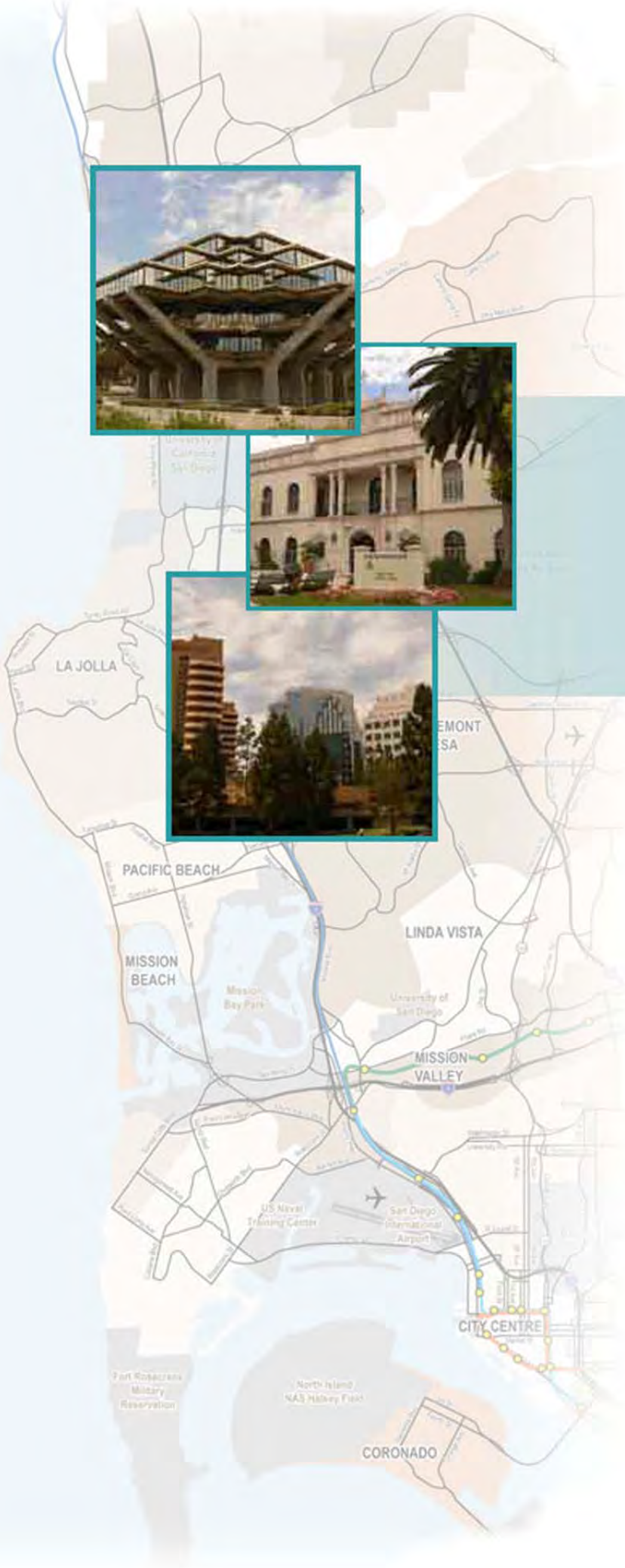


MID-COAST CORRIDOR
TRANSIT PROJECT

Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report Volume 1

State Clearinghouse No. 2010051001

U.S. Department of Transportation
Federal Transit Administration

and the

San Diego Association of Governments

September 2014

Mid-Coast Corridor Transit Project
San Diego, California

FINAL SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT

PREPARED PURSUANT TO:

National Environmental Policy Act of 1969, § 102 (42 United States Code [USC] § 4332); Federal Transit Law (49 USC Chapter 53); Public Law 112-141, 126 Statute 405, Section 1319(b); Clean Water Act, § 404 (33 USC § 1344); Clean Air Act (42 USC § 7401 *et seq.*); Endangered Species Act (7 USC § 136; 16 USC § 1531 *et seq.*); National Historic Preservation Act, § 106 (16 USC § 470f); Department of Transportation Act, § 4(f) (49 USC § 303); 49 Code of Federal Regulations (CFR) § 622.101; 23 CFR Parts 771 and 774; 36 CFR Part 800; 40 CFR Parts 51, 93 and 1500-1508; and Executive Orders 11988 (Floodplain Management) and 12898 (Environmental Justice).

by the

FEDERAL TRANSIT ADMINISTRATION

U.S. DEPARTMENT OF TRANSPORTATION

and the

SAN DIEGO ASSOCIATION OF GOVERNMENTS (SANDAG)

Leslie T. Rogers
Regional Administrator, Region IX
Federal Transit Administration

OCT 15 2014
Date of Approval

Gary Gallegos
Executive Director
San Diego Association of Governments

OCT 15 2014
Date of Approval

THIS PAGE INTENTIONALLY LEFT BLANK

ABSTRACT

The Federal Transit Administration and the San Diego Association of Governments (SANDAG) have completed Preliminary Engineering and preparation of a Final Supplemental Environmental Impact Statement (SEIS) for the Mid-Coast Corridor Transit Project in San Diego, San Diego County, California. The Proposed Action would extend the Trolley Blue Line from the Santa Fe Depot in Downtown San Diego to the University Towne Centre (UTC) Transit Center in University City, providing continuous service from the San Ysidro Transit Center at the U.S.–Mexico international border to University City. The Record of Decision (ROD) issued by the FTA for the Mid-Coast Corridor Transit Project is combined with this Final SEIS.

This combined Final SEIS and ROD addresses public and agency comments received on both the Draft SEIS and the focused Supplemental Environmental Impact Statement prepared for the impact to the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) not evaluated in the Draft SEIS. It also describes the impacts and benefits of the alternatives under consideration within the Mid-Coast Corridor, as well as measures for avoiding or mitigating any adverse or significant impacts. The alternatives considered include a No-Build Alternative and a Refined Build Alternative. The Refined Build Alternative is the Mid-Coast Corridor Transit Project, or project, approved by the SANDAG Board of Directors for evaluation in this Final SEIS. The Refined Build Alternative would extend the existing Trolley Blue Line from the Santa Fe Depot north to the Old Town Transit Center via the existing Trolley tracks, and then north along new tracks for 10.9 miles to the UTC Transit Center. Nine new stations would be built at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, Veterans Administration Medical Center, University of California, San Diego (UCSD) West Campus, UCSD East Campus, Executive Drive, and the UTC Transit Center.

The Refined Build Alternative would result in adverse and unavoidable impacts on traffic. Construction of the Refined Build Alternative would result in adverse impacts related to air quality exceedances of nitrogen oxides and carbon dioxide, noise, and localized impacts on roadway and pedestrian traffic, transit, and the parking supply. Overall, however, the project would have a beneficial effect on various elements of the built and natural environments, including improvements to mobility and accessibility, air quality, and energy. The Refined Build Alternative also supports established land-use plans and policies. A more detailed documentation of impacts and mitigation measures is provided in this Final SEIS.

FOR ADDITIONAL INFORMATION CONCERNING THIS DOCUMENT, CONTACT:

Alexander Smith
Community Planner
Federal Transit Administration, Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105
415-744-3133

Leslie Blanda
Mid-Coast Project Development Program Manager
San Diego Association of Governments
401 B Street, Suite 800
San Diego, CA 92101
619-595-5620

Visit the Mid-Coast Corridor Transit Project Web site (www.sandag.org/midcoast) where you can view and download the Draft SEIS, the Supplemental Environmental Impact Statement, and the combined Final SEIS and ROD and request a compact disc of the documents. Printed

copies of the combined Final SEIS and ROD are available for review and purchase at the SANDAG offices at the address listed above; compact discs are available free of charge.

Printed copies of the combined Final SEIS and ROD have been placed in the following public libraries: Balboa Branch Library, City of San Diego Central Library, Clairemont Branch Library, Kensington-Normal Heights Branch Library, La Jolla/Riford Branch Library, Linda Vista Branch Library, Mesa College Library, Mission Hills Branch Library, Mission Valley Branch Library, North Clairemont Branch Library, North Park Branch Library, North University Community Branch Library, Ocean Beach Branch Library, Pacific Beach/Taylor Branch Library, Point Loma/Hervey Branch Library, San Diego County Public Law Library, Serra Mesa-Kearny Mesa Branch Library, University Community Branch Library, University Heights Branch Library, UCSD Geisel Library, and University of San Diego Copley Library.

FINAL SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

LEAD AGENCY: San Diego Association of Governments

STATE CLEARINGHOUSE NO.: 2010051001

TITLE OF PROPOSED ACTION: Mid-Coast Corridor Transit Project

ABSTRACT:

The San Diego Association of Governments (SANDAG) has completed Preliminary Engineering and preparation of a Final Subsequent Environmental Impact Report (SEIR) for the Mid-Coast Corridor Transit Project in San Diego, San Diego County, California. The proposed project would extend the Trolley Blue Line from the Santa Fe Depot in Downtown San Diego to the University Towne Centre (UTC) Transit Center in University City, providing continuous service from the San Ysidro Transit Center at the U.S.–Mexico international border to University City. This Final SEIR addresses public and agency comments received on both the Draft SEIR and the focused Supplement to the Subsequent Environmental Impact Report prepared for the impact to the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) not evaluated in the Draft SEIR. It also describes the impacts and benefits of the alternatives under consideration within the Mid-Coast Corridor, as well as measures for avoiding or mitigating any adverse or significant impacts. The alternatives considered include a No-Build Alternative and a Refined Build Alternative. The Refined Build Alternative is the Mid-Coast Corridor Transit Project, or project, approved by the SANDAG Board of Directors for evaluation in this Final SEIR. The Refined Build Alternative would extend the existing Trolley Blue Line from the Santa Fe Depot north to the Old Town Transit Center via the existing Trolley tracks, and then north along new tracks for 10.9 miles to the UTC Transit Center. Nine new stations would be built at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, Veterans Administration Medical Center, University of California, San Diego (UCSD) West Campus, UCSD East Campus, Executive Drive, and the UTC Transit Center. The Refined Build Alternative would result in significant and unavoidable impacts on traffic. Construction of the Refined Build Alternative would result in significant impacts related to air quality exceedances of nitrogen oxides and carbon dioxide, and localized impacts on roadway and pedestrian traffic, transit, and parking supply. Overall, however, the project would have a beneficial effect on various elements of the built and natural environments, including improvements to mobility and accessibility, air quality, and energy. The Refined Build Alternative also supports established land-use plans and policies. A more detailed documentation of impacts and mitigation measures is provided in this Final SEIR.

FOR ADDITIONAL INFORMATION CONCERNING THIS DOCUMENT, CONTACT:

Alexander Smith
Community Planner
Federal Transit Administration, Region IX
201 Mission Street, Suite 1650
San Francisco, CA 94105
415-744-3133

Leslie Blanda
Mid-Coast Project Development Program Manager
San Diego Association of Governments
401 B Street, Suite 800
San Diego, CA 92101
619-595-5620

Visit the Mid-Coast Corridor Transit Project Web site (www.sandag.org/midcoast) to view and download the Draft and Final SEIR, the Supplement to the Subsequent Environmental Impact Report, and request a compact disc of the documents. Printed copies of the Final SEIR are available for review and purchase at the SANDAG offices at the address listed above; compact discs are available free of charge.

This Final SEIR supplements the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board [MTDB], 1995a), the *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b), and the *Mid-Coast Corridor Transit Project Draft SEIS/SEIR* (SANDAG, 2013a). Copies of these documents also are available to view and download on the Web site.

Printed copies of the Final SEIR have been placed in the following public libraries: Balboa Branch Library, City of San Diego Central Library, Clairemont Branch Library, Kensington-Normal Heights Branch Library, La Jolla/Riford Branch Library, Linda Vista Branch Library, Mesa College Library, Mission Hills Branch Library, Mission Valley Branch Library, North Clairemont Branch Library, North Park Branch Library, North University Community Branch Library, Ocean Beach Branch Library, Pacific Beach/Taylor Branch Library, Point Loma/Hervey Branch Library, San Diego County Public Law Library, Serra Mesa-Kearny Mesa Branch Library, University Community Branch Library, University Heights Branch Library, UCSD Geisel Library, and University of San Diego Copley Library.

The SANDAG Board of Directors will hold a meeting to certify the Final SEIR and approve the Mid-Coast Corridor Transit Project; oral testimony will be accepted during this meeting. A notice of this meeting will be sent to all whom submitted comments on the Draft SEIR and Supplement to the Subsequent Environmental Impact Report, as well as to property owners where temporary easements and/or permanent easements or acquisitions are required by the project.

Table of Contents

Volume 1

TITLE PAGE

ABSTRACT

ACRONYMS AND ABBREVIATIONS

S.0 EXECUTIVE SUMMARY S-1
S.1 Mid-Coast Corridor Description S-2
S.2 Purpose and Need S-5
S.3 Alternatives Considered S-5
S.3.1 No-Build Alternative S-9
S.3.2 Refined Build Alternative S-9
S.4 Environmental Impacts and Mitigation Measures S-12
S.5 Financial Feasibility S-33
S.6 Public Outreach, Agency Consultation, and Coordination S-33
S.7 Areas of Controversy and Issues to be Addressed S-35
S.8 Next Steps S-37
S.9 Intended Use S-37

1.0 PURPOSE AND NEED 1-1
1.1 Project Background 1-2
1.2 Mid-Coast Corridor Description 1-3
1.2.1 Population and Employment 1-5
1.2.2 Land Use 1-5
1.2.3 Trip Purposes and Travel Patterns 1-7
1.2.4 Major Transit Markets 1-10
1.3 Corridor Transportation Facilities and Services 1-11
1.3.1 Transit System 1-11
1.3.2 Highway System 1-16
1.4 Transportation System Performance 1-17
1.4.1 Regional Goals 1-17
1.4.2 Transit System Performance 1-18
1.4.3 Highway System Performance 1-22
1.5 Purpose and Need for the Mid-Coast Corridor Transit Project 1-25
1.6 Other Project Goals 1-26
1.6.1 Livability 1-26
1.6.2 Sustainability 1-26
1.6.3 Equity 1-27

2.0 ALTERNATIVES CONSIDERED 2-1
2.1 Development of Alternatives 2-1
2.1.1 Prior Studies and Actions 2-1
2.1.2 Additional Studies and Refinements to Prior LPA 2-3
2.2 Description of Alternatives Evaluated in the Draft SEIS/SEIR 2-8
2.2.1 No-Build Alternative 2-8
2.2.2 Build Alternative 2-15

2.3 Refinements to the Build Alternative 2-16
2.3.1 Addition of VA Medical Center Station Option 2-18
2.3.2 Elimination of the Genesee Avenue Design Option....2-18
2.3.3 Refinements to LRT Alignment....2-19
2.3.4 Refinements to Stations....2-19
2.3.5 Refinements to Traction Power Substations....2-22
2.3.6 Refinements to Construction Staging Areas....2-26
2.3.7 Other Engineering Refinements 2-26
2.4 Description of the Refined Build Alternative in the Final SEIS/SEIR 2-26
2.4.1 Alignment....2-30
2.4.2 Stations....2-36
2.4.3 Trolley Vehicle Fleet and Maintenance Facilities....2-45
2.4.4 Power System and Signaling....2-45
2.4.5 Operating Plan....2-48
2.4.6 Schedule....2-52

3.0 TRANSPORTATION IMPACTS 3-1
3.1 Travel Demand Forecasting Model 3-3
3.2 Travel Demand and Patterns 3-3
3.3 Existing Conditions....3-5
3.3.1 Transit System and Performance 3-5
3.3.2 Freeway and Roadway System and Performance 3-14
3.3.3 Bicycle and Pedestrian System 3-26
3.3.4 Parking 3-29
3.3.5 Freight 3-30
3.3.6 Airports 3-30
3.4 Transportation Impacts and Mitigation 3-30
3.4.1 Transit System Impacts 3-31
3.4.2 Freeway and Roadway Impacts 3-50
3.4.3 Bicycle and Pedestrian System Impacts....3-74
3.4.4 Parking Impacts....3-77
3.4.5 Freight Impacts....3-85
3.4.6 Indirect and Cumulative Impacts 3-88
3.4.7 Transportation Impacts during Construction....3-92

4.0 ENVIRONMENTAL ANALYSIS, CONSEQUENCES, AND MITIGATION 4-1
4.1 Land Use Plans and Policies....4-4
4.1.1 Regulatory Background and Methodology....4-4
4.1.2 Affected Environment 4-7
4.1.3 Environmental Impacts 4-10
4.1.4 Mitigation Measures....4-13
4.1.5 California Environmental Quality Act Determination....4-13
4.2 Community and Neighborhoods....4-16
4.2.1 Regulatory Background and Methodology....4-16
4.2.2 Affected Environment 4-17
4.2.3 Environmental Impacts 4-23
4.2.4 Mitigation Measures....4-28
4.2.5 California Environmental Quality Act Determination....4-28

4.3 Socioeconomic and Fiscal Impacts 4-31
4.3.1 Regulatory Background and Methodology 4-32
4.3.2 Affected Environment 4-33
4.3.3 Environmental Impacts 4-33
4.3.4 Mitigation Measures 4-37
4.3.5 California Environmental Quality Act Determination 4-37
4.4 Visual Resources and Aesthetics 4-38
4.4.1 Regulatory Background and Methodology 4-39
4.4.2 Affected Environment 4-40
4.4.3 Environmental Impacts 4-44
4.4.4 Mitigation Measures 4-51
4.4.5 California Environmental Quality Act Determination 4-52
4.5 Air Quality 4-58
4.5.1 Regulatory Background and Methodology 4-58
4.5.2 Affected Environment 4-59
4.5.3 Environmental Impacts 4-61
4.5.4 Mitigation Measures 4-64
4.5.5 California Environmental Quality Act Determination 4-64
4.6 Climate Change 4-66
4.6.1 Regulatory Background and Methodology 4-66
4.6.2 Affected Environment 4-67
4.6.3 Environmental Impacts 4-68
4.6.4 Mitigation Measures 4-69
4.6.5 California Environmental Quality Act Determination 4-69
4.7 Noise and Vibration 4-71
4.7.1 Regulatory Background and Methodology 4-72
4.7.2 Affected Environment 4-78
4.7.3 Environmental Impacts 4-79
4.7.4 Mitigation Measures 4-86
4.7.5 California Environmental Quality Act Determination 4-87
4.8 Ecosystems and Biological Resources 4-89
4.8.1 Regulatory Background and Methodology 4-90
4.8.2 Affected Environment 4-93
4.8.3 Environmental Impacts 4-99
4.8.4 Mitigation Measures 4-111
4.8.5 California Environmental Quality Act Determination 4-117
4.9 Water Resources 4-120
4.9.1 Regulatory Background and Methodology 4-120
4.9.2 Affected Environment 4-122
4.9.3 Environmental Impacts 4-127
4.9.4 Mitigation Measures 4-129
4.9.5 California Environmental Quality Act Determination 4-130
4.10 Hazardous Materials 4-134
4.10.1 Regulatory Background and Methodology 4-134
4.10.2 Affected Environment 4-136
4.10.3 Environmental Impacts 4-137
4.10.4 Mitigation Measures 4-137
4.10.5 California Environmental Quality Act Determination 4-137

4.11 Geotechnical and Seismic Conditions 4-140
4.11.1 Regulatory Background and Methodology 4-140
4.11.2 Affected Environment 4-141
4.11.3 Environmental Impacts 4-145
4.11.4 Mitigation Measures 4-151
4.11.5 California Environmental Quality Act Determination 4-151
4.12 Energy 4-154
4.12.1 Regulatory Background and Methodology 4-154
4.12.2 Affected Environment 4-155
4.12.3 Environmental Impacts 4-155
4.12.4 Mitigation Measures 4-156
4.12.5 California Environmental Quality Act Determination 4-156
4.13 Safety and Security 4-158
4.13.1 Regulatory Background and Methodology 4-158
4.13.2 Affected Environment 4-159
4.13.3 Environmental Impacts 4-160
4.13.4 Mitigation Measures 4-165
4.13.5 California Environmental Quality Act Determination 4-166
4.14 Electromagnetic Interference 4-167
4.14.1 Regulatory Background and Methodology 4-167
4.14.2 Affected Environment 4-169
4.14.3 Environmental Impacts 4-170
4.14.4 Mitigation Measures 4-172
4.14.5 California Environmental Quality Act Determination 4-173
4.15 Historic Architectural, Archaeological, and Paleontological Resources 4-175
4.15.1 Regulatory Background and Methodology 4-176
4.15.2 Affected Environment 4-182
4.15.3 Environmental Impacts 4-189
4.15.4 Mitigation Measures 4-190
4.15.5 California Environmental Quality Act Determination 4-191
4.16 Utilities 4-192
4.16.1 Regulatory Background and Methodology 4-192
4.16.2 Affected Environment 4-192
4.16.3 Environmental Impacts 4-193
4.16.4 Mitigation Measures 4-194
4.16.5 California Environmental Quality Act Determination 4-194
4.17 Construction Impacts 4-196
4.17.1 Regulatory Background and Methodology 4-198
4.17.2 Construction Activities 4-198
4.17.3 Construction Impacts, Mitigation Measures, and California Environmental Quality Act Determination 4-202
4.18 Growth-Inducing Impacts 4-251
4.18.1 Regulatory Background and Methodology 4-251
4.18.2 Environmental Impacts 4-252
4.18.3 Mitigation Measures 4-252
4.18.4 California Environmental Quality Act Determination 4-253

4.19 Cumulative Impacts 4-254
4.19.1 Regulatory Background and Methodology 4-254
4.19.2 Affected Environment 4-257
4.19.3 Environmental Impacts 4-257
4.20 Environmental Justice 4-273
4.20.1 Regulatory Background and Methodology 4-273
4.20.2 Affected Environment 4-275
4.20.3 Environmental Impacts 4-276
4.20.4 Benefits 4-282
4.20.5 Mitigation Measures 4-283
4.20.6 Public Outreach 4-283
4.20.7 Summary of Environmental Justice Analysis 4-284
4.21 Other National Environmental Policy Act and California Environmental Quality Act Considerations 4-285
4.21.1 Relationship between Short-term Uses of the Environment and Long-term Productivity and Irreversible and Irretrievable Commitment of Resources 4-285
4.21.2 Mandatory Findings of California Environmental Quality Act Significance 4-287
4.22 Anticipated Permits 4-290

5.0 SECTION 4(F) EVALUATION 5-1
5.1 Introduction 5-1
5.1.1 Public Review and Comment 5-2
5.2 Regulatory Background 5-5
5.3 Description of Section 4(f) Properties 5-7
5.3.1 Historic Architectural and Archaeological Resources 5-7
5.3.2 Parklands, Recreation Areas, and Wildlife and Waterfowl Refuges 5-10
5.4 Use of Section 4(f) Properties 5-13
5.4.1 Historic Properties and Archaeological Resources 5-13
5.4.2 Parklands, Recreation Areas, and Wildlife and Waterfowl Refuges 5-14
5.5 Determinations of Section 4(f) Uses 5-31
5.6 Agency Coordination and Consultation 5-32

6.0 COST AND FINANCIAL ANALYSIS 6-1
6.1 Cost Estimate Methodology 6-1
6.1.1 Capital Cost Estimate Methodology 6-1
6.1.2 Operating and Maintenance Cost Estimate Methodology 6-2
6.2 Capital Plan 6-2
6.2.1 Capital Cost Estimate for Refined Build Alternative 6-2
6.2.2 Proposed Capital Funding Sources for Refined Build Alternative 6-3
6.2.3 Evaluation of Financial Capacity 6-5
6.3 Operating and Maintenance Plan 6-5
6.3.1 Operating and Maintenance Costs 6-6
6.3.2 Operating and Maintenance Funding Sources 6-6
6.4 Cash Flow Analysis 6-8
6.4.1 Project Financing Assumptions 6-8
6.4.2 Project Cash Flow 6-9

6.5 Risks and Uncertainties 6-9
6.5.1 Project Cost Uncertainties 6-9
6.5.2 Project Funding Uncertainties 6-12
6.5.3 Mitigation Strategies 6-13

7.0 EVALUATION OF ALTERNATIVES 7-1
7.1 Effectiveness in Meeting Purpose and Need 7-1
7.1.1 Mobility and Accessibility 7-2
7.1.2 Efficiency 7-5
7.1.3 Reliability 7-5
7.2 Effectiveness in Supporting Other Local Goals 7-6
7.2.1 Livability 7-6
7.2.2 Sustainability 7-7
7.2.3 Equity 7-8
7.3 Cost-Effectiveness 7-8
7.4 Feasibility 7-9
7.5 Environmental and Other Considerations 7-10
7.5.1 Traffic Impacts 7-10
7.5.2 Visual Impacts 7-11
7.5.3 Biological Resources 7-11
7.5.4 Construction Impacts 7-12
7.6 Summary of Important Trade-offs 7-13
7.7 Environmentally Superior Alternative 7-14

8.0 PUBLIC OUTREACH, AGENCY CONSULTATION AND COORDINATION 8-1
8.1 Regulatory Context 8-1
8.2 Public and Agency Outreach Prior to Scoping 8-2
8.2.1 Overview of Outreach Activities 8-2
8.2.2 Project Working Group 8-3
8.3 Scoping 8-4
8.3.1 California Environmental Quality Act Scoping 8-4
8.3.2 National Environmental Policy Act Scoping 8-7
8.4 Public and Agency Outreach during Preparation of the Draft SEIS/SEIR 8-10
8.4.1 Public and Stakeholder Coordination Activities 8-10
8.4.2 Agency Consultation Activities 8-10
8.5 Draft SEIS/SEIR Comment Period 8-13
8.5.1 Public Meetings and Hearing 8-14
8.5.2 Public and Agency Outreach during the Comment Period 8-15
8.6 Comments on the Draft SEIS/SEIR 8-16
8.7 Comments on the Supplement 8-17
8.8 Public and Agency Outreach since Close of the Draft SEIS/SEIR Public Review Period 8-19
8.8.1 Continued Public and Stakeholder Coordination Activities 8-19
8.8.2 Agency Consultation Activities 8-20

REFERENCES

LIST OF FINAL SEIS/SEIR PREPARERS

LIST OF FINAL SEIS/SEIR RECIPIENTS

List of Appendices

APPENDIX A LIST OF TECHNICAL REPORTS IN SUPPORT OF FINAL SEIS/SEIR

APPENDIX B NEPA AND CEQA NOTICES

APPENDIX C AGENCY CORRESPONDENCE

APPENDIX D RECORD OF DECISION

APPENDIX E PROJECT MEASURES

Volume 2

MID-COAST CORRIDOR TRANSIT PROJECT FINAL SEIS/SEIR VOLUME 2: PLAN SET

GENERAL PLANS ..... SHEETS 001-005

LIGHT RAIL TRANSIT PLANS ..... SHEETS 006-108

LOSSAN PLANS ..... SHEETS 109-123

STREET IMPROVEMENT PLANS ..... SHEETS 124-197

BIKE PATH PLANS ..... SHEETS 198-207

RETAINING WALL PLANS ..... SHEETS 208-281

SUBSTATION PLANS ..... SHEETS 282-297

STATION PLANS ..... SHEETS 298-366

RIGHT-OF-WAY PLANS ..... SHEETS 367-393

Volume 3

MID-COAST CORRIDOR TRANSIT PROJECT FINAL SEIS/SEIR VOLUME 3: COMMENTS AND RESPONSES

VOLUME 3, PART 1

Introduction I-1
Master Responses MR-1

COMMENTS AND RESPONSES

V3-1 COMMENTS RECEIVED ON THE DRAFT SEIS/SEIR

Index of Comment Submissions i
Federal Agencies 1
State Agencies 19
Local Agencies 103
Tribes 135
Elected officials 141
Groups/Organizations 153
Businesses 489

VOLUME 3, PART 2

V3-1 COMMENTS RECEIVED ON THE DRAFT SEIS/SEIR (CONTINUED)

Individuals 767
Public Hearing – June 21, 2014 1403

VOLUME 3, PART 3

V3-2 COMMENTS RECEIVED ON THE SUPPLEMENT

Federal Agencies 1493
State Agencies 1497
Groups/Organizations 1503
Individuals 1511

V3-3 OTHER CORRESPONDENCE RELATED TO THE ENVIRONMENTAL DOCUMENT

Groups/Organizations 1519
Businesses 1549
Individuals 1713

List of Figures

Figure S-1. Location of Mid-Coast Corridor S-3
Figure S-2. Mid-Coast Corridor S-4
Figure S-3. No-Build Alternative Transportation Improvements S-10
Figure S-4. Refined Build Alternative S-11
Figure 1-1. Mid-Coast Corridor Study Area 1-4
Figure 1-2. Travel Analysis Districts 1-6
Figure 1-3. Existing Transportation System in the Mid-Coast Corridor 1-12
Figure 1-4. Existing Trolley System 1-13
Figure 1-5. Bus Service in the Mid-Coast Corridor 1-14
Figure 1-6. Highway and Transit Travel Times between Travel Analysis Districts, Existing Conditions in 2010 1-19
Figure 1-7. Highway Travel Time between Travel Analysis Districts, 2010 and 2030 without Project 1-20
Figure 1-8. Transit Travel Time between Travel Analysis Districts, 2010 and 2030 without Project 1-21
Figure 2-1. Voigt Drive Alignment Options on UCSD Campus 2-5
Figure 2-2. Refined LPA Alignment on UCSD Campus 2-6
Figure 2-3. No-Build Alternative Transportation Improvements 2-10
Figure 2-4. No-Build Alternative Major Bus Routes 2-12
Figure 2-5. No-Build Alternative Trolley Operating Plan in 2030 2-14
Figure 2-6. Build Alternative 2-17
Figure 2-7. Refinements to Voigt Drive Alignment 2-20
Figure 2-8. Refinements to Traction Power Substations 2-23
Figure 2-9. Refinements to Construction Staging Areas 2-27
Figure 2-10. Refined Build Alternative 2-29
Figure 2-11. Conceptual Plan and Profile of Refined Build Alternative 2-31
Figure 2-12. Site Concept for Tecolote Road Station 2-37
Figure 2-13. Site Concept for Clairemont Drive Station 2-38
Figure 2-14. Site Concept for Balboa Avenue Station 2-39
Figure 2-15. Site Concept for Nobel Drive Station 2-40
Figure 2-16. Site Concept for VA Medical Center Station 2-41
Figure 2-17. Site Concept for UCSD West Station 2-42
Figure 2-18. Site Concept for UCSD East Station 2-43
Figure 2-19. Site Concept for Executive Drive Station 2-44
Figure 2-20. Site Concept for UTC Transit Center 2-45
Figure 2-21. Existing Traction Power Substation at a Street North of Santa Fe Depot 2-46
Figure 2-22. Traction Power Substation Layout 2-46
Figure 2-23. Refined Build Alternative Opening Year Trolley Operating Plan 2-50

Figure 2-24. Refined Build Alternative 2030 Trolley Operating Plan 2-51
Figure 3-1. Southern Subarea 3-16
Figure 3-2. Northern Subarea 3-17
Figure 3-3. Major Bicycle Facilities in the Mid-Coast Corridor 3-27
Figure 3-4. Rose Canyon Bicycle Path 3-28
Figure 3-5. Comparison of Transit Travel Times between Travel Analysis Districts— Existing Conditions (2010) and No-Build and Refined Build Alternatives (2030) 3-41
Figure 3-6. Bus Routes Serving Proposed Trolley Stations— Refined Build Alternative (2030) 3-45
Figure 3-7. Mitigation Measures for the Refined Build Alternative (2030) 3-65
Figure 3-8. Continuous Closures at Intersections and on Roadways 3-100
Figure 3-9. Temporary Off-Street Parking Impact Locations 3-112
Figure 4-1. Existing Land Uses 4-8
Figure 4-2. Existing Land Uses within One-half Mile of Refined Build Alternative Stations 4-9
Figure 4-3. Population, Housing, and Employment Density in the Mid-Coast Corridor 4-18
Figure 4-4. Communities and Neighborhoods within One-half Mile of the Project Alignment 4-20
Figure 4-5. Community, Park, and Recreational Facilities within One-Half Mile of the Project Alignment 4-24
Figure 4-6. Refined Build Alternative—Full and Partial Property Acquisitions 4-34
Figure 4-7. Unique Forms of Michael Graves Building (Hyatt Regency) 4-41
Figure 4-8. Views to Mission Bay from the Bay Park Neighborhood 4-41
Figure 4-9. Overview of Mission Bay 4-41
Figure 4-10. Mormon Temple 4-42
Figure 4-11. San Diego River 4-42
Figure 4-12. Candidate Key View Photo Locations 4-43
Figure 4-13. Key View No. 8 (Looking southwest on La Jolla Colony Drive near Gilman Drive and I-5) 4-46
Figure 4-14. Key View No. 26 (Looking southbound on I-5 south of Nobel Drive) 4-47
Figure 4-15. Regional Air Quality Monitoring Sites 4-60
Figure 4-16. FTA Noise Impact Criteria 4-76
Figure 4-17. Vibration Criteria for Detailed Analysis 4-78
Figure 4-18. Noise Measurement and Impact Locations (South) 4-80
Figure 4-19. Noise Measurement and Impact Locations (North) 4-81
Figure 4-20. Vibration Impact Location 4-85
Figure 4-21. California Gnatcatcher 4-95
Figure 4-22. San Diego Fairy Shrimp 4-95
Figure 4-23. Study Area Hydrologic Units, Areas, and Subareas 4-123

Figure 4-24. Study Area Associated FEMA Flood Zones 4-126
Figure 4-25. Study Area Sites of Environmental Concern 4-135
Figure 4-26. Faults and Tsunami Inundation Area 4-142
Figure 4-27. Geologic Hazards 4-143
Figure 4-28. Location of Fire Stations Relative to Grade Crossings 4-164
Figure 4-29. Modified Electrical System with Parallel Feeder Cable Below Tracks 4-172
Figure 4-30. Linda Vista Housing Project 4-183
Figure 4-31. Historic Architectural Properties Eligible for Listing in the NRHP and CRHR within the Historic Architectural APE 4-185
Figure 4-32. Typical Construction Sequence and Average Construction Time 4-200
Figure 4-33. Typical At-Grade Guideway 4-200
Figure 4-34. Typical Elevated Guideway 4-201
Figure 4-35. Construction Staging Areas 4-203
Figure 4-36. Temporary Encroachment by Land Use Type 4-209
Figure 4-37. Mid-Coast Corridor EJ Populations 4-277
Figure 5-1. Parks and Recreational Areas within One-Half Mile of Project 5-11
Figure 5-2. Construction Activities in Marian Bear Memorial Park 5-21
Figure 5-3. Construction Areas in Mission Valley Preserve Open Space and the Ocean Beach Bicycle Path 5-26
Figure 5-4. Clearance at Ocean Beach Bicycle Path 5-30

List of Tables

Table S-1. Alternatives Considered in Comparative Evaluation of Alternatives Report..... S-7
Table S-2. Summary of Environmental Impacts and Mitigation Measures S-13
Table 1-1. 2010 and 2030 Daily Trips To, From, and Within the Mid-Coast Corridor by Trip Purpose 1-8
Table 1-2. Direction of Daily External Trips to/from New Trolley Service Area, 2010 and 2030 1-9
Table 1-3. Existing Transit System Performance, 2010 1-18
Table 1-4. Highway Peak Period/Peak Direction Levels of Service, 2008 1-23
Table 2-1. Alternatives Considered in Comparative Evaluation of Alternatives Report.....2-4
Table 2-2. No-Build Alternative Bus Operating Plan in 2030.....2-13
Table 2-3. No-Build Alternative Trolley Operating Plan 2-15
Table 2-4. Traction Power Substation Locations.....2-47
Table 2-5. Trolley Operating Plans.....2-49
Table 2-6. Refined Build Alternative Bus Routes Serving Trolley Stations.....2-53
Table 3-1. Daily Trips by Mode—2010 and 2030 3-4
Table 3-2. Daily Transit Trips by Trip Purpose—2010 and 2030.....3-5
Table 3-3. Major Transit Routes Serving the Mid-Coast Corridor—Existing Conditions 3-7
Table 3-4. MTS Transit Boardings by Service Type—Fiscal Year 2010 3-13
Table 3-5. Mid-Coast Corridor Daily VMT and VHD—Existing Conditions (2010) 3-15
Table 3-6. A.M. and P.M. Peak-Hour ILV Performance—Existing Conditions (2010).....3-18
Table 3-7. Daily Arterial Segment Traffic Volumes and LOS—2010.....3-20
Table 3-8. Levels of Service for Signalized Intersections.....3-22
Table 3-9. A.M. and P.M. Peak-Hour Intersection Performance in the Southern Subarea—2010 3-24
Table 3-10. A.M. and P.M. Peak-Hour Intersection Performance in the Northern Subarea—2010 3-25
Table 3-11. Daily Revenue Miles, Revenue Hours, and In-Service Hours—Existing Conditions and No-Build Alternative.....3-32
Table 3-12. Daily Passenger Miles in Exclusive and Semi-Exclusive Right-of-Way—Existing Conditions (2010) and No-Build Alternative (2030) 3-34
Table 3-13. Passengers per In-Service Hour—2010 and 2030.....3-35
Table 3-14. Comparison of Transit Boardings between 2010 and 2030 3-37
Table 3-15. Comparison of Daily Revenue Miles, Revenue Hours, and In-Service Hours—No-Build and Refined Build Alternatives (2030).....3-39
Table 3-16. Daily Passenger Miles in Exclusive and Semi-Exclusive Right-of-Way—2030 3-41
Table 3-17. Comparison of Transit Boardings during Peak and Off-Peak Periods—2030 3-43
Table 3-18. Average Daily Boardings—Refined Build Alternative (2030).....3-46

Table 3-19. Daily Mode of Access to Proposed Trolley Stations— Refined Build Alternative (2030) 3-46
Table 3-20. Summary of Transit Performance—2010 and 2030 3-47
Table 3-21. Mid-Coast Corridor Daily VMT and VHD—2010 and 2030 3-51
Table 3-22. Peak-Hour Signalized Intersection ILV Analysis—2030 3-52
Table 3-23. Daily Arterial Segment Traffic Volumes and LOS—2010 and 2030 3-52
Table 3-24. Comparison of Bi-directional Train Crossings in the Two-Hour Peak Period between 2010 and 2030 3-54
Table 3-25. Intersection Level of Service and Delay (2010 and 2030) 3-60
Table 3-26. Summary of Adverse Impacts at Intersections—Refined Build Alternative (2030) 3-62
Table 3-27. Intersection Mitigation Measures by Location 3-63
Table 3-28. Traffic Impact Thresholds 3-71
Table 3-29. Spillover Parking Demand—2010 and 2030 3-78
Table 3-30. Impacts on Parking—Refined Build Alternative (2030) 3-79
Table 3-31. Spillover Parking Demand—2010 3-84
Table 3-32. Transit Routes Affected by Construction 3-94
Table 3-33. Construction-related Impacts to Freeways and Roadways 3-97
Table 3-34. Continuous Closures at Intersections 3-101
Table 3-35. Construction-related Impacts to Pedestrian and Bicycle Facilities 3-106
Table 3-36. Temporary Off-street Parking Impacts during Construction 3-111
Table 4-1. Population, Housing, and Employment—2010 4-17
Table 4-2. Summary Comparison of Demographics for Potentially Affected Mid-Coast Corridor Neighborhoods 4-21
Table 4-3. Summary of Property Acquisitions—Refined Build Alternative 4-35
Table 4-4. Summary of Impacts for Final Key Views 4-45
Table 4-5. Summary of Mitigation Measures and Impacts for Final Key Views 4-53
Table 4-6. Regional Air Quality Attainment Status 4-60
Table 4-7. Ambient Air Quality Monitored Data, 2008–2010 4-61
Table 4-8. Existing and Projected Criteria Pollutant Emission Burdens, 2010 and 2030 4-62
Table 4-9. Existing and Projected Greenhouse Gas Emission Burdens, 2010 and 2030 4-68
Table 4-10. FTA Noise Land Use Categories and Noise Metrics 4-75
Table 4-11. FHWA/Caltrans Activity Categories and Noise Abatement Criteria 4-77
Table 4-12. FTA Vibration Impact Criteria 4-77
Table 4-13. Noise Impacts Evaluated for Mitigation 4-82
Table 4-14. Noise and Vibration Mitigation Measures 4-86
Table 4-15. Vegetation Communities and Land Covers 4-94
Table 4-16. Impacts to Jurisdictional Aquatic Resources by Vegetation Type 4-105

Table 4-17. Impacts to Jurisdictional Aquatic Resources by Watershed....4-106
Table 4-18. Impacts to Wetland and Tier II Vegetation Communities/ Land Covers within the Multi-Habitat Planning Area....4-110
Table 4-19. Proposed Mitigation for Impacts to Wetland Vegetation Communities....4-111
Table 4-20. Proposed Mitigation for Impacts to Tier II and Tier IIIB Vegetation Communities within the Multi-Habitat Planning Area....4-112
Table 4-21. Proposed Mitigation for Impacts to Tier II and Tier IIIB Vegetation Communities Outside the Multi-Habitat Planning Area....4-112
Table 4-22. Proposed Compensatory Mitigation for Impacts to Jurisdictional Aquatic Resources....4-114
Table 4-23. Study Area Hydrologic Unit Classification....4-122
Table 4-24. Section 303(d) Impaired Water Bodies....4-124
Table 4-25. FEMA Flood Zones and Associated Waters within the Study Area....4-125
Table 4-26. Proposed BMPs and Treatment Efficiencies....4-129
Table 4-27. Existing and Projected Future Daily Energy Use (mBtus)....4-155
Table 4-28. Static Magnetic Field Thresholds for Sensitive Instruments....4-168
Table 4-29. Historic Architectural Properties Eligible for Listing in the NRHP and CRHR within the Historic Architectural APE....4-184
Table 4-30. Determinations of Eligibility for Archaeological Resources within the Archaeological APE....4-187
Table 4-31. Refined Build Alternative Temporary Construction Easements....4-205
Table 4-32. Employment, Earnings, and Output Generated by Construction-Phase Expenditures....4-210
Table 4-33. Annual Construction Emissions (Tons/Year)....4-214
Table 4-34. Daily Construction Emissions (lbs/day)....4-214
Table 4-35. Temporary Construction Site BMPs....4-234
Table 4-36. 2010 Demographic and Socioeconomic Data—Mid-Coast Corridor....4-278
Table 4-37. Applicable Project-related Permits and Agreements....4-290
Table 5-1. Historic Properties Eligible for Listing in the NRHP within the APE....5-9
Table 5-2. Parks and Recreational Areas within One-Half Mile of Project....5-12
Table 5-3. Section 4(f) Use of Historic Properties within the APE....5-13
Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations....5-15
Table 5-5. Summary of Section 4(f) Uses of Resources....5-32
Table 6-1. Capital Cost Estimates by Standard Cost Category....6-3
Table 6-2. Total Allocated and Unallocated Contingencies (2013$, Millions)....6-3
Table 6-3. Proposed Capital Funding Sources (YOE$, Millions)....6-4
Table 6-4. Annual O&M Costs for FY 2030 for No-Build and Refined Build Alternatives (YOE$ Millions)....6-6
Table 6-5. Mid-Coast Corridor Transit Project Financing Costs (YOE$ Millions)....6-9

Table 6-6. Mid-Coast Corridor Transit Project Sources and Uses of Funds (YOE$ Millions) 6-10
Table 7-1. Effectiveness of Alternatives—Mobility and Accessibility Benefits 7-3
Table 7-2. Effectiveness of Alternatives—Sustainability Benefits....7-7
Table 7-3. Benefits to Low-Income Persons in 2030 7-8
Table 7-4. Financial Feasibility 7-9
Table 8-1. Mid-Coast Corridor Transit Project Working Group....8-4
Table 8-2. Publications Used for Public Notices....8-5
Table 8-3. Public Libraries Receiving Public Notices 8-5
Table 8-4. CEQA Public Scoping Meetings....8-6
Table 8-5. Publications Used for Public Notices of the Draft SEIS/SEIR Comment Period 8-14
Table 8-6. Publications Used for Advertisement of Public Meetings and Public Hearing for the Draft SEIS/SEIR Comment Period 8-14
Table 8-7. Public Meetings and Hearing 8-15
Table 8-8. Number of Submissions and Comments by Affiliation....8-16
Table 8-9. Publications Supplement SEIS/SEIR Comment Period 8-17
Table 8-10. Publications Used for Advertisement of Supplement Comment Period 8-17
Table 8-11. Number of Submissions and Comments by Affiliation....8-18

THIS PAGE INTENTIONALLY LEFT BLANK

Acronyms and Abbreviations

The following acronyms, initialisms, and short forms are used in this report.

2030 RTP	*2030 San Diego Regional Transportation Plan: Pathways for the Future*
2050 RTP	*2050 Regional Transportation Plan: Our Region, Our Future*
3-D	Three dimensional
AA/DEIS/DEIR	Alternatives Analysis/Draft Environmental Impact Statement/ Draft Environmental Impact Report
AB	Assembly Bill
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
A-PA	Alquist-Priolo Fault Zoning Act
APE	Area of Potential Effects
AWDT	Average weekday daily traffic
BMPs	Best Management Practices
C&S	Communications and signaling
CAAA	Clean Air Act Amendments
California Act	California Relocation Assistance Act
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CBC	California Building Code
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game (name changed to California Department of Fish and Wildlife on January 1, 2013)
CDFW	California Department of Fish and Wildlife (formerly California Department of Fish and Game)
CDP	Coastal Development Permit
CEC	California Energy Commission
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon dioxide

Coastal Act	California Coastal Act
CPTED	Crime Prevention Through Environmental Design
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CRPR	California Rare Plant Rank
CZMA	Coastal Zone Management Act
DAR	Direct access ramp
dB	Decibel
dBA	A-weighted scale decibel
DPA	Designated Project Archaeologist
du/acre	Dwelling units per acre
EIR	Environmental Impact Report
EJ	Environmental Justice
EMF	Electromagnetic field
EMI	Electromagnetic interference
EMP	Environmental Mitigation Program
EO	Executive Order
EPA	United States Environmental Protection Agency
ESHA	Environmentally Sensitive Habitat Area
Esri	Environmental Systems Research Institute, Inc.
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FFGA	Full Funding Grant Agreement
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
FY	Fiscal year
GANs	Grant Anticipation Notes
GHG	Greenhouse gases
HOV	High-occupancy vehicle
I-	Interstate
ILV	Intersecting lane vehicles

JSA	Joint Safety Analysis
LCP LUP	Local Coastal Program Land Use Plan
L_{dn}	Day-Night Noise Level
L_{eq}	Equivalent Noise Level
LID	Low impact development
LOS	Level of service
LOSSAN	Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency
LPA	Locally Preferred Alternative
LRDP	Long Range Development Plan
LRT	Light rail transit
LRV	Light rail vehicle
MAP-21	Moving Ahead for Progress in the 21st Century Act
mBtus	Million British thermal units
MCAS	Marine Corps Air Station
mG	milligauss
MHPA	Multi-Habitat Planning Area
MOA	Memorandum of Agreement
MPOs	Metropolitan Planning Organizations
MRI	Magnetic resonance imaging
MSCP	Multiple Species Conservation Program
MTDB	Metropolitan Transit Development Board
MTS	Metropolitan Transit System
MUTCD	Manual on Uniform Traffic Control Devices
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NCTD	North County Transit District
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NO_2	Nitrogen dioxide
NOA	Notice of Availability

NOI	Notice of Intent
NOP	Notice of Preparation
NO_x	Nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O&M	Operating and maintenance
O_3	Ozone
OCS	Overhead catenary system
OTTC	Old Town Transit Center
Pb	Lead
PE	Preliminary Engineering
PM_{10}	Particulate matter smaller than or equal to 10 microns in diameter
$PM_{2.5}$	Particulate matter smaller than or equal to 2.5 microns in diameter
PRC	Public Resources Code
PRMMP	Paleontological Resources Monitoring and Mitigation Plan
Project	Mid-Coast Corridor Transit Project
RCP	*Regional Comprehensive Plan for the San Diego Region*
RCRA	Resource Conservation and Recovery Act of 1976
RMS	Root mean square
ROD	Record of Decision
RWQCB	Regional Water Quality Control Board
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SANDAG	San Diego Association of Governments
SanGIS	San Diego Geographic Information Source
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCC	Standard Cost Categories
Scripps Hospital	Scripps Memorial Hospital La Jolla
SDAPCD	San Diego Air Pollution Control District
SDFD	San Diego Fire-Rescue Department
SDG&E	San Diego Gas & Electric
SDRWQCB	San Diego Regional Water Quality Control Board

SEIS/SEIR	Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report
Series 11 model	SANDAG Series 11 Travel Demand Forecasting Model
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SME	Structural and Materials Engineering Building, UCSD
SO_2	Sulfur dioxide
SR	State Route
STA	State Transit Assistance
Supplement	Supplemental Environmental Impact Statement/Supplement to the Subsequent Environmental Impact Report
SWPPP	Storm Water Pollution Prevention Plan
TDA	Transportation Development Act
TMP	Transportation Management Plan
TOD	Transit-oriented development
TOG	Total organic gases
TPSS	Traction power substation
Trolley	San Diego Trolley
TSA	Transportation Security Administration
UCSD	University of California, San Diego
Uniform Act	Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended
USACE	United States Army Corps of Engineers
USC	United States Code
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
UTC	University Towne Centre
v/c	Volume-to-capacity
VA	Veterans Administration
Vdb	Decibel notation
VHD	Vehicle hours of delay

VMT	Vehicle miles traveled
WSEL	Water surface elevation
YOE	Year-of-expenditure

S.0 EXECUTIVE SUMMARY

The Federal Transit Administration (FTA) and the San Diego Association of Governments (SANDAG) have prepared a Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR) for the Mid-Coast Corridor Transit Project in San Diego, California. FTA is serving as lead agency for the National Environmental Policy Act (NEPA), and SANDAG is serving as lead agency for the California Environmental Quality Act (CEQA). This executive summary highlights the contents and findings of this Final SEIS/SEIR, including the study area for the project; project goals and purpose and need; alternatives under consideration; environmental impacts and mitigation measures for adverse or significant impacts; financial feasibility; public participation and agency coordination; the remaining issues to be resolved and decisions to be made regarding the project; next steps in the environmental and engineering phases of the project; and the intended use of this document.

This Final SEIS/SEIR supplements the following environmental documents: the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board [MTDB], 1995a); the *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b); and the *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement* (MTDB, 2001). This Final SEIS/SEIR addresses the project elements and conditions in the Mid-Coast Corridor that have changed since the completion of these previous environmental studies. It also addresses public and agency comments received on the *Mid-Coast Corridor Transit Project Draft SEIS/SEIR* (SANDAG, 2013a) and the *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/Supplement to the Subsequent Environmental Impact Report* (Supplement) (SANDAG, 2014ee) prepared for the impact to the federally endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) not evaluated in the Draft SEIS/SEIR. The Final SEIS/SEIR also presents refinements to the Build Alternative and the results of a comprehensive analysis of the potential environmental impacts and benefits of the alternatives under consideration for improving transit services in the Mid-Coast Corridor, as well as measures for avoiding, minimizing, or mitigating any adverse or significant impacts.

The Mid-Coast Corridor Transit Project is included in the *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a). *TransNet,* the San Diego County half-cent sales tax for local transportation projects, is expected to provide approximately 50 percent of the project's capital cost. The remaining 50 percent is expected to come from the FTA New Starts program. Securing these federal funds will require successful completion of the FTA New Starts requirements for each project development phase. SANDAG applied for entry into the FTA New Starts Program on May 13, 2011, and FTA approved the project's entry into the Preliminary Engineering project development phase of the New Starts Program on September 2, 2011. This Final SEIS/SEIR is part of this project phase.

S.1 Mid-Coast Corridor Description

The Mid-Coast Corridor is located in Southern California and lies within the County of San Diego. Figure S-1 shows the location of the corridor in relation to the San Diego region.

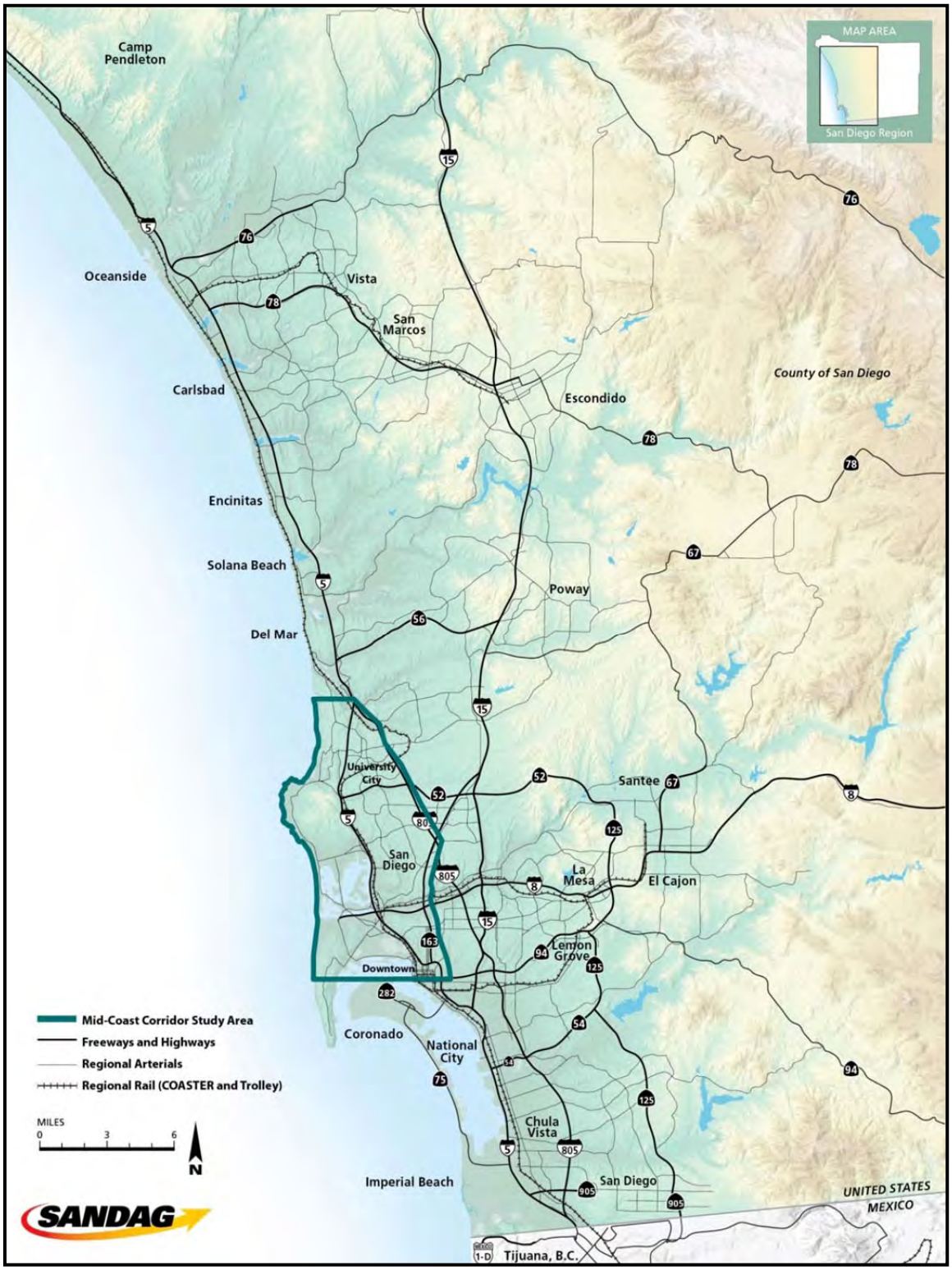
The Mid-Coast Corridor is centered on Interstate (I-) 5 and extends from Downtown San Diego on the south to the University of California, San Diego (UCSD) and University City on the north. Located entirely within the City of San Diego, the Mid-Coast Corridor is bounded by the Pacific Ocean on the west and by I-805 and State Route (SR) 163 on the east. The corridor is topographically varied, with terrain ranging from coastal beaches and bays to inland areas containing steep hillsides and narrow canyons. It covers a cross-section of habitats, including a diverse range of riparian, marsh, open water, upland scrub and chaparral, and grasslands.

