepared by LSA Associates, Inc.

Supplemental Historic Resources Analysis (January 2017)
Prepared by LSA Associates, Inc.

Initial Site Assessment Report (May 2014)
Prepared by Leighton Consulting, Inc.

Addendum 1 Initial Site Assessment Report (February 2017)
Prepared by Leighton Consulting, Inc.

Jurisdictional Delineation (February 2014)
Prepared by LSA Associates, Inc.

Location Hydraulic Study (April 2014)
Prepared by HDR Engineering, Inc.

Supplemental Location Hydraulic Study (February 2017)
Prepared by HDR Engineering, Inc.

Natural Environment Study (Minimal Impacts) (October 2015)
Prepared by LSA Associates, Inc.

Supplemental Natural Environment Study (Minimal Impacts) (January 2017)
Prepared by LSA Associates, Inc.

Noise Abatement Decision Report (October 2015)
Prepared by LSA Associates, Inc.

Noise Study Report (September 2015)
Prepared by LSA Associates, Inc.

Supplemental Noise Analysis and Noise Abatement Decision Memorandum (March 2017)
Prepared by LSA Associates, Inc.

Supplemental Local Roadway California Environmental Quality Act Noise Analysis Memorandum (March 2017)
Prepared by LSA Associates, Inc.

Paleontological Resources Identification Report (February 2014)
Prepared by LSA Associates, Inc.

Supplemental Paleontological Analysis (January 2017)
Prepared by LSA Associates, Inc.

Preliminary Drainage Report (April 2014)
Prepared by HDR Engineering, Inc.

Preliminary Drainage Report (January 2017)
Prepared by HDR Engineering, Inc.

Preliminary Foundation Report for Proposed Widening of Edinger Avenue Undercrossing (Bridge No. 55-393) (August 2012)
Prepared by Leighton Consulting, Inc.

Preliminary Foundation Report for Proposed Widening of South Tustin Overhead (Bridge No. 55-0026) (August 2012)
Prepared by Leighton Consulting, Inc.

Preliminary Foundation Report for Proposed Widening of State Route 55 at the Warner Avenue Overcrossing (Bridge No. 55-394) (October 2012)
Prepared by Leighton Consulting, Inc.

Preliminary Foundation Report for Proposed Widening of Dyer Road Undercrossing (Bridge No. 55-0409) (August 2012)
Prepared by Leighton Consulting, Inc.

Preliminary Foundation Report for Proposed Widening of Macarthur Boulevard Undercrossing (Bridge No. 55-410) (August 2012)
Prepared by Leighton Consulting, Inc.

Preliminary Geotechnical Information (August 2011)
Prepared by Leighton Consulting, Inc.

Final Traffic Volume Report (October 2015)
Prepared by Fehr & Peers

Final Traffic Volume Report (November 2016)
Prepared by Fehr & Peers

Transportation Management Plan (October 2015)
Prepared by HDR Engineering, Inc.

Visual Impact Assessment (July 2015)
Prepared by LSA Associates, Inc.

Supplemental Visual Impact Assessment Memo (December 2016)
Prepared by LSA Associates, Inc.

Water Quality Assessment Report (February 2014)
Prepared by LSA Associates, Inc.

Supplemental Water Quality Assessment (December 2016)
Prepared by LSA Associates, Inc.

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Appendix G FEMA FIRM

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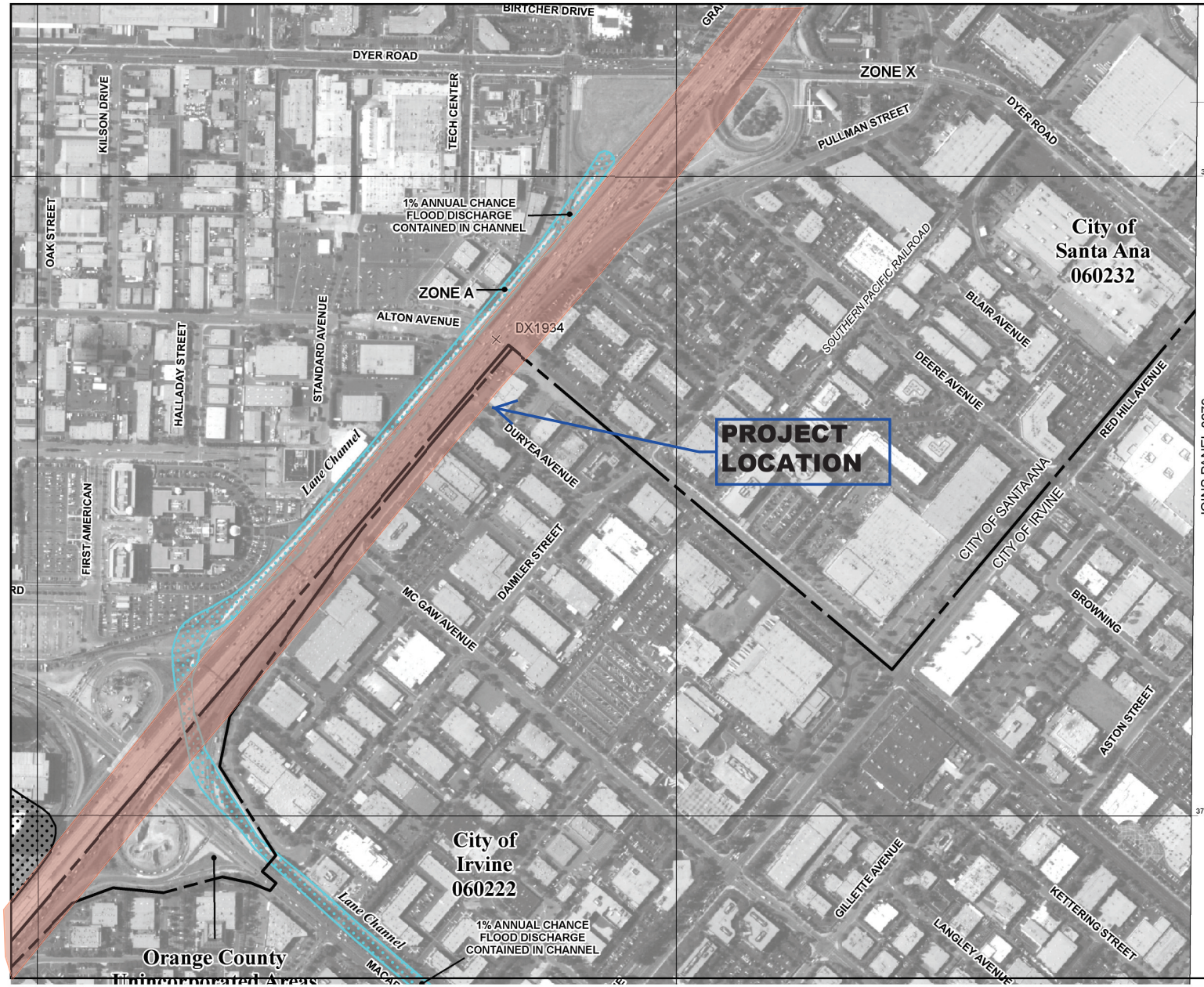

tional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

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METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0278J

FIRM

FLOOD INSURANCE RATE MAP

ORANGE COUNTY, CALIFORNIA AND INCORPORATED AREAS

PANEL 278 OF 539

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
COSTA MESA, CITY OF	060216	0278	J
IRVINE, CITY OF	060222	0278	J
ORANGE COUNTY	060212	0278	J
SANTA ANA, CITY OF	060232	0278	J
TUSTIN, CITY OF	060235	0278	J

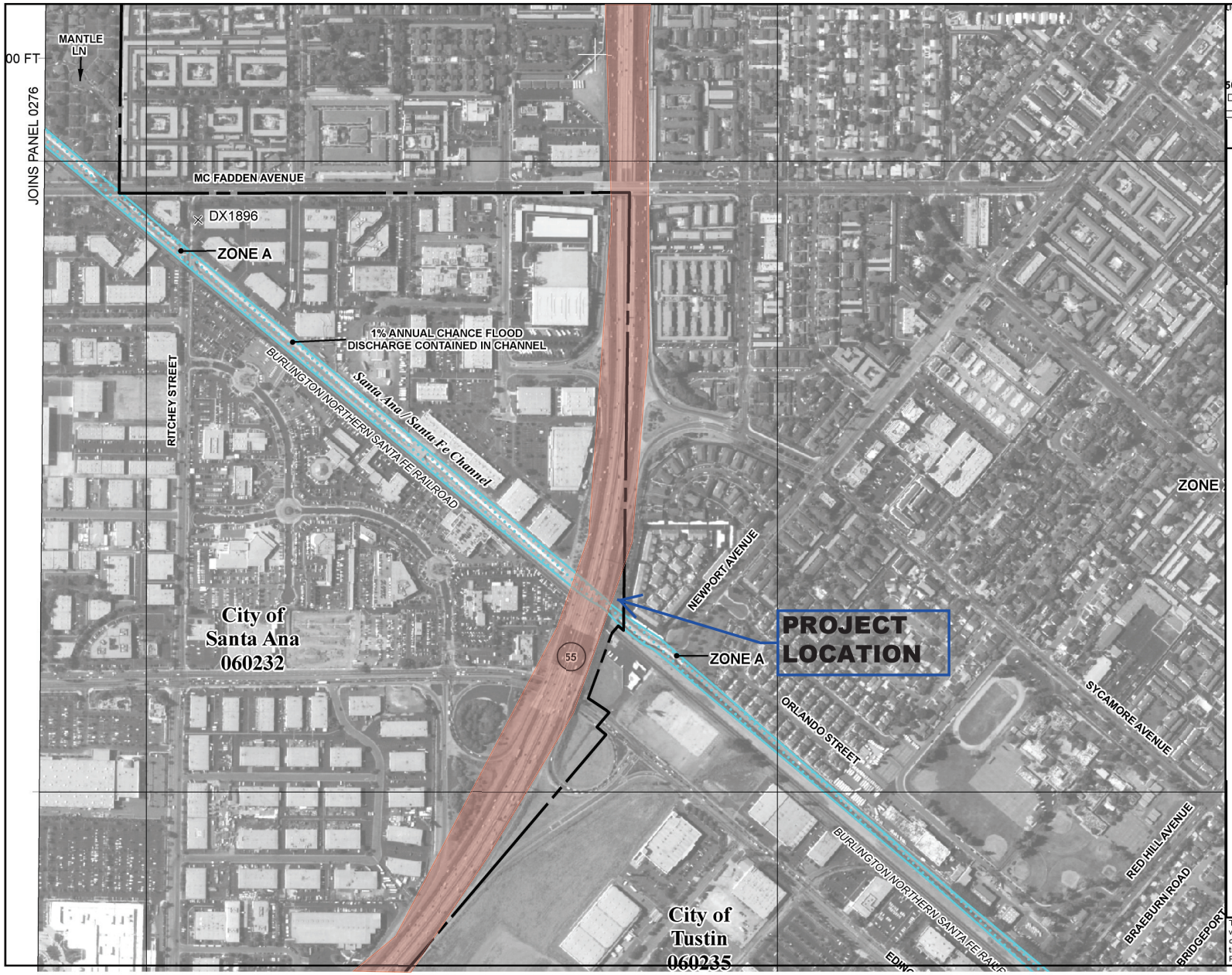
Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 06059C0278J

MAP REVISED DECEMBER 3, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



tional Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

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FEET

METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0277J

FIRM

FLOOD INSURANCE RATE MAP

ORANGE COUNTY, CALIFORNIA
AND INCORPORATED AREAS

PANEL 277 OF 539

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ORANGE COUNTY	060212	0277	J
SANTA ANA, CITY OF	060232	0277	J
TUSTIN, CITY OF	060235	0277	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
06059C0277J

MAP REVISED
DECEMBER 3, 2009

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Appendix H RESPONSE TO COMMENTS DRAFT IS/EA AND SUPPLEMENTAL DRAFT IS/EA

1.1 Index of Comments Received

The responses to the comments received on the SR-55 Improvement Project Draft Initial Study/Environmental Assessment (IS/EA) and Supplemental Draft IS/EA are organized as follows. The comments and responses are grouped by type of commenter. The types of commenters are:

Draft IS/EA Comments

- Federal Government Agencies (F)
- State Government Agencies (S)
- Local Government Agencies (L)
- Regional Government Agencies (R)
- Utility Companies (U)
- Tribal Organizations (T)
- Industry and Business Organizations (O)
- Public Comments (P) (received in writing via e-mail, U.S. mail, or during the public meeting) – Organized by date received.
- Public Hearing Comments (TR) (received at a public hearing verbally by the court reporter).

Supplemental Draft IS/EA Comments

- State Government Agencies (SUPP-S)
- Local Government Agencies (SUPP-L)
- Regional Government Agencies (SUPP-R)
- Utility Companies (SUPP-U)
- Industry and Business Organizations (SUPP-O)
- Public Comments (SUPP-P) (received in writing via e-mail, U.S. mail, or during the public meeting) – Organized by date received.
- Public Hearing Comments (SUPP-TR) (received at a public hearing either in writing or verbally by the court reporter).

The comments and responses within each group are presented in a section, and the sections are consecutive according to the list above. The first part of each section provides the comments, and the second part provides the responses. Table 1 and 2 identifies each of the groups and the commenters in that group. For example, the first group is Government (Federal) and the first commenter is the Federal Emergency Management Agency (FEMA). Each comment is given a unique identifier for the commenter, followed by a serial number for each comment made by the commenter. For example, the first comment of FEMA is F-1-1, with F-1 being the unique identifier for FEMA and "-1" referring to FEMA's first comment. The responses are organized in the same order as the comments. The responses show the

unique identifier of the commenter within the commenter's letter. Comments and responses can be easily related with the identifiers.

An asterisk (*) in Tables 1 and 2 denotes comments received after close of the formal comment period.

The responses to comments in this Appendix were also part of the criteria used to identify the Preferred Alternative. The identification of the PA is discussed previously in Chapter 1.

Table 1 Comments Received During the Draft IS/EA Public Comment Period

Letter	Name	Date	Page
Federal Government			
F-1	Federal Emergency Management Agency	January 4, 2016	H-5
State Government			
S-1	State of California, Department of Fish and Wildlife	January 13, 2016	H-9
Local Government			
L-1	City of Tustin	December 10, 2015	H-11
L-2	City of Irvine	December 28, 2015	H-27
L-3	Irvine Ranch Water District	January 6, 2016	H-31
L-4	Orange County Water District	January 6, 2016	H-41
L-5	City of Costa Mesa	January 13, 2016	H-45
L-6	Orange County Transportation Authority	January 21, 2016	H-47
L-7	City of Santa Ana	January 21, 2016	H-51
Regional Agencies			
R-1	South Coast Air Quality Management District	January 6, 2016	H-53
Utility Companies			
U-1	Southern California Gas Company	December 9, 2015 and January 5, 2016	H-59
Tribal Organizations			
T-1	Gabrieleno Band of Mission Indians – Kizh Nation	January 13, 2016	H-65
Industry and Business Organizations			
O-1	Orange County Business Council	January 22, 2016	H-69
Public Comments			
P-1	Ron Beard	November 30, 2015	H-71
P-2	Thomas Bruiniers	December 3, 2015	H-77
P-3	Julieanne Linam-Newberry	December 10, 2015	H-93
P-4	Mark Ward-Aguilar	December 10, 2015	H-97
P-5	Jim Stratton	December 10, 2015	H-99

P-6	Thomas Hartmann	December 10, 2015	H-101
P-7	Deby Marsteller	December 10, 2015	H-103
P-8	Conrad Kopec	December 11, 2015	H-105
P-9	Wilson Giannini	December 11, 2015	H-109
P-10	Brian Ahmadi	December 16, 2015	H-111
P-11	John Garay	January 5, 2016	H-113
P-12	Heidi Hall	December 10, 2015	H-115
P-13	Jeff Roninette	December 10, 2015	H-117
P-14	Mark Landry	December 10, 2015	H-119
P-15	Joseph Chen	December 10, 2015	H-121
P-16	Brad Kelly	December 10, 2015	H-123
P-17	Dan O'Neil	December 10, 2015	H-127
P-18	Call and Jensen	January 21, 2016	H-129
Public Meeting Court Reporter Transcript			
TR-1	Bharat Lodhia	December 10, 2015	H-135
TR-2	Nick Nodoust	December 10, 2015	H-135

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F-1

U.S. Department of Homeland Security
FEMA Region IX
1111 Broadway, Suite 1200
Oakland, CA. 94607-4052

FEMA

January 4, 2016

Charles Baker, Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis-Special Branch
3347 Michelson Drive, Suite 100
Irvine, California 92612-1692

Dear Mr. Baker:

This is in response to your request for comments regarding Public Notice, Notice of Intent to Adopt Mitigated Negative Declaration, Notice of Availability of Environmental Assessment Announcement of Public /Review Period Extension – State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5).

Please review the current effective countywide Flood Insurance Rate Maps (FIRMs) for the County of Orange (Community Number 060212) and Cities of Santa Ana (Community Number 060232), Tustin (Community Number 060235) and Irvine (Community Number 060222), Maps revised December 3, 2009. Please note that the Cities of Santa Ana, Tustin and Irvine, Orange County, California are participants in the National Flood Insurance Program (NFIP). The minimum, basic NFIP floodplain management building requirements are described in Vol. 44 Code of Federal Regulations (44 CFR), Sections 59 through 65. F-1-1

A summary of these NFIP floodplain management building requirements are as follows:

- All buildings constructed within a riverine floodplain, (i.e., Flood Zones A, AO, AH, AE and A1 through A30 as delineated on the FIRM), must be elevated so that the lowest floor is at or above the Base Flood Elevation level in accordance with the effective Flood Insurance Rate Map. F-1-2

- If the area of construction is located within a Regulatory Floodway as delineated on the FIRM, any ***development*** must not increase base flood elevation levels. **The term *development* means any man-made change to improved or unimproved real estate, including but not limited to buildings, other structures, mining, dredging, filling, grading, paving, excavation or drilling operations, and storage of equipment or materials.** A hydrologic and hydraulic analysis must be performed *prior* to the start of development, and must demonstrate that the development would not cause any rise in base flood levels. No rise is permitted within regulatory floodways. F-1-3

- All buildings constructed within a coastal high hazard area, (any of the "V" Flood Zones as delineated on the FIRM), must be elevated on pilings and columns, so that the lowest horizontal structural member, (excluding the pilings and columns), is elevated to or above the base flood elevation level. In addition, the posts and pilings foundation and the structure attached thereto, is anchored to resist flotation, collapse and lateral movement due to the effects of wind and water loads acting simultaneously on all building components. F-1-4

- Upon completion of any development that changes existing Special Flood Hazard Areas, the NFIP directs all participating communities to submit the appropriate hydrologic and hydraulic data to FEMA for a FIRM revision. In accordance with 44 CFR, Section 65.3, as soon as practicable, but not later than six months after such data becomes available, a community shall notify FEMA of the changes by submitting technical data for a flood map revision. To obtain copies of FEMA's Flood Map Revision Application Packages, please refer to the FEMA website at http://www.fema.gov/business/nfip/forms.shtm. F-1-5

Please Note:

Many NFIP participating communities have adopted floodplain management building requirements which are more restrictive than the minimum federal standards described in 44 CFR. Please contact the local community's floodplain manager for more information on local floodplain management building requirements. The Santa Ana floodplain manager can be reached by calling Fred Heidari, Deputy Building Director, at (714) 647-5862. The Tustin floodplain manager can be reached by calling Henry Huang, Building Official, at (714) 573-3140. The Irvine floodplain manager can be reached by calling Steven Sherwood, Senior /Civil Engineer, at (949) 724-7327. The Orange County floodplain manager can be reached by calling Penny Lew, Senior Civil Engineer, at (714) 647-3990. F-1-6

If you have any questions or concerns, please do not hesitate to call Mark Delorey of the Mitigation staff at (510) 627-7057.

Sincerely,

Gregor Blackburn, CFM, Branch Chief
Floodplain Management and Insurance Branch

cc:
Fred Heidari, Deputy Building Director, City of Santa Ana
Henry Huang, Building Official, City of Tustin
Steven Sherwood, Senior Civil Engineer, City of Irvine
Penny Lew, Senior Civil Engineer, Orange County Public Works/Orange County Flood Control District
Mark Delorey, NFIP Planner, DHS/FEMA Region IX
Alessandro Amaglio, Environmental Officer, DHS/FEMA Region IX

F-1: Federal Emergency Management Agency

F-1-1

The current (December 3, 2009) Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the project area were reviewed and used during preparation of the IS/EA. As discussed in Section 2.8, Hydrology and Water Quality, there are two floodplains within the project limits as shown on the FEMA FIRM Nos. 06059C0278J and 06059C0277J. These two FIRM maps were included in Appendix H of the IS/EA. As a transportation project, the applicable regulations for floodplain development, including 23 Code of Federal Regulations (CFR) 650 Subpart A, were considered during the design of the project and the analysis of impacts in the IS/EA.

F-1-2

The proposed project does not include construction of any buildings; therefore, building elevation requirements are not applicable to the project.

F-1-3

As discussed in Section 2.9, Hydrology and Floodplains, and shown on the FEMA FIRM included in Appendix H of the IS/EA, there are two floodplains within the project limits, both of which are mapped as Zone A, areas subject to inundation by the 1 percent annual chance of flood (100-year floodplain). However, the project area is not located within a regulatory floodway. Because the project is not located within a regulatory floodway, there is no potential for the project to increase base flood elevations of a regulatory floodway.

F-1-4

As discussed in Section 2.9, Hydrology and Floodplains, and shown on the FEMA FIRM included in Appendix H of the IS/EA, there are two floodplains within the project limits, both of which are mapped as Zone A. The project area is not located within a coastal high hazard area, Zone V. In addition, the proposed project does not include construction of any buildings. Therefore, the requirement that buildings constructed within a coastal high hazard area must be elevated on pilings and columns above the base flood elevation level is not applicable to the proposed project.

F-1-5

A Conditional Letter of Map Revision (CLOMR) and a Letter of Map Revision (LOMR) are not required for the proposed project. As discussed in Section 2.8, Hydrology and Floodplains, of the IS/EA, the Build Alternatives would include a slight realignment and reconfiguration of Lane Channel from the existing open trapezoidal concrete-lined channel to a rectangular channel. However, the floodplain encroachment would not adversely affect the base flood at the Lane Channel; therefore, a CLOMR and LOMR are not required.

F-1-6

The proposed project is being designed to conform to all local, County, State, and federal floodplain management requirements, including those of the Cities of Irvine, Santa Ana, and Tustin, and the County of Orange.

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
www.wildlife.ca.gov

EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director

S-1

January 13, 2016

Mr. Charles Baker
California Department of Transportation, District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive
Irvine, CA 92612-1692

Subject: Comments on the Initial Study/Proposed Mitigated Negative Declaration for the State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5) (SCH# 2015111075)

Dear Mr. Baker:

The Department of Fish and Game (Department) has reviewed the above-referenced Initial Study/Proposed Mitigated Negative Declaration (IS/MND) for the SR-55 Improvement Project between I-405 and I-5 (Project) dated November 2015.

The Department is a Trustee Agency and a Responsible Agency pursuant to the California Environmental Quality Act (§§ 15386 and 15281, respectively) and is responsible for ensuring appropriate conservation of the state's biological resources, including rare, threatened, and endangered plant and animal species, pursuant to the California Endangered Species Act (CESA; Fish and Game Code § 2050 et seq.) and Fish and Game Code Section 1600 et seq. The proposed project consists of widening the SR-55 between I-405 and I-5 by adding one mixed flow lane in each direction, fixing choke points and adding one auxiliary lane in each direction between select on/off ramps through the project limits. S-1-1

Sensitive biological resources in the vicinity of the project are associated with the native terrestrial and aquatic habitats of tributaries to San Diego Creek and Upper Newport Bay. Although no sensitive species are expected within or directly adjacent to the project limits, the project has the potential to affect nesting birds and roosting bats. However, project design features (e.g., bat roosting habitat) and mitigation measures (e.g., pre-construction surveys, buffers, seasonal restrictions) have been incorporated into the project to avoid and/or reduce potential environmental impacts to biological resources. The Department concurs with these features/measures and has no additional comments. S-1-2

Thank you for the opportunity to comment on the proposed MND. If you have any questions regarding this letter, please contact Mr. Tim Dillingham at (858) 467-4250 or email tim.dillingham@wildlife.ca.gov.

Sincerely,

Gail K. Sevrens
Environmental Program Manager
South Coast Region

ec: State Clearinghouse

S-1: State of California, Department of Fish and Wildlife

S-1-1

This comment summarizes the Department of Fish and Wildlife's (CDFW's) responsibilities pursuant to the California Environmental Quality Act (CEQA), the California Endangered Species Act (CESA), and the Fish and Game Code, and summarizes Build Alternative 3. The comment does not raise issue with the adequacy of the IS/EA.

S-1-2

The California Department of Transportation (Caltrans) and the Orange County Transportation Authority (OCTA) thank you for your comment and participation in the environmental process for the proposed project. CDFW's concurrence on the finding regarding impacts to sensitive species and the project design and measures to reduce impacts to nesting birds is acknowledged and noted for the record.

L-1

COMMENT CARD

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Scott Reekstin PHONE: 714.573.3016

ADDRESS: 300 Centennial Way CITY: Tustin ZIP: 92780

EMAIL: sreekstin@tustinca.org ❑ Yes, please email me project updates.

Are you a business owner? ❑ Yes ☑ No Business Name: _____

What is the best way to provide information to you? ☑ Email ❑ Direct Mail ❑ Social Media ❑ Newspaper ❑ Text ❑ Voicemail

How did you hear about this meeting? ❑ Email ☑ Direct Mail ❑ Social Media ❑ Newspaper ❑ Flyer ❑ Word of Mouth

COMMENTS:

The City of Tustin has significant concerns regarding the proposed project, including significant noise and traffic impacts that are not proposed to be mitigated. The City of Tustin will be providing detailed written comments prior to the January 8, 2016, deadline.

L-1-1

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

The Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment and other project information are available at the following locations during normal business hours:

- **Caltrans District 12 Office,** 3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
- **Orange County Transportation Authority,** 550 South Main Street, Orange, CA 92868
- **Santa Ana Public Library,** 26 Civic Center Plaza, Santa Ana, CA 92701
- **City of Irvine City Hall,** 1 Civic Center Plaza, Irvine, CA 92606-5207
- **Tustin Library,** 345 East Main Street, Tustin, CA 92780

They also are available online at www.dot.ca.gov/dist12/DEA/SR55IMPROV.

WRITTEN COMMENTS: Please submit comments in writing no later than 5 p.m., January 8, 2016 to:

Charles Baker, Senior Environmental Planner,
California Department of Transportation, District 12,
Environmental Analysis - Specialist Branch
3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
or via e-mail to D12SR55ImprovementProject@dot.ca.gov.

Community Development Department

TUSTIN
BUILDING OUR FUTURE
HONORING OUR PAST

January 21, 2016

Mr. Charles Baker
Senior Environmental Planner
Department of Transportation, District 12
Environmental Analysis – Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

SUBJECT: REVIEW OF THE INITIAL STUDY/ENVIRONMENTAL ASSESSMENT FOR THE SR-55 (I-405 TO I-5) IMPROVEMENT PROJECT

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Initial Study/Environmental Assessment (IS/EA) for the State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5).

The proposed project would widen SR-55 in both directions from just north of I-405/SR-55 Interchange to just south of the I-5/SR-55 Interchange. According to the ES/IA, there are four project alternatives under consideration, in addition to the "No Build" Alternative. Alternative 1 includes additional auxiliary lanes and a southbound general purpose lane. Alternative 2 proposes new general purpose lanes in both directions. Alternative 3 includes new general purpose lanes and additional auxiliary lanes. And Alternative 4 proposes new high-occupancy vehicle (HOV) lanes and additional auxiliary lanes. The purchase of right-of-way will be required along the corridor for all of the alternatives.

The City of Tustin offers the following general comments about the project and specific comments about the IS/EA at this time:

GENERAL COMMENTS

Alternative 4 (One New HOV lane and Additional Auxiliary Lanes)

Measure M ordinances were approved by voters first in 1990 and renewed in 2006 with the promise of local improvements to every freeway, widened streets, synchronized signals and improved intersections as well as adding Metrolink commuter-rail service in Orange County. The City supports project alternatives that deliver on Measure M as promised to the voters, together with the oversight and safeguards.

L-1-2

Alternative 4 proposes a new high-occupancy vehicle (HOV) lane and additional auxiliary lanes. The City, however, is concerned that Alternative 4 poses a meaningful risk of converting the additional HOV lane to a High Occupancy Toll (HOT) lane, which tests the intent of Measure M promised to voters because of the potential and currently undetermined fees that would be assessed to users. Unless specific restrictions are memorialized to prevent HOT conversion, the City is apprehensive if the use of local tax dollars in Orange County's transportation infrastructure is not invested to provide maximum mobility, increase freeway capacity and reduce congestion which are tangible results that reduce daily vehicle hours of delay. Alternatives 1 through 3 appear to meet that standard best overall by adding new lanes. An extra HOV lane as proposed in Alternative 4 would also achieve this by encouraging more single riders to come together and carpool toll-free, thereby improving general purpose lane capacity. L-1-2

Modification at McFadden Avenue/Newport Avenue Northbound Onramp

It was reported at the conclusion of the Value Analysis Study that there would be safety benefits associated with a potential modification of the northbound SR-55 ramps at McFadden Avenue/Newport Avenue. The modification recommended by the Value Analysis Team would prevent vehicles entering the highway at that onramp from traveling north on SR-55. All vehicles entering at that location would be required to exit at Interstate 5 in the southbound or northbound direction. In response to the City's concerns regarding significant impacts on local traffic due to the potential modification, the Traffic Operations Report was revised to include an analysis of local intersections. This analysis concluded that one ramp intersection, Newport Avenue at I-5 Northbound On-Ramp, requires mitigation. The extension of Newport Avenue from its current terminus to Edinger Avenue would alleviate some of these impacts by providing a direct route to the Newport/Edinger Avenue on-ramp and access to SR-55. However, the funding for the extension project has not been secured. Should funding from the Orange County Transportation Authority and other sources be secured, the proposed extension of Newport Avenue would provide cumulative benefits to the improvements anticipated by the SR-55 widening project and the ultimate build-out of the Master Plan of Arterial Highways. L-1-3

In addition, the City would prefer that the McFadden interchange be removed entirely. With the addition of the Newport Avenue extension to Edinger Avenue, the SR-55 Northbound can be reached via the ramps at Newport Avenue and Del Amo Avenue intersection. L-1-4

Partial Right-of-Way Takes

Two parcels north of Warner Avenue, occupied by Ricoh, will be significantly impacted by partial right-of-way takes associated with the widening project. Alternatives 3 and 4 would impact the parking lot at 1100 Valencia Avenue, requiring its reconfiguration and resulting in a net loss of L-1-5

approximately 12 parking spaces. We are concerned that the reduction in parking spaces may prevent future building expansions and/or conversions of space to other allowable uses. The City of Tustin requests that Caltrans conduct outreach to the property owner on this matter, if this outreach has not yet occurred. L-1-5

Temporary Construction Easements

It is our understanding that Alternative 1 would potentially require temporary construction easements (TCEs) at eight (8) properties in Tustin, while Alternatives 2, 3, and 4, would each require TCEs at as many as thirteen (13) Tustin parcels. These temporary construction easements may cause significant impacts to the affected parcels, depending on the size, nature, and duration of the easement. The City of Tustin requests that Caltrans conduct outreach to the affected property owners, if this outreach has not yet occurred. L-1-6

Detours

According to the IS/EA, ramp closures and their associated detours would be temporary and usually during nighttime hours only. One of the proposed detours for the northbound SR-55 on-ramp at Newport/Edinger Avenues would direct traffic eastward on Edinger Avenue, northward on Red Hill Avenue and then westward on Sycamore Avenue, which is a two-lane road in a residential neighborhood with three schools (Jeane Thorman Elementary School, A.G. Currie Middle School, and St. Cecilia School and Church) fronting it. Night time work in a residential neighborhood is not preferred per the city's noise ordinance. Daytime during the school year would exacerbate already significant school traffic demand. The preferred detour alternative route to using Sycamore Avenue, is for motorists to remain on Red Hill Avenue and continue to their destinations via the I-5. Traffic impacts of this detour to the Red Hill Avenue/I-5 interchange should be analyzed if occurring during the peak hour. L-1-7

The City requests that Caltrans inform the City of all traffic detour plans and traffic management plans that would affect traffic in the Tustin area west of SR-55, north and south of the I-5, during project construction. L-1-8

Construction Staging

It has been noted that a potential construction staging area is being considered for the City-owned parcel to the south of the Edinger Avenue on and off-ramps. This parcel is slated for future commercial development, and a construction staging area at this location may significantly hamper efforts to market the site to potential investors. Therefore, the City of Tustin may be unable to offer this site as a temporary construction staging area. L-1-9

The City of Tustin also requests to be notified of the proposed locations of the construction staging areas to determine the potential for any short-term traffic impacts on City of Tustin streets. L-1-10

Public Outreach

Extensive public outreach is requested so that Tustin residents, business people, and visitors are aware of the project and may plan accordingly. Outreach with the Tustin Unified School District will be critical. L-1-11

COMMENTS REGARDING THE IS/EA

General

IS/EA page 2.14-5: It is noted that the land uses to the east of SR-55 between Warner Avenue and Edinger Avenue include "two hotels that are currently under construction." The IS/EA should be revised to reflect the completion of the two hotels. L-1-12

IS/EA page 2.19-5: Table 2.19.1 (Planned Projects List) is out of date. The Village at Tustin Legacy (98,292 sq. ft. retail and 150,000 sq. ft. medical plaza) was approved in November of 2015, and an 8,000 square foot office building at 721 W. First Street is under review. L-1-13

Noise

As part of the proposed project, sound attenuation walls are proposed in Tustin adjacent to the existing multiple family residences south of the northbound SR-55 off-ramp for McFadden Avenue and Newport Avenue. However, sound walls are not proposed to the north of the McFadden Avenue/Newport Avenue off-ramp.

According to the IS/EA, "a minimum noise reduction of 5 dBA must be achieved at impacted receptors for the proposed noise abatement measures (i.e., noise barriers) to be considered feasible." The IS/EA further states that "all the noise barriers that were considered feasible were analyzed to determine their reasonableness. The overall reasonableness of noise abatement is determined by considering the noise reduction goal combined with the construction cost of the barrier." Caltrans has determined that the noise reduction goal is 7 dBA and that the reasonable noise barrier construction cost allowance per benefitted residence is $71,000. L-1-14

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15070, a public agency may prepare a mitigated negative declaration for a project subject to CEQA when "the

initial study identified potentially significant effects, but: (1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."

L-1-14

The infeasibility of mitigation measures or project alternatives based on economic or other factors can be considered when an Environmental Impact Report (EIR) has been prepared for a project, but may not be used as a justification for not implementing mitigation measures in conjunction with a mitigated negative declaration. Therefore, the IS/EA should be revised to include additional mitigation measures, such as additional noise barriers, that fully mitigate the potential noise impacts at all receptor locations, or an environmental impact report should be prepared for the project.

Further, the IS/EA does not adequately address interior noise impacts, as it assumes an interior noise reduction of 20dB. This level of noise reduction may only be achieved when windows and doors meeting specified acoustic ratings are completely closed, and ventilation systems are provided. The noise evaluation in the IS/EA should be revised accordingly.

L-1-15

In addition, the following mitigation measures should be incorporated into the mitigated negative declaration to mitigate any identified significant interior noise impacts:

1) Caltrans shall offer to provide forced air ventilation in all residences where significant interior noise impacts would occur with windows and doors open, if the affected residences are not equipped with forced air ventilation.

2) Where significant interior noise impacts would otherwise occur, Caltrans shall offer to provide acoustic-rated window/door assemblies in all second-story windows and/or sliding glass doors in habitable rooms of the residences along the proposed project that view the proposed alignment. These assemblies shall have a sound transmission class (STC) rating of no less than 35 and the STC shall be high enough to achieve an interior noise level of no more than 45 dBA CNEL. Non-sensitive uses (e.g., bathrooms) do not require such assemblies.

L-1-16

3) Where significant interior noise impacts would otherwise occur, Caltrans shall offer to provide all second-story exterior doors in habitable rooms of the residences along the proposed project that view the proposed alignment with solid-core assemblies that are well sealed with weather-stripping.

Traffic

The City of Tustin is aware of the agreement between OCTA and Caltrans that resulted in the revision of this study to include unfunded freeway projects in the background conditions thereby creating freeway capacity and easing impacts on city streets. However, we feel that the inclusion of unfunded projects in the 2040 background conditions places a significant burden on city streets until such time the cumulative projects are funded. This is not addressed in the study. L-1-17

While the emphasis of the project is to add capacity on the mainline, it should be equally as important to address the operational deficiencies at the on-ramps and the ramp intersections, particularly the SR-55 Northbound Ramps at Newport Avenue and Del Amo Avenue. L-1-18

The level of service (LOS) for 2020 and 2040 is reported as LOS F with a >80 second delay for the No-Build and all alternatives for this ramp intersection during the PM peak hour. The degree to which the average delay changes per alternative from the No-Build is not disclosed. Without this information, the project impacts cannot be determined. L-1-19

The queuing on the northbound on-ramp itself, as well as particular movements at the ramp intersection, are also deficient, but yet are not addressed in the IS/EA. The queuing deficiencies are presented below for 2020 and 2040.

	Storage	No-Build	Alt. 1	Alt. 2	Alt. 3	Alt.4
2020 PM Peak Hour						
On-Ramp	480	520	520	625	520	550
South Right	600	1,055	1,160	1,335	1,340	1,325
2040 PM Peak Hour						
On-Ramp	480	655	600	680	640	630
South Right	600	1,335	1,335	1,335	1,335	1,325

L-1-20

The extension of Newport Avenue between Edinger Avenue and Sycamore Avenue should be explored to determine if the extension could be a viable improvement to alleviate the deficiencies experienced at the ramp and ramp intersection by allowing an alternate route for motorists to the I-5 North and I-5 South. L-1-21

The previous Traffic Operations Report (TOR) identified three intersections in the City of Tustin needing mitigation. This study reflects changes to the background conditions that now include unfunded projects i.e., OCTA freeway projects that add capacity to the freeway mainline. The additional capacity keeps motorists on the freeways and away from city streets which could be the reason that Newport Avenue at I-5 Northbound On-Ramp, is the only intersection needing mitigation for Alternatives 3 and 4. The other two ramp intersections, Newport Avenue at I-5 L-1-22

Southbound Ramp/Nisson Road and Red Hill Avenue at I-5 Southbound Ramps, no longer need mitigation according to the performance criteria set forth in the study. The term "minimization" has been coined for these ramp intersections as an acknowledgment that "a relatively larger amount of traffic is diverted to the two locations due to the McFadden design variation" which precludes traffic from McFadden Avenue to head northbound on the SR-55 in Alternatives 3 and 4 Due consideration must be given, in the form of absolute analysis, not some invented "coined" term, for real impacts at these ramp intersections (and also at Newport Avenue/Del Amo Avenue at SR-55 Northbound Ramps) and associated city streets. L-1-22

Underground Utilities

Table 2.4.1 shows that overhead 66 kV transmission lines along the east side of Northbound SR-55 bordering the Cities of Santa Ana and Irvine will be relocated underground. We ask for the same treatment of any line bordering Tustin i.e., as the overhead 66 kV transmission line that crosses the SR-55 from Ritchey Street on the west side to the east side into Tustin. L-1-23

The City of Tustin appreciates the opportunity to provide comments on this project. If you have any questions regarding the City's comments, please call Scott Reekstin, Principal Planner, at (714) 573-3016 or Krys Saldivar, Public Works Manager, at (714) 573-3172.

Sincerely,

Elizabeth A. Binsack
Community Development Director

cc: Jeff Parker, City Manager
Douglas S. Stack, Public Works Director
Ken Nishikawa, Deputy Director of Public Works/Engineering
Justina Willkom, Assistant Director – Planning
Krys Saldivar, Public Works Manager
Scott Reekstin, Principal Planner

L-1: City of Tustin

L-1-1

It is acknowledged that the City of Tustin has concerns regarding the noise and traffic impacts of the proposed project. The comment does not raise issue with the adequacy of the IS/EA. Please refer to Response to Comments L-1-14 through L-1-16 regarding potential noise impacts and L-1-17 through L-1-22 regarding potential traffic impacts.

L-1-2

The City of Tustin's support of alternatives that deliver on Measure M, and concerns about the potential for Alternative 4 to result in the future conversion of High Occupancy Vehicle (HOV) lanes to High Occupancy Toll (HOT) lanes was acknowledged and considered in identifying the Preferred Alternative for the proposed project.

L-1-3

The comment accurately reflects the conclusions of the IS/EA regarding impacts at the Newport Avenue/I-5 northbound on-ramp. Appropriate improvements to mitigate the identified traffic impacts are presented in the IS/EA. Construction of the proposed extension of Newport Avenue to address the identified traffic impacts at this intersection are not warranted.

The Newport Avenue Extension is identified in the 2010 Long-Range Transportation Plan (LRTP) "preferred plan" as part of another project of "completion of the MPAH Regional Capacity Program" and is included in the 2040 baseline conditions for the traffic analysis conducted for the proposed project.

The proposed Newport Avenue Extension Project is anticipated to improve local circulation by improving access, connectivity, and overall capacity for local roadway network in Tustin. It is acknowledged that extension of Newport Avenue would provide motorists a short-distance access to the Edinger Avenue on-ramp; however, this extension is not expected to provide noticeable benefit to the State Route 55 (SR-55) project because the Edinger Avenue on-ramp and the ramp terminal intersection are already at capacity under existing conditions.

L-1-4

The City of Tustin's preference for the full closure of the McFadden Avenue interchange is acknowledged. The full closure of the McFadden Avenue interchange was discussed throughout project development and was evaluated as part of the Value Analysis review of the Project. There are both advantages and disadvantages to the closure. The advantage of closing this interchange would be to improve operations along the mainline of the SR-55 freeway. The disadvantages of closing the interchange include the loss of local access and the local impacts to residences and businesses in both the Cities of Tustin and Santa Ana. Given the local community impacts, the interchange closure was not recommended to be brought forward into any of the Build Alternatives by the Value Analysis team. The City of Tustin also accurately states that vehicles would be able to access SR-55 via the Newport Avenue Extension. However, as noted above in Response to Comment L-1-3, the proposed Newport Avenue Extension Project is anticipated to improve local circulation and is not expected to provide noticeable benefit to the SR-55 project because the Edinger Avenue on-ramp and the ramp terminal intersection are already at capacity under existing conditions.