The Mid-Coast Corridor is characterized by dense urban centers and an abundance of regional activity centers and other major trip generators. Dense population and employment centers currently anchor both the northern and southern ends of the Mid-Coast Corridor. The UCSD campus, the Westfield UTC shopping center, and regional hospitals are clustered in the northern part of the corridor and represent the second-most dense land uses in the county. At the southern end of the corridor is the region's only identified Metropolitan Center—Downtown San Diego—with the region's densest land uses and high-rise development. Other major land uses within or immediately adjacent to the corridor are shown in Figure S-2 and listed below:

- Regional hospitals: Scripps Green Hospital, Scripps Memorial Hospital La Jolla (Scripps Hospital), UCSD Thornton Hospital, Veterans Administration (VA) Medical Center, UCSD Medical Center Hillcrest, and Scripps Mercy Hospital
- Major colleges and universities: UCSD, University of San Diego, San Diego Mesa College, and San Diego City College
- Regional shopping centers: Westfield UTC, Fashion Valley, and Westfield Horton Plaza
- Major parks and visitor attractions: Mission Bay Park, San Diego Zoo, SeaWorld San Diego, Old Town San Diego State Historic Park, Balboa Park, the Gaslamp Quarter, San Diego Convention Center, Petco Park, Rose Canyon Open Space Park, and Marian Bear Memorial Park
- San Diego International Airport

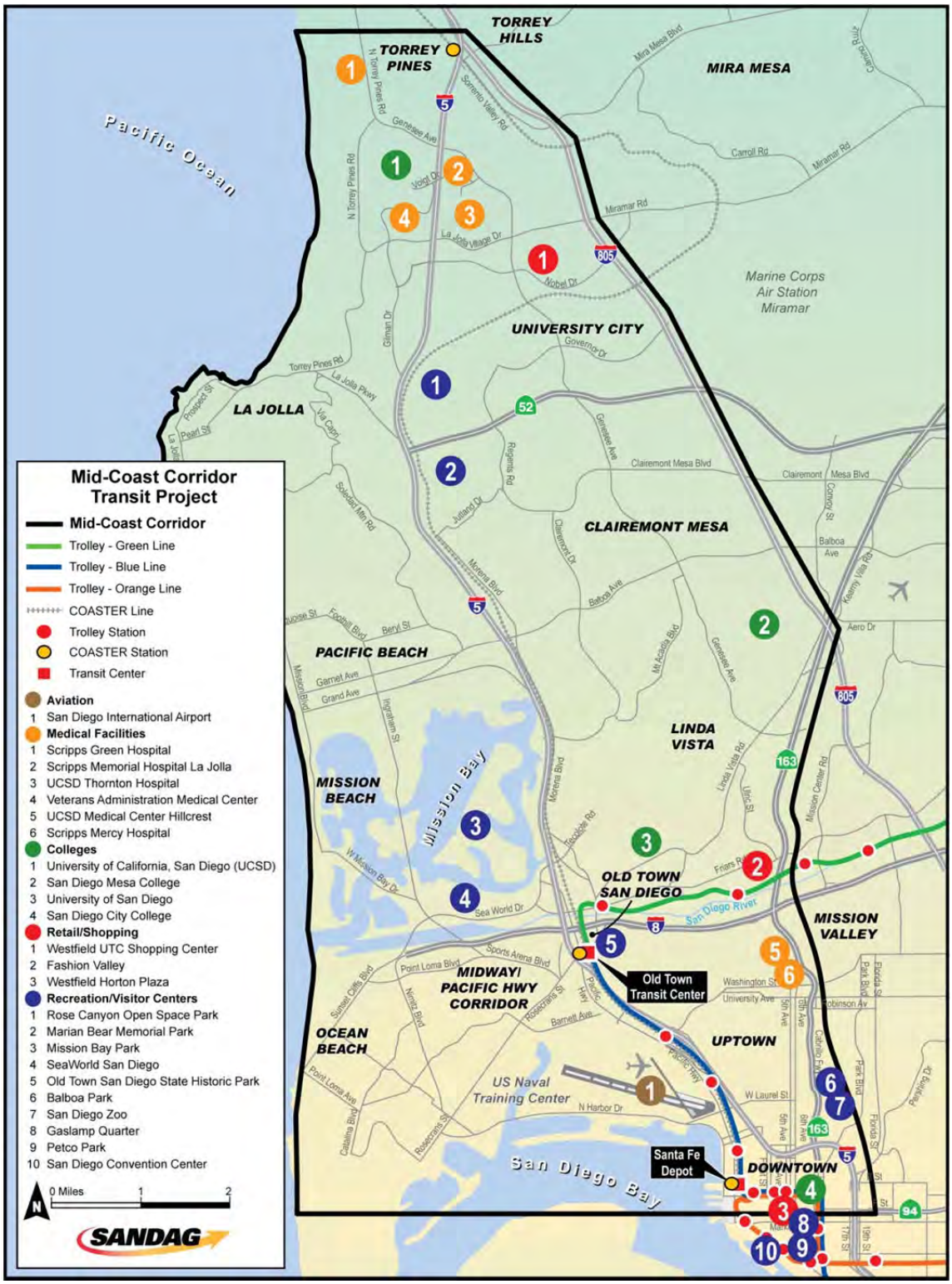
The *Regional Comprehensive Plan for the San Diego Region* (RCP) (SANDAG, 2004a) calls for increased density in both the Downtown San Diego and University City areas, which are the population and employment centers anchoring the northern and southern ends of the corridor. A key implementation tool for local jurisdictions of the RCP is the *Smart Growth Concept Map* (SANDAG, 2008b) approved in 2006 and updated in 2008. The map identifies approximately 200 existing, planned, and potential smart growth locations identified by 18 cities and the County of San Diego as Smart Growth Opportunity Areas. All nine proposed stations in the Mid-Coast Corridor Transit Project are located within Smart Growth Opportunity Areas. In addition, the corridor between the Tecolote Road and Clairemont Drive Stations is identified as a Mixed Use Transit Corridor.

Figure S-1. Location of Mid-Coast Corridor



Source: SANDAG, 2012

Figure S-2. Mid-Coast Corridor



Source: SANDAG, 2012

S.2 Purpose and Need

Chapter 1.0 presents the purpose and need for the Mid-Coast Corridor Transit Project. As stated in that chapter, the purpose of the proposed project is to provide for the implementation of transit improvements that improve transit service in the Mid-Coast Corridor between Downtown San Diego, Old Town, and University City. Although the Mid-Coast Corridor is currently served by transit, the existing transit system does not offer the level of service needed to meet the region's goals for mobility, accessibility, reliability, and efficiency, as defined in the 2030 RTP. The COASTER commuter rail service passes through the corridor, but its stations are widely spaced and it does not have a station in close proximity to UCSD or University Towne Centre (UTC). The existing San Diego Trolley (Trolley) Blue Line currently terminates at the Old Town Transit Center (OTTC). While transit mobility and accessibility to northern portions of the corridor are provided by express and local buses, the speed and reliability of bus service are constrained by roadway congestion, and many transit riders are required to transfer in Downtown San Diego or at the OTTC to reach destinations in University City. With congestion projected to increase in the future, the level of service, reliability, and efficiency of the transit system will all decrease.

To meet the region's goals most effectively, the Mid-Coast Corridor needs a transit system that is better able to serve the major travel destinations of UCSD and the UTC Transit Center in University City. This transit system must provide a frequency of service, speed, and reliability that would better serve existing transit riders and attract new riders. The project, which extends the Trolley Blue Line north and connects with the other Trolley lines using an exclusive right-of-way for transit, would shorten travel times, improve reliability, and reduce the number of transfers required for travel to destinations in University City. This would improve service for existing riders and attract new riders. In addition, one-seat rides (trips that do not require a transfer) would be available from the U.S.–Mexico international border to University City, and between communities in South San Diego County, Downtown San Diego, and University City, making transit an attractive alternative to travel by automobile.

S.3 Alternatives Considered

The Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/ Draft Environmental Impact Report (MTDB, 1995a) was completed in February 1995. In December 1995, MTDB certified the Final Environmental Impact Report for the Mid-Coast Corridor (MTDB, 1995b) for purposes of CEQA and adopted a Locally Preferred Alternative (LPA) to extend the existing Trolley light rail transit (LRT) system from the OTTC north to University City. An initial phase of the project, extending from just south of the San Diego River to Balboa Avenue, was the subject of a Final Environmental Impact Statement (MTDB, 2001), and FTA issued a Record of Decision (ROD) in August 2001.

Following transfer of MTDB planning, programming, project development, and construction functions to SANDAG, the SANDAG Board of Directors in December 2003 approved an update to the 1995 LPA alignment to better serve the UCSD campus on both the east and west sides of I-5 and to improve connections with existing and planned transit services at the UTC Transit Center. In April 2005, the SANDAG Transportation Committee approved re-combining the Balboa Extension with the University City

Extension into a single project extending from the OTTC to University City and approved initiating the supplemental environmental review for the project.

In 2008, SANDAG initiated an analysis of changed conditions in the Mid-Coast Corridor to identify and evaluate changes in the physical and regulatory environment that had occurred following the completion of previous environmental studies. The analysis included consideration of alternatives to the updated LPA alignment and station locations, including an evaluation of rapid bus, bus rapid transit, and commuter rail alternative modes to improve transit service between Downtown San Diego and University City. The alternative modes and alignments considered in the study were developed based on the transportation needs identified in Chapter 1.0, including increasing the speed and reliability of transit service, reducing transfers, and expanding transit capacity in the Mid-Coast Corridor. The alternatives were evaluated against a No-Build Alternative that assumed all of the highway and transit facilities in the Revenue Constrained Scenario of the 2030 RTP except for the Mid-Coast Corridor Transit Project, which was excluded from the alternative to represent conditions in the corridor without the project. It was assumed that existing bus Route 150, operating between Downtown San Diego and University City, would be continued and enhanced to address the increased transit demand projected for the corridor. The results of the analysis of changed conditions and the evaluation process for the project are documented in the *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e). The conceptual alternatives considered are described in detail in the report and summarized in Table S-1, along with the results of the study.

SANDAG conducted CEQA scoping for the Draft SEIS/SEIR in 2010, and the results and comments received are documented in the *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f). On July 23, 2010, the SANDAG Board of Directors, after considering public input received during scoping, reconfirmed the previously adopted LPA, which was refined to include direct service to UCSD and UTC, and the No-Build Alternative for evaluation in the Draft SEIS/SEIR. The SANDAG Board of Directors also approved evaluation of a station at the VA Medical Center during the development of the draft environmental document. On July 12, 2011, FTA issued a Notice of Intent in the *Federal Register* inviting comments on the proposed scope of the Draft SEIS/SEIR, the purpose and need for the project, and the alternatives to be included in the Draft SEIS/SEIR. In addition, SANDAG conducted numerous outreach activities. The *Mid-Coast Corridor Transit Project National Environmental Policy Act Scoping Report* (SANDAG, 2011b) documents the NEPA scoping process and its results, and includes the comments received, which were similar to comments provided during the CEQA scoping process and/or previously identified concerns. All comments from both the NEPA and CEQA scoping processes were considered in the preparation of the Draft SEIS/SEIR.

Following reconfirmation of the LPA by the SANDAG Board of Directors in 2010 and NEPA scoping, SANDAG conducted additional studies and coordinated with project stakeholders, which resulted in a number of refinements to the alignment, station locations and facilities, and the LRT operating plan. The refinements were made in consultation with project stakeholders, including the California Department of Transportation (Caltrans), the City of San Diego, the Metropolitan Transit System, and

Table S-1. Alternatives Considered in Comparative Evaluation of Alternatives Report

Transit Mode	Characteristics of Transit Mode	Description of Alternative(s)	Results of Evaluation
TSM Rapid Bus	• Buses operating at grade in mixed-flow lanes • Clean fuel (compressed natural gas) powered bus with rubber tires • 60 mph maximum or posted speed • Up to 60-foot-long articulated bus • Capacity: Up to 84 passengers per bus, with standees	• New rapid bus route connecting Downtown San Diego, Old Town, UCSD, and UTC, with limited-stop service along Pacific Highway and Morena Boulevard and express service in HOV lanes to Nobel Drive	• Eliminated from consideration because it would not substantially improve travel times, ridership, or reliability
Bus Rapid Transit	• Stylized buses operating at grade, below grade, or above grade in exclusive, semi-exclusive, and shared lanes • Clean fuel (compressed natural gas) powered bus with rubber tires • 65 mph maximum speed • Up to 65-foot-long articulated bus • Capacity: Up to 100 passengers per bus, with standees	• Four BRT alternatives were considered, providing a combination of exclusive bus lanes, semi-exclusive bus or HOV lanes, and shared lanes from Downtown San Diego north to University City	• Eliminated from consideration because of lack of effectiveness in meeting regional goals (i.e., low ridership, consistency with regional and local land use plans), cost effectiveness, and likelihood of securing FTA New Starts funds
Light Rail Transit	• Trains operating at grade, below grade, or above grade in exclusive lanes or fixed guideway • Electrically powered via overhead power contact system and substations for power distribution • 55 mph maximum speed • Maximum four cars per train • Capacity: 600 passengers per three-car train, with standees	• Seven potential alternatives were identified for extension of the Trolley Blue Line north to University City • All alternatives followed the MTS right-of-way to just north of SR 52 • LRT Alternatives 1, 2, 4, 5, 6, and 7 followed I-5 to the UCSD campus and then turned east to terminate at the UTC Transit Center • LRT Alternative 3 followed the MTS right-of-way east to Genesee Avenue, turned north via a new tunnel to the UTC Transit Center, and then turned west to terminate on the UCSD West Campus	• Alternatives 1, 4, and 5 following Voigt Drive and Genesee Avenue combined into a single alternative (i.e., Alternative 1) and reconfirmed as the LPA • Alternative 2 following Regents Road and Executive Drive eliminated because of impacts on traffic and property access • Alternative 3 following MTS right-of-way to Genesee Avenue eliminated because of public comments on impacts to Rose Canyon and additional biological impacts • Alternative 6 turning south of Voigt Drive to UCSD Thornton Hospital eliminated because of operational, biological, and property access impacts • Alternative 7 eliminated because of lack of service to UCSD West Campus
Commuter Rail Transit	• Trains operating at grade, below grade, or above grade • Tracks shared with intercity and freight trains • Diesel-propelled locomotives • 79 mph maximum speed • Trains generally consist of up to five double-deck passenger cars • Capacity: 675 seated passengers per train	• New commuter rail service to the University City area. The new service would have been operated as a shuttle from the Santa Fe Depot in Downtown San Diego to a new station at the UTC Transit Center via a new tunnel under UTC	• Commuter rail eliminated because of lack of effectiveness in meeting regional goals (i.e., low ridership, consistency with regional and local land use plans), cost effectiveness, and likelihood of securing FTA New Starts funds

Source: SANDAG, 2010e
Note: BRT = bus rapid transit; FTA = Federal Transit Administration; HOV = high-occupancy vehicle; LRT = light rail transit; mph = miles per hour; MTS = Metropolitan Transit System; SR = State Route; TSM = Transportation Systems Management; UCSD = University of California, San Diego; UTC = University Towne Centre

UCSD. SANDAG also coordinated with Scripps Hospital and the VA Medical Center. The refinements to the LPA were incorporated into the Build Alternative that was evaluated in the Draft SEIS/SEIR. The Build Alternative was evaluated against the No-Build Alternative and existing conditions in 2010, which was when SANDAG issued the CEQA Notice of Preparation.

On May 17, 2013, FTA issued a Notice of Availability for the Draft SEIS/SEIR in the *Federal Register*, inviting comments during a 60-day comment and review period from May 17, 2013 through July 17, 2013. SANDAG filed the Notice of Completion of the Draft SEIS/SEIR with the State Clearinghouse on May 14, 2013. Four public meetings and one public hearing were held during the public comment and review period to solicit comments on the Draft SEIS/SEIR. All comments received on the Draft SEIS/SEIR, along with responses to the comments, are included in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 3: Comments and Responses*.

Subsequent to distribution of the Draft SEIS/SEIR, a new impact to the federally listed endangered San Diego fairy shrimp was identified. A limited-scope environmental document was prepared as a supplement to the Draft SEIS/SEIR to address this new impact. On July 17, 2014, the FTA and SANDAG issued a Notice of Availability for the Supplement in the *Federal Register*, inviting comments on the potential impacts to, and proposed mitigation for, the San Diego fairy shrimp. The Supplement was made available for a 45-day review and comment period from July 17 to September 2, 2014. The Notice of Completion was filed with the State Clearinghouse on July 11, 2014. All comments received on the Supplement, along with responses to the comments, are included in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 3: Comments and Responses*.

Several of the comments received during the comment period for the Draft SEIS/SEIR required consideration prior to selection of the potential refinements to the Build Alternative for evaluation in the Final SEIS/SEIR due to their potential to affect the alignment, stations, or other elements of the Build Alternative evaluated in the Draft SEIS/SEIR. Comments also were received in support of, or in opposition to, the VA Medical Center Station Option and the Genesee Avenue Design Option evaluated in the Draft SEIS/SEIR. Consideration of these comments, coordination with agencies and stakeholders, and the evaluation of the Build Alternative and options in the Draft SEIS/SEIR provided the basis for refinements to the Build Alternative, which led to the Refined Build Alternative evaluated in this Final SEIS/SEIR.

The SANDAG Board of Directors voted to approve the Refined Build Alternative on November 15, 2013, and to amend the Refined Build Alternative on May 9, 2014. The development and approval of the Refined Build Alternative are described in the *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report* (SANDAG, 2014dd).

The Refined Build Alternative generally reflects the Build Alternative with the addition of the VA Medical Center Station Option evaluated in the Draft SEIS/SEIR and some additional refinements to the LRT alignment, stations, traction power substations, and construction staging areas, as well as further engineering refinements. Many of the refinements were made to avoid or minimize impacts. The Genesee Avenue Design

Option was eliminated from further consideration based on the evaluation in the Draft SEIS/SEIR and comments received from the public during the comment period. The Refined Build Alternative is the preferred alternative under NEPA.

S.3.1 No-Build Alternative

The No-Build Alternative is evaluated in the context of the existing transportation facilities and services in the Mid-Coast Corridor (as characterized in 2010) and other future facilities and services identified in the Revenue Constrained Scenario of the 2030 RTP. The No-Build Alternative evaluated in this Final SEIS/SEIR is the same as in the Draft SEIS/SEIR.

Figure S-3 identifies the location of the major transportation projects included in the 2030 RTP within the Mid-Coast Corridor and assumed to exist in the No-Build Alternative. The No-Build Alternative also assumes other Trolley system improvements, including 7.5-minute service frequencies during peak (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.) and the midday off-peak (i.e., 9:00 a.m. to 3:00 p.m.) periods on the Trolley Blue Line. Service during the early morning and evening hours would be less frequent.

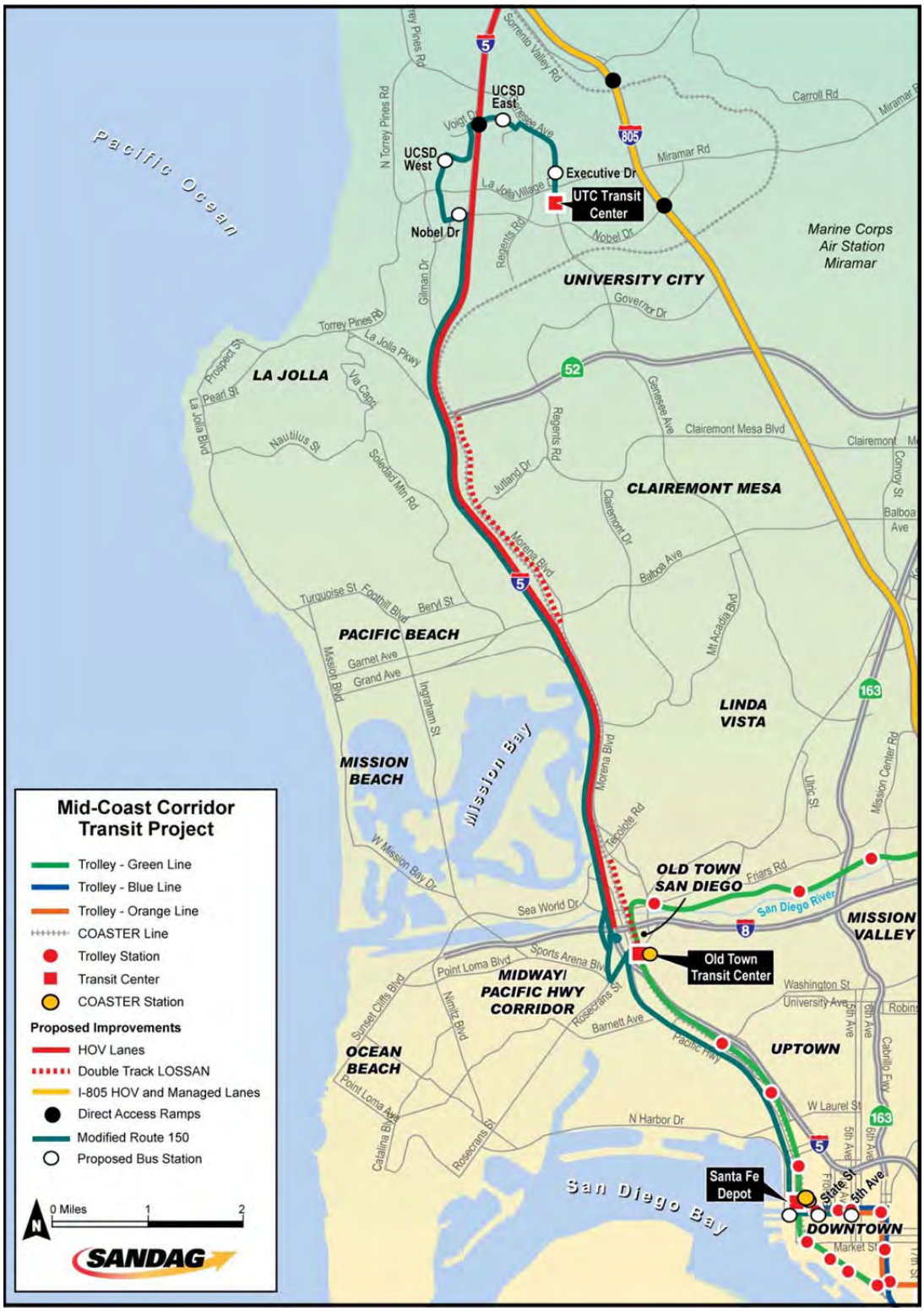
Because the No-Build Alternative provides the background transportation network against which the Refined Build Alternative's impacts are identified and evaluated, the No-Build Alternative excludes the Mid-Coast Corridor Transit Project but does include continuation and enhancement of bus Route 150 (as show in Figure S-3) that is planned for elimination in the 2030 RTP when the Mid-Coast Corridor Transit Project becomes operational. The route would operate in the proposed high-occupancy vehicle lanes on I-5 from the OTTC north to Nobel Drive.

S.3.2 Refined Build Alternative

The Refined Build Alternative would extend the Trolley Blue Line from Santa Fe Depot in Downtown San Diego to the UTC Transit Center in University City. The project would use the existing Trolley tracks for approximately 3.5 miles, from Santa Fe Depot to north of the OTTC and south of the San Diego River. The Trolley Blue Line trains would share the tracks with the Trolley Green Line trains in this area. The project also would include construction of 10.9 miles of new double track that would extend from south of the San Diego River to the terminus at the UTC Transit Center. When completed, this project would provide for continuous service from the San Ysidro Transit Center at the U.S.–Mexico international border to University City. It would include 9 new stations (4 at grade and 5 elevated); 5 park-and-ride facilities with 1,170 parking spaces; 14 new and 2 upgraded traction power substations; and 36 new low-floor LRT vehicles. New LRT stations would be located at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, VA Medical Center, UCSD West, UCSD East, Executive Drive, and the UTC Transit Center. Figure S-4 shows the project alignment and station locations.

The Refined Build Alternative operating plan would provide service every 7.5 minutes during peak and midday off-peak periods. Service during the early morning and evening hours would be less frequent. The total estimated capital cost of the project is $2,112 million in year-of-expenditure dollars. Proposed FTA New Starts funding would provide $1,043 million, or 49.4 percent of the total capital cost. *TransNet* funds would provide the remaining capital costs.

Figure S-3. No-Build Alternative Transportation Improvements



Source: SANDAG, 2012

Figure S-4. Refined Build Alternative

Source: SANDAG, 2014

S.4 Environmental Impacts and Mitigation Measures

This Final SEIS/SEIR includes an analysis of the affected environment and impacts on the social, economic, cultural, and natural environment that would result from construction and operation of the No-Build and Refined Build Alternatives. All environmental impacts were analyzed in accordance with applicable federal, state, and local environmental regulations, and feasible mitigation measures were proposed to avoid or minimize adverse and significant impacts.

The analysis results presented in this Final SEIS/SEIR indicate that the Refined Build Alternative would have no adverse and/or significant long-term, short-term (construction), and cumulative impacts to the following environmental areas: land use; climate change; water resources; hazardous materials; geotechnical, geologic, and seismic conditions; energy; safety and security; historic architectural resources; and utilities. For some of these environmental areas (i.e., water resources; hazardous materials; geotechnical, geologic, and seismic conditions; safety and security; historic architectural resources; and utilities), project measures, such as best management practices (BMPs), were incorporated into the project to avoid or minimize impacts, resulting in no adverse or significant impacts. A compendium of project measures is provided in Appendix E of this Final SEIS/SEIR.

Mitigation measures would reduce or avoid long-term (operation) impacts to not adverse and/or less than significant for community and neighborhoods, visual and aesthetic resources, noise and vibration, ecosystems and biological resources, and electromagnetic interference. No long-term (operation) impacts would occur to archaeological resources. After mitigation, the Refined Build Alternative would result in long-term adverse and/or significant and unavoidable impacts on transportation (traffic).

Mitigation measures would reduce short-term (construction) impacts to not adverse and/or less than significant for ecosystems and biological resources, archaeological resources, and paleontological resources. After mitigation, short-term (construction) impacts would result in adverse and/or significant and unavoidable impacts on transportation (transit, traffic, and parking), air quality, and noise and vibration. Construction would contribute to cumulatively significant impacts to economic and fiscal, air quality, and paleontological resources.

During construction, project measures would minimize economic impacts and impacts to communities and neighborhoods. However, even though impacts of the Refined Build Alternative would not be adverse or significant, there could be adverse and significant cumulative impacts to communities and businesses in UCSD and University City because of other construction activity occurring concurrent with construction of the Refined Build Alternative.

Adverse long- or short-term (construction) impacts remaining after mitigation also would affect environmental justice populations. These effects, however, would not be disproportionate.

Table S-2 summarizes the environmental impacts identified pursuant to NEPA and/or CEQA for the No-Build and Refined Build Alternatives, the mitigation measures for the Refined Build Alternative, and the level of impact following mitigation. Impacts that were not adverse under NEPA or less than significant under CEQA are not included in Table S-2, although project measures and BMPs are identified in Chapters 3.0 and 4.0 for many of these impacts. No mitigation is identified for the No-Build Alternative because it is the no action alternative. Any impact or mitigation for projects assumed in the No-Build Alternative would be determined through environmental review for those projects.

Table S-2. Summary of Environmental Impacts and Mitigation Measures

Freeway and Roadway Impacts before Mitigation (Section 3.4.2)		Impacts after Mitigation[1]
No-Build Alternative	NEPA: Adverse CEQA: Significant Unacceptable level of service on 5 roadway segments and 16 intersections	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Roadway impacts on Balboa Ave between I-5 SB on-ramp and I-5 NB off-ramp from Balboa Avenue Station traffic Intersection impacts from Balboa Avenue Station traffic: Mission Bay Dr and Garnet Ave Intersection impacts from increases in number of trains traveling through grade crossings: Beech St and Pacific Hwy	NEPA: Adverse CEQA: Significant Impacts to one roadway and two intersections would remain, resulting in adverse and significant project and cumulative impacts.
	NEPA: Adverse CEQA: Significant Intersection impacts from increases in number of trains traveling through grade crossings: Ash St and Pacific Hwy; Ash St and India St; Beech St and Kettner Blvd; Beech St and India St; Cedar St and Pacific Hwy; Cedar St and Kettner Blvd; Sassafras St and Pacific Hwy; Washington St and Pacific Hwy SB Frontage Rd; Washington St and Pacific Hwy NB Frontage Rd; Washington St and Hancock St; Noell St and Hancock St; and Rosecrans St and Jefferson St Intersection impacts from UTC Transit Center traffic: Genesee Ave and Esplanade Ct/UTC Drwy	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation	**TR1:** Ash St and Pacific Hwy: • Add exit phase to serve vehicles traveling EB and WB and pedestrians crossing Pacific Hwy • Modify existing signal phasing—change WB left turns from first movement served to be served later in the traffic cycle **TR2:** Ash St and Kettner Blvd: • Add exit phase to serve vehicles traveling EB and WB **TR3:** Cedar St at Pacific Hwy • Modify existing signal phasing—vehicles making SB left turns would be served first; vehicles traveling SB would be served with NB through and right-turn movements	

	• Add exit phase to serve vehicles making SB left turns first, followed by WB vehicles; the exit phase also would serve pedestrians crossing Pacific Hwy • Lengthen SB left-turn lane to 650 feet **TR4:** Cedar St and Kettner Blvd • Add traffic signal (intersection is currently an all-way stop-controlled intersection) • Add exit phase to serve EB and WB vehicles • Add a 75-foot WB left-turn lane (one does not currently exist) **TR5:** Sassafras St at Pacific Hwy • Modify existing signal phasing—left turns on Sassafras St would have a protected turn phase (indicated by a green arrow) rather than yielding to vehicles traveling in the other direction **TR6:** Sassafras St and Kettner Blvd • Modify existing EB approach geometry—right-turn lane would be modified to a shared through/right-turn lane with two receiving lanes on other side of Kettner Blvd, indicating that vehicles in that lane could turn right or continue through the intersection **TR7:** Washington St and NB Frontage Rd and Hancock St • Add exit phase to serve pedestrians and vehicles traveling EB and WB • Modify existing limited-service phase during preemption so that the WB left turn is served after the SB through movement • Modify existing NB approach geometry on the NB Frontage Rd to include a dedicated left-turn lane, one shared left-turn/through lane, and one dedicated right-turn lane **TR8:** Taylor St/Rosecrans St and Pacific Hwy • Add a second NB right-turn lane • Reconfigure EB approach to have a third through lane • Realign southern sidewalk east and west of intersection to preserve existing dedicated bus-only lane • Add exit phase to serve vehicles making an EB left turn, vehicles traveling EB and WB through the intersection, and pedestrians crossing Pacific Hwy • Lengthen NB left-turn lane by 40 feet • Modify SB approach geometry to include a second left-turn lane for general-purpose vehicles • Change WB left-turn phase from first movement served to be served later in the traffic cycle **TR9:** Taylor St and Congress St • Add exit phase to serve vehicles traveling EB and WB through the intersection **TR10:** Genesee Ave and Esplanade Ct/UTC Drwy • Modify WB approach geometry to add a WB left-turn lane, thus providing two left-turn lanes, one shared through/right-turn lane, and one exclusive right-turn lane No feasible mitigation is available for impacts to the Balboa Ave roadway segment or the Beech St at Pacific Hwy or Mission Bay Dr at Garnet Ave intersections; therefore, those adverse impacts would remain.

Construction Impacts—Transit Impacts before Mitigation (Section 3.4.7)		Impacts after Mitigation[1]
No-Build Alternative	No Impacts	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Schedule impacts to the Trolley Green Line; longer travel times for MTS, NCTD, and UCSD bus services	NEPA: Adverse CEQA: Significant Adverse and significant project impacts would remain to Trolley Green Line and MTS, NCTD, and UCSD bus schedules and wait times. Would also result in adverse and significant cumulative impacts for MTS, NCTD, and UCSD bus routes.
Measures to Avoid or Minimize Impacts [2]	Project measures to minimize impacts would include single track, reverse running, and/or temporary crossovers for the Trolley and bus detours, signage, and relocated bus stops for the MTS, NCTD, and UCSD bus systems.	
Mitigation	No feasible mitigation measures were identified to further reduce construction impacts to transit; therefore, adverse and significant impacts would remain.	
Construction Impacts—Freeway and Roadway Impacts before Mitigation (Section 3.4.7)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Impacts on roadways and intersections in the corridor would result from continuous closures as well as intermittent off-peak and/or nighttime closures. Construction-related vehicles and equipment would travel on residential streets and local roadways not designed to handle construction traffic, resulting in an adverse impact. During construction of aerial structures along Genesee Ave, left-turn movements would be prohibited at the intersections of Regents Rd, Eastgate Mall, Executive Dr, Executive Square, La Jolla Village Dr, and Esplanade Ct/UTC Drwy. May result in diversion of traffic to adjacent intersections and nearby arterials, such as Regents Rd, Nobel Dr, and Towne Centre Dr	NEPA: Adverse CEQA: Significant Adverse and significant project and cumulative impacts would remain to streets and intersections, particularly along Genesee Ave.
Measures to Avoid or Minimize Impacts [2]	Project measures would include a Transportation Management Plan, designated haul routes, and maintaining emergency vehicle access to minimize impacts.	
Mitigation	No feasible mitigation measures have been identified to further reduce construction impacts to freeway and roadways; therefore, adverse and significant impacts would remain.	

Construction Impacts—Bicycle and Pedestrian Impacts before Mitigation (Section 3.4.7)		Impact after Mitigation[1]
No-Build Alternative	No Impacts	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Some bicycle and pedestrian facilities would be closed temporarily. Closure of bicycle lanes may require bicyclists to share the roadway with automobiles. A segment of the Class I Rose Canyon Bicycle Facility would require closure between Santa Fe St and La Jolla Colony Dr and there would be an adverse impact on bicyclists using this facility.	NEPA: Not Adverse CEQA: Less Than Significant
Measures to Avoid or Minimize Impacts [2]	Project measures would include a Transportation Management Plan, detours, channelizing pedestrian flow away from construction zones, signage to guide pedestrians and bicyclists to detour routes, using barriers and fencing to prevent access through construction zones, and providing warning to pedestrians and bicyclists in advance of closures. Temporary crosswalks would be provided at Genesee Avenue and La Jolla Village Drive. Advanced warning signs and pavement markings would be used for the Ocean Beach Bicycle Path.	
Mitigation	**TCON1**: Construct a temporary bicycle path adjacent to the construction site along the Rose Canyon Bicycle Path to maintain access and connectivity. During any short-term, intermittent closures, such as may be required for safety and at the time the temporary path is being constructed, provide informational signs and a detour route along local streets and pathways. With mitigation, there would not be an adverse impact for bicyclists using the Rose Canyon Bicycle Path.	
Construction Impacts—Parking Impacts before Mitigation (Section 3.4.7)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts	N/A
Refined Build Alternative[3]	NEPA: Adverse CEQA: Significant Impacts to off-street parking supply, particularly in University City at UCSD and the La Jolla Village Square shopping center.	NEPA: Adverse CEQA: Significant A large number of parking spaces would be removed temporarily at the La Jolla Village Square shopping center and the UCSD campus. Temporary replacement parking may not be available to offset all the parking removed and parking impacts would remain adverse. Adverse and significant cumulative impacts would also remain after mitigation.
Measures to Avoid or Minimize Impacts [2]	For the La Jolla Village Square shopping center, project measures include working with the property owner to minimize parking impacts, which may include constructing the transit parking structure in phases, if feasible, to offset lost parking and reducing the footprint of parking impacts to the extent feasible during the November-to-January shopping season. Other project measures include providing off-site parking for construction workers and providing emergency access to fire hydrants at all times.	

Mitigation[3]	**TCON2**: To offset parking loss at the VA Medical Center, SANDAG would implement one or more of the following measures in coordination with the institution: provision of valet parking, temporary restriping of other areas of their parking lot, issuance of transit passes to employees, and assistance with ridesharing programs for employees. **TCON3**: To offset parking loss at office and light industrial buildings, SANDAG would implement one or more of the following measures in coordination with the building management: joint-use parking arrangements with adjacent lots, provision of transit passes to employees, and assistance with ride-sharing programs. If parking alternatives cannot be identified, the property owner would be compensated for lost parking. No additional feasible mitigation measures have been identified to further reduce construction impacts to parking; therefore, adverse and significant impacts would remain if replacement parking is not sufficient to offset the loss.	
Land Use Impacts before Mitigation (Section 4.1)		**Impact after Mitigation**[1]
No-Build Alternative	NEPA: Adverse CEQA: Significant Would not extend the Trolley line; therefore, would be inconsistent with adopted land use plans and policies	N/A
Refined Build Alternative[3]	NEPA: Not Adverse CEQA: Less Than Significant Would extend the Trolley line; therefore, would be consistent with all applicable adopted land use plans and policies. The project would be consistent with the California Coastal Act because it supports policies regarding water quality, air quality, energy conservation, reduction in vehicle miles traveled, public access, and public transit, and, on balance, is the more protective of coastal resources than the No-Build Alternative. .Consistency with the California Coastal Act would be subject to review by the CCC during the Coastal Development Permit process.	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation[3]	No mitigation measures are required.	
Community and Neighborhood Impacts before Mitigation (Section 4.2)		**Impact after Mitigation**[1]
No-Build Alternative	No Impacts Would not alter community assets or impact environmental resources or the existing transportation networks within a community	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Less Than Significant The elevated structure would introduce a new visual element in the University City neighborhood, altering the view from the adjacent UCSD Matthews Apartments (i.e., west-facing views). Refer to Visual and Aesthetic Resource Impacts Section. Would result in moderate noise impacts requiring mitigation in the Little Italy and University City neighborhoods. Refer to Noise Impacts Section. Would result in temporary modification of *eruv* boundaries. Refer to Construction Impacts Section.	NEPA: Not Adverse CEQA: Less Than Significant
Measures to Avoid or Minimize Impacts [2]	The proposed new Trolley stations would be designed to be consistent with the existing character of the surrounding communities and neighborhoods, and would support existing development. Design of the UCSD West Station would be completed in coordination with UCSD to visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts.	

Mitigation[3]	**VR1** to **VR7**: As summarized below under Visual and Aesthetic Resource Impacts **N1** to **N4**: As summarized below under Noise and Vibration Impacts With mitigation, there would not be community and neighborhood adverse impacts.	
Visual and Aesthetic Resource Impacts before Mitigation (Section 4.4)		**Impact after Mitigation**[1]
No-Build Alternative	No Impacts With limited physical improvements for bus Route 150, there would be no impact to visual quality, visual resources, visual character, or view quality.	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Moderately high adverse impacts at Key View #8 looking southwest on La Jolla Colony Dr near Gilman Dr and I-5 (due to vegetation removal, retaining wall, and fencing) Moderate adverse impacts at: (1) Key View #32 looking east from I-5 to Santa Fe St (due to retaining walls in Rose Canyon), (2) Key View #23 looking north on I-5 north of La Jolla Colony Dr (due to removal of vegetation), (3) Key View #7 looking south at private HOA dog park from Charmant Dr (due to removal of vegetation and addition of aerial structure), (4) Key View #24 looking north on I-5 north of La Jolla Village Dr (due to retaining wall and addition of aerial structure), (5) Key View #12 looking east into Pepper Canyon from UCSD residence halls (due to removal of vegetation and addition of aerial structure), (6) Key View #18 looking south from intersection of Executive Dr and Genesee Ave (due to addition of aerial structure), and (7) Key View #20 looking north at the intersection of Genesee Ave at La Jolla Village Dr (due to addition of aerial structure).	NEPA: Not Adverse CEQA: Less Than Significant
Measures to Avoid or Minimize Impacts [2, 3]	The proposed new Trolley stations would be designed to be consistent with the existing visual character of the surrounding communities and neighborhoods, and would support existing development. Design of the UCSD West Station would be completed in coordination with UCSD to visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts. All TPSS enclosures located in highly urbanized and/or heavily traveled (vehicular or pedestrian) areas would be screened from public view with walls and/or vegetation. If walls are used, the material and design would be consistent with the existing visual character of the surrounding neighborhood. Additionally, TPSS enclosures would use the minimum footprint needed for operation and access. All TPSS enclosures located in sensitive natural or public open space areas would be screened from public view. Where appropriate, in sensitive natural open space areas, screening material would consist of native vegetation and would not use any non-native, invasive species, or noxious weeds. Screening vegetation for TPSS enclosures located near public open space areas, such as parks or public rights-of-way, and maintained by others would use ornamental plant material that is consistent with the surrounding or adjacent vegetation. At project stations and station areas, exterior lighting would include light fixtures for pedestrian safety, security, and signage. This lighting would be directed down and would minimize light trespass or spill-over into sensitive areas, such as residential neighborhoods, hotels, or medical facilities, using shielding where appropriate. Lighting levels would not exceed 2 foot-candles or more from the project area into the adjacent residential uses or other sensitive receptors. The project lighting would be designed to illuminate specific areas of the project site and station platforms, and the low level of lighting that would be visible from off-site locations would blend with the overall ambient glow that is associated with the immediate urban environment.	

Mitigation[3]	**VR1**: The design of structures such as bridge columns, retaining walls, and sound walls within or adjacent to the Caltrans right-of-way, would be compatible with Caltrans Design Guidelines, including those prepared for the I-5 North Coast Corridor Project. **VR2**: Other structure elements beyond walls and columns would take into account contextual design principles. New architectural features, such as stairs, ramps, elevators, aerial structures, support columns, screen walls, bridge rail, and station design elements, would be similar to or compatible with the visual character and quality of the surrounding area. **VR3**: Design plans developed for the project would include structure architectural design elements such as pilasters, recessed or raised concrete surfaces, and concrete surface treatments such as formliner textures and integrated colored concrete to reduce visual impacts associated with these elements. **VR4**: Landscape design plans would be developed for the project by a qualified landscape architect and coordinated with local agencies and property owners. A plant establishment period would be included in construction documents developed for the project. **VR5**: Where ornamental vegetation associated with maintained landscaped areas is affected, it would be replaced in-kind or with similar vegetation types and quantities contingent on the approval of the land owner. **VR6**: Where the project requires removal of trees and the removal results in adverse visual impacts, a tree replacement ratio of 2:1 for trees larger than 6 inches in diameter at chest height and a 1:1 ratio for trees smaller than 6 inches in diameter at chest height would be implemented contingent on the approval of the land owner. Specific tree replacement sizes, use of appropriate tree species, and consideration of native and low maintenance requirements would be determined by SANDAG in consultation with a qualified landscape architect and affected property owners. **VR7**: All new plantings, regardless of location, would not include invasive plants or noxious weeds, but would include native and/or drought-resistant plants wherever appropriate. Replacement trees would not be planted in locations where their growth is likely to block a view corridor of a regionally important viewing scene. With mitigation, there would not be an adverse visual impact under the Refined Build Alternative.	
Air Quality Impacts before Mitigation (Section 4.5)		**Impact after Mitigation[1]**
No-Build Alternative	NEPA: Adverse CEQA: Significant Air quality emissions would be higher compared to existing conditions, although bus Route 150 would not measurably add to the emission burdens for the study area and region.	N/A
Refined Build Alternative	NEPA: Not Adverse CEQA: Less Than Significant Air quality emissions would be lower compared to the No-Build Alternative, resulting in an overall beneficial impact. Regionally, all pollutants except for PM_{10} would decrease under the Refined Build Alternative. PM_{10} levels would remain essentially unchanged on a regional basis. The Refined Build Alternative is not predicted to cause or exacerbate a violation of the NAAQS and conforms to the CAAA and the Final Transportation Conformity Rule.	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation	No mitigation measures are required.	

Climate Change Impacts before Mitigation (Section 4.6)		Impact after Mitigation[1]
No-Build Alternative	NEPA: Adverse CEQA: Significant Emissions of GHG would be higher compared to existing conditions, although bus Route 150 would not measurably add to the GHG emissions for the study area and region.	N/A
Refined Build Alternative	NEPA: Not Adverse CEQA: Less Than Significant Emissions of GHG would be lower compared to the No-Build Alternative, resulting in a beneficial impact. Total GHG emissions would decrease overall.	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation	No mitigation measures are required.	
Noise and Vibration Impacts before Mitigation (Section 4.7)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts The increased bus frequency would not increase sufficiently compared to existing conditions to substantially change the noise environment.	N/A
Refined Build Alternative[3]	NEPA: Moderate Noise and Vibration Impacts Requiring Mitigation CEQA: Significant Moderate noise impacts requiring mitigation (at least 1 dBA greater than the moderate noise impact threshold or an increase in the cumulative environmental noise level of more than 3 dBA) at: 4 apartments at the Camden Tuscany apartment complex at 1670 Kettner Blvd (Cluster 9); 4 single-family residences and 7 single-family residences at the La Paz condominium complex at Rosenda Ct along La Jolla Colony Dr (Clusters 57 and 59, respectively); 8 second-story apartments at the Loft Apartments at the Shops at La Jolla Village shopping center (Cluster 71); and 20 rooms at the Sheraton La Jolla Hotel at 3299 Holiday Ct (Cluster 72). CEQA noise impacts at the Loft Apartments at the Shops at La Jolla Village shopping center (Cluster 71). Vibration impact at residences at the La Paz condominium complex at Rosenda Ct along La Jolla Colony Dr.	NEPA: No Impact CEQA: Less Than Significant
Measures to Avoid or Minimize Impacts [2]	If during final design the height of the retaining wall on the east side of I-5 becomes greater than one-tenth the distance to the nearest receivers on the west side of I-5, a sound-absorptive finish to the wall would be incorporated into the project design to eliminate or substantially reduce traffic noise reflections.	
Mitigation[3]	**N1**: For Cluster 9 (Camden Tuscany Apartment Complex), lower the sound level of the grade crossing bells by at least 2 decibels or to the lowest level allowed by the CPUC, resulting in a mitigated noise level of 64 dBA Ldn. **N2**: For Cluster 57 (La Paz Condominiums), install a sound wall (minimum 8 ft above top of rail) in front of the residential land use, resulting in a mitigated noise level of 56 dBA Ldn. **N3**: For Cluster 59 (La Paz Condominiums), install a sound wall (minimum 8 ft above top of rail) in front of the residential land use, resulting in a mitigated noise level of 51 dBA Ldn.	

	N4: For Cluster 71 (Loft Apartments at Shops at La Jolla Village shopping center) and Cluster 72 (Sheraton La Jolla Hotel), install a sound wall on the aerial structure such that the top of the sound wall is at least 4 ft higher than the highest point of rail activity, and the wall is sufficiently long to reduce impacts at the Loft Apartments at the Shops at La Jolla Village shopping center. This would result in a mitigated noise level of 51 dBA Ldn at the Loft Apartments and 55 dBA at the hotel. **VIB1**: For Cluster 57 (La Paz Condominiums), install floating slab trackwork or similar measure in front of the residential land use for both the NB and SB tracks. A minimum 10-VdB reduction would be achieved at 25 hertz, fully mitigating the impact. Implementation of Mitigation Measures **N1** through **N4** would eliminate or reduce noise impacts from the Refined Build Alternative to no impact under NEPA and a less-than-significant impact under CEQA. Implementation of Mitigation Measure **VIB1** would eliminate vibration impacts from the Refined Build Alternative.	
Ecosystems and Biological Resources before Mitigation (Section 4.8)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts No impacts to special-status species, special-status vegetation communities, or jurisdictional aquatic resources	N/A
Refined Build Alternative[3]	NEPA: Adverse CEQA: Significant Direct impacts from operation of the Refined Build Alternative: • Long-term impacts to 8.29 acres of wetlands and Tier II–III vegetation communities (i.e., riparian [including disturbed], Diegan coastal sage scrub [including disturbed], and non-native grassland) – Impacts to foraging habitat for eight special-status wildlife species known to occur in the study area (Cooper's hawk, double-crested cormorant, long-billed curlew, yellow-breasted chat, yellow warbler, white-tailed kite, coastal California gnatcatcher, and mule deer) – Impacts to 5.99 acres of Tier II Diegan coastal sage scrub (including disturbed), which is suitable habitat for special-status species, including the coastal California gnatcatcher – Impacts to 0.68 acre of potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher • Long-term impacts to 0.37 acre (0.17 acre wetland and 0.19 acre non-wetland waters) under USACE/RWQCOB jurisdiction; 0.87 acre (0.68 acre of riparian and 0.19 acre of streambed) of areas under CDFW/City of San Diego jurisdiction; and 0.22 acre of wetlands potentially under CCC jurisdiction • Impacts to 0.26 acre of wetlands and Tier II vegetation communities within the MHPA, including 0.19 acre of riparian habitat along Rose Creek • Long-term direct impacts to San Diego fairy shrimp and potential California Coastal Act Environmentally Sensitive Habitat Area within an ephemeral basin (425 square feet) on the east side of the railroad tracks along Morena Boulevard (referred to as Basin II); the fairy shrimp within this basin would be directly impacted by the Refined Build Alternative	NEPA: Not Adverse CEQA: Less Than Significant

	Indirect impacts from operation of the Refined Build Alternative: • Shading impacts to 1.24 acres of wetland and Tier II vegetation communities – Includes shading impacts to 0.79 acre of wetland communities (i.e., mulefat scrub, southern willow scrub [including disturbed], and Arundo-dominated riparian) that may be sensitive to changes in sunlight availability – Includes shading impacts to 0.28 acre of Tier II Diegan coastal sage scrub (including disturbed), which is suitable habitat for coastal California gnatcatcher • Shading impacts to 0.76 acre of potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher • Shading impacts to 0.72 acre (0.59 acre wetland and 0.13 acre non-wetland waters) under USACE/RWQCOB jurisdiction; 0.88 acres (0.75 acre of riparian areas and 0.13 acre of streambed) areas under CDFW/City of San Diego jurisdiction; and 0.49 acre of wetlands under CCC jurisdiction	
Measures to Avoid or Minimize Impacts [2, 3]	During final design, the project's footprint would be further reviewed and, where possible, the footprint would be minimized to reduce impacts to wetlands and vegetation. Features would be added to the San Diego River Bridge to make it more "bat friendly." The concrete-lined channel has been designed with a slight inclination toward the center of the channel. The majority of riprap placed at the upstream and downstream ends of the proposed channel would not be grouted, which would allow sediment to fill gaps, creating a more natural surface for wildlife to cross.	
Mitigation[3]	**BIO1**: On-site Mitigation: To the extent feasible, disturbed lands within or adjacent to the existing MTS right-of-way would be revegetated with wetland and Tier II–III vegetation communities. Revegetated areas would be maintained and monitored for approximately five years to ensure successful reestablishment of vegetation communities. **BIO2**: Off-site Mitigation: Where mitigation requirements cannot be accommodated within existing disturbed lands in the study area, impacts to wetlands and Tier II–III vegetation communities would be mitigated inside or outside of MHPA lands elsewhere within the County of San Diego (e.g., Sage Hill site). Off-site mitigation may include creation (establishing wetlands and Tier II–III vegetation communities in areas that are currently disturbed, developed, or supporting non-native vegetation communities) or enhancement (improving the quality of existing areas of wetlands and Tier II–III vegetation communities through removal of non-native species, establishment of native species, restoration of prior impacts, and protection from future disturbance). **BIO3**: Mitigation Credits: In addition to on-site and off-site mitigation, impacts to wetlands and Tier II–III vegetation communities may be mitigated through the purchase of mitigation credits. The purchase of mitigation credits result in the long-term preservation of vegetation communities within established mitigation banks where these communities have been created and/or enhanced and are maintained in perpetuity. **BIO4**: Any impacts that cannot be mitigated on-site or at the identified off-site mitigation sites, SANDAG will implement a combination of one or more of the following mitigation alternatives: mitigation bank credits; in-lieu fee program credits; on-site creation, restoration, or enhancement; and off-site creation, restoration, or enhancement. **BIO5**: Impacts to ephemeral basins occupied by San Diego fairy shrimp, including Basin II, would be mitigated at a 2:1 ratio through restoration and/or enhancement of vernal pools within west Otay Mesa on the 40-acre Anderprizes parcel, which was previously acquired for future mitigation of vernal pools and which has been approved by the USFWS for mitigation of impacts to San Diego fairy shrimp, or within another approved mitigation area acceptable to the USFWS. Restoration would be conducted at a minimum 1:1 ratio to achieve a no-net-loss of San Diego fairy shrimp habitat; a combination of restoration and enhancement would make up the remaining mitigation. Restoration would be conducted in accordance with a vernal pool restoration plan to be developed by SANDAG and subject to approval by the USFWS prior to project construction.	

	With implementation of the identified minimization/avoidance measures and Mitigation Measures **BIO1** through **BIO5**, the Refined Build Alternative would not result in adverse impacts under NEPA and would have less-than-significant impacts under CEQA.	
Energy Impacts before Mitigation (Section 4.12)		**Impact after Mitigation[1]**
No-Build Alternative	NEPA: Adverse CEQA: Significant Energy use would be higher compared to existing conditions, although bus Route 150 would not measurably add to the energy demand for the study area and region.	N/A
Refined Build Alternative	NEPA: Not Adverse CEQA: Less Than Significant Roadway energy use would decrease as a result of a decrease in roadway VMT in the study area and region due to project mode shifts from roadway vehicles to the Trolley system. Energy use would be lower compared to the No-Build Alternative and would result in an overall beneficial impact.	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation	No mitigation measures are required.	
Electromagnetic Interference before Mitigation (Section 4.14)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts Route 150 would not change EMF levels.	N/A
Refined Build Alternative[3]	NEPA: Adverse CEQA: Significant Project-generated levels of EMF would adversely affect sensitive equipment located in the SME Building on the UCSD campus and in the XiMed Building at Scripps Memorial Hospital La Jolla.	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation[3]	**EMF1**: Project impacts to identified equipment that is sensitive to EMI at the UCSD SME Building and the Scripps Hospital XiMed Building would be mitigated through the use of a split-power configuration system with a parallel feeder cable located below each track connected to the OCS wire intermittently with cable risers at OCS poles—rather than the use of overhead messenger wires—in areas near these buildings. In these areas, the feeder cables would be located in line with the centerline of the track (single-split power supply) in order to get feeder cable and return current (the rails) as close as possible and reduce the magnetic fields. With implementation of the mitigation measure identified above, the Refined Build Alternative would result in no adverse impacts under NEPA and a less-than-significant impact under CEQA.	

Construction Impacts—Air Quality Impacts before Mitigation (Section 4.17)		Impact after Mitigation[1]
No-Build Alternative	No impacts	N/A
Refined Build Alternative	NEPA: Adverse CEQA: Significant Construction would result in emissions of NO_X and CO_2 that exceed thresholds for air quality and GHG.	NEPA: Adverse CEQA: Significant Adverse impacts from NO_X and CO_2 would remain under NEPA, and are considered significant and unavoidable under CEQA. Adverse and significant cumulative air quality impacts remain under the Refined Build Alternative. An adverse and significant cumulative GHG impact would occur under the Refined Build Alternative.
Measures to Avoid or Minimize Impacts [2]	Project measures, including minimizing idle times of construction work, maintaining equipment in good condition, and controlling dust, would be incorporated into construction of the project. SANDAG would consult with SDAPCD regarding measures to minimize air pollutant emissions from construction.	
Mitigation	No feasible mitigation measures have been identified to further reduce air quality and GHG impacts from construction.	
Construction Impacts—Noise and Vibration Impacts before Mitigation (Section 4.17)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts	N/A
Refined Build Alternative[3]	NEPA: Noise and Vibration Impacts CEQA: Significant The area of the noise impact during construction would be dependent on a variety of factors, including ambient noise, the type of construction activity, amount of shielding at the construction site, the nature of the environment in that location (amount and height of buildings, open space), the sensitivity of the land use, and the time of day or night. In some places, construction noise may only affect sensitive receivers within 50 feet of the construction activity while in other places it could extend to more than 500 feet. Construction would result in increased noise levels during the day, which could impact sensitive receptors, including student housing near Sixth Lane, La Jolla Country Day School, UCSD, and the Preuss School. Construction traffic and activity would result in increased noise levels for residences at night, particularly along Genesee Avenue and the east side of Charmant Drive, and at the northeast corner of the Cape La Jolla Gardens housing complex adjacent to I-5. Construction would also result in vibration that could impact nearby structures.	NEPA: Noise Impacts CEQA: Significant No construction noise impacts would remain after mitigation for residents who voluntarily relocate pursuant to Mitigation Measure **CON2**. There would be noise impacts under NEPA that would be significant under CEQA. There would be no vibration impacts after mitigation.
Measures to Avoid or Minimize Impacts [2]	The project would comply with all applicable noise regulations, including the City of San Diego Noise Ordinance. Equipment and staging areas would be located away from noise-sensitive receivers, and temporary noise barriers would be installed and public notice would be provided to nearby residents prior to nighttime construction. Coordination would occur with the site administrator of nearby schools and other sensitive noise receptors to discuss construction activities that generate high noise levels. The position of Noise Disturbance Coordinator would be established.	

Mitigation[3]	**CON1:** The contractor would develop and implement a Noise Control Plan, approved by SANDAG prior to initiating construction. The plan would demonstrate how the contractor would reduce noise levels near sensitive noise receptors consistent with the city's Noise Ordinance. The plan would include analysis of construction noise based on measured background noise levels, a list of the major pieces of construction equipment that would be used, and predictions of the noise levels at the closest sensitive receivers (including residences, hotels, schools, churches, temples, and similar facilities where either outdoor or indoor activities would be sensitive to noise levels). The Noise Control Plan would include noise attenuation features as necessary, such as temporary sound walls, mufflers, and locating noisy equipment away from sensitive land uses. In addition, the plan would consider alternative construction methods when relevant. **CON2**: To reduce nighttime noise impacts to sensitive receivers on Charmant Dr, in the northeast corner of the Cape La Jolla Gardens housing complex adjacent to I-5, and along Genesee Ave, the contractor would provide noise-reducing curtains or noise-masking machines where appropriate and approved by the occupant. Temporary lodging in an approved hotel would be offered by SANDAG to residents if, after implementation of noise-reducing measures, nighttime construction noise is predicted to exceed the ambient noise levels for that area by 5 dBA. **CON3**: During final design, and where permission can be obtained, a qualified structural engineer would survey the existing foundation and other structural aspects of buildings located within close proximity (25 to 100 feet depending on construction activity and structure type) of the construction zone boundaries. Potholing or other non-destructive testing of below-grade conditions may be necessary to establish baseline conditions. Depending on anticipated construction activities, the survey report would identify buildings that could be affected by construction vibration. The qualified structural engineer would document in the survey report baseline conditions at all buildings that may be affected by construction vibration. The survey report would provide a shoring design to protect identified buildings from potential vibration damage. Alternatively, the structural engineer may recommend alternative construction methods that would produce lower vibration levels. In areas where construction noise levels are less than 5 dBA above the ambient noise level for that area, noise-reducing curtains would eliminate the impact. For levels between 5 and 10 dBA above the ambient noise level for that area, a combination of curtains and noise-masking machines would be effective at reducing sleep disturbance for most residents. If residents are voluntarily relocated under Mitigation Measure **CON2**, no construction noise impacts would remain after mitigation. Implementation of project and mitigation measures would reduce short-term construction noise impacts to less than significant at all locations, except for nighttime noise impacts for residents who do not temporarily relocate. There would be noise impacts under NEPA that would be significant under CEQA. There would be no vibration impacts after mitigation.

Construction Impacts—Biological Resources Impacts before Mitigation (Section 4.17)		Impact after Mitigation[1]
No-Build Alternative	No Impacts	N/A
Refined Build Alternative[3]	NEPA: Adverse CEQA: Significant Direct construction impacts: • Temporary loss of 7.16 acres of habitat (4.1 acres of wetlands, 2.85 acres of Tier II, and 0.21 acre of Tier III vegetation) used by a number of special-status wildlife species • During the nesting season, generally between February 15 and August 31 for most species and January 15 through August 31 for raptors, vegetation clearing, ground-disturbing activities, and disturbance of non-native or man-made nesting habitats associated with construction could directly impact nesting special-status birds. • Impacts to 2.64 acres (1.51 acre of wetland and 1.13 acre non-wetland waters) under USACE/RWQCB jurisdiction; 4.08 acres of CDFW/City of San Diego jurisdictional areas (2.87	NEPA: Not Adverse CEQA: Less Than Significant

	acres of riparian areas and 1.21 acres of streambed); and 0.66 acre of CCC wetlands • Impacts to 2.13 acres of potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher could occur if either species occupies the area prior to construction. • Modification of approximately 130 feet of the existing bridge for the Trolley Green Line at the San Diego River could directly impact roosting western mastiff bat, a California species of special concern. • Vegetation clearing activities within riparian habitat could directly impact roosting western red bat, a California species of special concern. Indirect construction impacts: • Noise and vibration impacts could occur to special-status bird species (i.e., coastal California gnatcatcher, least Bell's vireo, light-footed clapper rail, or southwestern willow flycatcher) potentially breeding in adjacent native and non-native habitat areas if construction activities occur during the breeding season.	
Measures to Avoid or Minimize Impacts [2, 3]	During final design, the project's construction footprint would be further reviewed and, where possible, the footprint would be minimized to reduce impacts to wetlands and vegetation. Where construction occurs adjacent to sensitive biological resources, the limits of construction would be visibly delineated through brightly colored fencing or other highly visible means. Construction crews would be directed not to encroach beyond the limits of construction. BMPs would minimize dust, erosion, and runoff generated by construction activities. During construction, a biological monitor would be present to assist in the avoidance of impacts to native vegetation, jurisdictional aquatic resources, special-status plants and wildlife, and nesting birds. During construction, a movement corridor for light-footed clapper rail would be maintained along the San Diego River main channel to allow clapper rails to move through the construction area if they are present. The movement corridor would include exclusionary fencing along the project limits on both sides of the flow channel to prevent clapper rails from entering construction areas if they are present. Indirect construction impacts to the San Diego fairy shrimp in Basin BB would be avoided through the designation of a buffer. The buffer, to be developed in consultation with the USFWS and the CCC, would be established to prevent construction from indirectly affecting the pool and its associated watershed. To prevent the introduction of invasive plant species, construction vehicles and equipment would be washed prior to working in areas where sensitive vegetation communities are present adjacent to the project.	
Mitigation[3]	**CON4**: Biologists would conduct nesting bird surveys not more than 72 hours prior to initiating construction-related ground-disturbing activities (i.e., grading or ground-clearing activities) during the breeding season (February 15 through August 31 for most species, and January 15 through August 15 for raptors, or as determined by a qualified biologist). Biologists would determine if active nests of special-status birds or bird species protected by the MBTA and/or the California Fish and Game Code 3503 are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone during the nesting/breeding season of native bird species potentially nesting on the site. Despite the lack of native habitat, similar pre-construction nesting bird surveys would be conducted at the four traction power substations located outside of the biological study area to the south of the Old Town Transit Center to ensure the avoidance of native birds potentially nesting in urbanized areas. If ground-disturbing activities are delayed, then additional pre-disturbance surveys would be conducted such that no more than 72 hours would have elapsed between the survey and the initiation of ground-disturbing activities. **CON5**: If biologists find an active nest of a native bird species, then vegetation clearing, ground-disturbing activities, and construction equipment that generates high noise or vibration levels would	

	cease and be postponed or halted at the discretion of the biologist in consultation with the CDFW. This work cessation would be effective within a buffer area from the nest at a distance appropriate to the sensitivity of the species and the distribution of the surrounding habitat (typically 300 feet for most species, up to 500 feet for raptors—the area may vary depending on the types of vegetation surrounding the nest). Construction work would not resume until the biologist has determined that the nest is no longer active, the juveniles have fledged, and there is no evidence of a second attempt at nesting. Alternatively, a qualified biological monitor would be present full-time while construction is occurring within the buffer area to observe the nesting birds and would have the authority to halt or redirect construction if the birds exhibit signs of distress. Limits of construction around active nests would be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel would be informed about the sensitivity of nest areas. The biologist would serve as a construction monitor during those periods when construction activities would occur near active nest areas to ensure that no inadvertent impacts to nesting birds occur. **CON6**: Vegetation clearing within suitable western red bat habitat would be avoided during the maternal roost season (May through August, or as determined by a qualified biologist) where feasible. Pre-construction surveys for roosting western red bat would be conducted within suitable habitat if construction would occur within or adjacent to suitable roost sites during the maternal roost season. If a roost is detected, passive exclusion would include monitoring the roost for three days to determine if the roost is vacated. If the roost is determined to support a reproductive female with young, the roost would be avoided until it is no longer active. If the roost remains active within the three monitoring days and supports a dispersing male but no breeding female or young, the foliage of the tree would be trimmed after the male has left the roost at dusk. The tree would be monitored again the following evening after the foliage has been trimmed to determine if any activity remains at that roost location. If there is no activity, the tree would be removed. If it cannot be determined whether an active roost site supports breeding females or males, the roost site would not be disturbed and construction within 300 feet would be postponed or halted until the roost is vacated and the young are volant. **CON7**: Focused surveys for the western mastiff bat maternity roosts would be conducted in the summer (May through August, or as determined by a qualified biologist) prior to construction, if feasible. Pre-construction surveys would be conducted by a qualified biologist no earlier than 30 days prior to initiation of bridge modification activities if summer surveys in advance of construction are infeasible, Pre-construction surveys would include the bridge section planned for modification and would be conducted using visual search and ultrasonic recording devices to determine if active roosts of the western mastiff bat are present on or within 300 feet of the bridge section subject to modification. These surveys would concentrate on the periods when roosting bats are most detectable (i.e., when leaving the roost between one hour before sunset and two hours after sunset) and take place over a period of three to five days. **CON8**: Temporary and humane exclusionary devices would be installed in the fall (September or October) preceding construction at those locations where summer surveys detected an active maternity roost for the western mastiff bat to avoid potential direct impacts. Prior to any exclusion measures being implemented to prevent bats from using an existing roost habitat, a qualified bat biologist would survey (e.g., visually and using an ultrasonic device to record bat calls in concert with sonogram analysis software) and identify nearby alternative maternity colony roost sites. If any supplemental measures must be implemented to ensure successful exclusion of bats from an existing roost and/or the identification of alternative roosting habitat, all related assessments and monitoring must be conducted by a qualified bat biologist, with biological monitoring reports and findings provided to the CDFW. If construction activities must occur during the summer and pre-construction surveys have identified an active western mastiff bat maternity roost, the roost would not be disturbed and construction within 300 feet would be postponed or halted until the roost is vacated and juveniles have fledged. If construction activities must occur when bats are active and pre-construction surveys have identified non-breeding bat hibernacula in portions of the Trolley Green Line Bridge subject to disturbance from bridge modification activities, the individuals would be safely evicted under the direction of a qualified bat biologist

	using appropriate means acceptable to the resource agencies (e.g., installation of one-way doors, foam filling of roosting locations when bats are not present, or plastic sheeting hung vertically). In situations requiring one-way doors, a minimum of one week would pass after doors are installed prior to concluding that the roost has been vacated. During this time, temperatures should be sufficiently warm for bats to leave the roost because bats do not typically leave their roost daily during winter months or on unseasonably cold nights in southern coastal California. In situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist, roosts that need to be removed would first be disturbed at dusk by various means at the direction of the bat biologist to allow bats to escape during the darker hours and access to the roost site would be excluded the next day (i.e., there would be one night between initial disturbance and exclusion of the roost site). **CON9**: Temporary impacts to wetland vegetation communities would be mitigated at a 1:1 ratio, as shown in Section 4.8, Table 4-19, Table 4-20, and Table 4-21. The location and configuration of wetland vegetation communities within restoration areas in the San Diego River and Rose Creek would be adjusted to ensure that restored areas beneath bridges are limited to wetland communities that can tolerate reduced sunlight availability. Based on the presence of vegetation communities under existing bridges over the San Diego River and Rose Creek, similar communities, including cismontane alkali marsh, mulefat scrub, and in some cases southern willow scrub, would be planted under the proposed bridges. Restored areas adjacent to the proposed bridges and that are not subject to long-term shading would be revegetated primarily with southern willow scrub. **CON10**: Impacts to Tier II (coastal sage scrub) and Tier IIIB (non-native grasslands) vegetation communities would be mitigated according to the mitigation ratios shown in Section 4.8, Table 4-19, Table 4-20, and Table 4-21. **CON11**: Temporary impacts to jurisdictional aquatic resources would be mitigated at a minimum 1:1 ratio through on-site restoration, subject to approval by the USACE, RWQCB, CCC, and CDFW during the permitting process. On-site restoration would include the restoration of pre-existing contours, elevations, and vegetation communities within areas temporarily disturbed as a result of construction activities in the San Diego River, Tecolote Creek, and Rose Creek. The location and configuration of wetland communities within restoration areas in the San Diego River and Rose Creek would be adjusted to ensure that restored areas beneath bridges are limited to wetland communities that can tolerate reduced sunlight availability. Based on the presence of wetland communities under existing bridges over the San Diego River and Rose Creek, similar communities, including cismontane alkali marsh, mulefat scrub, and in some cases southern willow scrub, would be planted under the proposed bridges. Restored areas adjacent to the proposed bridges and that are not subject to long-term shading would be revegetated primarily with southern willow scrub. **CON12**: Construction-related noise levels in coastal California gnatcatcher occupied habitat within 500 feet of construction activity would not exceed 60 dBA Leq or pre-construction ambient noise levels, whichever is greater, during the breeding season. Project construction within 500 feet of occupied habitat would occur outside of the breeding season if possible. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project, or noise attenuation measures, such as temporary sound walls, would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater. **CON13**: To avoid potential adverse impacts to least Bell's vireo and southwestern willow flycatcher from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season if feasible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA L_{eq} or pre-construction ambient noise levels, whichever is greater. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project or noise attenuation measures would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater.

	CON14: To avoid potential adverse impacts to light-footed clapper rail from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season if possible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA L_{eq} or pre-construction ambient noise levels, whichever is greater. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project or noise attenuation measures would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater. With implementation of Mitigation Measures **CON4** through **CON14**, no adverse biological resource construction impacts would remain under NEPA and impacts are reduced to a less-than-significant level under CEQA.	
Construction Impacts—Archaeological Resources before Mitigation (Section 4.17)		**Impact after Mitigation[1]**
No-Build Alternative	No Impacts	N/A
Refined Build Alternative[3]	NEPA: Not Adverse CEQA: Significant Ground-disturbing activities during construction would not affect archaeological resources as none were identified within the archaeological APE. However, the project could result in the physical destruction of unknown archaeological resources discovered during construction (unanticipated discoveries).	NEPA: Not Adverse CEQA: Less Than Significant
Mitigation[3]	During project construction, there would be no effect on known archaeological resources. However, the project could result in the physical destruction of resources as a result of unanticipated discoveries. To account for the possibility of an unanticipated discovery of archaeological resources or human remains during project-related ground disturbance, the following mitigation measures have been incorporated: **CON15:** Construction Monitoring: No archaeological resources eligible for listing in the NRHP or CRHR were identified or detected within the archaeological APE during Extended Phase I investigations; however, there exists a low potential to encounter unknown cultural materials given the landform context and depth of construction. As such, monitoring for both prehistoric and historic archaeological deposits would be conducted during ground-disturbing construction activities in designated monitoring areas of the project archaeological APE. Monitoring would occur under the supervision of a DPA who meets the Secretary of the Interior's Professional Qualifications Standards. The DPA and archaeological monitors would be subject to the approval of SANDAG and/or the FTA. Full-time cultural resources monitoring of all ground-disturbing activities within the archaeological APE would occur within 500 feet south of the San Diego River; within 500 feet north of the San Diego River; in designated portions of the Rose Canyon corridor; and in the portion of the archaeological APE located on the UCSD campus. Specific information regarding full time monitoring areas is detailed in the confidential *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a). Spot-check monitoring would occur within the archaeological APE in two areas: from the north bank of the San Diego River to 1,100 feet north of Sea World Drive, and in the Rose Canyon Corridor between Balboa Avenue and La Jolla Colony Drive. If the FTA determines that full-time or spot-check monitoring is needed in additional portions of the archaeological APE, monitoring would be provided in these additional areas. In areas where full-time monitoring is designated, "full-time monitoring" is defined as follows: A qualified archaeological monitor is required during the entire work day on a daily basis during all ground disturbance throughout the course of the project until a sufficient depth of excavation has been reached at which it is unlikely to encounter buried resources. The DPA will determine the actual depth of excavation at which monitoring may cease based on soil conditions observed in the field. "Spot-check monitoring" is defined as part-time monitoring to be conducted by a qualified archaeological monitor throughout the duration of project-related ground disturbance. Spot-check	

	monitoring would include inspection of open excavations, grubbed areas, and excavation spoils. The frequency and duration of the spot checks would be based on field observations of exposed soils at the discretion of the DPA. In the event an unanticipated discovery of archaeological resources occurs during construction, the following measures would be implemented immediately following the discovery: • The archaeological monitor would halt all construction within a 50-foot radius of the find until the DPA can assess the significance of the find. • If the discovery is determined to be significant or potentially significant by the DPA, the following tasks would be undertaken: – Discussion with project engineers to determine if impacts can be avoided/minimized, including consideration of preservation in place – Recovery and analysis of archaeological material and associated data – Preparation of a data recovery report or other reports – Accessioning recovered archaeological material to an accredited archaeological repository, such as the San Diego Archaeological Center Archaeological monitor qualification requirements, detailed approaches to archaeological monitoring of various project elements, and the procedures to follow in the event that unanticipated archaeological resources or human remains are discovered would be defined in the *Mid-Coast Corridor Transit Project Construction Monitoring Plan* (SANDAG, 2014c) and *Mid-Coast Corridor Transit Project Cultural Resources Discovery Plan* (SANDAG, 2014b) submitted to SHPO for review and concurrence prior to the start of construction activities. A Native American monitor would be present at all areas designated for full-time and spot-check monitoring. This monitoring would occur on an as-needed basis and would be intended to ensure that Native American concerns are considered during the construction process. Native American monitors would be retained from Tribes who have expressed interest in the project and have participated in the Section 106 consultation process. Roles and responsibilities of the Native American monitors would be detailed in the Construction Monitoring Plan prepared for the project. **CON16**: Cultural Resource Awareness Training: Prior to, and for the duration of, ground disturbances, SANDAG would provide cultural resource awareness training to construction workers in accordance with the requirements listed in the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e). The training would describe appropriate measures for treatment and protection of cultural resources in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, and would include a discussion of applicable laws and penalties under the law, and samples or visual representations of artifacts that might be found in the project vicinity. The training would outline the steps that must be taken if cultural resources are encountered during project construction, including the authority of archaeological monitors to halt construction in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts. The training would be conducted by a qualified archaeologist. A hard copy summary of cultural resource laws, discovery procedures, and contact information would be provided to all construction workers. It may be necessary to conduct the training in English and another language, particularly Spanish. If so, an individual proficient in both languages would be present to translate the training. Hard copy training summary cards would be produced in applicable languages to be distributed to all construction personnel. **CON17**: Treatment of Human Remains: In the unlikely event that human remains are uncovered during ground disturbances, California Health and Safety Code Section 7050.5 requires that no further disturbances occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resource Code Section 5097.98. If the human remains are determined to be prehistoric, the coroner would notify the Native American Heritage Commission, which would determine and notify a Most Likely Descendant. The FTA, SANDAG, NCTD, and/or MTS would be notified immediately. Procedures to follow for the discovery of human remains would be included in the Discovery Plan. The plan would include provisions for preferred removal techniques, storage, and re-internment to the extent feasible. Implementation of Mitigation Measures **CON15** through **CON17** would resolve adverse archaeological resource construction impacts under NEPA and reduce impacts to a less-than-significant level under CEQA.

Construction Impacts—Paleontological Resources before Mitigation (Section 4.17)		Impact after Mitigation[1]
No-Build Alternative	No Impacts	N/A
Refined Build Alternative	NEPA: N/A CEQA: Significant Impacts to paleontological resources are evaluated under CEQA only. Ground-disturbing activities during construction could cause significant impacts on paleontological resources.	NEPA: N/A CEQA: Significant Significant cumulative impacts would remain.
Mitigation	**CON18:** Paleontological Resources Monitoring and Mitigation Plan: Prior to final design and as a measure to protect significant paleontological resources, SANDAG would authorize a PRMMP to be prepared and implemented during construction. The PRMMP would be developed in accordance with the guidelines and requirements listed in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l). • **Paleontological Awareness Training**—Paleontological awareness training would be provided to construction workers involved in earthwork (excavation and grading) and foundation activities prior to the start of work on the project. Training would include a discussion of the laws protecting paleontological resources, the types of paleontological resources that could be encountered, and the procedures to be followed if a paleontological resource were discovered. • **Paleontological Monitoring**—Paleontological resources monitoring is recommended because of the potential for impacts on paleontologically sensitive geologic units and, therefore, potentially significant paleontological resources, during construction activities. Detailed procedures regarding monitoring would be presented in the PRMMP. – Monitoring between the Santa Fe Depot and the Nobel Drive Station—Full-time paleontological monitoring of project ground disturbance would be required between the Santa Fe Depot and the Nobel Drive Station because of the presence of highly sensitive geologic units. Paleontological monitoring for this area would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP. – Monitoring between the Nobel Drive Station and the UTC Transit Center—Part-time paleontological monitoring of excavations would be conducted between the Nobel Drive Station and the UTC Transit Center. In the event that any unanticipated discoveries of significant fossils are made, full-time monitoring in this area would be required. Paleontological monitoring for this area would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP. • **Unanticipated Discovery of Paleontological Resources**—If an unanticipated discovery of paleontological resources occurs during construction anywhere along the alignment, the procedures described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) would be followed as incorporated into the PRMMP. • **Data Recovery**—In the event that paleontological resources are discovered, fossil specimens will be properly collected and sufficiently documented to be of scientific value. Data recovery would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP. • **Technical Reporting**—In the event that paleontological resources are discovered, a data recovery report would be prepared that documents the methods and results of monitoring and provides an analysis of the nature and significance of fossils recovered. The report would contain the contents as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP. • **Curation of Recovered Fossils**—After the data recovery report is prepared, the fossil material recovered during project monitoring activities would be accessioned for curation to a recognized paleontological repository, such as the San Diego Natural History Museum. Arrangements to accession fossil material should be made with such a repository before monitoring begins so that the repository can inform the qualified monitoring paleontologist of requirements necessary to accession the fossil material (Society of Vertebrate Paleontology Conformable Impact Mitigation	

	Guidelines Committee, 1995). The data recovery report (see above) also will be submitted to the repository at which the fossils are curated. Curation would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP. With mitigation, project-level construction impacts to paleontological resources would be less than significant; however, adverse and significant cumulative impacts would remain.

Source: SANDAG, 2014

Notes: [1] Mitigation measures are not required for the No-Build Alternative.

[2] Measures to avoid or minimize impacts identified for some topics are incorporated in the Refined Build Alternative, as applicable.

[3] Information has been revised since the circulation of the Draft SEIS/SEIR. Refer to the appropriate Final SEIS/SEIR section for a description of changes made since the Draft SEIS/SEIR.

APE = Area of Potential Effects; BMPs = Best Management Practices; CAAA = California Air Act Amendments; Caltrans = California Department of Transportation; CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; CEQA = California Environmental Quality Act; CO_2 = carbon dioxide; CPUC = California Public Utilities Commission; CRHR = California Register of Historical Resources; dBA = A-weighted decibel; EB = eastbound; DPA = Designated Project Archaeologist; EMI = electromagnetic interference; EMF = electromagnetic field; FTA = Federal Transit Administration; GHG = greenhouse gases; HOA = homeowners association; I = Interstate; L_{dn} = day-night noise level; L_{eq} = equivalent sound level; MBTA = Migratory Bird Treaty Act; MHPA = Multiple Habitat Planning Area; MTS = Metropolitan Transit System; N/A = not applicable; NAAQS = National Ambient Air Quality Standards; NB = northbound; NCTD = North County Transit District; NEPA = National Environmental Policy Act; NO_x = nitrogen oxides; NRHP = National Register of Historic Places; OCS = overhead contact system; PM_{10} = particulate matter smaller than or equal to 10 microns in diameter; PRMMP = Paleontological Resources Monitoring and Mitigation Plan; RWQCB = Regional Water Quality Control Board; SANDAG = San Diego Association of Governments; SB = southbound; SDAPCD = San Diego Air Pollution Control District; SEIS/SEIR = Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report; SHPO = State Historic Preservation Officer; SME = Structural and Materials Engineering Building UCSD; TPSS = traction power substation; UCSD = University of California, San Diego; USACE = U.S. Army Corps of Engineers; USFWS = U.S. Fish and Wildlife Service; UTC = University Towne Centre; VA = Veterans Administration; Vdb = vibration decibel; VMT = vehicle miles traveled; WB = westbound

Chapters 3.0 and 4.0 of this Final SEIS/SEIR contain additional information regarding transportation and environmental impacts, mitigation measures, and project minimization/avoidance measures. The Section 4(f) Evaluation is included in Chapter 5.0. The Section 4(f) evaluation has determined that the Refined Build Alternative would have a *de minimis* direct use of Marian Bear Memorial Park and a temporary occupancy exception (23 Code of Federal Regulations Section 774.13) on the Ocean Beach Bicycle Path, Marian Bear Memorial Park, and Mission Valley Preserve Open Space during construction. The City of San Diego, which has purview of these Section 4(f) resources, has concurred with the Section 4(f) findings and determinations in this Final SEIS/SEIR.

Overall, the project would have a beneficial long-term effect on various elements of the built and natural environments, including improvements to mobility and accessibility (particularly transit service), air quality, climate change, and energy. By extending the Trolley system to University City, the project would reduce the travel time from the UTC Transit Center to downtown by 10 minutes and require fewer transfers. The Refined Build Alternative also supports established land-use plans and policies.

By comparison, the No-Build Alternative would avoid many adverse and/or significant impacts, including all construction-related impacts; however, it would not meet the project's purpose and need of providing a frequency of service, speed, and reliability that would better serve existing riders and attract new riders. In addition, under the No-Build

Alternative, the number of intersections and roadways that would operate at unacceptable levels of service would increase and there would be additional impacts on vehicle miles traveled, air quality, and greenhouse gas emissions. The No-Build Alternative is the only alternative that would avoid the impacts of the Refined Build Alternative, but the No-Build Alternative would result in adverse impacts for land use, air quality, energy, and greenhouse gases. As discussed in the *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e), the other alternatives previously considered that would meet the project's purpose and need would have impacts that are comparable to or greater than the Refined Build Alternative, or are higher in cost.

S.5 Financial Feasibility

As summarized in Chapter 6.0, the Refined Build Alternative is considered to be financially feasible. The financial plan expects that the Refined Build Alternative, with an estimated capital cost of $2,112 million in year-of-expenditure dollars, would be funded through a combination of available *TransNet* funds and FTA New Starts funds. The cost effectiveness of the project when it was approved for entry into Preliminary Engineering in September 2011 was $24.87, which placed the project in the "medium" rating category.

S.6 Public Outreach, Agency Consultation, and Coordination

The project's agency and public outreach program meets all federal and state requirements addressing transportation projects. These include NEPA, CEQA, and Title VI of the Civil Rights Act of 1964. The *Mid-Coast Corridor Transit Project Agency Coordination Plan* (SANDAG, 2011d) identifies the federal, tribal, state, regional, and local agencies affected by, having jurisdiction over, or an interest in the project. The Agency Coordination Plan also identifies Trustee and Responsible Agencies, and agencies that have jurisdiction by law.

Preparation of the Draft SEIS/SEIR continued the environmental review process begun with the previous environmental documents. CEQA scoping was initiated in April 2010 with a Notice of Preparation issued on April 28, 2010. SANDAG hosted five CEQA public scoping meetings in May 2010. In July 2011, SANDAG conducted NEPA scoping. On July 19, 2011, the FTA published a new Notice of Intent in the *Federal Register* to provide opportunities for public and agency comments on the project and to complete scoping. Appendix B to this Final SEIS/SEIR contains the Notice of Preparation and Notice of Intent for the project.

Public and agency outreach is on-going and includes presentations for community, business, and transportation organizations; meetings with stakeholders; updates to the SANDAG Transportation Committee; distribution of e-newsletters; meetings of the Project Working Group; and briefings of elected officials. Chapter 8.0 of this Final SEIS/SEIR contains additional information on public and agency outreach conducted for the project.

Since initiating the outreach program, SANDAG has coordinated with state and federal resource agencies. In May 2010, project briefing meetings were held individually with

the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Game (renamed the California Department of Fish and Wildlife as of January 1, 2013), and the San Diego River Conservancy. Summaries of the meetings are contained in the *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f). A follow-up meeting was held with the USACE on July 23, 2012, and a pre-application meeting was held with the USACE, the California Department of Fish and Game, and the San Diego Regional Water Quality Control Board (SDRWQCB) on August 14, 2012. A telephone conference call was held with the USACE and the FTA on September 7, 2012, to discuss permitting requirements, the role of the USACE in the environmental review of the project, and the potential for minimizing impacts to water resources. A second pre-application meeting was held with the USACE on October 31, 2012, to discuss design options for the channel structure at Rose Creek and SR 52 (i.e., box culvert, open channel, bridge, and natural bottom channel) to minimize impacts to Waters of the U.S. in the Rose Creek watershed. Through coordination with the USACE, an open channel design at SR 52/Rose Creek was selected to replace the box culvert as the preferred design option for the Build Alternative; this project design change was incorporated into the Build Alternative analyzed in the Draft SEIS/SEIR and retained in the Final SEIS/SEIR. A follow-up meeting with the SDRWQCB and the USACE was held on February 27, 2013, to review the revised design. Coordination with resource agencies will be on-going throughout the project development process.

Section 106 consultation has been conducted to identify cultural resources and concerns related to the project's effects on cultural resources. As part of Section 106 consultation, coordination with the State Historic Preservation Officer (SHPO) has been ongoing. In October 2011, FTA consulted with, and received concurrence from, the SHPO regarding the limits of the Area of Potential Effects. Refer to Appendix C for copies of the correspondence with the SHPO. In addition, as part of the Section 106 consultation process, the FTA sent consultation letters to 23 Native American groups, including those identified by the Native American Heritage Commission, in November 2011. SANDAG sent letters to local interested public historical or cultural organizations. In February 2013, additional coordination was conducted with the SHPO to address the eligibility of historic architectural properties and archaeological resources within the Area of Potential Effects. In August 2013, the SHPO concurred with the determinations of the eligibility of the historic architectural properties. A "no adverse effect" determination was made by FTA with respect to the eligible properties, and the SHPO concurred with the finding on April 9, 2014. Because no archaeological historic properties were identified in the Area of Potential Effects, FTA has made a finding of "no historic properties affected" with respect to archaeological resources, pursuant to Section 106. SHPO's concurrence on the determination of effects was received on April 9, 2014.

The FTA and SANDAG issued the Notice of Availability (NOA) in the *Federal Register* on May 17, 2013, and circulated the Draft SEIS/SEIR for a 60-day public review period from May 17 through July 17, 2013, so that agencies and the public may review the document and submit comments. As part of the notification process, the FTA and SANDAG sent the NOA, Notice of Completion, and the Draft SEIS/SEIR to federal, state, regional, and local government agencies, tribes, community groups, and other individuals, as specified in the List of Recipients included in the back of this Final

SEIS/SEIR. The NOA and Notice of Completion are included in Appendix B of this Final SEIS/SEIR.

Comments on the Draft SEIS/SEIR were submitted via mail, e-mail, voice mail, fax, and at each meeting via comment cards or by speaking to a court reporter. More than 350 people attended the four public meetings, and 20 people provided oral comments during the public hearing. In total, 309 comment submissions (e.g., comment cards, e-mails, and letters) were received containing 1,417 individual comments.

In March 2014, the federally endangered San Diego fairy shrimp was identified within the project impact footprint. The San Diego fairy shrimp within this basin would be directly impacted by the Refined Build Alternative. Therefore, in July 2014, the Supplement regarding impacts to and mitigation for the San Diego fairy shrimp within this basin was circulated for a 45-day review and comment period. Additionally, FTA initiated formal Section 7 consultation with the USFWS on June 12, 2014, regarding impacts to this species (refer to Appendix C for a copy of the initiation letter). A Biological Assessment was also transmitted to the USFWS at that time. On September 5, 2014, the USFWS issued a Biological Opinion concurring with the FTA's determination that the project is not likely to adversely affect coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, light-footed clapper rail, or critical habitat for these species. While the project would directly affect San Diego fairy shrimp, the Biological Opinion concludes that the project is not likely to jeopardize the continued existence of the San Diego fairy shrimp, and included authorization for incidental take of San Diego fairy shrimp. The Biological Opinion is included in Appendix C of this Final SEIS/SEIR.

Comments on the Supplement were accepted via mail, e-mail, voice mail, and fax. In total, nine comment submissions (e.g., e-mails, voice mails, and letters) were received containing ten individual comments.

The outreach effort continued after the close of the Draft SEIS/SEIR and Supplement comment periods. SANDAG continued to brief community groups and other stakeholder groups throughout the project area regarding the project. The focus of the briefings and coordination efforts primarily related to discussion of comments received on the project and the Draft SEIS/SEIR and refinements made to the project in response to comments. Refer to Chapter 8.0, Section 8.8 of this Final SEIS/SEIR for a summary of coordination efforts that have occurred since the close of the Draft SEIS/SEIR and Supplement public review periods.

S.7 Areas of Controversy and Issues to be Addressed

In addition to the decisions regarding the Refined Build Alternative, the following design and construction-related issues and special activities will need to be addressed as planning and design of the project proceeds:

Site-specific studies will be required to develop precise impact avoidance and mitigation plans and to ensure compliance with applicable codes and ordinances to support final design of the project. These include the following:

- A project-specific Paleontological Resources Monitoring and Mitigation Plan, which would specify the appropriate mitigation measures to be implemented in the event fossil remains are identified during ground disturbance and allow for the salvage of potentially scientifically significant fossils and associated data that otherwise might be lost to earth-moving and to unauthorized fossil collecting. The preparation of the plan is included as a mitigation measure.
- Additional geologic studies for design and code compliance purposes, which would further define any geological faults and fault ruptures in the corridor that could affect the design of structures at Balboa Avenue, the Rose Creek South Bridge, and the Rose Creek LRT Overhead Bridge. These studies would support final design and to assist in the refinement of the design to avoid/minimize the risk of fault ruptures.
- A project-specific biological resources mitigation plan, which would identify mitigation locations and the type and area of habitat to be created or enhanced for impacts to sensitive vegetation communities and wetlands. The preparation of the plan is included as a mitigation measure.

Stakeholder, agency, and community coordination will be required during advanced design, including the following:

- Coordination with the USFWS to approve the off-site mitigation plan for impacts to San Diego fairy shrimp.
- Coordination with CCC to address impacts to potential Environmentally Sensitive Habitat Areas and CCC wetlands through the Coastal Development Permit process.
- Coordination with Caltrans and the USACE to minimize impacts to Rose Creek at the crossing below SR 52.
- Coordination with the City of San Diego to avoid and minimize impacts to Marian Bear Memorial Park.
- Coordination with the USACE, the SDRWQCB, the California Department of Fish and Wildlife, and the CCC to identify and approve ratios and specific locations for compensatory mitigation for impacts to biological resources, including sensitive vegetation communities and wetlands.
- Coordination with stakeholder user groups and the City of San Diego during study and design regarding a temporary bicycle path near the Rose Canyon Bicycle Path for use during construction between SR 52 and La Jolla Colony Drive.
- Coordination with the community and stakeholders regarding input with respect to station design and identification of structural and landscaping measures to minimize impacts on visual resources.
- Coordination with property owners/agencies regarding the construction schedules for other projects.
- Coordination regarding constructability issues related to phasing of a second Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency track across the San Diego River, possibly replacing the existing track, and adding the Mid-Coast Corridor Transit Project track over the San Diego River.

- Coordination with stakeholders, including emergency service providers, hospitals, businesses, residences, the City of San Diego, the County of San Diego, and UCSD during construction as identified and documented in the public outreach plan for the Transportation Management Plan.

S.8 Next Steps

The SANDAG Board of Directors will hold a meeting to certify the Final SEIS/SEIR and approve the Mid-Coast Corridor Transit Project; oral testimony will be accepted during this meeting. A notice of this meeting will be sent to all whom submitted comments on the Draft SEIS/SEIR and Supplement, as well as to property owners where temporary easements and/or permanent easements or acquisitions are required by the project.

S.9 Intended Use

This combined Final SEIS/SEIR and ROD will be used by the SANDAG Board of Directors to assess the environmental impacts that would result from changes in the project since its approval in 1995, to guide refinements of the LPA alignment, and to identify mitigation measures necessary for final certification of the SEIR and approval of the project and construction contract. FTA has used the Final SEIS to consider the economic, social, and environmental effects of the project and has issued a ROD for the Final SEIS (provided in Appendix D of this Final SEIS/SEIR).

As the lead agencies, FTA and SANDAG invited the Federal Highway Administration, with Caltrans acting as its agent, and the USACE to be cooperating agencies (i.e., any federal agency that has jurisdiction with respect to any environmental impacts that may be caused by the proposed project). In addition, FTA and SANDAG invited numerous participating agencies (i.e., any federal, tribal, state, regional, or local government agencies that may have an interest in the project). As listed in Chapter 3.0, Table 3-1 of the *Mid-Coast Corridor Transit Project Agency Coordination Plan* (SANDAG, 2011d), FTA and SANDAG identified 46 federal, tribal, state, and local agencies as potential participating agencies. Chapter 4.0, Section 4.22 of this Final SEIS/SEIR identifies anticipated permits for which this environmental document will be used. Chapter 8.0 of this Final SEIS/SEIR presents a discussion of coordination/consultation efforts conducted to date.

THIS PAGE INTENTIONALLY LEFT BLANK

1.0 PURPOSE AND NEED

The Federal Transit Administration (FTA) and the San Diego Association of Governments (SANDAG) have prepared this Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR) for the Mid-Coast Corridor Transit Project in San Diego, California. This Final SEIS/SEIR supplements the following environmental documents: the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board [MTDB], 1995a); *the Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b); and the *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement* (MTDB, 2001). The FTA is serving as lead agency for the SEIS in accordance with the National Environmental Policy Act (NEPA), and SANDAG is serving as lead agency for the SEIR in accordance with the California Environmental Quality Act (CEQA).

The Mid-Coast Corridor Transit Project is identified in both the *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a) and the *2050 Regional Transportation Plan: Our Region, Our Future* (2050 RTP) (SANDAG, 2011a). The 2030 RTP is the subject of the *Final Environmental Impact Report for the 2030 San Diego Regional Transportation Plan: Pathways for the Future* (SANDAG, 2007c), and the 2050 RTP is the subject of *Our Region, Our Future, 2050 Regional Transportation Plan/Sustainable Communities Strategy Final Environmental Impact Report* (SANDAG, 2011c). These documents provide a programmatic level of review for the Mid-Coast Corridor Transit Project based on information available at the time of preparation.

This chapter identifies the purpose of and the need for transit improvements in the Mid-Coast Corridor. This chapter presents a summary of the project background. It then describes the corridor, with a focus on land use and growth trends, travel demand, the existing transportation system, and the current and projected system performance. It concludes with a statement of project purpose and a list of the specific transportation needs to be addressed by the project.

As identified in this chapter, the purpose of the proposed project is to provide for improvements to transit service in the Mid-Coast Corridor between Downtown San Diego, Old Town, and University City. Although the Mid-Coast Corridor is currently served by transit, the existing transit system does not offer the level of service needed to meet the region's goals for mobility, accessibility, reliability, and efficiency. The speed and reliability of bus service in the corridor are constrained by roadway congestion, and many transit riders are required to transfer in Downtown San Diego or at the Old Town Transit Center (OTTC) to reach major travel destinations in University City. With congestion projected to worsen in the future with the projected growth in population and employment, the level of service, reliability, and efficiency of the transit system will all decrease. To meet the region's goals most effectively, the Mid-Coast Corridor needs a transit system that is better able to serve destinations in University City. This transit system must provide a frequency of service, speed, and reliability that would better serve existing transit riders and attract new riders. The project, which extends the San Diego Trolley (Trolley) Blue Line north and connects with the other Trolley lines using an exclusive right-of-

way for transit, would shorten travel times, improve reliability, and reduce the number of transfers required for travel to destinations in University City, thereby addressing the identified transportation needs in the corridor.

1.1 Project Background

The Mid-Coast Corridor Transit Project was first identified as a transit project in 1987 when voters approved Proposition A, the county's half-cent transportation sales tax measure (*TransNet*). The environmental review process began in 1990 with a Notice of Intent to prepare an Environmental Impact Statement.

The *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (MTDB, 1995a) was completed in February 1995. In December 1995, MTDB certified the *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b) for purposes of CEQA and adopted a Locally Preferred Alternative (LPA) to extend the existing light rail transit (LRT) system from the OTTC north to University City. An initial phase of the project, from just south of the San Diego River to Balboa Avenue, was the subject of a Final Environmental Impact Statement (MTDB, 2001) and Record of Decision in August 2001.

Following transfer of MTDB planning, programming, project development, and construction functions to SANDAG, the SANDAG Board of Directors in December 2003 approved an update to the 1995 LPA alignment to better serve the University of California, San Diego (UCSD) campus on both the east and west sides of Interstate (I-) 5 and to improve connections with existing and planned transit services at the University Towne Centre (UTC) Transit Center. In April 2005, the SANDAG Transportation Committee approved re-combining the Balboa Extension with the University City Extension into a single project extending from the OTTC to University City and approved initiating the supplemental environmental review for the project. To complete supplemental environmental review, SANDAG and FTA agreed to develop an SEIS in accordance with 23 Code of Federal Regulations 771.130, and SANDAG decided to prepare an SEIR in accordance with Section 15162 of the CEQA Guidelines.

In 2008, SANDAG initiated an analysis of changed conditions in the Mid-Coast Corridor since the previous environmental studies were completed. The analysis of changed conditions was the initial step in the preparation of the SEIS/SEIR. The analysis included consideration of alternatives to the 2003 LPA alignment and station locations, as well as an evaluation of bus rapid transit and commuter rail alternatives. During May 2010, SANDAG conducted scoping under CEQA to solicit public and agency comments on the alternatives under consideration. The results of the scoping process and the alternatives considered are described in the *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e). Comments received by SANDAG during CEQA scoping are summarized in the *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f). See Section 2.1.1 for additional information regarding prior studies. In 2010, the SANDAG Board of Directors reaffirmed the LPA as an extension of the Trolley system from the OTTC to University City.

On July 12, 2011, FTA issued a Notice of Intent in the *Federal Register*, inviting comments on the proposed scope of the Draft SEIS, the purpose and need for the project, and the alternatives to be included in the Draft SEIS/SEIR. SANDAG conducted numerous outreach activities. The *Mid-Coast Corridor Transit Project National Environmental Policy Act Scoping Report* (SANDAG, 2011b) documents the NEPA scoping process and its results, including comments received.

On May 17, 2013, FTA issued a Notice of Availability for the *Mid-Coast Corridor Transit Project Draft SEIS/SEIR* (SANDAG, 2013a) in the *Federal Register*, inviting comments during a 60-day public comment and review period. The Notice of Completion was filed with the State Clearinghouse on May 14, 2013. The Draft SEIS/SEIR evaluated a No-Build Alternative and a Build Alternative with two options. One option, the Veterans Administration (VA) Medical Center Station Option, evaluated an additional station at the VA Medical Center, and the other option, the Genesee Avenue Design Option, proposed straddle bents instead of center columns for the aerial alignment along Genesee Avenue in University City.

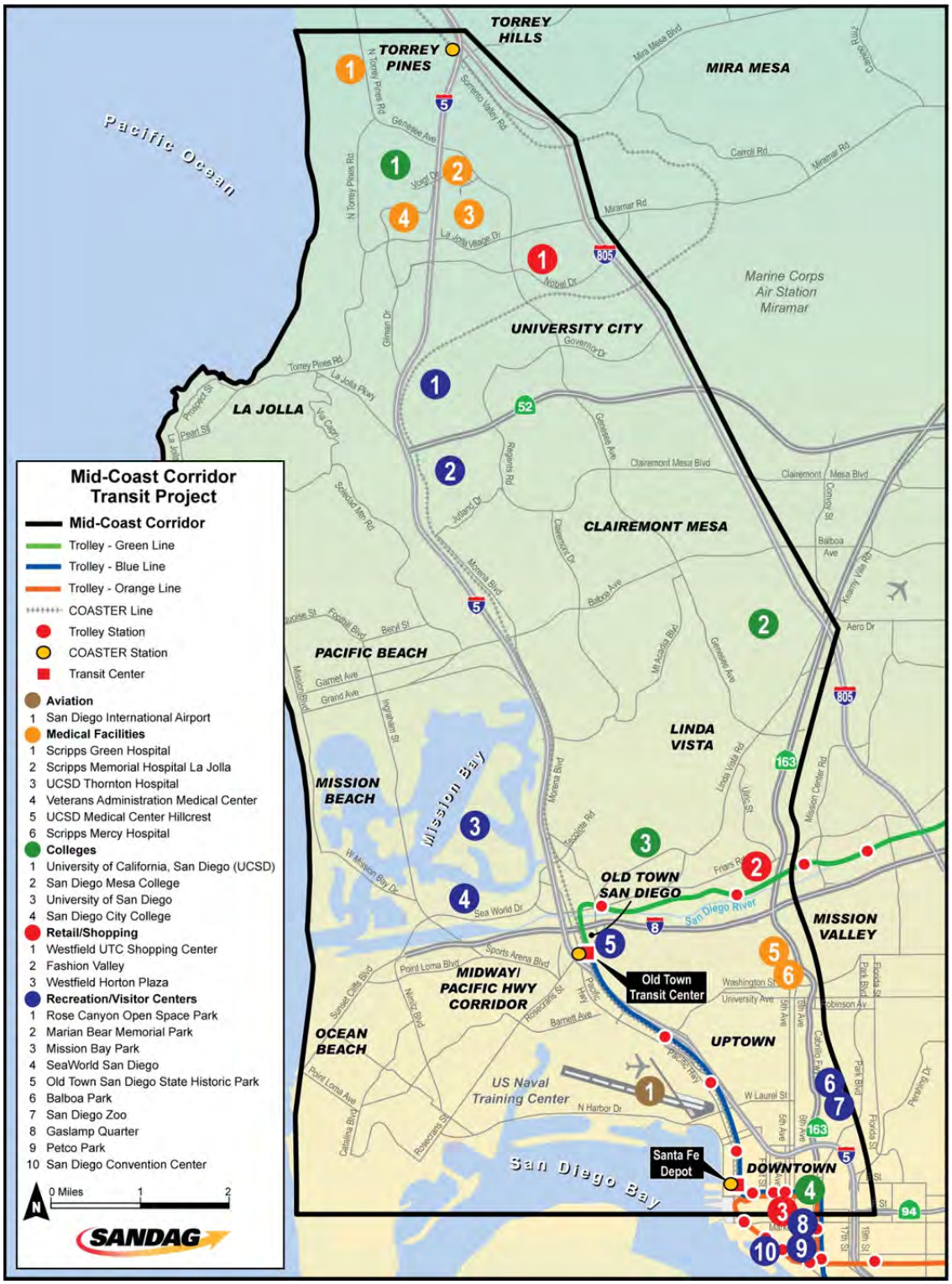
Four public meetings and one public hearing were held during the public comment and review period on the Draft SEIS/SEIR, which occurred from May 17, 2013 through July 17, 2013. Based on comments received on the Draft SEIS/SEIR and further analysis, refinements were proposed to the Build Alternative evaluated in the Draft SEIS/SEIR. The proposed Refined Build Alternative included the additional station at the VA Medical Center and eliminated the Genesee Avenue Design Option from further consideration. The proposed refinements also included changes to the alignment, stations, and other components of the Build Alternative. The SANDAG Board of Directors approved the proposed Refined Build Alternative on November 15, 2013 and amended the Refined Build Alternative on May 9, 2014 as the project for evaluation in the Final SEIS/SEIR, as documented in the *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report* (SANDAG, 2014dd).

Subsequent to distribution of the Draft SEIS/SEIR, a new impact to the federally listed endangered San Diego fairy shrimp (*Branchinecta sandiegonensis*) was identified. A limited-scope environmental document to supplement the Draft SEIS/SEIR was prepared to address this new impact. On July 18, 2014, the FTA issued a Notice of Availability for the *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/Supplement to the Subsequent Environmental Impact Report* (SANDAG, 2014ee) in the *Federal Register*, inviting comments on the potential impacts to, and proposed mitigation for, the San Diego fairy shrimp during a 45-day public comment and review period from July 18, 2014 to September 2, 2014. The Notice of Completion was filed with the State Clearinghouse on July 11, 2014.

1.2 Mid-Coast Corridor Description

The Mid-Coast Corridor is the area centering on I-5 and extending from Downtown San Diego on the south to UCSD and University City on the north (Figure 1-1). Located entirely within the City of San Diego, the Mid-Coast Corridor is bounded by the Pacific Ocean on the west and by I-805 and State Route (SR) 163 on the east. The corridor is topographically varied, with terrain ranging from coastal beaches and bays to inland areas that contain steep hillsides and narrow canyons.

Figure 1-1. Mid-Coast Corridor Study Area



Source: SANDAG, 2012
Note: The Trolley lines shown represent the 2010 Trolley operating plan.

1.2.1 Population and Employment

The population within the San Diego region is growing. According to the SANDAG Series 11 Travel Demand Forecasting Model (Series 11 model) forecasts of population and employment (*2030 Regional Growth Forecast Update: Process and Model Documentation,* SANDAG, 2008a), the county population will grow from about 3.18 million people in 2010 to 3.91 million people by 2030, an increase of 23 percent. The population within the Mid-Coast Corridor is forecast to increase by 19 percent, from 358,000 people in 2010 to nearly 425,000 people in 2030. The resident population in Downtown San Diego is predicted to almost double by 2030, to almost 80,000 people.

The Mid-Coast Corridor contains over 10 percent of regional employment, with concentrations in both Downtown San Diego and University City. The number of jobs within University City approaches the number in Downtown San Diego, making these the two largest employment centers in the region. Between 2010 and 2030, employment in the Mid-Coast Corridor is predicted to increase 12 percent, from about 326,000 to over 364,000.

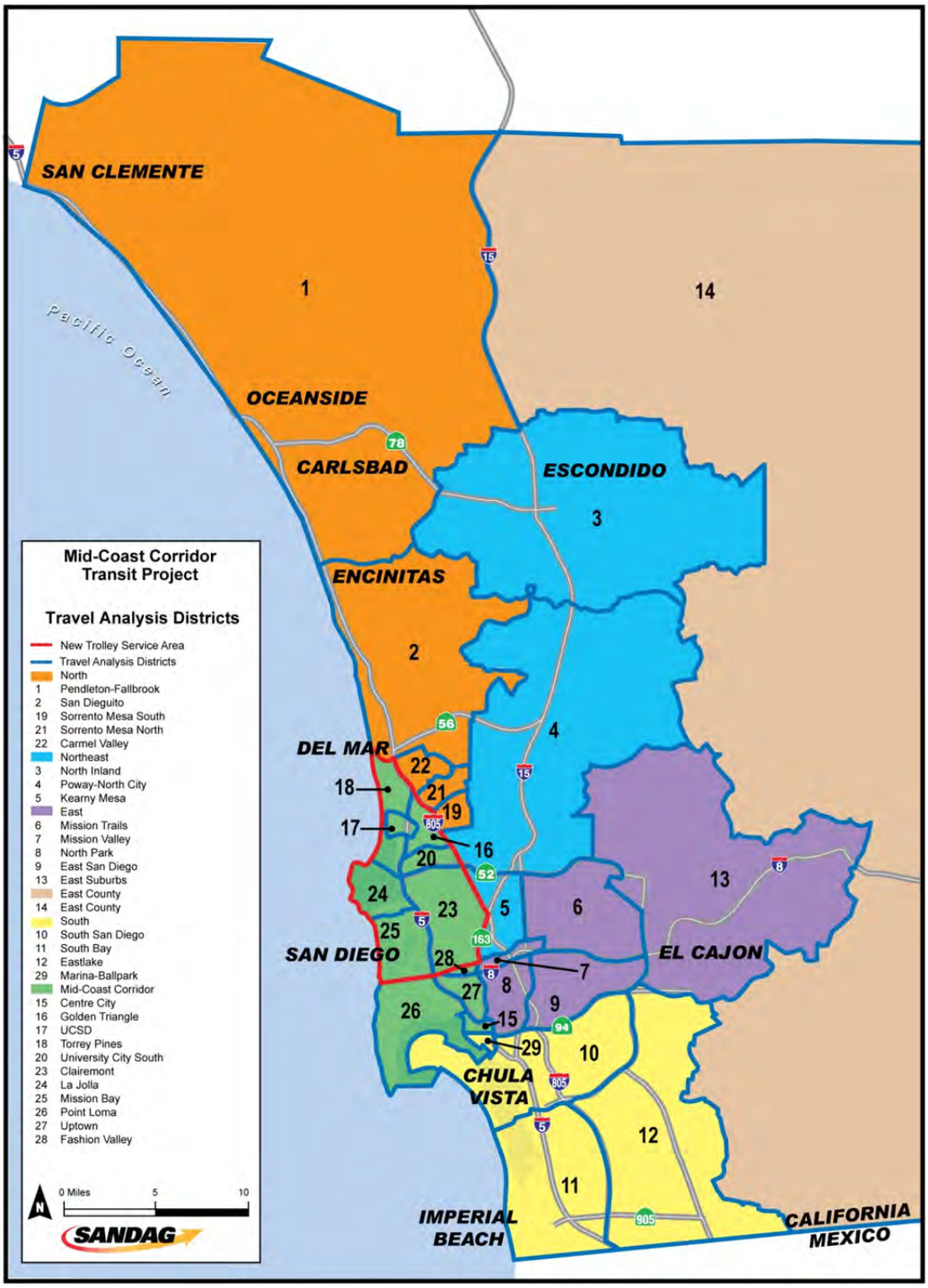
Figure 1-2 shows the 29 travel analysis districts within the Mid-Coast Corridor region. These districts form the geographic units used to forecast population, employment, and travel demand. To capture trips to and from areas outside the region, an additional district was included in the analysis. The Mid-Coast Corridor is shaded green in the figure, and the various travel analysis districts are identified by number. Between 2010 and 2030, SANDAG predicts that employment in the Golden Triangle (District 16) and UCSD (District 17) will increase by 14 and 8 percent, respectively. The two travel analysis districts that comprise Downtown San Diego, the Centre City (District 15) and Marina-Ballpark (District 29), are predicted to experience job growth of 20 and 24 percent, respectively. Marina-Ballpark (District 29) is located immediately south of the Mid-Coast Corridor.

1.2.2 Land Use

The Mid-Coast Corridor is characterized by dense urban centers and an abundance of regional activity centers and other major trip generators. Dense population and employment centers currently anchor both the northern and southern ends of the Mid-Coast Corridor. The UCSD campus, the Westfield UTC shopping center, and regional hospitals are clustered in the north part of the corridor and represent the second most dense land uses in the county. At the south end of the corridor is the region's only identified Metropolitan Center—Downtown San Diego—with the region's densest land uses and high-rise development. Other major land uses within or immediately adjacent to the corridor, as shown in Figure 1-1, include the following:

- Regional hospitals: Scripps Green Hospital, Scripps Memorial Hospital La Jolla, UCSD Thornton Hospital, VA Medical Center, UCSD Medical Center Hillcrest, and Scripps Mercy Hospital
- Major colleges and universities: UCSD, University of San Diego, San Diego Mesa College, and San Diego City College
- Regional shopping centers: Westfield UTC, Fashion Valley, and Westfield Horton Plaza

Figure 1-2. Travel Analysis Districts



Source: SANDAG, 2012

- Major parks and visitor attractions: Mission Bay Park, San Diego Zoo, SeaWorld San Diego, Old Town San Diego State Historic Park, Balboa Park, the Gaslamp Quarter, San Diego Convention Center, Petco Park, Rose Canyon Open Space Park, and Marian Bear Memorial Park
- San Diego International Airport

Housing densities in the corridor tend to exceed those of the county as a whole. In the Golden Triangle (District 16) and Mission Bay (District 25) travel analysis districts, current densities of 28 and 21 dwelling units per acre (du/acre) are well above the 13 du/acre county average. Three other travel analysis districts within, or adjacent to, the corridor also have higher-than-average residential densities—Uptown (District 27) at 19 du/acre, Mission Valley (District 7) at 30 du/acre, and Centre City (District 15) at 114 du/acre. All three areas are predicted to have increased housing densities by 2030.

The *Regional Comprehensive Plan for the San Diego Region* (RCP) (SANDAG, 2004a) calls for increased density in both the Downtown San Diego and University City areas, which are the population and employment centers anchoring the northern and southern ends of the corridor. A key implementation tool for local jurisdictions of the RCP is the *Smart Growth Concept Map* (SANDAG, 2008b) approved in 2006 and updated in 2008. The map identifies approximately 200 existing, planned, and potential smart growth locations identified by 18 cities and the County of San Diego as Smart Growth Opportunity Areas. All nine proposed stations in the Refined Build Alternative are located within Smart Growth Opportunity Areas. In addition, the corridor between the Tecolote Road and Clairemont Drive Stations is identified as a Mixed Use Transit Corridor.

Additional information on current and planned land use is provided in the *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report* (SANDAG, 2014d).

1.2.3 Trip Purposes and Travel Patterns

As regional population and employment increase, travel is expected to increase as well. People travel to, from, through, and within the corridor for a variety of purposes. The Series 11 model is used to predict travel and usage of the transportation system in 2030 by trip purpose and travel market.

The model identifies 10 trip purposes, such as trips from home to work or home to school. These are trips made by an individual regardless of the transportation mode they use to travel. Each trip has a beginning or origin, and an ending or destination. Thus, each trip has two trip ends—a production end and an attraction end. Trips taking place entirely within the corridor are internal trips, while those having a trip end outside the corridor are external trips. Trips coming into the corridor are external productions, and trips originating with the corridor and leaving it are external attractions. Table 1-1 shows a breakdown, by purpose, of the 2010 and 2030 daily trips that have one or both trip ends within the Mid-Coast Corridor for the 10 trip purposes. Travel to, from, and within the corridor represents approximately 20 percent of the 18 million trips that occurred daily within the San Diego region. The region includes San Diego County and trips entering and leaving the county from the surrounding counties and across the U.S. border into Mexico.

Table 1-1. 2010 and 2030 Daily Trips To, From, and Within the Mid-Coast Corridor by Trip Purpose

Trip Purpose	Trips to the Corridor (External Production)	Trips from the Corridor (External Attraction)	Trips within the Corridor (Internal)[1]	Total Trips Attracted to the Corridor (Internal + External Production)	Total Trips Produced by the Corridor (Internal + External Attraction)
2010 Daily Trips					
Home-Work	243,300	124,900	149,700	393,000	274,600
Home-College	50,600	3,200	19,700	70,300	22,900
Home-School	43,000	2,500	62,000	105,000	64,500
Home-Shopping	21,100	77,300	174,000	195,100	251,300
Home-Other	174,500	151,800	328,100	502,600	479,900
Work-Other	113,900	150,500	231,900	345,800	382,400
Other-Other	218,300	218,200	411,300	629,600	629,500
Serve Passenger[2]	58,400	44,600	192,800	251,200	237,400
Visitor	28,200	129,900	146,300	174,500	276,200
Airport	96,600	0	18,600	115,200	18,600
Total	1,047,900	902,900	1,734,400	2,782,300	2,637,300
2030 Daily Trips					
Home-Work	262,900	133,900	183,100	446,000	317,000
Home-College	55,100	2,800	21,200	76,300	24,000
Home-School	45,100	3,100	63,500	108,600	66,600
Home-Shopping	20,700	92,900	190,200	210,900	283,100
Home-Other	215,400	196,900	422,700	638,100	619,600
Work-Other	130,100	168,700	269,500	399,600	438,200
Other-Other	251,100	250,900	492,800	743,900	743,700
Serve Passenger[2]	73,600	53,400	230,100	303,700	283,500
Visitor	32,100	171,100	196,200	228,300	367,300
Airport	164,000	0	28,700	192,700	28,700
Total	1,250,100	1,073,700	2,098,000	3,348,100	3,171,700

Source: Series 11 model
Notes: [1] Internal trips have both ends within the corridor.
[2] Serve passenger trips are home-based trips taken to assist a passenger in the vehicle (e.g., a parent dropping a child off at daycare).

In 2010, the Mid-Coast Corridor attracted approximately 2.8 million daily trips, which on a daily basis are about 200,000 more trips than it produced. Of these trips, about 393,000 (14 percent) were home-to-work trips, reflecting the strong employment centers within the corridor, and more than 175,000 (6 percent) were home-to-college and home-to-school trips, reflecting the strong educational centers in the corridor.

Home-to-work, home-to-college, and home-to-school trips tend to occur during peak periods (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.). Of note, in 2010, more than 50,000 of the approximately 73,500 home-to-college trips (i.e., the sum of trips to, from, and within the corridor) were produced outside the corridor. Together with home-to-work trips headed to University City, home-to-college trips contributed to a strong reverse

commute travel pattern (i.e., during the a.m. peak, travel north in the corridor tends to be heavier than travel south to Downtown San Diego).

To understand travel behavior better, an analysis was conducted that focused on the seven travel analysis districts within the corridor that lie north of I-8. These seven districts are outlined in red in Figure 1-2, and are referred to herein as the New Trolley Service Area. The New Trolley Service Area is the area that would be served by the proposed extension of the Trolley system north of the OTTC. Table 1-2 presents information on the origins and destinations of trips to and from the New Trolley Service Area from other parts of San Diego County. In 2010, more than 600,000 trips per day were attracted to the New Trolley Service Area, while over 670,000 daily trips were produced by the New Trolley Service Area and attracted to other parts of the county. By 2030, the number of trips attracted to the New Trolley Service Area is expected to grow by 17 percent, to more than 700,000 per day.

Table 1-2. Direction of Daily External Trips to/from New Trolley Service Area, 2010 and 2030

Generalized Direction	2010				2030			
	Trips Attracted to New Trolley Service Area (External Production)		Trips Produced in New Trolley Service Area (External Attraction)		Trips Attracted to New Trolley Service Area (External Production)		Trips Produced in New Trolley Service Area (External Attraction)	
North	120,400	20%	127,400	19%	132,800	19%	141,700	19%
Northeast	147,500	25%	223,000	33%	168,100	24%	243,000	33%
East	145,600	24%	127,400	19%	173,000	24%	139,300	19%
South	180,300	30%	186,700	28%	219,700	31%	206,000	28%
East County	7,700	1%	6,000	1%	13,100	2%	8,600	1%
Total	601,500		670,500		706,700		738,600	

Source: Series 11 model

In 2010, the New Trolley Service Area attracted 180,300 more daily trips from the south, including Downtown San Diego (Centre City [District 15] and Marina-Ballpark [District 29] travel analysis districts), than were attracted from other parts of the region. Substantial travel also was attracted from the east and northeast. Similarly, travel produced within the New Trolley Service Area tended to be headed northeast and south. These travel patterns are not expected to change substantially by 2030, although the number of trips is projected to grow. This is because the land use patterns within the New Trolley Service Area are not expected to change substantially.

The *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) provides a more detailed discussion of the data summarized in Table 1-2, which shows that by 2030:

- About 45 percent of trips that will be attracted to the New Trolley Service Area from the east will originate in the Mission Valley (District 7), Mission Trails (District 6), and East San Diego (District 9) travel analysis districts, while 52 percent of trips leaving the New Trolley Service Area for the east will have destinations in these same three travel

analysis districts. These districts are currently served by the Trolley Green Line, as described in Section 1.3.1.2.

- Of the trips that will be attracted to the New Trolley Service Area from the south, more than 55 percent will originate in the South Bay (District 11), South San Diego (District 10), Centre City (District 15), Marina-Ballpark (District 29), and Uptown (District 27) travel analysis districts, currently served by the Trolley Blue Line. Over 48 percent of all trips leaving the New Trolley Service Area for areas to the south will have destinations in these districts.
- Approximately 24 percent of all home-to-college trips to the UCSD (District 17) travel analysis district will originate from the New Trolley Service Area and 16 percent will originate from the south, with 66 percent of these originating in the South San Diego (District 10), South Bay (District 11), Centre City (District 15), Marina-Ballpark (District 29), and Uptown (District 27) travel analysis districts. Approximately 11 percent of home-to-college trips that will be attracted to the UCSD (District 17) travel analysis district will originate in the east, particularly in the North Park (District 8) and East Suburbs (District 13) travel analysis districts.