L-1-5

In order to maintain Caltrans design standards, 12 parking spots at this property would be removed. According to the Off-Street Parking Study prepared in March 2014, the Ricoh operations on APN 430-241-07 (referred to hereinafter as the "Ricoh site") have a parking

requirement of 582 spaces. The Ricoh site currently has 643 spaces, but would end up with 631 spaces upon completion of the project. This is 49 more parking spaces than required by code. Therefore, if meeting the City of Tustin's parking requirements were the only consideration for Ricoh when considering a possible facility expansion, APN 430-241-07 could accommodate up to 24,500 new square feet (sf) of manufacturing space or up to 49,000 new sf of warehouse space.

While meeting the City of Tustin's parking requirements is an important consideration, average parking occupancy, access, and circulation should also be considered. The Off-Street Parking Study noted an average parking occupancy rate of 93 percent (598 parking spaces) on the Ricoh site. Therefore, if 12 parking spaces were removed at the Ricoh site, Ricoh would still have, on average, approximately 33 unoccupied parking spaces available for use. This would allow for some additional expansion of uses on the Ricoh site, provided that the site would still be able to accommodate the parking demand associated with those new uses.

The development capacity of any property is constrained by development standards as well as parking, access, and circulation needs specific to the actual use that is proposed. As described above, the loss of parking on the Ricoh site alone does not appear to preclude an expansion of the facility; however, it may be possible that existing site conditions on the Ricoh site (e.g., building orientations and loading dock configurations) that are not related to the project currently represent constraints to the facility's expansion. Existing site conditions are outside of the control of OCTA and Caltrans and it is beyond the scope of the IS/EA to consider the remediation of existing site conditions on properties affected by the project to improve their capacity to accommodate future expansions.

On February 20, 2014, OCTA representatives met with Ricoh staff regarding the proposed project. The meeting included an overview of the project, a discussion regarding the Build Alternatives and Ricoh's concerns regarding the project, and a review of the project schedule. Coordination with the property owner would continue during final design of the selected alternative to further minimize property impact to the Ricoh property and explore relocation of the 12 parking spaces on the property.

L-1-6

Section 2.1, Land Use, and Section 2.3, Community Impacts, of the IS/EA describes the potential environmental effects of the project's temporary construction easements (TCEs). As described in the IS/EA, the project would result in less than significant environmental effects related to TCEs. Caltrans and OCTA have been in contact with the property owners and have provided information regarding the project and, during the public review period for the IS/EA, affected property owners were provided the opportunity to comment on the project. During final design, Caltrans will continue to coordinate with all property owners affected by a TCE with the intent to limit the area needed for any TCE, to the extent feasible.

L-1-7

The City of Tustin's preference to move the proposed detour route, associated with the closure of the SR-55/Edinger Avenue ramps during construction, from Sycamore Avenue to the Red Hill Avenue/I-5 interchange is acknowledged. After further evaluation, Walnut Avenue appears to be an appropriate alternative to Sycamore as a detour during any closure of the Edinger Avenue/SR-55 ramps has been chosen for the following reasons: (1) the Edinger Avenue/SR-55 ramp closures would last less than 10 days, (2) the McFadden Avenue interchange is the next interchange to the north of the proposed closure and would be the shortest redirection of traffic to the SR-55, (3) the Edinger Avenue/SR-55 ramp closures are expected during off-peak hours and weekends when the background traffic on Sycamore Avenue would be lower, and (4) Walnut Avenue provides additional detour volume capacity as a four lane arterial versus Sycamore Avenue. A Transportation Management Plan (TMP) will be prepared during final design that further refines construction activities and detouring. Development of the TMP will be coordinated with the City of Tustin regarding any closures and/or detours.

L-1-8

As discussed in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA, and specified in measure T-1, a TMP will be developed during final design and will be implemented during construction of the proposed project. The purpose of the TMP is to address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers. Public outreach efforts during final design will include coordination with the City of Tustin to inform staff of traffic detour plans and traffic management plans.

L-1-9

It is acknowledged that the City of Tustin-owned parcel south of the Edinger Avenue/I-5 on- and off-ramps may not be available for staging by the time the project goes to construction.

L-1-10

Potential staging areas were disclosed in the IS/EA. Potential short-term traffic impacts of the use of these staging areas during construction were evaluated. Ongoing consultation with the City of Tustin on the TMP, including staging areas, will be conducted during final design and construction.

L-1-11

Caltrans and OCTA carried out an extensive program of community outreach to encourage citizen and local agency participation to notify them of the availability of the IS/EA and the public meeting held on December 10, 2015. As described in Chapter 3.0, Comments and Coordination, of the IS/EA, public notice for this project included notification by mail (i.e., distribution to all property owners/occupants within a 0.25-mile zone of the project area) and via legal advertisements in English- and Spanish-language media; public outreach to community groups, businesses, and cities adjacent to the project area; email alerts to individuals and community groups; and news alerts to various English-, Spanish-, and Asian-language local media. In addition, an outreach consultant has been procured to develop and implement a thorough public communications plan as the project advances through final design and the construction phase. In addition, during the public circulation period, the Notice of Availability of the IS/EA and a copy of the IS/EA was sent to the Superintendent of the Tustin Unified School District.

L-1-12
The cited text on page 2.14-5 was revised in the IS/EA to reflect the completion of the two hotels.

L-1-13
OCTA and Caltrans have coordinated closely with the Cities of Irvine, Tustin, and Santa Ana throughout the preparation of the environmental documents for the project. On at least two occasions, OCTA and Caltrans circulated the list of planned projects included in Table 2.19.1 in the IS/EA with the affected cities for review and comment. The most recent updates to the planned projects list provided by the affected cities, including the City of Tustin, in September 2015, were incorporated into the Community Impact Assessment (CIA) prepared for the project prior to its finalization in November 2015. Therefore, the list of planned projects included in Table 2.19.1 of the IS/EA reflects a current list of reasonably foreseeable projects in the vicinity of the proposed SR-55 improvements as of September 2015. Table 2.19.1 already includes a line item for the overall Tustin Legacy project and included in the assessment the project's cumulative impacts. Further, neither of the projects noted in this comment are in the immediate vicinity of the proposed project. Therefore, further evaluation of these projects individually would not affect any of the impact conclusions in the document. No changes were made to the IS/EA in response to this comment.

L-1-14
Noise impacts were analyzed consistent with the Caltrans Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (Protocol, May 2011). The Caltrans Traffic Noise Analysis Protocol addresses evaluation of noise impacts pursuant to CEQA. The Protocol states, "The significance of noise impacts under CEQA is determined by the Project Development Team based on the project-related increase in noise and other project-specific conditions. No single numerical threshold is used on all projects. In the past, Caltrans definition for a substantial increase in noise (defined in the Protocol as a 12 dB increase between existing and design-year with-project conditions) has been used." For this project, it was considered whether or not the noise increase attributable to the project would be substantial. As presented in Appendix A, CEQA Checklist, of the IS/EA, noise level increases at the residences for which noise abatement in the form of noise barriers is not being considered would range from 0.1 to 2.5 dBA, which is not considered perceptible to the human ear. Therefore, noise impacts to these multifamily residences would be less than significant and no mitigation is required.

Caltrans also considers abatement to reduce noise at receptors which may experience noise impacts that exceed the appropriate Noise Abatement Criteria (NAC). The process in which Caltrans determines noise impacts and the feasibility and reasonableness of noise abatement in the form of sound barriers pursuant to the requirements of 23 CFR 772 are as follows:

1. Future noise levels are modeled at all noise-sensitive receptors with human frequent use areas with the exception of those uses that fall under NAC Category D. A full description of the uses and their associated NAC Categories is provided in Table 2.14.1 in the IS/EA.
2. For all receptors that are impacted, noise abatement is considered following the procedures outlined in the Protocol, including the feasibility requirement of a 5 dB reduction at one or more benefited receptors, the reasonableness requirements of a 7 dB reduction at one or more benefited receptors, a cost-benefit analysis, and viewpoints

of benefited receptors (including property owners and residents of the benefited receptors)

3. The cost-benefit analysis gives the option for a barrier on private-property to be constructed with donation of a permanent easement should that cost reduction make the barrier cost effective.

Once the above process is completed, where feasible and reasonable, noise abatement is recommended. For all locations where abatement is either not feasible or not reasonable, noise abatement is not further considered. This process satisfies the requirement under 23 CFR 772 for analyzing noise impacts to sensitive receptors. As discussed in Section 2.14 of the IS/EA, noise abatement was considered but found to be not reasonable at the multifamily residences on the southeast quadrant of the SR-55/I-5 interchange.

L-1-15

Refer to Response to Comment L-1-14. Because the exterior noise increase at the residences where noise abatement is not being considered would not be perceptible, the increase in interior noise levels would also be considered less than perceptible. Two sensitive receptors (R-43 and R-139), categorized as residential were also evaluated for interior noise impacts. At these locations, interior noise dBA readings did not approach or exceed the NAC.

L-1-16

As described above in Response to Comments L-1-14 and L-1-15, the noise increase at the residences where noise abatement is not being considered would not be significant under CEQA; therefore, noise mitigation is not required. In addition, Caltrans considers abatement to reduce noise at receptors which may experience noise impacts that exceed the appropriate NAC. The only form of abatement that Caltrans considers is the construction of noise barriers, unless special conditions occur such that noise barriers are not possible to construct. Noise barriers were analyzed at all areas where noise-sensitive receptors are present. Noise abatement in the form of barriers was recommended at locations in which the feasible and reasonable criteria were met; for all other locations, noise abatement was no longer considered for construction. Noise abatement was considered but found to be not reasonable at the multifamily residences on the southeast quadrant of the SR-55/I-5 interchange.

L-1-17

The City of Tustin's concern about included unfunded projects in the 2040 baseline condition is acknowledged. The decision to incorporate the "preferred plan" in the 2010 LRTP in the 2040 baseline conditions for the SR-55 project was discussed and concurred by the Project Development Team, which includes Caltrans, OCTA, and the Cities of Irvine, Santa Ana, and Tustin. Those future projects are anticipated to be completed by 2040, according to the 2010 LRTP, and represent realistic improvements that would be constructed within this timeframe.

L-1-18

The traffic study evaluated a variety of roadway facilities to provide a complete picture of operational conditions on both freeway and local circulation, which included freeway mainline, on- and off-ramps, ramp terminal intersections, and local intersections. The northbound SR-55 ramps/Newport Avenue/Del Amo Avenue is one of the study intersections.

L-1-19

Although the specific delay per vehicle value is not shown in the summary table in the Traffic Operations Report, the detailed level of service (LOS) calculation sheets are included in the technical appendix to the Traffic Operations Report, which has all the delay values by movement, approach, and entire intersection as a whole. The design year 2040 peak-hour delay and LOS at the northbound SR-55 ramps/Newport Avenue/Del Amo Avenue intersection is shown in the table below. This intersection would operate at LOS C during the a.m. peak hour regardless of alternatives. During the p.m. peak hour, Alternative 2 shows a higher delay than the No Build Alternative given that more northbound SR-55 traffic would be able to travel downstream to the McFadden Avenue/I-5 area with the additional general purpose lane; however, the limited capacity on the northbound SR-55 mainline at McFadden Avenue would not be able to accommodate all the demand and would result in queue spillback to the Newport Avenue ramp intersection. Alternatives 1, 3, and 4 would expect reduced delay and improved operations at this intersection compared to the No Build Alternative. Therefore, no impacts would be anticipated at this intersection under Alternatives 1, 3, and 4.

Northbound SR-55 Ramps/Newport Avenue/Del Amo Avenue Intersection

Delay (seconds/vehicle) and LOS, Design Year 2040 Conditions

Peak Hour	No Build	Alternative 1	Alternative 2	Alternative 3	Alternative 4
AM Peak	24/C	24/C	24/C	26/C	26/C
PM Peak	243/F	224/F	302/F	231/F	223/F

LOS = level(s) of service

L-1-20

The intersection of the northbound SR-55 Ramps/Newport Avenue/Del Amo Avenue is experiencing congestion and queuing during the p.m. peak hour under existing conditions. The main cause of congestion at this location is due to vehicle queue spillback from the freeway mainline. Therefore, one of the key strategies to relieve congestion at this intersection is to address freeway mainline congestion on northbound SR-55, especially in the p.m. peak hour.

The table above (in response to L-1-19) shows this intersection would anticipate reduced delay and improved conditions during the p.m. peak hour in design year 2040 under Alternatives 1, 3, and 4 compared to the No Build Alternative. In addition, Alternatives 1, 3, and 4 show reduced queue at the on-ramp compared to the No Build Alternative during the p.m. peak hour in design year 2040.

L-1-21

The Newport Avenue Extension is identified in the 2010 LRTP “preferred plan” as part of another project of “completion of the MPAH Regional Capacity Program” and is included in the 2040 baseline conditions for the traffic analysis conducted for the proposed project.

The proposed Newport Avenue Extension Project is anticipated to improve local circulation by improving access, connectivity, and overall capacity for the local roadway network in the City of Tustin. It is acknowledged that extension of Newport Avenue would provide motorists a short-distance access to the Edinger Avenue on-ramp; however, this extension is not expected to provide noticeable benefit to the SR-55 project because the Edinger

Avenue on-ramp and the ramp terminal intersection are already at capacity under existing conditions.

L-1-22

The local intersection analysis results are included in Tables 2.5.11 and 2.5.18 of the IS/EA under 2020 and 2040 conditions for the No Build Alternative, Alternative 3, and Alternative 4, which show the average delay and LOS for all the local intersections. Based on the delay results and traffic significance impact criteria discussed and concurred with the City of Tustin, it was determined that the two intersections of Newport Avenue/southbound I-5 Ramps/Nisson Road and Red Hill Avenue/southbound I-5 Ramps would not be potentially significantly impacted and would not require mitigation. Although the effects at these two locations were not determined potentially significant (thus requiring mitigation), the measure was identified for the two intersections to acknowledge and minimize the effect of diverted traffic to the two intersections due to the McFadden Avenue design variation proposed under Alternatives 3 and 4.

L-1-23

The proposed undergrounding of the 66 kilovolt (kV) transmission lines in the Cities of Santa Ana and Irvine are due to longitudinal encroachments within the State right-of-way that currently exists. Longitudinal encroachments of utilities within the State right-of-way are generally not allowed, due to maintenance and other restrictions. As a result, all the existing overhead facilities with existing longitudinal encroachments may have to be relocated and/or undergrounded. There is no longitudinal encroachment of this facility bordering the City of Tustin. A 66kV overhead transmission lines currently exists in the City of Tustin along the Ricoh property.

The final disposition of the electrical lines will be determined during the preparation of plans, specifications, and estimates (PS&E) for the selected alterative. Coordination will be conducted with Southern California Edison and the City of Irvine regarding relocation of the overhead line.

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L-2

Community Development
cityofirvine.org
City of Irvine, One Civic Center Plaza, P.O. Box 19575, Irvine, California 92623-9575
(949) 724-6000

December 28, 2015

Mr. Charles Baker
Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

Subject: INITIAL STUDY/ ENVIRONMENTAL ASSESSMENT/MITIGATED NEGATIVE DECLARATION FOR CALTRANS SR-55 IMPROVEMENT ALTERNATIVES FROM THE I-405 TO I-5 FREEWAY, DATED NOVEMBER 25, 2015

Dear Mr. Baker:

Thank you for the opportunity to review and comment on the above-referenced document, which evaluates four alternative improvements to the SR-55 freeway. The City of Irvine offers the following comments:

General Comment:

1. Once an alternative has been selected, please submit a full traffic study for City review. L-2-1

Specific Comments:

2. Chapter 1, Page 1-39, Table 1.9. Provided information in Table 1.9 regarding the plans for the 66 kV transmission lines located between McGaw and Alton. Table 1.9 indicates that the overhead 66 kV electric transmission line would be relocated along the north and south sides of MacArthur Blvd on the east side of SR-55. The City of Irvine is not in support of relocating overhead power lines within the City roadway right of way. The City requests undergrounding these transmission lines throughout the city limits. L-2-2

3. Chapter 1, Page 1-41. The Renewed Measure M Ordinance states: Freeway projects will be planned, designed and constructed using a flexible community-responsive and collaborative approach to balance aesthetic, historic and environmental values with transportation safety, mobility maintenance and L-2-3

performance goals. Context Sensitive Design features include: parkway style designs, environmentally friendly, locally native landscaping; sound reduction; improved wildlife passage and aesthetic treatments, designs and themes that are in harmony with the surrounding communities. In order to meet the intent of the Ordinance, the City requests that landscape be replaced on more than an in-kind basis. The City proposes that Caltrans work with local agencies during the next phase of work to achieve concurrence on a landscape plan that meets the goals of the Renewed Measure M Ordinance. L-2-3

4. Chapter 2, Page 2.3-12, Environmental Consequences, Temporary Impacts. This section indicates that since overnight road closures will be short term in nature and would occur during off-peak hours that there would be minimal impacts to businesses. Please consider that there are many industrial uses within the project area which might have deliveries during these off-peak hours that should be considered. L-2-4

5. Chapter 2, Page 2.3-16, Environmental Consequences, Temporary Impacts. Driveway access to local businesses will need to be maintained at all times during construction. Additionally, on-site circulation and parking at local businesses must be maintained at an adequate level for those properties impacted by temporary construction easements. The City is not in support of any right-of-way impacts that will negatively impact local property owners. L-2-5

If you have any questions, please contact me at (949) 724- 6521, or by email at bjacobs@ci.irvine.ca.us.

Sincerely,

Bill Jacobs, AICP-CEP
Principal Planner

cc: Barry Curtis, Manager of Planning Services
Katie Berg-Curtis, Project Development Administrator
Kerwin Lau, Project Development Administrator
Sun-Sun T. Murillo, Supervising Transportation Analyst

L-2: City of Irvine

L-2-1

The Traffic Operations Report for the proposed project has previously been provided to the City of Irvine. The draft Traffic Operation Report was provided to the City of Irvine for review and comment prior to public circulation of the IS/EA in September 2015. The Traffic Operations Report was revised based on the City of Irvine's input prior to public circulation. The final Traffic Operations Report was also provided to the City of Irvine in October 2015, prior to public circulation. The final Traffic Operations Report was made available to the public, including the City of Irvine, during public review of the IS/EA, which started on November 25, 2015. At the start of the public review period, the Traffic Operations Report was mailed on CD to the City of Irvine, as documented in Chapter 5.0, Distribution List, of the IS/EA. In addition, the traffic reports for the project are available on the Caltrans website at http://dot.ca.gov/dist12/DEA/SR55IMPROV/. The Traffic Operations Report includes analysis of traffic impacts for all Build Alternatives, including Alternative 3M, which was selected as the Preferred Alternative by the Project Development Team (PDT) on May 10, 2017. Selection of a Preferred Alternative does not affect the analysis of traffic impacts in the final Traffic Operations Report. Finally, the final Traffic Operations Report, which the City of Irvine has previously been provided, will not be revised based on selection of the Preferred Alternative. The City of Irvine will be provided a copy of the Initial Study with Mitigated Negative Declaration/Finding of No Significant Impact (MND/FONSI).

L-2-2

The City of Irvine's understanding of the relocation of the electrical line is correct with the clarification that this line would be undergrounded from Cowan to just north of the Fitch and MacArthur Boulevard intersection. Longitudinal encroachment of utilities is not allowed within the State right-of-way; as a result, the utilities in conflict are anticipated to be undergrounded. Therefore, the existing 66kV overhead lines, noted in the comment, are proposed to be undergrounded at Cowan and would remain underground along Cowan to Fitch. At the intersection of Fitch and MacArthur Boulevard, the underground 66kV line would be transferred to a pole at the north side of MacArthur Boulevard.

This overhead electrical line is proposed to run parallel to northbound MacArthur Boulevard and join an existing overhead line at Pullman Street. This segment of the 66kV line cannot be undergrounded due to conflicts with the existing Orange County Flood Control District storm drain channel adjacent to MacArthur Boulevard, which crosses at the proximity of the MacArthur Boulevard on-ramp to northbound SR-55. The existing poles for this overhead line are currently within City of Irvine right-of-way and would be relocated within City of Irvine right-of-way.

Final disposition of the electrical lines will be determined during preparation of PS&E for the selected alterative. Coordination will be conducted with Southern California Edison and the City of Irvine regarding relocation of the overhead line.

L-2-3

As discussed in Section 2.6, Visual Aesthetics of the IS/EA, a Landscape Plan will be prepared during final design to address landscape treatment within the project area (Measure VIS-2). Caltrans will work with local agencies during the final design to achieve concurrence on a landscape plan that meets the goals of the Renewed Measure M. Measure VIS-2 was revised in the IS/EA to reflect the commitment of coordinating with the cities on the landscape plan.

L-2-4

Section 2.1.4.1 in the IS/EA was revised to clarify that overnight deliveries to and from businesses, including industrial uses, in the vicinity of the project area would be accommodated with minimal delays because direct driveway access to all nearby businesses would be maintained at all times and detours would be available during closures. As discussed in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA, and specified in measure T-1, a TMP will be developed during final design and implemented during construction of the proposed project. The purpose of the TMP is to address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers. Public outreach efforts during final design will include coordination with the businesses and the City of Irvine to inform them of any traffic detours.

L-2-5

Section 2.1.4.1 in the IS/EA was revised to clarify that direct driveway access to private properties, including local businesses, would be maintained at all times. Section 2.1.4.1 already notes that parking stalls would remain available on parcels affected by TCEs. Owners of parcels where parking reconfigurations would be required would receive compensation for the temporary use of a portion of their property, which would further minimize the impacts related to the use of property for TCEs. As discussed in Response to Comment L-2-4 above, a TMP will be implemented and the businesses and the City of Irvine will be informed of any traffic detours.

IRVINE RANCH WATER DISTRICT 15600 Sand Canyon Ave., P.O. Box 57000, Irvine, CA 92619-7000 (949) 453-5300

January 6, 2016

Charles Baker
Senior Environmental Planner
CA Department of Transportation, District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

Re: Notice of Intent/Mitigated Negative Declaration for State Route (SR-55) Improvement Project Between Interstate 405 and Interstate 5

Dear Mr. Baker:

Irvine Ranch Water District (IRWD) has received and reviewed the Notice of Intent/Draft Mitigated Negative Declaration (NOI/MND) for the SR-55 Improvement Project, and offers the following comments.

The SR-55 Improvement Project proposes to widen SR-55 in both directions between Interstate 405 and Interstate 5. The proposed alternatives for the SR-55 Improvement Project will potentially conflict with several existing IRWD facilities and easements. The existing IRWD facilities include a 54-inch domestic water pipeline, located in Dyer Road; sewer and potable facilities, located between Interstate 405 and MacArthur Boulevard; and sewer and potable facilities, located on Pullman Street, between MacArthur Boulevard and Duryea Avenue. In addition to the existing facilities, there are also existing IRWD easements for two future domestic water well sites, located at Pullman Street/Dalmer Street and Pullman Street/Duryea Avenue.

IRWD has prepared and attached for your use the following exhibits that illustrate the locations of the existing IRWD facilities and easements, which will be affected by the proposed project: L-3-1

- Exhibits 1A and 1B – Dyer Road Well Field Pipeline
- Exhibits 2A and 2B – Existing Sewer (green) and Potable (blue) facilities between I-405 and MacArthur Boulevard
- Exhibits 3A – Existing Sewer (green) and Potable (blue) facilities located on Pullman Street, between MacArthur Boulevard and Dureya Avenue
- Exhibit 3B – Easement for future domestic well site (Well 51), located on Pullman Street and Dalmer Street, and Easement for future domestic well site (Well 52), located on Pullman Street and Dureya Avenue

Prior to project approval, Caltrans will need to study the aforementioned IRWD facilities and easements. Caltrans is requested to coordinate with IRWD so that these affected IRWD facilities and easements are protected and if appropriate, relocated. Please contact Eric Akiyoshi in the Engineering and Water Quality Department at (949) 453-5552 to discuss these facility concerns. L-3-2

IRWD appreciates the opportunity to review and comment on the NOI/MND. Should you have any questions or require additional information, please call Jo Ann Corey, Engineering Technician III at (949) 453-5326.

Sincerely,

Fiona M. Sanchez
Director of Water Resources

Attachments – Exhibits 1A-3A

cc: Eric Akiyoshi, IRWD
Jo Ann Corey, IRWD

EXHIBIT 1A

Hotel Terrace Dr
Birtcher Dr
8A
E Dver Rd
E Dver Rd
55
Tech Center Dr
Pullman St
8
E Garry Ave
Willis St
Blair Ave
Daimler St
E Deere Ave

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300 FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)
I:\HDR1102\GIS\SEA_Alt1_ROW_Impacts.mxd (11/20/2015)

FIGURE 2.3-2
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

EXHIBIT 2A

Murphy Ave
Sandpointe Ave
S Main St
Alder St
S Sycamore St
S Teakwood St
Keller Ave
S Timber St
W Steven's Ave
Sunflower Ave
55
7
6B
6A
MacArthur Blvd
Red Hill
Main St
Executive Circle
405
I-405 HOV Ln

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)
I:\HDR1102 GIS\ISEA_Alt1_ROW_Impacts.mxd (11/20/2015)

FIGURE 2.3-2
Sheet 1 of 5

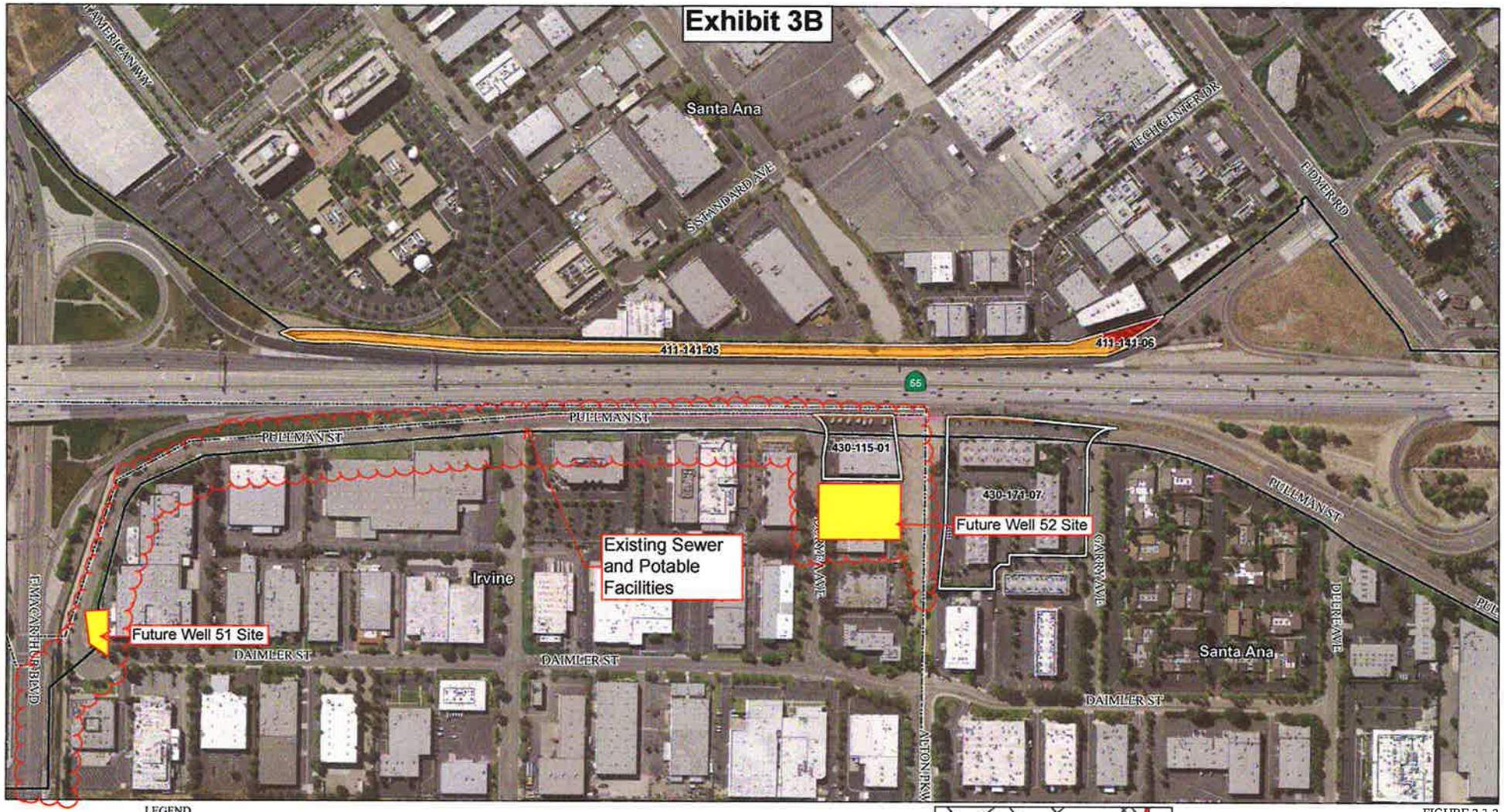
State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J3400

EXHIBIT 3A

Oak St
S Kilson Dr
Halladay St
E Alton Ave
S Standard Ave
8
E Garry Ave
Daimler St
55
E Alton Pkwy
7
CA-55 HOV Ln
Hutton Centre Dr
55
MacArthur Blvd
MacArthur



SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)

I:\HDR1102\GIS\ISEA_Alt1_ROW_Impacts.mxd (11/20/2015)

FIGURE 2.3-2
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3

EA 0J3400

L-3: Irvine Ranch Water District

L-3-1

The Dyer Road Well Field Pipeline shown in Exhibits 1A and 1B of the comment letter is located inside the construction limits of the project; however, it would not be impacted by the proposed improvements and is proposed to be protected in place.

The sewer and potable facilities between Interstate 405 (I-405) and MacArthur Boulevard, shown in Exhibits 2A and 2B of the comment letter, are within the construction area for the proposed improvement. As detailed in Table 2.4.1 in Section 2.4, Utilities and Emergency Services, the sewer line would be relocated along Cowan Street on the east side of SR-55 between Main Street and MacArthur Boulevard. The water line is located inside the construction limits of the project; however, it would not be impacted by the proposed improvements and is proposed to be protected in place.

The existing sewer and potable facilities located along Pullman Street between MacArthur Boulevard and Duryea Avenue shown on Exhibit 3A of the comment letter are located inside the construction limits of the project; however, the facilities would not be impacted by the proposed improvements and are proposed to be protected in place.

The easements for the future domestic well site (i.e., Well 51) on Pullman Street and Daimler Street and the future domestic well site (i.e., Well 52) on Pullman Street and Duryea Avenue shown on Exhibit 3B are outside the construction limits of the project and would not be impacted by the proposed improvements.

L-3-2

As discussed in Response to Comment L-3-1, impacts to Irvine Ranch Water District (IRWD) facilities in the project area were considered in the analysis of environmental impacts for the proposed project. One IRWD sewer line is anticipated to require relocation as described in Response to Comment L-3-1, above. As discussed in Measure UES-1 in Section 2.4, Utilities and Emergency Services, relocations of IRWD facilities would be coordinated with IRWD during final design.

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DIRECTORS
PHILIP L. ANTHONY
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SHAWN DEWANE
JAN M. FLORY
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ROGER C. YOH, P.E.

SINCE 1933

ORANGE COUNTY WATER DISTRICT

ORANGE COUNTY'S GROUNDWATER AUTHORITY

L-4

OFFICERS
President
CATHY GREEN

First Vice President
DENIS R. BILODEAU, P.E.

Second Vice President
PHILIP L. ANTHONY

General Manager
MICHAEL R. MARKUS, P.E., D.WRE

January 6, 2016

Mr. Charles Baker
Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive Suite 100
Irvine, CA 92612-1692

Dear Mr. Baker:

Subject: ***Notice of Intent to Adopt a Mitigated Negative Declaration/Notice of Availability of an Environmental Assessment for State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate r (I-5)***

The Orange County Water District (OCWD) appreciates the opportunity to review and comment on the State Route 55 Improvement Project. OCWD was established by the State of California in 1933 to manage the Orange County Groundwater Basin. Water produced from the basin is the primary water supply for approximately 2.4 million residents in Orange County.

L-4-1

The proposed project involves widening of SR-55 in both directions from just north of I-405/SR-55 interchange to just south of I-5/SR-55 Interchange. Four OCWD monitoring wells may be located within the project area. The location of these wells is shown on the attached map. The coordinates of these wells are as follows:

L-4-2

Well Name	X-Coordinate	Y-Coordinate
SAM-3	6074219.9	2207608.9
SAM-4	6072905.5	2206698.6
SAM-5	6072894.0	2205886.2
SAM-6	6075457.3	2205983.5

Please consider the location of these wells in any planning and construction activities related to this project. If you have any questions regarding these comments, please contact Greg Woodside, Executive Director of Planning and Natural Resources at 714-378-3275 (gwoodside@ocwd.com). L-4-3

Sincerely,

Michael R. Markus, P.E., D.WRE, BCEE, F.ASCE
General Manager

Attachment: Map of OCWD Facilities

SAM-1
SAM-2
SAM-3
SAM-4
SAM-5
SAM-6
E ST GERTRUDE PL
ST GERTRUDE PL
ROUSSELLE ST
OAK ST
KILSON DR
E ANAHURST PL
HICKORY ST
HALLADAY ST
CEDAR ST
EVERGREEN ST
STANDARD AVE
S SANTA FE ST
S HATHAWAY ST
S HATHAWAY ST
WARNER AVE
GRAND AVE
WRIGHT ST
LYON ST
NEWPORT CIR
RITCHEY ST
E FLORA ST
E CENTRAL AVE
E ADAMS ST
BROOKHOLLOW DR
N BROOKHOLLOW DR
S BROOKHOLLOW DR
55
EMMETT ST
GOETZ AVE
YOUNG ST
HOTEL TERRACE DR
PULLMAN ST
DAIMLER ST
CARNEGIE AVE
E DYER RD
BIRTCHER DR
DYER RD
N
W
E
S
0
500
1,000
Feet
Monitoring Well
OCWD Wells in Project Area
Date Prepared: 01/04/2016
Path: I:\LSIGIS\marshat\WellsInProjectArea.mxd

L-4: Orange County Water District

L-4-1

This comment is introductory and does not raise issue with the adequacy of the IS/EA. The comment is acknowledged and noted for the record.

L-4-2

The four Orange County Water District (OCWD) monitoring wells shown in the comment letter exhibit are outside the construction limits of the project and would not be impacted by the proposed improvements.

L-4-3

The monitoring well locations were reviewed and considered in the analysis of project impacts in the IS/EA. As stated in Response to Comment L-4-2, the OCWD wells are not anticipated to be impacted by the project.

From: ASHABI, MINOO <MINOO.ASHABI@costamesaca.gov>
Sent: Wednesday, January 13, 2016 3:13 PM
To: D12 SR55 Improvement Project@DOT
Cc: ARMSTRONG, GARY; DESHMUKH, PRITAM
Subject: State Route 55 (I-405 to I-5) Improvement Project

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Dear Mr. Baker:

Thank you for the extending the public review period for this project.

The proposed freeway and lane closures associated with this project could have significant impacts to City of Costa Mesa. Please include this as the City's comment on the Draft Mitigated Negative Declaration (MND).

"The City of Costa Mesa requests that Caltrans provide advance notification of any freeway closures and traffic diversion that may affect traffic circulation within the City of Costa Mesa."

L-5-1

Sincerely,

Minoo Ashabi, AIA
Principal Planner
City of Costa Mesa
714/754-5610
minoo.ashabi@costamesaca.gov

L-5: City of Costa Mesa

L-5-1

As discussed in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA, and specified in measure T-1, a TMP will be developed during final design and implemented during construction of the proposed project. The purpose of the TMP is to address traffic delays; maintain traffic flow in the SR-55 corridor; manage detours and temporary road, lane, and ramp closures; provide ongoing information to the public regarding construction activities, closures, and detours; and maintain a safe environment for construction workers and travelers. Public outreach efforts during final design will include coordination with the City of Costa Mesa to inform them of any traffic detours.

OCTA

AFFILIATED AGENCIES

Orange County Transit District

Local Transportation Authority

Service Authority for Freeway Emergencies

Consolidated Transporation Service Agency

Congestion Management Agency

Service Authority for Abandoned Vehicles

January 21, 2016

Mr. Charles Baker
California Department of Transportation, District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612

Re: Comments on the Proposed Mitigated Negative Declaration and Initial Study/ Environmental Assessment for the State Route 55 Improvement Project Between Interstate 405 and Interstate 5

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Proposed Mitigated Negative Declaration and Initial Study/Environmental Assessment (IS/EA) for the State Route 55 (SR-55) widening between Interstate 405 (I-405) and Interstate 5 (I-5) (Project).

The Project is part of a larger suite of transportation improvements included in Orange County's 30-year local transportation sales tax Measure M2 (M2) Plan. The M2 Plan was publicly reviewed through a Program Environmental Impact Report (PEIR) prior to Orange County voters overwhelmingly approving the M2 ballot measure in November 2006. The proposed Project is in the Southern California Association of Governments' (SCAG) financially constrained 2012-2035 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS), which was found to be conforming by the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA) on June 4, 2012. The Project is also in the 2015 Federal Transportation Improvement Program (FTIP) which was found to be conforming by FHWA/FTA on December 15, 2014. The Project description in these plans is noted as "add one mixed-flow lane in each direction and fix choke points from I-405 to I-5; add 1 aux lane in each direction between select on-/off-ramps through project limits." This description is consistent with Project Alternative 3 and is also consistent with how the Project is characterized in the Orange County Transportation Authority (OCTA) Long-Range Transportation Plan (LRTP), as well as OCTA's formal input to SCAG as part of the 2016 RTP. OCTA is committed to funding and delivering the Project as generally defined in these plans. OCTA will only consider additional improvements beyond those defined in these plans if new state or federal funding sources become available and are sufficient to implement such improvements. L-6-1

The addition of a second continuous SR-55 high-occupancy vehicle (HOV) lane between I-405 and I-5 is inconsistent with the LRTP, existing RTP/SCS, and FTIP, and it should be made clear that inclusion of features or improvement in the Project draft IS/EA do not constitute a commitment to fund and/or implement improvements other than those defined in the various plans. Additional improvements such as additional HOV lanes in this segment will require funding from sources other than OCTA. L-6-2

When comparing and considering Project alternatives for selection, the draft IS/EA shows that from a system-wide operational performance perspective, Alternative 3 would result in the most operational benefits by serving the most people traveling through the corridor with the least delay during the PM peak period under both 2020 and 2040 conditions. When combining the AM and PM peak periods, Alternative 3 serves the most people with the most benefit among the four project alternatives under both 2020 and 2040 conditions. L-6-3

OCTA appreciates the California Department of Transportation's continued partnership on the development and implementation of the Project and looks forward to a timely completion of the environmental phase. L-6-4

Sincerely,

Jim Beil, P.E.
Executive Director, Capital Programs

c: Darrell Johnson, OCTA
Kia Mortazavi, OCTA
Rose Casey, OCTA

L-6: Orange County Transportation Authority

L-6-1

Caltrans thanks OCTA for its comments and partnership in the development and implementation of the SR-55 Improvement Project. OCTA's commitment to funding and delivering the project as defined in Measure M2 and as listed in SCAG's RTP/SCS and the FTIP is acknowledged and considered in identifying the Preferred Alternative for the proposed project. Proposed Alternatives 1, 2, and 3 are consistent with Measure M2 and the regional plans. Alternative 4 has elements (the additional HOV lane) that are considered additional improvements and are inconsistent with those defined in Measure M2, the RTP/SCS, and the FTIP. It is noted for the record that OCTA will only consider additional improvements beyond those defined in Measure M2 and the regional plans if new funding sources or mechanisms become available.

L-6-2

It is acknowledged that the addition of a second continuous SR-55 HOV lane between I-405 and I-5, is inconsistent with the noted regional plans and program. Amendments to the RTP and FTIP will be required for the Preferred Alternative (Alternative 3M). It is acknowledged that OCTA is not committed to funding improvements that are inconsistent with OCTA's LRTP, RTP/SCS, FTIP, and Measure M2 Program. It is noted for the record that OCTA will only consider additional improvements beyond those defined in the LRTP, RTP/SCS, and FTIP as new funding becomes available. OCTA's position is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

L-6-3

Four Build Alternatives were developed to maximize operational benefits within the available footprints. It is acknowledged that Alternative 3 would provide the most operational benefits when combining the a.m. and p.m. peak periods. OCTA's support of Alternative 3 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

L-6-4

Caltrans thanks OCTA for its comments and partnership in the development and implementation of the SR-55 Improvement Project.

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MAYOR
Miguel A. Pulido
MAYOR PRO TEM
Vincent F. Sarmiento
COUNCILMEMBERS
Angelica Amezcua
P. David Benavides
Michele Martinez
Roman Reyna
Sal Tinajero

CITY MANAGER
David Cavazos
CITY ATTORNEY
Sonia R. Carvalho
CLERK OF THE COUNCIL
Maria D. Huizar

L-7

CITY OF SANTA ANA

PUBLIC WORKS AGENCY

20 Civic Center Plaza M-36 • P.O. Box 1988 M-36
Santa Ana, California 92702
www.santa-ana.org

January 21, 2016

Mr. Charles Baker
California Department of Transportation
District 12
3347 Michelson Drive, Suite 101
Irvine, CA 92612

Subject: Comments on SR-55 Widening Environmental Impact Report

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Environmental Assessment Study for the SR-55 Improvement Project Between I-405 and I-5. The City of Santa Ana has reviewed the documents and offers the following comments:

- The City requests that all utility relocation to the public right-of-way within the City limits to be undergrounded, not just certain portions. L-7-1
- The discussion about aesthetic values in Chapter 2 shall include enhancements to the visual quality of the project. L-7-2

Please continue to keep the City informed of this project. If you have any question, please do not hesitate to contact me at (714) 647-5632

Sincerely,

Kenny Nguyen
Senior Civil Engineer

SANTA ANA CITY COUNCIL

Miguel A. Pulido, Mayor, MPulido@santa-ana.org | Vincent F. Sarmiento, Mayor Pro Tem, Ward 1, VSarmiento@santa-ana.org | Michele Martinez, Ward 2, MMartinez@santa-ana.org | Angelica Amezcua, Ward 3, AAmezcua@santa-ana.org | P. David Benavides, Ward 4, DBenavides@santa-ana.org | Roman Reyna, Ward 5, RReyna@santa-ana.org | Sal Tinajero, Ward 6, STinajero@santa-ana.org

L-7: City of Santa Ana

L-7-1

The City of Santa Ana's request to underground all the utilities within the city limits is acknowledged. The proposed undergrounding of the 66kV transmission lines in the Cities of Santa Ana and Irvine are due to longitudinal encroachments that currently exist within the State right-of-way. Longitudinal encroachments of utilities within the State right-of-way are not allowed, due to maintenance and other restrictions. As a result, all the existing overhead facilities with existing longitudinal encroachments may have to be relocated and/or undergrounded unless Caltrans approves maintenance of the aboveground condition and allows an exception for the longitudinal encroachment.