In addition to these trips to and from the New Trolley Service Area, the Series 11 model shows substantial travel within the New Trolley Service Area. By 2030, more than one million daily trips will have both ends within the New Trolley Service Area.

1.2.4 Major Transit Markets

Some of the travel markets described in the previous section lend themselves to transit use more than others. For example, high concentrations of trips are better suited to transit because the service can be offered more frequently, making transit more attractive to those "choice riders" who have an automobile available, and therefore have a choice of travel modes. People also are more likely to use transit when their destination is a relatively dense, mixed-use area where good pedestrian or other transit connections are available.

The *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) presents data on trip density (the number of daily trips per developable acre) to and from the New Trolley Service Area. In 2010, the densest travel markets are trips that have both trip ends within the New Trolley Service Area. Travel between this area and the five travel analysis districts to the south and east also is quite dense. In terms of trip density, the best potential areas to increase transit use are as follows:

- Travel entirely within the New Trolley Service Area is projected to increase by 15 percent in 2030.
- Travel between the New Trolley Service Area and the Centre City (District 15), Marina-Ballpark (District 29), and Uptown (District 27) travel analysis districts to the south is projected to grow by 17 percent by 2030.
- Travel between the New Trolley Service Area and the Mission Valley (District 7) and Fashion Valley (District 28) travel analysis districts to the east is projected to grow by 17 percent by 2030.

Although the South San Diego (District 10) and South Bay (District 11) travel analysis districts are not among the highest in trip density, there is a substantial amount of travel between the New Trolley Service Area and these districts, indicating that these transit markets are major markets for the Mid-Coast Corridor Transit Project as well.

1.3 Corridor Transportation Facilities and Services

The existing transportation system in the Mid-Coast Corridor[1] includes a transit system consisting of commuter and regional rail, LRT, and bus transit services and facilities; and a roadway and highway system consisting of freeways, arterials, and local streets. Freight rail service also operates within the corridor. Major transportation facilities and transit services within the corridor are shown in Figure 1-3, Figure 1-4, and Figure 1-5, and are discussed below. Additionally, bicycle and pedestrian facilities, including bicycle paths, bicycle lanes, and sidewalks, are located throughout the corridor, as described in Section 3.3.3 in Chapter 3.0.

1.3.1 Transit System

This section describes the existing transit system serving the Mid-Coast Corridor and planned system improvements, which would occur with or without the Mid-Coast Corridor Transit Project. The system includes commuter rail, intercity passenger rail, LRT, buses, and various paratransit and shuttle services.

1.3.1.1 Commuter Rail Transit and Intercity Passenger Rail

The COASTER commuter rail line and Amtrak intercity passenger rail both operate within the Mid-Coast Corridor. The COASTER is operated by the North County Transit District and provides service between Downtown San Diego and Oceanside, located north of the Mid-Coast Corridor. Three COASTER stations are in the Mid-Coast Corridor—the Santa Fe Depot and the OTTC at the south end of the corridor and Sorrento Valley at the north end. On weekdays, the COASTER operates 11 trains in each direction, with peak-period headways (time between trains) as short as 35 minutes. Four trains in each direction are operated on Saturdays, Sundays, and holidays.

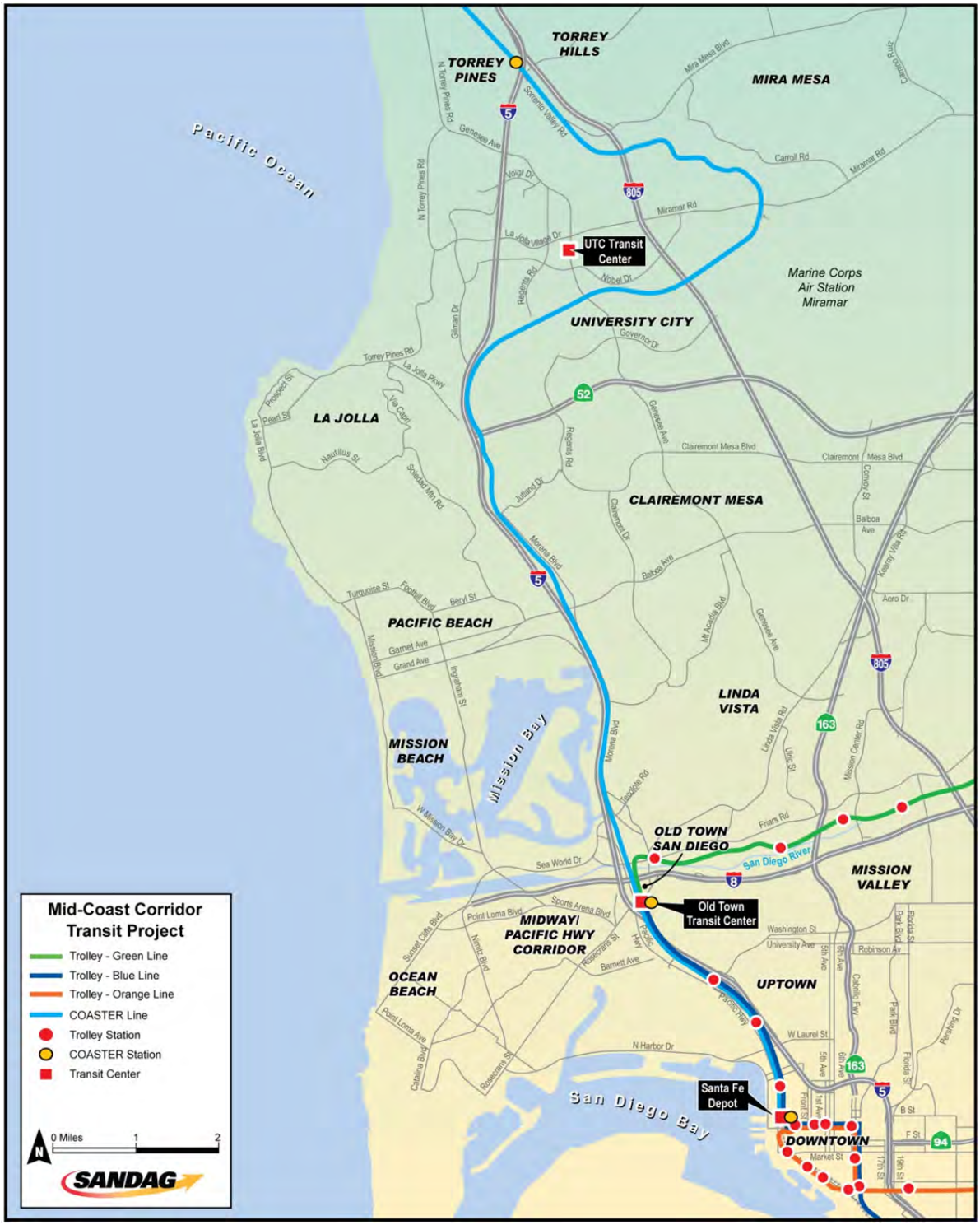
Intercity service is provided by Amtrak on COASTER tracks and departs from the Santa Fe Depot in Downtown San Diego. Amtrak operates 11 trains each weekday and 12 trains on weekends in each direction. One additional train operates in each direction on Friday evenings. On weekdays, five southbound Amtrak trains and one northbound train stop at the OTTC. On weekends, two additional northbound Amtrak trains stop at the OTTC.

1.3.1.2 Light Rail Transit

San Diego's existing LRT system (the Trolley) consists of three lines (Figure 1-4). Under existing conditions, the Trolley Blue Line runs from the U.S.–Mexico international border through Downtown San Diego to the OTTC along the Metropolitan Transit System (MTS) right-of-way. The Trolley Orange Line runs from Santee, La Mesa, and Lemon Grove to

[1] Existing conditions generally refers to conditions in 2010 when the Notice of Preparation for CEQA was issued.

Figure 1-3. Existing Transportation System in the Mid-Coast Corridor



Source: SANDAG, 2012
Note: The Trolley lines shown represent the 2010 Trolley operating plan.

Figure 1-4. Existing Trolley System

Source: SANDAG, 2012
Note: The Trolley lines shown represent the 2010 Trolley operating plan.

Figure 1-5. Bus Service in the Mid-Coast Corridor

Source: SANDAG, 2012

Downtown San Diego, where it also provides downtown with circulation-loop service. The Trolley Green Line operates from Santee through Mission Valley, roughly paralleling I-8, to its terminus at the OTTC. Transit users traveling north must transfer to bus, COASTER, or Amtrak services in Downtown San Diego or at the OTTC.

1.3.1.3 Bus Transit

Local and express buses operated by MTS provide transit service to and within the corridor, connecting at transit centers in Downtown San Diego, the OTTC, and the UTC Transit Center. Additionally, one bus route operated by the North County Transit District (Route 101) also serves the northern portion of the corridor, providing service from Oceanside Transit Center to the VA Medical Center and the UTC Transit Center. Four MTS bus routes operate along the entire corridor between Downtown San Diego and the UTC Transit Center (Figure 1-5). Operating along I-5, Routes 50 and 150 (express routes) offer the quickest and most direct bus transit service between downtown and UTC, with Route 150 serving UCSD and Route 50 serving Clairemont. Routes 50 and 150 have peak-period headways of between 15 and 30 minutes, while 60-minute headways are provided during off-peak periods. Service is not provided on these routes during evenings or weekends.

Local Route 105 serves nearly the full length of the corridor, traveling between the UTC Transit Center and the OTTC via local arterials in Clairemont. Route 105 operates at 30-minute headways during both peak and off-peak periods. Route 30 serves the corridor, but travels via La Jolla and Pacific Beach, with 15-minute headways during both peak and off-peak periods.

While travelers from the corridor to downtown are directly served by Routes 150 and 50, travel to other transit travel markets requires transfers, which typically occur at the OTTC (e.g., for trips to Mission Valley on the Trolley Green Line) or in downtown (for trips to areas south of downtown). Transfers add to travel time, and most riders perceive the time spent waiting ("out of vehicle time") as more onerous than "in-vehicle time" moving toward one's destination. In addition, access to the regional system through the OTTC is provided only by local buses, such as Route 105, that travel on slower, more circuitous, and less efficient routes. Express Routes 50 and 150 travel on I-5; however, Route 50 does not stop at the OTTC. Transfers between a bus and the Trolley at the OTTC also require a walk from the bus boarding area to the Trolley platform through an underground pedestrian tunnel. In 2030 under the No-Build Alternative, there are expected to be 11,600 transfers per day between the Trolley Green Line, the Trolley Blue Line, and Route 150.

Other bus services connect the UTC Transit Center and UCSD to areas outside the corridor, while other routes provide service within the corridor. The SuperLoop (Route 201/202) serves as an internal circulator between the University City and UCSD areas, providing frequent service.

1.3.1.4 Other Transit

MTS Access provides lift-equipped curb-to-curb public transportation services for eligible riders. The program operates in compliance with the Americans with Disabilities Act of 1990 (ADA). The ADA service parallels the rail and bus service system operating in the

MTS service area. Availability of service on any given day corresponds with the days and hours of operation of the Trolley and fixed-route buses.

In addition to the above, the Mid-Coast Corridor is currently served by UCSD student/faculty shuttles, medical paratransit to hospitals in the corridor, COASTER connection shuttles to the Sorrento Valley Station, and privately operated employee shuttles to business locations.

1.3.1.5 Planned Increases in Transit Service

The 2030 RTP provides for a substantial increase in transit service. The plan calls for upgrading existing transit services in key urban corridors, and pursuing new transit projects in the most urbanized areas of the region using a broad combination of transit strategies. Projects proposed for implementation by 2030 include the following:

- Increasing the frequency of service of the existing Trolley system
- Adding new bus rapid transit lines to provide high-frequency regional transit connections along high-demand corridors
- Developing a system of high-speed Rapid Bus services in key arterial corridors to supplement local bus services
- Double tracking the Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency coastal rail corridor to enable more frequent and reliable service on the COASTER and Amtrak
- Creating a system of high-frequency services on many existing local bus routes in urban core areas
- Reintroducing streetcar and/or shuttle/circulator services to improve mobility within downtown areas

1.3.2 Highway System

The system of freeways and major arterials serving the Mid-Coast Corridor is shown in Figure 1-3. I-5 is an interstate highway serving the entire west coast of the United States. This limited-access freeway passes through the center of the Mid-Coast Corridor and connects the San Diego metropolitan region with Los Angeles and other cities to the north and with Mexico to the south. There are currently no high-occupancy vehicle (HOV) lanes on I-5 between Downtown San Diego and University City, although both the 2030 RTP and the 2050 RTP include planned HOV lanes along I-5 through the corridor.

The Mid-Coast Corridor also is served by I-805 and SR 163, running north–south on the east side of the corridor, and by I-8 and SR 52, running east–west across the corridor. The 2050 RTP includes the addition of managed and HOV lanes with direct access ramps at several locations along I-805.

Major arterial routes that run east–west in the corridor include Balboa Avenue and Friars Road. La Jolla Village Drive is a major east–west roadway in the northern portion of the corridor. Because of topographic constraints, few major north–south arterials serve the

Mid-Coast Corridor, which increases traffic demand on I-5. Principal north–south arterials within the corridor include Pacific Highway in the southern portion; Morena Boulevard and Ingraham Street in the central portion; and Regents Road, Genesee Avenue, North Torrey Pines Road, and Gilman Drive in the north.

1.4 Transportation System Performance

This section presents the vision and goals established for the San Diego region, and assesses transit and highway system performance in terms of meeting those goals.

1.4.1 Regional Goals

SANDAG is responsible for regional planning, programming, project development, and construction of regional transportation projects. SANDAG's 2030 RTP was developed to meet the region's long-term mobility needs, better connect transportation and land use policy decisions, and create a transportation network that will serve the people of the region well into the 21st century. Adopted by the SANDAG Board of Directors in late 2007, the 2030 RTP includes policy objectives to guide the planning and development of the regional transportation system. As the operator of one of the region's two major transit systems, MTS is an advisory representative to the SANDAG Board of Directors. MTS assisted the SANDAG Board of Directors in development of the 2030 RTP and goals for the region. The goals in the 2030 RTP have guided the planning on the Mid-Coast Corridor Transit Project. They are as follows:

- Livability—Focus transit improvements in areas with compatible land uses that support an efficient transit system. Use regional transportation funding as an incentive for smarter-growth land uses.
- Mobility—Tailor transportation modal improvements to reflect supporting land uses in major travel corridors. Prioritize *TransNet* Early Action Program commitments and high-ranking projects and corridors for regional transportation funding. Minimize drive-alone travel by making it fast, convenient, and safe to carpool, vanpool, walk, and bike. Improve goods movement.
- Efficiency—Measure the performance of the regional transportation system on a regular basis and manage its efficiency. Develop cost-effective, voluntary incentive programs for major employers, schools, and residential areas.
- Accessibility—Increase transit mode share during peak periods with competitive transit travel time to major job centers. Encourage walkability and better bicycle access within local communities.
- Reliability—Apply new technologies and management strategies to make transit service more reliable, convenient, and safe and to reduce congestion.
- Sustainability—Focus roadway and transit improvements in urban/suburban areas, away from the region's rural areas. Improve air quality, reduce greenhouse gas (GHG) emissions, and limit impacts to sensitive habitats. Evaluate all reasonable noncapital transportation improvement strategies before pursing major expansions to roadway or fixed-guideway capacity.

- Equity—Provide equitable levels of transportation services for low-income, minority, and elderly and disabled persons.

These goals provide the basis for assessing current system performance and evaluating transit alternatives for 2030.

1.4.2 Transit System Performance

This section presents the results of the evaluation of the current transit system's performance in terms of the SANDAG goals of improving mobility, efficiency, accessibility, and reliability. The evaluation used the same transit performance measures and standards that SANDAG and MTS use during their periodic performance assessments of the regional transit system. While many of these measures are used to evaluate the transit system's performance as a whole, some can be applied to individual routes. Table 1-3 presents a summary of the performance. Additional details are available in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) and Chapter 3.0 of this Final SEIS/SEIR.

Table 1-3. Existing Transit System Performance, 2010

Transit Service	Average Speed (mph)		Average Weekday Boardings	Peak-Period Peak-Direction Load Factor	On-Time Performance		Passengers per Service Hour
	AM Peak	PM Peak			AM Peak	PM Peak	
Route 50	16.6 NB	16.6 SB 16.9 NB	1,139	0.45	93.4%	85.8%	27.9
Route 150	17.9 NB	17.6 SB 17.6 NB	2,101	1.17	91.3%	86.3%	43.1
Route 105	15.9 SB 16.0 NB	14.9 SB 15.2 NB	1,290	0.57	95.6%	85.8%	31.5
Route 30	13.9 NB	12.9 SB	6,654	1.35	92.1%	79.4%	31.6
Route 41	14.8 NB	14.1 SB 14.2 NB	3,888	1.19	92.6%	75.4%	43.4
Trolley Blue Line	20.0 (Daily)	20.0 (Daily)	52,416	1.88	93.1% (Daily)		278.4
Trolley Green Line	N/A	N/A	18,584	0.86	97.0% (Daily		170.0
Trolley Orange Line	N/A	N/A	20,284	1.51	93.4% (Daily)		126.5

Source: SANDAG, 2014v
Notes: mph = miles per hour; N/A = not available (average speed for the Trolley Green and Orange Lines was not available); NB = northbound; SB = southbound

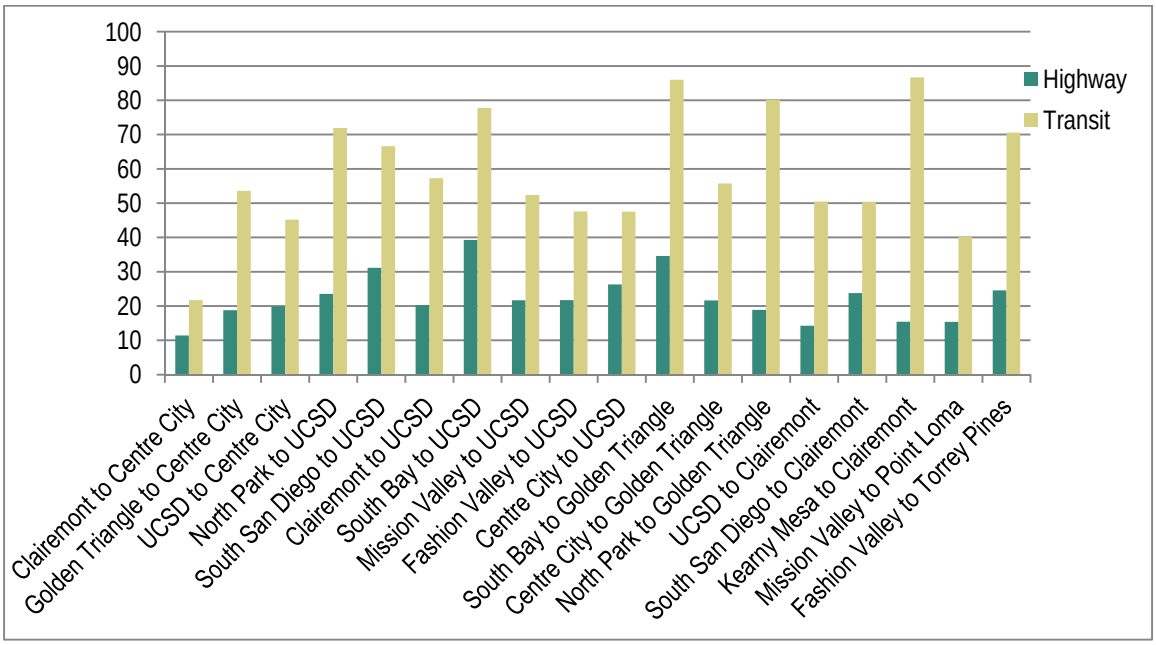
The analysis of transit performance excludes the COASTER commuter rail system and Amtrak, which carry passengers through the Mid-Coast Corridor. While both of these systems stop at the OTTC and the Santa Fe Depot, and the COASTER stops at Sorrento Valley Road at the northern end of the corridor, neither system effectively serves the University City area or the other travel markets that would be served by the Mid-Coast Corridor Transit Project.

1.4.2.1 Speed and Transit Time

One measure of transit mobility is average speed. Bus services in the Mid-Coast Corridor operate on I-5 and arterial streets, and experience the same congestion that auto drivers do. Because buses also make stops to pick up and drop off passengers, bus travel speeds are generally slower than auto speeds for a comparable trip. Currently, a 14-mile express bus trip between Downtown San Diego and the UTC Transit Center takes 48 minutes and has an average speed of 18.4 miles per hour. Local buses that operate on the non-continuous arterial streets between these two points and make more frequent stops are slower. In comparison, the existing Trolley Blue Line, which runs from the U.S.—Mexico international border through Downtown San Diego to the OTTC, averages 20 miles per hour.

Figure 1-6 compares highway and transit travel times between various trip origins and destinations in 2010 (refer to Figure 1-2 for the location of each origin and destination). For this comparison, transit travel time includes both time riding the transit vehicle and time waiting at a station for the transit vehicle to arrive, but does not include access time to and from the transit system. Transit station waiting time is assumed to be half the headway, which is the estimated time between transit vehicle arrivals. For example, trains with 15-minute headways would have an estimated station waiting time of 7.5 minutes.

Figure 1-6. Highway and Transit Travel Times between Travel Analysis Districts, Existing Conditions in 2010



Source: Series 11 model

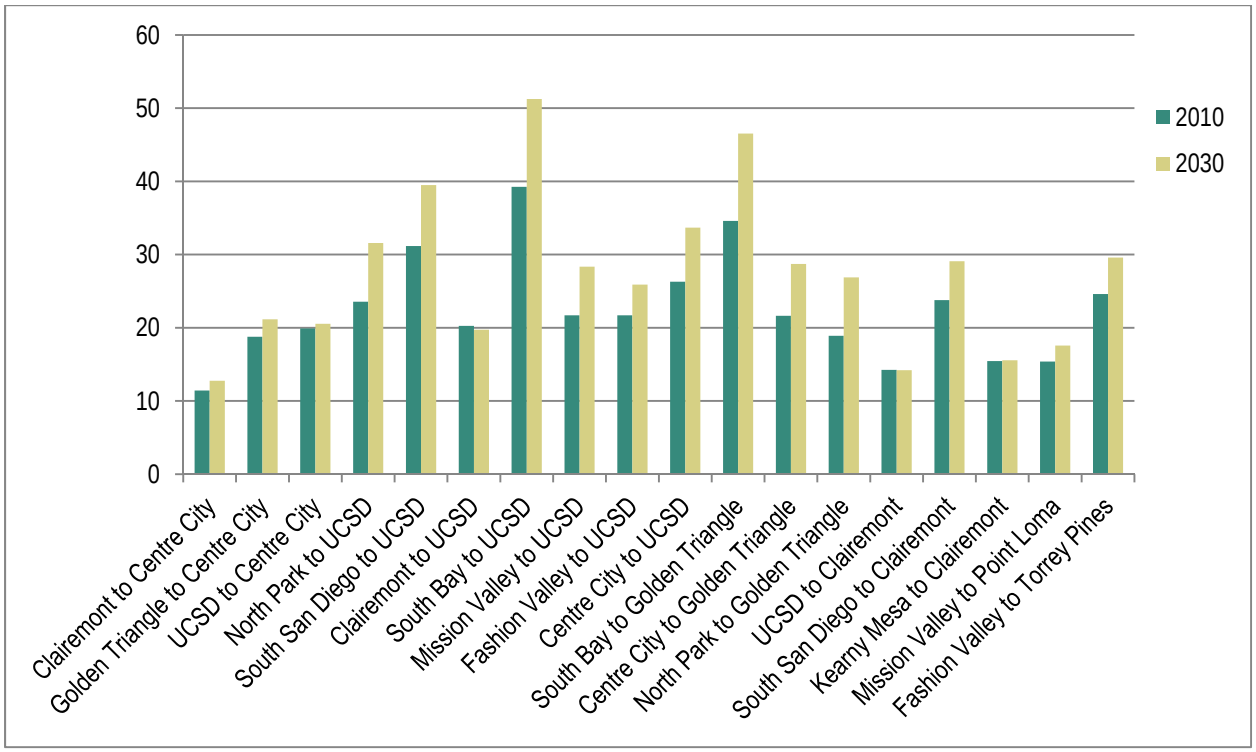
As shown, transit travel times are 50 to 200 percent longer than the highway travel time for the same trip. This is particularly true for those trips that require a transfer, such as trips between the Mission Valley (District 7), Fashion Valley (District 28), and UCSD (District 17) travel analysis districts, and trips between the South Bay (District 11) and the Golden Triangle (District 16) travel analysis districts. These are among the largest

travel markets identified in Section 1.2.3 and Section 1.2.4. For many, existing transit does not offer a competitive travel time with the automobile.

By 2030, even with implementation of the other projects in the 2030 RTP, speeds on many highways is projected to decline as travel increases (see Section 1.4.3), which will increase highway travel times (Figure 1-7). Increased bus service called for in the 2030 RTP will result in shorter wait times, helping to reduce transit travel time for some trips (Figure 1-8). However, increased congestion on the highway system will lead to slower speeds on many bus routes. As a result, transit travel times, on average, will be similar to those experienced in 2010. Although transit will be affected by highway system congestion and slower speeds, transit will continue to provide an alternative mode to travel by automobile, especially for those without access to an automobile.

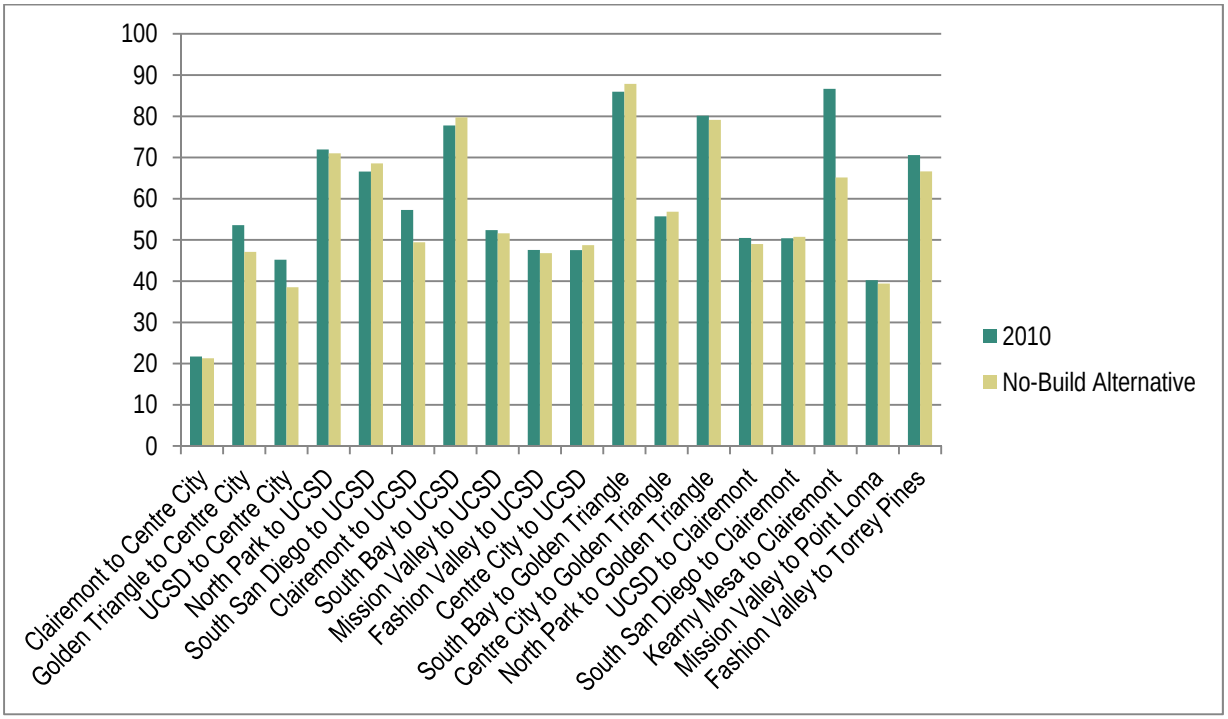
The analysis for future conditions in 2030 assumes the construction of HOV lanes along I-5 north of I-8. The HOV lanes will allow express buses on I-5 to travel more quickly while operating in the lanes. The lanes will not improve bus access from I-5 to the OTTC, however. Buses will still be required to travel nearly 1 mile on congested arterials to reach the I-5 interchange, and then they will be required to weave across the general purpose lanes to reach the HOV lanes. A similar weave will be necessary to leave the HOV lanes and access the UCSD/University City area. In 2030, an express bus ride between the UTC Transit Center and downtown is expected to take longer than today, even with the addition of the HOV lanes.

Figure 1-7. Highway Travel Time between Travel Analysis Districts, 2010 and 2030 without Project



Source: Series 11 model

Figure 1-8. Transit Travel Time between Travel Analysis Districts, 2010 and 2030 without Project



Source: Series 11 model

1.4.2.2 Ridership

Another measure of mobility is transit ridership, which is presented in Table 1-3 in terms of average weekday boardings, meaning the number of people who board a bus or train each day. Bus routes serving the corridor attract between 1,139 and 6,654 daily boardings, with the majority of ridership on the local bus routes. Transit use is a relatively small share of all trip-making within the corridor. By 2030, the Mid-Coast Corridor will have greater population and employment as well as more transit service. If the current bus-based system remains, however, transit ridership is not expected to grow substantially.

High transit ridership can result in crowding on vehicles. Crowding is often measured in terms of passenger load factors, which is the ratio of passengers on a vehicle to the number of seats available. Thus, a transit load factor of 1.0 means that one seat is available for each rider, while a load factor of 1.5 means that for every two seated passengers, there is one standing passenger. Standing can be uncomfortable for riders, particularly on buses operating in stop and go traffic. On-time performance can be affected by the passenger load factor, as extra time may be needed for riders to board and alight if many passengers are standing. As shown in Table 1-3, several corridor bus routes have peak-period load factors exceeding 1.0.

1.4.2.3 Reliability and Transit Efficiency

Transit system reliability is measured in terms of on-time performance. Research has shown that travelers are more willing to use transit, even if it is slower than the

automobile, if the service is reliable and they can be confident of arriving at their destination on time. MTS and SANDAG define a bus as being on-time if its departure time at a station or stop is no more than 0 minutes, 0 seconds early and no more than 4 minutes, 59 seconds late (SANDAG, 2010c). By this standard, as shown in Table 1-3, over 90 percent of the buses in the Mid-Coast Corridor are on-time in the a.m. peak period, but on-time performance deteriorates in the p.m. peak period when roads tend to be more congested. Those routes with the highest ridership and load factors tend to have the worst on-time performance. In contrast, the Trolley Blue, Green, and Orange Lines are able to maintain higher on-time performance because they operate in their own exclusive right-of-way.

By 2030, as highway congestion increases, the speed and reliability of buses operating in mixed traffic will be reduced. More buses will be needed simply to maintain current headways and capacity, and operating efficiency will suffer. Performance of the No-Build Alternative in 2030 is further assessed in Chapter 3.0.

Transit efficiency or productivity is measured in terms of passengers per service hour. The ratios shown in Table 1-3 indicate that bus routes in the corridor are reasonably productive, but far less productive than the region's three Trolley lines.

1.4.2.4 Overall Performance

In summary, transit services linking University City to Downtown San Diego and the remainder of the regional transit network currently lack sufficient speed, capacity, and reliability to compete effectively with the private automobile. Many riders need to transfer between bus routes or between bus and rail to complete their trip. Since some express buses bypass the OTTC and go directly to Downtown San Diego, those riders desiring to access the regional system through the OTTC must rely on slower, more circuitous, and less efficient local bus routes. A transit system based on buses operating in mixed traffic is not expected to attract substantial new ridership as population, employment, and travel grow in the future.

1.4.3 Highway System Performance

Level of service (LOS) can be used to evaluate roadway mobility, reliability, and efficiency by comparing traffic volumes with the capacity of the roadway (e.g., number of lanes). Level of service describes the quality of traffic flow using national standards published in the *Highway Capacity Manual* (Transportation Research Board, 2000). Level of service is reported using letter designations from A to F, where LOS A represents free traffic flow and LOS F designates stop-and-go conditions, substantially reduced speeds, and difficulty maneuvering. Table 3-8 in Chapter 3.0 contains a more detailed description of each level of service. In the City of San Diego, LOS D or better is considered acceptable.

Table 1-4 provides the 2008 peak hour and peak direction level of service for highways in the Mid-Coast Corridor. During the a.m. peak period, northbound is the peak direction of travel, indicating a reverse-commute pattern with travel heading away from Downtown San Diego. During the a.m. peak, the northbound lanes of both I-5 and I-805 have mostly LOS E/F conditions, indicating that travel demand is greater than available capacity.

Table 1-4. Highway Peak Period/Peak Direction Levels of Service, 2008

Route	Segment	Period	LOS
I-5	**Southbound Peak Direction**		
	I-805 to Voigt Dr	PM	A-D
	Voigt Dr to La Jolla Village Dr	PM	**E**
	La Jolla Village Dr to Nobel Dr	PM	A-D
	Nobel Dr to SR 52	PM	**F**
	SR 52 on-ramp to Balboa Ave	PM	**F**
	Balboa Ave to Clairemont Dr	PM	**F**
	Clairemont Dr to Sea World Dr	PM	**E**
	Sea World Dr to I-8	PM	A-D
	I-8 to Old Town Ave	PM	A-D
	Old Town Ave to Washington St	PM	A-D
	Washington St to Pacific Hwy	PM	**F**
	Pacific Hwy to Hawthorn St/Grape St	PM	**F**
	Hawthorn St/Grape St to 1st Ave/Front St	PM	**F**
	1st Ave/Front St to SR 163	PM	**F**
	Northbound Peak Direction		
	I-805 to Sorrento Valley Rd	AM	A-D
	Sorrento Valley Rd to Genesee Ave	AM	**E**
	Genesee Ave to La Jolla Village Dr	AM	**F**
	La Jolla Village Dr to Nobel Dr	AM	**F**
	Nobel Dr to SR 52	AM	**F**
	SR 52 to Balboa Ave	AM	**F**
	Balboa Ave to Grand Ave	AM	**F**
	Grand Ave to Sea World Dr	AM	**F**
	Sea World Dr to I-8	AM	**F**
	I-8 to Old Town Ave	AM	**F**
	Old Town Ave to Washington St	AM	**F**
	Washington St to Pacific Hwy	AM	**F**
	Pacific Hwy to Hawthorn St/Grape St	AM	**F**
	Hawthorn St/Grape St to First Ave/Front St	AM	**F**
	First Ave/Front St to SR 163	AM	**F**
I-8	**Eastbound Peak Direction**		
	Sunset Cliffs Blvd to Sports Arena Blvd	PM	A-D
	Sports Arena Blvd to Hotel Circle	PM	**F**
	Hotel Circle to SR 163	PM	**F**
	Westbound Peak Direction		
	Sunset Cliffs Blvd to Sports Arena Blvd	AM	**E**
	Sports Arena Blvd to Hotel Circle	AM	A-D
	Hotel Circle to SR 163	AM	A-D

Table 1-4. Highway Peak Period/Peak Direction Levels of Service, 2008 (continued)

Route	Segment	Period	LOS
I-805	**Southbound Peak Direction**		
	I-5 to Sorrento Valley Rd	PM	**E**
	Sorrento Valley Rd to Mira Mesa Blvd	PM	A-D
	Mira Mesa Blvd to SR 52	PM	**F**
	SR 52 to Clairemont Mesa Blvd	PM	A-D
	Clairemont Mesa Blvd to Balboa Ave	PM	A-D
	Balboa Ave to SR 163	PM	A-D
	Northbound Peak Direction		
	I-5 to Nobel Dr	AM	A-D
	Nobel Dr to SR 52	AM	**F**
	SR 52 to Clairemont Mesa Blvd	AM	**F**
	Clairemont Mesa Blvd to Balboa Ave	AM	**E**
	Balboa Ave to SR 163	AM	A-D
SR 52	**Eastbound Peak Direction**		
	I-5 to Regents Rd	PM	A-D
	Regents Rd to Genesee Ave	PM	A-D
	Genesee Ave to I-805	PM	**F**
	Westbound Peak Direction		
	I-5 to Regents Rd	AM	**F**
	Regents Rd to Genesee Ave	AM	**F**
	Genesee Ave to I-805	AM	**F**
SR 163	**Southbound Peak Direction**		
	I-805 to Genesee Ave	AM	**F**
	Genesee Ave to Friars Rd	AM	**F**
	Friars Rd to I-8	AM	**E**
	I-8 to 6th Ave	AM	**F**
	6th Ave to Washington St	AM	**F**
	Washington St to Robinson Ave	AM	A-D
	Robinson Ave to I-5	AM	A-D
	Northbound Peak Direction		
	I-805 to Mesa College Dr	PM	A-D
	Mesa College Dr to Friars Rd	PM	A-D
	Friars Rd to I-8	PM	A-D
	I-8 to 6th Ave	PM	**E**
	6th Ave to Washington St	PM	A-D
	Washington St to Robinson Ave	PM	**F**
	Robinson Ave to I-5	PM	**F**

Source: SANDAG, 2010e
Notes: Bold letters indicate an unacceptable level of service.
I = interstate; LOS = level of service; SR = state route

In contrast with the a.m. peak, travel patterns in the p.m. peak are more diverse. Morning peak-period travel typically consists of a majority of commuters traveling from home to work or school. During the p.m. peak period, many commuters will add additional trips to other activities, such as trips to shop or to visit friends on the way home. In the p.m. peak, most of the southbound segments on I-5 operate between LOS A and LOS D, with the worst congestion occurring between Downtown San Diego and Washington Street and between Sea World Drive and Nobel Drive. While highway travel speeds are generally faster than transit speeds, congestion can make travel times unreliable for both highway and transit users.

Looking ahead to 2030, the performance of the highway system can be evaluated in terms of highway speeds for the representative trips presented earlier. As previously shown in Figure 1-7, with a few exceptions, highway travel times during peak periods are expected to increase by 2030 because of growing congestion and slower speeds on the highway system.

1.5 Purpose and Need for the Mid-Coast Corridor Transit Project

The Mid-Coast Corridor is characterized by dense urban centers and an abundance of regional activity centers and other major trip generators. Dense population and employment centers currently anchor both the northern and southern ends of the Mid-Coast Corridor. The UCSD campus, the Westfield UTC shopping center, and regional hospitals are clustered in the north part of the corridor and represent the second-most dense land uses in the county. At the south end of the corridor is the region's only identified Metropolitan Center—Downtown San Diego—with the region's densest land uses and high-rise development.

According to the Series 11 model, major growth is projected for the Mid-Coast Corridor, resulting in a corridor population that will increase by 19 percent to nearly 425,000 people in 2030, and a corridor employment that will increase by 12 percent to over 364,000 employees in 2030. Additionally, the RCP calls for increased population and employment density in Downtown San Diego and the UCSD and UTC areas of University City. Increased population and employment will lead to increased travel demand in the corridor.

Although the Mid-Coast Corridor is currently served by bus transit, the existing transit system in the Mid-Coast Corridor does not offer the level of service needed to meet the region's goals for mobility, accessibility, reliability, and efficiency. The COASTER commuter rail service passes through the corridor, but its stations are widely spaced and it does not have a station in close proximity to UCSD or UTC. Under existing conditions, the Trolley Blue Line terminates at the OTTC. While transit mobility and accessibility to northern portions of the corridor are provided by express and local buses, the speed and reliability of bus service are constrained by roadway congestion, and many transit riders are required to transfer in Downtown San Diego or at the OTTC to reach destinations in University City. With congestion projected to increase in the future, the level of service, reliability, and efficiency of the transit system will all decrease.

To meet the region's goals most effectively, the Mid-Coast Corridor needs a transit system that is better able to serve the major travel destinations of UCSD and the UTC Transit Center in University City. This transit system must provide a frequency of service, speed,

and reliability that would better serve existing transit riders and attract new riders. The exclusive right-of-way for transit that is proposed for the Mid-Coast Corridor Transit Project would shorten travel times, improve reliability, and reduce the number of transfers required for travel between major travel markets, thereby improving service for existing riders and attracting new riders. With the improved transit service provided by the project, one-seat rides (trips that do not require a transfer) would be available from the U.S.–Mexico international border to University City, and between communities in South San Diego County, Downtown San Diego, and the University City, making transit an attractive alternative to travel by automobile.

In summary, the purpose of the Mid-Coast Corridor Transit Project is to:

- Increase transit speed and reliability in the corridor. Provide direct transit routes with dedicated transit facilities and treatments for faster and more reliable transit service that can better compete with automobile travel and attract new transit riders.
- Reduce the number of transfers required to complete a trip. Transit improvements should seek to provide a one-seat ride between the most significant origins and destinations of travel.
- Make transfers more convenient where they do occur.
- Expand transit capacity in the corridor to accommodate existing and future travel demand.

1.6 Other Project Goals

SANDAG has established goals in the 2030 RTP, not only for transportation mobility, accessibility, efficiency, and reliability, but also for livability, sustainability, and equity. While these goals do not directly contribute to the purpose and need for a major transit improvement in the Mid-Coast Corridor, they have guided development of the Mid-Coast Corridor Transit Project.

1.6.1 Livability

SANDAG's livability goal seeks to focus transit improvements in areas with compatible land uses that support an efficient transit system and to foster smarter-growth land uses. As noted previously, the Mid-Coast Corridor contains the two largest and densest concentrations of population and employment in the county, Downtown San Diego and the University City area. These areas are expected to continue to develop following smart growth principles, in accordance with adopted general plan and community plan policies.

1.6.2 Sustainability

SANDAG's goal for sustainability seeks to improve air quality and reduce GHG emissions. The San Diego Air Basin, which comprises all of San Diego County, is in attainment or unclassified for all National Ambient Air Quality Standards for all pollutants, except for the federal 8-hour standard for ozone, which is typically exceeded several times a year. Motor vehicles are the largest source of ozone precursors in the San Diego Air Basin, and a major source of GHG emissions.

State laws addressing climate change place new emphasis on reducing GHG emissions. California Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006, recognizes that California is the source of substantial amounts of GHG emissions. AB 32 established a state goal of reducing GHG emissions to 1990 levels by 2020, a reduction of approximately 25 percent from forecast emission levels, with further reductions to follow. AB 32 acknowledges that such emissions cause adverse impacts to human health and the environment. Senate Bill 97, enacted in 2007, amends the CEQA statute to clearly establish that GHG emissions and the effects of GHG emissions are required subjects for CEQA analysis.

Senate Bill 375, the Sustainable Communities and Climate Protection Act of 2008, enhances California's ability to reach its AB 32 goals by promoting good planning. The law requires the California Air Resources Board to develop regional GHG emission reduction targets for passenger vehicles and to establish targets for 2020 and 2035 for each region covered by one of the state's 18 metropolitan planning organizations (MPOs). Each of California's MPOs, including SANDAG, are required to prepare a "sustainable communities strategy" that demonstrates how the region will meet its GHG reduction target through integrated land use, housing, and transportation planning.

For the Mid-Coast Corridor, these state laws discourage the construction of new transportation facilities that would increase single-occupancy vehicle use and GHG emissions relative to the number of people using the facility.

1.6.3 Equity

SANDAG's social equity goal establishes that it will provide equitable levels of transportation services for all segments of the population, including low-income, minority, elderly, and persons with disabilities. This goal is consistent with Title VI of the Civil Rights Act (42 United States Code 2000d et seq.), which prohibits discrimination on the basis of race, color, and national origin, and also recognizes federal executive orders related to environmental justice. When evaluating alternatives for Mid-Coast Corridor transit improvements, consideration was given to avoiding any disparate benefits or impacts to these protected groups. Section 4.20 in Chapter 4.0 discusses the environmental justice issues related to the Mid-Coast Corridor Transit Project.

THIS PAGE INTENTIONALLY LEFT BLANK

2.0 ALTERNATIVES CONSIDERED

This chapter summarizes the development of the alternatives evaluated in this Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR). It begins with a description of the process that led to the development of the alternatives considered and evaluated in the *Mid-Coast Corridor Transit Project Draft SEIS/SEIR* (San Diego Association of Governments [SANDAG], 2013a). It then describes the No-Build and Build Alternatives evaluated in the Draft SEIS/SEIR and the refinements to the Build Alternative that provided the basis for the Refined Build Alternative. The chapter concludes with a description of the Refined Build Alternative, including alignment, stations, vehicles, power system and signaling, operating plan, and schedule for implementation.

2.1 Development of Alternatives

This section summarizes prior studies and actions related to the Mid-Coast Corridor Transit Project as well as the additional studies and refinements, which led to the development of the alternatives that were considered in the SEIS/SEIR.

2.1.1 Prior Studies and Actions

The Mid-Coast Corridor Transit Project was included in Proposition A, a local half-cent transportation sales tax measure (*TransNet*), which was approved by San Diego County voters in 1987. The environmental review process began in 1990 with a Notice of Intent to prepare an Environmental Impact Statement. The *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board [MTDB], 1995a) was completed in February 1995. In December 1995, MTDB certified the *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b) in compliance with the California Environmental Quality Act (CEQA) and adopted the Locally Preferred Alternative (LPA), which would extend the existing San Diego Trolley (Trolley) light rail transit (LRT) system from the Old Town Transit Center (OTTC) north to the University City neighborhood. In addition to the extension of the Trolley, the 1995 LPA included a new COASTER commuter rail station at Nobel Drive and high-occupancy vehicle (HOV) lanes on Interstate (I-) 5. These projects were later separated from the Mid-Coast Corridor Transit Project for implementation as separate projects.

After completing the Final Environmental Impact Report in December 1995, MTDB elected to divide the project into two separate phases for implementation. The first phase of the Mid-Coast Corridor Transit Project, from just south of the San Diego River to Balboa Avenue (i.e., Balboa Extension), was the subject of a Final Environmental Impact Statement (MTDB, 2001) and Record of Decision (ROD) in August 2001 in compliance with the National Environmental Policy Act (NEPA). The 1995 and 2001 environmental documents for the projects evaluated a range of mode, alignment, and station alternatives, including no-build, Transportation System Management, commuter rail, HOV lanes, and LRT.

Between completion of the 1995 environmental document and 2003, MTDB considered and evaluated various alignments and modes for the second phase of the project (i.e.,

University City Extension). In July 2003, as a result of state legislation, all MTDB[1] planning, programming, project development, and construction functions were transferred to SANDAG. In December 2003, the SANDAG Board of Directors approved an update to the 1995 LPA alignment to better serve the University of California, San Diego (UCSD) campus on both the east and west sides of I-5 and to improve connections with existing and planned transit services at the University Towne Centre (UTC) Transit Center. The update to the LPA provided for stations on both the UCSD east and west campuses and a terminal station at the UTC Transit Center instead of on Executive Drive east of Towne Centre Drive as in the 1995 LPA. The stations at Jutland Drive and Gilman Drive/La Jolla Colony Drive were eliminated in the 2003 update to the LPA. The station at Gilman Drive north of the Veterans Administration (VA) Medical Center also was eliminated with the change in alignment and addition of the station on the UCSD west campus. The updated LPA alignment followed Voigt Drive and Genesee Avenue between the UCSD west campus and the UTC Transit Center instead of turning east at Gilman Drive and following Executive Drive to the terminus east of Towne Centre Drive.

The Mid-Coast Corridor Transit Project was included in the re-authorization of *TransNet*, approved by voters in November 2004. In April 2005, the SANDAG Transportation Committee approved re-combining the Balboa Extension with the University City Extension into a single Mid-Coast Corridor Transit Project extending from the OTTC to University City and approved initiating the supplemental environmental review for the project. Supplemental environmental review would include updating and supplementing the previously prepared environmental documents and technical studies. The Federal Transit Administration (FTA) concurred with this approach on July 24, 2006. The Mid-Coast Corridor Transit Project was included in the *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a) adopted by the SANDAG Board of Directors in November 2007.

SANDAG initiated an analysis of changed conditions in the Mid-Coast Corridor in 2008 to identify and evaluate changes in the physical and regulatory environment that had occurred following the completion of previous environmental studies. The analysis included consideration of alternatives to the updated LPA alignment and station locations and evaluation of rapid bus, bus rapid transit, and commuter rail alternatives to improve transit service between Downtown San Diego and University City. The alternative modes and alignments considered in the study were developed based on the transportation needs identified in Chapter 1.0, including increasing the speed and reliability of transit service, reducing transfers, and expanding transit capacity in the Mid-Coast Corridor. The alternatives were evaluated against a No-Build Alternative that included all of the highway and transit facilities in the Revenue Constrained Scenario of SANDAG's 2030 RTP except for the Mid-Coast Corridor Transit Project, which was excluded from the alternative in order to represent conditions in the corridor without the project. The No-Build Alternative assumes that the existing bus Route 150, operating between Downtown San Diego and University City, would be continued and enhanced to address the increased transit demand projected for the corridor.

[1] The MTDB is now the Metropolitan Transit System (MTS).

SANDAG conducted CEQA scoping for the Draft SEIR in 2010, and the results are documented in the *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f). On July 23, 2010, the SANDAG Board of Directors considered public input received during scoping and reconfirmed the previously adopted LPA, refined to include direct service to UCSD and UTC, and the No-Build Alternative for evaluation in the Draft SEIS/SEIR. The SANDAG Board of Directors also approved evaluation of a station at the VA Medical Center during the development of the draft environmental document.

The results of the analysis of changed conditions and the evaluation process for the project, which concluded with the SANDAG Board of Directors' reconfirmation of the LPA, are documented in the *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e). The conceptual alternatives considered are described in detail in the report and summarized in Table 2-1, along with the results of the study.

On July 12, 2011, FTA issued a Notice of Intent in the *Federal Register* inviting comments on the proposed scope of the Draft SEIS, the purpose and need for the project, and the alternatives to be included in the Draft SEIS/SEIR. SANDAG conducted numerous outreach activities. The *Mid-Coast Corridor Transit Project National Environmental Policy Act Scoping Report* (SANDAG, 2011b) documents the NEPA scoping process and its results, and includes the comments received. The comments were similar to comments provided during CEQA scoping and/or previously identified concerns.

2.1.2 Additional Studies and Refinements to Prior LPA

Following reconfirmation of the LPA by the SANDAG Board of Directors in 2010 and NEPA scoping, SANDAG conducted additional studies and coordinated with project stakeholders, which resulted in refinements to the alignment, station locations and facilities, and LRT operating plan. The LPA was refined in consultation with project stakeholders, including the California Department of Transportation (Caltrans), the City of San Diego, the Metropolitan Transit System (MTS), and UCSD. SANDAG also coordinated with Scripps Memorial Hospital La Jolla (Scripps Hospital) and the VA Medical Center. The refinements to the LPA include determination of the alignment at Voigt Drive, inclusion of an optional station at the VA Medical Center, modifying the alignment to accommodate a potential future station at Jutland Drive, identifying additional parking areas, and including a design option to minimize right-of-way acquisition along Genesee Avenue. The refinements to the LPA were incorporated into the Build Alternative that was evaluated in the Draft SEIS/SEIR.

2.1.2.1 UCSD—Voigt Alignment Options

The updated LPA included three alignment options along Voigt Drive between the UCSD West Station and the UTC Transit Center, evaluated in the *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e). The report stated that the three options in the vicinity of Voigt Drive would allow for the selection of a specific alignment to avoid potential impacts that may be discovered during the environmental review process.

Table 2-1. Alternatives Considered in Comparative Evaluation of Alternatives Report

Transit Mode	Characteristics of Transit Mode	Description of Alternative(s)	Results of Evaluation
TSM Rapid Bus	• Buses operating at grade in mixed-flow lanes • Clean fuel (compressed natural gas) powered bus with rubber tires • 60 miles per hour maximum or posted speed • Up to 60-foot-long articulated bus • Capacity: Up to 84 passengers per bus, with standees	• New rapid bus route connecting Downtown San Diego, Old Town, UCSD, and UTC, with limited-stop service along Pacific Hwy. and Morena Blvd. and express service in HOV lanes to Nobel Dr.	• Eliminated from consideration because it would not substantially improve travel times, ridership, or reliability
Bus Rapid Transit	• Stylized buses operating at grade, below grade, or above grade in exclusive, semi-exclusive, and shared lanes • Clean fuel (compressed natural gas) powered bus with rubber tires • 65 mph maximum speed • Up to 65-foot-long articulated bus • Capacity: Up to 100 passengers per bus, with standees	• Four BRT alternatives were considered, providing a combination of exclusive bus lanes, semi-exclusive bus or HOV lanes, and shared lanes from Downtown San Diego north to University City	• Eliminated from consideration because of lack of effectiveness in meeting regional goals (i.e., low ridership, consistency with regional and local land use plans), cost effectiveness, and likelihood of securing FTA New Starts funds
Light Rail Transit	• Trains operating at grade, below grade, or above grade in exclusive lanes or fixed guideway • Electrically powered via overhead power contact system and substations for power distribution • 55 mph maximum speed • Maximum four cars per train • Capacity: 600 passengers per three-car train, with standees	• Seven potential alternatives were identified for extension of the Trolley Blue Line north to University City • All alternatives followed the Metropolitan Transit System right-of-way to just north of State Route 52 • LRT Alternatives 1, 2, 4, 5, 6, and 7 followed I-5 to the UCSD campus and then turned east to terminate at the UTC Transit Center • LRT Alternative 3 followed the MTS right-of-way east to Genesee Ave., turned north via a new tunnel to the UTC Transit Center, and then turned west to terminate on the UCSD West Campus	• Alternatives 1, 4, and 5 following Voigt Dr. and Genesee Ave. combined into a single alternative (i.e., Alternative 1) and reconfirmed as the LPA • Alternative 2 following Regents Rd. and Executive Dr. eliminated because of impacts on traffic and property access • Alternative 3 following MTS right-of-way to Genesee Ave. eliminated because of public comments on impacts to Rose Canyon and additional biological impacts • Alternative 6 turning south of Voigt Dr. to UCSD Thornton Hospital eliminated because of operational, biological, and property access impacts • Alternative 7 eliminated because of lack of service to UCSD West Campus
Commuter Rail Transit	• Trains operating at grade, below grade, or above grade • Tracks shared with intercity and freight trains • Diesel-propelled locomotives • 79 mph maximum speed • Trains generally consist of up to five double-deck passenger cars • Capacity: 675 seated passengers per train	• New commuter rail service to the University City area. The new service would have been operated as a shuttle from the Santa Fe Depot in Downtown San Diego to a new station at the UTC Transit Center via a new tunnel under UTC	• Commuter rail eliminated because of lack of effectiveness in meeting regional goals (i.e., low ridership, consistency with regional and local land use plans), cost effectiveness, and likelihood of securing FTA New Starts funds

Source: SANDAG, 2010e

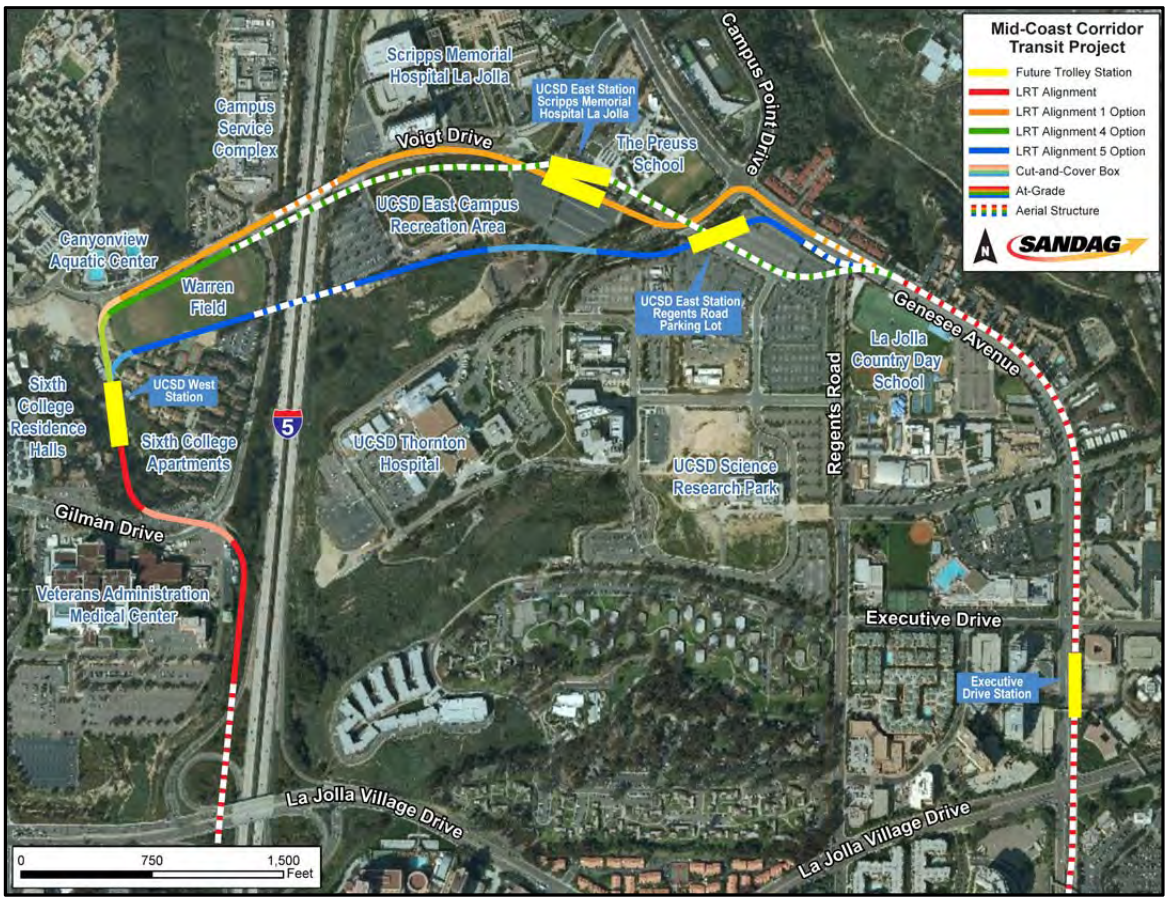
Note: BRT = bus rapid transit; FTA = Federal Transit Administration; HOV = high-occupancy vehicle; LRT = light rail transit; mph = miles per hour; MTS = Metropolitan Transit System; SR = State Route; TSM = Transportation Systems Management; UCSD = University of California, San Diego; UTC = University Towne Centre

The *Mid-Coast Corridor Transit Project Evaluation of Voigt Drive Alignment Options Technical Memorandum* (SANDAG, 2011f) describes the three alignment options and the results of the evaluation of the options based on additional studies and stakeholder comments. The purpose of the evaluation was to determine if any of the alignment options should be eliminated from further study or whether all should be carried forward for further refinement and evaluation in the Draft SEIS/SEIR. The LPA alignment would extend east of the UCSD West Campus along one of the following three alignment options to a terminus at the UTC Transit Center:

- An at-grade alignment in the median of Voigt Drive and an aerial alignment on Genesee Avenue (Alignment Option 1)
- An aerial alignment along the south side of Voigt Drive and on Genesee Avenue (Alignment Option 4)
- An at- and below-grade alignment south of Voigt Drive and an aerial alignment on Genesee Avenue (Alignment Option 5)

The LPA alignment differs under each option between the UCSD West Station and Genesee Avenue just east of Regents Road, as shown in Figure 2-1.