L-7-2

As discussed in Measure VIS-1 in Section 2.6, Visual Aesthetics of the IS/EA, architectural treatments and features will be included in the final project design to minimize the loss of, and improve the visual quality of, SR-55 within the project area.

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

R-1

SENT VIA E-MAIL AND USPS:
D12SR55improvementproject@adot.ca.gov

January 6, 2016

Mr. Charles Baker
California Department of Transportation - District 12
3347 Michelson Dr., Suite 100
Irvine, CA 92612-1692

Mitigated Negative Declaration (MND) for the State Route 55 (SR-55) Improvement Project Between Interstate 405 (I-405) and Interstate 5 (I-5)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the lead agency and should be incorporated into the Final MND. The lead agency proposes to widen SR-55 in both directions from the I-405/SR-55 interchange to the I-5/SR-55 interchange.

The proposed project is adjacent to sensitive land uses[1] (i.e., residential dwellings north, south, east, and west of the project site); however, the MND did not evaluate potential localized air quality impacts that could result from the proposed project. These potential air quality impacts should be assessed using SCAQMD's Localized Significance Methodology in the Final MND. R-1-1

Additionally, the widening of SR-55 will bring traffic lanes closer to the adjacent sensitive land uses. SR-55 has an average daily traffic volume of 261,600 vehicles, which includes more than 6,000 diesel trucks. Because of the close proximity to the freeway widening, residents would be exposed to diesel particulate matter, which is a toxic air contaminant. The SCAQMD staff therefore recommends that the lead agency conduct a mobile source health risk assessment (HRA)[2] to disclose the potential health risks to the residents from vehicles that use the freeway including diesel-fueled vehicles that emit diesel particulate matter, which the California Air Resources Board (CARB) has determined to be carcinogenic. R-1-2

The lead agency states that construction-related daily emissions would not exceed the regional SCAQMD thresholds from criteria pollutants during any individual construction phase. However, the air quality impacts from construction are underestimated because the air quality analysis does not account for overlapping construction phases. Table 2.13.4 – Peak Day Construction Emissions only summarizes the emissions by construction phases. SCAQMD staff recommends revising the air quality analysis to account for overlapping construction phases, if applicable, and comparing the peak impacts to SCAQMD's CEQA significance thresholds for construction. R-1-3

In the event that overlapping construction phases exceed SCAQMD thresholds, SCAQMD staff recommends that the lead agency require mitigation to minimize these impacts to a less than significant level. Additional details are included in the attachment. R-1-4

[1] California Air Resources Board. April 2005. "Air Quality and Land Use Handbook: A Community Health Perspective." Accessed at: http://www.arb.ca.gov/ch/landuse.htm

[2] "Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis" Accessed at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis

The SCAQMD staff is available to work with the lead agency to address these concerns and any other air quality questions that may arise. Please contact Jack Cheng, Air Quality Specialist at (909) 396-2448, if you have any questions regarding these comments. We look forward to reviewing and providing comments for the Final MND associated with this project.

Sincerely,

Jillian Wong

Jillian Wong, Ph.D.
Program Supervisor
Planning, Rule Development & Area Sources

JW:JC
ORC-151202-01
Control Number
Attachment

Attachment

Recommended Construction Mitigation Measures for Reducing NOx emissions

- All off-road diesel-powered construction equipment greater than 50 hp shall meet the Tier 4 emission standards. In addition, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations.

- Alternatively, the Lead Agency could rely on the Green Construction Policy[3] used by LA County Metro or the ports of Los Angeles/Long Beach. These policies include provisions to 'step down' from Tier 4 equipment to Tier 3 or Tier 2 if specified criteria are met.

- Require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export) and if the lead agency determines that 2010 model year or newer diesel trucks cannot be obtained, the lead agency shall use trucks that meet EPA 2007 model year NOx emissions requirements.

- A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit shall be provided at the time of mobilization of each applicable unit of equipment.

- Require the use of electricity from power poles rather than temporary diesel or gasoline power generators.

- Provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow.

- Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

- Avoid siting staging areas near sensitive receptor areas.

- Reroute construction trucks away from congested streets or sensitive receptor areas.

- Improve traffic flow by signal synchronization.

Additional Construction Mitigation Measures for Reducing PM Emissions

The lead agency should identify and incorporate additional mitigation measures to further reduce PM10 and PM2.5 emissions from construction related activities. Please see SCAQMD Rule 403[4] – Tables 1, 2, and 3 for additional control PM control measures.

For additional measures to reduce off-road construction equipment, refer to the mitigation measure tables located at the following website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies.

[3] Los Angeles County Metropolitan Transportation Authority, July 21, 2011: http://www.metro.net/about/search/?q=green%20construction%20policy

[4] South Coast Air Quality Management District – Rule 403 – Fugitive Dust http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4

R-1: South Coast Air Quality Management District

R-1-1

This project is a highway transportation project proposed by Caltrans. The CEQA Guidelines, Section 15064.7, Thresholds of Significance state that the lead agency can develop thresholds of significance for use in the determination of the significance of environmental effects. Caltrans has developed the Standard Environmental Reference (SER) to establish compliance with CEQA and the National Environmental Policy Act (NEPA) for transportation projects. Based on the SER, potential localized impacts are assessed for carbon monoxide (CO), particulate matter (PM), and mobile source air toxics (MSAT). Section 2.13, Air Quality, in the IS/EA for the proposed project includes operational analyses per 40 CFR, Part 93, to determine whether the project would result in any CO and/or PM hot spots. The CO hot spots analysis in Section 2.13.3.2 of the IS/EA concludes that the project is not expected to result in higher CO concentrations than those existing within the region at the time of attainment demonstration.

A qualitative PM hot-spot analysis was prepared for the proposed project (for four Build Alternatives and a No Build Alternative) and was presented to the Transportation Conformity Working Group (TCWG) for Interagency Consultation on December 3, 2013. The PM hot-spot analysis was conducted according to the United States Environmental Protection Agency (EPA) Final Rule (FR) published on March 10, 2006 (71 FR 12468). The analysis was conducted following the procedures and methodology provided in the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* documentation, which was developed by the EPA and the Federal Highway Administration (FHWA). The PM hot-spot analysis concluded that the project would not result in new violations of the federal air quality standards for PM10 and PM2.5 and meets the conformity hot-spot requirements under 40 CFR 93-116 and 93-123. The TCWG determined that the proposed hot-spot analysis was acceptable for NEPA circulation on December 3, 2013. On July 28, 2015, an updated PM hot-spot analysis, with minor changes to the traffic analysis, was submitted to the TCWG. The TCWG determined that no additional PM analysis was required.

As such, Caltrans has conducted localized air quality assessments based on the pollutants of concern relating to transportation sources and in consultation with federal, State, and regional agencies to comply with the public disclosure requirements of CEQA and NEPA.

R-1-2

Section 2.13, Air Quality, of the IS/EA includes an analysis of mobile source air toxics (MSATs) as part of the NEPA process for highways. This MSAT analysis includes a full set of toxic air contaminants in vehicle exhaust, including diesel particulate matter (DPM). The MSAT analysis in Section 2.13.3.2 concludes that all project alternatives "…would result in a negligible change in MSAT emissions in the project vicinity." In addition, the MSAT analysis also states, "In summary, while the alternatives for the proposed project would result in a negligible increase in localized MSAT emissions, the U.S. EPA vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time that would cause regionwide MSAT levels to be substantially lower than they are today." Thus, since the MSAT analysis shows that the emissions of MSATs would be reduced from existing conditions, the health risk levels for adjacent residents from exposure to these MSATs, which include DPM, would also be lower than existing conditions.

R-1-3

The comment requests comparison of the potential overlapping of emissions associated with multiple phases of the proposed construction activities with the South Coast Air Quality

Management District (SCAQMD) threshold criteria. The proposed project involves modifications to an interstate highway (Interstate 5 [I-5]), which is under the jurisdiction of Caltrans. According to Public Resources Code (PRC) Section 21082, CEQA provides lead agencies with general authority to adopt criteria for determining whether a given impact is significant. As a result, the analysis for the proposed project followed the regulatory framework and recommended procedures for performing an air quality analysis for both Caltrans and local agency transportation projects. These procedures provide for a qualitative analysis for temporary construction activities. Construction of the entire project would occur in less than 5 years, which meets the Caltrans criteria as a temporary activity. As indicated in the IS/EA and discussed in further detail in the technical studies, construction activities would occur at various locations along the 6.5-mile freeway length and would primarily involve exhaust emissions. All construction equipment would be subject to Caltrans Standard Specifications for Construction (Section 14 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]), as well as SCAQMD Rule 403. In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with State-mandated emission control devices pursuant to State emission regulations and standard construction practices. The analysis concluded that project construction of this magnitude would not violate State or federal air quality standards or contribute to the existing air quality violations in the South Coast Air Basin.

R-1-4

Overlapping construction phases are not anticipated to occur. The construction of the proposed project was found to result in less than significant air quality impacts for the construction phase with the inclusion of emissions minimization measures AQ-1 through AQ-5.

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From: Lopez, Ryan <RLopez2@semprautilities.com>
Sent: Tuesday, December 08, 2015 9:34 AM
To: D12 SR55 Improvement Project@DOT
Subject: State Route 55 Improvement Project Between Interstate 405 and Interstate 5

Hello Charles Baker:

Your Notifice of Intent to Adopt a Mitigated Negative Declaration Report has been received by So Cal Gas Distribution.

Be aware for your reference: **It may take 30 business days for a response**.

California Public Utility Commission Rules require notification of both SoCal Gas Transmission and SoCal Gas Distribution of all work being conducted. *You will need to send a copy of your request and plans to*: U-1-1

Rosalyn Squires
So Cal Gas Transmission
9400 Oakdale Ave
Chatsworth, CA 91311
818-701-4546
RSquires@semprautilities.com

Thank you for your patience and cooperation.

Ryan Lopez
SoCalGas
Southeast Region – Anaheim HQ
Gas Operations – Planning & Engineering
Maps & Letters Desk
1919 S. State College Blvd
Anaheim, CA 92806
(714) 634-5067
(714) 634-7287 Fax
rlopez2@semprautilities.com

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From: Lopez, Ryan <RLopez2@semprautilities.com>
Sent: Tuesday, January 05, 2016 11:25 AM
To: D12 SR55 Improvement Project@DOT
Subject: Notice of Intent to Adopt a Mitigated Negative Declaration; SR-55 Improvement Project Between I-405 & I-5

Hello:

Your notification of Proposed Mitigated Negative Declaration Report has been received by So Cal Gas Distribution.

Be aware for your reference: **It may take 30 business days for a response**.

California Public Utility Commission Rules require notification of both SoCal Gas Transmission and SoCal Gas Distribution of all work being conducted. *You will need to send a copy of your request and plans to*:

U-1-2

Rosalyn Squires
So Cal Gas Transmission
9400 Oakdale Ave
Chatsworth, CA 91311
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Thank you for your patience and cooperation.

Ryan Lopez
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received this communication in error, please notify the sender immediately by e-mail or telephone, and delete the original message immediately. Thank you.

1919 S. State College Blvd.
Anaheim, CA 92806-6114

February 2, 2016

CalTrans
3347 Michelson Dr Suite 100
Irvine, CA 92612

Attn: Charles Baker

Subject: Mitigated Negative Declaration for SR55 from I-405 to I-5; Santa Ana, Tustin & Irvine

Thank you for providing the opportunity to respond to this Environmental Document. This letter is not to be interpreted as a contractual commitment to serve the proposed project but only as an information service. Its intent is to notify you that the Southern California Gas Company has facilities in the area where the above named project is proposed. Gas facilities within the service area of the project could be installed, altered or abandoned as necessary without any significant impact on the environment. U-1-3

The availability of natural gas service is based upon conditions of gas supply and regulatory agencies. As a Public Utility, Southern California Gas Company is under the jurisdiction of the California Public Utilities Commission. Our ability to serve can also be affected by actions of federal regulatory agencies. Should these agencies take any action, which affect gas supply or the conditions under which service is available, gas service will be provided in accordance with the revised conditions. U-1-4

This letter is also provided without considering any conditions or non-utility laws and regulations (such as environmental regulations), which could affect construction of a main and/or service line extension (i.e., if hazardous wastes were encountered in the process of installing the line). The regulations can only be determined around the time contractual arrangements are made and construction has begun. U-1-5

Information regarding construction particulars and any costs associated with initiating service may be obtained by contacting our area Service Center at 800-427-2200. U-1-6

Sincerely,

Katrina Regan
Planning Supervisor
SouthEast Region - Anaheim Planning & Engineering

KR/rl
EIR.doc

U-1: Southern California Gas Company

U-1-1

During the public circulation period, a copy of the IS/EA was sent to Joe Lanzisera at the Southern California Gas Company, Transmission. It is acknowledged that the plans and future requests regarding the project should be sent to Rosalyn Squires. Coordination with Southern California Gas Company, Distribution and Transmission, will occur during final design as utility relocation plans are finalized. A notice will be sent prior to potholing activities done during final design. If conflicts are identified, a Claim Letter and Notice to Owner to Relocate will be sent to the Southern California Gas Company during final design.

U-1-2

Refer to Response to Comment U-1-1, above.

U-1-3

Southern California Gas Company facilities were considered during design of the project. As discussed in Section 2.4, Utilities and Emergency Services, of the IS/EA, there are underground distribution pipelines and 30-inch diameter, high-pressure pipelines owned by the Southern California Gas Company within the project area. Five of these facilities would be impacted by the project. As detailed in Table 2.4.1 of the IS/EA, Alternatives 1, 2, 3, and 4 would require extension of the casing of a 30-inch high-pressure gas main, relocation of a 4-inch gas line along Pullman Street, and relocation of a 30-inch high-pressure gas main along southbound SR-55. Alternatives 2 and 3 would require relocation of a 2-inch gas line along Cowan Street. Alternatives 3 and 4 would require relocation of a 3-inch gas line along Pullman Street. As specified in Measure UES-1 in Section 2.4.3 of the IS/EA, utility relocation plans will be prepared in consultation with utility providers, including the Southern California Gas Company, to minimize impacts to the affected utilities.

U-1-4

This comment discusses the availability of natural gas services. The comment does not raise issue with the adequacy of the IS/EA. The comment is acknowledged and noted for the record.

U-1-5

This comment states that the comment letter was provided without consideration of nonutility laws and regulations. The comment does not raise issue with the adequacy of the IS/EA. The comment is acknowledged and noted for the record.

U-1-6

This comment provides contact information for requests regarding construction or costs associated with initiating gas service. The comment does not raise issue with the adequacy of the IS/EA. The contact information for the Southern California Gas Company is acknowledged and noted for the record.

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T-1

GABRIELENO BAND OF MISSION INDIANS – KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Dear Charles Baker, ,

Thank you for your letter regarding your proposed project State Route 55 (SR-55) improvement project Between interstate 405 (I-405) and interstate 5 (I-5) . We do in fact have concerns regarding your project's potential impact to cultural resources. We would like to request one of our Tribal monitors to be on site at this project location during all ground disturbance (this includes but is not limited to pavement removal, pot-holing or auguring, boring, grading, excavation and trenching). Our priority is to avoid and protect cultural resources without delay or conflicts to the lead agency or property owner. Our monitor will provide daily written reports (as well as photographic proof) of all activities including construction along with any cultural materials identified. Liability insurance, consultation with our Tribal archaeologists and Tribal biologists can also be provided and utilized if necessary. T-1-1

Often, we are told that an archaeological monitor will be present and there's no need for a Native American monitor. It is well known that archaeologists do not recognize sites that Native Americans do. Archaeologists are trained to recognize man made items even though they often misinterpret what the item is used for. This is what Tribal Monitors do – what we are trained to do. The purpose of SHPO, Section 106, ACHP and now AB52 is to provide Tribes with the laws necessary to protect potential cultural resources. T-1-2

In addition, we are also often told that an area has been previously developed or disturbed and thus there are no concerns for cultural resources and thus minimal impacts would be expected. I have two major recent examples of how similar statements on other projects were proven very inadequate. An archaeological study claimed there would be no impacts to an area adjacent to the Plaza Church at Olvera Street, the original Spanish settlement of Los Angeles, now in downtown Los Angeles. In fact, this site was the Gabrieleno village of Yangna long before it became what it is now today. The new development wrongfully began their construction and they, in the process, dug up and desecrated 118 burials. The area that was dismissed as culturally sensitive was in fact the First Cemetery of Los Angeles where it had been well documented at the Huntington Library that 400 of our Tribe's ancestors were buried there along with the founding families of Los Angeles (Picos, Sepulvedas, and Alvardos to name a few). In addition, there was another inappropriate study for the development of a new sports complex at Fedde Middle School in the City of Hawaiian Gardens could commence. Again, a village and burial site were desecrated despite their mitigation measures. Thankfully, we were able to work alongside the school district to quickly and respectfully mitigate a mutually beneficial resolution. T-1-3

Given all the above, the proper thing to do for your project would be for our Tribe to monitor ground disturbing construction work. Because we are the lineal descendants of the vast area of Los Angeles and Orange Counties, we hold sacred the ability to protect what little of our culture remains. We thank you for taking seriously your role and responsibility in assisting us in preserving our culture. T-1-4

With respect,

Andrew Salas, Chairman

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians@yahoo.com
gabrielenoindians@yahoo.com

GABRIELENO BAND OF MISSION INDIANS – KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

Charles Baker, Senior Environmental Planner
CA Dept of Transportation, District 12
3347 Michelson Dr, Suite 100
Irvine, CA 92612-1692

RE: AB52 consultation response for State Route 55 Improvement Project

Dear Mr. Baker, January 18, 2016

Please find this letter in response to your notice for this project. I have reviewed the project site and do have concerns for cultural resources. Your project lies in an area where the traditional territories of the Kizh (Kitc) Gabrieleño's villages adjoined and overlapped with each other, at least during the Late Prehistoric and Protohistoric Periods. The close proximity to El Toro Naval Base is of concern because there are well know villages in and around the property. Please see the attached map for more information. The homeland of the Kizh Gabrieleño was probably the most influential Native American group in aboriginal southern California (Bean and Smith 1978a:538), was centered in the Los Angeles Basin, and reached as far east as the San Bernardino-Riverside area. The homeland of our neighbors the Serranos was primarily the San Bernardino Mountains, including the slopes and lowlands on the north and south flanks. Whatever the linguistic affiliation, Native Americans in and around the project area exhibited similar organization and resource procurement strategies. Villages were based on clan or lineage groups. Their home/ base sites are marked by midden deposits often with bedrock mortars. During their seasonal rounds to exploit plant resources, small groups would migrate within their traditional territory in search of specific plants and animals. Their gathering strategies left behind signs of special use sites, usually grinding slicks on bedrock boulders, at the locations of the resources. T-1-5

Due to the project location and the high sensitivity of the area location, we would like to request one of our certified Native American Monitor to be on site during any and all ground disturbances (including but not limited to pavement removal, post holing, auguring, boring, grading, excavation and trenching) to protect any cultural resources which may be effected during construction or development. In all cases, when the Native American Heritage Commission states there are "no records of sacred sites in the project area" the NAHC will always refer lead agencies to the respective Native American Tribe because the NAHC is only aware of general information and are not the experts on each California Tribe. Our Elder Committee & Tribal Historians are the experts for our Tribe and are able to provide a more complete history (both written and oral) regarding the location of historic villages, trade routes, cemeteries and sacred/religious sites in the project area. While the property may be located in an area that has been previously developed, numerous examples can be shared to show that there still is a possibility that unknown, yet significant, cultural resources will be encountered during ground disturbance activities. Please note, if they haven't been listed with the NAHC, it doesn't mean that they aren't there. Not everyone reports what they know. T-1-6

The recent implementation of AB52 dictates that lead agencies consult with Native American Tribes who can prove and document traditional and cultural affiliation with the area of said project in order to protect cultural resources. Our priorities are to avoid and protect without delay or conflicts – to consult with you to avoid unnecessary destruction of cultural and biological resources, but also to protect what resources still exist at the project site for the benefit and education of future generations. T-1-7

With respect,

Andrew Salas, Chairman
cell (626)926-4131

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 www.gabrielenoindians@yahoo.com gabrielenoindians@yahoo.com

T-1: Gabrieleno Band of Mission Indians – Kizh Nation

T-1-1

Based on the results of the cultural resources study as well as the engineering information pertaining to the potential disturbance of native soil, Caltrans has concluded that only small areas of disturbance into native soil will occur in the Area of Potential Effects (APE) for bridge activities. As discussed in Section 2.7, Cultural Resources, of the IS/EA, no cultural resources were identified within the APE or were considered likely to be encountered based on the locations of the small areas of native soil that may be potentially affected. As a result, no mitigation or monitoring is required by an archaeologist or Native American monitor.

T-1-2

Below is a summary of the cultural resources investigations undertaken for this project:

- Record search at the South Central Coastal Information Center: No archaeological sites have been recorded within the project APE. Two prehistoric archaeological sites (30-001515 and 30-001538) have been recorded within a 0.5 mile radius of the APE.
- Native American Heritage Commission Sacred Lands File search: Negative for the APE.
- Field Survey: No archaeological resources were identified within or immediately adjacent to the APE.
- No specific cultural resource concerns were identified during Native American consultation for the project.

Caltrans has concluded that adequate cultural resources investigations were conducted and monitoring by an archaeologist or a Native American monitor is not required for this project.

T-1-3

Based on the results of the cultural resources study as well as the engineering information pertaining to the potential disturbance of native soil, Caltrans has concluded that only small areas of disturbance into native soil will occur in the APE for bridge activities. It was determined that ground disturbance associated with the project for the mainline SR-55 would not exceed 3 to 4 feet (ft) and would generally be much less (typically less than 1 ft). Excavation for bridge abutments and bent footings would reach depths of 8 to 8.5 ft, but the abutment excavations would occur within fill material that is disturbed. The bent excavations may occur partially in native soil and are planned for Edinger Avenue, South Tustin Overhead, MacArthur Boulevard, and Dyer Road. Given the limited extent of ground disturbance that may occur within native soil, the likelihood of encountering intact subsurface cultural deposits is considered remote.

T-1-4

Please refer to Response to Comment T-1-1, above.

T-1-5

The map provided depicts archaeological sites recorded within the Marine Corps Air Station vicinity in the City of Tustin, which is located approximately 0.5 mile from the project APE. The records search conducted at the South Central Coastal Information Center showed that no archaeological sites have been recorded within the project APE. A broader review of the record search maps reveal that a dense concentration of archaeological sites is located approximately 2 miles southeast of the APE in the San Joaquin Marsh area. Record search information indicated that while there is potential for intact subsurface archaeological remains to be present in the general vicinity, the potential for encountering intact subsurface

deposits during the current project is minimal given the proposed ground disturbance, which will occur mainly in previously disturbed soil.

T-1-6

No specific cultural resource concerns were identified within the APE during the Native American consultation for the project, conducted per Section 106 of the National Historic Preservation Act or Assembly Bill (AB) 52 of CEQA. The results of the cultural study indicate that no cultural resources were identified within the APE or were considered likely to be encountered based on the locations of the small areas of native soil that may be potentially affected. As a result, no mitigation or monitoring is required by an archaeologist or Native American monitor.

T-1-7

AB 52 consultation was conducted for this project. On July 28, 2015, a certified letter was sent to the Gabrieleno Band of Mission Indians – Kizh Nation regarding the proposed project, including the results of cultural resource investigations which did not identify resources within the project APE and a request for a response within 30 days pursuant to AB 52. The certified letter was signed for on July 31, 2015, and no comments were received from the Gabrieleno Band of Mission Indians – Kizh Nation.

ORANGE COUNTY
BUSINESS COUNCIL

2 Park Plaza, Suite 100 | Irvine, CA 92614| P 949.476.2242 | F 949.476.0443 |

O-1

January 22, 2016

Mr. Charles Baker
Senior Environmental Planner
Environmental Analysis-Specialist Branch
California Department of Transportation, District 12
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

RE: COMMENTS ON THE PROPOSED MITIGATED NEGATIVE DECLARATION AND INITIAL STUDY/ENVIRONMENTAL ASSESSMENT FOR THE STATE ROUTE 55 IMPROVEMENT PROJECT BETWEEN INTERSTATE 405 AND INTERSTATE 5

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Proposed Mitigated Negative Declaration and Initial Study/Environmental Assessment (IS/ES) for the State Route 55 (SR-55) widening between Interstate 405 (I-405) and Interstate 5 (I-5) (Project). As a critical piece of the Measure M2 capital improvement program on one of the most congested freeways region, the SR-55 is of particular interest to Orange County Business Council (OCBC).

Instead of specific comments on the (IS/ES), OCBC is interested in answers to the following brief list of questions.

1. What impact will the recent decision by the California Transportation Commission (CTC) to deprogram almost $1 billion in transportation project funding state-wide have on Caltrans' ability to assist in funding SR-55 improvement project alternatives? O-1-1
2. Do the project alternatives considered in the environmental documents for the SR-55 project maximize throughput within the existing right of way? O-1-2
3. The 2016 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) calls for consideration of a move towards 3+ occupancy in the High Occupancy Lane due to federal degradation requirements. How will this policy affect the effectiveness of the project alternatives being considered in the environmental documents? O-1-3

OCBC appreciates the importance of the efficient completion SR-55 improvement project to the future mobility of the regional system. Thank you for the opportunity to ask questions as the project moves forward.

Sincerely,

Bryan Starr
Senior Vice President Government Affairs

O-1: Orange County Business Council

O-1-1

The California Transportation Commission's (CTC's) 2016 State Transportation Improvement Program (STIP) fund estimate does not affect funding for the project. As discussed in Chapter 1 of the IS/EA, Measure M2 funds have already been allocated for this project. Additionally, $12 million in federal Regional Surface Transportation Project (RSTP) funds are available for final design. As long as the project is consistent with the Measure M2 objectives, goals, and commitments, the project is fully funded by the project sponsor.

O-1-2

The project alternatives were designed to maximize throughput while minimizing right-of-way acquisition. The build alternatives were developed to maximize operational benefits within the available footprints, ranging from minimal to moderate right-of-way acquisition. The Traffic Operations Report shows that all Build Alternatives would serve a moderate to high number of additional people compared to the No Build Alternative. Both throughput and right-of-way were key factors considered in developing the project alternatives and selecting the Preferred Alternative for this project.

O-1-3

The IS/EA was prepared based on the 2010 LRTP, which assumed the 2-plus occupancy in the HOV lane on the freeway system. A potential policy change to 3-plus occupancy is anticipated to cause the shift of 2-plus occupancy vehicles from the HOV lane to general purpose lanes, which result in a reduction in traffic demand and higher speed in the HOV lanes and, consequently, a higher demand and lower speed in the general purpose lanes. As stated in the 2010 LRTP, implementation of a 3-plus occupancy policy would be expected to increase the peak-period speeds by 28 percent for the countywide HOV facilities while reducing the peak-period speeds by 6 percent for the overall freeway system, compared to the existing 2-plus occupancy regulations.

Similar impacts would be expected for the SR-55 corridor with implementation of a 3-plus HOV occupancy policy. The new policy would reduce future demand and improve travel speeds and overall operations on the HOV lane, which would help to meet the federal HOV degradation requirements. In addition, adequate capacity would be required in the general purpose lanes to accommodate more traffic shifted from the 3-plus HOV lane in order to maximize throughput within available right-of-way.

P-1

From: Ron Beard <RonBeard@seproperties.com>
Sent: Monday, November 30, 2015 8:36 PM
To: D12 SR55 Improvement Project@DOT
Cc: Ron Beard
Subject: SR - 55 Improvement project between I-405 and I-5
Attachments: ALTA Survey - 8-25-1998.pdf; Survey - Landscape Area Highlited.bmp

Charles Baker
Senior Environmental Planner
Calif Dept of Transportation, District 12
Environmental Analysis, Specialist Branch
3347 Michelson Drive, #100
Irvine, CA 92612-1692

http://www.dot.ca.gov/dist12/DEA/SR55IMPROV/

To: Charles Baker or whomever else can answer the question:

I own the subject 2 parcels as identified by the attached. Please advise me if any of the widening plans will necessitate your acquisition of some of my property. P-1-1

Thanks very much,
Ron

55

ROUTE

FREEWAY

NEWPORT

25' EDISON EASEMENT

ORR 23401/44

S22°E

CONC. GUTTER

DOUBLED

CURB FACE LINE IS ON PROP. LINE

CURB & GUTTER

FREEWAY R/W

ORR

N 36° 20' 20" E

2626

FD. 2" I.R. & TAG RCE. 20106

EDISON MH

EDISON TELE LINE

GRASS

L.S.

FACE

R.R. B. 61/22

PARCEL NO. 2

N 29° 11' 10" W.

341.89'

D.W.H.

GE LIGHT 102112SE

PULLMAN

R=400.00'

L=495.14'

T=263.31'

Δ=66° 42' 43"

FD. 3 & W. TAG ILLEGIBLE

RADIUS

22'

80'

CURB AND GUTTER

FD. 5 & W. TAG ILLEGIBLE

N 21° 36' 18" W.

TRANSMISSION LINES

145.15'

CURB #6 ON PROP. LINE

S 39° 10' 18" W.

191.87'

L.S.

GRASS

CURB

1727

JOLLY ROGER

RESTAURANT

MONUMENT SIGN

FIRE SPRINKLER RISER

FIRE SPRINKLER WALKE

S 12° W 7

N 6° 22' 01" E

78.81'

C.B.

ST LIGHT 206/1248

FD. 2" I.R. & TAG RCE. 20106

N 89° 44' 11" E (BASIS OF BEARINGS) 300.00'

PULLMAN

R=400.00'

L=231.17'

T=122.19'

Δ=6° 37' 44"

R=400.00'

L=46.28'

T=23.17'

N 6° 22' 01" E

ST.

FD. 5 & W. TAG ILLEGIBLE

FD. BRASS CAP MON. STAMPED CALR. DIV. OF HI WAYS

RD. 5 & W STAMPED CALR DIV. OF HI WAYS

ROAD

Δ=4° 30' 14"

L=190.17'

R=2,420.00'

154.69'

42'

52'

SIDEWALK

CURB AND GUTTER

RD. 2" I.P. & TAG LS 2411

418.84'

DRIVE

N 1° 18' 18" W.

CONC. GUTTER

N 1° 44' 41" E

52.00'

RR 167897SE

RR 183897SE

MOUNUMENT SIGN

DRIVE

N 1° 18' 18" W.

CURB & GUTTER

CURB

CURB & GUTTER

N 36° 59' 30" W

CALC

R=400.00'

L=231.17'

T=122.19'

Δ=6° 37' 44"

MOTEL 6

PARCEL NO. 2

1717

POOL

POOL BUILDING

FENCE

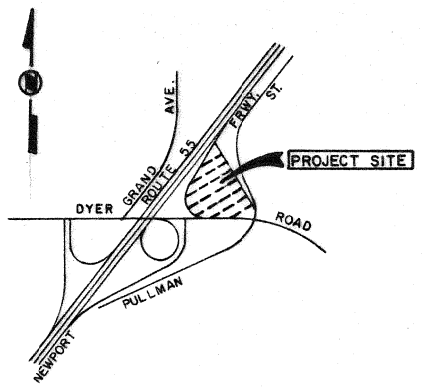
WALL

FENCE

PA

PA

PA



VICINITY MAP

NOT TO SCALE

ADDITIONAL ITEM

ITEM 6. The fact that the ownership of said land does not include rights of access to or from the street or highway abutting said land, such rights having been severed from said land by the document.

Recorded: in book 11168 page 463, Official Records

Affects: All vehicular access rights to Dyer Road over and across those portions of Parcels 1 and 2, as having a bearing of North 88° 15' 13" West 413.24 feet and the arc if the curve having a radius of 1252.00 feet and a length of 47.02 feet.

EXCEPT that portion thereof included within a driveway, 30 feet in width, being the Easterly 30 feet of the Westerly 180.60 feet of the bearing first above mentioned.

ALSO EXCEPT that portion thereof included within a driveway, 30 feet in width, being the Easterly 30 feet of the Westerly 378.40 feet of the bearing first above mentioned.

EASEMENT LEGEND

EASEMENT DESIGNATION NO.	EASEMENT OWNER	RECORDING REFERENCE	PURPOSE OF EASEMENT
① ITEM 1	SO. CALIF. GAS CO.	BOOK 4513, PAGE 75, O.R.	POLE LINES, PIPE LINE, OIL, GAS, WATER, SEWER, ELECTRICAL, TELEPHONE AND OTHER PURPOSES.
② ITEM 2	SO. CALIF. EDISON CO.	BOOK 6685, PAGE 911, O.R.	PUBLIC UTILITIES
* ③ ITEM 3	COUNTY OF ORANGE	BOOK 6965, PAGE 721, O.R.	AVIGATION RIGHTS
④ ITEM 5	CITY OF SANTA ANA	BOOK 11168, PAGE 457, O.R.	SANITARY SEWER
⑤ ITEM 8	SO. CALIF. EDISON CO.	BOOK 11207, PAGE 300, O.R.	PUBLIC UTILITIES
⑥ ITEM 9	SO. CALIF. EDISON CO.	BOOK 11324, PAGE 376, O.R.	ACCESS, ROAD, INGRESS/EGRESS
⑦ ITEM 10	SO. CALIF. EDISON CO.	BOOK 11567 PAGE 955, O.R.	ACCESS, ROAD, INGRESS/EGRESS.
⑧ ITEM 12	FAIN BARG FAMILY TRUST AND FEUERSTEIN COMMUNITY PROPERTY TRUST.	INST. NO. 94-0229017, O.R.	UTILITIES
** ⑨ ITEM 13	FAIN BARG FAMILY TRUST AND FEUERSTEIN COMMUNITY PROPERTY TRUST.	INST. NO. 94-0229017, O.R.	INGRESS/EGRESS

* EASEMENT IS BLANKET IN NATURE.

** NON-EXCLUSIVE EASEMENTS. BLANKET IN NATURE.

REFERENCE

COMMONWEALTH LAND TITLE INSURANCE CO.
REPORT NO. 2704927-3
DATED: OCTOBER 2, 1997

TOTAL AREA

PARCEL NO. 1 0.93 ACRES (40,510.80 S.F.)
PARCEL NO. 2 3.95 ACRES (172,062 S.F.)

ASSESSOR PARCEL NO.

PARCEL NO. 1 - 430-031-06
PARCEL NO. 2 - 430-031-05

PARKING SPACES

PARCEL NO. 1 - 50
PARCEL NO. 2 - 175

LEGEND

PROPERTY LINE	R
STREET CENTERLINE	
EASEMENT LINE	
CURB AND GUTTER	
EASEMENT DESIGNATION	①
STREET LIGHT	☼ L.T.
SEWER MANHOLE	○ M.H.
CLEANOUT	○ C.O.
POWER POLE	○ P.P.
FIRE HYDRANT	⊶ F.H.
STREET ADDRESS NUMBERS	1727
CONCRETE "V" GUTTER	
PRESSURE REDUCING DEVICE	□
WATER VALVE	○ W.V.
WATER METER	□ W.M.
EDISON BOX	□ E
TELEPHONE BOX	□ T
CONCRETE	
STREET SIGN	
EDGE OF PAVEMENT	E.P.
PARKING SPACE	P.S.
SPRINKLER VALVE	○ S.V.
TREES	
TOP OF CURB	T.C.
EDGE OF PAVEMENT	E.P.
FLOW LINE	F.L.
BACK OF WALK	B.W.
CHAIN LINK FENCE	C.L.F.
GAS SUPPLY LINE	G.S.
GAS METER	□ G.M.
RETAINING WALL	
SQUARE FEET	S.F.
GUY ANCHOR FOR POWER POLE	
LIGHT POLE	L.P.
——●—— INDICATES MON. FD. PER P.M. 69/26 EXCEPT AS NOTED.	
CABLE TELEVISION	□ CA.T.V.
LANDSCAPING	L.S.
HANDICAP	H.C.
PLANTER AREA	P.A.
TOWER	TWR.
ASPHALT CONCRETE	A.C.

REGISTERED PROFESSIONAL ENGINEER JAMES JOSEPH BRENNAN 9/30/01 CIVIL STATE OF CALIFORNIA

FLOOD PLAIN INFORMATION:

THE PROPERTY APPEARS ON FLOOD INSURANCE RATE MAP (FIRM) COMMUNITY PANEL NO. 060232-0038F DATED JANUARY 3, 1997. THIS PROPERTY IS IN ZONE "X".

ZONE "X": AREAS OF 500-YEAR FLOOD; AREAS OF 100-FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1'; AND AREAS PROTECTED BY LEVEES FROM 100-YEAR FLOOD.

LEGAL DESCRIPTION:

PARCEL 1 AND 2, IN THE CITY OF SANTA ANA, COUNTY OF ORANGE, STATE OF CALIFORNIA, AS SHOWN ON A MAP FILED IN BOOK 69, PAGE 26, OF PARCEL MAPS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

BASIS OF BEARINGS:

THE BEARING OF N. 6° 22' 01" E. FOR THE CENTERLINE OF PULLMAN STREET AS SHOWN ON A MAP FILED IN BOOK 69, PAGE 26, OF PARCEL MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA.

SURVEYOR'S CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY MADE UNDER MY SUPERVISION ON JULY 20, 1998 CORRECTLY SHOWS THE RELATIONSHIP OF BUILDINGS AND OTHER STRUCTURES TO THE PROPERTY LINES OF THE LAND INDICATED HEREON: THAT THE WALLS OF SAID BUILDINGS ARE PLUMB AND THAT THERE ARE NO ENCROACHMENTS OF ADJOINING BUILDINGS OR STRUCTURES ONTO SAID LAND, NOR OVERLAP OF BUILDINGS OR STRUCTURES FROM SAID LAND EXCEPT AS SHOWN.

JAMES J. BRENNAN R.C.E. 20801
EXP. DATE: 9/30/

8/25/98
DATE

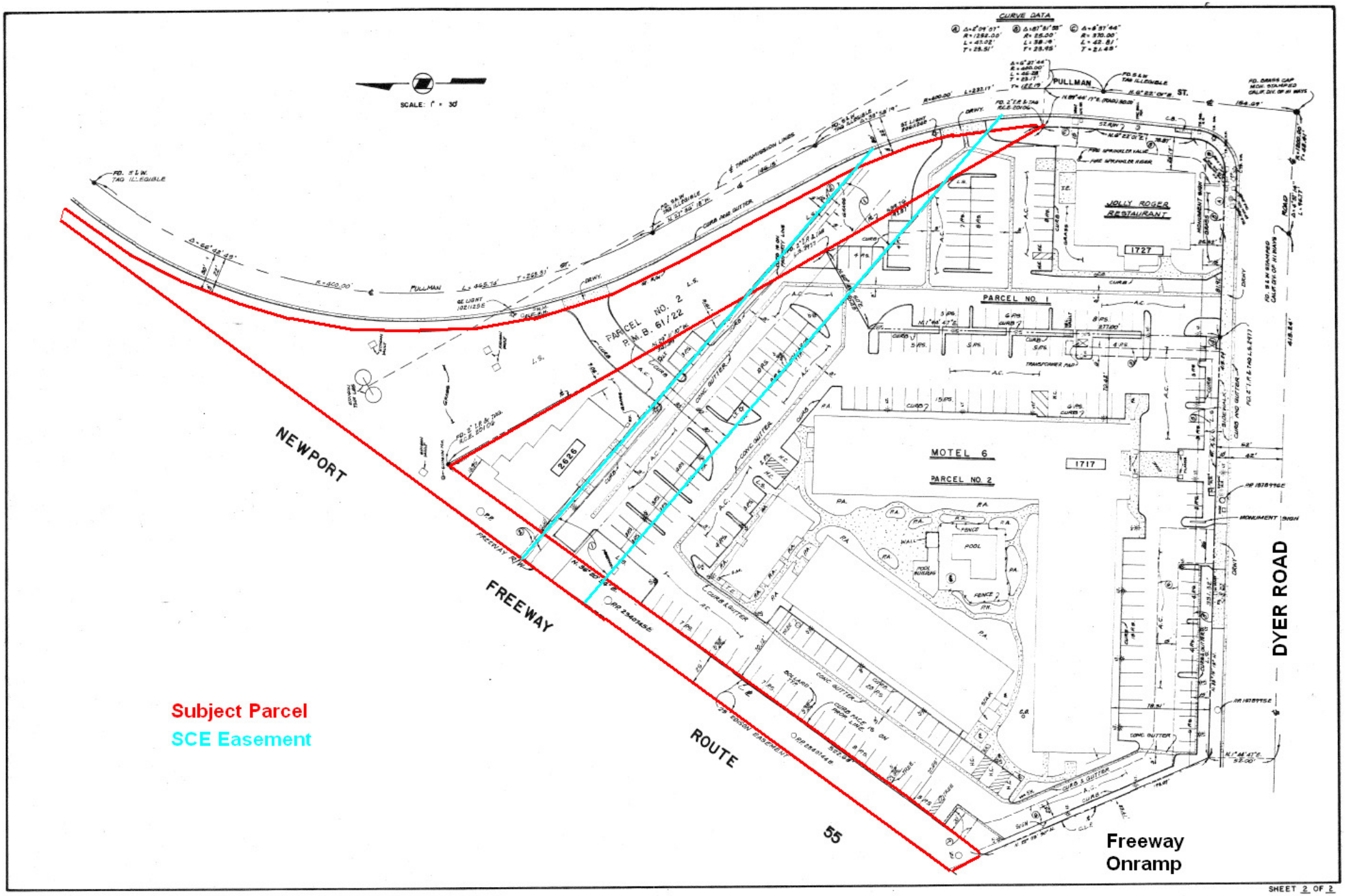
REQUESTED BY:

ALTA SURVEY

FOR

RON BEARD
5120 BIRCH STREET, SUITE 100
NEWPORT BEACH, CALIFORNIA 92660-2153
PHONE: (714) 752-2155 FAX: (714) 833-3201

PREPARED BY: JAMES J. BRENNAN INC. CONSULTING CIVIL ENGINEERS
191 SOUTH ORANGE ST. ORANGE, CALIFORNIA 92866
PHONE: (714) 997-2540 FAX: (714) 997-4317


SCALE: 1" = 30'
CURVE DATA
PULLMAN ST.
JOLLY ROGER RESTAURANT
1727
PARCEL NO. 1
PARCEL NO. 2
P.M.B. 61/22
MOTEL 6
1717
2626
NEWPORT
FREEWAY
ROUTE
55
DYER ROAD
Subject Parcel
SCE Easement
Freeway
Onramp

P-1: Ron Beard

P-1-1

Parcel acquisitions required for the four Build Alternatives are shown on Figures 2.3-1 through 2.3-4 and are listed in Tables 2.3.7, 2.3.9, 2.3.10, and 2.3.12 in the IS/EA. Figures 2.3-1 through 2.3-4 also show the locations of the TCEs required for the four Build Alternatives.

As shown in Tables 2.3.7, 2.3.9, 2.3.10, and 2.3.12, all four Build Alternatives would require a partial acquisition of APN 430-031-09 (i.e., the parcel occupied by Motel 6). As depicted on Figures 2.3-1 through 2.3-4, the acquisition area includes a narrow strip along the property's frontage along Dyer Road.

As shown on Figures 2.3-1 through 2.3-4, TCEs would be required on APNs 430-031-03 and 430-031-09 under all four Build Alternatives.

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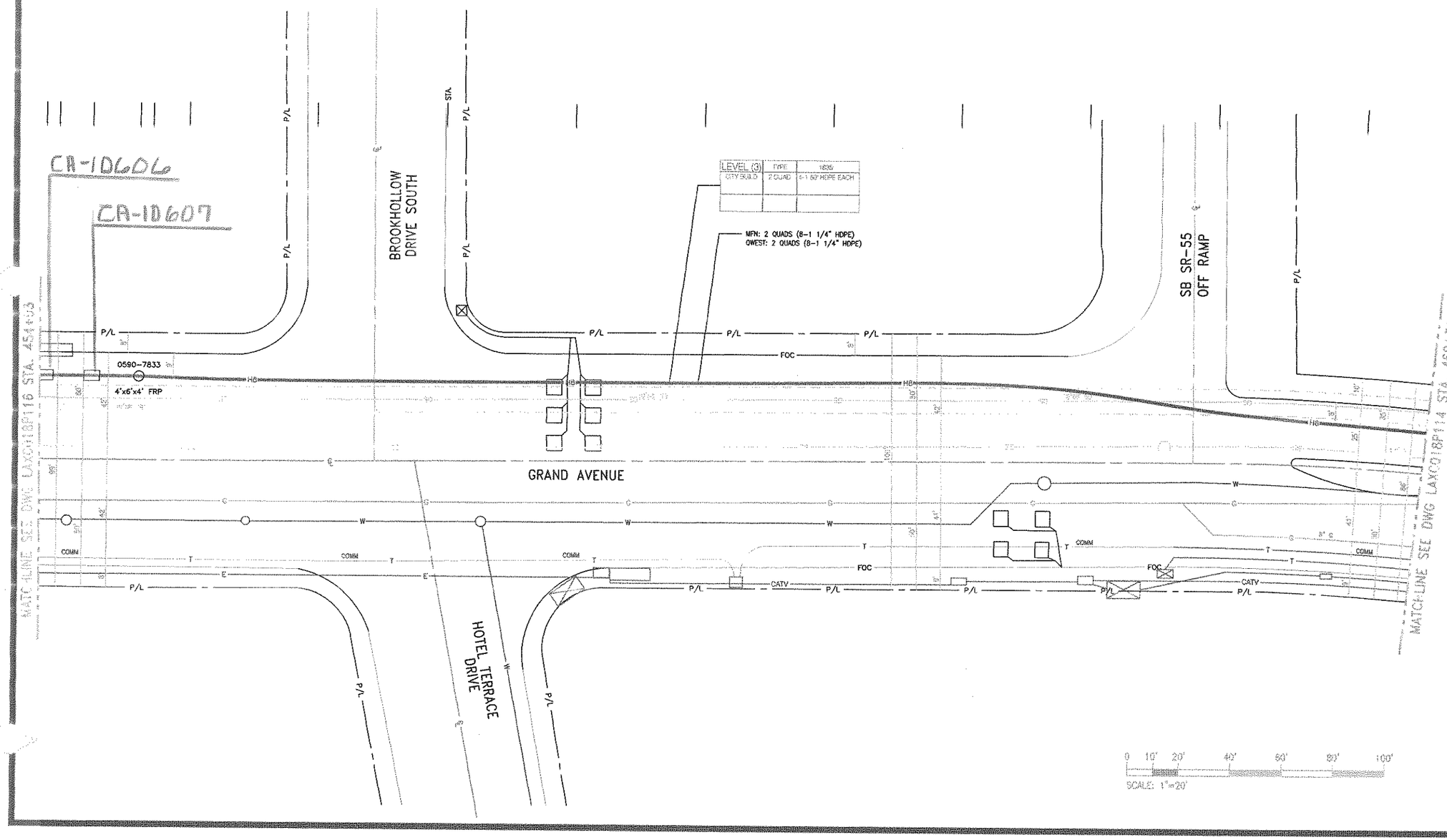
P-2

From: Thomas Bruiniers <thomas.bruiniers@zayo.com>
Sent: Thursday, December 03, 2015 8:36 AM
To: D12 SR55 Improvement Project@DOT
Cc: George Huss; Douglas Yauney
Subject: SR-55 Improvement Project (405-5)
Attachments: Dyer.pdf; GRAND AVE N - DYER.docx; MacArthur.pdf

Good Morning,
Attached per noted area.
Freeway attachment (pg66)@ Dyer not available – Word doc for reference- Can locate conduit per request at time of project
Thank you.

P-2-1

Thomas Bruiniers
OSP Construction Manager - Zayo Fiber Solutions
thomas.bruiniers@zayo.com
(213) 283-3601 Office
(909) 319-1607 Mobile
530 W 6th St Suite 720
Los Angeles, CA 90014



REV	DATE	DESCRIPTION			
1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

DRAWN BY: BH. DAO

CHECKED BY: S. LAULE

APPROVED BY: D. PARKER

FLUOR. Telecommunications
ONE FLUOR DANIEL DRIVE
ALISO VIEJO, CALIFORNIA 92698
(949) 349-2000
FAX: (949) 349-3130

Level(3) COMMUNICATIONS

LOOP: C - IRVINE

SEGMENT: C-5

SITE ADDRESS: SANTA ANA, CA

TITLE: ROUTING PLAN

CONTRACT NO.: 04431020

DRAWING NO: LAXC018P115R3

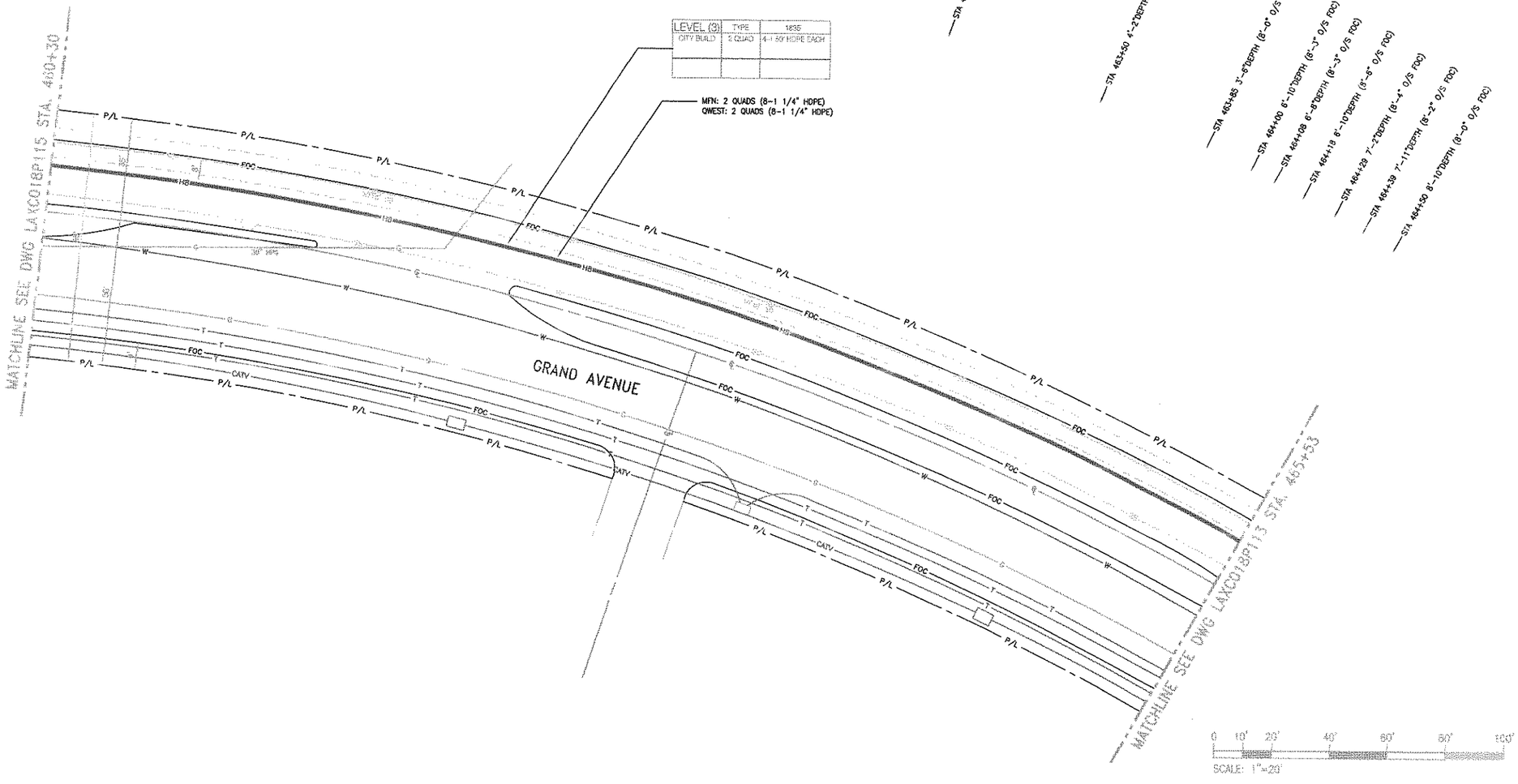
DATE DRAWN: 19AUG99

SCALE: 1"=20'-0"

PLOT DATE:

SHEET: 69

SHEET: 69 OF: 93



REV	DATE	DESCRIPTION	ISSUED	CHKD	APP'D
1	12/19/00	ADDED MFN/QWEST	SL	DP	
2	1/2/01	ADDED MFN/QWEST	SL	DP	
3	1/3/01	ADDED MFN/QWEST	SL	DP	
4	1/4/01	ADDED MFN/QWEST	SL	DP	
5	1/5/01	ADDED MFN/QWEST	SL	DP	
6	1/8/01	ADDED MFN/QWEST	SL	DP	
7	1/9/01	ADDED MFN/QWEST	SL	DP	
8	1/10/01	ADDED MFN/QWEST	SL	DP	

DRAWN BY: BH. DAO

CHECKED BY: S. LAULE

APPROVED BY: D. PARKER

FLUOR. Telecommunications

ONE FLUOR DANIEL DRIVE
ALISO VIEJO, CALIFORNIA 92698
(949) 349-2000
FAX: (949) 349-3130

Level (3) COMMUNICATIONS

LOOP: C - IRVIN

SEGMENT: C-5

SITE ADDRESS:
SANTA ANA, CA

TITLE:
ROUTING PLAN

CONTRACT NO.: 04431020

DRAWING NO: LAXC018P114R3

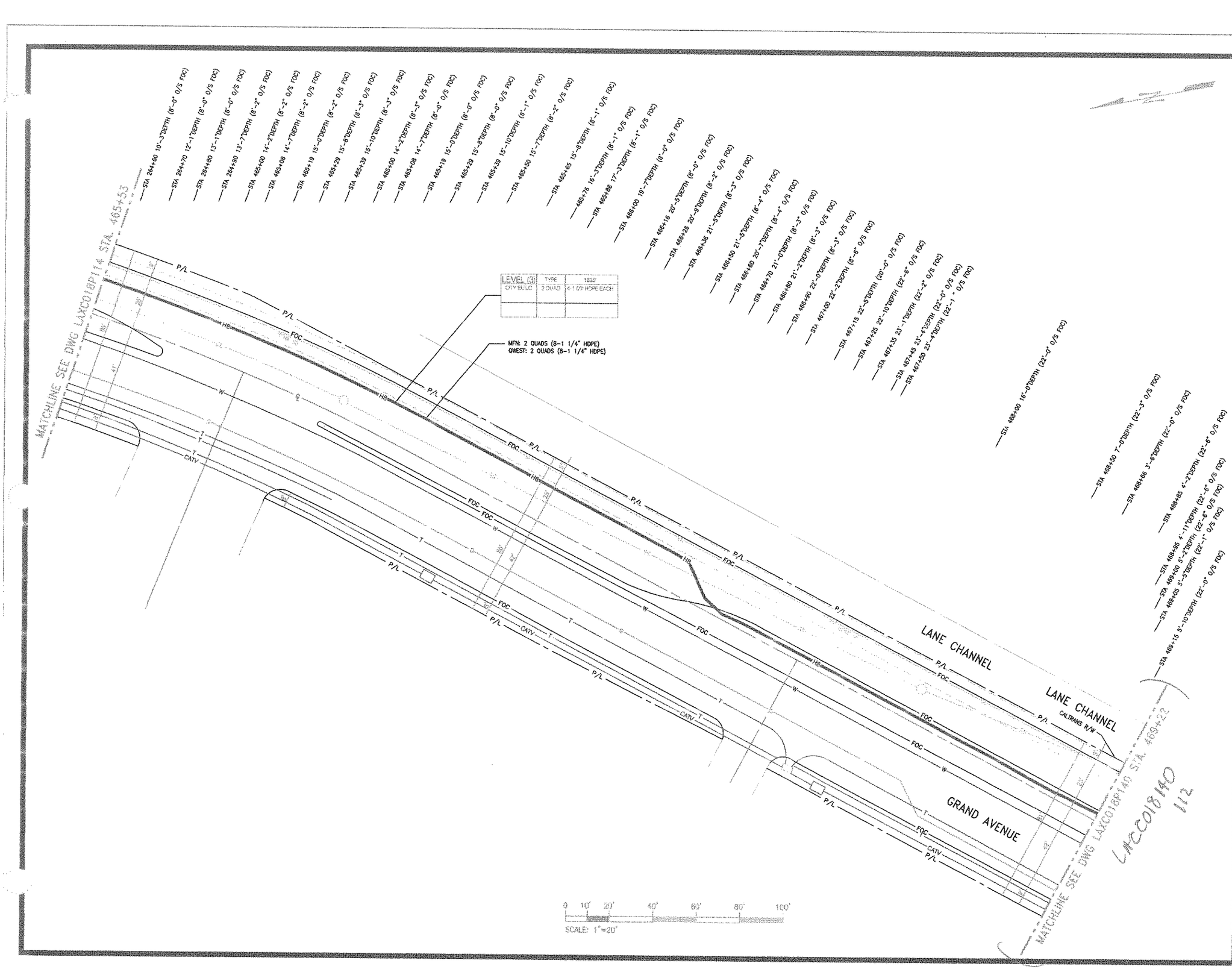
DATE DRAWN: 18AUG99

SCALE: 1=20'-0"

PLOT DATE:

SHEET: 68

SHEET: 68 OF: 93



NO.	DATE	DESCRIPTION	BY	APP'D
1	8/31	ISSUED FOR CONSTRUCTION	DAO	SL
2	9/1	ISSUED FOR CONSTRUCTION	DAO	SL
3	9/2	ISSUED FOR CONSTRUCTION	DAO	SL
4	9/3	ISSUED FOR CONSTRUCTION	DAO	SL
5	10/1	ISSUED FOR CONSTRUCTION	DAO	SL
6	10/2	ISSUED FOR CONSTRUCTION	DAO	SL
7	10/3	ISSUED FOR CONSTRUCTION	DAO	SL
8	10/4	ISSUED FOR CONSTRUCTION	DAO	SL
9	10/5	ISSUED FOR CONSTRUCTION	DAO	SL

DRAWN BY: DH, DAO

CHECKED BY: S.LAULE

APPROVED BY: D. PARKER

FLUOR. Telecommunications

ONE FLUOR DANIEL DRIVE
ALISO VIEJO, CALIFORNIA 92698
(949) 349-2000
FAX: (949) 349-3130

Level(3) COMMUNICATIONS

LOOP: C - IRVINE

SEGMENT: C-5

SITE ADDRESS: SANTA ANA, CA

TITLE: ROUTING PLAN

CONTRACT NO.: 04431020

DRAWING NO: LAXC018F113R3

DATE DRAWN: 17AUG99

SCALE: 1"=20'-0"

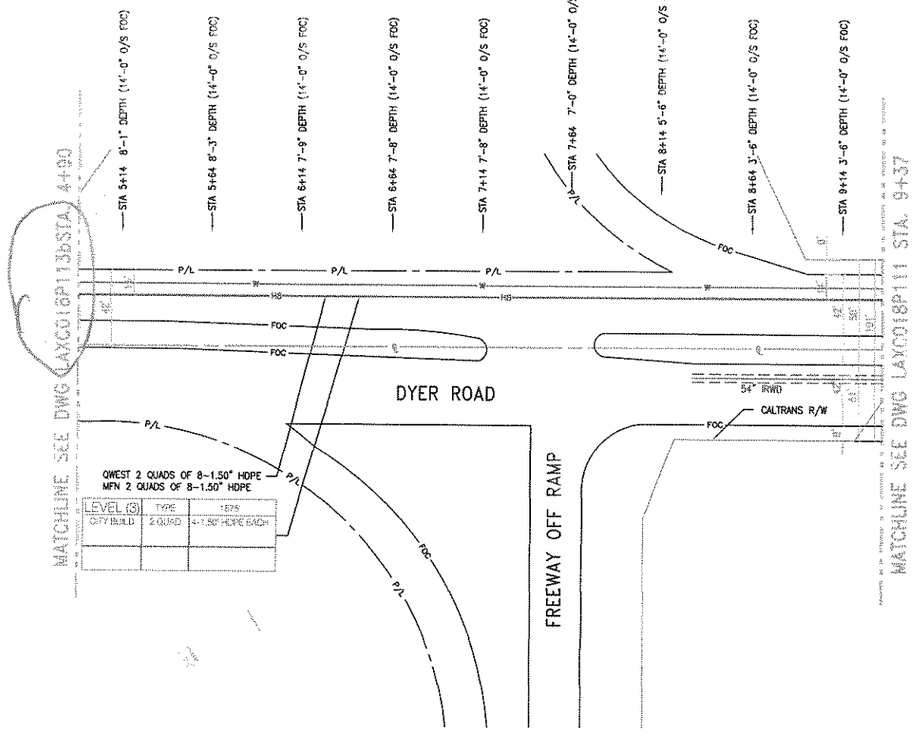
PLOT DATE:

SHEET: 67

SHEET: 67 OF: 93

DIG ALERT

SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID.
FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
DIAL TOLL FREE
1-800-422-4133
AT LEAST TWO WORKING DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



0 20' 40' 80' 120' 160' 200'
SCALE: 1"=40'

REV	DATE	DESCRIPTION	DRAWN	DESIGNED	APPROVED

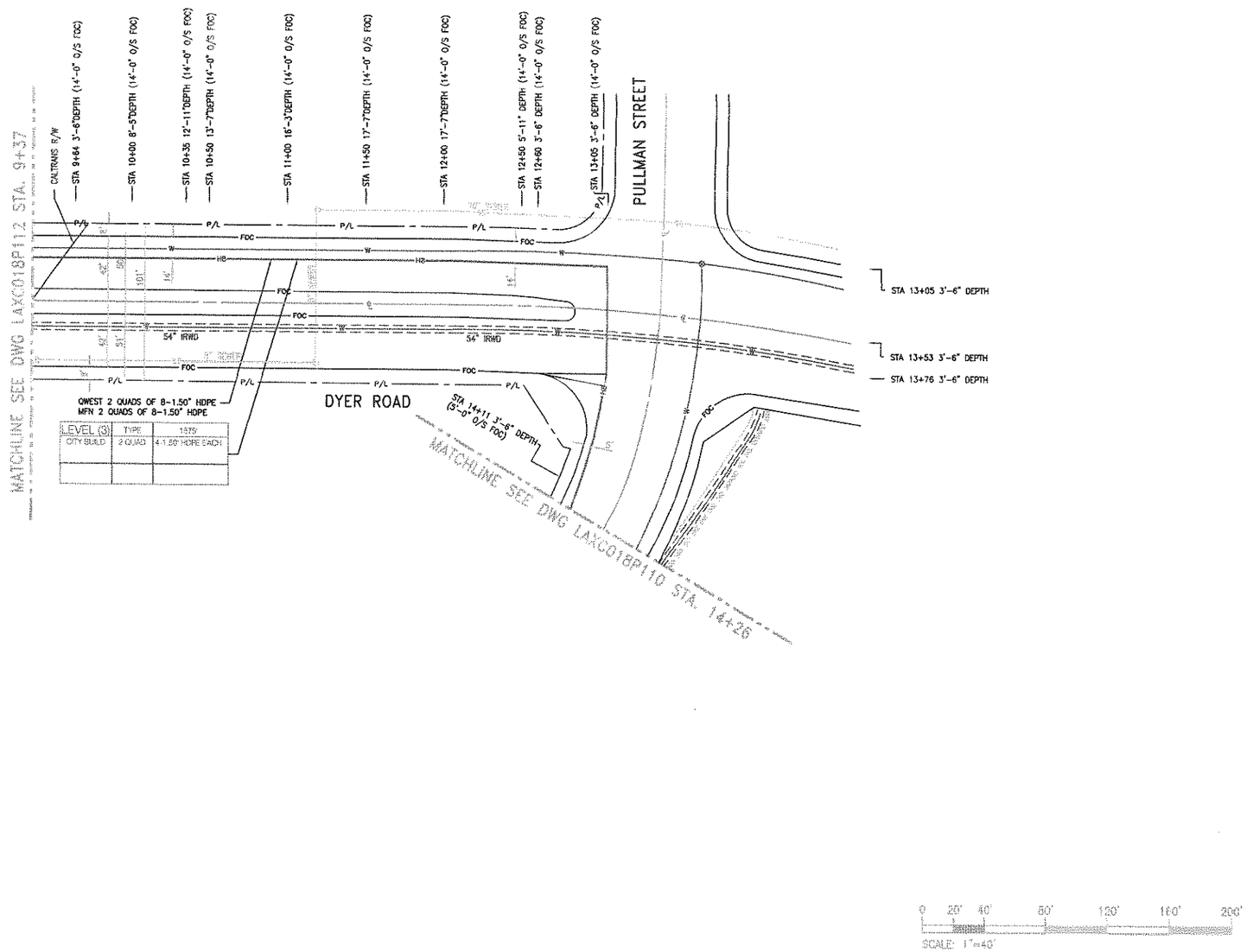
DRAWN BY: TH. DUONG
CHECKED BY: S. LAULE
APPROVED BY: D. PARKER

FLUOR. Telecommunications
ONE FLUOR DANIEL DRIVE
ALISO VIEJO, CALIFORNIA 92698
(949) 349-2000
FAX: (949) 349-3130

Level(3) COMMUNICATIONS

LOOP: C - IRVINE
SEGMENT: C-5
SITE ADDRESS: SANTA ANA, CA
TITLE: ROUTING PLAN
CONTRACT NO.: 644.1020
DRAWING NO: LAXC018P112R3
DATE DRAWN: 09/29/99
SCALE: 1" = 40'
PLOT DATE:
SHEET: 65

DIG ALERT SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID.
FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT
DIAL TOLL FREE
1-800-422-4133
AT LEAST TWO WORKING DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA



LEVEL (3)	TYPE	1575'
CITY BUILD	2 QUAD	4-1.50" HDPE EACH

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

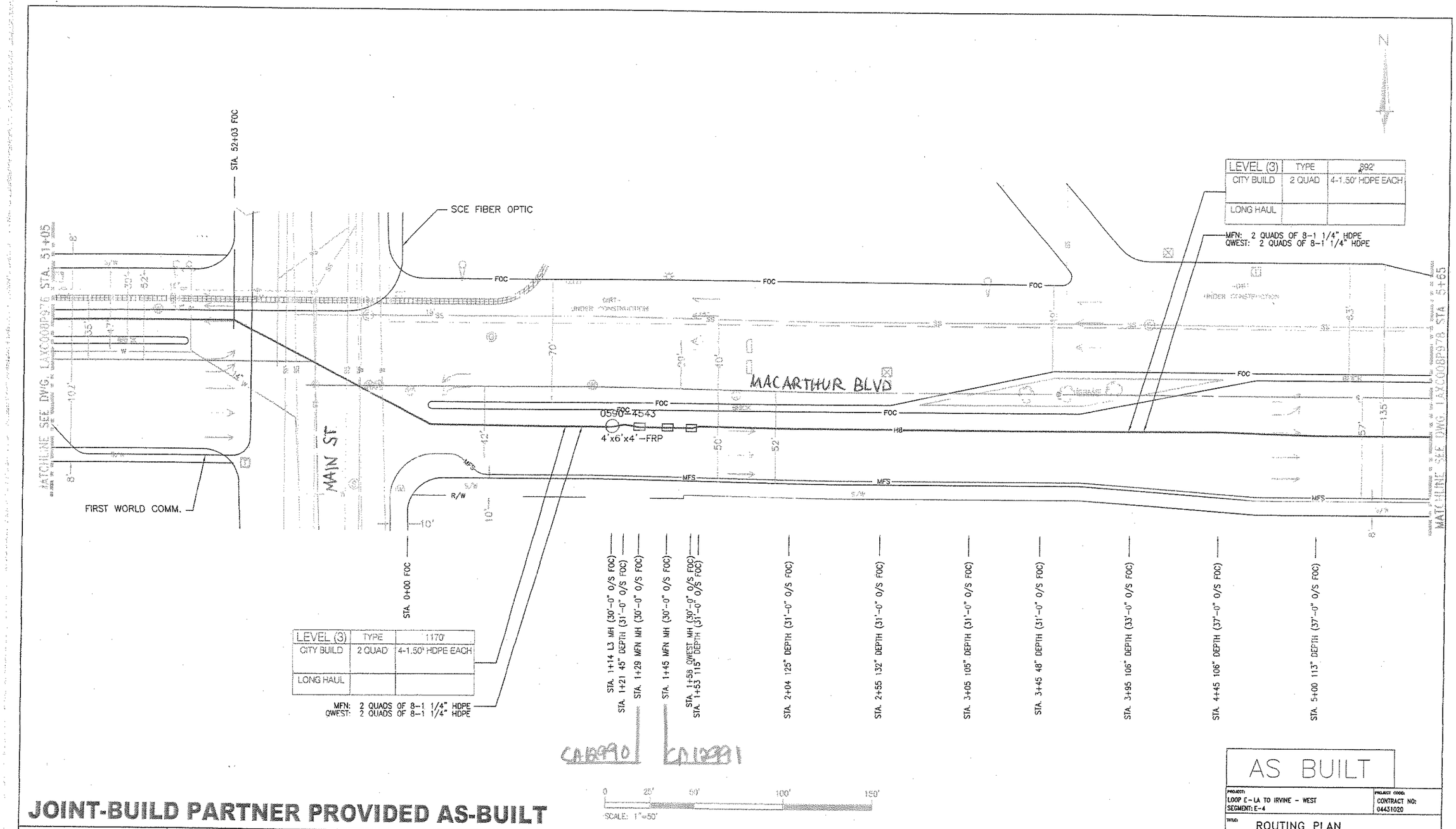
DRAWN BY: TH. DUONG
CHECKED BY: S. LAULE
APPROVED BY: D. PARKER

FLUOR. Telecommunications
ONE FLUOR DANIEL DRIVE
ALISO VIEJO, CALIFORNIA 92698
(949) 349-2000
FAX: (949) 349-3130

Level (3)
COMMUNICATIONS

LOOP: C - IRVINE
SEGMENT: C-5
SITE ADDRESS: SANTA ANA, CA
TITLE: ROUTING PLAN
CONTRACT NO.: 04431020
DRAWING NO: LAXC018P111R3
DATE DRAWN: 09/28/99
SCALE: 1" = 40'
PLOT DATE:
SHEET: 64
SHEET 64 OF 93

GRAND AVE N/O BROOKHOLLOW DR. SOUTH	CA-10607		N			1866.00'	ABOVENET	ML	1-1/4"Round (HDPE)
Slack coil for maintenance					**68.00'**				
DYER RD. E/O S GRAND AVE	CA-10609		N			1581.00'	ABOVENET	ML	1-1/4"Round (HDPE)
Slack coil for Splice **(SEP-18198)**					**65.00'**				
PULLMAN ST. S/O DYER RD.	CA-10611		N			981.00'	ABOVENET	ML	1-1/4"Round (HDPE)
Slack coil for maintenance					**65.00'**				
PULLMAN ST. N/O DEERE AVE.	CA-10613		W			1148.00'	ABOVENET	ML	1-1/4"Round (HDPE)
Slack coil for Splice **(SEP-18335)**					**72.00'**				
DEERE AVE. E/O DAIMLER ST.	CA-10615		W			1010.00'	ABOVENET	ML	1-1/4"Round (HDPE)



LEVEL (3)	TYPE	892'
CITY BUILD	2 QUAD	4-1.50' HDPE EACH
LONG HAUL		

MFN: 2 QUADS OF 8-1 1/4" HDPE
QWEST: 2 QUADS OF 8-1 1/4" HDPE

LEVEL (3)	TYPE	1170'
CITY BUILD	2 QUAD	4-1.50' HDPE EACH
LONG HAUL		

MFN: 2 QUADS OF 8-1 1/4" HDPE
QWEST: 2 QUADS OF 8-1 1/4" HDPE

JOINT-BUILD PARTNER PROVIDED AS-BUILT

AS BUILT

PROJECT: LOOP E-LA TO IRVINE - WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

THE LOCATIONS OF THE EXISTING SUBSTRUCTURES ON THIS DRAWING ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION PRIOR TO EXCAVATION. CALL USA 48 HOURS IN ADVANCE OF ANY CONSTRUCTION ACTIVITIES.

REVISIONS

REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	TV	04-11-00
0A	ISSUED FOR PERMIT	CA	07-28-00
0B	ISSUED FOR PERMIT	CA	08-22-00
0C	ISSUED FOR PERMIT	CDN	09/01/00
1	APPROVED FOR CONSTRUCTION	JF	09/05/00
2	AS-BUILT/ FNC: WAS 008-48[illegible]-R1	ES	02/14/02

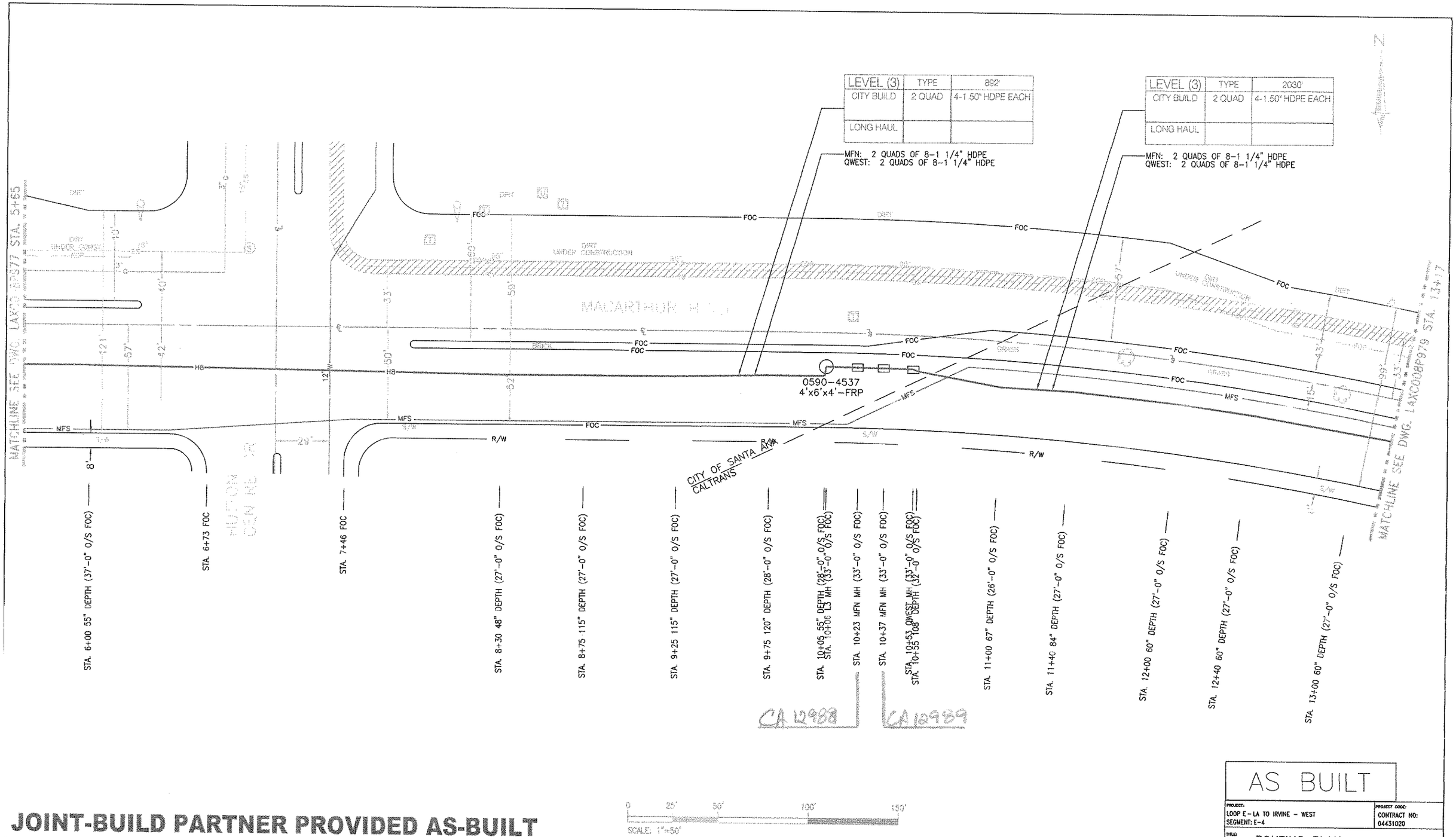
Level (3)℠ COMMUNICATIONS

SOUTH LA NETWORK

SECTION C
CITY OF SANTA ANA

DRAWN: LDP	1-12-00
CHECKED: MG	12/21/01
APPROVED:	
APPROVED:	
CAD: LAXC008P977R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 157 OF: 174



AS BUILT

PROJECT: LOOP E - LA TO IRVINE - WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

JOINT-BUILD PARTNER PROVIDED AS-BUILT

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

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REVISIONS

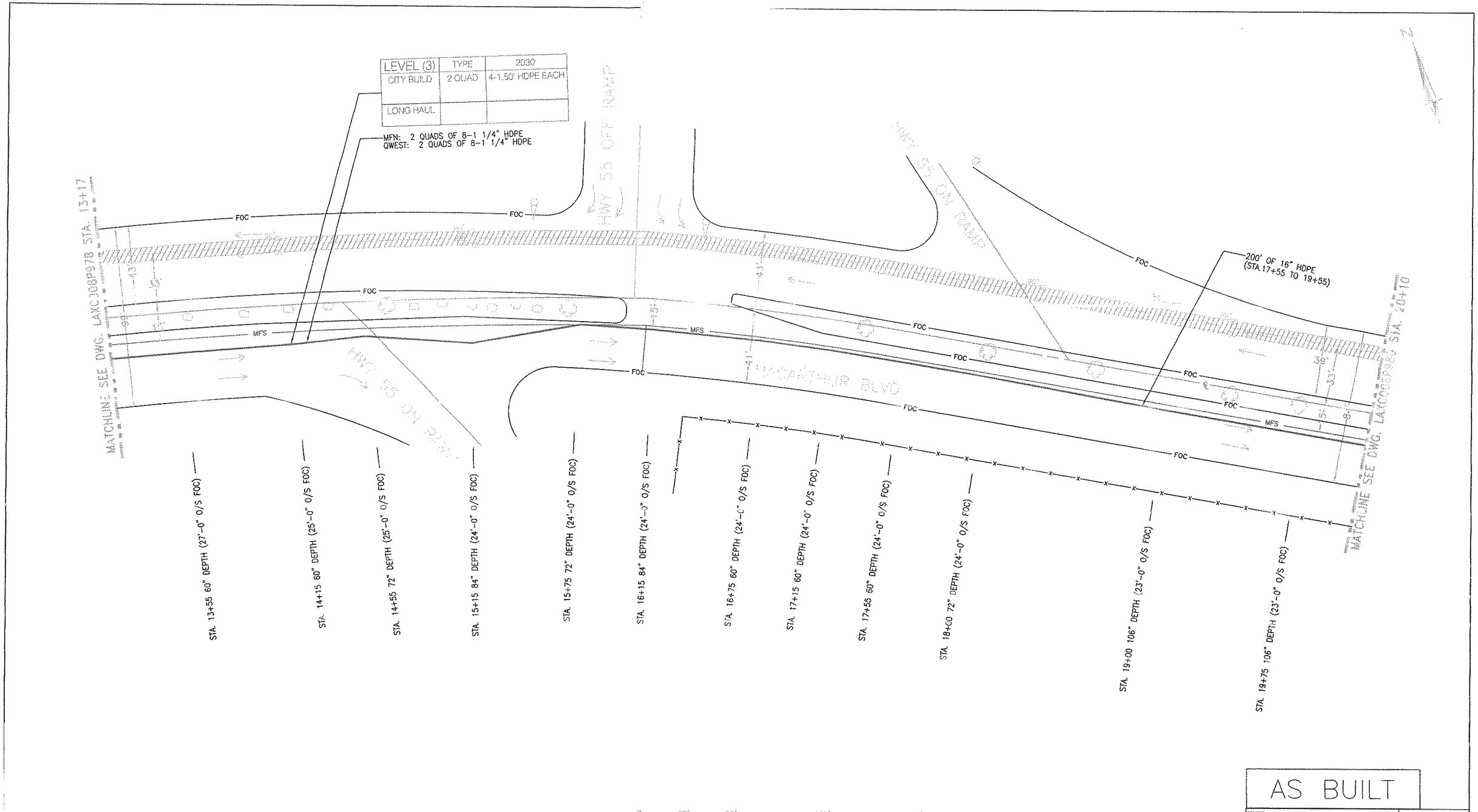
REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	TV	04-11-00
0A	ISSUED FOR PERMIT	TV	07-24-00
0B	ISSUED FOR PERMIT	CA	08-22-00
0C	ISSUED FOR PERMIT	CPH	09-01-00
1	APPROVED FOR CONSTRUCTION	JK	09-05-00
2	AS-BUILT/ ENC WAS 900-488-R1	ES	07/10/02

Level (3)℠ COMMUNICATIONS

SOUTH LA NETWORK
SECTION C
CITY OF SANTA ANA

DRAWN: SKD	1-12-00
CHECKED: MG	12/21/01
APPROVED:	
APPROVED:	
CAD: LAXC008P978R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 158 OF: 174



AS BUILT

PROJECT: LOOP E – LA TO IRVINE – WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

JOINT-BUILD PARTNER PROVIDED AS-BUILT

FLUOR DANIEL TELECOM

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REVISIONS

REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	[illegible]	[illegible]
0A	ISSUED FOR PERMIT	[illegible]	[illegible]
0B	ISSUED FOR PERMIT	[illegible]	[illegible]
0C	ISSUED FOR PERMIT	[illegible]	[illegible]
1	APPROVED FOR CONSTRUCTION	JP	[illegible]
2	AS-BUILT/ FNC WAS [illegible]	[illegible]	12/21/01

Level (3)℠ COMMUNICATIONS

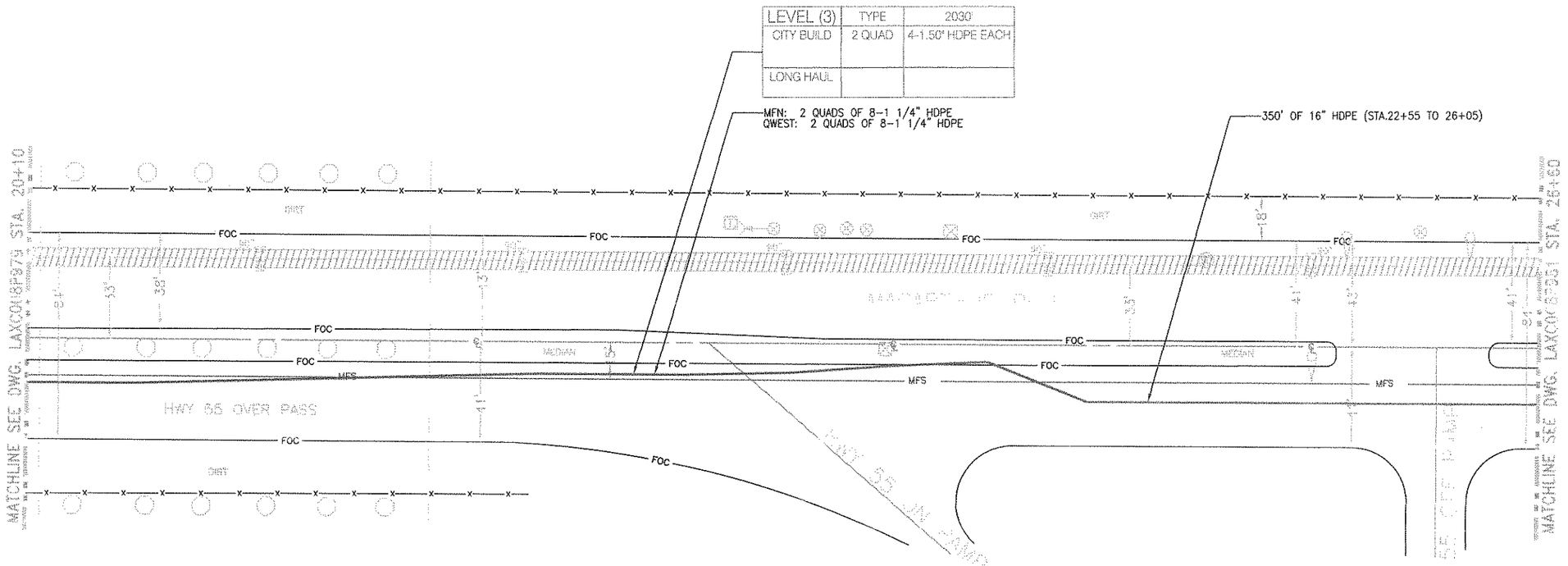
SOUTH LA NETWORK

SECTION C
CITY OF SANTA ANA

DRAWN: SKD	1-12-00
CHECKED: MG	12/21/01
APPROVED:	
APPROVED:	
CAD: LAXC008P979R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 159 OF: 174