Figure 2-1. Voigt Drive Alignment Options on UCSD Campus



Source: SANDAG, 2011f

Based on the evaluation, Alignment Option 4 was selected for further refinement and evaluation in the Draft SEIS/SEIR. During stakeholder consultation, negative comments were received on Alignment Option 1 as a result of concerns over access and circulation, at-grade crossings at intersections, and dependence on the planned Voigt Drive widening and realignment; it was eliminated from further consideration. Alignment Option 5 had the least compatibility with current and planned land use, and—of the three options—it would have the greatest engineering, operating, and maintenance issues. Therefore, it was eliminated from further consideration.

Alignment Option 4 was subsequently refined through coordination with project stakeholders, including Caltrans, Scripps Hospital, and UCSD, which resulted in the use of an aerial alignment through the UCSD West Campus with an elevated station in Pepper Canyon. The alignment was modified to cross over I-5 north of Voigt Drive, as shown in Figure 2-2.

Figure 2-2. Refined LPA Alignment on UCSD Campus

Source: SANDAG, 2012

2.1.2.2 Additional Stations

In 2010, the SANDAG Board of Directors determined that the SEIS/SEIR would evaluate a station at the VA Medical Center. The Build Alternative with the VA Medical Center Station is identified as an option of the Build Alternative in the Draft SEIS/SEIR.

A station at Jutland Drive had been evaluated in the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (MTDB, 1995a), and the LPA approved by MTDB in 1995 included this station. In December 2003, when the SANDAG Board of Directors approved an update to the 1995 LPA alignment, it eliminated the station at Jutland Drive because of low projected passenger boardings. The *Mid-Coast Light Rail Transit Extension Locally Preferred Alternative Update Summary* (SANDAG, 2004c) identified the station locations that changed between the 1995 documents and the 2003 updated LPA. Several comments were received during CEQA scoping conducted in 2010 requesting a Jutland Drive Station be added to the project. The *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e) concluded that there had been no change in land use or development that would have any bearing on the decision by the SANDAG Board of Directors in 2003 to eliminate the Jutland Drive Station.

Subsequent to the adoption of the LPA by the SANDAG Board of Directors in July 2010, comments were received during NEPA scoping requesting further evaluation of the feasibility of a station at Jutland Drive. In response to these comments, SANDAG subsequently reevaluated the feasibility of a station at Jutland Drive from an engineering, transportation, environmental, and cost standpoint, as documented in the *Mid-Coast Corridor Transit Project Jutland Drive Station Feasibility Study Technical Memorandum* (SANDAG, 2011e). This evaluation found that while a Jutland Drive Station would slightly increase system ridership, the station would have the lowest number of boardings of any station on the Trolley Blue Line in 2030, and it would increase the project's cost by $19 million (2010 dollars)[2]. As a result, SANDAG determined that this station would not be carried forward as part of the project, but modified the alignment to accommodate a potential future station at Jutland Drive.

2.1.2.3 Station Parking Facilities

As outlined in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v), SANDAG conducted an analysis of parking demand. Based on the results of that analysis, the LPA was refined to expand parking at the Tecolote Road Station and to provide transit parking at the Clairemont Drive and Nobel Drive Stations, as well as at the UTC Transit Center. As refined, the LPA provides 280 surface parking spaces at the Tecolote Road Station, 150 surface parking spaces at the Clairemont Drive Station, 220 surface parking spaces at the Balboa Avenue Station, 260 structure parking spaces at the Nobel Drive Station, and 260 parking spaces at the UTC Transit Center parking structure.

[2] The costs were estimated in 2010 dollars at the time of the study for comparison to the costs of the LPA or Build Alternative, which were in 2010 dollars at that date.

2.1.2.4 Genesee Avenue Design Option

The LPA included the use of center columns along Genesee Avenue with roadway widening where necessary to accommodate the center columns. In an attempt to reduce right-of-way acquisitions associated with the center column design, a design option was developed that uses straddle bents in place of some center columns to support the aerial structure and stations on Genesee Avenue.

Under the Genesee Avenue Design Option, straddle bents would be used to support the aerial structure on beams that span the street below. Straddle bents are horizontal beams supported by columns at each end. The straddle bents would span the street, with columns placed to the outside of the roadway. By placement of the columns to the outside of the roadway, roadway widening can be avoided and right-of-way acquisitions could be reduced. The Genesee Avenue Design Option with additional straddle bents was a design option under the Build Alternative in the Draft SEIS/SEIR.

2.1.2.5 LRT Operating Plan

The operating plan defined for the LPA was based on the 2030 RTP and assumed an increase in the frequency of service on the Trolley Green Line from 15 to 7.5 minutes during peak periods. Further study was conducted following reconfirmation of the LPA, and it was determined that the passenger demand on the Trolley Green Line could be accommodated more efficiently by operating four-car trains at 15-minute headways instead of three-car trains at 7.5-minute headways.

Consistent with the 2030 RTP, the LPA assumed an increase in service frequency on the Trolley Orange Line from 15 to 7.5 minutes during peak periods. Upon further study, it was determined that this would require a third LRT track and platform at the Santa Fe Depot. Because these improvements were not included in the 2030 RTP and forecast passenger demands on the Trolley Orange Line could be served more efficiently by trains operating at 15-minute peak-period service, the frequency of service on the Trolley Orange Line was changed to 15 minutes during peak periods in the operating plans for the Build and No-Build Alternatives.

2.2 Description of Alternatives Evaluated in the Draft SEIS/SEIR

This section describes the No-Build and Build Alternatives and the Build Alternative options that were evaluated in the Draft SEIS/SEIR based on the transportation needs identified in Chapter 1.0.

2.2.1 No-Build Alternative

This section describes the transportation improvements assumed in the No-Build Alternative within the Mid-Coast Corridor that were evaluated in the Draft SEIS/SEIR, as well as 2030 forecast year conditions resulting from projected development and changes in population and employment. The No-Build Alternative evaluated in this Final SEIS/SEIR is the same as in the Draft SEIS/SEIR.

2.2.1.1 Highway and Transit Facility Improvements from the 2030 RTP

The No-Build Alternative is evaluated in the context of the existing transportation facilities and services in the Mid-Coast Corridor (as characterized in 2010) and other facilities and services identified in the Revenue Constrained Scenario of the 2030 RTP. Since the No-Build Alternative provides the background transportation network against which the Build Alternative's impacts are identified and assessed, the No-Build Alternative excludes the Mid-Coast Corridor Transit Project but does include continued and enhanced bus service on Route 150. The No-Build Alternative was derived from the 2030 RTP. In October 2011, the SANDAG Board of Directors adopted a new regional transportation plan that extended the planning horizon from 2030 to 2050—the *2050 Regional Transportation Plan: Our Region, Our Future* (2050 RTP) (SANDAG, 2011a). However, the 2030 RTP has been retained as the basis for the No-Build Alternative because, as discussed below, no substantive differences exist between the 2030 and 2050 RTPs that would alter the environmental analysis.

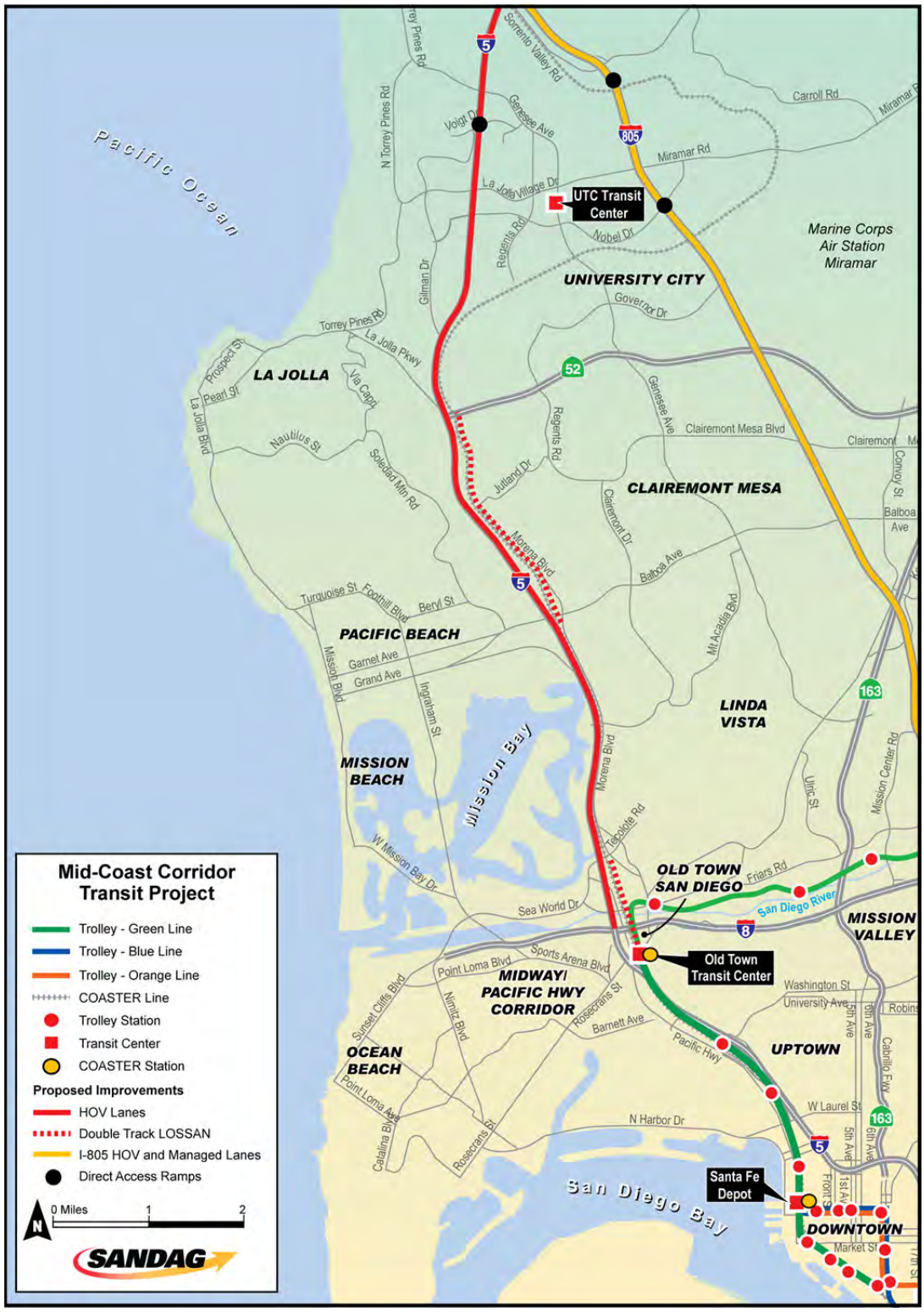
The 2050 RTP was reviewed to determine if it includes any additional funded projects planned for implementation in the Mid-Coast Corridor by 2030 and not included in the 2030 RTP. The only major new project in the Mid-Coast Corridor is the extension of the Trolley Blue Line from the UTC Transit Center to Mira Mesa via the Sorrento Mesa/Carroll Canyon area. This extension is not an alternative to the Mid-Coast Corridor Transit Project since it is dependent on the Mid-Coast Corridor Transit Project's implementation. The Mira Mesa/Sorrento Mesa extension has not been considered in a corridor-level alternatives analysis. Future analysis under NEPA and CEQA also would be required. Thus, this extension is not included in either the No-Build Alternative or the Build Alternative.

The 2050 RTP also was reviewed to determine if it includes any Mid-Coast Corridor projects that are assumed in the No-Build Alternative that are not in the 2030 phase of the 2050 RTP. The only major project not in the 2030 phase of the 2050 RTP is the addition of HOV lanes in the segment of I-5 from I-8 to La Jolla Village Drive. The 2050 RTP defers the implementation of the HOV lanes in this segment until the decade ending in 2050. Because the 2050 RTP only defers implementation of the HOV lanes, but still includes them, they are assumed in the design and analysis of the Mid-Coast Transit Project under the No-Build and Build Alternatives. The other Mid-Coast Corridor projects in the 2050 RTP that are not in the 2030 RTP and that are scheduled for implementation by 2030 are minor projects (e.g., minor adjustments to bus routes, increased bus frequency) and are not expected to have any substantial bearing on the analysis of the Mid-Coast Corridor Transit Project.

Figure 2-3 shows the location of the projects included in the Revenue Constrained Scenario of the 2030 RTP located within the Mid-Coast Corridor and assumed to exist in the No-Build Alternative. These include the following major improvements from the 2030 RTP:

- Double tracking of the Los Angeles—San Diego—San Luis Obispo Rail Corridor Agency (LOSSAN) tracks and other rail improvements, with an increase in frequency of COASTER service to every 20 minutes during peak periods and to every 60 minutes during off-peak periods in both directions.

Figure 2-3. No-Build Alternative Transportation Improvements



Source: SANDAG, 2012

- HOV lanes on I-5 from I-8 north to Oceanside, with direct access ramps (DARs) at various locations, of which the DARs at Voigt Drive would be located within the Mid-Coast Corridor. The HOV lanes would be restricted to vehicles with two or more occupants.
- Combination of HOV and Managed Lanes on I-805 from I-5 to South Bay, with DARs at Carroll Canyon Road and Nobel Drive.
- Trolley low-floor system improvements to the Trolley Blue and Orange Lines, including station platform, power, and signaling improvements to allow extension of the Trolley Green Line to the 12th and Imperial Avenue Transit Center and use of low-floor vehicles systemwide.

2.2.1.2 Transit System Improvements

The No-Build Alternative transit system within the Mid-Coast Corridor assumes services planned to be in operation in or by 2030. As with the existing transportation system, the No-Build Alternative transit system consists of MTS-operated Trolley services, Amtrak intercity passenger rail services, North County Transit District (NCTD)-operated COASTER commuter rail services, and MTS and NCTD bus transit services. MTS-operated bus services include local, express, limited express, and bus rapid transit services.

Under the No-Build Alternative, the 2030 Trolley operating plan would result in operation of the Trolley Blue Line from the San Ysidro Transit Center at the U.S.–Mexico international border through Downtown San Diego to the Santa Fe Depot; the Trolley Green Line would operate north and east from the 12th and Imperial Avenue Transit Center through the OTTC and Mission Valley to Santee. The Trolley Orange Line would operate from Gillespie Field through Downtown San Diego to America Plaza.

Figure 2-4 shows the major MTS bus routes serving the Mid-Coast Corridor under the No-Build Alternative. Table 2-2 provides bus route information on fares and service frequency during both peak (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.) and midday off-peak (i.e., 9:00 a.m. to 3:00 p.m.) periods. Service hours in the early morning and after 6:00 p.m. would be similar to existing operations.

In addition to existing transit services, the No-Build Alternative assumes improvements to existing bus transit and LRT services operated by MTS. The following sections describe these improvements.

2.2.1.3 Bus Transit Service Improvements

The Mid-Coast Corridor Transit Project is excluded from the No-Build Alternative to represent corridor conditions without the project. Without the Mid-Coast Corridor Transit Project, more direct transit service would be needed to connect Downtown San Diego, the OTTC, and University City. To meet this need, continuing service on the existing Route 150, which provides bus transit services between Downtown San Diego, the OTTC, and University City, was added to the No-Build Alternative.

Under the No-Build Alternative, the existing Route 150 would be modified to operate along Broadway in Downtown San Diego and along Pacific Highway from Downtown San Diego north to the OTTC. From the OTTC north, Route 150 would be modified to

Figure 2-4. No-Build Alternative Major Bus Routes

Source: SANDAG, 2012

Table 2-2. No-Build Alternative Bus Operating Plan in 2030

Route	Description	Frequency of Service: Peak (6:00 to 9:00 a.m.) (3:00 to 6:00 p.m.)	Frequency of Service: Midday Off-Peak (9:00 a.m. to 3:00 p.m.)	Fare
8	OTTC to Garnet and Bayard	15.0	15.0	$2.00
9	Garnet and Bayard to OTTC	15.0	15.0	$2.00
25	Clairemont Mesa to Fashion Valley Trolley Station	15.0	15.0	$2.00
27	Mission and Felspar to Clairemont Mesa	15.0	15.0	$2.00
30	UTC Transit Center to B and 9th St	10.0	10.0	$2.25
31	Mira Mesa Transit Center to UTC Transit Center	15.0	15.0	$2.00
41	Fashion Valley Transit Center to UCSD West	10.0	10.0	$2.25
44	OTTC to Morena Blvd and Balboa Ave	7.5	7.5	$2.25
50	Park Blvd and Broadway to UTC Transit Center	15.0	15.0	$2.50
105	OTTC to UTC Transit Center	15.0	15.0	$2.25
120	Kearny Mesa Transit Center to 3rd and Market St	15.0	15.0	$2.25
150*	5th and Broadway to UTC Transit Center	15.0	30.0	$2.50
201/202	SuperLoop	7.5	7.5	$2.25**
276	UCSD Route—Voigt Drive Loop	15.0	15.0	**
284	UCSD Route—UCSD West to Scripps Institution of Oceanography	15.0	15.0	**
921	Mira Mesa Transit Center to UCSD West	15.0	15.0	$2.25
960	UTC Transit Center to Euclid Avenue Trolley Station	25.0	No service	$2.50

Source: SANDAG, 2012
Notes: * Not included in 2030 RTP
** = Free for UCSD students and faculty
OTTC = Old Town Transit Center; UCSD = University of California, San Diego; UTC = University Towne Centre

operate within the proposed I-5 HOV lanes north to Nobel Drive. This modification to Route 150 would improve travel times over the existing Route 150, which operates in the general-purpose lanes on I-5 north to Gilman Drive. Route 150 would operate at a frequency of 15 minutes during peak periods and 30 minutes during the midday off-peak period. The service would be operated using articulated buses. Fares are assumed to be $2.50 for a one-way trip.

2.2.1.4 Trolley Service Improvements

In addition to the bus service improvements, the No-Build Alternative assumes service frequency improvements to the existing Trolley system, as identified in the Revenue Constrained Scenario of the 2030 RTP and shown in Figure 2-5. Under the No-Build Alternative, the frequency of service on the Trolley Blue Line would increase from 15 to 7.5 minutes during midday off-peak period. Thus, the Trolley Blue Line would operate 7.5-minute service from 6:00 a.m. to 6:00 p.m., and the Trolley Orange and Green Lines would continue to operate at 15-minute service from 6:00 a.m. to 6:00 p.m.

Figure 2-5. No-Build Alternative Trolley Operating Plan in 2030

Source: SANDAG, 2012
Note: Peak = 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.; off-peak = 9:00 a.m. to 3:00 p.m.

Table 2-3 presents a summary of the Trolley operating plans for existing conditions and for the No-Build Alternative. The operating plans identify the service frequency during peak (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.) and midday off-peak (i.e., 9:00 a.m. to 3:00 p.m.) periods, vehicle type, and fares for the Trolley Green, Blue, and Orange Lines. Service during the early morning and evening hours would be less frequent.

Table 2-3. No-Build Alternative Trolley Operating Plan

Route	Peak Frequency (6:00. to 9:00 a.m.) (3:00 to 6:00 p.m.)	Midday Off-Peak Frequency (9:00 a.m. to 3:00 p.m.)	Vehicle Type	Fare (each way)
2010 Operating Plan (Existing Conditions)				
Trolley Green Line Santee Town Center to OTTC	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to OTTC	7.5	15.0	Trolley	$2.50
Trolley Orange Line Gillespie Field to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
2030 Operating Plan (No-Build Alternative)				
Trolley Green Line Santee Town Center to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to Santa Fe Depot	7.5	7.5	Trolley	$2.50
Trolley Orange Line Gillespie Field to America Plaza	15.0	15.0	Trolley	$2.50

Source: SANDAG, 2012
Note: OTTC = Old Town Transit Center

Operation of the No-Build Alternative Trolley operating plan in 2030 would require a fleet of 142 light rail vehicles (LRVs) including reserve, spare, and special-service vehicles. This represents an increase of eight vehicles over the existing fleet of 134 LRVs. No expansion of the existing maintenance facilities would be required under the No-Build Alternative Trolley operating plan.

2.2.1.5 Regional Growth and Development

The No-Build Alternative assumes regional growth and development consistent with the 2030 RTP, which uses the *Series 11: 2030 Regional Growth Forecast Update* adopted by SANDAG. This forecast is used as a basis for land use and demographic information in the transportation and traffic modeling. The *Series 11: 2030 Regional Growth Forecast Update: Process and Model Documentation* (SANDAG, 2008a) presents a basic description of the SANDAG forecast models used in the 2030 Regional Growth Forecast Update. The conditions created by the No-Build Alternative in 2030, as predicted by the Series 11 forecast (adjusted to exclude the Mid-Coast Corridor Transit Project), include the expected effects of development projects consistent with adopted land use plans.

2.2.2 Build Alternative

The Build Alternative evaluated in the Draft SEIS/SEIS would extend the Trolley Blue Line from Santa Fe Depot in Downtown San Diego to the UTC Transit Center in University City.

The project would use the existing Trolley tracks for approximately 3.5 miles, from the Santa Fe Depot to north of the OTTC and south of the San Diego River. The Trolley Blue Line trains would share the existing tracks with the Trolley Green Line trains. The project also would include construction of 10.9 miles of new double track that would extend from south of the San Diego River to the terminus at the UTC Transit Center.

The new extension would follow the LOSSAN tracks within existing MTS and City of San Diego right-of-way from the Santa Fe Depot to north of the I-5/State Route (SR) 52 interchange. The alignment would then leave the LOSSAN right-of-way and parallel the east side of the I-5 corridor traveling north partially within Caltrans right-of-way and partially on private property. South of Nobel Drive, the alignment would transition to an aerial structure and cross over to the west side of I-5. From Nobel Drive, the alignment would continue north along the west side of I-5 to the UCSD West Campus, cross back over to the east side of I-5 and proceed along Voigt Drive to Genesee Avenue, and then south in the median of Genesee Avenue to the UTC Transit Center.

The Build Alternative included 8 new stations (3 at grade and 5 elevated); 5 park-and-ride facilities with 1,070 parking spaces; 14 new and 4 upgraded traction power substations (TPSSs); and 36 new low-floor LRT vehicles. No new maintenance facilities would be needed. New stations would be located at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, UCSD West, UCSD East, Executive Drive, and the UTC Transit Center.

The Build Alternative included two options—one provided for an optional at-grade station at the VA Medical Center and the other provided for an alternative design for the proposed Genesee Avenue aerial alignment in University City (as described in Section 2.1.2.4). Figure 2-6 shows the project alignment and station locations, as well as the VA Medical Center Station Option and the Genesee Avenue Design Option.

With the extension of the Trolley Blue Line, continuous service would be provided from the San Ysidro Transit Center at the U.S.–Mexico international border to University City. The service would be provided every 7.5 minutes during peak and midday off-peak periods in 2030.

2.3 Refinements to the Build Alternative

On May 17, 2013, FTA issued a Notice of Availability for the Draft SEIS/SEIR in the *Federal Register*, inviting comments during a 60-day public comment and review period from May 17, 2013 through July 17, 2013. The Notice of Completion was filed with the State Clearinghouse on May 14, 2013. Four public meetings and one public hearing were held during the public comment and review period to solicit comments on the Draft SEIS/SEIR. All comments, along with responses to the comments, are included in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 3: Comments and Responses*.

Several of the comments received during the comment period had the potential to affect the alignment, stations, or other elements of the Build Alternative evaluated in the Draft SEIS/SEIR. Comments also were received in support of, or in opposition to, the VA Medical Center Station Option and the Genesee Avenue Design Option evaluated in the Draft SEIS/SEIR. Consideration of these comments, coordination with agencies and stakeholders, and the evaluation of the Build Alternative and options in the Draft SEIS/SEIR,

Figure 2-6. Build Alternative

Source: SANDAG, 2012

provided the basis for refinements to the Build Alternative, or the Refined Build Alternative. The SANDAG Board of Directors voted to approve the Refined Build Alternative on November 15, 2013, and to amend the Refined Build Alternative on May 9, 2014. The SANDAG Board of Directors actions to approve and amend the Refined Build Alternative were conducted at regularly scheduled meetings that were open to the public, and public testimony was allowed at both meetings. The development and approval of the Refined Build Alternative is described in the *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report* (SANDAG, 2014dd).

The refinements to the Build Alternative include the addition of the VA Medical Center Station; refinements to the LRT alignment, stations, TPSSs, and construction staging areas; and further engineering refinements. The Genesee Avenue Design Option was eliminated from further consideration.

The following sections summarize the refinements included in the Refined Build Alternative. As documented in Chapters 3.0, 4.0, 5.0, and 7.0 of this Final SEIS/SEIR and in the supporting technical studies, the refinements do not result in any new significant environmental impacts and generally minimize or avoid project impacts.

2.3.1 Addition of VA Medical Center Station Option

The option for an additional station at the VA Medical Center was evaluated in the Draft SEIS/SEIR. Comments received on the Draft SEIS/SEIR, including comments from the U.S. Department of Veterans Affairs, strongly supported the addition of the VA Medical Center Station. No comments were received in opposition to the station. The Draft SEIS/SEIR evaluation concluded that the addition of the VA Medical Center Station would improve access to the UCSD West Campus as well as to the VA Medical Center and would produce approximately 1,600 boardings daily. No adverse or significant environmental impacts were identified. The VA Medical Center Station is included in the Refined Build Alternative.

2.3.2 Elimination of the Genesee Avenue Design Option

The Build Alternative evaluated in the Draft SEIS/SEIR provided for center columns supporting the aerial structure along Genesee Avenue with roadway widening where necessary to accommodate the center columns. To reduce right-of-way acquisitions associated with the center column design, the Genesee Avenue Design Option was developed, which used straddle bents in place of some center columns to support the aerial structure and stations on Genesee Avenue west of Regents Road.

The evaluation of impacts of the Genesee Avenue Design Option in the Draft SEIS/SEIR found that the option would result in significant and unavoidable visual impacts along Genesee Avenue and adversely affect the character of the community. Although the amount of right-of-way acquisitions would decrease slightly under the Genesee Avenue Design Option, the number of acquisitions would be the same and temporary construction easements would be greater than for the Build Alternative.

Comments received from property owners along Genesee Avenue and the community expressed opposition to the Genesee Avenue Design Option. Elimination of the Genesee Avenue Design Option reduces visual and community character impacts and addresses

public comments opposing the use of straddle bents. The Genesee Avenue Design Option is excluded from the Refined Build Alternative.

2.3.3 Refinements to LRT Alignment

The refinements to the LRT alignment under the Build Alternative include changes to the design of the crossing of I-5 south of Nobel Drive and a shift in the Voigt Drive alignment in the vicinity of Scripps Hospital, west of I-5.

- I-5 Crossing South of Nobel Drive—Under the Build Alternative in the Draft SEIS/SEIR, straddle bents were included to support the aerial structure over the northbound and southbound lanes on I-5. The Draft SEIS/SEIR noted that the straddle bents would not be visually consistent with the aesthetics and scale of the built environment at this location and would contrast with the setting. Several comments on the Draft SEIS/SEIR expressed opposition to the use of straddle bents along the alignment. A refinement to the Build Alternative was developed that improves visual aesthetics through the elimination of the straddle bents. The elimination of the straddle bents at the I-5 crossing would improve aesthetics and is included in the Refined Build Alternative.
- Voigt Drive Alignment—Under the Build Alternative in the Draft SEIS/SEIR, the LRT alignment in the vicinity of Scripps Hospital would be located on the north side of Voigt Drive. Comments from Scripps Hospital on the Draft SEIS/SEIR identified the location of sensitive medical equipment that could be susceptible to vibration and electromagnetic interference in the XiMed Building located on the south side of the hospital campus, which is closest to the alignment. The comments requested that an alignment south of Voigt Drive, away from the XiMed Building, be considered and evaluated. Further analysis of electromagnetic field impacts on the XiMed Building determined that the project could affect the equipment located in the XiMed Building even with the proposed mitigation at the source evaluated in the Draft SEIS/SEIR. Based on these findings and the comments from Scripps Hospital, a refinement to the Build Alternative was developed that shifts the LRT alignment to the south side of Voigt Drive. With this shift, the project-related electromagnetic interference at the XiMed Building would be substantially reduced. The refinement to the Voigt Drive alignment is shown in Figure 2-7. The refinement was reviewed with UCSD and Scripps Hospital, and included in the Refined Build Alternative.

2.3.4 Refinements to Stations

The refinements to stations include changes to the configuration of the Clairemont Drive Station park-and-ride lot and removal of the pedestrian ramps, reconfiguration of the parking structure at the Nobel Drive Station, relocation of the UCSD East Station to accommodate the change in alignment on Voigt Drive, and acquisition of parking spaces at the UTC Transit Center instead of construction of a parking deck for transit patrons. The stations at Tecolote Road, Balboa Avenue, UCSD West, and Executive Drive as defined in the Draft SEIS/SEIR are included in the Refined Build Alternative without substantial changes. No comments were received that would affect the UCSD West Station or the Executive Drive Station.

Figure 2-7. Refinements to Voigt Drive Alignment

Source: SANDAG, 2013

- Tecolote Road Station—Although comments were received on the Draft SEIS/SEIR to reconfigure or eliminate the Tecolote Road Station to avoid the acquisition of Armstrong Garden Center nursery, the design as evaluated in the Draft SEIS/SEIR is being retained. Further study in response to the comments (SANDAG, 2014bb) determined that elimination of the station would reduce the project's transit ridership and increase parking demands at the OTTC and Clairemont Drive Stations. It also was determined that alternative site designs to avoid the acquisition of the nursery would shift the impact to other adjacent businesses and reduce access to the station. In addition, it was determined that the replacement of the proposed surface parking with a parking structure would still require acquisition of Armstrong Garden Center and also would increase the cost of the project.
- Clairemont Drive Station—Under the Build Alternative in the Draft SEIS/SEIR, bus transfers at the Clairemont Drive Station would be accommodated by on-street bus stops on Clairemont Drive east of Morena Boulevard. Pedestrian ramps were

provided for access to the station from Clairemont Drive to Morena Boulevard. Comments on the Draft SEIS/SEIR noted that the on-street bus stops on Clairemont Drive would be inconvenient for passengers transferring to and from the Trolley. The Refined Build Alternative provides for bus transfers within the Clairemont Drive Station parking lot. The relocation of the bus transfer location eliminates the need for pedestrian ramps from Clairemont Drive to Morena Boulevard. Transit passengers transferring between bus and the Trolley would be able to cross Morena Boulevard at the existing signalized crosswalk at Ingulf Street located at the southern end of the station platform.

- Balboa Avenue Station—Although many comments were received regarding the Balboa Avenue Station, the design as evaluated in the Draft SEIS/SEIR has been retained. Many comments requested that the Balboa Avenue Station be relocated to the City of San Diego Maintenance Yard to the north side of Balboa Avenue or be eliminated entirely. Although the City Maintenance Yard site could accommodate the station and provide sufficient space to meet the forecasted station parking demand, the station was not relocated because locating the station at the City Yard site would not eliminate or reduce any adverse or significant project impacts that were identified for the Draft SEIS/SEIR site and would increase capital and operating and maintenance costs (SANDAG, 2014cc).
- Nobel Drive Station—Under the Build Alternative in the Draft SEIS/SEIR, the Nobel Drive Station provided for a 600-space joint-use parking structure to be constructed at the La Jolla Village Square shopping center. The structure provided 260 transit parking spaces as well as 340 replacement parking spaces for the surface parking spaces required for construction of the station and parking structure at the shopping center. Coordination with the property owner and further engineering refinements resulted in a change in the layout of the parking structure, reducing the structure's height to three levels, which affected more existing surface parking spaces. While the number of transit parking spaces remains at 260, the increase in the number of required replacement parking spaces to approximately 540 spaces increased the total number of parking spaces in the joint-use structure to approximately 800 spaces. Coordination with the property owner will continue through the design process, and the ultimate configuration of the parking structure may affect fewer or more existing parking spaces. Regardless, the parking structure would include 260 transit parking spaces and replacement spaces for all existing surface parking spaces affected by the project footprint. As identified in the Draft SEIS/SEIR, the existing surface parking lot also would be reconfigured with construction of the parking structure.
- UCSD East Station—A refinement to the location of the UCSD East Station was necessary to accommodate the shift in the LRT alignment to the UCSD campus on the south side of Voigt Drive. With the shift in the LRT alignment, the station was relocated to the east to accommodate the alignment and avoid conflict with the planned future UCSD track and field facility. The station location would accommodate the planned realignment of Campus Point Drive by Caltrans, which is a separate project from the Mid-Coast Corridor Transit Project.
- UTC Transit Center—The UTC Transit Center platform would be located in the center of Genesee Avenue, south of Esplanade Court/UTC Driveway. Under the

Build Alternative in the Draft SEIS/SEIR, the station was proposed to include 260 transit parking spaces in a joint-use parking structure at the Westfield UTC shopping center. The parking structure would be constructed by Westfield as part of the planned expansion of the shopping center. The transit parking spaces would be constructed as an additional level on the parking structure. Comments received on the Draft SEIS/SEIR indicated concerns regarding the timing of the parking structure construction by Westfield and commitment of funds by SANDAG. Design of the shopping center parking structure is currently underway, with construction scheduled to begin in mid-2014, prior to the scheduled date of the ROD for the project. Because SANDAG cannot commit funds for construction prior to the ROD, the 260 transit parking spaces would be provided by acquisition of parking spaces from the Westfield UTC shopping center.

2.3.5 Refinements to Traction Power Substations

The Build Alternative presented in the Draft SEIS/SEIR was anticipated to require 18 TPSSs, including 3 replacement substations on existing sites between Santa Fe Depot and the OTTC and 15 new substations. Refinements to the number and location of the TPSSs were made based on the results of a load-flow analysis. Figure 2-8 shows the location of the refinements to the TPSSs.

The load-flow analysis identified a requirement for 16 TPSSs, 2 fewer than the Build Alternative presented in the Draft SEIS/SEIR. The TPSSs proposed at the OTTC and on Anna Street north of the San Diego River were determined to be unnecessary based on the results of the load-flow analysis. Other refinements to the TPSS locations include the following:

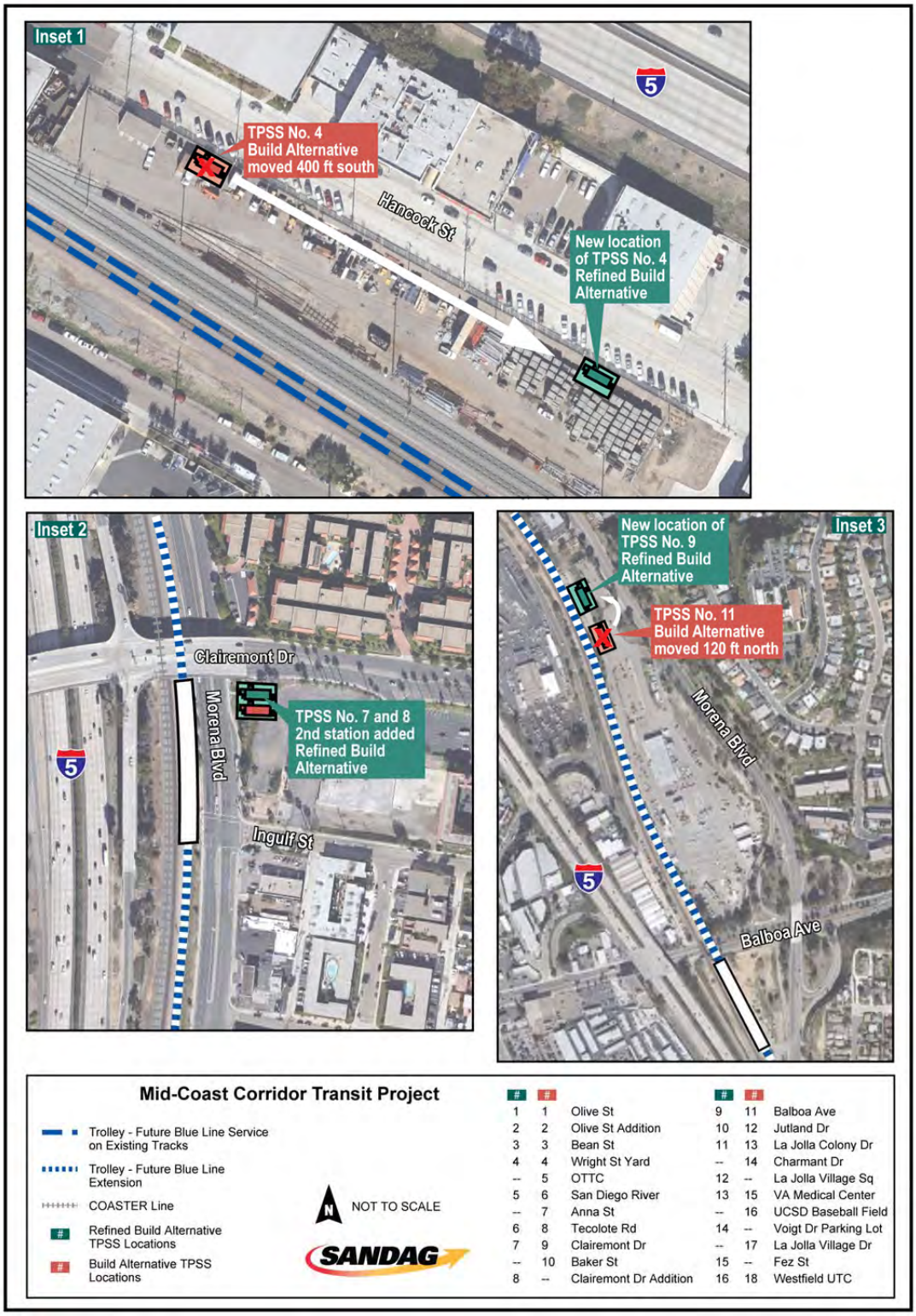
- Relocation of the substation at the Wright Street Yard to the south within the MTS property (Inset 1 in Figure 2-8)
- Relocation of the substation at Baker Street to the Clairemont Drive Station parking lot (Inset 2 in Figure 2-8)
- Relocation of the substation within the City Yard site north of Balboa Avenue (Inset 3 in Figure 2-8)
- Relocation of the substation on Charmant Drive to the west side of I-5 within the Caltrans right-of-way near the southern end of the La Jolla Village Square shopping center property (Inset 4 in Figure 2-8)
- Relocation of the substation on Voigt Drive from north of the UCSD baseball field to east of I-5 and south of Voigt Drive (Inset 5 in Figure 2-8)
- Relocation of the substation at Genesee Avenue and La Jolla Village Drive to the east of Genesee Avenue to the San Diego Gas & Electric substation facility on Fez Street (Inset 6 in Figure 2-8)

The relocation of the substation on Charmant Drive to the west side of I-5 and the substation at Genesee Avenue to Fez Street would be in locations where the TPSSs would be more visually consistent with surrounding land uses.

Figure 2-8. Refinements to Traction Power Substations

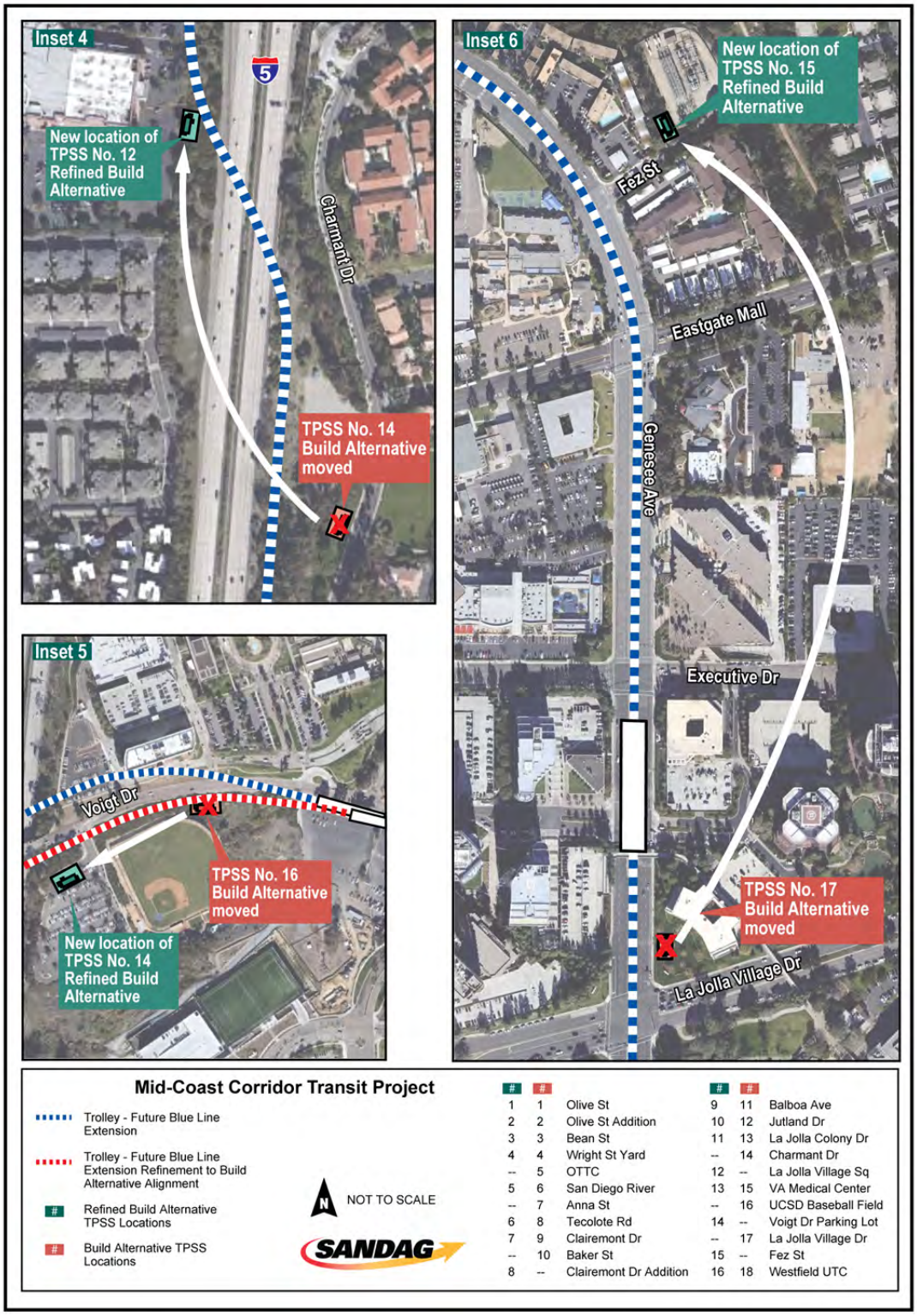
Source: SANDAG, 2013

Figure 2-8. Refinements to Traction Power Substations (continued)



Source: SANDAG, 2013

Figure 2-8. Refinements to Traction Power Substations (continued)



Source: SANDAG, 2014

2.3.6 Refinements to Construction Staging Areas

The Build Alternative in the Draft SEIS/SEIR included 15 construction staging areas. Some of these were located at future park-and-ride lots, station areas, existing parking lots, or portions of vacant private property. Comments were received on three of the identified staging areas that noted a conflict between the use of the property as a staging area and future approved development. By eliminating these areas as staging areas, these conflicts and any associated short-term impacts (e.g., loss of off-street parking) were avoided. Refinements were made to the number and location of construction staging areas based on comments received on the Draft SEIS/SEIR or due to refinements to the LRT alignment. The following four construction staging areas were eliminated:

- The site on Charmant Drive on the east side of I-5
- The site at the parking lot of Scripps Hospital located east of I-5 and north of Voigt Drive
- The site on the Monte Verde property at La Jolla Village Drive and Genesee Avenue
- The site on the UTC Westfield property

The elimination of the four construction staging areas would all result in avoidance or minimization of impacts.

To address the shift in the alignment from the north to the south side of Voigt Drive, an additional construction staging site was identified. This site is on the UCSD parking lot located east of I-5 and south of Voigt Drive where the new TPSS would be located. All other staging area sites identified in the Draft SEIS/SEIR are retained under the Refined Build Alternative. The refinements to the construction staging areas in the Refined Build Alternative are shown by location in Figure 2-9.

2.3.7 Other Engineering Refinements

Other engineering refinements, as a result of further engineering studies, include changes in retaining walls and bridges. The most notable change in the Refined Build Alternative is the elimination of two retaining walls and the addition of two bridges north of La Jolla Colony Drive near the La Paz condominiums (shown on the Final SEIS/SEIR Plan Set, Sheets 90 and 91).

2.4 Description of the Refined Build Alternative in the Final SEIS/SEIR

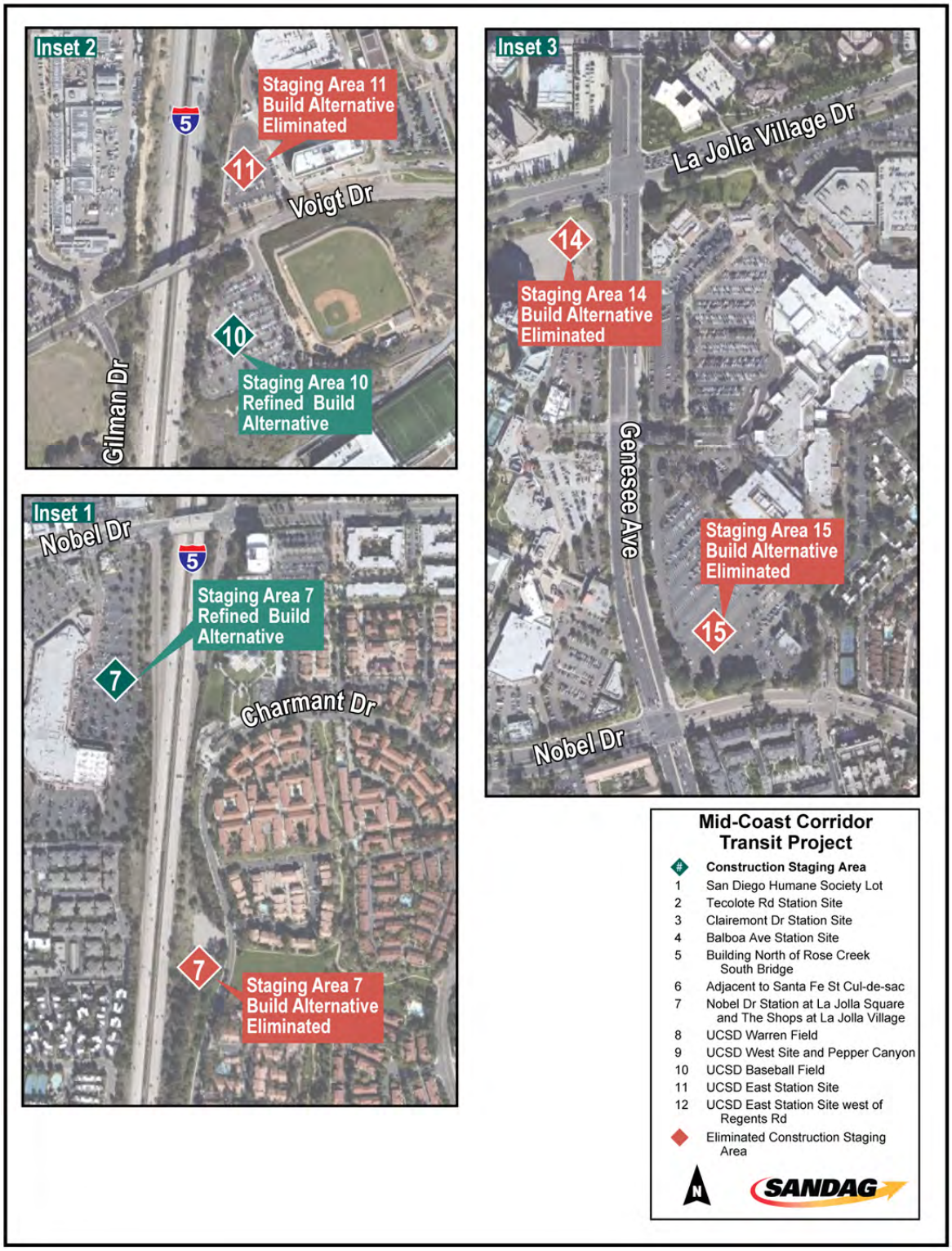
The Refined Build Alternative provides for a 14.4-mile extension of the Trolley Blue Line from the Santa Fe Depot in Downtown San Diego to the UTC Transit Center in University City. With the extension of the Trolley Blue Line, construction of the project would provide for continuous service on the Trolley Blue Line from the San Ysidro Transit Center at the U.S.–Mexico international border to University City.

Figure 2-10 shows the project alignment and station locations. The project begins at Santa Fe Depot in Downtown San Diego, where the Trolley Blue Line would terminate under the No-Build Alternative.

Figure 2-9. Refinements to Construction Staging Areas

Source: SANDAG, 2013

Figure 2-9. Refinements to Construction Staging Areas (continued)



Source: SANDAG, 2013

Figure 2-10. Refined Build Alternative

Source: SANDAG, 2014

The project would use the existing Trolley tracks for approximately 3.5 miles, from the Santa Fe Depot to a point just north of the OTTC and south of the San Diego River. The Trolley Blue Line trains would share the tracks with the Trolley Green Line trains. North of this point, the project includes construction of 10.9 miles of new double track extending to the terminus at the UTC Transit Center in University City. The only improvements included in the project south of the OTTC are upgrades to the existing systems, including the signaling system and traction power system to accommodate the increase in Trolley service in this segment.

In addition to the new double-track extension, the project includes nine new stations, upgrades to existing systems facilities between the Santa Fe Depot and the OTTC, and the acquisition of new Trolley vehicles for the extended project operation. Stations would be located at Tecolote Road, Clairemont Drive, Balboa Avenue, Nobel Drive, the VA Medical Center, UCSD West Campus, UCSD East Campus, Executive Drive, and the UTC Transit Center.

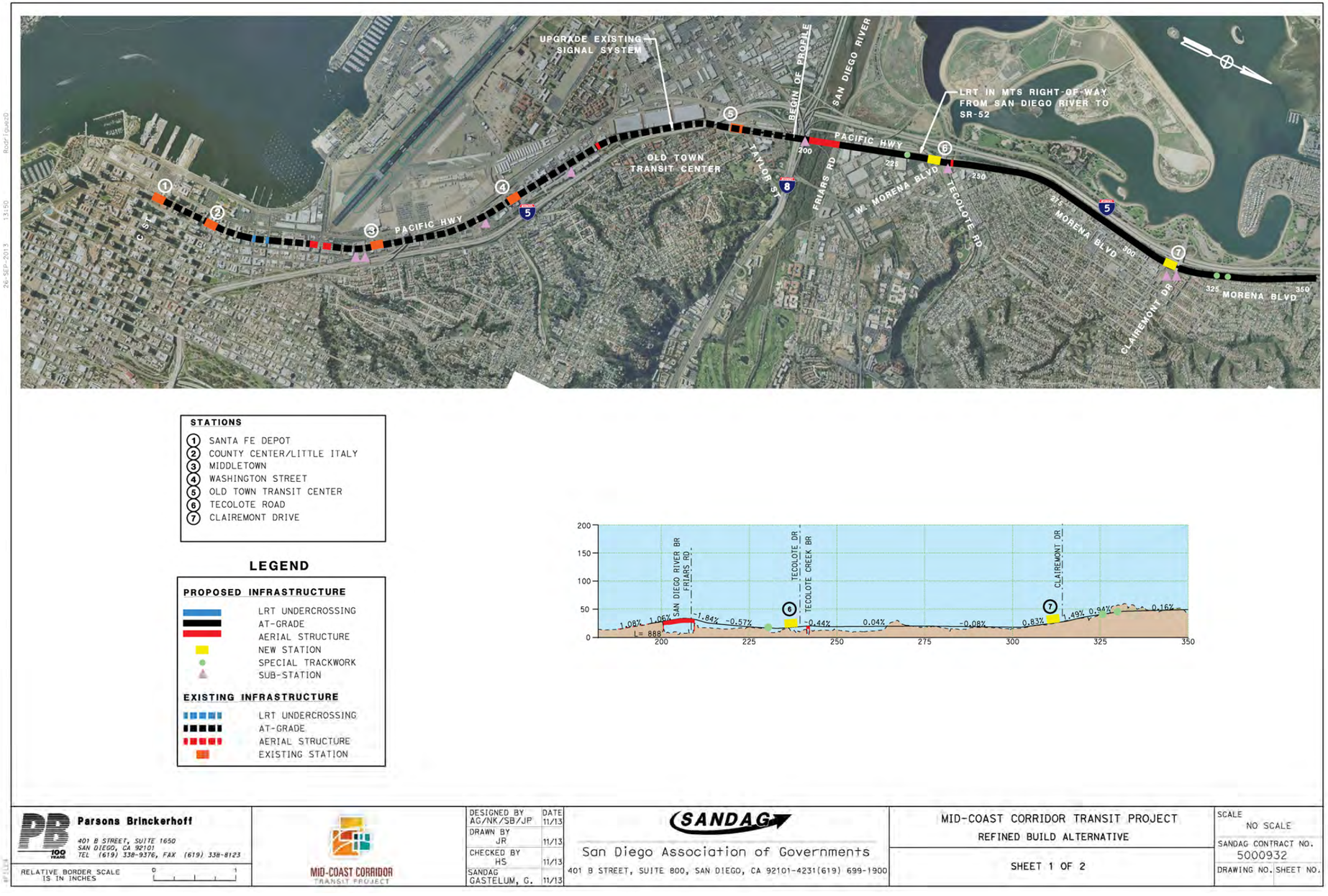
2.4.1 Alignment

The project alignment would follow the LOSSAN tracks within the existing MTS and City of San Diego right-of-way from the Santa Fe Depot to approximately 3,500 feet south of the I-5/Gilman Drive/La Jolla Colony Drive interchange. The alignment would then leave the LOSSAN right-of-way, enter Caltrans right-of-way, and parallel the east side of the I-5 corridor north to the I-5/Gilman Drive/La Jolla Colony Drive interchange. North of the interchange, the alignment would parallel the I-5 corridor, traveling partially within Caltrans right-of-way and partially on private property, and then transition to an aerial structure and cross over to the west side of I-5 south of Nobel Drive. From Nobel Drive, the alignment would continue north to the UCSD West Campus, then cross back over to the east side of I-5 along the south side of Voigt Drive and terminate on Genesee Avenue at the UTC Transit Center. The alignment's total length from the south side of the San Diego River to the terminus at the UTC Transit Center is 10.9 miles.

Plan and profile drawings for the project alignment are provided in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 2: Plan Set*, referred to as the Final SEIS/SEIR Plan Set. Right-of-way plans showing existing and proposed rights-of-way and temporary construction easements for the project alignment, stations, and supporting facilities also are contained in the Final SEIS/SEIR Plan Set. The *Mid-Coast Corridor Transit Project Property Acquisitions Impacts Technical Report* (SANDAG, 2014o) identifies property acquisitions and structures to be demolished as part of the project. The *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s) describes the construction methods, activities, and durations. Property acquisitions are also addressed in Section 4.3 and construction methods are summarized in Section 4.17 of this Final SEIS/SEIR.

Figure 2-11 presents a conceptual plan and profile drawing of the project alignment, stations, and supporting facilities. North of the OTTC, the project alignment would be located primarily at grade within the existing MTS right-of-way, north to the vicinity of Gilman Drive/La Jolla Colony Drive. This railroad corridor is used by the COASTER commuter rail, Amtrak intercity rail, and Burlington Northern and Santa Fe freight rail. The project alignment would be located east of the existing LOSSAN tracks, from the OTTC to south of SR 52, with at-grade stations at Tecolote Road, Clairemont Drive, and Balboa Avenue.

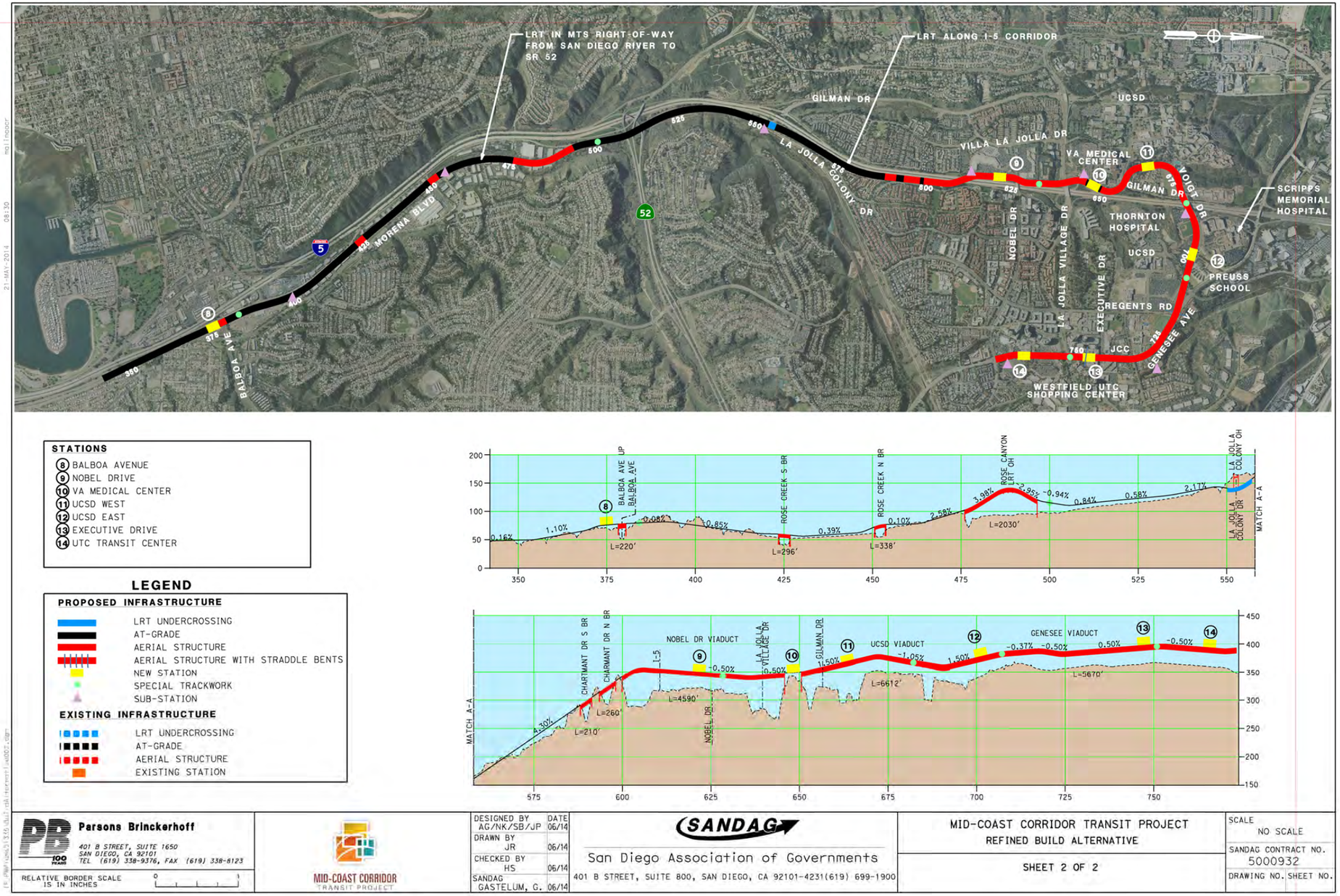
Figure 2-11. Conceptual Plan and Profile of Refined Build Alternative



Source: Final SEIS/SEIR Plan Set

THIS PAGE INTENTIONALLY LEFT BLANK

Figure 2-11. Conceptual Plan and Profile of Refined Build Alternative (continued)



Source: Final SEIS/SEIR Plan Set

THIS PAGE INTENTIONALLY LEFT BLANK

The project alignment would use bridges to cross the San Diego River, Tecolote Creek, and Rose Creek, and would be grade separated over Friars Road and Balboa Avenue. South of SR 52, the alignment would transition to an aerial structure and would cross the existing LOSSAN tracks, continuing at grade west of the existing LOSSAN tracks. To accommodate the alignment along the westerly right-of-way, the existing LOSSAN tracks would be relocated east but would still be located within the MTS right-of-way. Just south of Gilman Drive/La Jolla Colony Drive, the alignment would leave the MTS right-of-way and enter the I-5 right-of-way. Along the I-5 corridor, the project alignment would be designed so as not to preclude the future widening of I-5.

Upon entering the I-5 right-of-way north of SR 52, the project alignment would extend at grade along the east side of I-5, crossing under La Jolla Colony Drive in a cut-and-cover underpass. North of the underpass, the alignment would continue at grade along the east side of I-5, generally within or adjacent to the I-5 right-of-way to Charmant Drive. The alignment would then cross over two canyons along the east side of I-5 and west of Charmant Drive and transition to an aerial structure to cross over to the west side of I-5, south of Nobel Drive. No major modifications to I-5 would be required to accommodate the crossing. The aerial alignment would continue north along the west side of I-5 to an aerial station at La Jolla Village Square (Nobel Drive Station).

Continuing north from the Nobel Drive Station, the project alignment would remain on an aerial structure, travel for approximately 160 feet along the southeast corner of the shopping center on the north side of Nobel Drive, then enter the I-5 right-of-way and travel along the west side of I-5 within the I-5 right-of-way. It would return to grade just north of the I-5/La Jolla Village Drive interchange and run at-grade for a short distance along the west side of I-5 and the east side of the VA Medical Center. An at-grade station would be located at the VA Medical Center. The station would be within the I-5 right-of-way, with access provided from the VA Medical Center property.

South of Gilman Drive, the project alignment would transition back to an aerial structure and enter the UCSD West Campus, crossing Gilman Drive and the surface parking lot located north of Gilman Drive on the UCSD campus. The aerial alignment would then cross Pepper Canyon and continue to an aerial station on the UCSD West Campus.

North of the UCSD West Station, the project alignment would turn east on an aerial structure on the UCSD campus and cross to the north side of Voigt Drive. The aerial alignment would then proceed east and cross back over Voigt Drive to the northeastern corner of Warren Field and across Gilman Drive along the south side of the future Voigt Drive bridge proposed as part of the Caltrans I-5 North Coast Corridor Project.

The I-5 North Coast Corridor Project proposes to construct HOV DARs that connect to the north side of Voigt Drive. Construction of the DARs by Caltrans is scheduled for completion by 2020. No major modifications to I-5 would be required to accommodate the crossing. As part of the North Coast Corridor Project, Caltrans proposes to realign Voigt Drive to connect to Genesee Avenue and realign Campus Point Drive to connect to Voigt Drive. Voigt Drive is located on UCSD property. The Mid-Coast Corridor Transit Project's alignment would be located so as not to preclude the realignment of Voigt Drive and Campus Point Drive.

After crossing I-5, the project alignment would continue east along the south side of Voigt Drive and to the north of the existing UCSD baseball field. The aerial alignment would continue across the future realigned Campus Point Drive at Voigt Drive and across Voigt Drive to Genesee Avenue, where it would enter the street right-of-way. The UCSD East Station spans the future realigned Campus Point Drive. The aerial alignment would enter the Genesee Avenue right-of-way just west of Regents Road and continue south on an aerial structure in the median of Genesee Avenue, following the existing alignment of Genesee Avenue to a station at Executive Drive, and a terminal station at the UTC Transit Center.

Under the project, the support columns generally would be located in the center of the Genesee Avenue median. The project would require two straddle bents along Genesee Avenue. The first straddle bent would be located west of Regents Road where the alignment would enter Genesee Avenue at an angle. The second one would be located on Genesee Avenue at the Executive Square intersection. The straddle bents would have support columns in the median of Genesee Avenue, along the south side of Genesee Avenue, or in the median of Executive Square. The remaining support columns would be spaced at approximately 125 to 210 feet apart. Localized widening of Genesee Avenue would be required to accommodate the support columns with necessary clearances and to maintain the number of existing traffic lanes, as well as to accommodate the stations at Executive Drive and the UTC Transit Center.

2.4.2 Stations

The project includes nine new stations for passenger access. All new stations would be side-platform stations with 360-foot-long platforms designed to accommodate up to four-car trains. All platforms would be fully accessible and comply with the Americans with Disabilities Act.

Canopies would be provided at each station and would cover portions of the platforms and fare collection areas. Fare collection equipment, consisting of ticket/smart card vending machines and Compass Card validators, would be provided at each station. These amenities would be placed as appropriate on the platform where boarding occurs or at station entrances. Other station amenities would include benches, information kiosks, and security features according to SANDAG Design Criteria. Bicycle lockers would be available at all stations. At the UTC Transit Center, bicycle lockers would be located within the bus transit center adjacent to the Trolley station. Parking and bus transfer facilities would be provided at five stations, as described later in this section. Lighting would be provided at all station platforms and parking areas. No public restrooms would be provided at any of the stations.

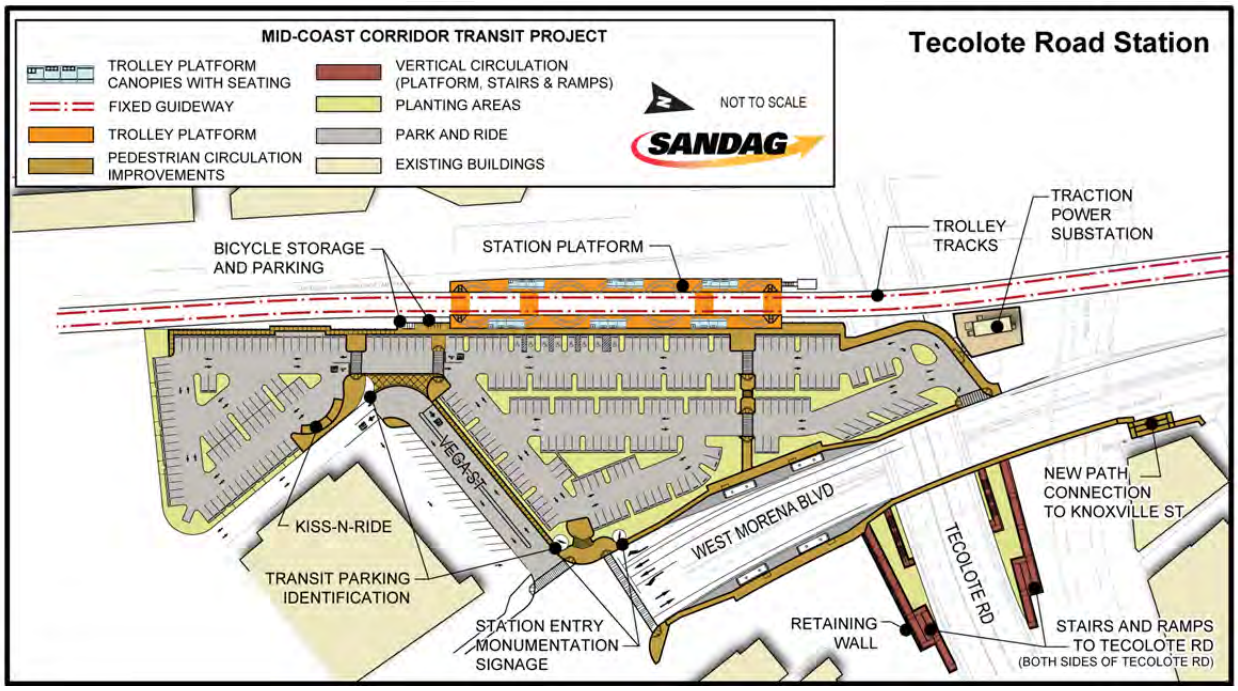
For the at-grade stations south of Balboa Avenue where the southbound platform would be adjacent to the LOSSAN tracks, a screen wall would be constructed at the back of the platforms to shield passengers from the wind induced by a fast-moving Amtrak or COASTER train. On aerial platforms, a 10-foot-high safety fence or screen would be provided at the back of both platforms.

The new project stations include both at-grade and aerial stations. The project segment along the MTS right-of-way between the San Diego River crossing and Gilman Drive would include three at-grade stations at Tecolote Road, Clairemont Drive, and Balboa

Avenue. The site concept plans developed for these stations are described below. More detailed station site plans for each of the stations are provided in the Final SEIS/SEIR Plan Set. The Final SEIS/SEIR Plan Set also contains street-improvement plans showing any modifications to the streets in the vicinity of the stations. The improvements would be designed to accommodate pedestrians and bicyclists in a safe manner.

- Tecolote Road Station—This at-grade station would be located south of the existing Tecolote Road overcrossing (Figure 2-12). Primary access to the station for northbound traffic would be provided via the existing signalized intersection at West Morena Boulevard and Vega Street. A driveway for right turns in and out would be provided on West Morena Boulevard for southbound traffic. A TPSS would be located immediately north of the station driveway on West Morena Boulevard. The station site would include 280 surface parking spaces, with 180 spaces adjacent to the west side of West Morena Boulevard and another 100 spaces to the south of Vega Street. Short-term parking spaces would be provided for pick up and drop off of passengers (referred to as kiss-and-ride). Bus stops and turnouts for transferring passengers would be provided on both sides of West Morena Boulevard by widening the roadway and removing approximately 15 existing on-street parking spaces along the east side of West Morena Boulevard. In the vicinity of the bus stops, a fence would be provided in the median of West Morena Boulevard to prevent passengers from crossing at mid-block. Pedestrian ramps and stairs would be constructed on the east side of West Morena Boulevard for access to the north and south sides of Tecolote Road. Additionally, a new sidewalk would be constructed along the east side of West Morena Boulevard to Knoxville Street.

Figure 2-12. Site Concept for Tecolote Road Station

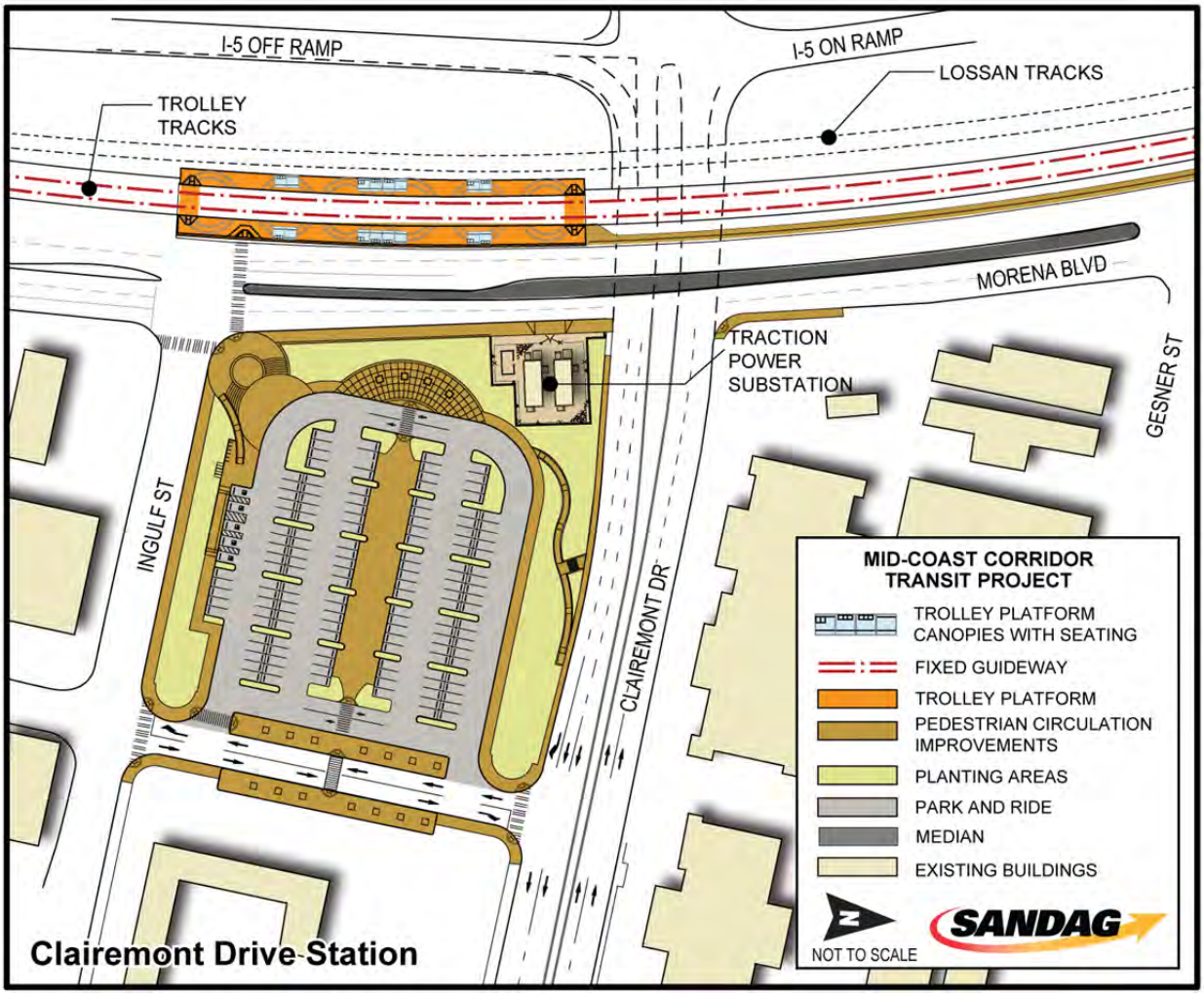


Source: SANDAG, 2013

- Clairemont Drive Station—This at-grade station would be located south of the existing Clairemont Drive overcrossing adjacent to Morena Boulevard (Figure 2-13). The station platforms would be located along the west side of Morena Boulevard, and a 150-space surface parking lot would be located across the street on the east side. The station parking lot would include a site for two TPSSs. Access to the station parking lot would be provided via driveways on Ingulf Street and Clairemont Drive.

  A new off-street bus stop would be provided within the station parking lot. New sidewalks would be constructed along the east side of Morena Boulevard from Ingulf Street to north of Clairemont Drive and along the west side of Morena Boulevard from the north side of the station platform to Gesner Street. Pedestrian crossings between the east and west sides of Morena Boulevard and the station parking lot would be provided by existing crosswalks at the signalized intersections at Morena Boulevard/Ingulf Street and Morena Boulevard/Gesner Street.

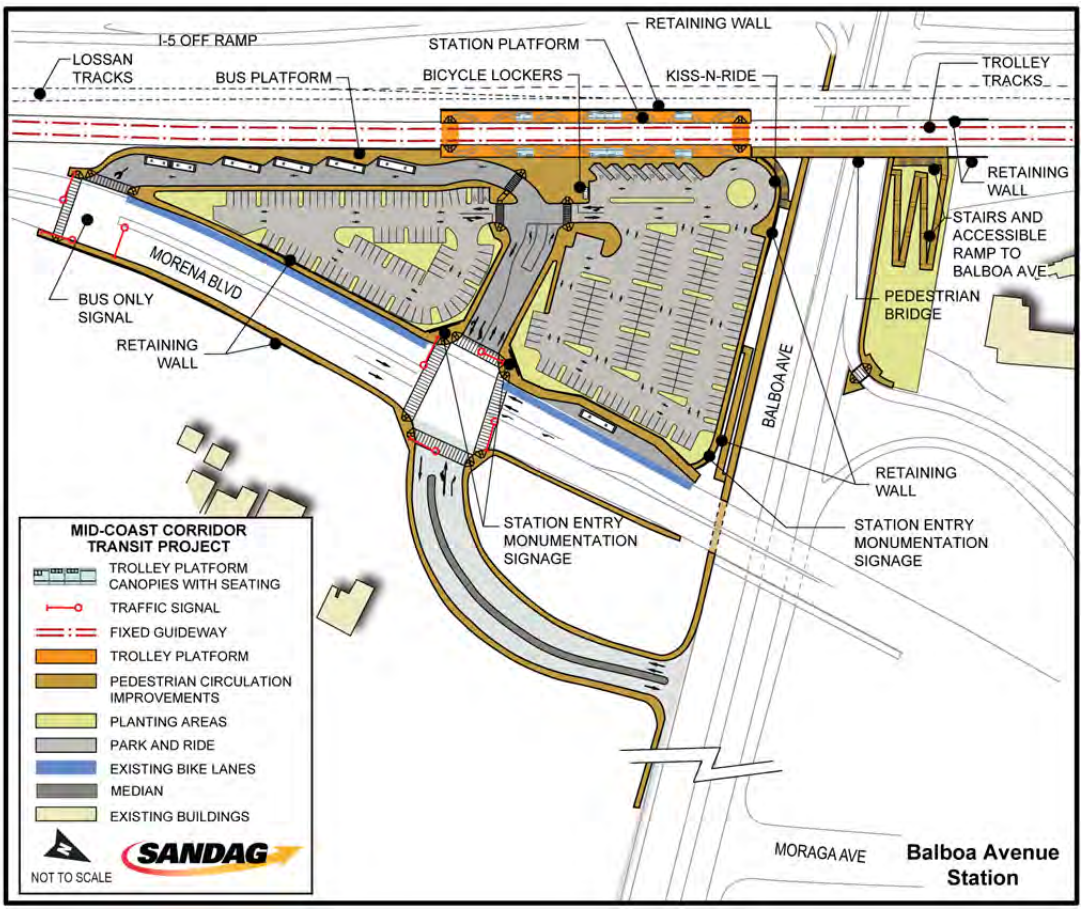
Figure 2-13. Site Concept for Clairemont Drive Station



Source: SANDAG, 2013

- Balboa Avenue Station—This at-grade station would be located in the southwest quadrant of the Balboa Avenue/Morena Boulevard interchange (Figure 2-14). The station site would include a surface parking lot with approximately 220 spaces, five bus bays, and short-term parking for pick up and drop off of passengers. An additional on-street bus turnout would be provided on the west side of Morena Boulevard. To provide for bus and vehicular access to the station, the existing on ramp from eastbound Balboa Avenue to southbound Morena Boulevard would be removed and traffic would be rerouted to the loop ramp connecting eastbound Balboa Avenue to Morena Boulevard. The loop ramp would be widened and its intersection with Morena Boulevard would be signalized, allowing traffic to turn south on Morena Boulevard. The westerly leg of this intersection would serve as the entrance to the station for buses and as an entrance and exit for vehicular traffic. Buses would exit the station via a new signalized intersection constructed at the southern end of the station site. Pedestrian access to the station from Morena Boulevard would be provided via new sidewalks on both sides of Morena Boulevard within the station area. Access from Balboa Avenue would be via ramps and stairs on both sides of the street. A pedestrian bridge would be provided across Balboa Avenue for access to the station from the north side of Balboa Avenue.

Figure 2-14. Site Concept for Balboa Avenue Station

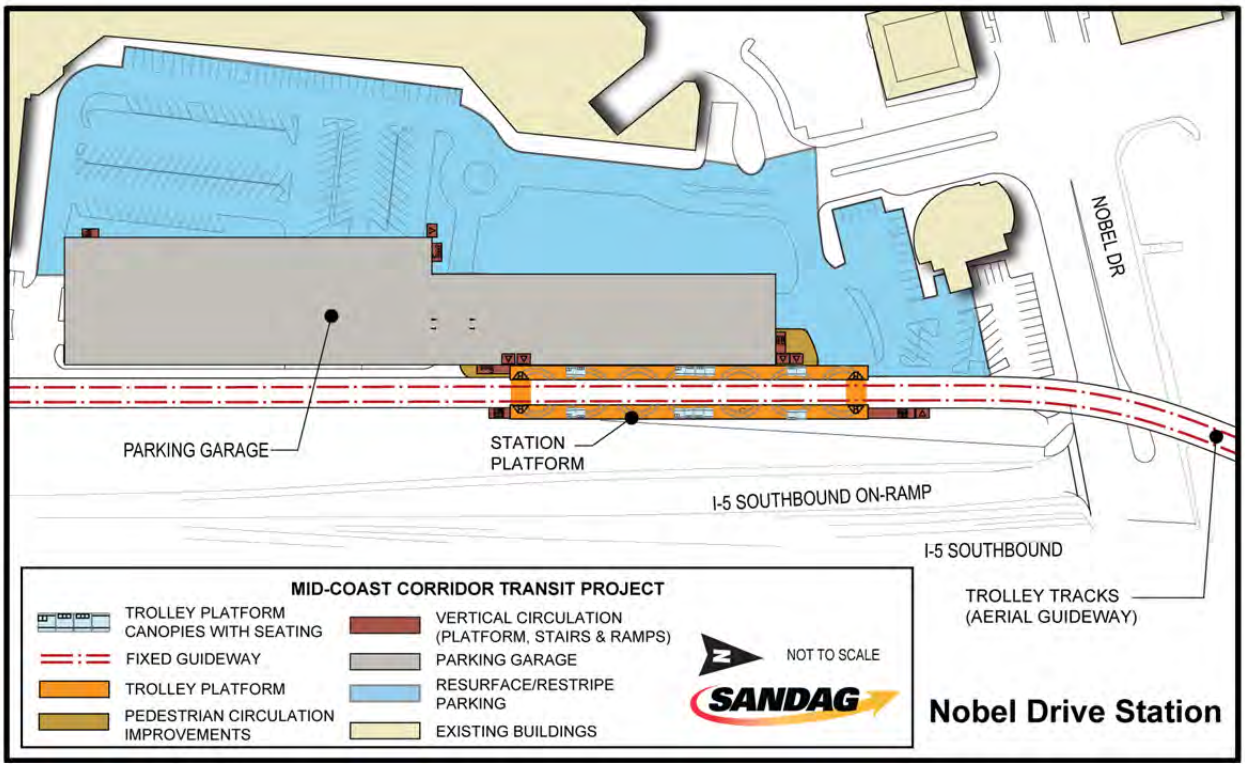


Source: SANDAG, 2013

The project segment along the I-5 corridor between Gilman Drive and the alignment crossing of I-5 at Voigt Drive would include an aerial station at Nobel Drive, an at-grade station at the VA Medical Center, and an aerial station on the UCSD West Campus. The site concept plans developed for these stations are described below.

- Nobel Drive Station—This aerial station would be located within an existing parking area on the west side of I-5 and south of Nobel Drive at the La Jolla Village Square shopping center (Figure 2-15). The station would include an approximately 800-space joint-use parking structure with 260 transit parking spaces as well as approximately 540 replacement parking spaces for the surface parking spaces required for construction of the station and parking structure at the shopping center. In addition to the parking structure, a portion of the existing surface parking lot at the shopping center would be resurfaced and restriped. Access to the station platform would be provided by stairs and elevators. No bus stops would be constructed at this station as part of the project. Nobel Drive currently has bus stops on both sides of the street in the vicinity of the station.

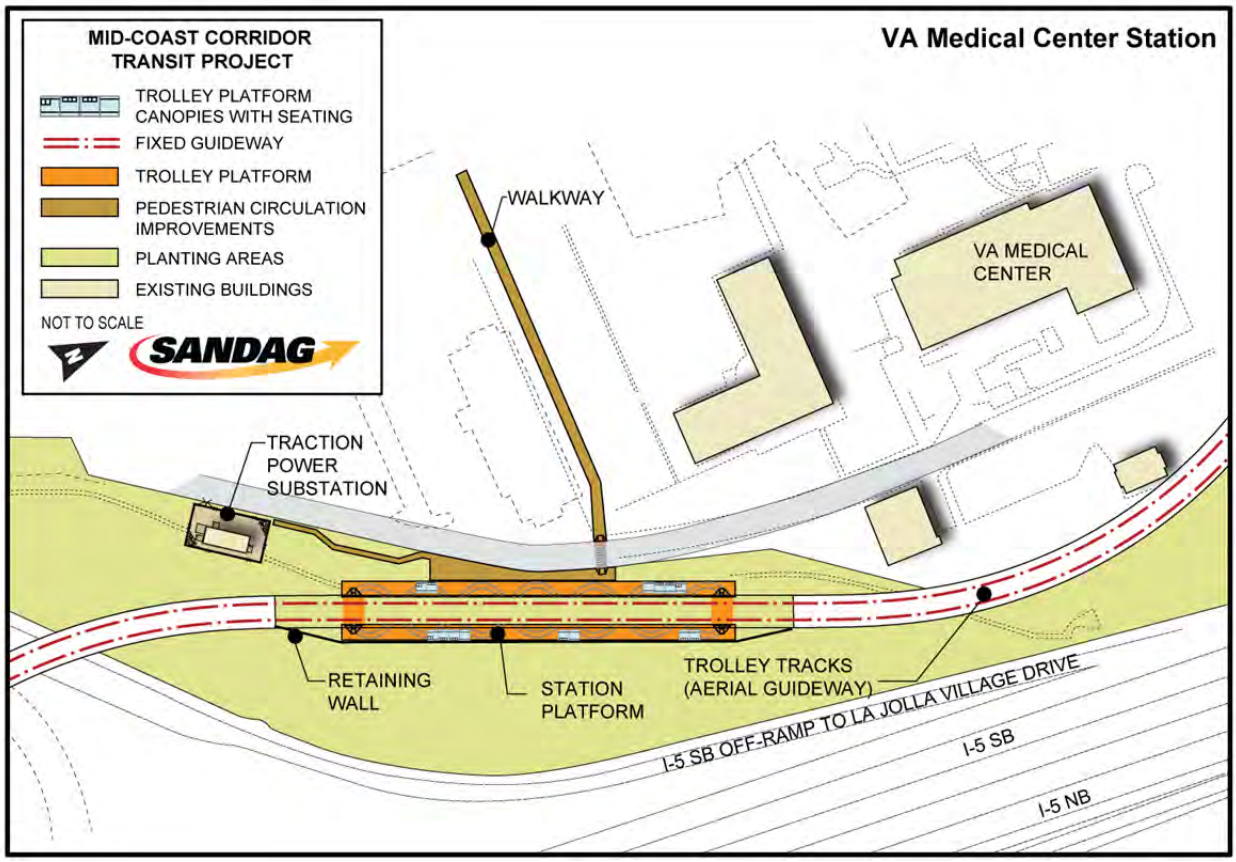
Figure 2-15. Site Concept for Nobel Drive Station



Source: SANDAG, 2013

- VA Medical Center Station—This at-grade station would be located at the VA Medical Center on the west side of I-5 and north of La Jolla Village Drive (Figure 2-16). The station would be at approximately the same elevation as the surface parking lot of the VA Medical Center. No new parking or bus stops would be provided at this station. A connection to the hospital would be provided by improvements to the pedestrian paths between the station and the main hospital entrance. A TPSS would be located in Caltrans right-of-way, south of the station.

Figure 2-16. Site Concept for VA Medical Center Station

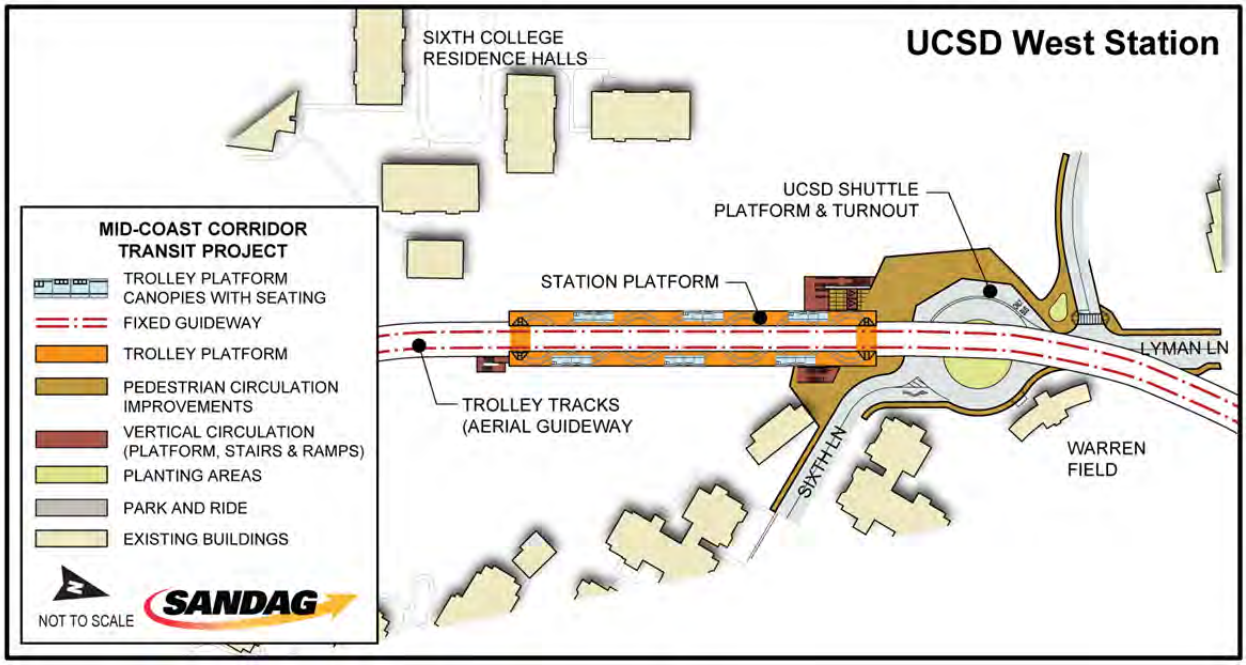


Source: SANDAG, 2013

- UCSD West Station—This aerial station would be located at the north end of Pepper Canyon and west of the UCSD student-housing complex (Figure 2-17). The station would be located just east of the campus center and the Price Center. No parking would be provided at the station.

  Because the alignment would have to clear the existing parking lot at the south end of the canyon and Lyman Lane at the north end of the canyon, this station would be constructed at an elevation higher than the elevation of the canyon rim. North of the station, two to three shuttle bus stops and a bus turnaround area would be provided for UCSD shuttle bus service. The shuttle bus area would be located at grade below

Figure 2-17. Site Concept for UCSD West Station



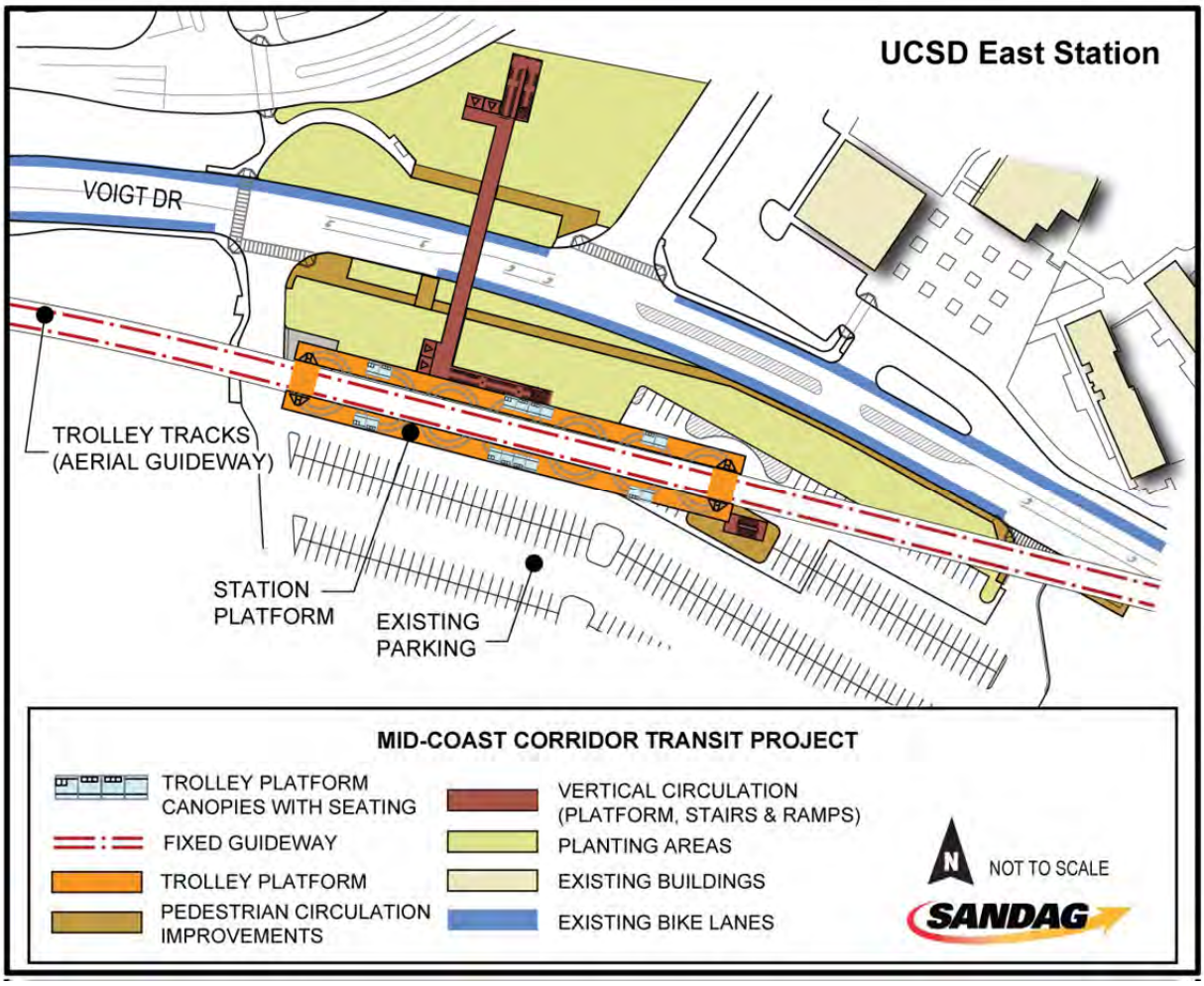
Source: SANDAG, 2013

the north end of the elevated station platforms. Stairs and an elevator would provide access to the north end of the station platform. Only stairs for emergency use would be provided at the south end of the platform.

The project segment east of I-5, along Voigt Drive, would include an aerial station on the UCSD East Campus west of Campus Point Drive, serving both the UCSD East Campus and Scripps Hospital. The site concept plan for the UCSD East Station is described below.

- UCSD East Station—This aerial station would be located along the south side of Voigt Drive and west of the Preuss School, near Scripps Hospital (Figure 2-18). The location of the station is designed to accommodate the future realignment of Campus Point Drive. Station access would be provided by stairs and elevators. A pedestrian bridge would be provided across Voigt Drive for access to the north side of Voigt Drive. New sidewalks would be constructed on both sides of Voigt Drive to connect with the western end of the station. No station parking or new bus stops would be provided. A TPSS would be located to the west of the station platforms.

Figure 2-18. Site Concept for UCSD East Station

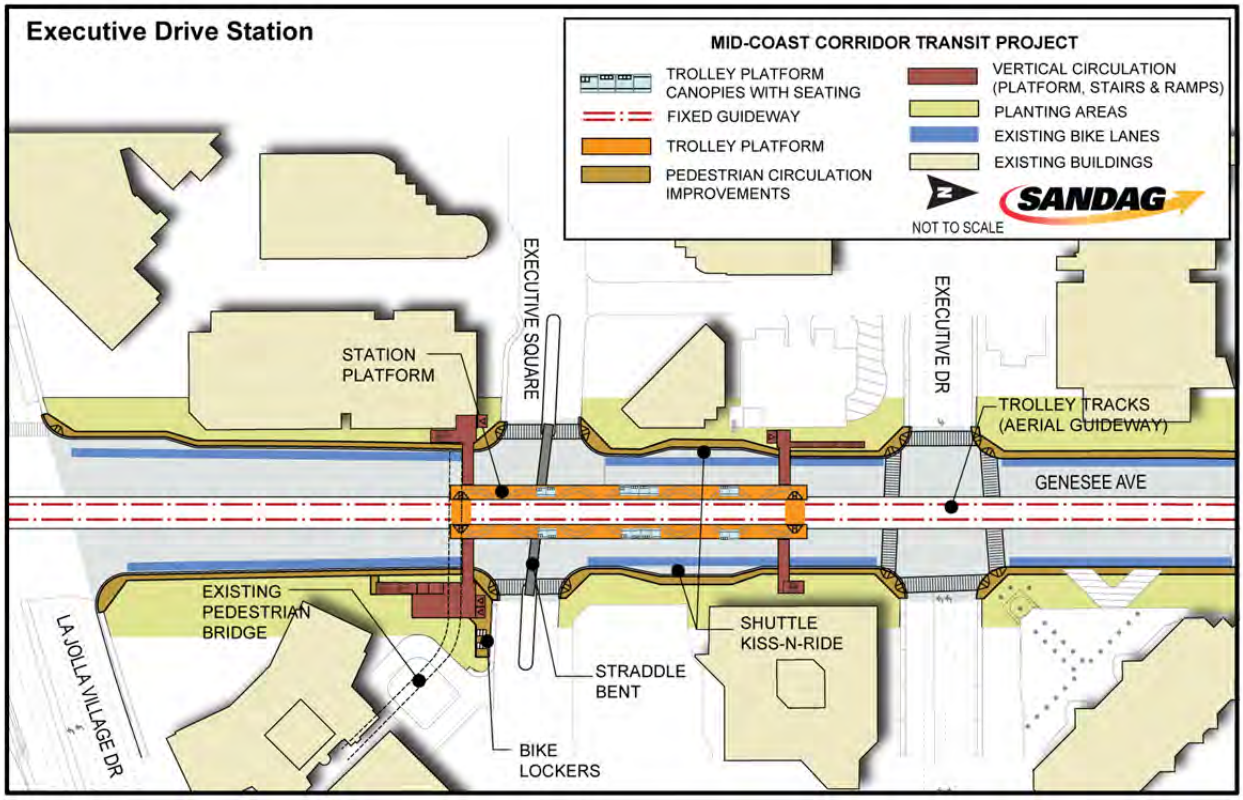


Source: SANDAG, 2013

East of I-5 along Genesee Avenue, the project would include aerial stations at Executive Drive and at the UTC Transit Center. The site concept plans for these two stations are described below.

- Executive Drive Station—This aerial station would be located in the center of Genesee Avenue, south of Executive Drive, and would span Executive Square (Figure 2-19) with a straddle bent with support columns located in the median of Executive Square. Station construction would require removal of the existing pedestrian bridge crossing Genesee Avenue just south of Executive Square. A new pedestrian bridge at the south end of the station platform would connect the station to both sides of Genesee Avenue and to the existing pedestrian bridge on the east side of Genesee Avenue. Pedestrian grade-separated access across Genesee Avenue at this location would be provided through the aerial station platform at Executive Drive via ramps, elevators, and stairway facilities connecting to the

Figure 2-19. Site Concept for Executive Drive Station

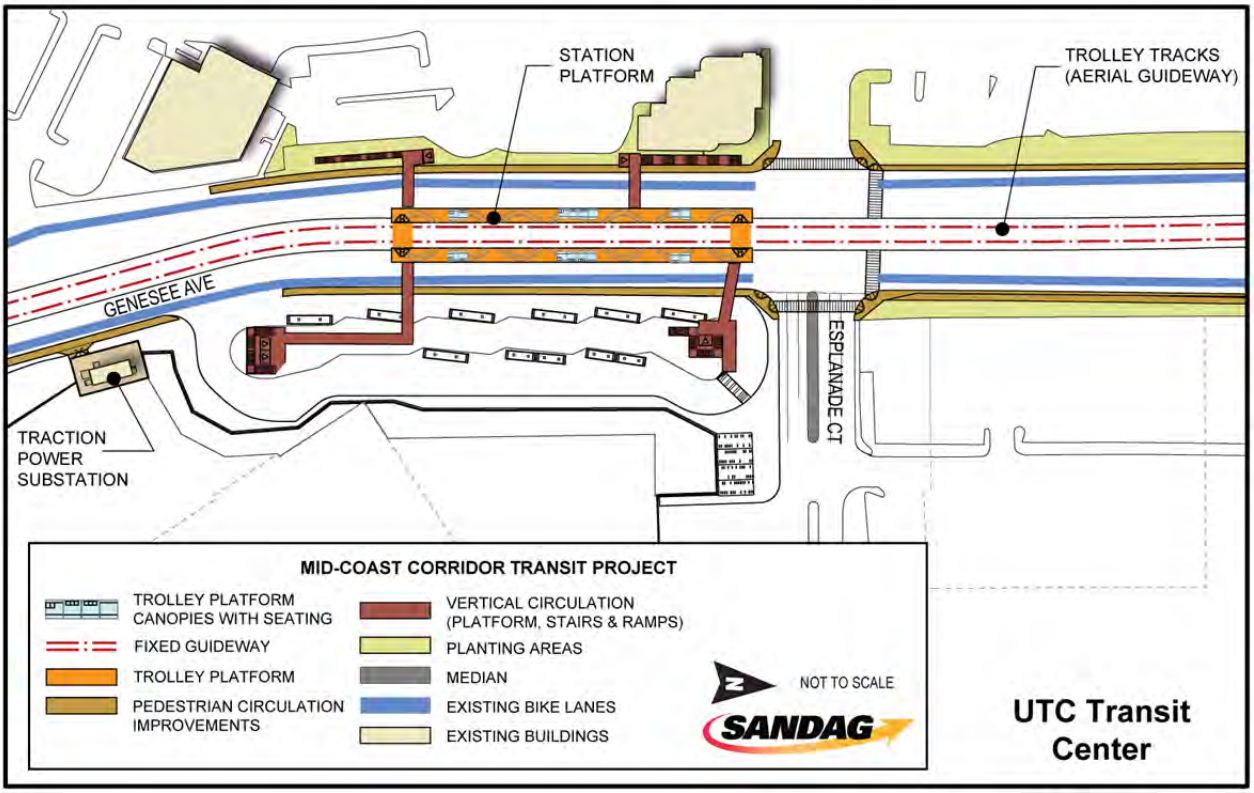


Source: SANDAG, 2013

existing pedestrian facilities to the west and east sides of Genesee Avenue. Shuttle bus pullouts and passenger drop-off and pick-up areas would be constructed on both sides of Genesee Avenue. No parking would be provided at the station.

- UTC Transit Center—This aerial station would be located in the center of Genesee Avenue, south of Esplanade Court/UTC Driveway, with pedestrian bridges to the Westfield UTC shopping center on the east and the Costa Verde shopping center on the west (Figure 2-20). The station would provide 260 transit parking spaces within the Westfield UTC shopping center. Access to the station parking facility would be via the intersection of Genesee Avenue and Esplanade Court/UTC Driveway. The station also would include a connection to the new bus transit center, which is a component of the expansion of the Westfield UTC shopping center. A TPSS would be located near the southern end of the station site. Construction of the Refined Build Alternative would require the removal of the pedestrian bridge across Genesee Avenue located mid-block between La Jolla Village Drive and Esplanade Court/UTC Driveway. Pedestrian access across Genesee Avenue would be provided approximately 500 feet to the south of the existing bridge at the intersection of Genesee Avenue and Esplanade Court/UTC Driveway. Grade-separated pedestrian access across Genesee Avenue would also be accommodated through the aerial station platform at the UTC Transit Center to be located just south of Esplanade

Figure 2-20. Site Concept for UTC Transit Center



Source: SANDAG, 2013

Court/UTC Driveway via ramps, elevators, and stairway facilities that would connect the LRT station to the parkway area along the west side of Genesee Avenue and the UTC Transit Center to the east of the LRT station.

2.4.3 Trolley Vehicle Fleet and Maintenance Facilities

The Trolley Blue Line extension would require 36 new LRVs to cover peak-period service with spares in 2030. In the opening year of revenue service, 25 of the 36 new LRVs would be required. Fare collection would be the same as the existing proof-of-payment system currently in use on the Trolley. No fare collection equipment would be provided on the vehicles.

The MTS maintenance plan for LRVs, including those for the project, centralizes all functions at the existing maintenance facilities located at 1255 Imperial Avenue in Downtown San Diego. No expansion of existing maintenance facilities would be required for the project.

2.4.4 Power System and Signaling

The LRVs would receive electrical power from overhead contact wires. Catenary support poles, approximately 25 feet high, would be located at approximately 150- to 180-foot intervals. The catenary poles generally would be located in the center of the project

alignment. In some locations, the poles would be located on both sides of the Trolley tracks. The overhead electrical power lines would be suspended above the Trolley tracks.

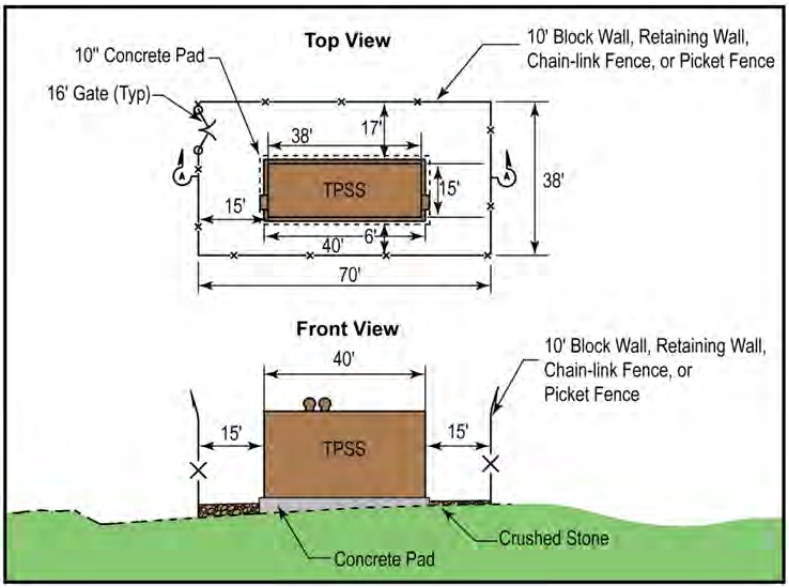
Electricity to power the LRVs would be provided by TPSSs. The TPSSs would be of similar size and design to the existing substations used on the Trolley Green Line. Typical TPSS dimensions would be a 40-foot by 15-foot unmanned equipment enclosure within a 45-foot by 75-foot fenced site. Figure 2-21 shows an example of an existing TPSS.

Figure 2-21. Existing Traction Power Substation at a Street North of Santa Fe Depot

Source: SANDAG, 2013

The extension of the Trolley Blue Line service from Santa Fe Depot to the UTC Transit Center would require 16 TPSSs, consisting of four new or upgraded substations between Santa Fe Depot and the OTTC and 12 new substations north of the OTTC. The TPSS locations and layouts are shown in the Final SEIS/SEIR Plan Set. Figure 2-22 illustrates the layout of a typical TPSS.

Figure 2-22. Traction Power Substation Layout



Source: SANDAG, 2012

Between Santa Fe Depot and the OTTC, replacement or upgrades to two existing TPSS locations on Olive Street and on Bean Street and two new substations would be required because of the increased frequency of Trolley service and the higher power draw of the new vehicles. One of the new substations is a second substation to the existing site at Olive Street and the other is a new substation within the

existing MTS Wright Street Yard south of the OTTC. The remaining 12 new substations would be located north of the OTTC. Table 2-4 identifies the location of the existing substations and the proposed substation upgrades between Santa Fe Depot and the OTTC, and the proposed new substations north of the OTTC.

Table 2-4. Traction Power Substation Locations

TPSS No.	Stationing	Description
1	64+50	Replacement of an existing substation located along the east side of the right-of-way at Olive St.
2	64+50	Addition of a second new substation at Olive St
3	101+36	Replacement of an existing substation at Bean St
4	129+50	New substation at Wright St Yard within existing MTS property
5	199+50	New substation south of the San Diego River and north of I-8, in City of San Diego right-of-way
6	241+00	New substation at Tecolote Rd Station along east side of tracks and south of Tecolote Creek
7	313+25	New substation at Clairemont Dr Station parking lot
8	313+25	New substation at Clairemont Dr Station parking lot
9	401+25	New substation north of Balboa Ave within City Yard
10	456+00	New substation just north of Jutland Dr on undeveloped parcel east of MTS right-of-way
11	550+00	New substation south of La Jolla Colony Dr on the east side of I-5
12	612+10	New substation on the west side of I-5 in Caltrans right-of-way at the southern end of the La Jolla Village Square shopping center
13	645+50	New substation in Caltrans right-of-way next to VA Medical Center
14	687+00	New substation on east side of I-5 and west of the UCSD baseball field
15	731+10	New substation on SDG&E property located at the terminus of Fez St
16	771+00	New substation on Westfield UTC property north of Nobel Dr

Source: SANDAG, 2014
Notes: Caltrans = California Department of Transportation; I- = Interstate; MTS = Metropolitan Transit System; SDG&E = San Diego Gas & Electric; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

Communications and signaling (C&S) buildings centralize train control and communications for Trolley operations at each station. Each facility is an enclosure located within the station site area, typically adjacent to a station platform. Positioning of a C&S building must be selected to provide clearances for maintaining and servicing equipment and to maintain sight lines for LRT operations. Upgrades to the existing C&S system between the Santa Fe Depot and the OTTC would be required as part of the project; however, this would not require additional C&S buildings.

Other proposed physical improvements to the Trolley system south of the OTTC and north of Santa Fe Depot would include upgrades to existing systems, including the signaling system and the overhead catenary system to accommodate all-day 7.5-minute Trolley Blue Line service. These potential improvements would be located within the existing railroad and MTS right-of-way, as described below:

- LRT signaling system improvements would include additional track circuit relays at County Center/Little Italy, Middletown, and Washington Street Stations; upgrades to

the block signaling system to accommodate the reduced headways between Santa Fe Depot and the OTTC; and adjustments to the crossing gate controllers to ensure an efficient gate operation also meeting requirements of the *Manual on Uniform Traffic Control Devices* (23 Code of Federal Regulations, Part 655, Subpart F).

- Improvements to the overhead catenary system would include the addition of a double messenger wire instead of the existing single messenger wire.
- LOSSAN track improvements would provide for the relocation of an existing control point signal from the north side of Taylor Street to the south side of Taylor Street, just north of the existing station platform. The improvements would reduce railroad gate down time for northbound COASTER and Amtrak trains stopping at the OTTC.

2.4.5 Operating Plan

Operating plans were developed using ridership forecasts. These operating plans were then used to develop the capital and operating cost estimates and to provide the basis for the analysis of potential project impacts.

Table 2-5 presents the existing 2010 Trolley operating plan and the Trolley operating plans developed for the opening year and 2030 revenue service. The 2030 operating plan for the No-Build Alternative (also provided in Table 2-3) is included for comparative purposes. Currently, the Trolley Blue Line operates from approximately 4:00 a.m. until 2:00 a.m. the next day. Hours of service for the Trolley Blue Line under the Refined Build Alternative would be similar to existing service.

The 2010 operating plan (existing conditions) does not include the Refined Build Alternative. Therefore, to evaluate project impacts compared to existing conditions, the Refined Build Alternative was added into the 2010 operating plan to provide a basis for comparing project impacts to existing conditions.

At the startup of revenue operations, the Trolley Blue Line extension north of Santa Fe Depot is expected to require 15-minute service during peak periods (i.e., 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.) and the midday off-peak period (i.e., 9:00 a.m. to 3:00 p.m.). Figure 2-23 shows the operating plan for the opening year of service.

The Trolley operating plan for the Refined Build Alternative in 2030 presented in Table 2-5 includes the extension of the Trolley Blue Line to the UTC Transit Center. As shown in Figure 2-24, the Trolley Blue Line in 2030 would be operated as a single line with three-car trains from the existing San Ysidro Transit Center in the south to the UTC Transit Center in University City, with stops at all 29 intermediate stations. The Trolley Green and Orange Lines would operate the same as under the No-Build Alternative in 2030. Weekday Trolley Blue Line service in 2030 would operate every 7.5 minutes during peak periods and during the midday off-peak period. Service during the early morning and evening hours would be less frequent. The fare structure would be the same as previously described for the No-Build Alternative.

Table 2-5. Trolley Operating Plans

Route	Peak Frequency (6:00 to 9:00 a.m.) (3:00 to 6:00 p.m.)	Midday Off-Peak Frequency (9:00 a.m. to 3:00 p.m.)	Vehicle Type	Fare (each way)
2010 Operating Plan (Existing Conditions)				
Trolley Green Line Santee Town Center to OTTC	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to OTTC	7.5	15.0	Trolley	$2.50
Trolley Orange Line Gillespie Field to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
2010 Operating Plan (Refined Build Alternative)				
Trolley Green Line Santee Town Center to OTTC	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to UTC Transit Center	7.5	7.5	Trolley	$2.50
Trolley Orange Line Gillespie Field to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
Opening Year Operating Plan*				
Trolley Green Line Santee Town Center to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to America Plaza	7.5	15.0	Trolley	$2.50
Trolley Blue Line America Plaza to UTC Transit Center	15.0	15.0	Trolley	$2.50
Trolley Orange Line Gillespie Field to Santa Fe Depot	15.0	15.0	Trolley	$2.50
2030 Operating Plan (Refined Build Alternative)				
Trolley Green Line Santee Town Center to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro to UTC Transit Center	7.5	7.5	Trolley	$2.50
Trolley Orange Line Gillespie Field to America Plaza	15.0	15.0	Trolley	$2.50
2030 Operating Plan (No-Build Alternative)				
Trolley Green Line Santee Town Center to 12th and Imperial Transit Center	15.0	15.0	Trolley	$2.50
Trolley Blue Line San Ysidro Transit Center to Santa Fe Depot	7.5	7.5	Trolley	$2.50
Trolley Orange Line Gillespie Field to America Plaza	15.0	15.0	Trolley	$2.50

Source: SANDAG, 2012
Notes: * The Trolley Blue Line would operate as a continuous run from the San Ysidro Transit Center to the UTC Transit Center. During peak periods in the opening year, alternating trains would turn back at America Plaza, resulting in 15-minute headways north of America Plaza and 7.5-minute headways south of America Plaza.
OTTC = Old Town Transit Center; UTC = University Towne Centre

Figure 2-23. Refined Build Alternative Opening Year Trolley Operating Plan

Source: SANDAG, 2014
Note: Peak = 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.; off-peak = 9:00 a.m. to 3:00 p.m.

Figure 2-24. Refined Build Alternative 2030 Trolley Operating Plan

Source: SANDAG, 2014
Note: Peak = 6:00 to 9:00 a.m. and 3:00 to 6:00 p.m.; off-peak = 9:00 a.m. to 3:00 p.m.

The Trolley operating plan in 2010 that includes the Refined Build Alternative is the same as the 2010 operating plan except for extension of the Trolley Blue Line from the OTTC to the UTC Transit Center and an increase in service frequency to 7.5 minutes during the midday off-peak period. Thus, under the Refined Build Alternative in 2010, the Trolley Blue Line would operate at 7.5-minute intervals during both peak and midday off-peak periods.

With extension of Trolley Blue Line service to the UTC Transit Center, the service provided by bus Route 150 operating between Downtown San Diego and University City would duplicate the new Trolley services and therefore would be eliminated with implementation of the project, consistent with the 2030 RTP. In addition to this modification, minor changes would be made to several bus routes to improve access to the new Trolley stations proposed under the Refined Build Alternative. These modifications consist of rerouting of bus routes to connect to stations. The service frequency of the routes serving the stations would not change. Table 2-6 identifies routes serving the Trolley stations under the Refined Build Alternative and shows which routes would be modified to serve the stations. No changes to other bus routes or the COASTER would be required.

2.4.6 Schedule

The project is currently in the Project Development phase of the New Starts process, which includes the completion of the NEPA and CEQA processes. Completion of the environmental review process is anticipated in the fall of 2014, following which SANDAG will seek FTA approval to advance the project to the Engineering phase pursuant to the Moving Ahead for Progress in the 21st Century Act. During the Engineering phase, SANDAG and FTA will negotiate a Full Funding Grant Agreement, which is anticipated in the fall of 2015. Construction is assumed to begin in 2015, and revenue service is expected to start by the spring of 2019.

Table 2-6. Refined Build Alternative Bus Routes Serving Trolley Stations

Route	Description	Frequency of Service		Refined Build Alternative Stations Served	Modified under Refined Build Alternative[1]
		Peak (6:00 to 9:00 a.m.) (3:00 to 6:00 p.m.)	Midday Off-Peak (9:00 a.m. to 3:00 p.m.)		
8	OTTC to Balboa Ave via Garnet and Bayard	15	15	OTTC, Balboa Ave	Yes
9	Balboa Ave to OTTC via Garnet and Bayard	15	15	OTTC, Balboa Ave	Yes
27	Mission and Felspar to Clairemont Mesa	15	15	Balboa Ave	Yes
30	UTC Transit Center to B and 9th	10	10	Washington St, OTTC, Nobel Dr, UCSD West, UTC Transit Center	No
31	Mira Mesa Transit Center to UTC Transit Center	15	15	Executive Dr, UTC Transit Center	No
41	Fashion Valley Trolley Station to UCSD West	10	10	UCSD West, Executive Dr, UTC Transit Center	No
44	OTTC to Balboa Ave	7.5	7.5	OTTC, Balboa Ave	No
50	Park and Broadway to UTC Transit Center	15	15	Clairemont Dr, UTC Transit Center	No
105	OTTC to UTC Transit Center	15	15	OTTC, Tecolote Rd, UTC Transit Center	No
150[2]	5th and Broadway to UTC Transit Center				Yes—Deleted
201	SuperLoop	7.5	7.5	Nobel Dr, VA Medical Center, UCSD West, UCSD East, Executive Dr, UTC Transit Center	No
202	SuperLoop	7.5	7.5	Nobel Dr, VA Medical Center, UCSD West, UCSD East, Executive Dr, UTC Transit Center	No
276	UCSD Route–Voigt Drive Loop	15	15	VA Medical Center, UCSD West	Yes
284	UCSD Route–UCSD West to Scripps Institution of Oceanography	15	15	UCSD West	Yes
921	Mira Mesa Transit Center to UCSD West	15	15	UCSD West, Executive Dr, UTC Transit Center	No
960	UTC Transit Center to Euclid Avenue Trolley Station	30	0	Executive Dr, UTC Transit Center	No

Source: SANDAG, 2013
Notes: [1] Routes that do not require modification would provide adequate service to the Refined Build Alternative station locations based on the route alignments in the 2030 RTP.
[2] Route 150 does not operate under the Refined Build Alternative.
OTTC = Old Town Transit Center; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

THIS PAGE INTENTIONALLY LEFT BLANK

3.0 TRANSPORTATION IMPACTS

This chapter describes the existing transportation conditions in the Mid-Coast Corridor and the transportation impacts resulting from implementation of the No-Build and Refined Build Alternatives described in Chapter 2.0. Transportation impacts include project benefits as well as adverse impacts on transit system performance, freeways and roadways, the bicycle and pedestrian system, parking, and freight. The methodology used to determine impacts is described under the relevant portions of Sections 3.3 and 3.4 as appropriate. A significance determination in accordance with the California Environmental Quality Act (CEQA) also is included. The CEQA analysis considers existing conditions and performance in 2010 and long-term conditions and performance in 2030.