LEVEL (3)	TYPE	2030
CITY BUILD	2 QUAD	4-1.50" HDPE EACH
LONG HAUL		



JOINT-BUILD PARTNER PROVIDED AS-BUILT

AS BUILT

PROJECT: LOOP E-LA TO IRVINE - WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

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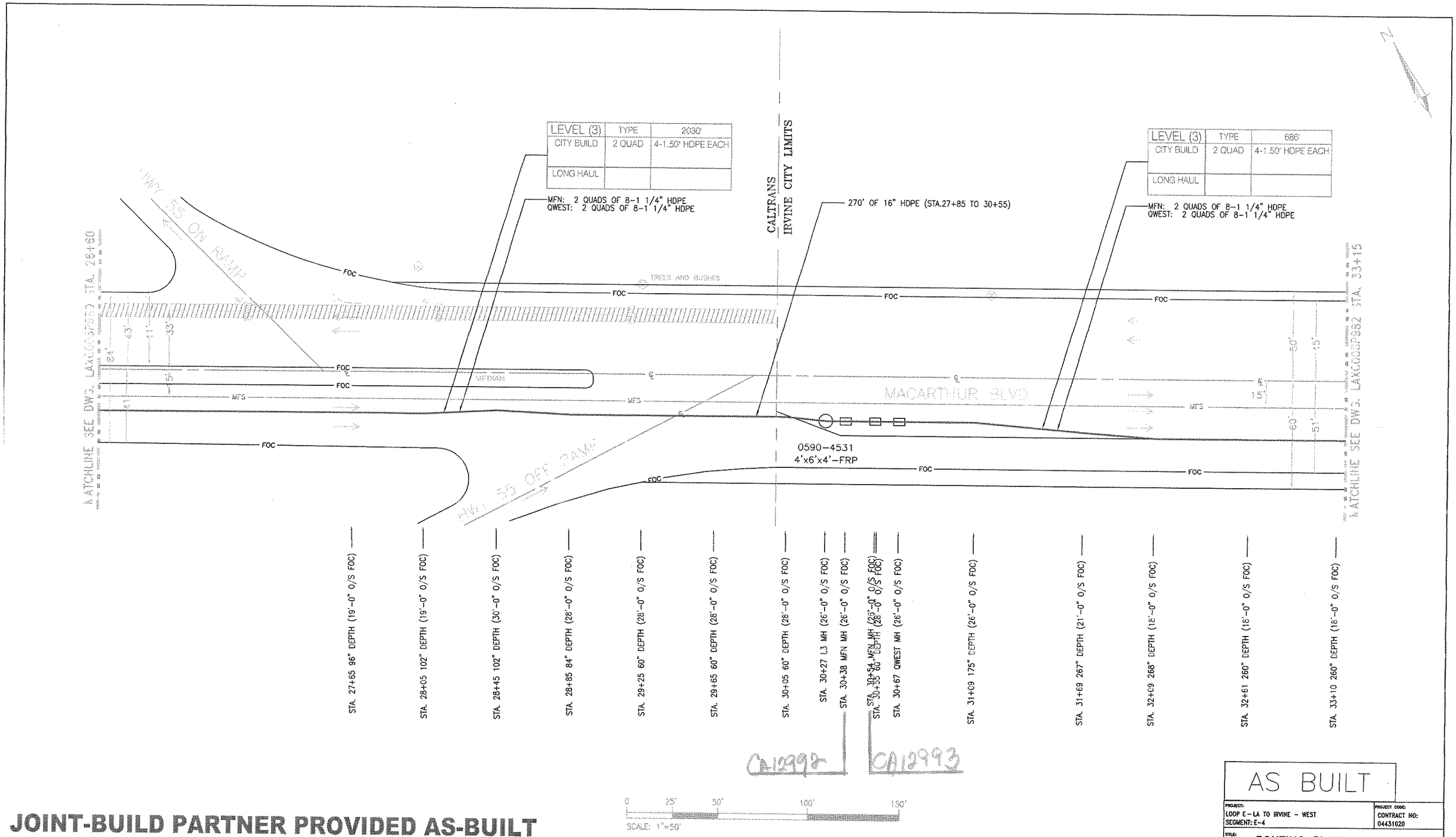
REVISIONS

REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	TK	05-11-00
0A	ISSUED FOR PERMIT	CA	11-28-00
0B	ISSUED FOR PERMIT	SD	05-21-01
0C	ISSUED FOR PERMIT	CRM	05-01-01
1	APPROVED FOR CONSTRUCTION	SK	12-26-01
2	AS-BUILT PER RFC 20010-01-01	ER	02/25/02

Level (3) COMMUNICATIONS

SOUTH LA NETWORK
SECTION C
CITY OF SANTA ANA

DRAWN: SKD	1-12-00
CHECKED: MG	12/21/01
APPROVED:	
APPROVED:	
CAD: LAXC008P980R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'
SHEET: 160 OF:	174



JOINT-BUILD PARTNER PROVIDED AS-BUILT

AS BUILT

PROJECT: LOOP E - LA TO IRVINE - WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

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REVISIONS

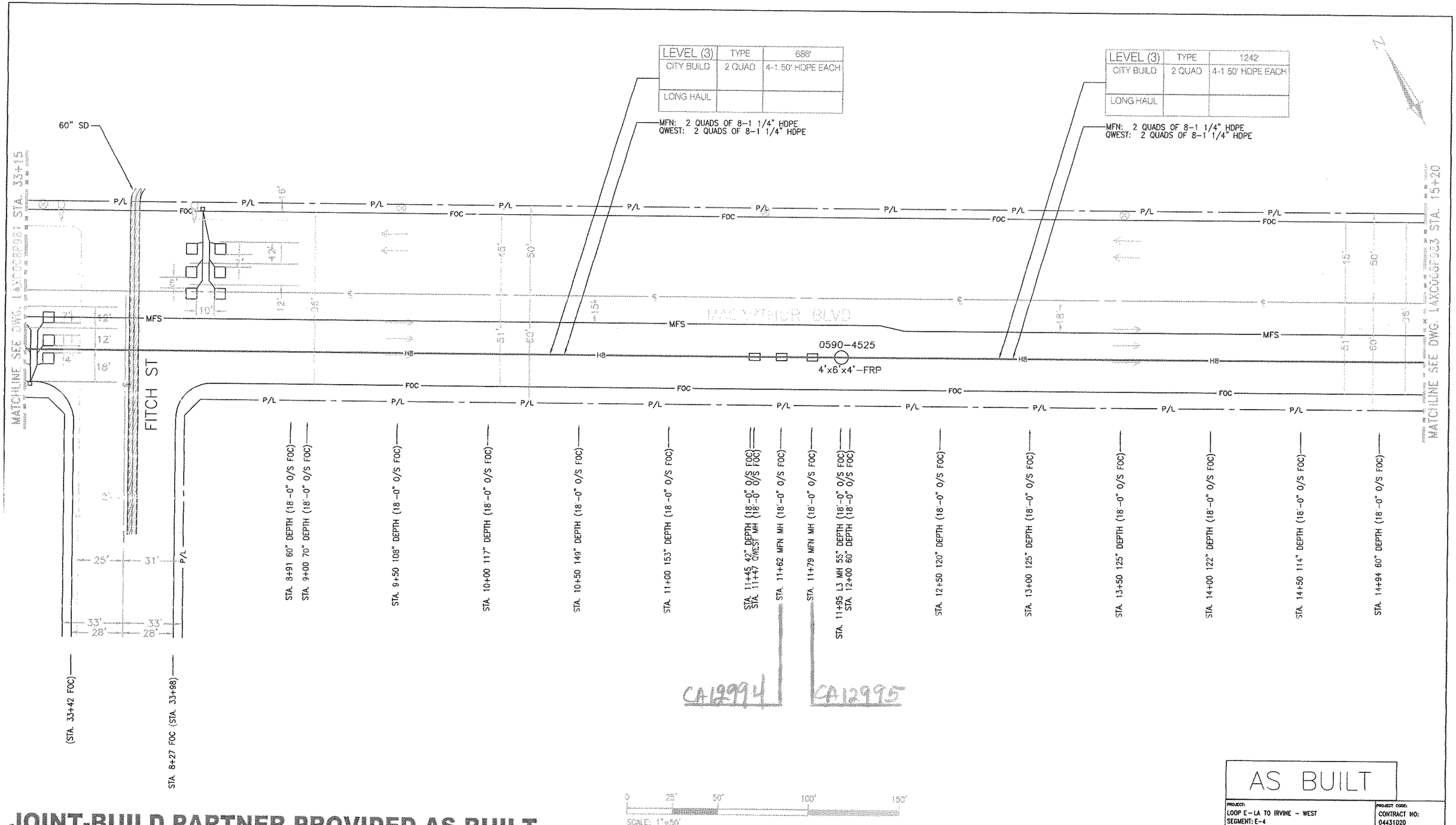
REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	TV	09-11-00
0A	ISSUED FOR PERMIT	CA	09-26-00
0B	ISSUED FOR PERMIT	CA	09-22-00
0C	ISSUED FOR PERMIT	CAN	09-01-00
1	APPROVED FOR CONSTRUCTION	JP	09-06-00
2	AS-BUILT/ FHC: WAS 909-461-R1	EC	12/19/00

Level(3)℠ COMMUNICATIONS

SOUTH LA NETWORK
SECTION C
CITY OF SANTA ANA

DRAWN: LDP	1-12-00
CHECKED: MG	12/21/01
APPROVED:	
APPROVED:	
CAD: LAXC008P981R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 161 OF: 174



AS BUILT

PROJECT: LOOP E-LA TO IRVINE - WEST
SEGMENT: E-4

PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

JOINT-BUILD PARTNER PROVIDED AS-BUILT

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

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REVISIONS

REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	MT	02-10-00
0A	ISSUED FOR PERMIT	VN	05-10-00
0B	ISSUED FOR PERMIT	AT	10-11-00
1	APPROVED FOR CONSTRUCTION	AT	10-07-00
2	AS-BUILT/ FNC WAS 906-492-R1	CA	12-21-01

Level (3)℠ COMMUNICATIONS

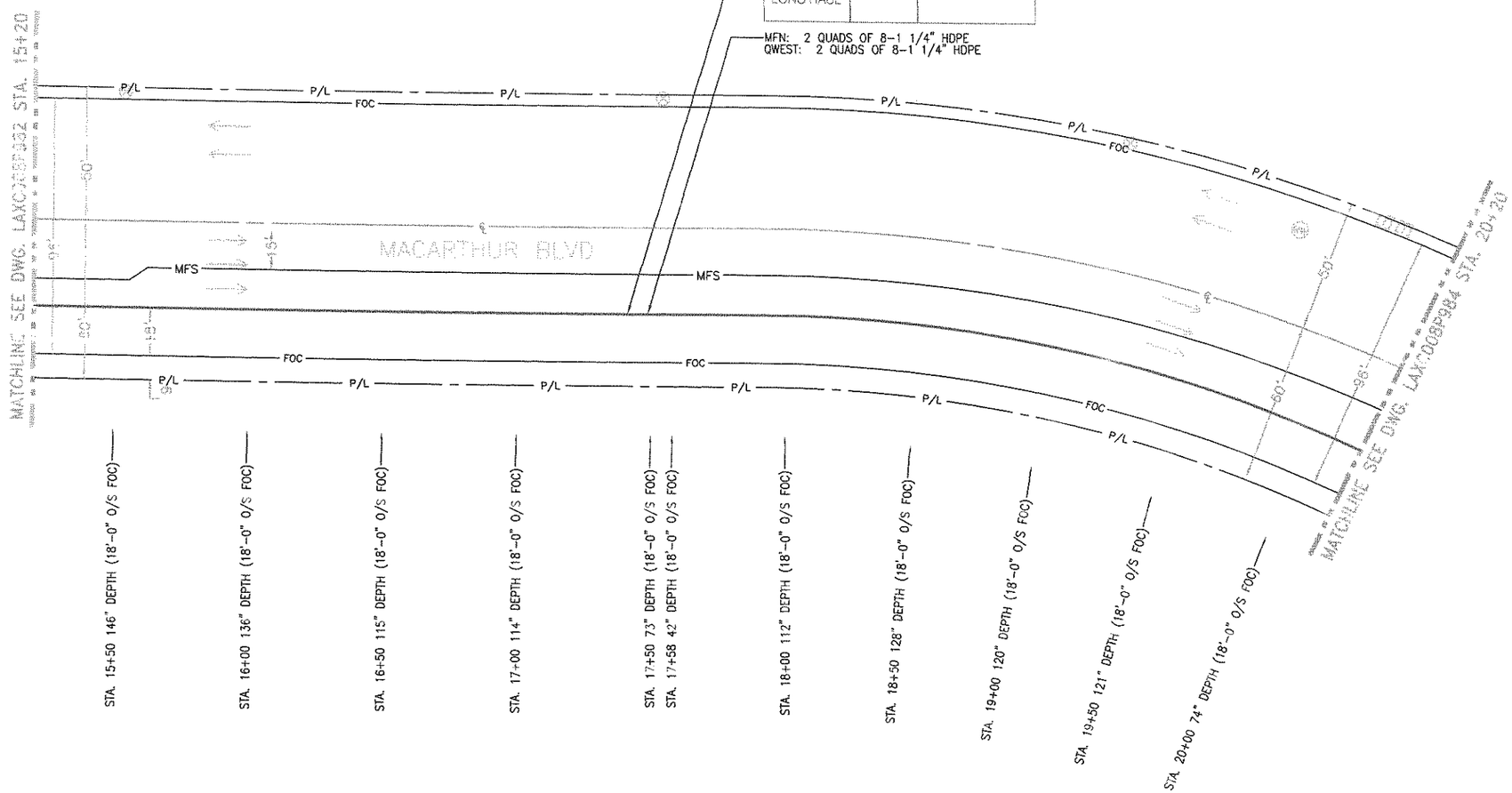
SOUTH LA NETWORK
SECTION C
CITY OF IRVINE

DRAWN: LDP	1-11-00
CHECKED: MG	12-21-01
APPROVED:	
APPROVED:	
CAD: LAXC008P982R2	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 162 OF: 174

LEVEL (3)	TYPE	1242
CITY BUILD	2 QUAD	4-1.50" HDPE EACH
LONG HAUL		

MFN: 2 QUADS OF 8-1 1/4" HDPE
QWEST: 2 QUADS OF 8-1 1/4" HDPE



0 25' 50' 100' 150'
SCALE: 1"=50'

AS BUILT

JOINT-BUILD PARTNER PROVIDED AS-BUILT

PROJECT: LOOP E – LA TO IRVINE – WEST
SEGMENT: E-4
PROJECT CODE: CONTRACT NO: 04431020

TITLE: ROUTING PLAN

FLUOR DANIEL TELECOM

DRAWING DISCLAIMER

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REVISIONS

REV NO.	DESCRIPTION	DWN BY	DATE
0	ISSUED FOR PERMIT	MT	02-15-00
0A	ISSUED FOR PERMIT	VN	08-10-00
0B	ISSUED FOR PERMIT	AT	10-12-00
1	APPROVED FOR CONSTRUCTION	AT	10-27-00
2	AS-BUILT / PN2, WAS 836-4570-R1	ES	02-21-01

Level (3) COMMUNICATIONS

SOUTH LA NETWORK
SECTION C
CITY OF IRVINE

DRAWN: LDP	1-11-00
CHECKED: MG	12-26-01
APPROVED:	
APPROVED:	
CAD: LAXC008P983R2.DWG	
HORIZONTAL SCALE:	1" = 50'
VERTICAL SCALE:	1" = 50'

SHEET: 163 OF: 174

P-2: Thomas Bruiniers

P-2-1

The telecommunication plans provided by the commenter are acknowledged. The telecommunications facilities noted in the comment letter would not be impacted by the Build Alternatives and are anticipated to be protected in place.

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P-3

Julieanne Linam-Newberry
250 S Rose Drive, Space 3, Placentia, CA 92870 * jlprays@msn.com

December 10, 2015

Charles Baker, Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis – Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

RE: Desired Alternative to State Route 55 Improvement Project

Dear Mr. Baker:

My name is Julieanne Linam-Newberry and I am a 20-year resident of Placentia and Office Administrator for Byco, Inc, in Costa Mesa. My family's home is located 2 miles north of where SR-55 and SR-91 meet and I commute 17 miles each day, travelling the entire length of SR-55.

Based on my experience, I feel it would be beneficial to have new general-purpose lanes and additional auxiliary lanes in both directions, with a modification to the proposed extension of the restored auxiliary lane between the Edinger Avenue and McFadden Avenue interchanges. (Alternative 3 – modified) P-3-1

I have seen commuters traveling in the HOV lane who do not have two or more occupants in their vehicle nor the permit sticker for those vehicles which qualify as fuel efficient. These commuters are reacting to their frustration at the increasing amount of traffic. The Law Enforcement are spending their time patrolling the HOV lanes which only adds to the congestion due to commuters slowing to investigate what is clearly none of their business. My daily commute has lengthened to approximately 1 hour and leaving earlier or later does not seem to benefit me. I have had to resort to taking the 241 and 261 Toll Roads, which is a greater distance, so that I can reduce my travel time by half. P-3-2

It is my opinion that Alternative 1 (additional auxiliary lanes and a southbound general-purpose lane) will only address the morning commute which is only half the problem. P-3-3

Alternative 2 (new general-purpose lanes and restored auxiliary lanes) and Alternative 3 (new general-purpose lanes and additional auxiliary lanes), these alternatives address all the issues; I believe it is beneficial to add new general-purpose lanes as well as restoring the existing auxiliary lanes; it would also be beneficial to add the two new proposed auxiliary lanes between MacArthur and Dyer Road and between Dyer Road and Edinger Avenue. P-3-4

However, in eliminating access from McFadden Avenue to northbound SR-55 and southbound I-5 will caused increased congestion at the Edinger Avenue on-ramp. This on-ramp is already extremely busy. My son works at Micro Center and getting on SR-55 in the evenings can be a difficult and frustrating experience. P-3-5

In adding, at least one, new general-purpose lane northbound and southbound, restoring the existing auxiliary lanes, as well as constructing additional auxiliary lanes throughout the length of SR-55, will allow non-HOV commuters to gain space – thus reducing frustration, the need for Law Enforcement to patrol the HOV lanes, and possibly reduce the risk to motorcyclists splitting lanes and travelling at higher speeds. In restoring the existing auxiliary lanes as well as adding the two proposed auxiliary lanes, traffic on and off SR-55 will be improved. P-3-6

I humbly request that Caltrans and OCTA not extend the auxiliary lane between the Edinger Avenue and Mc Fadden Avenue to the northbound I-5, resulting in restricted access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5, as I feel this would only increase the existing problem of congestion at the Edinger Avenue on-ramp to the northbound SR-55. P-3-7

Regards,

Julieanne Linam-Newberry

P-3: Julieanne Newberry

P-3-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of Alternative 3 with a modification to include extension of the auxiliary lane between Edinger Avenue and McFadden Avenue is acknowledged. Currently, traffic traveling from the Edinger Avenue on-ramp onto northbound SR-55 enters its own lane where the lane is converted to a trap lane between the McFadden Avenue on- and off-ramps (i.e., vehicles in this lane are forced to I-5 unless they merge to the left to continue on SR-55). As a result of the lane conversion and traffic entering northbound SR-55 at McFadden Avenue, this area is congested under existing conditions. Extending the auxiliary lane would require additional residential property acquisitions and reconstruction of the McFadden Avenue Bridge, and would not resolve the weaving issue between the McFadden Avenue on-ramp traffic and I-5 northbound and southbound traffic, and was not considered as part of the selection of the Preferred Alternative.

P-3-2

The project development team acknowledges the importance of the SR-55 corridor to Orange County residents, and the purpose of this project is to provide congestion relief, improve traffic flow, and increase mobility along the SR-55 corridor. The traffic analysis shows the proposed improvements would substantially reduce vehicle delays by 30 to 40 percent during the peak periods. Your comments regarding the use and law enforcement patrol of the HOV lanes and increased travel times is acknowledged for the record.

P-3-3

The commenter's lack of support for Alternative 1 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. The traffic analysis shows Alternative 1 would provide substantial benefits on southbound SR-55 for morning commuters but marginal benefits on northbound SR-55 for afternoon commuters.

P-3-4

The commenter's support of Build Alternatives 2 and 3 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-3-5

The intersection at the northbound SR-55 on-ramp at Newport Avenue is experiencing substantial congestion and queuing during the p.m. peak hour under existing conditions. The main cause of congestion at this location is due to vehicle queue spillback from the freeway mainline. Therefore, one of the key strategies to relieve congestion at this intersection is to address freeway mainline congestion on northbound SR-55, especially in the p.m. peak hour.

Restricting access from McFadden Avenue to northbound SR-55 and southbound I-5 would substantially improve the northbound SR-55 mainline operations and consequently traffic safety as well. The traffic analysis shows that with the freeway mainline improvements in place under Alternative 3, this intersection would anticipate improved conditions in 2040 with the average delay reduced by 10 seconds per vehicle and reduced queue at the on-ramp in the p.m. peak hour compared to the No Build Alternative.

P-3-6

The commenter's opinion on the benefits of adding at least one general purpose lane and restoring and adding auxiliary lanes to SR-55 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. The traffic analysis shows that

substantial benefits on both southbound and northbound SR-55 would be provided under Alternative 3 with the new general purpose lane and additional auxiliary lanes.

P-3-7

The commenter's request to not extend the auxiliary lane between Edinger Avenue and McFadden Avenue to northbound I-5 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. Restricting the McFadden Avenue on-ramp to I-5 northbound only is proposed to minimize the existing weaving issues that currently exist which increase congestion and the potential for accidents. The extension of the auxiliary lane to McFadden Avenue is not a result of this restriction. As described in Section 2.3.1.3 of the IS/EA, the freeway access modifications to the northbound McFadden Avenue on-ramp would require some motorists to follow a different travel path to access northbound SR-55 and southbound I-5. In addition, the Traffic Operations Report prepared for the project demonstrate that modifying access at McFadden Avenue would divert traffic from McFadden Avenue to northbound SR-55 to the I-5 Newport Avenue and I-5 Red Hill Avenue ramps. As described in Section 2.5.3 of the IS/EA, the impact from the diverted traffic flow would be reduced by the implementation of the proposed mitigation and minimization measures provided in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA.

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From: Mark Ward-Aguilar <markwardaguilar@gmail.com>
Sent: Thursday, December 10, 2015 8:50 AM
To: D12 SR55 Improvement Project@DOT
Subject: 55 Freeway

Dear Charles Baker, Caltrans District 12 senior environmental planner,

Please expand the 55 fwy, it's terribly congested at all times of the day. But what's really needed, is for someone to help the City of Irvine with their stoplights. I commute 1.5 mile through Irvine to work and it could take 30 minutes to get through 5 lights. At each light (Alton/Barranca and Von Karman/Jamboree) you can get stopped for up to 3-4 mintues. It's absurd. I'd rather sit in congested 55 fwy than deal with the Irvine stop lights. P-4-1 P-4-2

Sincerely,

Mark Ward

P-4: Mark Ward

P-4-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of the project is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-4-2

As stated in Section 1.2, Purpose and Need, of the IS/EA, the purpose of the proposed project is to provide congestion relief, improve traffic flow, and increase mobility on SR-55. The project is needed to address the current deficiencies of SR-55 within the project limits, which include limited available lane capacity during peak periods, inadequate merging distances as a result of closely spaced on- and off-ramps along the freeway mainline, and nonstandard lane and shoulder widths at some locations. The Build Alternatives analyzed in the IS/EA include improvements to the SR-55 freeway to address the project purpose and need. Improvements to the City of Irvine stoplights were not considered because they would not address the purpose and need of the project.

From: Jim Stratton <jaimest@me.com>
Sent: Thursday, December 10, 2015 8:47 AM
To: D12 SR55 Improvement Project@DOT
Subject: 55 widening

There is essentially only one freeway perpendicular to the 405 and 5 until you reach the 605. The 55 serves a majority portion of OC.
Why not do a long term solution and extend the 57 at least to the 405. P-5-1

Sincerely,
Jim and Pam Stratton
315 Alvarado Place
Newport Beach, Ca
714 756-0535

Sent from my iPhone

P-5: Jim and Pam Stratton

P-5-1

The commenters' support of the extension of State Route 57 (SR-57) to I-405 is acknowledged. As stated in Section 1.2, Purpose and Need, of the IS/EA, the purpose of the proposed project is to provide congestion relief, improve traffic flow, and increase mobility on SR-55. The project is needed to address the current deficiencies of SR-55 within the project limits, which include limited available lane capacity during peak periods, inadequate merging distances as a result of closely spaced on- and off-ramps along the freeway mainline, and nonstandard lane and shoulder widths at some locations. The Build Alternatives analyzed in the IS/EA include improvements to the SR-55 freeway to address the project purpose and need. Extending SR-57 to I-405 was not considered because it would not address the identified purpose and need of the project.

From: Thomas Hartmann <tom@newportseabase.org>
Sent: Thursday, December 10, 2015 10:39 AM
To: D12 SR55 Improvement Project@DOT
Subject: Yes!

The 55 improvements are long overdue! It doesn't take a major study to know that the 55 freeway, from the 405 to the 5 is a disaster. P-6-1

There is already ample room to simply add dedicated exit lanes to Main and Dyer….people merging and wishing to exit are a major culprit of the freeway slowing down in that section. And maybe adding an earlier sign about the 5 interchange could help, as the first sign pops up at a curve in the freeway (never good). P-6-2

Thanks,

Tom Hartmann – Executive Director
NEWPORT SEA BASE
Orange County Council, Boy Scouts of America

NEWPORT SEA BASE

1931 West Coast Highway
Newport Beach, CA 92663
P 949.642.5031
newportseabase.org

****Christmas Boat Parade tickets are on sale now! Dec 16-20. Click Here to buy them!**

P-6: Tom Hartmann

P-6-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of the project is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-6-2

The area within the Caltrans right-of-way noted in the comment area is incorporated into the Build Alternatives under consideration and is used for the widening of general purpose lanes or auxiliary lanes, depending on the Build Alternative proposed in the IS/EA. Build Alternatives 3 and 4 would provide a dedicated exit lane (or auxiliary lane) to Dyer Avenue from southbound SR-55. The commenter's request for a dedicated exit lane was considered in identifying the Preferred Alternative for the proposed project. The commenter's request for earlier signage for I-5 on northbound SR-55 is acknowledged. The mainline signage will be determined during the final design phase of the project per Caltrans signage standards and requirements.

From: Debra Marsteller <Deb@proindependence.org>
Sent: Thursday, December 10, 2015 7:35 PM
To: D12 SR55 Improvement Project@DOT
Subject: No No No

Spend money on mass transit – not widening any more freeways. Where are all of the forward looking creative smart people? This is insanity! P-7-1

Debra Marsteller
www.proindependence.org
714-549-3464 ext 232
Like us on Facebook!

P-7: Debra Marsteller

P-7-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support for public transit instead of freeway widening is acknowledged and noted for the record. As discussed in Section 1.5.3 of the IS/EA, alternative travel modes were considered during the early planning studies for improvements to SR-55. However, mass transit alternatives alone do not satisfy the project purpose of improving both existing and future mobility; reducing congestion; and improving mainline weaving, merge, and diverge movements, and would not fulfill OCTA's Freeway Chokepoint Program. Therefore, mass transit options were not considered as a project alternative because they would not address the purpose and need of the project.

From: Conrad Kopec <conkopec@gmail.com>
Sent: Friday, December 11, 2015 7:34 AM
To: D12 SR55 Improvement Project@DOT
Subject: 55 widening 12/10/2015

Charles Baker Caltrans District 12
Senior Environmental Planner
3347 Michelson Dr Suite 100
Irvine, CA 92612-1692
Email:D12SR55improvementproject@dot.ca.gov and dailypilot@latimes.com
Friday, December 11, 2015

RE: 55 Freeway Widening

As an ex-Civil and Structural Engineer in the State of California, I offer the following comments:

One definition of insanity is "doing the same thing over and over expecting a different result". The engineers at Caltrans are not only insane but also inane. They should try reducing use by closing lanes and entrance ramps, and possibly eliminating existing lanes for single passenger use/making bus only lanes or mass transit lanes. Discouraging use is the best solution to congestion!! For example:

1. The Entry ramps at and the N bound exit ramp to Mac Arthur- This is where the 405 cars and Mac Arthur traffic jam up..
2. The entry ramps at Mc Fadden Ave. N and, in particular, the S bound at the 5 freeway. This where the 5 cars transitioning to the 55 South jam up.
3. The entry ramps at 4th and 17th streets just N of the 5 Freeway. They interfere with the 22 Freeway traffic.
4. The entry ramps just S of the 91 Freeway.
5. Either the Chapman or Katella entry ramps.

P-8-1

An experiment could be done , implementing the 1 thru 5, for a three month period to see what happens. That, however, is beyond the cognitive abilities of many engineers.

I also offer the following comments on Group Intelligence..

Referencing: "Group intelligence and the political scene " The Journal of Irreproducible Results, vol. 26, no 2:3 (1980)

"The I.Q of the elected official is the I.Q. of the dumbest voter divided by the number of votes received." The bottom line is that a person receiving a large number of votes, say 10,000,000, could have an I.Q approaching 0.0000001, OR VERY CLOSE TO ZERO. This assumes the dumbest voter has a positive I.Q.
If the dumbest voter has a negative I.Q., a similar scenario would lead to a negative 0.0000001 group I.Q. AGAIN VERY CLOSE TO ZERO.

P-8-2

We can conclude, the I.Q. of a group approaches zero. However, one must remember that the positive I.Q. group has their I.Q. reduced by the addition of more people while the negative I. Q. group has their I.Q. increased with the addition of more people. Ergo, the negative group suffers from the delusion of increasing intelligence.

Conrad J Kopec
606 Rhine Lane
Costa Mesa, CA 92626
714-296-2144
conkopec@gmail.com

P-8: Conrad Kopec

P-8-1

Please note that a transportation solution for this corridor involves multiple stakeholders (i.e., Caltrans, OCTA, and multiple cities) and a balanced approach is necessary (e.g., limiting access and reducing lanes could potentially help the freeway but would have severe impacts on the local streets and would not be an acceptable balanced solution). Build Alternatives 1, 3, and 4 would provide an additional auxiliary lane to resolve the congestion at the northbound MacArthur Boulevard on- and off-ramps. To eliminate traffic weaving on northbound SR-55 at the McFadden Avenue on-ramp, Alternatives 3 and 4 would restrict the northbound McFadden Avenue on-ramp to northbound I-5 only. On southbound SR-55, Alternatives 1, 2, 3, and 4 would remove the auxiliary lane at the McFadden off-ramp to reduce the traffic weaving. The SR-55 on-ramps at 4th Street, 17th Street, State Route 91 (SR-91), Chapman Avenue, and Katella Avenue are outside of the project limits of the improvements of this project.

P-8-2

This comment does not raise issue with the adequacy of the IS/EA. The comment is acknowledged and noted for the record. Wilson Giannini (1 of 1)

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From: Wilson Giannini <gerral@outlook.com>
Sent: Friday, December 11, 2015 8:18 AM
To: D12 SR55 Improvement Project@DOT
Subject: WIDENING OF THE 55

Dear Mr. Baker,
Widening the 55 is a NO BRAINER and should start tomorrow. This freeway is gridlock almost all day long. P-9-1

PLEASE, PLEASE, PLEASE DO NOT use the contractors that took 2 years and still not finished with the small enhancements at the end of the 55 Freeway at 19th street in Costa Mesa. This project is appalling, the contractor should be fined, never allowed to bid on another project and the Caltrans Supervior in charge of the project should be sacked. I have never seen such a poorly managed project in my life. Caltrans should be ashamed, this is the main entrance to the Cities of Costa Mesa and Newport and it looks like crap. Just look at the business and residential tax revenue from the area at the end of the 55 freeway that it serves. Lido Isle where I live alone has property value of the 850 homes over 2 Billion Dollars. There are billions of dollars in enhancements with them old city hall Lido Village and the Peninsula. No one can figure out what this project accomplished. A few feet of left turn lane onto 19th street, a concrete divider that is wavy and butt ugly and still a grid lock in the evenings and every weekend. Some UNFINISHED planting is already dead. Caltrans has done so many nice walls along freeways and the main entrance to our city looks AGAIN LIKE CRAP. Mr. Baker you should get out of your office, look at the project, make some beautification changes and GET IT FINISHED before 2017!!!!!!!!!!!!!!!! P-9-2
Respectfully,

Sent from my iPad
R.P. "Skip" Wilson, Jr.
GERRAL GROUP
gerral@outlook.com
www.gerralgroup.com

P-9: Wilson Giannini

P-9-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of the project is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-9-2

The improvements at 19th Street in Costa Mesa are outside the limits of this project and are not part of the proposed project. The construction contractor is not selected during this phase of the project (preliminary design). The contractor will be selected through a competitive bid process. There is no guarantee that the contractor involved with the improvements at 19th Street will not be selected for this project.

From: Brian Ahmadi <brian@ayzarinc.com>
Sent: Wednesday, December 16, 2015 12:51 PM
To: D12 SR55 Improvement Project@DOT
Subject: Please forward plans

Hello,

Can you please forward the plans for the 55 freeway widening project?

P-10-1

It is mentioned in LA Times here: http://www.latimes.com/socal/daily-pilot/news/tn-dpt-me-1210-55-freeway-widening-20151209-story.html

Thank you,

Brian Ahmadi
Property Coordinator

AyZar INC
www.AyZarInc.Com
1516 Brookhollow Drive, Suite B
Santa Ana, CA 92705
Direct: 714.881.0452
T: 714.662.2799
F: 714.662.2797

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P-10: Brian Ahmadi

P-10-1

The layout sheets for the project are available for the public to review on the Caltrans website at http://dot.ca.gov/dist12/DEA/SR55IMPROV/. In addition, the project plans were provided to Brian Ahmadi via email on January 19, 2016.

From: John Garay <jgaray2@csu.fullerton.edu>
Sent: Tuesday, January 05, 2016 9:13 PM
To: D12 SR55 Improvement Project@DOT
Subject: comments on project proposal

Dear Improvement project committee,

After the proposal to the improvements on the 55 free way the community that lives near the McFadden exit would be severely negatively effect us by closing access to the south bound 5 and north 55 freeways. Not only dose our community have a parking issues that add time to morning commutes but the extend time that it would take to get to the next entrance only adds to congestion on the streets and doesn't solve a issue, but rather moves it somewhere else. P-11-1

This is why proposal 1 and 2 would be a bad idea because every time one has been implemented in the area, it has only added to congestion and traffic. two good examples are the transition from the 22 to the 5 freeway and the separated carpool lane are always backed up during rush hour. in addition, the designated lane would not improve the crowding that happens on the north 5 connector and traffic on the 5 free way. P-11-2

option 3 and 4 of adding a additional lane would not impact the community as they would still have access to north/south 5 and 55 north. Thank you for your time and have a great day. P-11-3

John Garay

P-11: John Garay

P-11-1

Section 2.3.1.3 in the IS/EA evaluated the potential for the restriction of the northbound McFadden Avenue on-ramp to the northbound I-5 connector only under Alternatives 3 and 4 to result in permanent impacts on the community character and cohesion of the neighborhoods that currently use that on-ramp to access northbound SR-55 and southbound I-5. As described in Section 2.3.1.3, the freeway access modifications to the northbound McFadden Avenue on-ramp would require some motorists to follow a different travel path to access northbound SR-55 and southbound I-5, resulting in minor travel delays for some motorists. However, the elimination of direct access from the northbound McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would not create a barrier to traffic movements in the study area because motorists would still be able to access northbound SR-55 and southbound I-5 via other nearby interchanges. The IS/EA concluded that impacts to community character and cohesion would not be adverse.

As described in Section 2.5.3 of the IS/EA, the diverted traffic flow resulting from the elimination of direct access from the northbound McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would result in potentially significant traffic impacts at the northbound I-5 on-ramp at Newport Avenue. However, with the implementation of mitigation measures provided in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the IS/EA, these impacts would be reduced. In addition, the diverted traffic resulting from the restricted access at the northbound McFadden Avenue on-ramp would result in potentially adverse traffic impacts at the southbound I-5 off-ramp at Newport Avenue and the southbound I-5 on-ramp at Red Hill Avenue. However, with the implementation of minimization measures provided in Section 2.5 of the IS/EA, these impacts would be minimized.

P-11-2

The commenter's opposition to Alternatives 1 and 2 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. The State Route 22 (SR-22) transition to I-5 is outside the limits of the proposed project. The close proximity between McFadden Avenue and I-5 has created a bottleneck for SR-55 commuters, resulting in poor traffic operations, increased congestion, and potential accidents at this location. Therefore, the McFadden Avenue on-ramp restriction was proposed to relieve the weaving issue and improve traffic safety for residents in adjacent neighborhoods as well as for other commuters. Alternatives 3 and 4 with the McFadden Avenue limited access are predicted to provide substantial operational benefits by reducing vehicle delay and congestion and improving traffic safety for nearby residents.

The traffic study also evaluated potential impacts to local streets due to the McFadden Avenue restriction, and the results show that only one intersection would be impacted. Mitigation was proposed for this intersection.

P-11-3

As discussed in Section 1.3 of the IS/EA, Build Alternatives 3 and 4 would restrict vehicles entering the northbound McFadden Avenue on-ramp to northbound I-5 only. However, travelers would still have access to northbound SR-55 and southbound I-5 at various other locations along SR-55 and I-5.

STATE ROUTE 55 IMPROVEMENT PROJECT
FROM INTERSTATE 405 TO INTERSTATE 5

COMMENT CARD

P-12

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Heidi Hall PHONE: 949.285.1145

ADDRESS: _____ CITY: _____ ZIP: _____

EMAIL: hhatch@outlook.com ☒ Yes, please email me project updates.

Are you a business owner? ☒ Yes ☐ No Business Name: HBK, LLC

What is the best way to provide information to you? ☑ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☒ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☒ Direct Mail ☐ Social Media ☐ Newspaper ☐ Flyer ☐ Word of Mouth

COMMENTS:

What studies have been done ~~to~~ regarding turning HOV lanes into General Purpose lanes during ~~the~~ the heavest traffic times?

How does this alternatave impact the flow of all the traffic lanes?

P-12-1

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

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- **Caltrans District 12 Office,** 3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
- **Orange County Transportation Authority,** 550 South Main Street, Orange, CA 92868
- **Santa Ana Public Library,** 26 Civic Center Plaza, Santa Ana, CA 92701
- **City of Irvine City Hall,** 1 Civic Center Plaza, Irvine, CA 92606-5207
- **Tustin Library,** 345 East Main Street, Tustin, CA 92780

They also are available online at **www.dot.ca.gov/dist12/DEA/SR55IMPROV.**

WRITTEN COMMENTS: Please submit comments in writing no later than 5 p.m., January 8, 2016 to:

Charles Baker, Senior Environmental Planner,
California Department of Transportation, District 12,
Environmental Analysis - Specialist Branch
3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
or via e-mail to **D12SR55ImprovementProject@dot.ca.gov.**

Caltrans
OCTA
Measure M

P-12: Heidi Hall

P-12-1

Transportation facilities are designed to serve all users, including both HOV and non-HOV commuters. The existing HOV lane is important to not only serve the HOV demand, but to help relieve congestion on the general purpose lanes by moving carpool vehicles to the HOV lane. In addition, the general outcome of converting an HOV lane to a general purpose lane would be a reduction in the overall capacity of the freeway and an adverse effect to mobility, which is in conflict with the purpose of this project and was not evaluated as part of the study.

STATE ROUTE 55 IMPROVEMENT PROJECT
FROM INTERSTATE 405 TO INTERSTATE 5

COMMENT CARD

P-13

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Jeff Robinette PHONE: (626) 315-0912

ADDRESS: 7400 Artesia Blvd. Buena Park, CA CITY: ZIP:

EMAIL: jrobinette@lcof.net ☒ Yes, please email me project updates.

Are you a business owner? ☐ Yes ☒ No Business Name:

What is the best way to provide information to you? ☒ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☐ Direct Mail ☐ Social Media ☒ Newspaper ☐ Flyer ☐ Word of Mouth

COMMENTS:

Laborers Union representative. We are excited about the opportunity to contribute to the expansion and put our members to work.

P-13-1

Thank You!

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or via e-mail to **D12SR55ImprovementProject@dot.ca.gov.**

Caltrans
OCTA

P-13: Jeff Robinette

P-13-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of the project is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

STATE ROUTE 55 IMPROVEMENT PROJECT
FROM INTERSTATE 405 TO INTERSTATE 5

COMMENT CARD

P-14

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Mark Landry PHONE: 714-454-7802

ADDRESS: 342 E. Dunton Ave CITY: Orange ZIP: 92865

EMAIL: mark_landry@toyota.com ☐ Yes, please email me project updates.

Are you a business owner? ☐ Yes ☒ No Business Name: _____

What is the best way to provide information to you? ☒ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☐ Direct Mail ☐ Social Media ☒ Newspaper ☐ Flyer ☐ Word of Mouth

COMMENTS:

Most of the traffic problem North bound in the proposed Area is Because there are only 3 regular lanes and 1 HOV going under the 5 Freeway. if there were 2 more regular lanes there and another regular lane through to the 91 transition, Much of the problem would Be absorbed.

If the 5 North bound would flow, then that transition would not overflow into the 55 North through traffic

P-14-1

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

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or via e-mail to D12SR55ImprovementProject@dot.ca.gov.

Caltrans

OCTA

P-14: Mark Landry

P-14-1

Improvements to the I-5/SR-55 interchange and SR-55 north of the I-5 interchange are not part of the scope of this project. The northern project limit is south of the SR-55/northbound I-5 interchange. Improvements to the I-5 interchange will be evaluated and studied as a separate project. Caltrans and OCTA are beginning a process for evaluating alternatives for improving SR-55 north of the I-5, and environmental studies for this project were initiated in 2016.

STATE ROUTE 55 IMPROVEMENT PROJECT
FROM INTERSTATE 405 TO INTERSTATE 5

COMMENT CARD

P-15

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Joseph Chen PHONE: 949-863-9442

ADDRESS: 1700-1720-1740 E. Garry Ave. CITY: Santa Ana ZIP:

EMAIL: JOSEPH.LP.CHEN@gmail.com ☒ Yes, please email me project updates.

Are you a business owner? ☒ Yes ☐ No Business Name: Equitable Garry Plaza offices

What is the best way to provide information to you? ☒ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☒ Direct Mail ☐ Social Media ☐ Newspaper ☐ Flyer ☐ Word of Mouth

COMMENTS:

1. my property is against the east side of (55) freeway betwn Alton parkway & E. Garry Ave. parcel # 430-171-07. When the freeway is widen, we want to make sure that we do not loose any parking space. For us to stay as office buildings, we need 4 to 1 parking and we now have 400 parking space. P-15-1

3. Our property is against Alton parkway on the southend. We have been told that the Alton parkway overpass from Irvine side to the Santa Ana side had all been designed and wait for the fund for construction. How is the overpass going to affect this (55) freeway expansion. It seems that the overpass may add an in-gress – off-gress carpool land from Alton parkway to (55) freeway and vic-verse. If this is the case, are we going to loose more land to accomodate ~~the in-gress off-gress~~ this combination construction of both. P-15-3

2. It seems alternative #3 is more a choice to meet the need of relief the traffic on the North bound of 55 freeway. I do not think a 2nd HOV land is necessary at this point. P-15-2

#2 or #3

Joseph Chen

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

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- City of Irvine City Hall, 1 Civic Center Plaza, Irvine, CA 92606-5207
- Tustin Library, 345 East Main Street, Tustin, CA 92780

They also are available online at www.dot.ca.gov/dist12/DEA/SR55IMPROV.

WRITTEN COMMENTS: Please submit comments in writing no later than 5 p.m., January 8, 2016 to:

Charles Baker, Senior Environmental Planner,
California Department of Transportation, District 12,
Environmental Analysis - Specialist Branch
3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
or via e-mail to D12SR55ImprovementProject@dot.ca.gov.

Caltrans
OCTA
Measure M

P-15: Joseph Chen

P-15-1

Section 2.1, Land Use, of the IS/EA provides information regarding the temporary and permanent off-street parking impacts of the four Build Alternatives. As shown in Table 2.1.2 in Section 2.1.4.1, Alternatives 3 and 4 would result in the temporary reconfiguration of approximately 35 off-street parking stalls at APN 430-171-07 during construction. Following completion of the project, any off-street parking areas that are temporarily disturbed by construction activities would be returned to their property owners in the same or better condition than they were prior to construction. The owners of parcels where parking reconfigurations would be required would receive compensation for the temporary use of a portion of their property, which would further minimize the impacts related to the use of property for TCEs.

As shown in Table 2.1.3 in Section 2.1.4.2, none of the Build Alternatives would result in permanent off-street parking impacts at APN 430-171-07.

P-15-2

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of Alternatives 2 and 3 over Alternative 4 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-15-3

Operationally, the Alton Parkway project would not impact the SR-55 freeway project. The Alton Parkway project is an overpass project and the impacts to the SR-55 corridor would be limited to the bridge columns at the median of SR-55. The four Build Alternatives were designed to accommodate the proposed bridge column locations. For the outline of the Future Alton Overcrossing, see sheet L-6 of the layout plans for the Build Alternatives, available on the Caltrans website at http://dot.ca.gov/dist12/DEA/SR55IMPROV/. Additionally, any future carpool drop ramps are not included as part of this project.

COMMENT CARD

P-16

Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment

NAME: Brad Kelly PHONE: (949) 533-5722

ADDRESS: 26522 La Alameda, Ste 285 CITY: Mission Viejo, Ca. ZIP: 92691

EMAIL: Brad@makenaprop.com ☑ Yes, please email me project updates.

Are you a business owner? ☑ Yes ☐ No Business Name: McFadden Place

What is the best way to provide information to you? ☑ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☐ Direct Mail ☐ Social Media ☐ Newspaper ☐ Flyer ☑ Word of Mouth

COMMENTS:

As the property owners of McFadden Place at 1400-1441 S. Village Way, we are concerned about the plans and the impact the widening has on our property. All four alternatives show a taking of our building at 1411 S. Village Way that is recently leased to Rockin' Jump (highlighted in green on the attached). Additionally, there is a Right of Way adjustment that takes a portion of the property at 1421-1427 S. Village Way that provided parking and circulation for the property.

I understand the contributing factors to the taking of the building are:

A. Without the yard along the freeway, the building fails to meet the fire department's requirement for defensibility being that the distance from the accessible points would exceed 150' from each direction (red line on attached) P-16-1

B. Sight line from the revised location of on ramp at McFadden.

In lieu of taking the building, we would propose:

1. Return the Right of Way property to the North of 1400 and 1411 S. Village way back to our project (highlighted in red on the attached). P-16-2

2. Provide fire access to the North of the building and a turnaround for fire trucks (highlighted in purple) to satisfy the condition "A" above. P-16-3

3. Reduce the taking of Right of Way out of the building footprint (highlighted in brown on the attached). P-16-4

4. Re-assess the sight or adjust the onramp configuration to satisfy condition "B" above. P-16-5

Additionally, we remain concerned about the accessibility and circulation to the east side of 1421-1427 and the pinch point that is created at the North East corner of the building and the usability of the truck door on the east side of the building at corner. P-16-6

We encourage OCTA to review and engage us in the process in order to mitigate these issues.

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

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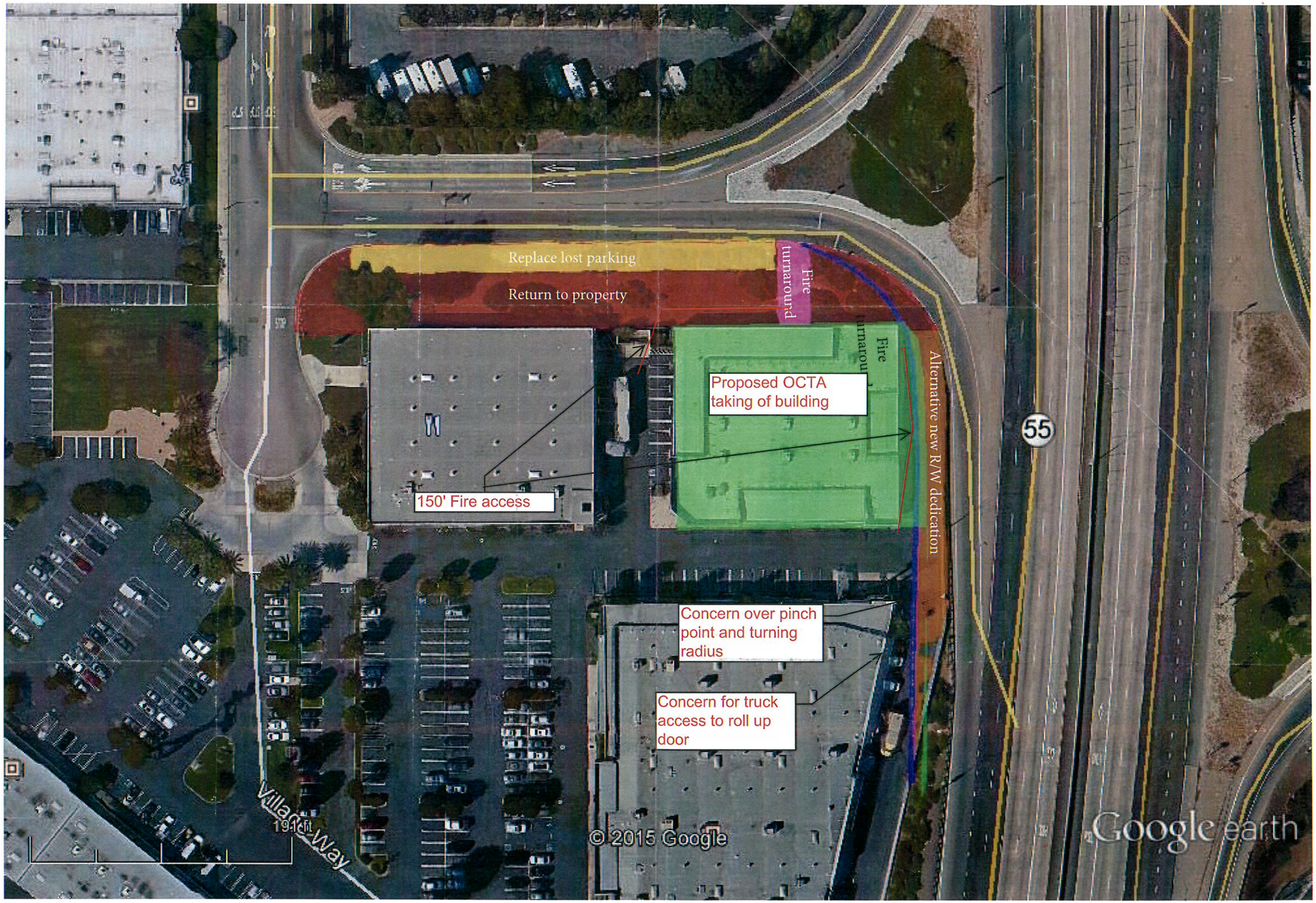
They also are available online at **www.dot.ca.gov/dist12/DEA/SR55IMPROV.**

WRITTEN COMMENTS: Please submit comments in writing no later than 5 p.m., January 8, 2016 to:

Charles Baker, Senior Environmental Planner,
California Department of Transportation, District 12,
Environmental Analysis - Specialist Branch
3347 Michelson Drive, Suite 100, Irvine, CA 92612-1692
or via e-mail to **D12SR55ImprovementProject@dot.ca.gov.**



Google Earth Pro

feet 700
meters 200

P-16: Brad Kelly

P-16-1

The commenter's request for relocation of the building (Rockin' Jump) is acknowledged. Final disposition of the right-of-way has not been determined at this point. The process to finalize the disposition will occur during the final design phase. The building is anticipated to be removed under all Build Alternatives in order to provide accessibility and circulation for the other adjacent buildings in this parcel that would not be acquired.

P-16-2

The commenter's request for the right-of-way north of their property to be returned to them is acknowledged. The final disposition of the right-of-way required for the project has not been determined at this point. Any relinquishment of existing right-of-way would occur only after such property is declared to be excess right-of-way pursuant to Streets and Highways Code Section 118. The ultimate right-of-way requirements will be determined during the final design phase. Relinquishing the area shaded in red to the property owner, as noted in the comment, does not increase the sight distance and safety at this on-ramp location.

P-16-3

The commenter's request for providing fire access north of the building is acknowledged. However, the building at 1411 Village Way noted in the comment would be removed by all Build Alternatives and the tenants would be relocated. As a result, there would be no fire access issue at this location. As noted in Response to Comment P-16-2, above, the main reason for acquiring this building is to improve the sight distance and safety of the McFadden Avenue on-ramp to southbound SR-55.

P-16-4

The main reason for this acquisition and design is to improve sight distance and safety. Final disposition of the right-of-way has not been determined at this point. The process to finalize the disposition would occur during the final design phase. In addition, the McFadden Avenue on-ramp to southbound SR-55 was designed to minimize impacts to the adjacent properties as well as provide a safe condition for vehicles. The right-of-way acquisition at this property was reduced to the extent feasible, while still providing standard lane width and shoulder, per the California Highway Design Manuel (HDM).

P-16-5

The proposed design minimizes impacts to the adjacent property, given the existing condition constraints, including the tight on-ramp radius (the proposed curve is at the minimum allowable by the HDM) and the short weaving distance between the McFadden Avenue on-ramp and Edinger Avenue off-ramp on southbound SR-55. The main reason for this acquisition and design is to improve sight distance and safety at the McFadden Avenue on-ramp, which cannot be obtained without the removal of the building.

P-16-6

The TCE could potentially be modified at the pinch point of the building to maximize access and circulation during construction. Full circulation of accessibility would be provided after the completion of construction in this area. Under all four Build Alternatives, 20 ft of clearance would be provided from the fence line to the edge of the building.

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P-17

NAME: DAN O'NEIL PHONE: 714-713-3302

ADDRESS: 2061 S. RITCHEY CITY: SANTA ANA ZIP: 92704

EMAIL: DAN@ONELSTORAGE.COM ☑ Yes, please email me project updates.

Are you a business owner? ☒ Yes ☐ No Business Name: O'NEIL STORAGE

What is the best way to provide information to you? ☒ Email ☒ Direct Mail ☐ Social Media ☐ Newspaper ☐ Text ☐ Voicemail

How did you hear about this meeting? ☐ Email ☒ Direct Mail ☐ Social Media ☐ Newspaper ☐ Flyer ☐ Word of Mouth

COMMENTS:

ALTERNATIVE 1 - BEST FOR US P-17-1

ALTERNATIVE 4 - BAD FOR US AS WE NEED ALL PARKING AND ABILITY TO DRIVE AROUND BUILDING P-17-2

Thank You!

PUBLIC COMMENT PERIOD: November 25, 2015 to 5 p.m. January 8, 2016

The Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment and other project information are available at the following locations during normal business hours:

WRITTEN COMMENTS: Please submit comments in writing no later than 5 p.m. January 8, 2016 to

P-17: Dan O'Neil

P-17-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of Alternative 1 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-17-2

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your opposition to Alternative 4 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. As discussed in Section 2.1 of the IS/EA, the expansion of SR-55 would not impact parking at O'Neil Storage. The Temporary Construction Easement on this property will be reduced to minimize impacts to traffic circulation.

CALL & JENSEN
EST. 1981
LAWYERS
610 NEWPORT CENTER DRIVE, SUITE 700
NEWPORT BEACH, CALIFORNIA 92660
TELEPHONE 949.717.3000
FACSIMILE 949.717.3100
CALLJENSEN.COM

January 21, 2016

OUR FILE NUMBER
RIC09-03

BY EMAIL AND U.S. MAIL

Charles Barker
Senior Environmental Planner
California Depart. of Transportation / District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612

Re: Response to Public Notice of Proposals to Widen SR-55

Dear Mr. Barker:

We are counsel for Ricoh Electronics, Inc. We write to you in response to the Public Notice sent to Ricoh regarding the Caltrans' proposal to widen State Route 55.

Ricoh has reviewed the five alternative proposals under consideration. Based on our review of the proposals, we understand the anticipated impact on Ricoh of the various alternative proposals to be as follows:

> Alternatives 1 and 2 – Caltrans acquisition of approximately 15,883 square feet of Ricoh property consisting entirely of the grass area that serves as a buffer between Ricoh's parking lot and SR-55, temporary construction easements along the same area, utility relocations, but no permanent parking impacts.
>
> Alternatives 3 and 4 – Caltrans acquisition of approximately 31,185 square feet of Ricoh property consisting of the grass area that serves as a buffer between Ricoh's parking lot and SR-55, a portion of the Ricoh's parking lot consisting of 12 parking spaces, and a portion of Ricoh's property along Valencia Avenue, including property that serves as Ricoh's entrance to its property and where its security shed is located, temporary construction easements along the same area, and utility relocations.
>
> No Build Alternative – No impact

P-18-1

Ricoh has been advised and understands that the alternative proposals are subject to change and, as a result, Ricoh reserves its right to make additional comments as information becomes available and as final project proposals materialize.

P-18-2

Based upon the anticipated impacts of the current proposals, Ricoh favors the No Build Alternative. However, should Caltrans opt to proceed with the widening, Ricoh strongly recommends against Alternatives 3 and 4, as the impact of those proposals will be highly onerous on Ricoh, and may undercut its ability to comply with federal law, as explained below. P-18-3

There are several reasons that Ricoh may be uniquely impacted by the build alternatives, and particularly Alternatives 3 and 4. First, the Ricoh properties at issue are designated Foreign-Trade Zones ("FTZ"). An FTZ is a secure, restricted-access area under U.S. Customs and Border Protection ("CBP") control and regulation. FTZ's are subject to substantial regulation, including access restrictions. As an FTZ, Ricoh is required by law to provide and maintain adequate security and enclosures on its premises, as well as suitable provisions for ingress and egress of persons, conveyances, vessels, and merchandise. *See* 19 U.S.C. 81I(f). Specifically, Ricoh has adopted and implemented a number of policies and procedures to ensure that it complies with the regulation governing FTZ's, including, but limited to the following:

a. Customs Security Requirements – Ricoh is required to maintain the premises and establish procedures adequate to ensure the security of merchandise located in restricted zones in accordance with applicable Customs security standards and specifications. (19 CFR 146.4(e)). Ricoh is responsible for safekeeping of merchandise and records concerning merchandise admitted to its premises. P-18-4

b. Guard Service – Ricoh provides guard service to safeguard the merchandise and ensure the security of its premises.

c. Compliance Reviews of Cargo Security – Customs officers monitor Ricoh's maintenance of security standards, specifications, and requirements through compliance reviews and audits.

d. Action on Cargo Security Deficiencies – Deficiencies in FTZ security may result in the imposition of fines, and/or the suspension or loss of our zone permit.

e. On-Site Service Provider Agreement – All service providers that perform services on Ricoh's properties must sign an agreement ensuring compliance with regulations.

If Ricoh violates any FTZ regulations, Ricoh's properties could be deactivated and Ricoh could lose its designation as a U.S. Foreign-Trade Zone.

Virtually all of Ricoh's property is part of the FTZ and subject to federal regulation. A security fence runs along the perimeter of the properties and creates a restricted-access zone therein. The restricted-access zone is enforced by Ricoh's federally mandated guard service. A security shed sits alongside SR-55 and Valencia Avenue that serves as a command center for the guard service. In addition, Ricoh's entire parking lot is configured around its Valencia Avenue entrance. Therefore, even minimal reconfigurations to the entrance, the security shed, or Ricoh's parking would necessarily involve federal regulations and will risk breaches to the same, which could

lead to severe consequences for Ricoh. This, of course, is in addition to significant business disruptions that any such reconfigurations would cause. P-18-4

Second, Ricoh is a certified member of C-TPAT (U.S. Customs-Trade Partnership Against Terrorism.), which also has stringent security requirements regarding the Ricoh properties at issue. As a member of C-TPAT, Ricoh has adopted and implemented a number of additional security measures, practices and procedures throughout its supply-chain, including access restrictions and security measures, which govern conduct of persons at the subject Ricoh properties. If Ricoh does not enforce such security measures, practices and procedures, it could forfeit its membership in the C-TPAT program. It is anticipated that Alternatives 3 and 4 will impact Ricoh's security measures, practices, and procedures, and therefore challenge and place at risk Ricoh's standing as a member of C-TPAT. P-18-5

Third, the properties at issue are manufacturing facilities, and as such Ricoh is subject to substantial regulations imposed by the United States, including OSHA standards and requirements. P-18-6

Finally, Ricoh is already enduring a parking shortage at the properties at issue. Each of its allotted parking spots are currently allocated to employees or other staff members. A reduction of 12 parking spots, as proposed in Alternatives 3 and 4, would leave Ricoh without sufficient parking for its employees, and could potentially cause significant business disruption on the properties. P-18-7

This letter is not intended to be an exhaustive list of the potential impacts that will result from the proposed widening of SR-55. It merely highlights some of the issues that Ricoh would be forced to confront under the proposed build scenarios as Ricoh understands them. Based on anticipated impacts, Alternative 3 and 4 would cause significant disruptions to Ricoh's business operation, would involve a complex set of federal regulations that are enforced by the federal government, would place at risk Ricoh's standing as an FTZ and member of C-TPAT, and would raise the prospect of significant liability for any breaches in such protocols. P-18-8

In addition, business disruptions on Ricoh property may impact future investment decisions. P-18-9

For these reasons, Ricoh highly recommends against adopting Alternatives 3 and 4, as currently proposed. P-18-10

Very truly yours,

Aaron L. Renfro
For Call & Jensen
A Professional Corporation

ALR:cv

P-18: Call and Jensen

P-18-1
This comment summarizes the Build Alternatives evaluated and does not raise issue with the adequacy of the IS/EA. The comment is acknowledged and noted for the record.

P-18-2
Additional coordination with Ricoh and other impacted property owners will be undertaken during the final design review process.

P-18-3
The commenter's support for the No Build Alternative and opposition to Build Alternatives 3 and 4 are acknowledged and considered in identifying the Preferred Alternative for the proposed project. Please refer to Responses to Comments P-18-4 through P-18-6 regarding the project's effect on the Ricoh facility's ability to comply with federal law.

P-18-4
The Build Alternatives would impact the security shed, entrance, and parking on the Ricoh property. Caltrans will work with OCTA, Ricoh, and the City of Tustin to develop a plan to relocate the security shed, minimize accessibility impacts, and minimize impacts to Ricoh's FTZ and C-TPAT standing. During final design, Caltrans will work with OCTA, Ricoh, and the City of Tustin to develop a plan to minimize impacts to circulation, accessibility, and parking on the Ricoh property. The plan will include relocation of the security shed.

P-18-5
See Response to Comment P-18-4, above.

P-18-6
The final disposition of the right-of-way has not been determined at this point. The process to finalize the disposition would occur during final design. Caltrans will work with OCTA, Ricoh, and the City of Tustin to minimize any impacts to regulations imposed by the federal government, including Occupational Safety and Health Administration (OSHA) standards and requirements.

P-18-7
In order to maintain Caltrans design standards, 12 parking spots at this property would be removed. According to the Off-Street Parking Study prepared in March 2014, the Ricoh operations have a parking requirement of 582 spaces. The Ricoh site currently has 643 spaces, but would end up with 631 spaces upon completion of the project. This is 49 more parking spaces than required by code. The Off-Street Parking Study noted an average parking occupancy rate of 93 percent (or 598 parking spaces) on the Ricoh site. Therefore, if 12 parking spaces were removed at the Ricoh site, Ricoh would still have, on average, approximately 33 unoccupied parking spaces available for use. This would allow for some increase in the number of employees on the Ricoh site without disruption of business operations.

P-18-8
The commenter's opposition to Alternatives 3 and 4 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-18-9
The commenter's concern for disruption of Ricoh's business operation is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

P-18-10

The commenter's opposition to Alternatives 3 and 4 is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

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A

$150,000 5:21
add 6:3
additional 6:3
addressed 6:6
adjacent 6:13
Ana 1:17 2:24 4:1,14
approxima... 5:7
attention 5:9 6:1

B

bags 5:17
beginning 2:25
BHARAT 3:4
bigger 5:2
build 5:17
building 4:8 4:17,17,19 4:23,25 5:7
built 5:1,21
business 4:13 6:12,12,22

C

California 1:17 2:23 2:24 4:1
CalTrans 4:15 5:11,12 6:18
Certified 2:22
City 4:14
closer 6:4
coats 4:20
come 5:14 6:4
coming 4:6 5:9
commencing 2:23
compensated 6:21
concern 6:9 6:11
concluded 6:23
corner 6:16
County 4:18
CSR 1:25

D

D 3:1
damage 6:1
damaged 4:6
December 1:18 2:23 4:1
demolish 4:15
department 5:12
depending 5:23
directly 6:14
drain 5:16
drainage 4:5 5:19 6:5
dry 4:10
dug 5:15
Dyer 2:24 6:17

E

E 3:1
East 2:24
either 5:16 6:20
El 5:9,23
engineers 6:6
expansions 6:18
extent 4:7

F

facing 4:10 4:16
feet 4:7 5:7 6:15
figure 6:8
fixed 4:11
flaking 4:22
flow 4:5 5:15 5:18
foot 4:16
foundation 5:6
freeway 1:16 2:21 4:5,10 4:17,25 5:4 6:3,3,13,15

G

gas 6:16
give 4:12
going 5:16,22 5:25 6:5
grading 4:23
graffiti 4:17 4:18
Grand 6:16
ground 4:23

H

hit 4:18
hole 5:15
hopefully 5:25

I

immediate 5:9 6:1
immediately 4:12 6:9
impact 6:12 6:22
impacted 6:14 6:19
indirectly 6:14
Inspectors 5:12
interior 4:11
involved 6:21

J

K

Kelvin 1:24
2:22
know 6:7
known 4:17

L

lane 6:3
little 5:15
located 6:13
LODHIA 3:4 4:4
looked 5:14
lot 5:10

M

maintenance 5:12
major 6:9
Meeting 1:15 2:21
mess 5:2
minimize 6:22
mold 4:10

N

N 3:1
names 5:11
need 5:8,17 5:25
needs 6:1
new 4:8,13 5:1
NICK 3:5
Nino 5:9,23
NODOUST 3:5 6:11
numbers 5:11

O

okay 4:11
once 4:8
open 4:12
opened 4:9
operate 4:12
Orange 4:18

P

p.m 2:25,25
4:2,2 6:23
PAGE 3:2
paint 4:20,21 4:22
people 5:10
permission 4:15
permits 4:14
phase 6:7
problem 5:22
problems 6:5
Proceedings 6:23
project 6:12 6:21
property 4:6 5:3,5,8,14 6:1,4
Public 1:15 2:21
put 5:17,22

Q

R

rain 5:23
realized 4:9
REPORTED 1:23
Reporter 2:22
right 5:9 6:13
road 2:24 5:1 5:2,4,5,8
rot 4:10
runs 4:25 5:4 5:5

S

sand 5:17
Santa 1:17 2:24 4:1,14
second 6:2,7
senior 5:13
service 5:1,2 5:4,5
severe 5:23 6:5

severely 6:19
Shawn 5:11
Shorthand 2:22
shoulder 5:8
spent 5:21
spraying 4:20
start 5:24
State 2:23
station 6:16
storm 4:5,24
stucco 4:16
supervisors 5:13
sure 6:20
sway 5:17,18 5:22

T

tell 5:20
temporary 5:18
tenant 4:8,12
thing 6:2
think 5:24
three 6:18
Thursday 1:18 2:23 4:1
tilted 5:3
time 6:20
twice 4:19
two 6:8

U

V

W

wall 4:6,9,11 4:16,21 5:21
want 6:20
water 4:5,5 4:22,24 5:3 5:15,18,25 6:9
we're 5:22 6:14
we've 4:11,14 4:20
week 4:18,19
weeks 5:24
went 4:9
widening 1:16 2:21 4:4 6:2
WITNESS 3:2
working 5:10

X

X 3:1

Y

year 5:24
years 6:8,17

Z

0

1

10 1:18 2:24 4:1
100 6:15
1211 2:24
13803 1:25
160 4:7,15

2

2015 1:18 2:24 4:1
23 6:17

3

30 4:20

4

4 3:4
40 5:7

5

5:00 2:25 4:2
55 1:16 2:21 4:4,10,16 4:24 5:4 6:3

6

6 3:5

7

8

8:00 2:25 4:2 6:23

9

92705 2:25

PUBLIC MEETING

WIDENING THE 55 FREEWAY

SANTA ANA, CALIFORNIA

THURSDAY, DECEMBER 10, 2015

REPORTED BY:

KELVIN DO

CSR No. 13803

Public Meeting of Widening the 55 Freeway, before Kelvin Do, Certified Shorthand Reporter for the State of California, commencing on Thursday, December 10, 2015, at 1211 East Dyer Road, Santa Ana, California 92705, beginning at 5:00 p.m. and ending at 8:00 p.m.

I N D E X

WITNESS	PAGE
BHARAT LODHIA	4
NICK NODOUST	6

Santa Ana, California, Thursday, December 10, 2015
5:00 p.m. - 8:00 p.m.

TR-1

MR. LODHIA: Since the last widening of the 55 Freeway, there's been water flow, storm water drainage coming into my property, and it's damaged my wall to the extent of about 160 feet.

We had a new tenant in the building, and once we went and opened up the wall, we realized there's mold, dry rot, everything behind the 55 Freeway facing wall, okay. And we've fixed up the interior so that we can give the tenant that immediately to operate and open his new business.

We've got permits from the City of Santa Ana and permission from CalTrans already to demolish 160 foot off the stucco wall on the -- facing the 55 Freeway. The building is known as a graffiti building in Orange County. The graffiti has been hit every week on the building. And twice a week, there's been spraying paint on it. So we've got about 30 coats of paint on the wall.

TR-1-1

And the paint is flaking. And all the water has gone into the building. The ground, the grading is not done too well. So all the storm water from the 55 Freeway runs into the building.

And they built a new service road, which is even a bigger mess now because the service road is tilted towards the property. So all the water from the 55 Freeway runs down to the service road. From the service road, it runs down to my property. It's affecting the foundation.

And the building is approximately 40 feet from the shoulder of the road to the property. So we need immediate attention because of El Nino coming in right now. I have been working with a lot of people at CalTrans. I have got names and numbers. Shawn, the Inspectors maintenance department, CalTrans, all of them, and the senior supervisors. TR-1-1

They have come and looked at the property, but they have just dug a little hole for the water to flow from the drain, that's not going to do nothing. Either we need to put sand bags there, build a sway over the -- temporary sway that the water will flow out into the drainage.

If that is not done, I can tell you that the wall that we built and we have spent $150,000, if that sway is not put in, we're going to have the same problem again depending on the El Nino, how severe the rain is this year the next few weeks. I think it will start hopefully, we need the water, but this is going to

damage the property. So that needs immediate attention.

And the second thing is how widening the freeway. If you add an additional lane, the 55 Freeway will come closer to my property, and there will be severe drainage problems, if that's going to be addressed by the engineers. TR-1-1

So that's the second phase. But, you know, we have still two years to figure that out. But immediately, the major concern is the water. That's what it is.

TR-2

MR. NODOUST: I have a concern about the business impact of this project on my business. I'm located right adjacent to the freeway. I am not impacted directly, but indirectly because we're about 100 feet away from the freeway.

We have a gas station on the corner of Grand and Dyer. I've been there for the last 23 years, and the last three expansions of the CalTrans, we have been impacted severely. TR-2-1

I want to make sure this time, we either get compensated, or we be involved in the project so we can minimize the impact on our business.

(Proceedings concluded at 8:00 p.m.)

//

TR-1: Mr. Lodhia

TR-1-1

The commenter's concern about water damage to their property from runoff from SR-55 is acknowledged. The proposed project is in preliminary design and currently is scheduled to go to construction in late 2019. Although this project will look to address this issue, your concern needs immediate attention. The comment has been provided to Caltrans maintenance and it has been noted that the concern needs immediate action.

TR-2: Mr. Nodoust

TR-2-1

Section 2.1.4.1 in the IS/EA was revised to clarify that direct driveway access to private properties, including the commenter's business, would be maintained at all times during construction. Section 2.1.4.1 in the IS/EA was also revised to clarify that the overnight road closures and detours would be short-term in nature (lasting fewer than 10 nights) and would occur during off-peak hours; therefore, the temporary economic impacts on businesses associated with these closures are anticipated to be limited. With implementation of the TMP and a comprehensive public outreach program that identifies closures and detours and distributes this information to the public, these impacts are not considered substantial.

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Table 2 Comments Received During the Supplemental Draft IS/EA Public Comment Period

Letter	Name	Date	Page
State Government			
SUPP-S-1	State of California, Department of Fish and Wildlife	April 25, 2017	H-147
SUPP-S-2	Department of Toxic Substances Control	April 25, 2017	H-149
Local Government			
SUPP-L-1	City of Irvine	April 19, 2017	H-155
SUPP-L-2	Orange County Water District	April 27, 2017	H-159
SUPP-L-3	Irvine Ranch Water District	May 2, 2017	H-163
SUPP-L-4	City of Tustin	May 3, 2017	H-173
SUPP-L-5	City of Santa Ana	May 10, 2017	H-183
Regional Agencies			
SUPP-R-1	OC Fire Authority	April 12, 2017	H-185
SUPP-R-2	South Coast Air Quality Management District	April 28, 2017	H-187
Utility Companies			
SUPP-U-1	Southern California Gas Company	April 7, 2017	H-195
Public Comments			
SUPP-P-1	Abe Toshio	April 19, 2017	H-199
SUPP-P-2	Mark Roberts	April 10, 2017	H-201
SUPP-P-3	Milton Allione	April 20, 2017	H-203
SUPP-P-4	Luis Martinez	April 26, 2017	H-207
SUPP-P-5	Briggs & Alexander – Leon Alexander	May23, 2017	H-209
SUPP-P-6	Pamela Anderson	May 3, 2017	H-215
Public Meeting Court Reporter Transcript			
SUPP-TR-1	Jeff Thompson	April 20, 2017	H-217

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From: Baker, Charles A@DOT <charles.baker@dot.ca.gov>
Sent: Tuesday, April 25, 2017 11:18 AM
To: Liu, Brian M@DOT
Subject: Fwd: Supplemental Draft Initial Study/Mitigated Negative Declaration/Environmental Assessment for the Widening of State Route 55

Follow Up Flag: Follow up
Flag Status: Flagged

Sent from my iPhone

Begin forwarded message:

From: "Altman, Simona@Wildlife" <Simona.Altman@wildlife.ca.gov>
Date: April 25, 2017 at 11:08:13 AM PDT
To: "Baker, Charles A@DOT" <charles.baker@dot.ca.gov>
Cc: "Sevrens, Gail@Wildlife" <Gail.Sevrens@wildlife.ca.gov>, "Fluharty, Marilyn@Wildlife" <Marilyn.Fluharty@wildlife.ca.gov>
Subject: Supplemental Draft Initial Study/Mitigated Negative Declaration/Environmental Assessment for the Widening of State Route 55

Dear Mr. Charles,

The Department has reviewed the Initial Study/Mitigated Negative Declaration/Environmental Assessment for the State Route 55 Improvement Project (EA 0J3400) (SCH#2015111075). The Department has no additional comments to provide on this project. SUPP-S-1-1

Thank you,

Simona Altman
Senior Environmental Scientist (Specialist)
California Department of Fish and Wildlife
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4283

SUPP-S-1: California Department of Fish and Wildlife (CDFW)

SUPP-S-1-1

This comment states that the California Department of Fish and Wildlife has no comments on the project. Receipt of this comment is acknowledged.

SUPP-S-2

Department of Toxic Substances Control

Barbara A. Lee, Director
5796 Corporate Avenue
Cypress, California 90630

Matthew Rodriquez
Secretary for
Environmental Protection

Edmund G. Brown Jr.
Governor

April 25, 2017

Mr. Charles Baker
Senior Planner
California Department of Transportation, District 12
Environmental Analysis-Specialist Branch
1750 East 4th Street, Suite 100
Santa Ana, California 92705

SUPPLEMENTAL DRAFT INITIAL STUDY WITH PROPOSED MITIGATED NEGATIVE DECLARATION (ND)/ENVIRONMENTA ASSESSMENT FOR STATE ROUTE 55 (SR-55) IMPROVEMENT PROJECT BETWEEN INTERSTATE 405 (I-405) AND INTERSTATE 5 (I-5) SITE PLAN AND TENTATIVE PARCEL MAP PLN16-00029 PROJECT (SCH# 2015111075)

Dear Mr. Baker:

The Department of Toxic Substances Control (DTSC) has reviewed the subject ND. The following project description is stated in the ND: "Caltrans District 12 in cooperation with the OCTA proposes to widen SR-55 in both directions from just north of the I-405/SR-55 interchange to just south of the I-5/SR-55 interchange between Post Miles 6.4 and 10.3, in the Cities of Irvine, Santa Ana, and Tustin in Orange County, California."

Based on the review of the submitted document DTSC has the following comments:

1. The ND should identify and determine whether current or historic uses at the project site may have resulted in any release of hazardous wastes/substances. A Phase I Environmental Site Assessment may be appropriate to identify any recognized environmental conditions. SUPP-S-2-1

2. If there are any recognized environmental conditions in the project area, then proper investigation, sampling and remedial actions overseen by the appropriate regulatory agencies should be conducted prior to the new development or any construction. SUPP-S-2-2

Printed on Recycled Paper

3. If the project plans include discharging wastewater to a storm drain, you may be required to obtain an NPDES permit from the overseeing Regional Water Quality Control Board (RWQCB). SUPP-S-2-3

4. A potential for contamination on several parcels on the project area is due to current or historic uses such as: waste, waste oil, underground storage tanks, gasoline leaks, dry cleaners, hazardous waste drums and container storage areas, agricultural use and dirt piles. Heavy metals, volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), chlorinated solvents, total petroleum hydrocarbons (TPHs), poly-cyclic aromatic hydrocarbons (PAHs), pesticides and polychlorinated biphenyls (PCBs) are some of the potential contaminants that should be investigated in soil and groundwater. SUPP-S-2-4

5. The ND states, several historic structures are proposed for demolition from the project area. If planned activities include structures/building modifications/ demolitions, lead-based paints or products, mercury, and asbestos containing materials (ACMs) should be addressed in accordance with all applicable and relevant laws and regulations. SUPP-S-2-5

6. The ND states, "Multiple pad- and pole-mounted transformers were observed at a number of locations in the construction area within the City-owned right of way adjacent to the SR-55 right of way and parcels proposed for use as TCEs. Those transformers are owned and operated by Southern California Edison (SCE). No staining or leaks were observed beneath the transformers, and all the transformers appear to be in good condition." DTSC recommends evaluation, proper investigation and mitigation, if necessary, on onsite areas with current or historic PCB-containing transformers. SUPP-S-2-6

7. The ND proposes further site assessments or investigations in several areas of the project site. However, it does not clearly propose any cleanup/remediation if further assessment/investigation reveals any evidence of soil or groundwater contamination. SUPP-S-2-7

8. If during construction/demolition of the project, soil and/or groundwater contamination is suspected, construction/demolition in the area should cease and appropriate health and safety procedures should be implemented. If it is determined that contaminated soil and/or groundwater exist, the ND should identify how any required investigation and/or remediation will be conducted, and the appropriate government agency to provide regulatory oversight. SUPP-S-2-8

If you have any questions regarding this letter, please contact me at (714) 484-5380 or email at Johnson.Abraham@dtsc.ca.gov.

Sincerely,

Johnson P. Abraham
Project Manager
Brownfields Restoration and School Evaluation Branch
Brownfields and Environmental Restoration Program - Cypress

kl/sh/ja

cc: Governor's Office of Planning and Research (via e-mail)
State Clearinghouse
P.O. Box 3044
Sacramento, California 95812-3044
State.clearinghouse@opr.ca.gov

Mr. Guenther W. Moskat, Chief (via e-mail)
Planning and Environmental Analysis Section
CEQA Tracking Center
Department of Toxic Substances Control
Guenther.Moskat@dtsc.ca.gov

Mr. Dave Kereazis (via e-mail)
Office of Planning & Environmental Analysis
Department of Toxic Substances Control
Dave.Kereazis@dtsc.ca.gov

Mr. Shahir Haddad, Chief (via e-mail)
Schools Evaluation and Brownfields Cleanup
Brownfields and Environmental Restoration Program - Cypress
Shahir.Haddad@dtsc.ca.gov

CEQA# 2015111075

SUPP-S-2: Department of Toxic Substances Control (DTSC)

SUPP-S-2-1

Section 2.12, Hazardous Waste/Materials, of the Supplemental Draft IS/EA identifies whether current or historic uses at the project site have resulted in any release of hazardous wastes/substances. An *Initial Site Assessment* (ISA) (2013), a *Supplemental Initial Site Assessment* (2017), and an *Aerially Deposited Lead Investigation Report* (2013) were prepared for the Project. These reports are the equivalent of a Phase I Environmental Site Assessment.

SUPP-S-2-2

As discussed in Section 2.12, Hazardous Waste/Materials, of the Supplemental Draft IS/EA, recognized environmental conditions include aerially deposited lead (ADL), lead chromate in yellow pavement traffic markings, lead-based paint in structures constructed prior to 1979, and asbestos-containing materials (ACMs) in bridges and structures. In addition, as detailed in Section 2.12.2.2 of the Supplemental Draft IS/EA, there is a variety of recognized environmental conditions on the properties that will be partially or fully acquired.

Soil sampling for aerially deposited lead was conducted as part of the *Aerially Deposited Lead Investigation Report*. The testing indicates that the soils can be reused on site per the guidance in the DTSC variance to the California Department of Transportation (Caltrans). Additional site investigations will be conducted to properly characterize and define the extent of contamination from the remaining recognized environmental concerns. The site investigations will be conducted either prior to completion of the Project Approval and Environmental Documentation (PA/ED) phase or during the Project Specifications and Estimates (PS&E) phase, as required by Measures HAZ-1, HAZ-3, HAZ-4, and HAZ-5 in Section 2.12.4 of the Supplemental Draft IS/EA. Yellow traffic striping and pavement marking materials will be tested for lead and lead chromate (Measure HAZ-3). Lead-based paint testing will be performed on two older buildings that will be demolished (Measure HAZ-5). Bridge structures to be modified during construction will be surveyed for ACMs (Measure HAZ-4). Site investigations will be performed at properties with potential environmental concerns that may be partially acquired, fully acquired, or used for temporary construction easements (TCEs) (Measure HAZ-1). Finally, a preliminary site investigation will be conducted on the property at 2344 Pullman Street to assess the presence or absence of impacts associated with the hazardous waste storage area on the property.

SUPP-S-2-3

As discussed in Section 2.9, Water Quality and Storm Water Runoff, of the Supplemental Draft IS/EA, the project would obtain coverage under the State Water Resources Control Board (SWRCB) Construction General Permit, as specified in Measure WQ-2. The Construction General Permit regulates non-storm water discharges such as those from dechlorinated potable water sources (e.g., fire hydrant flushing, irrigation of vegetative erosion control measures, pipe flushing and testing, and water to control dust). Additionally, if groundwater dewatering is required during construction, the project would obtain coverage under one of the two Santa Ana Regional Water Quality Control Board (RWQCB) permits that regulate groundwater discharges to surface waters and storm drains, as identified in Measure WQ-5.

SUPP-S-2-4

Please refer to Responses to Comments SUPP-S-2-1 and SUPP-S-2-2 above. The ISA and Section 2.12, Hazardous Waste/Materials, of the Supplemental Draft IS/EA identify and discuss the sites within the project area with recognized environmental conditions. Further investigation of these sites will be conducted during the PA/ED and PS&E phases.

SUPP-S-2-5

As discussed in Section 2.7, Cultural Resources, no buildings within the Area of Potential Effects (APE) were listed or eligible for listing in the National Register of Historic Places (National Register), do not qualify as historical resources pursuant to the California Environmental Quality Act (CEQA), or are exempt per the Section 106 Programmatic Agreement (PA). However, there are structures that may be demolished that are of an age during which lead-based paint, mercury, and ACMs were commonly used. As discussed in Response to Comment SUPP-S-2-2, testing for lead-based paint, asbestos, or other identified hazardous waste concerns regarding structures identified for demolition would be conducted during the PA/ED and PS&E phasesSUPP-S-2-6

As discussed in Section 2.12, Hazardous Waste/Materials, of the Supplemental Draft IS/EA, if any leaking transformers are noted during property acquisition for construction, those leaks will be considered a polychlorinated biphenyl (PCB) hazard unless tested and confirmed otherwise, and would be handled accordingly.

SUPP-S-2-7

Please refer to Response to Comment SUPP-S-2-2. Site investigations on properties with potential environmental concerns will be conducted during the PA/ED and PS&E phases. The site investigations will include recommendations for any cleanup or remediation determined to be required. The Final IS/EA was updated to include the results and recommendations of the site investigations completed during the PA/ED phase. SUPP-S-2-8

If soil and/or groundwater contamination is suspected, the construction contractor will halt work and appropriate health and safety procedures will be implemented. As discussed in Measure HAZ-7 in Section 2.12.4 of the Supplemental Draft IS/EA, the construction contractor will monitor soil excavation activities for visible soil staining, odor, and the possible presence of unknown hazardous material sources. If hazardous material contamination or sources are suspected or identified during project construction activities, the construction contractor will be required to cease work in the area and to have an environmental professional evaluate the soils and materials to determine the appropriate course of action required, consistent with the Unknown Hazards Procedures in Chapter 7 in the Caltrans *Construction Manual* (August 2006). As discussed in Measure WQ-5 in Section 2.9.4 of the Supplemental Draft IS/EA, if groundwater dewatering is required during construction, the project would obtain coverage under one of the two Santa Ana RWQCB permits that regulate groundwater discharges to surface waters and storm drains. Both permits require monitoring of groundwater discharges to ensure that effluent limitations for constituents are not exceeded. If contaminated groundwater is encountered, it will be handled and disposed of pursuant to the requirements of the applicable RWQCB permit.