Project and/or mitigation measures have been identified to address impacts. Project measures are incorporated as part of the project and consist of design features, best management practices, or other measures (e.g., formation of plans to address hazardous materials) required by law and/or permit approvals, that avoid or minimize potential impacts. Where relevant, the project measures were included in the impact analyses presented in this chapter and the supporting technical reports. Appendix E of this document is a compendium of all project measures identified in this chapter and in the supporting technical reports. Upon certification of the Final Supplemental Environmental Impact Report and adoption of the project, SANDAG will use this appendix to ensure implementation.

Mitigation measures are additional actions, not otherwise part of the project, that are designed to avoid, minimize, or compensate for adverse or significant impacts. These measures are required where significant or adverse impacts have been identified based on the impact analyses. All mitigation measures identified in this chapter are presented in the Mitigation Monitoring and Reporting Program, attached to the Record of Decision in Appendix D of this Final SEIS/SEIR.

The San Diego Association of Governments (SANDAG) is committed to implementing the project measures and mitigation measures stated in this chapter and the supporting technical reports. Certification of the Final Supplemental Environmental Impact Report and adoption of the project will include a commitment by SANDAG to implement these measures; this commitment is also reflected in the Record of Decision (included as Appendix D) issued by the Federal Transit Administration with this Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR).

This chapter has been revised since preparation of the Draft SEIS/SEIR (SANDAG, 2013a) to reflect the approval of the refinements to the Build Alternative (now referred to as the Refined Build Alternative) by the SANDAG Board of Directors for evaluation in this Final SEIS/SEIR. The Refined Build Alternative includes the Veterans Administration (VA) Medical Center Station and excludes the Genesee Avenue Design Option. As a result, the evaluation of the Genesee Avenue Design Option has been eliminated from this chapter. Revisions to this chapter have also been made based on comments received during the review and comment period for the Draft SEIS/SEIR and any new or additional analysis required in response to the comments or as a result of the refinements to the project. In response to comments received on the Draft SEIS/SEIR, additional surveys of on-street parking

utilization were taken within a one-half-mile radius of the Balboa Avenue Station to determine if there would be adequate on-street parking on residential streets in the unlikely event of spillover parking. The results of these surveys are summarized in Section 3.4.4.2.

This chapter supplements and updates the transportation impact analysis and mitigation for the light rail transit (LRT) component of the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (AA/DEIS/DEIR) (Metropolitan Transit Development Board [MTDB], 1995a), the *Final Environmental Impact Report for the Mid-Coast Corridor* (FEIR) (MTDB, 1995b), and the *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement* (FEIS) (MTDB, 2001). The AA/DEIS/DEIR assumed a 2005 planning horizon when analyzing the impacts of the two LRT alternatives and included 41 intersections in the study area. Impacts were identified at four intersections with the Interstate (I-) 5 alignment and at two intersections with the Genesee Avenue alignment. Additionally, the alignment through University City was at-grade, and traffic impacts were identified at several locations along this section of the alignment. None of these intersections are affected by the alignment analyzed in the SEIS/SEIR, in part because the alignment would be aerial in University City and would not require the closure of medians or restriction of turning movements. The current environmental review identifies impacts at 15 intersections and 1 roadway segment; mitigation has been identified where feasible. These impacts and mitigation remain unchanged for the Refined Build Alternative evaluated in this Final SEIS/SEIR.

Impacts on several bicycle facilities were identified in the AA/DEIS/DEIR and FEIR, including the Rose Canyon Bicycle Path, which would be relocated as part of mitigation. Similar impacts were identified in the SEIS/SEIR. The AA/DEIS/DEIR also identified the removal of on-street parking along Executive Drive and off-street parking at the M.L. Lawrence Jewish Community Center, neither of which would be affected by the Refined Build Alternative. The Draft SEIS/SEIR identified the loss of 189 on- and off-street parking spaces, particularly in University City. In comparison, this Final SEIS/SEIR identifies the loss of 602 on- and off-street parking spaces, with the additional loss of parking occurring in University City.

The FEIS had a 2015 planning horizon and did not identify traffic impacts at any of the 12 intersections analyzed. The LRT alignment went from the Old Town Transit Center (OTTC) to Balboa Avenue; accordingly, impacts were not assessed north of the Balboa Avenue Station. In all three documents, the study areas did not include intersections south of Taylor Street/Rosecrans Street and Pacific Highway, which are included in the SEIS/SEIR and Final SEIS/SEIR. In comparison, the current Mid-Coast Corridor Transit Project has a 2030 planning horizon and includes a more in-depth analysis of impacts on other transportation modes than that provided in the previous documents. The study area for the SEIS/SEIR extends from Santa Fe Depot in Downtown San Diego north to University City.

For additional information, refer to the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) prepared in support of the SEIS/SEIR. The Preface of this technical report contains additional information on changes to the analysis and technical report since the Draft SEIS/SEIR.

3.1 Travel Demand Forecasting Model

As noted in Chapter 1.0, the SANDAG Series 11 Travel Demand Forecasting Model (Series 11 model) was the tool used to analyze and forecast travel demand and patterns for this project. There are four basic steps to the travel demand forecasting model. The model generates person trips, then determines trip destinations, allocates these trips to various available transportation modes (e.g., bus, light rail, commuter rail, automobile, walk/bike, or school bus), and finally assigns vehicle trips to highway networks and transit trips to transit networks. Prior to circulation of the Draft SEIS/SEIR, the Series 11 model was run for the following scenarios: (1) existing conditions in 2010[1], (2) No-Build Alternative in 2030, (3) Build Alternative in 2030, and (4) existing conditions in 2010 with the Build Alternative. Modeling of the Build Alternative was done with and without the VA Medical Center Station Option. No additional model runs were required for the Refined Build Alternative. The modeling results for the Build Alternative with the VA Medical Center Station Option presented in the Draft SEIS/SEIR are applicable to the Refined Build Alternative.

For the travel demand analysis, the traffic analysis zones were combined to form 29 travel analysis districts (as shown in Figure 1-2 in Chapter 1.0). One additional district also was modeled to account for external trips—that is, for trips beginning or ending outside the region (either in Mexico or a neighboring county). The Series 11 model provided various forecasts related to usage of the roadway and transit network, including roadway traffic volumes, travel times (peak and off-peak), and transit ridership. Within the model, the a.m. peak period extends from 6:00 to 9:00 a.m., and the p.m. peak period extends from 3:00 to 6:00 p.m.

In 2003, SANDAG calibrated the Series 11 model based on observed transportation data, including traffic counts provided by the City of San Diego and the California Department of Transportation (Caltrans) and passenger counts provided by the Metropolitan Transit System (MTS) and the North County Transit District (NCTD). In 2008, for the purpose of applying for New Starts funding for the Mid-Coast Corridor Transit Project, the model was reviewed and further revised by the Mid-Coast Corridor team based upon the Federal Transit Administration New Starts guidelines and current best practices. The data inputs and SANDAG's steps to calibrate and validate the Series 11 model are further described in the *Series 11: 2030 Regional Growth Forecast Update: Process and Model Documentation* (SANDAG, 2008a), the *Mid-Coast Corridor Transit Project SANDAG Mode Choice Model Calibration and Validation Report* (SANDAG, 2010b), and the *Mid-Coast Corridor Transit Project Travel Forecasting Results Report* (SANDAG, 2014w) (none of these reports have been revised since circulation of the Draft SEIS/SEIR).

3.2 Travel Demand and Patterns

The first three steps in the modeling process determine where people travel and by what mode (either motorized—automobile, transit, or school bus—or nonmotorized—walk or

[1] Existing conditions generally refer to conditions in 2010 when the Notice of Preparation for CEQA was issued.

bicycle). This information is important when planning transportation projects. For example, if a high concentration of trips occurs between two locations, then these trips could benefit from the provision of frequent, reliable transit service.

Existing travel demand and travel patterns, as determined by the Series 11 model, were analyzed to identify major travel markets for trips with origins and/or destinations within the Mid-Coast Corridor. As stated in Sections 1.2.3 and 1.2.4, key travel markets for many of these trips include Downtown San Diego and areas to the east and south, as well as University City. An analysis of trips by purpose reveals a strong reverse commute travel pattern, with more home-to-work and home-to-college trips traveling north, away from downtown, than toward downtown during the a.m. peak hour.

An analysis of trips by mode shows that auto trips dominate travel, accounting for 95 percent of systemwide person trips in 2010 (Table 3-1). Transit trips account for 1.4 percent of systemwide trips (251,200), while nonmotorized modes (bicycling and walking) account for 2.8 percent of all travel. A transit trip is a trip from origin to destination regardless of the number of transfers needed. This is referred to as a "linked transit trip." Home-to-work transit trips comprise 46 percent of all daily transit trips, and 31 percent of daily transit trips are home-to-other trips (Table 3-2). Home-to-college trips comprise 10 percent of daily transit trips.

The key travel markets identified based on travel patterns in 2010 will continue to be important travel markets in 2030. As shown in Table 3-1, under the No-Build Alternative, the largest increases in the number of trips would occur for auto trips (25.5 percent) and transit trips (23.4 percent), while nonmotorized travel would increase 12.7 percent. Under the Refined Build Alternative, there are projected to be 4.3 percent more transit trips than under the No-Build Alternative. Auto trips would be reduced by 0.1 percent (13,100 trips) with the Refined Build Alternative.

Table 3-1. Daily Trips by Mode—2010 and 2030

Mode		Existing Conditions (2010) Trips	2030			
			No-Build Alternative		Refined Build Alternative	
			Trips	Percent Change from 2010	Trips	Percent Change from No-Build
Motorized	Transit	251,200	309,900	23.4%	323,300	4.3%
	Auto	17,244,300	21,636,000	25.5%	21,622,900	-0.1%
	School bus	138,100	143,500	3.9%	143,500	0.0%
	Subtotal	17,633,600	22,089,400	25.3%	22,089,700	0.0%
Nonmotorized	Walk	456,800	512,900	12.3%	512,600	-0.1%
	Bicycle	44,900	52,400	16.7%	52,300	-0.2%
	Subtotal	501,700	565,300	12.7%	564,900	-0.1%
Total Daily Trips		18,135,300	22,654,700	24.9%	22,654,600	0.0%

Source: Series 11 model
Note: Numbers are rounded to the nearest hundred.

Table 3-2. Daily Transit Trips by Trip Purpose—2010 and 2030

Trip Purpose	Existing Conditions (2010)		No-Build Alternative (2030)		Refined Build Alternative (2030)	
	Trips	Percent Share	Trips	Percent Change from 2010	Trips	Percent Change from No-Build Alternative
Home-to-work	116,100	46%	145,600	25%	152,700	5%
Home-to-college	24,600	10%	25,800	5%	27,600	7%
Home-to-school	12,100	5%	13,400	11%	13,700	2%
Home-to-other	78,600	31%	96,700	23%	99,500	3%
Non-home-based	19,800	8%	28,400	43%	29,800	5%
Total	251,200	100%	309,900	23%	323,300	4%

Source: Series 11 model
Note: Numbers are rounded to the nearest hundred.

Systemwide, there would be 309,900 linked transit trips under the No-Build Alternative in 2030 (Table 3-2). Compared to existing conditions, there would be a 43 percent increase in daily non-home-based trips made by transit under the No-Build Alternative and a 25 percent increase in daily home-to-work trips, indicating that changes in transit supply would be well suited to serve these trip purposes. The number of daily linked transit trips would increase 4.3 percent to 323,300 trips under the Refined Build Alternative. The largest increase in linked transit trips by purpose would occur for home-to-college trips (7 percent), followed by non-home-based and home-to-work trips (both increasing by 5 percent), indicating that the Refined Build Alternative would improve transit service to the University of California, San Diego (UCSD) and would serve a variety of trip purposes throughout the day.

3.3 Existing Conditions

3.3.1 Transit System and Performance

Transit services in the corridor are operated primarily by MTS, although several NCTD routes and Amtrak also operate within the corridor. Specifically, the transit system includes COASTER commuter rail, Amtrak intercity passenger rail, LRT, and bus transit. The NCTD operates the COASTER and several bus routes, of which one route (Route 101) provides service from areas north of the corridor to the VA Medical Center and the University Towne Centre (UTC) Transit Center. MTS operates San Diego's LRT system (the San Diego Trolley [Trolley], as shown in Figure 1-4) and the majority of bus routes within the corridor (as shown in Figure 1-5).

MTS and SANDAG closely monitor the performance of the transit system, making adjustments to frequencies and alignment as necessary to meet key performance measures. Such adjustments are necessary to ensure the transit system is reliable and efficient and meets the needs of the population it serves.

The following sections describe the existing transit system and performance, expanding on information presented in Sections 1.3.1 and 1.4.2.

3.3.1.1 Transit System

MTS provides transit service to about 3,240 square miles of urbanized San Diego County and rural East County. The MTS transit system includes three Trolley lines totaling 53.5 miles and 53 stations, and 93 fixed bus routes with 2,851 route miles. Buses serve more than 4,700 bus stops (MTS, 2011d and MTS, 2011e). MTS bus services are categorized based on several service types; the major bus routes that serve the corridor are categorized as follows:

- Express: High-speed service provided throughout the day and possibly on weekends that links major residential, employment, and activity centers; routes typically operate on highways and major arterials (e.g., Routes 50 and 150)
- Urban Frequent: High-frequency service (every 15 minutes or less during weekdays) on major arterials in denser urban areas (e.g., Routes 8, 9, and 30)
- Urban Standard: Basic service with frequencies between 30 and 60 minutes operating in less dense areas (e.g., Routes 105 and 921)
- Circulator: Neighborhood feeder routes operating on arterials and local streets (e.g., SuperLoop)

The major transit routes serving the corridor are summarized in Table 3-3. These routes are highlighted because they provide key transit service to major activity centers within the corridor or would connect to stations constructed as part of the Refined Build Alternative. Four MTS bus routes (Routes 30, 50, 105, and 150) operate along the entire corridor between Downtown San Diego and the UTC Transit Center (Figure 1-5). Other transit services, including paratransit shuttles operated by UCSD, are described in Chapter 1.0 and in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

Hours of service (the number of hours during the day when transit is provided along a route, often referred to as service span) and headways (the time between transit vehicles [bus or Trolley] along a given route) are presented in Table 3-3 for major transit routes in the corridor. Weekend headways also are presented. Most key routes serving the corridor provide service for more than 14 hours each weekday, with most routes beginning service before 6:00 a.m. The Trolley provides more than 19 hours of service each day, with service on all three lines beginning around 4:00 a.m. and continuing until 1:00 a.m. or later. On weekends, many bus routes provide fewer hours of service, do not serve all stops along a route, or may not operate at all. For example, Express Routes 50 and 150 do not operate on weekends. In comparison, the Trolley serves all stations on weekends, operating from approximately 4:30 a.m. until 1:00 a.m., or later, on both Saturdays and Sundays. Additionally, the Trolley Orange Line provides late-night service until 2:30 a.m. on Saturdays.

Refer to the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) for information regarding revenue miles, revenue hours, and in-service hours.

Table 3-3. Major Transit Routes Serving the Mid-Coast Corridor—Existing Conditions

Route	Route Name	One-Direction Travel Time (in minutes)	Weekday Hours of Service[1]	Service Headway (in minutes)				Communities and Activity Centers Served in/near the Corridor
				Weekday[2]			Saturday-Sunday[3]	
				Peak	Base	Night		
NCTD COASTER								
398	COASTER	61	5:18: a.m. – 8:10 p.m.	5 IB, 2 OB[4]	3 IB and OB[4]	3 IB, 4 OB[4]	4 roundtrips[4]	OTTC, Santa Fe Depot
MTS TROLLEY								
510	Trolley Blue Line	56	4:10 a.m. – 1:45 a.m.	7.5	15	15	15 (30 in early a.m. and late p.m.). All night (Owl) service Saturday evenings	OTTC, Washington Street, Middletown, County Center/Little Italy, Santa Fe Depot
520	Trolley Orange Line	57	4:05 a.m. – 1:55 a.m.	15	15	15	15 (30 in late evenings)	Gaslamp Quarter, Petco Park, Convention Center
530	Trolley Green Line	47	4:15 a.m. – 12:55 a.m.	15	15	15	15 (30 in late evenings)	OTTC, Qualcomm Stadium, Fashion Valley, San Diego State University
MTS URBAN FREQUENT BUS								
8	OTTC West to Bayard St and Garnet Ave	25–26	5:40 a.m. – 12:40 a.m.	15	15	30	20–30–60	OTTC – Pacific Beach via Mission Beach: Sports Arena, Crystal Pier, Mission Bay
9	OTTC West to Bayard St and Garnet Ave	32–34 20–21 for trips that skip SeaWorld	5:50 a.m. – 10:40 p.m.	15	15	30	20–30–60	OTTC – Pacific Beach via SeaWorld and Ingraham St: Sports Arena, SeaWorld, Mission Bay
30	9th Ave and B St to UTC Transit Center	89–93	5:00 a.m. – 12:50 a.m.	15	15	30	30 Saturday, 30–60 Sunday	Downtown – UTC and VA Medical Center: OTTC, Pacific Beach, UCSD, UTC Transit Center
41	Fashion Valley Transit Center to Rupertus and Russell	40–48	5:30 a.m. – 11:50 p.m.	15	15	30	30	Fashion Valley – UCSD and VA Medical Center: Fashion Valley Mall, VA Medical Center, UTC Transit Center

Table 3-3. Major Transit Routes Serving the Mid-Coast Corridor—Existing Conditions (continued)

Route	Route Name	One-Direction Travel Time (in minutes)	Weekday Hours of Service[1]	Service Headway (in minutes)				Communities and Activity Centers Served in/near the Corridor
				Weekday[2]			Saturday-Sunday[3]	
				Peak	Base	Night		
44	OTTC East to Clairemont Dr and Clairemont Mesa Blvd	44–45	4:40 a.m. – 11:40 p.m.	15	15	30	30	Clairemont – OTTC via Linda Vista and Mesa College: San Diego Mesa College, University of San Diego
120	4th and G St to Kearny Mesa Transit Center	58–61	5:00 a.m. – 12:00 a.m.	15 (30 north of Fashion Valley)	15 (30 north of Fashion Valley)	30	30–60	Downtown, Kearny Mesa Transit Center via Hillcrest – Fashion Valley – Linda Vista: Fashion Valley Mall, Horton Plaza
MTS URBAN STANDARD BUS								
25	Fashion Valley Transit Center to Kearny Mesa Transit Center	51–56	6:25 a.m. – 7:10 p.m.	60	60	–	No service Saturday or Sunday	Fashion Valley – Kearny Mesa via Linda Vista and Stonecrest: Children's Hospital, Fashion Valley Mall
27	Mission Blvd and Felspar St to Kearny Mesa Transit Center	41–43	5:30 a.m. – 10:05 p.m.	30	30	60	30 Saturday, no service Sunday	Pacific Beach – Kearny Mesa via Balboa Ave: Clairemont High School, Crystal Pier, Garnet Ave, Genesee Plaza
31	UTC Transit Center to Westview Pkwy	31	5:40 a.m. – 9:00 a.m. and 3:00 p.m. – 7:10 p.m.	30	–	–	No service Saturday or Sunday	UTC – Mira Mesa via Miramar Road: MCAS Miramar, VA Medical Center, Westfield UTC Shopping Center
105	OTTC East to UTC Transit Center	42-43	5:10 a.m. – 10:40 p.m.	30	30	60 (no service north of Claire-mont	60 (no service north of Clairemont	OTTC – UTC via Milton St and Clairemont Drive: OTTC, Clairemont Square, University City High School
921	Russell Dr and Gilman Dr to Westview Pkwy	40–41	5:45 a.m. – 7:55 p.m.	30	30	30	60 Saturday, no service Sunday	UCSD – VA Medical Center via Mira Mesa Blvd: VA Medical Center, Westfield UTC Shopping Center

Table 3-3. Major Transit Routes Serving the Mid-Coast Corridor—Existing Conditions (continued)

Route	Route Name	One-Direction Travel Time (in minutes)	Weekday Hours of Service[1]	Service Headway (in minutes)				Communities and Activity Centers Served in/near the Corridor
				Weekday[2]			Saturday-Sunday[3]	
				Peak	Base	Night		
MTS CIRCULATOR BUS								
201/202 SuperLoop (201 is counter-clockwise, 202 is clockwise)	UTC Transit Center Loop	31–32	5:45 a.m. – 10:30 p.m.	10	15	15	15	SuperLoop: La Jolla Village Square, Scripps Memorial Hospital, The Shops at La Jolla Village, UCSD Medical Center (La Jolla), Westfield UTC Shopping Center
MTS EXPRESS BUS								
50	9th Ave and C St. to UTC Transit Center	50–55	5:00 a.m. – 7:14 p.m.	15/30	60	–	No service Saturday or Sunday	Downtown – UTC Express via Clairemont Dr.: Clairemont Square, Costa Verde Shopping Center, Westfield UTC Shopping Center
150	9th Ave and C St to UTC Transit Center	50–57	5:55 a.m. – 7:20 p.m.	15/30	60	–	No service Saturday or Sunday	Downtown, UTC/VA Hospital Express: OTTC, UCSD, VA Medical Center
960	Euclid Ave Trolley Station to UTC Transit Center	55–60	5:10 a.m. – 7:40 a.m. and 3:20 p.m. – 6:50 p.m. peak-direction only	15/30	–	–	No service Saturday or Sunday	Euclid Trolley – UTC via I-15, Mid City, Kearny Mesa: The Boulevard Transit Plaza, City Heights Transit Plaza, Kearny Mesa Transit Center, Market Creek Plaza

Source: MTS, 2011a and NCTD, 2011

Notes:
1 Hours of service based on earliest and latest movements from 2011 service schedules.
2 Peak is from 6:00 to 9:00 a.m. and from 3:00 to 6:00 p.m.; Base is generally from 9:00 a.m. to 3:00 p.m.; Night is generally after 6:00 p.m.
3 Service headways shown for Saturdays and Sundays are for base, peak-base, or peak-base-night periods, as applicable.
4 Represents service frequency

IB = inbound; MCAS = Marine Corps Air Station; MTS = Metropolitan Transit System; NCTD = North County Transit District; OB = outbound; OTTC = Old Town Transit Center; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

Transit Facilities

Transit facilities consist of bus stops, transit stations, transit centers, and park-and-ride facilities. Bus stops are the most common and typically are served by a small number of routes. Some bus stops have no benches or shelters while others may provide such features. MTS and NCTD bus stops are available throughout the corridor, many with shelters, seating, and signage indicating which routes serve the stop.

In comparison, transit stations are served by routes with higher capacities, and can include connections to rail. The County Center/Little Italy, Washington Street, and Middletown Trolley Stations are examples of transit stations, all of which provide seating, bicycle racks/lockers, transit information, and ticket vending machines. Some bus routes stop near these Trolley stations, but they are not important transfer locations. Several public parking lots also are located near these Trolley stations; however, they are not operated by MTS and charge a fee for use.

Lastly, transit centers are facilities served by multiple bus routes, although bus–rail connections also may be an equally important feature. Three transit centers are located in the corridor—Santa Fe Depot and the OTTC in the southern end of the corridor and the UTC Transit Center in the northern end. Santa Fe Depot and the OTTC are both served by COASTER, Amtrak, and Trolley trains (the Trolley Blue Line at Santa Fe Depot and the Trolley Blue and Green Lines at the OTTC). Additionally, 10 bus routes serve 2 bus loading zones adjacent to the OTTC, thus making this transit center an important location for bus–bus, rail–rail, and bus–rail transfers. Transit passengers at Santa Fe Depot can access bus routes along Broadway or walk across Kettner Boulevard and access the Trolley Orange Line at America Plaza. Santa Fe Depot and the OTTC provide bicycle racks/lockers, transit information, and seating for passengers. Additionally, a 397-space park-and-ride facility operated by MTS is located to the west of the Trolley platforms at the OTTC. An additional 350 park-and-ride spaces are provided at an overflow lot near the OTTC; however, these spaces are only available after 5:00 p.m. and on weekends. A public parking lot is located near Santa Fe Depot, although it is not operated by MTS and charges a fee for use. Under existing conditions, the UTC Transit Center is served by 10 bus routes, providing a connection between bus routes originating in Downtown San Diego and areas south to Sorrento Valley, Scripps Ranch, and Mira Mesa.

Bus Transfer Area at Old Town Transit Center

Source: SANDAG, 2011

Transit facilities also can include preferential treatment for transit, such as bus-only lanes. Bus operations in the corridor primarily use arterials and local roads and segments of I-5; dedicated bus-only facilities, such as transit lanes, are not provided along highways in the corridor. Exclusive bus lanes are located along some arterials

and freeway ramps, including at Taylor Street/ Rosecrans Street at Pacific Highway, westbound Washington Street to southbound State Route (SR) 163, and 11th Avenue to northbound SR 163. Additionally, queue jumpers, which provide buses with priority access through intersections, are located in several areas of the corridor, including the intersection of Taylor Street/Rosecrans Street at Pacific Highway to enter the OTTC.

3.3.1.2 Transit System Performance

Transit performance, whether measured by agencies or as perceived by the transit passenger, is an indicator of the convenience of the transit system. Transit performance is measured in terms of travel time, frequency, reliability, and passengers per service hour. Improved transit performance increases transit ridership and makes transit more competitive with the automobile. To assess how well the transit system serves existing and future demand and meets goals established in SANDAG's *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a), SANDAG and MTS developed evaluation criteria (as described in the *Coordinated Plan 2010–2014* [SANDAG, 2010c] and *Policies and Procedures Number 42: Transit Service Evaluation and Adjustment* [MTS, 2007]). The *Coordinated Plan 2010-2014* established a goal of 80 percent on-time performance for determining reliability and a guideline of 35 passengers per service hour to measure efficiency. Criteria from these documents are used during periodic performance evaluations; transit services are modified if the route is found to perform poorly in terms of the criteria. These same criteria were used to analyze the existing and future transit performance in the Mid-Coast Corridor.

The following performance evaluation focuses on MTS services within the Mid-Coast Corridor. Although Amtrak and two NCTD transit routes (COASTER and Bus Route 101) operate within the corridor, neither system effectively serves the University City area or the other travel markets that would be served by the Refined Build Alternative. Accordingly, their performance was not analyzed as it would not be affected by the project.

The transit data used for the performance analysis were obtained from the MTS passenger counting program and from periodic performance evaluations and were supplemented by forecasts of demand from the Series 11 model. Existing conditions in 2010 include an evaluation of the following performance measures: travel time and frequency and reliability (measured by on-time performance). Refer to Section 1.4.2 for a discussion of the evaluation of passengers per service hour.

Travel Time and Frequency

Travel time represents how long it takes a passenger to complete a trip by transit and is affected by the speed of the transit vehicle, roadway congestion, the number of stops, and the distance between stops. Travel time is typically measured from origin to destination, including time spent on the vehicle and at stations waiting to transfer. Figure 1-8 presents transit travel time from boarding at the first transit stop to the time the passenger gets off at the last stop, including transfers, but does not include the time the passenger spends walking from their origin or destination to the transit stop. As stated in Section 1.4.2, bus services in the corridor operate on I-5 and arterial streets; therefore buses experience the same congestion as motorists, which results in slower

travel speeds and longer travel times. Because buses make stops to pick up and drop off passengers, bus travel speeds are generally slower than auto speeds for a comparable trip.

There are a large number of trips between downtown and University City, making it one of the major travel markets, as identified in Section 1.2.4. These two locations are important employment and activity centers, generating trips during peak periods and throughout the day. Individuals who travel between these destinations by transit can use express Routes 50 and 150 or local Route 30. Under existing conditions, an express bus trip from downtown to the UTC Transit Center takes 48 minutes; however, the express routes operate with 60-minute frequencies outside peak periods and do not operate on weekends. Consequently, many passengers traveling between downtown and the UTC Transit Center during other times of day or on weekends must rely on local Route 30. While Route 30 operates with 15-minute frequencies during peak and mid-day periods and 30-minute frequencies in the evening and provides service on weekends, its scheduled travel time is twice as long as the express routes. A weekday trip on Route 30 between 9th Avenue and B Street and the UTC Transit Center is estimated to take 1 hour and 40 minutes. This time does not include any transfers that may be required to complete the trip.

Reliability

Transit service reliability is measured in terms of on-time performance, or the time a transit vehicle departs a station compared to its scheduled time. If a route is not reliable, transit passengers may feel they need to take an earlier bus or rail vehicle to ensure that they reach their destination on time. Additionally, transfers can be inconvenient if one or both routes are not on time. According to MTS, a bus or Trolley vehicle is on-time if it leaves a transit stop or station no more than 0 minutes, 0 seconds early and no later than 4 minutes, 59 seconds late. Many factors influence on-time performance, including traffic congestion, weather, the number of passengers boarding or alighting at stops, and the use of wheelchair lifts on buses and Trolley vehicles. Reliability typically is higher for transit vehicles operating in semi-exclusive or exclusive right-of-way because these vehicles are not affected by traffic congestion (semi-exclusive right-of-way includes Trolley lines operating through at-grade crossings [e.g., the Trolley Orange Line on C Street in downtown]). SANDAG establishes a guideline of 80 percent reliability for bus routes. Under existing conditions, all key bus routes shown in Table 3-3 met this guideline during the a.m. peak period; however, only 9 of the 16 routes met this guideline during the p.m. peak period when roadways are more congested. As stated previously, dedicated bus-only facilities, such as transit lanes, are not provided on freeways in the corridor; however, exclusive bus lanes are located on some arterials and freeway ramps. Therefore, existing bus services share roadways with other vehicular traffic. In comparison, the Trolley lines, which operate in semi-exclusive or exclusive right-of-way, experienced more than 90 percent on-time reliability throughout the day.

3.3.1.3 Transit Ridership

Transit ridership is typically measured in terms of average weekday or annual boardings and represents the number of people who board a bus, Trolley, or train over the course of a typical weekday or year. Ridership can be measured for the entire transit system or individual routes. A boarding occurs whenever a rider gets on a transit vehicle. When a

rider transfers from one transit vehicle to another, it counts as a separate boarding, although it is part of a single linked trip. Ridership is a reflection of the amount of service supplied and the performance of a transit system. If a transit system has frequent, reliable service throughout the day and serves destinations important to the population, then that system will have higher ridership than a system that does not perform as well.

Systemwide Ridership

Table 3-4 summarizes average weekday and annual transit boardings in Fiscal Year 2010 for MTS fixed-route transit services and demand-response services (typically a van or smaller bus that operates in response to calls from passengers; demand-response routes are not fixed and typically provide door-to-door service for passengers), as reported by MTS. This table represents systemwide boardings and is not limited to the key routes that serve the corridor. In 2010, there were nearly 52 million boardings on the bus system with approximately 170,000 boardings on an average weekday. Most passengers use urban frequent routes (37 million passengers per year). In comparison, there were more than 30 million annual boardings on the Trolley system, with approximately 91,000 boardings each weekday.

Table 3-4. MTS Transit Boardings by Service Type—Fiscal Year 2010

Service Category	Average Weekday Boardings	Annual Boardings
Light Rail	91,280	30,468,980
Bus	170,730	51,936,250
Premium Express	1,130	282,100
Express	7,740	2,149,980
Urban Frequent	119,760	37,101,320
Urban Standard	38,470	11,552,480
Circulator	3,470	823,680
Rural	160	26,700
Demand–Responsive	1,290	353,990

Source: MTS, 2010
Note: Numbers are rounded to the nearest 10.

Mid-Coast Corridor Ridership

Sixteen key bus routes provide service in the Mid-Coast Corridor. Additionally, the corridor is served in part by each of the three Trolley lines. Table 1-3 in Chapter 1.0 provides average weekday ridership of these bus and Trolley routes. Among the key bus routes, Route 30 served the most weekday riders with 6,654 daily boardings. In comparison, all three Trolley routes served more passengers than Route 30, with the Trolley Blue Line having approximately eight times more weekday boardings. It should be noted that the entire alignment for Route 30 is located within the corridor whereas the Trolley Blue Line serves more than 10 stations located outside the corridor. These stations connect the San Ysidro Transit Center at the U.S.–Mexico international border and other communities south of downtown to downtown San Diego. Some of these stations have among the highest ridership on the Trolley Blue Line, with 5 of these stations having more than 3,000 daily boardings in 2010. In comparison, the 5 Trolley

Blue Line stations between and including Santa Fe Depot and the OTTC had between 200 (Middletown) and 6,000 (OTTC) daily boardings (MTS, 2010).

Most key bus routes have 40 to 49 percent of their boardings during peak periods, indicating that approximately half of all daily ridership occurs during off-peak periods (i.e., midday, early morning, and evening). Accordingly, reliable, frequent transit service is needed during both the peak and off-peak periods as demand is spread throughout the day. Similarly, peak-period boardings on all three Trolley lines comprise between 50 percent (Trolley Green Line) and 63 percent (Trolley Orange Line) of daily boardings. Northbound boardings on north–south bus routes are higher than southbound boardings during the a.m. peak period, indicating that northbound is the predominant direction of travel. This indicates the importance of activity centers and employment destinations in the northern portion of the corridor.

3.3.2 Freeway and Roadway System and Performance

Section 1.3.2 discusses the corridor freeways and major arterials, which are shown in Figure 1-3. As discussed in this section, the corridor is served by three north–south highways (I-5, I-805, and SR 163) and two east–west highways (I-8 and SR 52). Principal north–south arterials include Pacific Highway, Morena Boulevard, Ingraham Street, Regents Road, Genesee Avenue, and Gilman Drive. Major arterials that run east–west include Balboa Avenue, Friars Road, and La Jolla Village Drive.

3.3.2.1 Freeway and Roadway System Demand

Freeway and roadway travel demand directly affects congestion on the roadway system. Travel demand can be measured in terms of auto person trips and vehicle miles traveled (VMT). Both auto person trips and VMT are outputs from the Series 11 model. An auto person trip is a trip made by one person in an automobile. This measure does not account for vehicle occupancy; therefore, two individuals in a carpool are still counted as two person trips. For the Mid-Coast Corridor Transit Project, auto person trips were categorized based on the number of people in the automobile and the type of facility the trip is made on (e.g., managed lanes). As identified in the Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report (SANDAG, 2014v), in 2010, drive-alone trips accounted for more than half of all auto person trips. In comparison, the number of person trips in carpools of two persons and three or more persons equaled approximately one-half and one-third of the drive-alone person trips, respectively.

The amount of auto travel also can be described in terms of VMT, the total number of miles that are traveled by all vehicles using the highway system over a period of time, such as a day or a year. For this project, daily VMT was calculated based on roadway classification (e.g., freeway), as shown in Table 3-5. This measure reflects the amount of use for each roadway facility. Approximately 13 percent of the VMT within the San Diego region occurs within the corridor. As shown in Table 3-5, more than half the VMT in the corridor occurs on freeways, with the next highest percentage (30 percent) occurring on arterials, indicating that these are the most used facilities in the corridor.

Table 3-5. Mid-Coast Corridor Daily VMT and VHD—Existing Conditions (2010)

Functional Class	VMT		VHD	
	Total	Percent	Total	Percent
Freeway	5,490,000	51%	33,000	21%
Arterial	3,201,000	30%	83,000	54%
Collector	1,075,000	10%	20,000	13%
Local	111,000	1%	3,000	2%
Ramps	804,000	8%	16,000	10%
Total	10,681,000	100%	155,000	100%

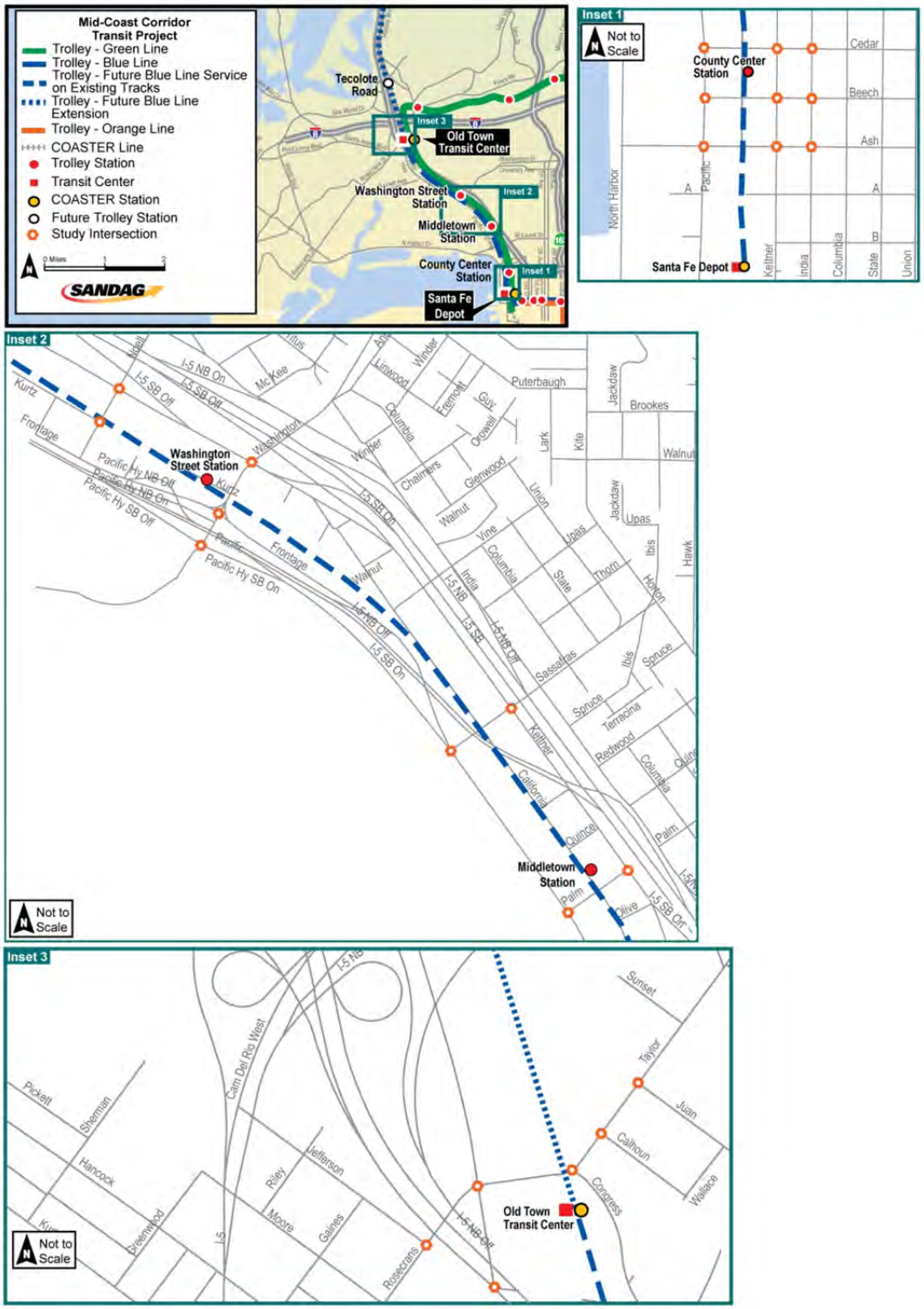
Source: Series 11 model
Notes: Numbers are rounded to the nearest thousand.
VHD = vehicle hours of delay; VMT = vehicle miles traveled

3.3.2.2 Freeway and Roadway System Performance

The freeway and roadway system consists of freeways and freeway interchanges, arterial roadways (roadways that provide connections to freeways, other arterials, and other important destinations), and intersections. Adverse impacts to these facilities are measured in terms of increased delay and a deterioration in levels of service (LOS) that would occur on these facilities when they do not provide sufficient capacity to accommodate the demand. Systemwide roadway congestion can be measured in terms of vehicle hours of delay (VHD), which is also calculated for each roadway classification, similar to VMT. Additionally, specific methodology has been developed by the City of San Diego, the local jurisdiction in which the Refined Build Alternative would be located, to measure performance of each of the other freeway and roadway facilities. Using this methodology, a freeway and roadway performance analysis was conducted to determine how well the system meets SANDAG's transportation goals from the 2030 RTP, as described in Section 1.4.1. The analysis also helped to define the need for transit improvements in the corridor because congestion affects overall mobility of both automobiles and transit.

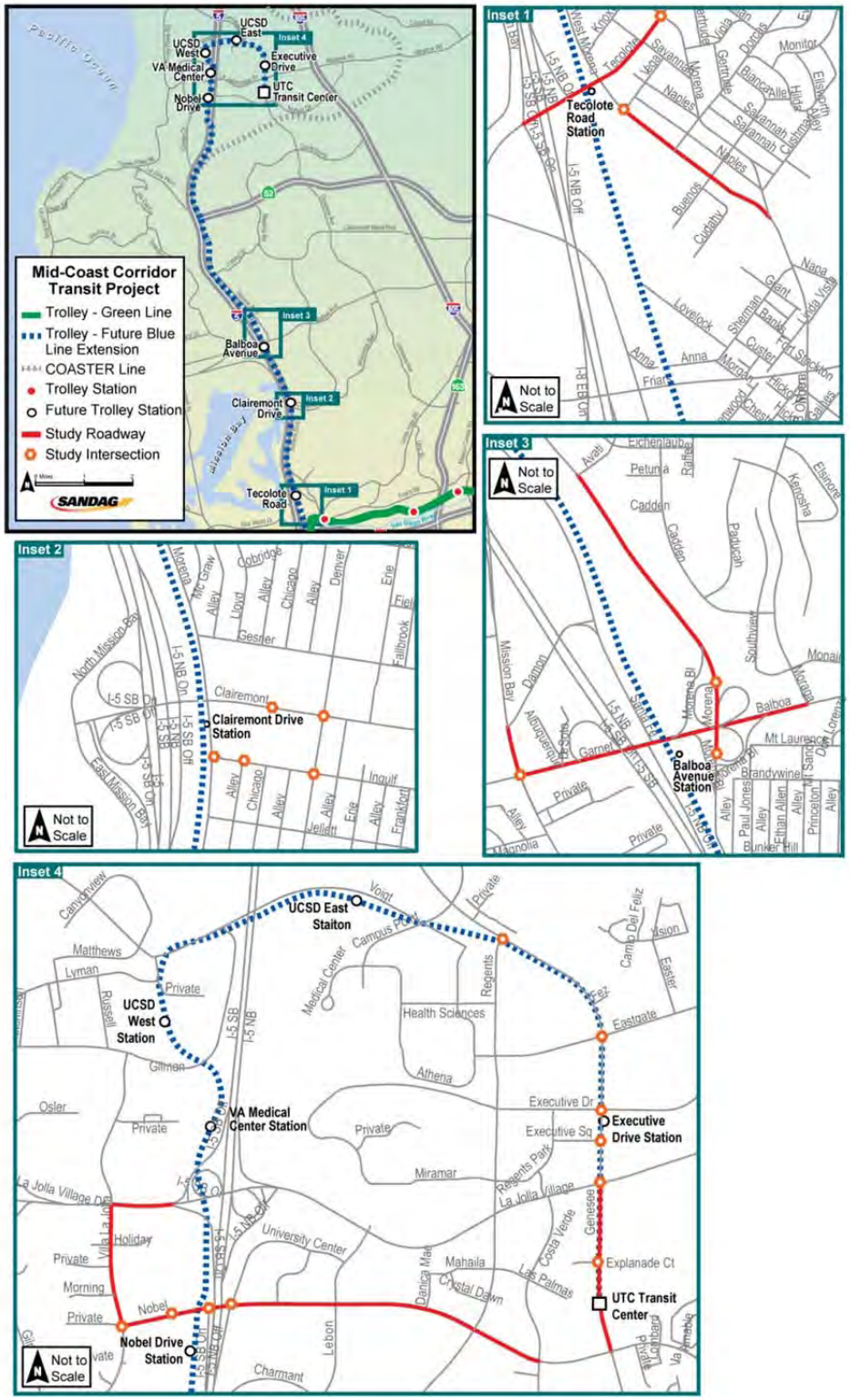
The Mid-Coast Corridor was divided into two subareas for purposes of the traffic analysis: the southern subarea, south of the San Diego River (Figure 3-1), and the northern subarea, north of the San Diego River (Figure 3-2). In the southern subarea, the project would use the existing Trolley tracks and operate through eight existing at-grade crossings at Ash, Beech, Cedar, Palm, Sassafras, Washington, Noell, and Taylor Streets. These crossings are referred to as grade crossings within this document. Within this subarea, intersections adjacent to these grade crossings were identified for study because they could be affected by the increase in the number of Trolley trains operating through these grade crossings. North of the San Diego River, there would be no new grade crossings of any intersecting street. Therefore, in the northern subarea, traffic impacts from the project are assessed based on vehicular traffic accessing the new Trolley stations and transit parking facilities. Figure 3-1 and Figure 3-2 show the roadway segments and intersections included in the traffic analysis.

Figure 3-1. Southern Subarea



Source: SANDAG, 2014v

Figure 3-2. Northern Subarea



Source: SANDAG, 2014v

Vehicle Hours of Delay

VHD is an indicator of systemwide roadway congestion. VHD is the difference between congested vehicle hours traveled (the number of vehicle trips using a roadway multiplied by the travel time) and the vehicle hours traveled that are expected under free-flow conditions. Under existing conditions, 18 percent of daily regional VHD occurs within the corridor. A review of VHD by facility type within the corridor indicates that the highest VHD occurs on arterials (54 percent), followed by freeways (21 percent), as shown in Table 3-5. In comparison, VMT was higher on freeways than arterials, indicating that speeds are higher on freeways than arterials. Consequently, buses traveling on arterials are most likely to experience congested conditions that affect their reliability and travel time.

Freeway Interchange Performance

An intersecting lane vehicles (ILV) analysis provides a method of analyzing performance at signalized intersections. Caltrans District 11 requires that an ILV analysis be performed at signalized freeway ramp intersections within the corridor that would experience an increase of 50 peak-hour trips with the addition of project-related traffic. The analysis uses intersection lane geometric configurations, signal phasing[2], and a.m. and p.m. peak-hour volumes to determine how well traffic travels through an intersection during each respective peak hour. According to the *Highway Design Manual*, an ILV of 1,500 during a given peak hour is considered capacity. Travel conditions are optimal with minor delay when ILV equals 1,200 during a given peak hour (Caltrans, 2009b). An ILV analysis was performed at the intersections of Nobel Drive with the I-5 northbound off-ramp and the I-5 southbound on-ramp, as they were the only locations that met this guidance. As shown in Table 3-6, under existing conditions both locations are under capacity during both peak periods.

Table 3-6. A.M. and P.M. Peak-Hour ILV Performance—Existing Conditions (2010)

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Total Operating Level (ILV/HR)	Capacity Analysis	Total Operating Level (ILV/HR)	Capacity Analysis
Nobel Dr and I-5 northbound off-ramp	653	Under capacity	962	Under capacity
Nobel Dr and I-5 southbound on-ramp	505	Under capacity	885	Under capacity

Source: SANDAG, 2014v
Notes: ILV/HR = intersecting lane vehicles per hour
ILV/HR less than or equal to 1,200 is considered under capacity.

The *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) includes additional information on average weekday daily traffic (AWDT) on freeways within the corridor and the overall level of service on these facilities, as extracted from the Series 11 model.

[2] A traffic signal phase determines the order of vehicular movements through an intersection. In comparison, traffic signal timing determines the length of the red, yellow, and green lights for each phase.

Roadway Performance

A roadway segment analysis provides insight on how a particular roadway segment would perform for an entire 24-hour period, rather than just during peak hours. Based on the guidelines established by the city in the City of San Diego's *Traffic Impact Study Manual* (City of San Diego, 1998c), a roadway analysis is performed only if a project adds more than 50 peak-hour trips—for both directions combined—to a roadway segment. A roadway segment analysis was performed for roadway segments where the Refined Build Alternative would meet the city's guidance, using the methodologies set forth in the City's *Traffic Impact Study Manual* (City of San Diego, 1998c) and the Transportation Research Board's *Highway Capacity Manual* (Transportation Research Board, 2000). These segments are indicated in red on Figure 3-2. In the northern subarea, five stations would have new transit parking provided as part of the Refined Build Alternative. Consequently, vehicular traffic on roadways near the new facilities would increase, which could result in impacts on roadway segments. The Refined Build Alternative would not introduce any new stations or transit parking in the southern subarea. Additionally, results from the Series 11 model projected a minimal change in drive trips to the OTTC park-and-ride facility, which is the only park-and-ride in the southern subarea. As a result, vehicular trips would not exceed the city's guidelines in the southern subarea and, therefore, a roadway analysis was not performed in this subarea.

For each of the roadway segments shown in Figure 3-2, the existing functional classification and the number of lanes were determined. The *Traffic Impact Study Manual* (City of San Diego, 1998c) defines the capacities for roadway segments based on their functional classifications. Existing traffic volumes for each roadway included in the analysis were compared to guidelines in the *Traffic Impact Study Manual* to determine level of service and volume-to-capacity (V/C) ratios. According to city guidelines, the acceptable level of service for roadways is "D" or better, thus indicating that roadways operating at LOS E or F are unacceptable. Existing roadway classifications, AWDT, V/C ratios, and level of service are shown in Table 3-7. All roadway segments analyzed operate at LOS A through C, with the exception of five roadway segments on four roadways that operate at an unacceptable LOS E or LOS F:

- Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp (LOS F) and from the I-5 northbound off-ramp to Morena Boulevard (LOS E)
- Balboa Avenue from Morena Boulevard to Moraga Avenue (LOS E)
- Mission Bay Drive from Damon Avenue to Garnet Avenue (LOS F)
- La Jolla Village Drive from Villa La Jolla Drive to the I-5 southbound ramps (LOS F)

Table 3-7. Daily Arterial Segment Traffic Volumes and LOS—2010

Roadway Segment	Roadway Classification	LOS E Capacity	AWDT	V/C Ratio	LOS
Tecolote Rd					
I-5 SB Ramp to I-5 NB Ramp	4 Lane Major Arterial	40,000	28,605	0.715	C
I-5 NB Ramp to Morena Blvd	4 Lane Major Arterial	40,000	24,380	0.610	C
West Morena Blvd					
Vega St to Buenos Ave	4 Lane Major Arterial	40,000	10,229	0.256	A
Buenos Ave to Morena Blvd	4 Lane Major Arterial	40,000	12,280	0.307	A
Balboa Ave					
Mission Bay Dr to I-5 SB On-Ramp	5 Lane Major Arterial	45,000	32,270	0.717	C
I-5 SB On-Ramp to I-5 NB Off-Ramp	5 Lane Major Arterial	45,000	49,698	1.104	**F**
I-5 NB Off-Ramp to Morena Blvd	6 Lane Major Arterial	50,000	49,312	0.986	**E**
Morena Blvd to Moraga Ave	4 Lane Major Arterial	40,000	36,006	0.900	**E**
Mission Bay Dr					
Damon Ave to Garnet Ave	4 Lane Major Arterial	40,000	41,078	1.027	**F**
Morena Blvd					
Balboa Ave overpass	4 Lane Major Arterial	40,000	11,668	0.292	A
Balboa Ave WB Ramps to Avati Dr	4 Lane Major Arterial	40,000	22,536	0.563	C
Nobel Dr					
Villa La Jolla Dr to La Jolla Village Sq	4 Lane Major Arterial	40,000	16,139	0.403	B
La Jolla Village Square to I-5 NB Ramp	4 Lane Major Arterial	40,000	24,907	0.623	C
I-5 NB Ramp to Lebon Dr	6 Lane Major Arterial	50,000	26,644	0.533	B
Lebon Dr to Regents Rd	6 Lane Major Arterial	50,000	25,538	0.511	B
Regents Rd to Costa Verde Blvd	6 Lane Major Arterial	50,000	22,577	0.452	B
Villa La Jolla Dr					
Nobel Dr to La Jolla Village Dr	4 Lane Major Arterial	40,000	27,790	0.695	C
Genesee Ave					
La Jolla Village Dr to Esplanade Ct	6 Lane Major Arterial	50,000	28,387	0.568	C
Esplanade Ct to Nobel Dr	6 Lane Major Arterial	50,000	23,759	0.475	B
La Jolla Village Dr					
Villa La Jolla Dr to I-5 SB Ramps	6 Lane Prime Arterial	60,000	68,466	1.141	**F**

Source: SANDAG, 2014v
Notes: **Bold** values indicate roadway segments operating at LOS E or F.
The V/C ratio is calculated by dividing the AWDT volume by each respective roadway segment's capacity.
AWDT = Average Weekday Daily Traffic; LOS = level of service; NB = northbound; SB = southbound; WB = westbound; V/C = volume-to-capacity

Intersection Performance

An intersection performance analysis examines average delay at an intersection during a peak hour and, from that delay, determines the level of service of that intersection. To assess intersection performance, the City of San Diego uses level-of-service definitions established by the *Highway Capacity Manual* (Transportation Research Board, 2000) that are based on intersection delay (Table 3-8). Level of service is based on the average time that motorists are delayed as they pass through an intersection. It is categorized into six grades, each represented by a letter of the alphabet. Based on guidance from the city, LOS D or better is considered an acceptable level of service at intersections within the corridor.

The level of service and delay at intersections in the southern and northern subareas were analyzed using turning movement counts collected in May 2010 with supplemental counts collected in January and May 2012. Turning movement counts identify the number of vehicles approaching an intersection from each direction (i.e., north, south, east, or west) and by movement (i.e., left turns, through movements, and right turns) on each approach. These counts are provided in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

A Vehicle Stopped at the Washington Street Grade Crossing

Source: SANDAG, 2012

Southern Subarea

In the southern subarea, 24 intersections were analyzed because the increase in the frequency of trains traveling through the existing grade crossings under the Refined Build Alternative could affect the performance of these intersections. Flashing lights and automatic gates activated by approaching trains control vehicular movements through these grade crossings. With the approach of any train, the traffic signals are preempted and the normal signal operation is modified to facilitate the traffic movements that may be extending onto the tracks (referred to as the track clearance phase). After those movements are cleared, only movements that do not result in cars traveling toward the crossing gates are allowed to occur (referred to as the limited service phase). Finally, as the preemption ends and the gate returns to an upright position, the traffic signal serves any exit phases that have been programmed in to the traffic signal controller before resuming standard operation. An exit phase serves a specific phase or phases prior to resuming standard operation. Typically, an exit phase serves the movement or movements that are not served while a train travels through the grade crossing. This process generally increases average delays by reducing signal efficiency and roadway throughput capacity.

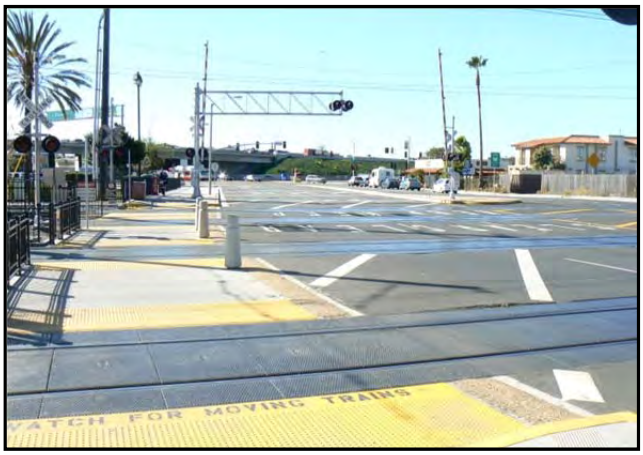
Table 3-8. Levels of Service for Signalized Intersections

Level of Service	Control Delay (seconds/vehicle)	Interpretation	Example
A	<10.0	This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.	
B	>10.0 and <20.0	This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	
C	>20.0 and <35.0	These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	
D	>35.0 and <55.0	At LOS D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	
E	>55.0 and <80.0	These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent.	
F	>80.0	This level, considered unacceptable by most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high volume-to-capacity ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.	

Source: Transportation Research Board, 2000, and SANDAG, 2012
Note: The control delay for each level of service is different for nonsignalized (stop-controlled) intersections, but LOS D or better still is considered acceptable.
LOS = level of service

Trolley, Amtrak, and COASTER train schedules from 2010 were used to determine how frequently crossing gates are down and traffic movements are preempted under existing conditions. VISSIM, a simulation model, was used to analyze performance at both signalized and nonsignalized intersections in the southern subarea. The model was run for the a.m. and p.m. peak periods from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m., respectively, with level of service and delay presented for the peak one-hour within each peak period. The peak hour start and end times varied by intersection.

Taylor Street Grade Crossing



Source: SANDAG, 2012

At each grade crossing, train approach times (the time from when warning bells begin to the time the train reaches the crossing) for each train type (Trolley, Amtrak, and COASTER), by direction, were observed in the field. For each crossing, an average train approach time was calculated for each train type and direction and coded into VISSIM for use in the analysis. VISSIM calculated the total gate down time (or the time the crossing is closed to vehicular traffic) based on the train approach time, the length of the crossing, and the speed of the train.

During the a.m. and p.m. peak periods, all intersections in the southern subarea operate at acceptable levels of service (i.e., LOS D or better) (Table 3-9).