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Community Development
1 Civic Center Plaza, Irvine, CA 92606-5208
cityofirvine.org
949-724-6000

SUPP-L-1

April 19, 2017

Mr. Charles Baker
Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis - Specialist Branch
1750 E. Fourth Street, Suite 100
Santa Ana, CA 92705

Subject: Draft Supplemental Initial Study/Environmental Assessment/Mitigated Negative Declaration for the Widening of SR-55 Freeway Between I-405 and I-5 Freeways

Dear Mr. Baker:

Thank you for the opportunity to review and comment on the above-referenced document. The original Draft IS/EA/MND reviewed in 2015 analyzed four build alternatives and a no-build alternative. In response to public comments, an additional alternative (Alternative 3M) was analyzed in this Draft Supplemental IS/EA/MND. The Alternative 3M project proposes two HOV lanes and adds one general purpose lane on SR-55 in each direction between the I-405 HOV connectors and the I-5 HOV connectors. The project also proposes auxiliary lanes on the freeway between the on- and off-ramps, as well as ramp improvements along this stretch of SR-55. One of the ramp improvements proposed as part of Alternative 3M includes a westbound right-turn lane on Dyer Road approaching the NB SR-55 on-ramp, such that the new right-turn lane would be an exclusive on-ramp travel lane. No significant traffic impacts are identified within the City of Irvine.

Upon review of the Draft Supplemental IS/EA/MND, the City of Irvine offers the following comments:

1. On page 1-23 of the Supplemental Draft IS/EA/MND, a discussion of the bridges affected by the Alternative 3M project is included; however, the future Alton Avenue/SR-55 overcrossing bridge is not mentioned. Please add a section describing the future bridge and how the design may be affected by the proposed project. Note that the Alton/SR-55 overcrossing bridge project obtained 100 percent Plan Specifications & Engineering Plan approval and has a portion of the construction funds identified. SUPP-L-1-1

2. Please provide the City with the Final Supplemental IS/EA/MND for the SR-55 widening project with the responses to comments and preferred project alternative identified. SUPP-L-1-2

If you have any questions, please contact me at 949-724- 6521, or by email at bjacobs@cityofirvine.org

Sincerely,

Bill Jacobs, AICP-CEP
Principal Planner

ec: Jaimee Bourgeois, City Traffic Engineer
Kerwin Lau, Development Review Administrator
Sun-Sun T. Murillo, Supervising Transportation Analyst
Peter Anderson, Senior Transportation Analyst
Ali Banava, Senior Transportation Analyst
Lisa Thai, Senior Transportation Analyst
Grace Tell, Senior Civil Engineer
Martin Mares-Perez, Program Assistant

SUPP-L-1: City of Irvine

SUPP-L-1-1

The Alton Avenue/SR-55 Overcrossing project is an overpass project, and the impacts within the State Route 55 (SR-55) corridor would be limited to the bridge columns at the median of SR-55. Alternative 3M was designed to accommodate the proposed bridge column locations.

SUPP-L-1-2

The Final IS/EA and response to public comments will be provided to the City of Irvine once it is approved by Caltrans. The Final IS/EA includes information on Alternative 3M, which was selected as the Preferred Alternative by the Project Development Team (PDT) on May 10, 2017.

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OC Public Works
Integrity, Accountability, Service, Trust
Shane L. Silsby, Director

April 27, 2017

NCL-2017-024

SUPP-L-2

Charles Baker, Senior Environmental Planner
Attn: SR55 Supplemental Draft IS/EA Comment Period
Department of Transportation, District 12
Environmental Analysis – Specialist Branch
1750 East 4th Street Suite 100
Santa Ana, CA 92705

Subject: Notice of Intent to Adopt Supplemental IS with Proposed MND/EA for State Route 55 Improvement Project between Interstate 405 and Interstate 5

Dear Mr. Baker:

Thank you for the opportunity to comment on the project. The County of Orange offers the following comments on the Notice of Intent to Adopt Supplemental IS with Proposed MND/EA for State Route 55 Improvement Project between Interstate 405 and Interstate 5.

Flood Program Support Division offers the following comments on behalf of Orange County Flood Control District regarding hydrology and floodplain issues:

1. Alternative 3M would result in a longitudinal encroachment into Lane Channel (F08), Orange County Flood Control District's (OCFCD) regional facility, at its crossing of State Route 55 (SR-55). The Initial Study/Environmental Assessment states that Santa Ana-Santa Fe Channel (F10) is deficient but does not mention that F08 is deficient as well. Please correct the language in the environmental document. The design of the proposed improvements to F08 should be accomplished concurrently with regulatory permit applications. OCFCD's review and approval of regulatory permit applications for the channel work will be required. SUPP-L-2-1

2. An agreement between the California Department of Transportation (Caltrans), Orange County Transportation Authority (OCTA) and OCFCD will be required. The agreement is necessary to establish the terms and conditions (such as plan review and approval, construction inspection, right-of-way dedication, ownership, access, monitoring, etc.) under which the channel improvements will be constructed and accepted by OCFCD. SUPP-L-2-2

3. Because of project encroachment into existing floodplains, as stated in chapter 2.8.2.2 on page 2.8.1 of Initial Study/Environmental Assessment, the rise in water surface elevation could potentially result in wider floodplain areas, deeper water surface elevations, and shifting of flooding elsewhere. The effect of such encroachments should be analyzed and any adverse impacts should be appropriately mitigated. A Letter of Map Revision (LOMR) should be processed through the Federal Emergency Management Agency SUPP-L-2-3

(FEMA) for changes, if any, to existing floodplains in consultation with appropriate floodplain administrator or affected Cities.

SUPP-L-2-3

4. All work within OCFCD right-of-way or easement should be performed in a manner that will not adversely impact the hydraulic flow conditions, access and/or maintenance requirements of OCFCD facilities. Furthermore, encroachment permits from the OCPW/County Property Permits Section will need to be obtained for all proposed work within OCFCD right-of-way or easement. For information regarding permit application, please visit our web site http://www.ocpublicworks.com/gov/pw/ds/

SUPP-L-2-4

If you have any questions regarding these comments, please contact Anna Brzezicki at (714) 647-3989 or Robert McLean at (714) 647-3951 in Flood Programs or Linda Smith at (714) 667-8848 in Development Services.

Sincerely,

Laree Alonso, Manager, Planning Division
OC Public Works Service Area/OC Development Services
300 North Flower Street
Santa Ana, California 92702-4048
Laree.alonso@ocpw.ocgov.com

cc: Anna Brzezicki, OC Flood Programs
Robert McLean, OC Flood Programs

SUPP-L-2: County of Orange Public Works

SUPP-L-2-1

Design of the proposed improvements to Lane Channel (F08) took into consideration the existing capacity and deficiencies of Lane Channel. As discussed in Section 2.8, Hydrology and Floodplains, of the Supplemental Draft IS/EA, the project would reconfigure and realign Lane Channel where it crosses SR-55. At this location, Lane Channel would be sized to perpetuate the existing condition. Final design of the channel improvements and submittal of regulatory permit applications would both occur during the final design phase (PS&E). All the proposed improvements in and near Lane Channel would be designed and constructed in consultation with the Orange County Flood Control District (OCFCD) to contain the base flood with additional freeboard required by the OCFCD. In addition, an encroachment permit would be obtained from OCFCD for work within Lane Channel.

SUPP-L-2-2

It is acknowledged that an agreement between Caltrans, OCTA, and OCFCD will be required for improvements within the jurisdiction of OCFCD. As discussed in Section 2.8, Hydrology and Floodplains, of the Supplemental Draft IS/EA, all the proposed improvements in and near Lane Channel and Santa Ana-Santa Fe Channel would be designed and constructed in consultation with the OCFCD.

SUPP-L-2-3

A Conditional Letter of Map Revision (CLOMR) and a Letter of Map Revision (LOMR) are not required for the proposed project. As discussed in Section 2.8, Hydrology and Floodplains, of the Supplemental Draft IS/EA, the project would result in a slight realignment and reconfiguration of Lane Channel from the existing open trapezoidal concrete-lined channel to a rectangular channel. The realigned section of channel would be sized to carry the 100-year flood with minimal impacts to the existing floodplain elevation. Because the floodplain encroachment would not adversely affect the base flood at Lane Channel, a CLOMR and LOMR are not required.

SUPP-L-2-4

As discussed in Response to Comments SUPP-L-2-1 and SUPP-L-2-2, all the proposed improvements in and near Lane Channel and Santa Ana-Santa Fe Channel would be designed and constructed in consultation with the OCFCD. The improvements would not affect the hydraulic flow conditions, access, or maintenance requirements of the OCFCD facilities. As shown in Table 1.12, Permits and Approvals Needed, in Chapter 1 of the Supplemental Draft IS/EA, it is anticipated that an encroachment permit from OCFCD will be required for the project.

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Irvine Ranch
WATER DISTRICT

SUPP-L-3

May 2, 2017

Charles Baker
Senior Environmental Planner
CA Department of Transportation, District 12
Environmental Analysis-Specialist Branch
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Re: NOA – Supplemental Environmental Assessment for State Route (SR-55) Improvements

Dear Mr. Baker:

Irvine Ranch Water District (IRWD) has received the Supplemental Environmental Assessment (EA) for the SR-55 Improvements Project. IRWD has reviewed the Supplemental EA and offers the following comments.

IRWD wishes to reiterate the comments provided in its January 6, 2016, letter related to the SR-55 Improvements Project. A copy of the January 6, 2016 comment letter is enclosed for use and inclusion in the Supplemental EA. The facilities mentioned and identified in Exhibits 1A, 1B, 3A, and 3B of IRWD's January 6, 2016, letter were not included to be relocated or protected in place as indicated in Table 1.9 on page 1-26 of the Supplemental EA. Caltrans will need to study these IRWD facilities and easements. Caltrans is requested to coordinate with Eric Akiyoshi at (949) 453-5552 so that all of the affected IRWD facilities and easements are protected and if appropriate, relocated.

SUPP-L-3-1

IRWD appreciates the opportunity to review and comment on the Supplemental EA. If you have any questions or require additional information, please contact the undersigned at (949) 453-5325 or Jo Ann Corey, Engineering Technician III at (949) 453-5326.

Sincerely,

Fiona M. Sanchez
Director of Water Resources

Enclosure – IRWD January 6, 2016, Comment Letter: NOI/MND SR-55 Improvements Project

cc: Eric Akiyoshi, IRWD

IRVINE RANCH WATER DISTRICT 15600 Sand Canyon Ave., P.O. Box 57000, Irvine, CA 92619-7000 (949) 453-5300

January 6, 2016

Charles Baker
Senior Environmental Planner
CA Department of Transportation, District 12
Environmental Analysis-Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

Re: Notice of Intent/Mitigated Negative Declaration for State Route (SR-55) Improvement Project Between Interstate 405 and Interstate 5

Dear Mr. Baker:

Irvine Ranch Water District (IRWD) has received and reviewed the Notice of Intent/Draft Mitigated Negative Declaration (NOI/MND) for the SR-55 Improvement Project, and offers the following comments.

The SR-55 Improvement Project proposes to widen SR-55 in both directions between Interstate 405 and Interstate 5. The proposed alternatives for the SR-55 Improvement Project will potentially conflict with several existing IRWD facilities and easements. The existing IRWD facilities include a 54-inch domestic water pipeline, located in Dyer Road; sewer and potable facilities, located between Interstate 405 and MacArthur Boulevard; and sewer and potable facilities, located on Pullman Street, between MacArthur Boulevard and Duryea Avenue. In addition to the existing facilities, there are also existing IRWD easements for two future domestic water well sites, located at Pullman Street/Dalmer Street and Pullman Street/Duryea Avenue.

IRWD has prepared and attached for your use the following exhibits that illustrate the locations of the existing IRWD facilities and easements, which will be affected by the proposed project:

- Exhibits 1A and 1B – Dyer Road Well Field Pipeline
- Exhibits 2A and 2B – Existing Sewer (green) and Potable (blue) facilities between I-405 and MacArthur Boulevard
- Exhibits 3A – Existing Sewer (green) and Potable (blue) facilities located on Pullman Street, between MacArthur Boulevard and Dureya Avenue
- Exhibit 3B – Easement for future domestic well site (Well 51), located on Pullman Street and Dalmer Street, and Easement for future domestic well site (Well 52), located on Pullman Street and Dureya Avenue

Prior to project approval, Caltrans will need to study the aforementioned IRWD facilities and easements. Caltrans is requested to coordinate with IRWD so that these affected IRWD facilities and easements are protected and if appropriate, relocated. Please contact Eric Akiyoshi in the Engineering and Water Quality Department at (949) 453-5552 to discuss these facility concerns.

IRWD appreciates the opportunity to review and comment on the NOI/MND. Should you have any questions or require additional information, please call Jo Ann Corey, Engineering Technician III at (949) 453-5326.

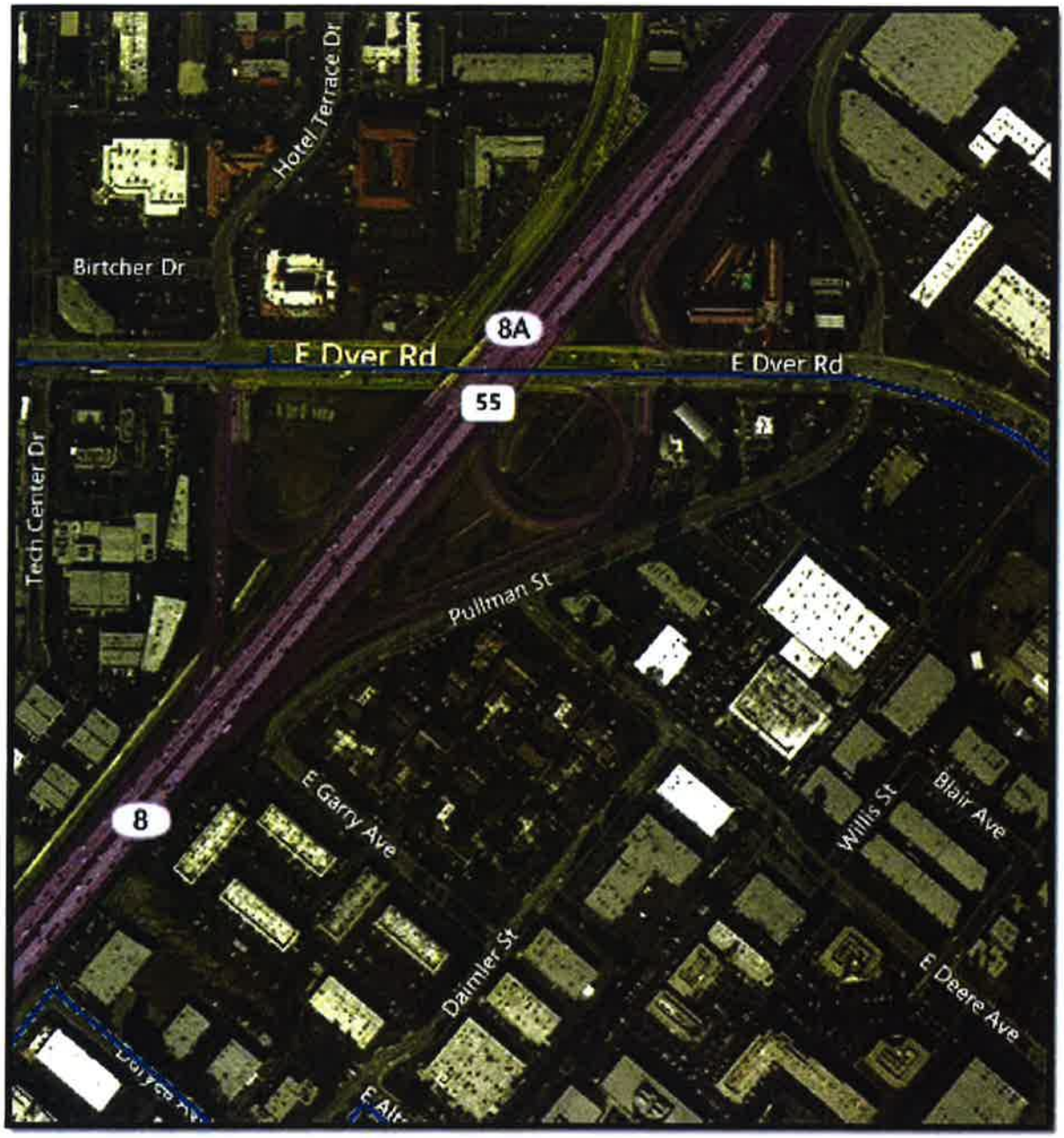
Sincerely,

Fiona M. Sanchez
Director of Water Resources

Attachments – Exhibits 1A-3A

cc: Eric Akiyoshi, IRWD
Jo Ann Corey, IRWD

EXHIBIT 1A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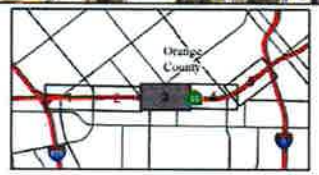
Birtcher Dr
E Dver Rd
8A
E Dver Rd
55
Tech Center Dr
Pullman St
E Garry Ave
8
Willis St
Blair Ave
Daimler St
E Deere Ave

LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition



SOURCE: Eagle Aerial (4/2011), TBM (2008), HDR (09/09/2014)
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FIGURE 2.3-2
Sheet 3 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J400

EXHIBIT 2A

Murphy Ave
Sand Pointe Ave
MacArthur Blvd
55
S Main St
S Sycamore St
Alder St
S Teakwood St
S Timber St
W Steven's Ave
7
55
Sunflower Ave
6B
6A
Red Hill
Main St
Red Hill Ave
I-405 HOV Ln
405

SOURCE: Eagle Aerial (4/2011); TDM (2008); HDR (09/09/2014)
I:\HDR\102 GIS\ISEA_Alt1_ROW_Impacts.mxd (11/20/2015)

FIGURE 2.3-2
Sheet 1 of 5

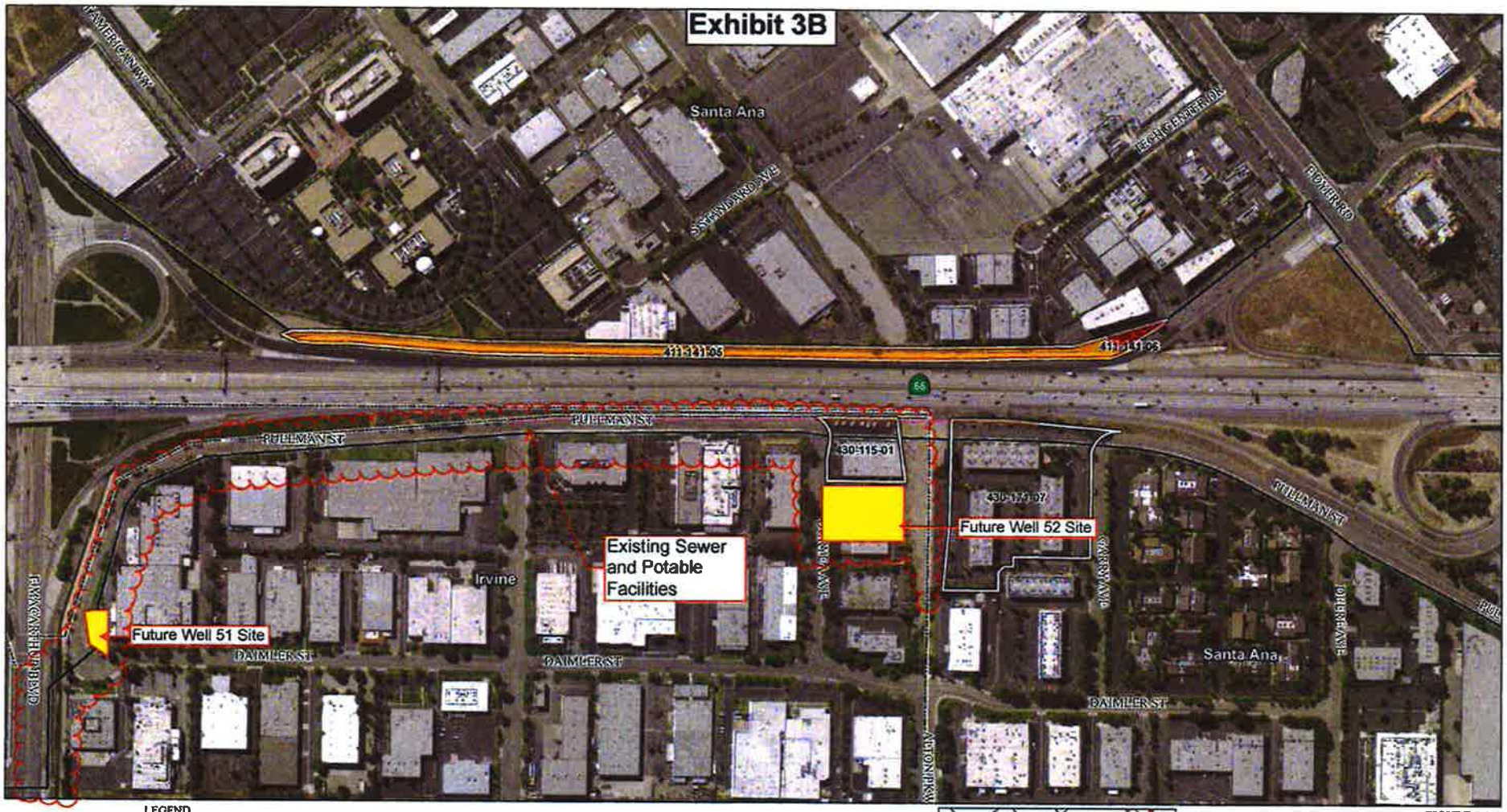
State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J340

EXHIBIT 3A

Oak St
S Kilson Dr
Halladay St
E Alton Ave
S Standard Ave
E Garry Ave
Daimler St
E Alton Pkwy
CA-55 HOV Ln
MacArthur Blvd
Hutton Centre Dr
55
8
7



LEGEND

- Project Area
- City Boundary
- Affected Parcel Boundary
- Encroachment Area
- Temporary Construction Easement
- Potential Full Right of Way Acquisition
- Potential Partial Right of Way Acquisition

0 150 300
FEET

SOURCE: Eagle Aerial (4/2011); TBM (2008); HDR (09/09/2014)
I:\HDR\11027\GIS\ESA_Alt1_ROW_Impacts.mxd (11/20/2015)

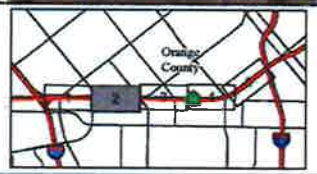


FIGURE 2.3-2
Sheet 2 of 5

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Alternative 1 ROW/TCE Impacts

12-ORA-55 PM 6.4/10.3
EA 0J340

SUPP-L-3: Irvine Ranch Water District

SUPP-L-3-1

The comment reiterates the comments on the Draft IS/EA provided on January 6, 2016, and includes a copy of the aforementioned letter. The addition of Alternative 3M does not change the responses to the January 6, 2016, comment letter. Please refer to Responses to Comments L-3-1 and L-3-2, which address the comments in the January 6, 2016, letter.

Department of Public Works
Douglas S. Stack, P.E.
Director

May 3, 2017

SUPP-L-4

Charles Baker
Senior Environmental Planner
Caltrans District 12
1750 E. 4th St. Ste. 100
Santa Ana, CA 92705

Subject: **SR-55 (I-5 TO I-405) ALTERNATIVE 3 MODIFIED**

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Supplemental Draft Initial Study for the Alternative 3 Modified which assumes a second High Occupancy Vehicle (HOV) in both directions and auxiliary lanes in the northbound between MacArthur Boulevard and Dyer Road interchanges and between Dyer Road and Edinger Avenue interchanges. The northbound on-ramp at McFadden Avenue would be limited to movements to the I-5 northbound with no opportunity to access SR-55 northbound and I-5 southbound which is a more restrictive alternative than previous alternatives. This translates to more traffic that are re-routed to nearby Caltrans facilities such as the Edinger Avenue/SR-55 northbound ramps and the I-5 Northbound On-Ramp at Newport Avenue which are already operating deficiently today. SUPP-L-4-1

In many ways our previous comments presented in the January 21, 2016, letter are still applicable to Alternative 3 Modified. SUPP-L-4-2

Should you have questions on our comments, please do not hesitate to contact me at (714) 573-3172 or ksaldivar@tustinca.org.

Sincerely,

KSaldivar

Krys Saldivar
Public Works Manager-Traffic/Transportation

Copy: Doug Stack
Ken Nishikawa
Elizabeth Binsack

S:\OCTA\SR55 - 405-5\Comments ISEA.doc

Community Development Department

TUSTIN
BUILDING OUR FUTURE
HONORING OUR PAST

January 21, 2016

Mr. Charles Baker
Senior Environmental Planner
Department of Transportation, District 12
Environmental Analysis – Specialist Branch
3347 Michelson Drive, Suite 100
Irvine, CA 92612-1692

SUBJECT: REVIEW OF THE INITIAL STUDY/ENVIRONMENTAL ASSESSMENT FOR THE SR-55 (I-405 TO I-5) IMPROVEMENT PROJECT

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Initial Study/Environmental Assessment (IS/EA) for the State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5).

The proposed project would widen SR-55 in both directions from just north of I-405/SR-55 Interchange to just south of the I-5/SR-55 Interchange. According to the ES/IA, there are four project alternatives under consideration, in addition to the "No Build" Alternative. Alternative 1 includes additional auxiliary lanes and a southbound general purpose lane. Alternative 2 proposes new general purpose lanes in both directions. Alternative 3 includes new general purpose lanes and additional auxiliary lanes. And Alternative 4 proposes new high-occupancy vehicle (HOV) lanes and additional auxiliary lanes. The purchase of right-of-way will be required along the corridor for all of the alternatives.

The City of Tustin offers the following general comments about the project and specific comments about the IS/EA at this time:

GENERAL COMMENTS

Alternative 4 (One New HOV lane and Additional Auxiliary Lanes)

Measure M ordinances were approved by voters first in 1990 and renewed in 2006 with the promise of local improvements to every freeway, widened streets, synchronized signals and improved intersections as well as adding Metrolink commuter-rail service in Orange County. The City supports project alternatives that deliver on Measure M as promised to the voters, together with the oversight and safeguards.

Alternative 4 proposes a new high-occupancy vehicle (HOV) lane and additional auxiliary lanes. The City, however, is concerned that Alternative 4 poses a meaningful risk of converting the additional HOV lane to a High Occupancy Toll (HOT) lane, which tests the intent of Measure M promised to voters because of the potential and currently undetermined fees that would be assessed to users. Unless specific restrictions are memorialized to prevent HOT conversion, the City is apprehensive if the use of local tax dollars in Orange County's transportation infrastructure is not invested to provide maximum mobility, increase freeway capacity and reduce congestion which are tangible results that reduce daily vehicle hours of delay. Alternatives 1 through 3 appear to meet that standard best overall by adding new lanes. An extra HOV lane as proposed in Alternative 4 would also achieve this by encouraging more single riders to come together and carpool toll-free, thereby improving general purpose lane capacity.

Modification at McFadden Avenue/Newport Avenue Northbound Onramp

It was reported at the conclusion of the Value Analysis Study that there would be safety benefits associated with a potential modification of the northbound SR-55 ramps at McFadden Avenue/Newport Avenue. The modification recommended by the Value Analysis Team would prevent vehicles entering the highway at that onramp from traveling north on SR-55. All vehicles entering at that location would be required to exit at Interstate 5 in the southbound or northbound direction. In response to the City's concerns regarding significant impacts on local traffic due to the potential modification, the Traffic Operations Report was revised to include an analysis of local intersections. This analysis concluded that one ramp intersection, Newport Avenue at I-5 Northbound On-Ramp, requires mitigation. The extension of Newport Avenue from its current terminus to Edinger Avenue would alleviate some of these impacts by providing a direct route to the Newport/Edinger Avenue on-ramp and access to SR-55. However, the funding for the extension project has not been secured. Should funding from the Orange County Transportation Authority and other sources be secured, the proposed extension of Newport Avenue would provide cumulative benefits to the improvements anticipated by the SR-55 widening project and the ultimate build-out of the Master Plan of Arterial Highways.

In addition, the City would prefer that the McFadden interchange be removed entirely. With the addition of the Newport Avenue extension to Edinger Avenue, the SR-55 Northbound can be reached via the ramps at Newport Avenue and Del Amo Avenue intersection.

Partial Right-of-Way Takes

Two parcels north of Warner Avenue, occupied by Ricoh, will be significantly impacted by partial right-of-way takes associated with the widening project. Alternatives 3 and 4 would impact the parking lot at 1100 Valencia Avenue, requiring its reconfiguration and resulting in a net loss of

approximately 12 parking spaces. We are concerned that the reduction in parking spaces may prevent future building expansions and/or conversions of space to other allowable uses. The City of Tustin requests that Caltrans conduct outreach to the property owner on this matter, if this outreach has not yet occurred.

Temporary Construction Easements

It is our understanding that Alternative 1 would potentially require temporary construction easements (TCEs) at eight (8) properties in Tustin, while Alternatives 2, 3, and 4, would each require TCEs at as many as thirteen (13) Tustin parcels. These temporary construction easements may cause significant impacts to the affected parcels, depending on the size, nature, and duration of the easement. The City of Tustin requests that Caltrans conduct outreach to the affected property owners, if this outreach has not yet occurred.

Detours

According to the IS/EA, ramp closures and their associated detours would be temporary and usually during nighttime hours only. One of the proposed detours for the northbound SR-55 on-ramp at Newport/Edinger Avenues would direct traffic eastward on Edinger Avenue, northward on Red Hill Avenue and then westward on Sycamore Avenue, which is a two-lane road in a residential neighborhood with three schools (Jeane Thorman Elementary School, A.G. Currie Middle School, and St. Cecilia School and Church) fronting it. Night time work in a residential neighborhood is not preferred per the city's noise ordinance. Daytime during the school year would exacerbate already significant school traffic demand. The preferred detour alternative route to using Sycamore Avenue, is for motorists to remain on Red Hill Avenue and continue to their destinations via the I-5. Traffic impacts of this detour to the Red Hill Avenue/I-5 interchange should be analyzed if occurring during the peak hour.

The City requests that Caltrans inform the City of all traffic detour plans and traffic management plans that would affect traffic in the Tustin area west of SR-55, north and south of the I-5, during project construction.

Construction Staging

It has been noted that a potential construction staging area is being considered for the City-owned parcel to the south of the Edinger Avenue on and off-ramps. This parcel is slated for future commercial development, and a construction staging area at this location may significantly hamper efforts to market the site to potential investors. Therefore, the City of Tustin may be unable to offer this site as a temporary construction staging area.

The City of Tustin also requests to be notified of the proposed locations of the construction staging areas to determine the potential for any short-term traffic impacts on City of Tustin streets.

Public Outreach

Extensive public outreach is requested so that Tustin residents, business people, and visitors are aware of the project and may plan accordingly. Outreach with the Tustin Unified School District will be critical.

COMMENTS REGARDING THE IS/EA

General

IS/EA page 2.14-5: It is noted that the land uses to the east of SR-55 between Warner Avenue and Edinger Avenue include "two hotels that are currently under construction." The IS/EA should be revised to reflect the completion of the two hotels.

IS/EA page 2.19-5: Table 2.19.1 (Planned Projects List) is out of date. The Village at Tustin Legacy (98,292 sq. ft. retail and 150,000 sq. ft. medical plaza) was approved in November of 2015, and an 8,000 square foot office building at 721 W. First Street is under review.

Noise

As part of the proposed project, sound attenuation walls are proposed in Tustin adjacent to the existing multiple family residences south of the northbound SR-55 off-ramp for McFadden Avenue and Newport Avenue. However, sound walls are not proposed to the north of the McFadden Avenue/Newport Avenue off-ramp.

According to the IS/EA, "a minimum noise reduction of 5 dBA must be achieved at impacted receptors for the proposed noise abatement measures (i.e., noise barriers) to be considered feasible." The IS/EA further states that "all the noise barriers that were considered feasible were analyzed to determine their reasonableness. The overall reasonableness of noise abatement is determined by considering the noise reduction goal combined with the construction cost of the barrier." Caltrans has determined that the noise reduction goal is 7 dBA and that the reasonable noise barrier construction cost allowance per benefitted residence is $71,000.

Pursuant to the California Environmental Quality Act (CEQA) Guidelines, Section 15070, a public agency may prepare a mitigated negative declaration for a project subject to CEQA when "the

initial study identified potentially significant effects, but: (1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and (2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."

The infeasibility of mitigation measures or project alternatives based on economic or other factors can be considered when an Environmental Impact Report (EIR) has been prepared for a project, but may not be used as a justification for not implementing mitigation measures in conjunction with a mitigated negative declaration. Therefore, the IS/EA should be revised to include additional mitigation measures, such as additional noise barriers, that fully mitigate the potential noise impacts at all receptor locations, or an environmental impact report should be prepared for the project.

Further, the IS/EA does not adequately address interior noise impacts, as it assumes an interior noise reduction of 20dB. This level of noise reduction may only be achieved when windows and doors meeting specified acoustic ratings are completely closed, and ventilation systems are provided. The noise evaluation in the IS/EA should be revised accordingly.

In addition, the following mitigation measures should be incorporated into the mitigated negative declaration to mitigate any identified significant interior noise impacts:

1) Caltrans shall offer to provide forced air ventilation in all residences where significant interior noise impacts would occur with windows and doors open, if the affected residences are not equipped with forced air ventilation.

2) Where significant interior noise impacts would otherwise occur, Caltrans shall offer to provide acoustic-rated window/door assemblies in all second-story windows and/or sliding glass doors in habitable rooms of the residences along the proposed project that view the proposed alignment. These assemblies shall have a sound transmission class (STC) rating of no less than 35 and the STC shall be high enough to achieve an interior noise level of no more than 45 dBA CNEL. Non-sensitive uses (e.g., bathrooms) do not require such assemblies.

3) Where significant interior noise impacts would otherwise occur, Caltrans shall offer to provide all second-story exterior doors in habitable rooms of the residences along the proposed project that view the proposed alignment with solid-core assemblies that are well sealed with weather-stripping.

Traffic

The City of Tustin is aware of the agreement between OCTA and Caltrans that resulted in the revision of this study to include unfunded freeway projects in the background conditions thereby creating freeway capacity and easing impacts on city streets. However, we feel that the inclusion of unfunded projects in the 2040 background conditions places a significant burden on city streets until such time the cumulative projects are funded. This is not addressed in the study.

While the emphasis of the project is to add capacity on the mainline, it should be equally as important to address the operational deficiencies at the on-ramps and the ramp intersections, particularly the SR-55 Northbound Ramps at Newport Avenue and Del Amo Avenue.

The level of service (LOS) for 2020 and 2040 is reported as LOS F with a >80 second delay for the No-Build and all alternatives for this ramp intersection during the PM peak hour. The degree to which the average delay changes per alternative from the No-Build is not disclosed. Without this information, the project impacts cannot be determined.

The queuing on the northbound on-ramp itself, as well as particular movements at the ramp intersection, are also deficient, but yet are not addressed in the IS/EA. The queuing deficiencies are presented below for 2020 and 2040.

	Storage	No-Build	Alt. 1	Alt. 2	Alt. 3	Alt.4
2020 PM Peak Hour						
On-Ramp	480	520	520	625	520	550
South Right	600	1,055	1,160	1,335	1,340	1,325
2040 PM Peak Hour						
On-Ramp	480	655	600	680	640	630
South Right	600	1,335	1,335	1,335	1,335	1,325

The extension of Newport Avenue between Edinger Avenue and Sycamore Avenue should be explored to determine if the extension could be a viable improvement to alleviate the deficiencies experienced at the ramp and ramp intersection by allowing an alternate route for motorists to the I-5 North and I-5 South.

The previous Traffic Operations Report (TOR) identified three intersections in the City of Tustin needing mitigation. This study reflects changes to the background conditions that now include unfunded projects i.e., OCTA freeway projects that add capacity to the freeway mainline. The additional capacity keeps motorists on the freeways and away from city streets which could be the reason that Newport Avenue at I-5 Northbound On-Ramp, is the only intersection needing mitigation for Alternatives 3 and 4. The other two ramp intersections, Newport Avenue at I-5

Southbound Ramp/Nisson Road and Red Hill Avenue at I-5 Southbound Ramps, no longer need mitigation according to the performance criteria set forth in the study. The term "minimization" has been coined for these ramp intersections as an acknowledgment that "a relatively larger amount of traffic is diverted to the two locations due to the McFadden design variation" which precludes traffic from McFadden Avenue to head northbound on the SR-55 in Alternatives 3 and 4 Due consideration must be given, in the form of absolute analysis, not some invented "coined" term, for real impacts at these ramp intersections (and also at Newport Avenue/Del Amo Avenue at SR-55 Northbound Ramps) and associated city streets.

Underground Utilities

Table 2.4.1 shows that overhead 66 kV transmission lines along the east side of Northbound SR-55 bordering the Cities of Santa Ana and Irvine will be relocated underground. We ask for the same treatment of any line bordering Tustin i.e., as the overhead 66 kV transmission line that crosses the SR-55 from Ritchey Street on the west side to the east side into Tustin.

The City of Tustin appreciates the opportunity to provide comments on this project. If you have any questions regarding the City's comments, please call Scott Reekstin, Principal Planner, at (714) 573-3016 or Krys Saldivar, Public Works Manager, at (714) 573-3172.

Sincerely,

Elizabeth A. Binsack
Community Development Director

cc: Jeff Parker, City Manager
Douglas S. Stack, Public Works Director
Ken Nishikawa, Deputy Director of Public Works/Engineering
Justina Willkom, Assistant Director – Planning
Krys Saldivar, Public Works Manager
Scott Reekstin, Principal Planner

SR:environmental etc\Caltrans SR-55 Widening IS and EA Comment Letter Modified.doc

SUPP-L-4: City of Tustin

SUPP-L-4-1

As part of Alternative 3M, access from the McFadden Avenue on-ramp to northbound SR-55 and southbound I-5 would be eliminated. The changes to access at the McFadden Avenue on-ramp is the same as that proposed as part of Alternative 3 and 4, which were evaluated in the Draft IS/EA which was circulated for public review in November 2015. However, the changes to access at the McFadden Avenue on-ramp was not included as part of Alternatives 1 and 2, which were also evaluated in the Draft IS/EA which was circulated for public review in November 2015. Based on the traffic studies that were prepared for Alternative 3M, although more traffic is anticipated to distribute through local streets, it is anticipated that the restriction would result in a similar queue at the majority of the intersections within the study area, including the northbound SR-55 on-ramp at Edinger Avenue. However, the limited access at the McFadden Avenue on-ramp would divert more traffic to the northbound I-5 onramp at Newport Avenue which would increase delays. However, as discussed in Section 2.5, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the Supplemental Draft IS/EA, Mitigation Measure T-3 requires installation of a traffic signal at the Northbound I-5 onramp at Newport Avenue to reduce impacts at this intersection to less than significant.

SUPP-L-4-2

The comment reiterates the comments on the Draft IS/EA, provided on January 21, 2016, and includes a copy of the aforementioned letter. The addition of Alternative 3M does not change the responses to the January 21, 2016, comment letter. Please refer to Responses to Comments L-1-2 through L-1-23, which address the comments in the January 21, 2016, letter.

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MAYOR
Miguel A. Pulido
MAYOR PRO TEM
Michele Martinez
COUNCILMEMBERS
P. David Benavides
Vicente Sarmiento
Jose Solorio
Sal Tinajero
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Cynthia J. Kurtz
CITY ATTORNEY
Sonia R. Carvalho
CLERK OF THE COUNCIL
Maria D. Huizar

SUPP-L-5

May 10, 2017

Mr. Charles Baker
California Department of Transportation District 12
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

Subject: Comments on SR-55 Widening Supplemental Draft IS/EA

Dear Mr. Baker:

Thank you for the opportunity to provide comments on the Supplemental Draft Initial Study/Environmental Assessment for the SR-55 Improvement Project Between I-405 and I-5. The City of Santa Ana reviewed the documents and has the following comments:

- The City requests that all overhead utility relocations as part of this project within the City limits shall be undergrounded within the City limits. | SUPP-L-5-1
- The aesthetic values shall include enhancements to the visual quality of the project. | SUPP-L-5-2
- Right-of-way impacts of several parcels identified for acquisition shall be analyzed and minimized once the detailed survey is available. | SUPP-L-5-3
- The proposed improvements of this project shall not preclude the proposed improvements of Alton Avenue Overcrossing project. | SUPP-L-5-4
- The northbound off-ramp between SR-55 and Fitch shall be reconfigured to allow the third eastbound through lane between SR-55 and Fitch. | SUPP-L-5-5
- Street parking along Ritchey and Pullman shall not be eliminated. | SUPP-L-5-6

Please continue to keep the City informed of this project. If you have any question, please do not hesitate to contact me at (714) 647-5632

Sincerely,

Kenny Nguyen
Senior Civil Engineer

SANTA ANA CITY COUNCIL

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Sal Tinajero, Ward 6, stinajero@santa-ana.org

SUPP-L-5: City of Santa Ana

SUPP-L-5-1

The City of Santa Ana's request to underground all the utilities within the city limits is acknowledged. The proposed undergrounding of the 66-kilovolt (kV) transmission lines in the Cities of Santa Ana and Irvine are due to longitudinal encroachments that currently exist within the State right-of-way. Based on current Caltrans design standards, new longitudinal encroachments of utilities within the State right-of-way are generally not permitted due to maintenance and other restrictions. As a result, all the existing overhead facilities with existing longitudinal encroachments may have to be relocated and/or undergrounded unless Caltrans approves maintenance of the existing aboveground condition and allows an exception for the longitudinal encroachment.

SUPP-L-5-2

As discussed in Measure VIS-1 in Section 2.6, Visual Aesthetics, of the Supplemental Draft IS/EA, architectural treatments and features will be included in the final project design to minimize the loss of, and improve the visual quality of, SR-55 within the project area.

SUPP-L-5-3

Existing commercial and industrial development adjacent to the project segment of SR-55 severely limits the availability of right-of-way. The project alternatives were designed to maximize throughput while minimizing right-of-way acquisition. Five build alternatives were developed to maximize operational benefits within the available footprints, ranging from minimal to moderate right-of-way acquisition. As discussed in Section 2.3, Community Impacts, of the Supplemental Draft IS/EA, the Preferred Alternative (Alternative 3M) would require limited property acquisition, resulting in the displacement of four businesses and no residential displacements.

SUPP-L-5-4

The SR-55 Improvement Project would not preclude construction of the Alton Parkway Project. The Alton Avenue/I-5 Overcrossing Project is an overpass project, and the impacts to the SR-55 corridor would be limited to the bridge columns at the median of SR-55. Alternative 3M was designed to accommodate the proposed bridge column locations.

SUPP-L-5-5

The proposed design of Alternative 3M includes extending the third eastbound through lane on McArthur Boulevard from SR-55 to just west of Fitch, as noted in the comment.

SUPP-L-5-6

Alternative 3M would maintain the existing street parking along Ritchey Avenue and Pullman Street, as noted in the comment.

SUPP-R-1

ORANGE COUNTY FIRE AUTHORITY

P.O. Box 57115, Irvine, CA 92619-7115 • 1 Fire Authority Road, Irvine, CA 92602

Jeff Bowman, Fire Chief **(714) 573-6000** **www.ocfa.org**

April 12, 2017

California Department of Transportation
District 12-Environmental Analysis Specialist Branch
1750 East 4th Street, Suite 100
Santa Ana, CA 92705
Attn: Charles Baker, Senior Environmental Planner

Subject: Supplemental Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment – SR-55 Improvement Project between I-405 and I-5

Dear Mr. Baker:

Thank you for the opportunity to review the subject document.. We have no comments regarding the subject document:

SUPP-R-1-1

Sincerely,

Tamera Rivers
Management Analyst
(714) 573-6199

Orange County Fire Authority

SUPP-R-1-1

This comment states that the Orange County Fire Authority has no comments on the project. Receipt of this comment is acknowledged.

SUPP-R-2

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA E-MAIL AND USPS:
D12SR55improvementproject@dot.ca.gov
Charles Baker, Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis-Specialist Branch
1750 East 4th Street, Suite 100
Santa Ana, CA 92705

April 28, 2017

Mitigated Negative Declaration/a Supplemental Environmental Assessment for the State Route 55 (SR-55) Improvement Project Between Interstate 405 (I-405) and Interstate 5 (I-5) (State Clearinghouse No.: 2015111075)

The South Coast Air Quality Management District (SCAQMD) staff appreciates the opportunity to comment on the above-mentioned document. The following comments are meant as guidance for the Lead Agency and should be incorporated into the Final MND.

SCAQMD's 2016 Air Quality Management Plan

Adopted on March 3, 2017, the 2016 Air Quality Management Plan (2016 AQMP) is a regional blueprint for achieving air quality standards and healthful air in the South Coast Air Basin. Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and lays out the challenges facing the South Coast Air Basin. The most significant air quality challenge in the Basin is to reduce an additional 45 percent reduction in nitrogen oxide (NOx) emissions in 2023 and an additional 55 percent NOx reduction beyond 2031 levels for ozone attainment. For more information on the 2016 AQMP, please visit the SCAQMD's website, at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

Project Description

The Lead Agency proposes to widen SR-55 in both directions from the I-405/SR-55 interchange to the I-5/SR-55 interchange between Post Miles 6.4 and 10.3. In the prior environmental analysis, the Lead Agency evaluated four alternatives in addition to the "No Build" Alternative. The four alternatives were as follows:

1. Alternative 1: additional auxiliary lanes and southbound general-purpose lane;
2. Alternative 2: new general-purpose lanes;
3. Alternative 3: new general-purpose lanes and additional auxiliary lanes; and
4. Alternative 4: new high-occupancy vehicle (HOV) lanes and auxiliary lanes.

In response to the public comments received on these four alternatives, the Lead Agency developed Alternative 3 Modified (3M). Alternative 3M would include new HOV and general-purpose lanes and additional auxiliary lanes in each direction. The above-mentioned document focuses on the environmental analysis of Alternative 3M.

Air Quality Analysis

The SCAQMD staff has concerns about the air quality analysis. The SCAQMD staff found that the NOx emissions shown in the MND did not support the finding that Alternative 3M's construction impacts from NOx emissions would be less than significant. As described in the 2016 AQMP, to achieve NOx emissions reductions in a timely manner is critical to attaining the National Ambient Air Quality Standard (NAAQS) for ozone before the 2023 and 2031 deadlines. SCAQMD is committed to attain the ozone

SUPP-R-2-1

NAAQS as expeditiously as practicable. Therefore, the SCAQMD staff recommends mitigation measures to reduce air emissions, particularly from NOx emissions to ensure that South Coast Air Basin is on track to attain the NAAQS. Please see the attachment for more information. SUPP-R-2-1

Pursuant to the CEQA Guidelines Section 15074, prior to approving the project, the Lead Agency shall consider the MND for adoption together with any comments received during the public review process. SCAQMD staff is available to work with the Lead Agency to address any air quality questions that may arise from this comment letter. Please contact Jack Cheng, Air Quality Specialist, CEQA IGR Section, at (909) 396-2448, if you have any questions.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS:JC
ORC-170404-02
Attachment

Attachment

Air Quality Analysis

1. On page A-2 of the MND, the Lead Agency stated that construction-related emissions would not exceed the SCAQMD's CEQA regional significance thresholds for criteria pollutants. However, the emissions calculations shown in Table 2.13.4 – Peak Day Construction Emissions indicate that NOx emissions from grading during construction would be 256 pounds/day, thereby exceeding the SCAQMD's CEQA regional significance threshold of 100 pounds/day. Additionally, the emissions calculations did not account for overlapping construction phases. In the event that Alternative 3M is selected as the proposed project, the MND has likely underestimated the project's air quality impacts. The SCAQMD staff recommends that the Lead Agency correct the finding for NOx emissions from construction, include mitigation measures that could reduce NOx emissions, and account for overlapping construction phases in the Final MND. SUPP-R-2-2

2. In the event that Alternative 3M is selected as the proposed project, it would be sited adjacent to sensitive land uses[1] (i.e., residential dwellings north, south, east, and west of the project site). However, the MND did not evaluate potential localized air quality impacts that could result from the construction of Alternative 3M. The SCAQMD staff recommends that the Lead Agency perform localized air quality impacts using SCAQMD's Localized Significance Methodology in the Final MND. SUPP-R-2-3

3. Similar to the other four alternatives, Alternative 3M would widen SR-55. In the event that Alternative 3M is selected as the proposed project, it is likely to bring traffic lanes closer to the adjacent sensitive land uses. SR-55 has an average daily traffic volume of 261,600 vehicles, which includes more than 6,000 diesel trucks. Because of the close proximity to the freeway widening, existing and future residents would be exposed to diesel particulate matter, which is a toxic air contaminant. Therefore, the SCAQMD staff recommends that the Lead Agency conduct a mobile source health risk assessment (HRA)[2] to disclose the potential health risks to the residents from vehicles that use the freeway including diesel-fueled vehicles that emit diesel particulate matter, which the California Air Resources Board (CARB) has determined to be carcinogenic. SUPP-R-2-4

Compliance with SCAQMD Rule 403(e)

4. In the event that Alternative 3M is selected as the proposed project, it is considered a large operation on a 77.2-acre site (50 acres or more of disturbed surface area; or daily earth-moving operations of 3,850 cubic yards or more on three days in any year) in the South Coast Air Basin. The Lead Agency is required to comply with all SCAQMD Rule 403(e) – Additional Requirements for Large Operations[3]. The requirements may include, but are not limited to, Large Operation Notification (Form 403N), appropriate signage, additional dust control measures, and employment of a dust control supervisor that has successfully completed the Dust Control in the South Coast Air Basin training class[4]. Therefore, the Final MND should contain a detailed description to demonstrate compliance with SCAQMD Rule 403(e). SUPP-R-2-5

Recommended Construction Mitigation Measures for Reducing NOx emissions

5. Based on a review of Table 2.13.4 in the MND, the SCAQMD staff found that construction emissions from Alternative 3M would exceed SCAQMD's CEQA regional significance threshold for NOx. To assist the Lead Agency in identifying measures to reduce NOx emissions from construction, the SUPP-R-2-6

[1] California Air Resources Board. April 2005. "Air Quality and Land Use Handbook: A Community Health Perspective." Accessed at: http://www.arb.ca.gov/ch/landuse.htm

[2] "Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis" Accessed at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis

[3] SCAQMD Rule 403. Last amended June 3, 2005. Available at: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf.

[4] SCAQMD Compliance and Enforcement Staff Contact Information for Rule 403(e) Large Operations is (909) 396-2608 or by e-mail at dustcontrol@aqmd.gov.

SCAQMD staff recommends the following construction mitigation measures that the Lead Agency should include in the Final MND:

a. Include in all construction contracts the requirement to use 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export). In the event that that 2010 model year or newer diesel trucks cannot be obtained, provide documentation as information becomes available and use trucks that meet EPA 2007 model year NOx emissions requirements.[5] Additionally, consider other measures such as incentives, phase-in schedules for clean trucks, etc.

b. Include in all construction contracts the requirement that all off-road diesel-powered construction equipment greater than 50 hp shall meet Tier 4 off-road emission standards at a minimum. In addition, if not already supplied with a factory-equipped diesel particulate filter, all construction equipment shall be outfitted with BACT devices certified by CARB. Any emissions control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. In addition, construction equipment shall incorporate, where feasible, emissions savings technology such as hybrid drives and specific fuel economy standards. In the event that any equipment required under this mitigation measure is not available, provide documentation as information becomes available. A copy of each unit's certified tier specification, BACT documentation, and CARB or SCAQMD operating permit at the time of mobilization of each applicable unit of equipment shall be provided.

SUPP-R-2-6

c. Require the use of electricity from power poles rather than temporary diesel or gasoline power generators.

d. Provide temporary traffic controls such as a flag person, during all phases of significant construction activity to maintain smooth traffic flow.

e. Provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

f. Avoid siting staging areas near sensitive receptor areas.

g. Reroute construction trucks away from congested streets or sensitive receptor areas.

h. Improve traffic flow by signal synchronization.

Additional Construction Mitigation Measures for Reducing PM Emissions

6. The Lead Agency should identify and incorporate additional mitigation measures to further reduce PM10 and PM2.5 emissions from construction activities. Please see SCAQMD Rule 403[6] – Tables 1, 2, and 3 for additional control PM control measures.

SUPP-R-2-7

For additional measures to reduce off-road construction equipment are available on the SCAQMD website. Please refer to the mitigation measure tables located at the following website: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies.

[5] Based on a review of the California Air Resources Board's diesel truck regulations, 2010 model year diesel haul trucks should have already been available and can be obtained in a successful manner for the project construction California Air Resources Board. March 2016. Available at: http://www.truckload.org/tca/files/ccLibraryFiles/Filename/000000003422/California-Clean-Truck-and-Trailer-Update.pdf (See slide #23).

[6] South Coast Air Quality Management District – Rule 403 – Fugitive Dust. Available at: http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf

SUPP-R-2: South Coast Air Quality Management District (SCAQMD)

SUPP-R-2-1

Caltrans and the Orange County Transportation Authority (OCTA) thank you for your comment and participation in the environmental process for the proposed project. Caltrans and OCTA acknowledge SCAQMD's concerns regarding the air quality analysis. The proposed project involves modifications to an interstate highway (Interstate 5 [I-5]), which is under the jurisdiction of Caltrans. According to Public Resources Code (PRC) Section 21082, CEQA provides lead agencies with general authority to adopt criteria for determining whether a given impact is significant. As a result, the analysis for the proposed project followed the regulatory framework and recommended procedures for performing an air quality analysis for both Caltrans and local agency transportation projects. These procedures provide for a qualitative analysis for temporary construction activities. Construction of the entire project would occur in less than 5 years, which meets the Caltrans criteria as a temporary activity. As indicated in the Supplemental Draft IS/EA and discussed in further detail in technical memoranda, construction activities would occur at various locations along the 6.5-mile length of freeway and would primarily involve exhaust emissions. All construction equipment would be subject to Caltrans Standard Specifications for Construction (Sections 14 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]), as well as SCAQMD Rule 403. In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with State-mandated emission control devices pursuant to State emission regulations and standard construction practices. The analysis concluded that project construction of this magnitude would not violate State or federal air quality standards or contribute to the existing air quality violations in the South Coast Air Basin.

SUPP-R-2-2

The comment states that nitrogen oxide (NO_X) emissions from construction would exceed SCAQMD significance thresholds and that the emissions calculations did not account for overlapping construction phases. Please refer to Response to Comment SUPP-R-1-1 for a discussion on Caltrans procedures for analysis of construction air quality emissions and determination of significant air quality impacts. Overlapping construction phases are not anticipated to occur; therefore, the emissions calculations correctly account for construction phasing. Per the procedures for performing an air quality analysis for Caltrans projects, construction of Alternative 3 was found to result in less than significant air quality impacts for the construction phase with the inclusion of emissions Minimization Measures AQ-1 through AQ-5.

SUPP-R-2-3

This project is a highway transportation project proposed by Caltrans. CEQA Guidelines, Section 15064.7, Thresholds of Significance, state that the lead agency can develop thresholds of significance for use in the determination of the significance of environmental effects. Caltrans has developed the Standard Environmental Reference (SER) to establish compliance with CEQA and the National Environmental Policy Act (NEPA) for transportation projects. Based on the SER, potential localized impacts are assessed for carbon monoxide (CO), particulate matter (PM), and mobile source air toxics (MSAT). Section 2.13, Air Quality, in the Supplemental Draft IS/EA for the proposed project includes operational analyses per Title 40, Part 93, of the Code of Federal Regulations (CFR) to determine whether the project would result in any CO and/or PM hot spots. The CO hot-spot analysis in Section 2.13.3.2 of the Supplemental Draft IS/EA concludes that the project is not expected to result in higher CO concentrations than those existing within the region at the time of attainment demonstration.

A qualitative PM hot-spot analysis was prepared for the proposed project (for four Build Alternatives and a No Build Alternative) and was presented to the Transportation Conformity Working Group (TCWG) for Interagency Consultation on December 3, 2013. The PM hot-spot analysis was conducted according to the United States Environmental Protection Agency (EPA) Federal Register (FR) published on March 10, 2006 (71 FR 12468). The analysis was conducted following the procedures and methodology provided in the *Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* documentation, which was developed by the EPA and the Federal Highway Administration (FHWA). The PM hot-spot analysis concluded that the project would not result in new violations of the federal air quality standards for particulate matter less than 10 microns and less than 2.5 microns (PM_{10} and $PM_{2.5}$, respectively) and meets the conformity hot-spot requirements under 40 CFR 93-116 and 93-123. The TCWG determined that the proposed hot-spot analysis was acceptable for NEPA circulation on December 3, 2013. On July 28, 2015, an updated PM hot-spot analysis, with minor changes to the traffic analysis, was submitted to the TCWG. The TCWG determined that no additional PM analysis was required.

As such, Caltrans has conducted localized air quality assessments based on the pollutants of concern relating to transportation sources and in consultation with federal, State, and regional agencies to comply with the public disclosure requirements of CEQA and NEPA.

SUPP-R-2-4

Section 2.13, Air Quality, of the Supplemental Draft IS/EA includes an analysis of MSATs as part of the NEPA process for highways. This MSAT analysis includes a full set of toxic air contaminants in vehicle exhaust, including diesel particulate matter (DPM). The MSAT analysis in Section 2.13.3.2 concludes that all project alternatives "…would result in a negligible change in MSAT emissions in the project vicinity." In addition, the MSAT analysis also states, "In summary, while the alternatives for the proposed project would result in a negligible increase in localized MSAT emissions, the U.S. EPA vehicle and fuel regulations, coupled with fleet turnover, would cause substantial reductions over time that would cause regionwide MSAT levels to be substantially lower than they are today." Thus, since the MSAT analysis shows that the emissions of MSATs would be reduced from existing conditions, the health risk levels for adjacent residents from exposure to these MSATs, which include DPM, would also be lower than existing conditions.

SUPP-R-2-5

As discussed in Section 2.13, Air Quality, of the Supplemental Draft IS/EA, construction of the project would comply with SCAQMD Rule 403, which includes compliance with Section (e) because the project would disturb more than 50 acres. All applicable Best Available Control Measures (BACMs) from Rule 403 would be implemented. SUPP-R-2-6

Please refer to Response to Comment SUPP-R-1-2 for a discussion of measures included to reduce air quality emissions during construction.

SUPP-R-2-7

As discussed in Section 2.13, Air Quality, of the Supplemental Draft IS/EA, construction of the project would comply with SCAQMD Rule 403. All applicable BACMs from Rule 403 would be implemented.

SCG Transmission Notice of CONFLICT

SUPP-U-1

SoCalGas

9400 Oakdale Ave
Chatsworth, CA
91311

Mailing Address:
P. O. Box 2300
Chatsworth, CA
91313-2300
M.L.9314

Tel 818-701-4546
Fax 818-701-4554

April 7, 2017

Charles Baker
CalTrans
1750 East 4th Street, Suite 100
Santa Ana, CA 92705
D12SR55ImprovementProject@dot.ca.gov

Plan File No. **0422-17-1017,1018**

Subject: **State Route 55 (SR-55) Improvement Project Between Interstate 405 (I-405) and Interstate 5 (I-5)**

The Southern California Gas Company (SoCalGas) Transmission Department has received your request for pipeline locations within the general area of your proposed project. SoCalGas Transmission operates and maintains high pressure natural gas line(s) **1017, 1018** within the limits of your construction project. Attached are copies of our pipeline Atlas sheets which show the location of our pipelines. While we cannot guarantee the accuracy of these maps, they are included to assist you in your planning and design. SUPP-U-1-1

Please be advised § 143.5 of General Order 112 F issued by the California Public Utilities Commission prohibits a building or other encroachment to be constructed within the pipeline right-of-way that would hinder maintenance activities on the pipeline or cause a lengthy delay in accessing the pipeline facilities during an emergency. SUPP-U-1-2

Do Not Proceed with any grading, excavation or other construction activity within the pipeline easement area and/or within ten feet (10') of the pipeline. This letter does not constitute clearance for any construction work near or around SoCalGas' Transmission pipeline(s). SUPP-U-1-3

Please note the following during planning and design: SUPP-U-1-4

- Consideration must be given to the safety of our pipeline during the design and construction stages.
- We will require "final" grading plans and construction profiles prior to the start of construction.

- If a conflict is identified and can only be resolved by the relocation of our facilities, which relocation may or may not be at the expense of SoCalGas, please be advised that the projected timetable for the completion of this relocation can take a year or longer. This includes planning, design, material procurement, cathodic protection, permits, environmental issues, construction and capacity constraints.

- All work within SoCalGas' easement(s) and/or within 10' of the pipeline(s) must be observed by a SoCalGas Transmission field representative. No work is authorized without the representative. Arrangements for the required stand-by can be made by calling **Adam Juarez – 714-634-3196**. Two-weeks minimum are needed to schedule a representative on standby. We request that you plan accordingly.

- Please call Underground Service Alert (USA) at (800) 422-4133 to have a SoCalGas Transmission field representative locate and mark our active underground facilities at no cost.

SUPP-U-1-4

Please refer to our Document Control Plan File # **0422-17-1017,1018** on all correspondence**.** For any correspondence directed to the SoCalGas Transmission Department in connection with this project, please contact **Christopher Coria, CCoria@semprautilities.com.**

SUPP-U-1-5

If you have not already done so, please contact the **Southeast Distribution Region** of SoCalGas for information on the location of Distribution pipelines. Depending on the location of your project in relation to their pipelines, the above restrictions may apply to their pipelines as well. You can contact them at **(714) 634-5067** and they will furnish you with any information you may require.

SUPP-U-1-6

Thank you for your notification.

Best regards,

SoCalGasTransmissionUtilityRequest@semprautilities.com

SUPP-U-1: Southern California Gas Company

SUPP-U-1-1
Caltrans and OCTA thanks Southern California Gas Company for providing maps of their facilities within the project limits. Southern California Gas Company facilities, including the two high-pressure natural gas lines cited in the letter, were considered during design of the project.

SUPP-U-1-2
It is acknowledged that §143.5 of General Order 112 F issued by the California Public Utilities Commission prohibits construction within a pipeline right-of-way that would hinder maintenance activities. As specified in Measure UES-1 in Section 2.4.3 of the Supplemental Draft IS/EA, utility relocation plans will be prepared in consultation with utility providers, including the Southern California Gas Company, to minimize impacts to the affected utilities and ensure that maintenance activities would not be hindered.

SUPP-U-1-3
It is acknowledged that the comment letter does not constitute clearance for construction near Southern California Gas Company pipelines. No work near Southern California Gas Company facilities will be initiated without coordination with and approval from the Southern California Gas Company. Coordination with Southern California Gas Company, Distribution and Transmission, will occur during final design as utility relocation plans are finalized.

SUPP-U-1-4
The information provided in the comment letter regarding consideration of Southern California Gas Company facilities during the planning and design phases is acknowledged. The Southern California Gas Company facilities, including the two natural gas lines cited in the comment letter, were considered during design of the project. As specified in Measure UES-1 in Section 2.4.3 of the Supplemental Draft IS/EA, utility relocation plans will be prepared in consultation with utility providers, including the Southern California Gas Company, to minimize impacts to and ensure safety of the affected utilities. Final grading plans and construction profiles will be provided to the Southern California Gas Company during final design (PS&E) and the utility consultation process. A notice will be sent prior to construction within 10 feet of Southern California Gas Company pipelines or potholing activities done during final design. The Southern California Gas Company contact information provided in this comment is acknowledged and noted for the record.

SUPP-U-1-5
This comment provides contact information for correspondence with the Southern California Gas Company. The comment does not raise issue with the adequacy of the IS/EA. The contact information for the Southern California Gas Company is acknowledged and noted for the record.

SUPP-U-1-6
This comment provides contact information for correspondence with the Southeast Distribution Region of the Southern California Gas Company. The comment does not raise issue with the adequacy of the IS/EA. The contact information for the Southeast Distribution Region of the Southern California Gas Company is acknowledged and noted for the record. The Southeast Distribution Region of the Southern California Gas Company has been contacted by the project team for information on the location of the distribution pipelines

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From: Toshio Abe <tabe@marukomeusa.com>
Sent: Thursday, April 06, 2017 5:22 PM
To: D12 SR55 Improvement Project@DOT
Subject: SR-55 Improvement Project

Dear Charles Baker,

We use a large truck for transportation to and from our company at 17132 Pullman Street.

What will be affected by the SR-55 improvement project at Pullman street in front of our building, Duryea Ave. and McGaw Ave.? SUPP-P-1-1

Best Regards,

Toshio ABE

marukome U.S.A., Inc.
17132 Pullman Street, Irvine, CA 92614-5524
TEL: 949-863-0110, FAX: 949-863-9813
E-Mail: tabe@marukomeusa.com

SUPP-P-1: Abe Toshio

SUPP-P-1-1

Pullman Street would be shifted to the east to accommodate the widening of SR-55 proposed for Alternative 3M. Driveways along the eastside of Pullman Street would be reconstructed to account for the shift. However, the driveway reconstruction would not impact the functionality of the truck movements at the property located at 17132 Pullman Street.

From: Mark@mark-roberts.com
Sent: Monday, April 10, 2017 12:33 PM
To: D12 SR55 Improvement Project@DOT
Subject: 55 improvement between 405 & 5 fwys

The biggest problem with the 55 fwy, is the 55 and 5 interchange, where, because of the Santa Ana freeway, the 55 narrows down to no more than 4 lanes. It needs to be a minimum of 6 lanes, and preferably even more.

SUPP-P-2-1

Any widening changes either north of the 5, or south of the 5 are worth very, very little, without fixing the big challenge, WIDENING THE 55 FWY AT THE SANTA ANA (5) FWY INTERCHANGE.

Mark Roberts

SUPP-P-2: Mark Roberts

SUPP-P-2-1

The commenter's request for improvement to the I-5/SR-55 interchange is acknowledged. Improvements to the I-5/SR-55 interchange are not part of the scope of this project. The northern project limit is south of the SR-55/northbound I-5 interchange. Improvements to the I-5/SR-55 interchange would be evaluated and studied as a separate project.

From: Milton Allione <Milton.Allione@brilogy.com>
Sent: Thursday, April 20, 2017 10:27 PM
To: D12 SR55 Improvement Project@DOT
Subject: FW: SR-55

From: Chris Boucly [mailto:cboucly@octa.net]
Sent: Thursday, April 20, 2017 7:52 PM
To: Milton Allione <Milton.Allione@brilogy.com>
Subject: Re: SR-55

Good evening Mr. Allione,

Thank you for your email.

Please submit this comment to Caltrans Senior Environmental Planner Charles Baker at D12SR55ImprovementProject@dot.ca.gov.

Best,

Chris Boucly
Community Relations Officer
Orange County Transportation Authority
714-560-5326

On Apr 20, 2017 7:00 PM, Milton Allione <Milton.Allione@brilogy.com> wrote:

> came to the meeting. thank you for hosting.
>
> like the 3M option, a lot, with the singular exception of all that work and s/b 405 (2 lanes) still merges into 1 lane at the 55 north.
>
> understand that this likely outside the charter of measure M, but damn, to go all this way, and wait 7 years to boot, and leave the connection between two MAJOR freeways at one lane is hard to swallow.
>
> regards.

SUPP-P-3-1

Milton Allione
President
AXEIUM | BRILOGY
www.axeium.com

ofc: 714.662.6000 x2003
800.992.4430 x2003
cell: **714.609.9900**

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SUPP-P-3: Milton Allione

SUPP-P-3-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your support of Alternative 3M is acknowledged and considered in identifying the Preferred Alternative for the proposed project. Improvements to the I-405/SR-55 interchange is not part of the scope of this project. The southern project limit is north of the I-405/SR-55 interchange. Improvements to the I-405/SR-55 interchange would be evaluated and studied as a separate project.

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From: Luis Martinez <luismart1506@gmail.com>
Sent: Wednesday, April 26, 2017 1:55 PM
To: D12 SR55 Improvement Project@DOT
Subject: State Route 55 Improvement Project

I believe that expanding Route 55 is a bad idea. Expanding highways is only a temporary fix to a long term issue. Expanding roads and highways with increasing population and traffic is I unsustainable. I would love to see some kind of train or monorail system instead. It would be better for the environment and for the public's health. SUPP-P-4-1

-Luis Martinez

SUPP-P-4: Luis Martinez

SUPP-P-4-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your opposition to any improvements to SR-55 is acknowledged and considered in identifying the Preferred Alternative for the proposed project. Construction of a train or monorail would not address the identified purpose and need of the project because it would not improve mobility, reduce congestion, improve traffic operations, or increase capacity on SR-55 between Interstate 405 (I-405) and I-5.

BRIGGS ALEXANDER
A PROFESSIONAL LAW CORPORATION

SUPP-P-5

SENDER: LEON ALEXANDER, ESQ.
LEON@BRIGGSANDALEXANDER.COM

Immediate Response Requested

May 2, 2017

Via Overnight Mail & E-mail
Mr. Charles Baker, Senior Environmental Planner
California Department of Transportation, District 12
Environmental Analysis Specialist Branch
1750 East 4th Street, Suite 100
Santa Ana, California 92705
E-mail: *D12SR55ImprovementProject@dot.ca.gov*

Re: PROPERTY OWNER INQUIRY AND OBJECTION
Project: State Route 55 Improvement Project
Property Address: 2350 Pullman Street, Santa Ana, CA 92705
Property Owner: 2350 Pullman, LLC

Dear Mr. Baker:

This office serves as legal counsel to 2350 Pullman, LLC, the owner of real property located at 2350 Pullman Street in Santa Ana, California 92705 ("Property"). We seek to address the State Route 55 Improvement Project ("Project") proposed by the California Department of Transportation ("Caltrans") and its adverse effects on the Property. It is our understanding that the Project intends to widen the 55 Freeway and help relieve traffic congestion, but that several properties including our client's Property may be subject to a taking. This taking, whether whole or partial, will likely have catastrophic repercussions for my client which will not only result in a diminution in value of the Property as whole, but will lower its marketability as well as possibly extinguish a substantial stream of rental income from the tenant currently occupying the Property. Furthermore, this Project will likely impact numerous businesses possibly causing the loss of jobs and wreaking havoc on the community as a whole. Therefore, due to the reasons set forth in detail below, please allow this correspondence to stand as formal notice of protest as to any taking for the Project. SUPP-P-5-1

Currently, the Property includes an industrial building with an area of approximately 48,500 sq. ft. and is being leased by Sweet Life Enterprises, Inc. ("Tenant"). The Tenant is a large baking-manufacturing company at this site and employs over 280 employees which could be displaced by the proposed taking due to the Project. The Tenant, in conjunction with my client, has expended over eight million dollars in tenant improvements including but not limited to highly sophisticated baking and mass production cookie cutting mechanisms and machines for distribution and packaging. The Tenant and my client intend to also invest further capital in Property improvements, updating, and expanding the operations. Thus, substantial improvements have been made to the Property which may be lost as a result of a taking here. SUPP-P-5-2

The possible impact that the Project may have, even if only a portion of the Property is taken, will directly correlate as to whether my client continues to enjoy the stream of rental income on which its business relies, or whether the Tenant of the Property will unilaterally be able to terminate the lease. With respect to the condemnation provisions in the lease, the Tenant may be able to unilaterally terminate the lease if a certain taking threshold is surpassed. Such a doomsday scenario of possibly losing the lease must be avoided. This does not factor in whether or not the Project also seeks to take a portion of the Property on which the building is located. Please provide further clarification as to whether any portion of the building may be taken for the Project. SUPP-P-5-3

Nevertheless, as stated, even a partial taking of a certain amount could cause my client to lose its Tenant, and the rental income, not to mention any future rent increases. And, if this possible scenario were to play out, the future marketability of the Property would also suffer since the square footage would have diminished significantly. It is imperative that any taking that could usher any early lease termination as set forth in the condemnation clause referenced herein must be avoided and will be vehemently opposed by my client. Thus, options involving complete avoidance of any taking, such as the "No Build Alternative" must be utilized here in order to avoid the displacement of numerous businesses that could result in the loss of hundreds of jobs. SUPP-P-5-4

That being said, we are informed that under the Alternative 3 Modified ("Alternative 3M") approach, my client's parking may actually be expanded on the Property by an additional net of 23 spaces. Since the Alternative 3M plan involves a partial taking of the Property in the amount of 9,478 sq. ft. we require further clarification as to how a partial taking will result in an increase in parking spaces. Accordingly, my client may be amenable to reviewing this alternative but requires more information and how the parking spaces will be situated on the Property. Please let us know if the proposed full taking of the neighboring parcel (APN#430-012-03) will result in residual land being transferred to my client on which the proposed additional parking will be located. SUPP-P-5-5

Finally, the Project's impact on the Tenant's business would likely also cause a logistical nightmare with the Property converting into a construction stating area. Simply put, the noise, dust, and debris pollution would rain down on the Property and significantly impact the business operations that could potentially run unabated for months on end. The Project should not in any manner interrupt or cease business operations at the Premises. Therefore, whatever alternatives that are currently being studied by Caltrans and the OCTA, including but not limited to Alternative 3M, an approach must be taken that should not in any adverse manner impact the Property as well as the Tenant's business operations. SUPP-P-5-6

In summation, the following non-exhaustive list of factors must be addresses and adhered to as per our protest to the Project:

1. **Prior to any taking, any and all Project alternatives must be studied, designed, and utilized by Caltrans which do not impact or touch any portion of the Property. Caltrans must be provide these reasonable alternatives for our review and input as well as indicate why a taking of the Property is necessary. Moreover, if need be, we must be allowed to provide our own engineering reports which indicate a taking will not be necessary.** SUPP-P-5-7

2. **Any proposed taking by Caltrans for the Project must not include any portion of the building whatsoever;** SUPP-P-5-8

3. **Caltrans must avoid any taking that would trigger Tenant's unilateral right to terminate the lease;** SUPP-P-5-9

4. **Any residual land available from the full taking of the adjoining parcel, APN#430-012-03, should be provided to my client including but not limited for parking;** SUPP-P-5-10

5. **There must be additional temporary parking made available by Caltrans during the construction;** SUPP-P-5-11

6. **The Project must not cause any interruption, nuisance, or hardship to the Tenant's business or jeopardize the rental income my client receives from the Tenant; and** SUPP-P-5-12

7. **My client must be allowed to perform its own surveys with respect to the Project.** SUPP-P-5-13

In closing, we look forward to your input and follow-up as to the issues raised herein. Please note, this correspondence is preliminary in nature as further investigation, analysis and review is required. Therefore, my client reserves its right to supplement this correspondence with additional claims and information that comes to light upon further review of the matter. Thank you.

If you have any questions, please do not hesitate to contact me.

Sincerely Yours,

BRIGGS & ALEXANDER
A PROFESSIONAL LAW CORPORATION

LEON ALEXANDER, ESQ.

cc:

Jeffrey Weber, Esq.
Client

SUPP-P-5: Briggs & Alexander

SUPP-P-5-1

As shown in Table 2.3.7 in Section 2.3.2, Relocations and Real Property Acquisition, of the Supplemental Draft IS/EA, a 4,060-square-foot temporary construction easement and a partial acquisition of 9,478 square feet would be required from the property located at 2350 Pullman Street. The existing parking lot would be reconfigured to maintain the existing number of parking stalls, therefore, Alternative 3M would result in no net gain or loss of parking stalls. Right-of-Way impacts and reconfiguration of parking identified in the Draft Supplemental Project Report and Final Project report are subject to change and will be finalized during the final design phase (PS&E) of the project. The project would not affect the building located on the property. As also shown in Table 2.3.7, the partial acquisition would not result in displacement of any businesses located on this property and therefore would not affect any rental income generated by businesses leasing space on the property or result in the loss of any jobs. The owners of the parcel would receive compensation for both the temporary use of a portion of their property and for the partial acquisition, which would further minimize the impacts related to the use of property for TCEs and impacts related to the partial acquisition.

SUPP-P-5-2

Please refer to Response to Comment SUPP-P-5-1. The TCE and partial acquisition proposed at 2350 Pullman Street would not affect the building located on the property and therefore would not result in displacement of any businesses or employees. No direct impacts would occur to the operation of the baking-manufacturing business leasing the building located on this property.

SUPP-P-5-3

Please refer to Response to Comment SUPP-P-5-1. The TCE and partial acquisition proposed at 2350 Pullman Street would not affect the building located on the property and therefore would not result in displacement of any businesses or employees. No direct impacts would occur to the operation of the baking-manufacturing business leasing the building located on this property. The partial acquisition would not directly affect any rental income generated by businesses leasing space on the property.

SUPP-P-5-4

Please refer to Response to Comment SUPP-P-5-1. Alternative 3M would result in a net gain of 12 parking stalls on the property and would not affect the building located on the property located at 2350 Pullman Street. Alternative 3M would displace four businesses and approximately 110 employees, which would not result in the dramatic loss of businesses and employees described by the commenter. There is an adequate supply of available replacement properties in which to relocate the displaced businesses within the study area cities, and it is anticipated that the businesses would be relocated near their current locations. The commenter's opposition to the project and support of the No Build Alternative is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

SUPP-P-5-5

As discussed in the *Supplemental Community Impact Assessment* (February 2017), widening of the northbound SR-55 mainline between Dyer Road and Edinger Avenue would also encroach into the existing parking area on the property located at 2350 Pullman Street (APN 430-012-04) and 3540 Pullman Street (APN 430-012-03). The existing parking lot would be reconfigured to maintain the existing number of parking stalls, therefore, Alternative 3M would result in no net gain or loss of parking stalls. In its current

configuration, the property does not comply with the City of Santa Ana's current off-street parking requirements. Right-of-Way impacts and parking reconfiguration identified in the Draft Supplemental Project Report and Final Project report are subject to change and will be finalized during the final design phase (PS&E) of the project.

SUPP-P-5-6

Although a portion of the property at 2350 Pullman Street would be used as a TCE, the property would not be used as a construction staging area. Construction equipment would utilize the TCE in order to construct improvements to SR-55, but construction equipment, construction materials, and stockpiles would not be stored on the property. Access to the property would be maintained during construction.

As discussed in Section 2.13, Air Quality, of the Supplemental Draft IS/EA, construction activities can result in fugitive dust. However, fugitive dust would be reduced during construction through the use of dust minimization measures such as regular watering and dust palliative compounds, per the requirements of Caltrans Standard Specifications (Section 14-9.02) and SCAQMD Rule 403. The project would not result in adverse air quality impacts to the business located on the property with implementation of the dust minimization measures.

As discussed in Section 2.14, Noise and Vibration, the sensitive receptor location located within 50 feet of the project construction areas, including the business located on the property, may be subject to short-term noise levels of 88 dBA L_{max} (maximum instantaneous noise level measured in A-weighted decibels) or higher during construction. However, the construction contractor will be required to control noise levels in conformance with Caltrans Standard Specifications Section 14-8.02, "Noise Control." Standard Specifications Section 14-8.02 requires the noise level from the contractor's operations to not exceed 86 dBA at a distance of 50 feet between the hours of 9:00 p.m. and 6:00 a.m. In addition, the construction contractor will equip all internal combustion engines with manufacturer-recommended mufflers and will not operate any internal combustion engine on the job site without the appropriate muffler. The project would not result in adverse noise impacts to the business located on the property with implementation of the standard specifications.

SUPP-P-5-7

The project alternatives were designed to maximize throughput while minimizing right-of-way acquisition. The Build Alternatives were developed to maximize operational benefits within the available footprints and minimize right-of-way acquisition to the extent feasible. All of the project alternatives would require a TCE and a partial acquisition on the property located at 2350 Pullman Street, as part of the build alternatives. Alternatives 1 and 2 would each require a 4,578-square-foot acquisition, and Alternatives 3, 3M, and 4 would each require a 4,478-square-foot acquisition. Alternatives 1 and 2 would not result in parking loss on the property. Alternatives 2, 3M, and 4 would result in a net gain of 12 parking stalls. Impacts of Alternatives 1, 2, 3, and 4 were detailed in the Draft Initial Study/Mitigated Negative Declaration (IS/MND), which was available for public review from November 25, 2015, to January 8, 2016. The property owners are at liberty to conduct and perform studies and submit them for consideration. However, studies would normally be considered during the public review period.

SUPP-P-5-8

Please refer to Response to Comment SUPP-P-5-1. The partial acquisition proposed at 2350 Pullman Street would not affect the building located on the property and would result in a net gain of 12 parking stalls.

SUPP-P-5-9
Please refer to Response to Comment SUPP-P-5-1. The TCE and partial acquisition would not affect the building located on the property, would result in a net gain of 12 parking stalls, and would not directly impact the operation of the baking-manufacturing business leasing the building.

SUPP-P-5-10
Please refer to Response to Comment SUPP-P-5-1. The existing parking lot would be reconfigured to maintain the existing number of parking stalls, therefore, Alternative 3M would result in no net gain or loss of parking stalls on the property. The adjacent parcel located at 2400 South Pullman Street (APN 430-012-03), will also be acquired to construct Alternative 3M improvements. Ownership of the acquired property at APN 430-012-03 would be determined as part of Appraisal and Acquisition process conducted during the final design phase (PS&E).

SUPP-P-5-11
The possibility of providing temporary street parking to accommodate for any temporary loss of parking during construction of the project will be discussed with the City of Santa Ana during the final design phase (PS&E).

SUPP-P-5-12
Please refer to Responses to Comments SUPP-P-5-1, SUPP-P-5-5, and SUPP-P-5-6. The project is not anticipated to cause any direct impacts to the business located on the property and would result in a net gain of 12 parking stalls.

SUPP-P-5-13
The property owners are at liberty to conduct and perform studies and submit them for consideration. However, studies would normally be considered during the public review period.

From: Pamela Anderson <panderson@niagarawater.com>
Sent: Wednesday, May 03, 2017 12:57 PM
To: D12 SR55 Improvement Project@DOT
Cc: Pamela Anderson
Subject: 17842 Cowan St., Irvine

Dear Charles Baker, Senior Environmental Planner, California Department of Transportation, District 12, Environmental Analysis D12SR55ImprovementProject@dot.ca.gov

Please receive the following comments re: the proposed 55 widining, in particular to how it effects the subject address. Please note that we of course object to alternative 2, 3 and 3M, as they will hinder our tenants quiet enjoyment and beneficial use of the property. To the extent any of these alternatives are chosen, we request that (i) access to the property during project construction be maintained and (ii) that existing curb cut and driveway placement in the after-condition be maintained as-is. SUPP-P-6-1 SUPP-P-6-2

Please direct any questions regarding these comments to this email and or the number below.

Thank you.

-Pamela Anderson, Counsel for Cowan Properties

Pamela Anderson Cridlebaugh l Vice President - Legal Affairs l **Niagara Bottling** l 2560 E. Philadelphia St. l Ontario, CA 91761 USA l Direct 909-758-5812 |Mobile 949-812-8719 |panderson@niagarawater.com

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SUPP-P-6: Pamela Anderson Cridlebaugh

SUPP-P-6-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Your opposition of Alternatives 2, 3, and 3M is acknowledged and considered in identifying the Preferred Alternative for the proposed project.

SUPP-P-6-2

Access to the building located at 17842 Cowan Street would be maintained during construction. Alternatives 2, 3, and 3M would require acquisition of a sliver of the property (approximately 3,000 square feet). The driveway alignment would not be altered by the acquisition; however, a portion of the landscaping would be removed and the curb would be relocated closer to the building.

PUBLIC COMMENTS

IN RE: WIDENING OF THE COSTA MESA (55) FREEWAY

THURSDAY, APRIL 20, 2017

REPORTED BY: TONI M. BERTINI

CSR NO. 8380

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JEFF THOMPSON: Please confirm sound attenuation measures on the pavement and walls at the I-5 and SR-55 interchange. Although fly-overs appear not to be part of the project scope, they are a source of noise. That would be very appreciated to be addressed. Thanks. SUPP-TR-1-1

(End of Public Comments)

SUPP-TR-1: Jeff Thompson

SUPP-TR-1-1

Caltrans and OCTA thank you for your comment and participation in the environmental process for the SR-55 Improvement Project. Improvements to the I-5/SR-55 interchange, including installation of sound attenuation measures at the I-405/SR-55 interchange, is not part of the scope of this project. The northern project limit is south of the SR-55/northbound I-5 interchange. Improvements to the I-5 interchange will be evaluated and studied as a separate project. Sound barriers would be considered to reduce noise impacts from any proposed improvements to the SR-55/I-5 interchange as part of a separate project.

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