Northern Subarea

In the northern subarea, 18 intersections were analyzed at locations where the Refined Build Alternative would add 50 or more vehicular trips, per City of San Diego guidelines, through intersections during the peak hour. These trips would occur from vehicular traffic accessing the new Trolley stations and transit parking facilities. The Synchro 7.0 software suite, a traffic software based on procedures outlined in the *Highway Capacity Manual* (Transportation Research Board, 2000), was used to analyze traffic conditions in the northern subarea. Three intersections—two signalized and one yield controlled—operate at an unacceptable level of service (LOS E or F) during either the a.m. or p.m. peak hour, while the other peak hour operates at an acceptable level of service (Table 3-10):

- Balboa Avenue eastbound ramps and Morena Boulevard (LOS E in the a.m. peak hour)
- Mission Bay Drive and Garnet Avenue (LOS E in the p.m. peak hour)
- Genesee Avenue and La Jolla Village Drive (LOS E in the a.m. peak hour)

Table 3-9. A.M. and P.M. Peak-Hour Intersection Performance in the Southern Subarea—2010

Grade Crossing	Intersection	Intersection Control Type	A.M. Peak Hour		P.M. Peak Hour	
			Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Ash St	Ash St and Pacific Hwy	Signalized	34.0	C	29.9	C
	Ash St and Kettner Blvd	Signalized	23.9	C	21.8	C
	Ash St and India St	Signalized	12.2	B	12.7	B
Beech St	Beech St and Pacific Hwy	Stop-Control	22.5	C	23.7	C
	Beech St and Kettner Blvd	Stop-Control	8.4	A	10.6	B
	Beech St and India St	Stop-Control	8.7	A	10.5	B
Cedar St	Cedar St and Pacific Hwy	Signalized	25.4	C	25.8	C
	Cedar St and Kettner Blvd	Stop-Control	10.7	B	12.1	B
	Cedar St and India St	Stop-Control	8.1	A	9.4	A
Palm St	Palm St and Pacific Hwy	Signalized	15.2	B	15.5	B
	Palm St and Kettner Blvd	Stop-Control	13.5	B	16.5	C
Sassafras St	Sassafras St and Pacific Hwy	Signalized	21.3	C	25.9	C
	Sassafras St and Kettner Blvd	Signalized	17.6	B	19.4	B
Washington St	Washington St and Pacific Hwy SB Frontage Rd	Signalized	28.2	C	38.2	D
	Washington St and Pacific Hwy NB Frontage Rd	Signalized	34.6	C	37.8	D
	Washington St and Hancock Rd	Signalized	31.4	C	32.4	C
Noell St	Noell St and Kurtz St	Stop-Control	9.0	A	10.3	B
	Noell St and Hancock St	Stop-Control	7.6	A	9.2	A
Taylor St	Taylor St/Rosecrans St and Pacific Hwy	Signalized	34.7	C	44.7	D
	Taylor St and Congress St	Signalized	22.1	C	35.8	D
	Taylor St and Calhoun St	Stop-Control	4.8	A	19.6	C
	Taylor St and Juan St	Signalized	23.1	C	27.3	C
	Pacific Hwy and OTTC Park-and-Ride Lot Access	Signalized	22.7	C	26.6	C
	Rosecrans St and Jefferson St	Stop-Control	5.4	A	8.5	A

Source: SANDAG, 2014v
Note: LOS = level of service; NB = northbound; OTTC = Old Town Transit Center; SB = southbound; sec = second; veh = vehicles

Table 3-10. A.M. and P.M. Peak-Hour Intersection Performance in the Northern Subarea—2010

Intersection	Intersection Control Type	A.M. Peak Hour		P.M. Peak Hour	
		Average Delay (sec/veh)	LOS	Average Delay (sec/veh)	LOS
Tecolote Rd and Morena Blvd	Signalized	39.7	D	42.0	D
Clairemont Dr and Denver St	Signalized	31.7	C	43.1	D
Morena Blvd and Ingulf St	Signalized	7.5	A	7.4	A
W Morena Blvd and Vega St	Signalized	7.0	A	9.7	A
Balboa WB Ramps and Morena Blvd	Signalized	6.6	A	7.9	A
Balboa EB Ramps and Morena Blvd	Yield-Controlled	37.1	**E**	31.9	D
Mission Bay Dr and Garnet Ave	Signalized	50.1	D	62.0	**E**
Denver St and Ingulf St	Stop-Control	10.1	B	11.0	B
Nobel Dr and I-5 NB Off-Ramp	Signalized	15.7	B	20.0	B
Nobel Dr and I-5 SB On-Ramp	Signalized	3.2	A	7.1	A
Nobel Dr and La Jolla Village Sq	Signalized	18.2	B	41.7	D
Nobel Dr and Villa La Jolla Dr	Signalized	17.2	B	23.1	C
Genesee Ave and Regents Rd	Signalized	24.9	C	17.5	B
Genesee Ave and Eastgate Mall	Signalized	31.0	C	39.9	D
Genesee Ave and Executive Dr	Signalized	16.9	B	31.0	C
Genesee Ave and Executive Sq	Signalized	11.7	B	19.5	B
Genesee Ave and La Jolla Village Dr	Signalized	61.8	**E**	46.0	D
Genesee Ave and Esplanade Ct/ UTC Drwy	Signalized	20.3	C	34.6	C

Source: SANDAG, 2014v
Notes: **Bold** text indicates an unacceptable level of service.
EB = eastbound; LOS = level of service; NB = northbound; SB = southbound; sec = second; veh = vehicles; WB = westbound

3.3.3 Bicycle and Pedestrian System

Figure 3-3 shows the location of existing major bicycle facilities (including Class I bike paths and Class II bike lanes) in the Mid-Coast Corridor. Detailed maps showing the location of existing bicycle and pedestrian facilities within a quarter-mile radius of each existing and proposed Trolley station are provided in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

Bicycle Lockers at Old Town Transit Center

Source: SANDAG, 2011

3.3.3.1 Bicycle System

Approximately 510 miles of existing bicycle facilities are located within the City of San Diego (SANDAG, 2010d). The four types of bicycle facilities are Class I bike paths, Class II bike lanes, Class III bike routes, and facilities along freeway shoulders. Each facility type differs based on the degree of separation between the bicyclist and automobiles, with bike paths offering complete separation. Approximately 60 percent of the existing bicycle facilities are bicycle lanes, which are striped lanes along a roadway.

Bicycle facilities are available at most Trolley and COASTER stations, thus accommodating access to the stations by bicycles. In 2011, MTS provided 872 bicycle parking spaces at 60 transit centers. Additionally, the regional transit agencies permit bicycles on buses, the Trolley, Amtrak, and COASTER.

Signed bike routes and/or bike lanes are located within a quarter-mile radius of each existing and proposed station area. Bicycle volumes observed at station areas during field observations in 2011 were mostly low, except near the proposed UCSD West Station area, where bicycle volumes and bike rack utilization were high. In addition to bicycle facilities near stations, the Rose Canyon Bicycle Path is an important regional bicycle facility located between the railroad tracks and I-5. The Rose Canyon Bicycle Path, along with a signed bicycle route and a bicycle path along Rose Creek, connect UCSD and University City to Mission Bay. The alignment of the Rose Canyon Bicycle Path is shown in Figure 3-4.

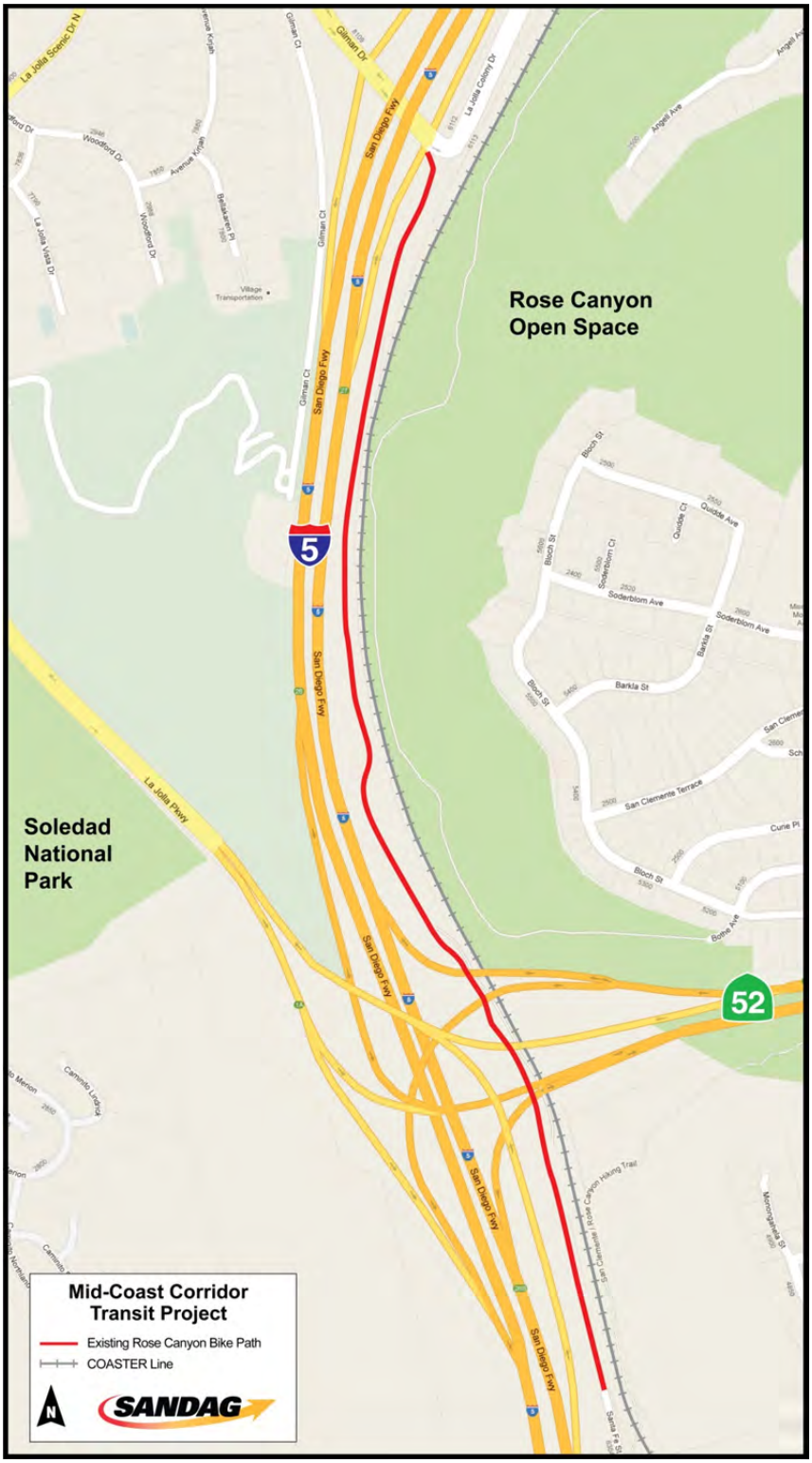
Bicycle Lane and Pedestrian Bridge at Genesee Avenue near UTC Transit Center

Source: SANDAG, 2011

Figure 3-3. Major Bicycle Facilities in the Mid-Coast Corridor

Source: SANDAG, 2012
Note: The Trolley lines shown represent the 2010 operating plan.

Figure 3-4. Rose Canyon Bicycle Path



Source: SANDAG, 2012

3.3.3.2 Pedestrian System

Street connectivity and pedestrian facilities vary among the different San Diego neighborhoods. Areas within a quarter-mile radius of the Santa Fe Depot, the County Center/Little Italy Station, and the OTTC have sidewalks on all streets and striped crosswalks at most signalized intersections. Near the Tecolote Road, Clairemont Drive, Balboa Avenue, and UCSD West Station areas, some streets do not have sidewalks. Striped crosswalks are provided in all directions at most signalized intersections near Executive Drive and the UTC Transit Center, and pedestrian bridges also are provided. Pedestrian activity observed in 2011 at most station areas was low, except near the Santa Fe Depot, the OTTC, and the proposed UCSD West Station, where volumes were moderate-to-high.

3.3.4 Parking

Off- and on-street parking is available throughout the corridor, although availability and use of parking spaces varies. Within the corridor, some off-street parking lots charge a fee for parking. Downtown parking rates are high; in 2010, the median daily parking rate in San Diego was $26, nearly $10 more than the national median. San Diego's monthly median parking rate for an unreserved space was $170, which is approximately $9 higher than the national median (Colliers, 2010). Maps showing the location and utilization of on- and off-street parking supply are available in Appendix I of the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

On the UCSD campus, the university manages parking supply through parking permits and regulations. The permits have different categories of eligible users (students, staff, and faculty), and the pricing often varies by user and location, from $61 per month for unreserved spaces to $174 per month for reserved spaces on campus. Daily permits range from $8 to $16 per day. In University City, a few privately owned and operated parking structures charge $10 per day for noncommercial business. Several commercial buildings offer parking at no cost to employees, while others charge employees up to about $75 per month.

On-street parking demand in the southern subarea is high, especially within downtown. Observations in 2011 showed on-street parking use of between 60 and 100 percent. The OTTC is the only station along the existing alignment that offers a park-and-ride facility; 90 percent of spaces were occupied at the time of observation. On-street parking is available along many roadways near the OTTC and was between 80 and 100 percent occupied at the time conditions were observed.

On-street parking was more readily available near proposed stations north of the OTTC and south of University City at the time conditions were observed, with use varying between 0 to 60 percent. In comparison, demand for on-street parking near proposed stations in the University City area is high, with the majority of available parking being used by residents of multifamily residential and on-campus housing developments. The majority of parking was between 50 and 100 percent occupied at the time of observation.

3.3.5 Freight

Within the corridor, freight is transported by either truck (referred to as vehicular freight) or rail. I-5 and I-805 are the major north–south facilities for commercial trucks, and I-8 is a major east–west truck route. Vehicular freight also travels on arterial roadways as drivers travel between freeways and marine or airport terminals to pick up goods or make deliveries to customers.

Burlington Northern Santa Fe is the rail freight operator on the coastal corridor between National City and Orange County. Rail freight vehicles operate through the grade crossings in the southern subarea; however, these trains do not operate during peak periods. North of Friars Road and south of Tecolote Drive, a connection exists to a spur track along the east side of the railroad right-of-way. The spur track connects to an area between Buenos Avenue and Anna Avenue. There is no freight service to any of the buildings along this spur track.

3.3.6 Airports

The San Diego International Airport is located in the Mid-Coast Corridor near Downtown San Diego. The airport has a single east–west runway, making it the busiest single-runway airport in the nation. The airport is under ownership and operation of the San Diego County Regional Airport Authority (San Diego County Regional Airport Authority, 2008). The Refined Build Alternative would not impact San Diego International Airport and therefore it is not discussed in Section 3.4.

3.4 Transportation Impacts and Mitigation

The following sections describe impacts and performance of the transportation system in 2030, with and without the Mid-Coast Corridor Transit Project, and identify mitigation for the Refined Build Alternative. No mitigation is identified for the No-Build Alternative because it is the no action alternative. Any impact or mitigation for projects assumed in the No-Build Alternative would be determined through environmental review for those projects. Adverse conditions that are associated with the No-Build Alternative, including unacceptable level of service on roadways and at intersections, would be due to the loss of benefits that would result from the Mid-Coast Corridor Transit Project, not improvements associated with the No-Build Alternative (e.g., continuation and enhancement of service on bus Route 150). A significance determination in accordance with CEQA also is included for performance in 2010 and long-term performance in 2030.

As stated in the introduction to this chapter, the SEIS/SEIR differs from the AA/DEIS/DEIR and FEIR in 1995 and the FEIS in 2001. The 1995 documents had a 2005 planning horizon and the 2001 document had a 2015 planning horizon. None of these documents analyzed traffic impacts at intersections south of Taylor Street. Consequently, the SEIS/SEIR has identified different impacts to the freeway and roadway system, parking, and the bicycle and pedestrian system than those described in the previous environmental documents.

3.4.1 Transit System Impacts

3.4.1.1 No-Build Alternative

The No-Build Alternative assumes that all revenue-constrained transportation and transit improvements in the 2030 RTP would be constructed, except for the Mid-Coast Corridor Transit Project. The only change in planned transportation and transit improvements that would result from the No-Build Alternative would relate to the continuation and enhancement of bus Route 150. Route 150 is currently planned for elimination in the 2030 RTP concurrent with implementation of the Mid-Coast Corridor Transit Project as Route 150 would provide service that is duplicative with the Trolley Blue Line extension. Under the No-Build Alternative, existing Route 150 would be modified to provide more direct bus service between downtown, the OTTC, and University City (Figure 2-4). These transit improvements would affect overall transit service levels and performance under the No-Build Alternative.

No-Build Alternative Transit Service Levels

The availability of transit service, including the hours that service is available and the headways (or time) between transit vehicles, is an important determinant as to whether transit services will be used to make a trip. If transit is not available when or where one wants to go, then other aspects of transit service performance do not matter as the trip may not be made by transit (Transportation Research Board, 2003).

Under the No-Build Alternative, hours of service for express bus routes operating between the OTTC and the UTC Transit Center, including Route 150, would be similar to those under existing conditions (as shown in Table 3-3). On these routes, service would continue to be available during peak periods or during peak and midday periods with no service provided on weekends. While the Route 150 alignment would be modified under the No-Build Alternative compared to existing conditions, the hours of service would remain largely unchanged. However, headways on Route 150 would be every 15 minutes during the peak period with 30-minute service during the midday off-peak period, which is an improvement to the off-peak headways under existing conditions (60 minutes).

Daily revenue miles and revenue hours are indicators of the amount of service operated by a transit agency whereas in-service hours represent the amount of service available to the public provided by all vehicles along the route during the scheduled hours of service. These measures would remain the same or increase on many bus routes between existing conditions and the No-Build Alternative (Table 3-11). An increase in service is considered beneficial for transit passengers using the service because it increases their mobility. In-service hours on Route 150 would increase nearly 70 percent as a result of reduced headways between 2010 and 2030, indicating that the enhancements to this route under the No-Build Alternative would substantially increase the amount of service available to the public. With the changes that MTS plans to make to its operating plan for the Trolley (as described in Section 2.2.1), the Trolley Blue and Orange Lines would have fewer revenue miles, revenue hours, and in-service hours by 2030, while the Trolley Green Line would have more. These changes would not impact the public as the Trolley Green Line would provide service to areas of downtown that are served by the Trolley Blue and Orange Lines under existing conditions.

Table 3-11. Daily Revenue Miles, Revenue Hours, and In-Service Hours—Existing Conditions and No-Build Alternative

Route*	Existing Conditions (2010)			No-Build Alternative (2030)		
	Revenue Miles	Revenue Hours	In-Service Hours	Revenue Miles	Revenue Hours	In-Service Hours
Local Routes						
8	715	55	46	715	56	46
9	828	66	55	828	67	56
25	343	28	21	1,826	144	108
27	533	45	34	933	82	61
30	2,978	228	190	4,048	324	271
31	200	14	11	854	58	49
41	1,198	76	64	2,014	135	113
44	1,222	98	82	2,972	237	198
105	709	54	46	1,228	96	80
120	998	77	64	998	79	66
201	245	20	17	695	52	43
202	252	21	17	1,068	79	66
921	549	46	34	1,236	105	79
Total	10,770	828	681	19,415	1,514	1,236
Express Routes						
50	693	47	39	1,564	108	91
150	847	49	41	1,560	82	69
960	251	15	11	502	28	21
Total	1,791	111	91	3,626	218	181
Trolley						
Blue	3,996	214	185	3,820	208	180
Orange	3,024	171	148	2,820	147	127
Green	2,643	125	108	3,093	157	136
Total	9,663	510	441	9,733	512	443

Source: SANDAG, 2014v
Note: * Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.

No-Build Alternative Transit System Performance

The transit improvements included in the 2030 RTP and the continuation and enhancement of Route 150, as well as increased transit demand and traffic congestion from population growth, would affect transit performance. Changes in travel demand and performance would be evident in regard to travel time, reliability, and passengers per service hour under the No-Build Alternative compared to existing conditions. The assessment of transit performance under the No-Build Alternative is based on the forecasts from the SANDAG Series 11 model and the evaluation criteria presented in Section 3.3.1.2.

Travel Time and Frequency

The forecast population and employment growth, and the resulting increase in travel, between 2010 and 2030 will place higher demands on both roadways and transit in the corridor. Roadway travel times for many of the travel analysis district pairs are projected to increase an average of 5 minutes between 2010 and 2030 (as shown in Figure 1-7), affecting the speed of both automobiles and buses (refer to Figure 1-2 for a map of the travel analysis districts). The largest increases in roadway travel time would occur for trips from the South Bay (District 11) travel analysis district to UCSD (District 17) or the Golden Triangle (District 16) travel analysis districts, which would be 12 minutes longer in 2030 than in 2010. Despite modifications to the alignment of Route 150 and the implementation of high-occupancy vehicle (HOV) lanes on I-5, a trip on Route 150 from downtown to the UTC Transit Center is projected to take 49 minutes in 2030 compared to 48 minutes today. Therefore, the improvements in transit service and the use of HOV lanes would not be sufficient to offset completely the additional congestion when Route 150 operates in mixed traffic. Additionally, this travel time represents only the time spent on Route 150 and not any additional time that would be required to get to or from the route or transfers.

As discussed in Section 1.4.2 and illustrated in Figure 1-8, transit travel times, on average, would be similar to those experienced in 2010. Because of improved transit service and implementation of HOV lanes on I-5, transit travel times under the No-Build Alternative would be reduced an average of 3 minutes for trips between some travel analysis district pairs. These include trips from the Golden Triangle (District 16) travel analysis district to the Centre City (District 15) travel analysis district, which would be approximately 7 minutes less in 2030 than in 2010. The largest savings would occur for trips from the Kearny Mesa (District 5) travel analysis district to the Clairemont (District 23) travel analysis district, which would be 22 minutes less when compared to travel times in 2010. For transit passengers wishing to arrive at their destination quickly, shorter travel times would be beneficial. Further, improvements in transit travel time tend to make transit a more competitive alternative to the private automobile, especially for choice riders who could make the trip by automobile instead. However, travel times for trips between other travel analysis district pairs, such as those from the South Bay (District 11) travel analysis district to the UCSD (District 17) or the Golden Triangle (District 16) travel analysis districts, are projected to be approximately 2 minutes longer because of increases in traffic congestion, which would result in slower travel speeds.

Reliability

As stated previously, reliability typically is higher for transit vehicles operating in semi-exclusive or exclusive right-of-way because these vehicles are not affected by traffic congestion. Under existing conditions, there are no HOV lanes on I-5 or I-805; therefore, buses travel in general purpose lanes and arterials for the entire length of their route.

Under the No-Build Alternative, most key bus routes in the corridor would continue to operate in mixed traffic. Increased congestion on freeways and arterials would negatively affect bus service reliability. Exceptions include bus routes operating in the I-5 and I-805 HOV lanes, such as Route 150, which would serve approximately 50,000

daily passenger miles[3] (Table 3-12). However, these routes still would use arterials and general purpose lanes on I-5 to access these HOV lanes, thereby potentially reducing reliability. In comparison, the Trolley lines would serve more than 1,170,000 passenger miles in exclusive or semi-exclusive right-of-way (semi-exclusive right-of-way includes Trolley lines operating through grade crossings [e.g., the Trolley Orange Line on C Street in downtown]), which is a 16 percent increase compared to existing conditions. Passenger miles on the Trolley Orange Line would decrease as this line would have a shorter alignment under the No-Build Alternative than it does under existing conditions. As the Trolley lines operate in exclusive and semi-exclusive right-of-way, reliability would be higher for passengers on Trolley routes compared to buses, consistent with experiences under existing conditions.

Table 3-12. Daily Passenger Miles in Exclusive and Semi-Exclusive Right-of-Way—Existing Conditions (2010) and No-Build Alternative (2030)

Route[1]	Existing Conditions (2010)	No-Build Alternative (2030)	Percent Change
Trolley Blue Line	607,000	691,000	14%
Trolley Orange Line	218,000	179,000	-18%
Trolley Green Line	186,000	304,000	63%
Total Trolley system	1,011,000	1,174,000	16%
Route 150	N/A	31,000	-
All buses operating on HOV lanes[2]	N/A	49,000	-

Source: Series 11 model
Notes: [1] Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.
[2] Includes Routes 150, 680, and 960 which would operate on the I-5 and I-805 HOV lanes in 2030
HOV = high-occupancy vehicle; N/A = not applicable (there are no HOV lanes in the corridor); Routes 150, 680, and 960 operate in mixed-traffic for the entire length of their alignment; OTTC = Old Town Transit Center; UTC = University Towne Centre

Passengers per Service Hour

Transit (bus and rail) efficiency is measured in terms of passengers per in-service hour. This is a measure of the number of passenger boardings on the route divided by the hours that the route is available to transport passengers. As discussed in Section 3.3.1.2, SANDAG has established a guideline of 35 revenue passenger boardings per service hour. If a route does not meet the guideline, then it may be operating service for more hours than is needed to serve the ridership demand. In these cases, the transit agency may adjust service by reducing service during off-peak periods or reducing the service span to serve demand more efficiently.

[3] Passenger miles are the number of miles traveled by transit passengers, in this case, in semi-exclusive and exclusive right-of-way; it does not include travel on segments of routes that operate in mixed traffic.

Transit efficiency would improve on several routes between 2010 and the No-Build Alternative in 2030, with only 3 of the 16 routes not meeting the established guideline (Table 3-13). Even though travel times for many of the routes would increase slightly between 2010 and 2030, the number of passengers using these routes would increase, thus improving efficiency. Transit efficiency on Route 150 would increase more than 40 percent compared to existing conditions, indicating the benefits of the enhancements. The SuperLoop (Route 201) and Route 105 meet the guideline but do not exceed it. Passengers per service hour are projected to increase on all Trolley routes, indicating the greater demand in 2030 for these and all other corridor transit services.

Table 3-13. Passengers per In-Service Hour—2010 and 2030

Route*	Existing Conditions (2010)	No-Build Alternative (2030)	Refined Build Alternative (2030)
Local Routes			
8	38.7	52.2	54.1
9	41.6	46.4	54.4
25	**20.3**	**25.9**	**25.9**
27	**23.1**	47.5	56.3
30	**31.6**	66.8	56.1
31	**24.0**	61.2	73.5
41	43.4	78.8	47.8
44	42.1	47.5	53.5
105	**31.5**	35.0	**23.8**
120	36.4	43.9	40.9
201	**28.9**	34.9	**18.6**
202	36.0	**27.3**	**33.3**
921	**32.1**	53.2	50.6
Express Routes			
50	**27.9**	**28.6**	**16.5**
150	43.1	62.3	N/A
960	**26.5**	47.6	38.1
Trolley			
Blue	278.4	425.6	373.3
Orange	126.5	208.7	207.9
Green	170.0	361.0	311.8

Source: MTS, 2010; SANDAG, 2014v

Notes: Text in **bold** indicates the route does not meet the established guideline, defined as 35 passengers per in-service hour.

* Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.

N/A = not applicable (bus Route 150 would not operate under the Refined Build Alternative); OTTC = Old Town Transit Center; UTC = University Towne Centre

No-Build Alternative Transit Ridership and Access to Stations

Changes in transit service levels and improvements in the performance of the system can increase transit ridership. The forecasted growth in population and employment in the corridor together with the transit improvements under the No-Build Alternative would increase transit ridership over existing conditions.

Systemwide Ridership

Table 3-14 summarizes transit boardings during peak and off-peak periods for COASTER, LRT (Trolley and SPRINTER), and bus for the No-Build Alternative compared to existing conditions, as forecast by the Series 11 model. Total daily boardings also are presented. There would be 608,200 daily boardings systemwide under the No-Build Alternative, representing a 35 percent increase over existing conditions. Under the No-Build Alternative, 45 percent of daily boardings are estimated to occur during peak periods, indicating that more than half of all daily boardings occur during off-peak periods.

Mid-Coast Corridor Ridership

Under the No-Build Alternative, the Trolley Blue Line would terminate at Santa Fe Depot, and the Trolley Green Line would serve the existing stations between Santa Fe Depot and the OTTC. Route 150 would operate between Fifth Avenue and the UTC Transit Center. This section focuses on ridership on these routes because they provide service comparable to that provided under the Refined Build Alternative. During the a.m. peak hour, northbound is the peak direction of travel on both routes. During this peak hour, the highest number of Trolley boardings would occur at the OTTC on the northbound Trolley Green Line (250 boardings) and the highest number of alightings would occur on the southbound Trolley Green Line (560 alightings). On Route 150, the highest number of boardings would occur at the OTTC, while the highest number of alightings would occur at the UCSD West Station.

Access to Transit Services

Daily mode of access to Trolley Green Line stations between and including Santa Fe Depot and the OTTC is forecast to occur primarily by walking or transfers between the Trolley and nearby bus routes or the COASTER. The highest transfer rates are projected to occur at Santa Fe Depot and the OTTC, with each station having a transfer rate accounting for more than 80 percent of all access trips. This indicates the importance of these stations for providing connections between various modes of transit.

Summary

The improvements to Route 150 would result in shorter headways compared to service under existing conditions. Additionally, when compared to existing conditions, there would be improvements in travel time for travel between certain areas; however, travel times would increase slightly for trips between other areas of the corridor (e.g., South Bay [District 11] travel analysis district to the UCSD [District 17] or the Golden Triangle [District 16] travel analysis districts). Travel to destinations in the northern area of the corridor, including University City, would continue to be by buses operating in mixed traffic or on HOV lanes along I-5. These routes would have service spans similar to those under existing conditions, with limited or no service provided outside peak periods. Despite minor increases in travel times, transit efficiency would increase on several bus routes and all three Trolley lines, indicating the greater demand in 2030 for these and all other transit services in the corridor.

Table 3-14. Comparison of Transit Boardings between 2010 and 2030

Transit Mode[1]	Existing Conditions (2010)					No-Build Alternative (2030)				
		Peak Periods		Off-Peak Period			Peak Periods		Off-Peak Period	
	Total Daily Boardings	Boardings	Share of Total	Boardings	Share of Total	Total Daily Boardings	Boardings	Share of Total	Boardings	Share of Total
Commuter Rail (COASTER)	7,900	6,600	84%	1,300	16%	14,700	11,700	80%	3,000	20%
Light Rail										
Trolley Blue Line	68,700	36,800	54%	31,900	46%	76,600	38,700	51%	37,900	49%
Trolley Green Line	32,000	13,300	42%	18,700	58%	49,100	21,000	43%	28,100	57%
Trolley Orange Line	32,700	14,600	45%	18,100	55%	26,500	12,300	46%	14,200	54%
Total Trolley	133,400	64,700	49%	68,700	51%	152,200	72,000	47%	80,200	53%
Total Light Rail[2]	144,100	69,300	48%	74,800	52%	173,900	81,200	47%	92,700	53%
Express Bus										
Route 150	4,100	3,600	88%	500	12%	4,200	2,500	60%	1,700	40%
Total Express Bus	22,000	12,100	55%	9,900	45%	59,300	31,500	53%	27,800	47%
Local Bus	276,200	112,000	41%	164,200	59%	360,300	146,400	41%	213,900	59%
System Total	450,200	200,000	44%	250,200	56%	608,200	270,800	45%	337,400	55%

Source: Series 11 model
Notes: [1] Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.
[2] Includes North County Transit District SPRINTER
Numbers are rounded to the nearest hundred. OTTC = Old Town Transit Center; UTC = University Towne Centre

However, as described in Section 3.4.1.2, the Trolley Blue Line extension under the Refined Build Alternative would serve more efficiently the key travel markets in and adjacent to the Mid-Coast Corridor with substantially faster travel times, longer spans of service, and greater reliability. Accordingly, the transit benefits provided under the No-Build Alternative would be less than what would be provided under the Refined Build Alternative.

3.4.1.2 Refined Build Alternative

Similar to the No-Build Alternative, the Refined Build Alternative in 2030 assumes implementation of all revenue-constrained transportation and transit improvements in the 2030 RTP; however, the Refined Build Alternative also includes operation of the Mid-Coast Corridor Transit Project. Route 150 would be eliminated under the Refined Build Alternative as its service would duplicate that provided by the Trolley Blue Line extension, except with longer frequencies and fewer hours of service. As described in Section 2.4, the Refined Build Alternative includes the extension of the Trolley Blue Line from the Santa Fe Depot to University City, with accompanying changes to the bus system to serve stations along the alignment. The extension would operate in exclusive right-of-way, separated from traffic north of the San Diego River. These transit improvements would affect overall transit service levels and performance under the Refined Build Alternative.

The following sections discuss transit service levels, performance, and ridership for the Refined Build Alternative.

Refined Build Alternative Transit Service Levels

The availability of transit service under the Refined Build Alternative would increase compared to the No-Build Alternative. Under the Refined Build Alternative, the Trolley Blue Line would operate between Santa Fe Depot and the OTTC every 7.5 minutes during both peak and midday off-peak periods, and the Trolley Green Line would operate every 15 minutes during the peak and midday off-peak periods. This would reflect an increase in service frequency over the No-Build Alternative in which only the Trolley Green Line operated between these stations. Trolley Blue Line frequency would improve compared to existing conditions in which the Trolley Blue Line operates with 7.5-minute frequencies during peak periods and with 15-minute frequencies during the midday off-peak period. Service during the early morning and evening hours would be less frequent.

North of the OTTC, the Trolley Blue Line extension would operate with 7.5-minute headways during the peak and midday off-peak periods, which would provide improved transit service compared to the frequency provided by Route 150 under the No-Build Alternative (15-minute peak and 30-minute midday off-peak headways). Additionally, similar to existing conditions, Route 150 would not operate on weekends whereas the Trolley Blue Line extension would continue to operate on weekends with hours of service similar to that provided by the Trolley Blue Line under existing conditions. Because the Trolley Blue Line extension would replace service provided by Route 150, it is likely that many transit passengers who would use Route 150 under the No-Build Alternative would shift to the Trolley Blue Line extension under the Refined Build Alternative. Accordingly, these passengers would benefit from the improved frequencies and longer hours of service provided by the Trolley Blue Line.

Daily revenue miles and revenue hours for the systemwide Trolley system would increase 36 and 27 percent, respectively, with the Refined Build Alternative (Table 3-15). Similarly, in-service hours would also increase 27 percent. Daily revenue miles, revenue hours, and in-service hours for most bus routes would not vary between the No-Build and Refined Build Alternatives, indicating that bus service levels would not be reduced with implementation of the Refined Build Alternative. Local Routes 8 and 9 would offer increased service as these routes would be rerouted to serve proposed Trolley stations. While trip distances and travel times could be longer for passengers on Routes 8 and 9, the rerouting would provide better connections to other transit services, thus improving mobility.

Table 3-15. Comparison of Daily Revenue Miles, Revenue Hours, and In-Service Hours—No-Build and Refined Build Alternatives (2030)

	No-Build Alternative (2030)			Refined Build Alternative (2030)		
Route*	Revenue Miles	Revenue Hours	In-Service Hours	Revenue Miles	Revenue Hours	In-Service Hours
Local Routes						
8	715	56	46	1,052	89	74
9	828	67	56	977	81	68
25	1,826	144	108	1,826	144	108
27	933	82	61	986	85	64
30	4,048	324	271	4,048	324	271
31	854	58	49	854	58	49
41	2,014	135	113	2,014	135	113
44	2,972	237	198	2,972	237	198
105	1,228	96	80	1,228	96	80
120	998	79	66	998	79	66
201	695	52	43	695	52	43
202	1,068	79	66	1,068	79	66
921	1,236	105	79	1,236	105	79
Total	19,415	1,514	1,236	19,954	1,564	1,279
Express Routes						
50	1,564	108	91	1,564	108	91
150	1,560	82	69	N/A	N/A	N/A
960	502	28	21	502	28	21
Total	3,626	218	181	2,066	136	112
Trolley						
Blue	3,820	208	180	7,276	348	300
Orange	2,820	147	127	2,820	147	127
Green	3,093	157	136	3,093	157	136
Total Trolley	9,733	512	443	13,189	652	563

Source: SANDAG, 2014v
Note: * Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.
N/A = not applicable (Route 150 does not operate under the Refined Build Alternative); OTTC = Old Town Transit Center; UTC = University Towne Centre

Refined Build Alternative Transit System Performance

The Refined Build Alternative would provide improved service frequencies over the No-Build Alternative while operating in exclusive right-of-way. Together, these features would affect transit performance, particularly in terms of travel time and reliability. The following sections describe transit performance under the Refined Build Alternative based on Series 11 forecasts and the evaluation criteria established by MTS and SANDAG.

Travel Time and Frequency

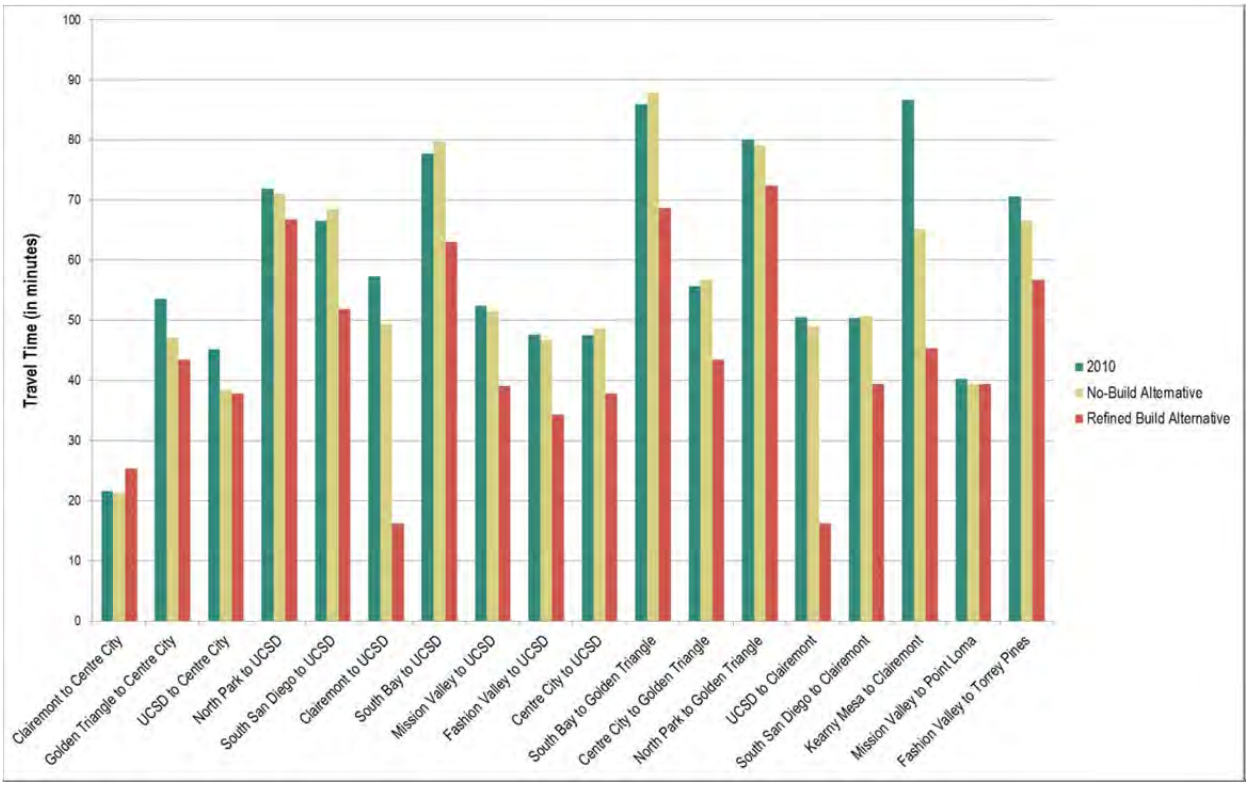
For buses operating in mixed traffic, transit travel time is affected by roadway congestion, the speed of the vehicle, and the number and distance between stops. However, the extension of the Trolley Blue Line would operate in an exclusive right-of-way and would not be affected by roadway congestion. A comparison of travel times from downtown to the UTC Transit Center was conducted for the Refined Build Alternative against Route 150 in the No-Build Alternative. Under the Refined Build Alternative, the travel time for the Trolley Blue Line between downtown and the UTC Transit Center would be approximately 40 minutes during peak periods, compared to 49 minutes for the northbound Route 150. Because the Refined Build Alternative would operate entirely within exclusive right-of-way, speeds would be higher and travel times would be shorter.

With the expected transit speed improvements provided by the Refined Build Alternative, transit travel times for major origins and destinations would be, on average, 13 minutes shorter than under the No-Build Alternative (Figure 3-5). In most cases, the travel time reductions would exceed 20 percent, including travel from the South Bay (District 11) travel analysis district to the Golden Triangle (District 16) travel analysis district. A trip between these travel analysis districts under the No-Build Alternative would take 88 minutes; however, that same trip would take 69 minutes under the Refined Build Alternative—an approximate 20-minute savings for passengers. Travel times also are projected to be shorter than travel times under existing conditions. For instance, a transit trip from the Golden Triangle (District 16) travel analysis district to the Centre City (District 15) travel analysis district took approximately 55 minutes in 2010, but would take about 43 minutes with the Refined Build Alternative, or about three-quarters of what it takes today. Except for trips from the Clairemont (District 23) to Centre City (District 15) travel analysis districts, all travel times would be noticeably shorter. Compared to the No-Build Alternative, the shorter travel times for the Refined Build Alternative would provide a benefit for those travelers who wish to reach their destination as quickly as possible.

Reliability

The entire 10.9-mile extension of the Trolley Blue Line would operate in an exclusive right-of-way that would allow Trolleys to avoid conflicts with roadway traffic that would interfere with service reliability. Compared to the No-Build Alternative, a 50-percent increase in passenger miles would occur on the Trolley Blue Line while overall systemwide Trolley passenger miles would increase 28 percent (Table 3-16). Even with population, employment, and travel growth through 2030, this reliability would not decrease. For buses operating on HOV lanes, passenger miles in exclusive right-of-way would decrease 76 percent, partly as a result of eliminating Route 150, which accounted

Figure 3-5. Comparison of Transit Travel Times between Travel Analysis Districts—Existing Conditions (2010) and No-Build and Refined Build Alternatives (2030)



Source: Series 11 model

Table 3-16. Daily Passenger Miles in Exclusive and Semi-Exclusive Right-of-Way—2030

Route[1]	No-Build Alternative (2030)	Refined Build Alternative (2030)	Percent Change from No-Build Alternative
Trolley Blue Line	691,000	1,020,000	48%
Trolley Orange Line	179,000	181,000	1%
Trolley Green Line	304,000	287,000	-6%
Total Trolley System	1,174,000	1,488,000	27%
Route 150	31,000	N/A	N/A
All buses running on HOV lanes[2]	49,000	12,000	-76%

Source: Series 11 model
Notes: [1] Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.
[2] Includes Routes 150, 680, and 960, which would operate on the I-5 and I-805 HOV lanes in 2030.
HOV = high-occupancy vehicle; N/A = not applicable (bus Route 150 would not operate under the Refined Build Alternative); OTTC = Old Town Transit Center; UTC = University Towne Centre

for more than 60 percent of passenger miles in exclusive or semi-exclusive right-of-way. Additionally, some riders who previously took a bus to reach their destination would switch to the Trolley Blue Line extension. When service is not reliable, some passengers may depart earlier than necessary to ensure they reach their destination on time. However, the improved reliability on the Trolley Blue Line would minimize that uncertainty, thus benefitting passengers.

Passengers per Service Hour

While the Refined Build Alternative would lead to substantially higher transit ridership than the No-Build Alternative, the Trolley Blue Line in-service hours would grow more rapidly than ridership. Thus, as shown in Table 3-13, the Trolley system under the Refined Build Alternative would be somewhat less efficient than the Trolley system under the No-Build Alternative, decreasing from 425.6 passengers per in-service hour to 373.3 (a 12 percent decrease in efficiency), but it would be substantially more efficient than existing conditions (278.4). As the Trolley Blue Line would still meet the guidelines presented in Section 3.3.1.2 and the decrease in efficiency compared to the No-Build Alternative is minor, this is not considered an adverse impact.

Compared to the No-Build Alternative, passengers per in-service hour would increase on several routes under the Refined Build Alternative, particularly Routes 9, 27, and 31. These are among the routes that connect to proposed Trolley stations, with Routes 9 and 27 being modified to better serve the stations, and thus would serve passengers transferring to or from the Trolley extension. Two routes—Routes 105 and 201 (SuperLoop)—would no longer meet the guidelines. This would not reflect an adverse impact on these routes since passengers would be shifting from local bus routes to the Trolley Blue Line extension. Service could be adjusted on these routes so they would meet the guidelines; however, since this service efficiency is based on model forecasts, it is recommended that service be monitored before making any modifications. Monitoring would occur as part of the performance evaluations, and service would be modified if deemed necessary.

Refined Build Alternative Transit Ridership and Access to Stations

Changes in transit ridership indicate the effectiveness and performance of transit alternatives, in this case, the No-Build Alternative and the Refined Build Alternative.

Systemwide Ridership

As indicated in Table 3-17, total systemwide daily boardings would increase by 28,100—from 608,200 to 636,300 boardings per day—under the Refined Build Alternative (a 5 percent increase). Daily boardings would decrease on commuter rail (5 percent) and express bus (11 percent), while Trolley ridership would increase by 28,600 daily boardings (19 percent) and local bus ridership would increase by 6,800 daily boardings (2 percent). The increase in local bus boardings likely is due to increased use of feeder buses to access the new Trolley stations. Additionally, Express Route 150 would be eliminated under the Refined Build Alternative and some passengers would shift from bus routes to the Trolley Blue Line, thus explaining the decrease in boardings on express routes.

Table 3-17. Comparison of Transit Boardings during Peak and Off-Peak Periods—2030

Transit Mode[1]	No-Build Alternative (2030)					Refined Build Alternative (2030)				
		Peak Periods		Off-Peak Period			Peak Periods		Off-Peak Period	
	Total Daily Boardings	Boardings	Share of Total	Boardings	Share of Total	Total Daily Boardings	Boardings	Share of Total	Boardings	Share of Total
Commuter Rail (COASTER)	14,700	11,700	80%	3,000	20%	13,900	11,000	79%	2,900	21%
Light Rail										
Trolley Blue Line	76,600	38,700	51%	37,900	49%	112,000	54,400	49%	57,600	51%
Trolley Green Line	49,100	21,000	43%	28,100	57%	42,400	17,700	42%	24,700	58%
Trolley Orange Line	26,500	12,300	46%	14,200	54%	26,400	12,200	46%	14,200	54%
Total Trolley	152,200	72,000	47%	80,200	53%	180,800	84,300	47%	96,500	53%
Total Light Rail[2]	173,900	81,200	47%	92,700	53%	202,300	93,500	46%	108,800	54%
Express Bus										
Route 150	4,200	2,500	60%	1,700	40%	N/A	N/A	N/A	N/A	N/A
Total Express Bus	59,300	31,500	53%	27,800	47%	53,000	28,000	53%	25,000	47%
Local Bus	360,300	146,400	41%	213,900	59%	367,100	149,400	41%	217,700	59%
System Total	608,200	270,800	45%	337,400	55%	636,300	281,900	44%	354,400	56%

Source: Series 11 model

Notes:
1 Some route termini and the location of transit stops may vary under each time period; for example, the northern terminus for the Trolley Blue Line is located at the OTTC in 2010, at Santa Fe Depot under the No-Build Alternative, and at the UTC Transit Center under the Refined Build Alternative.
2 Includes North County Transit District SPRINTER
Numbers are rounded to the nearest hundred.
N/A = not applicable (route does not operate); OTTC = Old Town Transit Center; UTC = University Towne Centre

Under the Refined Build Alternative, peak-period and daily boardings on the Trolley Blue Line would increase substantially. Peak-period boardings would increase by 15,700 (a 41 percent increase), while daily boardings would increase by 35,400, or 46 percent.

Mid-Coast Corridor Ridership

Even though ridership would increase systemwide, changes in ridership would be more noticeable for routes that operate in the corridor. The following sections discuss peak hour and daily boardings (number of passengers getting on the Trolley at stops), alightings (number of passengers getting off at stops), and through volumes (number of passengers on board the Trolley between stops) for the Trolley Blue Line by station. There would be 44,100 daily riders on the Trolley Blue Line between Santa Fe Depot and the UTC Transit Center, of which 31,300 riders would use the Trolley Blue Line north of the OTTC.

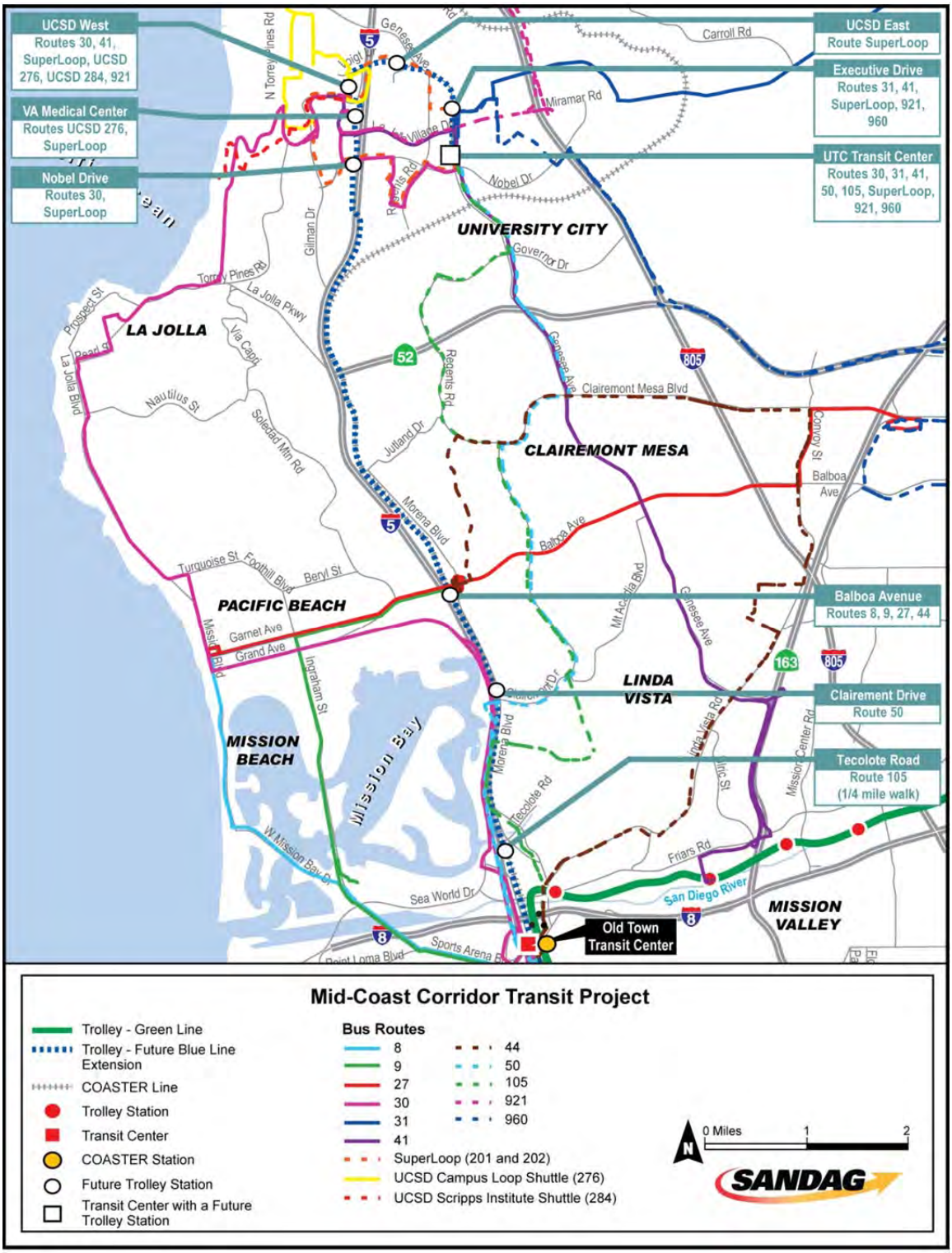
A.M. Peak Hour Station Volumes for the Refined Build Alternative: Ridership during the a.m. peak period would increase at existing Trolley stations between and including the Santa Fe Depot and the OTTC. Of the stations constructed as part of the Refined Build Alternative, the Balboa Avenue Station would have the greatest number of northbound boardings (190), while the UCSD West Station would have the greatest number of alightings (500). With the Refined Build Alternative, the maximum northbound peak-period/peak-direction through volume on the Trolley Blue Line at stations north of the Santa Fe Depot would occur between Santa Fe Depot and County Center/Little Italy with 1,990 passengers per hour on board.

Northbound vehicles on the Trolley Blue Line carry more passengers during the a.m. peak hour than southbound vehicles, consistent with the peak direction during the morning commute. This higher demand reflects the importance of major employment centers in the northern end of the corridor, as well as students traveling to UCSD. Downtown would remain an important destination, particularly for work-related trips; however, the expected growth in employment at major locations in the northern part of the corridor, such as UCSD and University City, would result in higher demand for northbound travel.

Daily Station Volumes for the Refined Build Alternative: The OTTC would have the highest total daily boardings on the Trolley Blue Line north of Santa Fe Depot (6,970 boardings and alightings). The highest through volume would occur between the Washington Street Station and the OTTC, with 11,790 passengers aboard the Trolley Blue Line on an average weekday. For stations constructed as part of the Refined Build Alternative, the UCSD West Station would have the highest forecasted total daily boardings with 4,090 passengers per day getting on at this location (Table 3-18).

Bus Ridership in the Mid-Coast Corridor: Ridership would increase on 6 of the corridor's 13 local bus routes with the Refined Build Alternative, representing a combined 46 percent increase compared with the No-Build Alternative. The largest increases are projected for Routes 8, 9, and 44, all of which would have more than 1,000 additional boardings. These routes would serve proposed stations under the Refined Build Alternative, thus providing connectivity between surrounding communities and the Trolley Blue Line extension (Figure 3-6). Six other local routes are forecast to have fewer daily boardings, with approximately 3,000 fewer boardings occurring on both Routes 30 and 41 as riders would shift from these bus routes to the Trolley Blue Line extension. Ridership on Route 25 is not expected to change with the addition of the Refined Build Alternative.

Figure 3-6. Bus Routes Serving Proposed Trolley Stations—Refined Build Alternative (2030)



Source: SANDAG, 2014

Table 3-18. Average Daily Boardings—Refined Build Alternative (2030)

Station	Average Daily Boardings
Tecolote Road	1,130
Clairemont Drive	760
Balboa Avenue	3,180
Nobel Drive	2,360
VA Medical Center	1,610
UCSD West	4,090
UCSD East	1,870
Executive Drive	2,490
UTC Transit Center	2,600
Total Blue Line boardings north of OTTC	**20,090**

Source: Series 11 model
Notes: Numbers are rounded to the nearest ten and may not equal due to rounding.
Information presented in origin-destination. Daily alightings would equal daily boardings.
OTTC = Old Town Transit Center; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

Access to Transit Services

Transfers from a bus would be an important mode of access to the stations constructed as part of the Refined Build Alternative, with 96 percent of access at the UCSD West Station occurring by transfer (Table 3-19). The transfer share is expected to be particularly high at both stations on the UCSD campus because parking would not be provided and there is an extensive network of buses operated by both MTS and UCSD that serve the area, therefore making transfers a convenient option.

Table 3-19. Daily Mode of Access to Proposed Trolley Stations—Refined Build Alternative (2030)

Trolley Station	Walk		Drive		Transfer		Total
	Number	Percent	Number	Percent	Number	Percent	
Tecolote Road	390	32%	760	63%	60	5%	1,210
Clairemont Drive	390	39%	450	45%	160	16%	1,000
Balboa Avenue	270	8%	700	21%	2,290	70%	3,260
Nobel Drive	760	27%	720	26%	1,330	47%	2,810
VA Medical Center	20	14%	0	0%	120	86%	140
UCSD West	40	4%	0	0%	850	96%	890
UCSD East	70	19%	0	0%	300	81%	370
Executive Drive	370	54%	0	0%	310	46%	680
UTC Transit Center	580	15%	620	17%	2,550	68%	2,550
Total	2,890	22%	3,250	25%	7,970	62%	12,910

Source: Series 11 model
Note: Numbers are rounded to the nearest ten and presented in production-attraction. Each trip has a production end (the home end for a home-based trip or the trip origin for a non-home-based trip) and an attraction end (the non-home end of a home-based trip or the destination end for a non-home-based trip).
UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration

Walk and bike also are expected to be important access modes to several stations along the Trolley extension. For example, the walk access share at the Executive Drive Station is forecasted at 54 percent. Additionally, transit parking facilities would be provided at five of the nine proposed Trolley stations, thus providing auto access for those wishing to drive. Drive access would be high at the Tecolote Road and Clairemont Drive Stations (63 and 45 percent, respectively); drive access is high at the Tecolote Road Station because the station is served by only one bus route.

Summary

The Refined Build Alternative would improve overall transit system performance while providing benefits to passengers, particularly in terms of longer hours of service, shorter frequencies, reduced travel time, and increased reliability (Table 3-20). Such improvements are reflected by the increase in ridership on the overall transit system, and in particular on the Trolley Blue Line. As such, mitigation would not be required.

Table 3-20. Summary of Transit Performance—2010 and 2030

Transit Performance Measure	Existing Conditions (2010)[1]		No-Build Alternative (2030) (Route 150)[2]	Refined Build Alternative (2030) (Trolley Blue Line)[2]
	Route 150	Trolley Blue Line		
Frequency of trips (headways)	15 minutes peak and 60 minutes midday off-peak	7.5 minutes peak, 15 minutes midday off-peak; 15/30 minutes on weekends	15 minutes peak and 30 minutes midday off-peak	7.5 minutes peak and midday off-peak
Hours of service	Peak and midday periods only; no service on weekends	Early morning, peak, midday, evening, and weekend service	Peak and midday periods only; no service on weekends	Early morning, peak, midday, evening, and weekend service
Travel time from Downtown to UTC Transit Center	48 minutes	N/A	49 minutes	40 minutes
Reliability	87 percent; absence of HOV lanes and operation entirely in mixed traffic	93 percent	Operation on HOV lanes and in mixed traffic would decrease reliability	Operation in exclusive right-of-way would increase reliability
Passengers per service hour	43.1	278.4	62.3	373.3
Systemwide daily boardings	450,200[2]		608,200	636,300
Daily boardings on route	1,300	52,400	4,200	112,000 (46 percent increase on the Trolley Blue Line compared to the No-Build Alternative)

Notes: [1] Source: MTS, 2010 unless noted otherwise
[2] Source: Series 11 model
HOV = high-occupancy vehicle; N/A = not applicable (the Trolley Blue Line does not serve the UTC Transit Center under existing conditions); UTC = University Towne Centre

3.4.1.3 Mitigation Measures

The Refined Build Alternative would not result in adverse impacts to the transit system. As such, mitigation measures are not required.

3.4.1.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following thresholds of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project on the transit system under existing conditions in 2010 and future conditions in 2030.

Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the transit system and relevant components of the transit system?

SANDAG and MTS developed evaluation criteria (as described in the *Coordinated Plan 2010–2014* [SANDAG, 2010c] and *Policies and Procedures Number 42: Transit Service Evaluation and Adjustment* [MTS, 2007] and summarized in Section 3.3.1.2). These same criteria were used to analyze the existing and future transit performance in the Mid-Coast Corridor, under both the No-Build and Refined Build Alternatives.

Significant Impact (No-Build Alternative). The No-Build Alternative assumes that the Mid-Coast Corridor Transit Project would not be constructed and Route 150 would continue to serve the corridor. As described in Section 1.5, the transit system in the Mid-Coast Corridor does not offer the level of service needed to meet the region's goals for mobility, accessibility, reliability, and efficiency. With congestion projected to increase between 2010 and 2030, the level of service, reliability, and efficiency of the transit system all would decrease in the long term. While express and local buses provide transit service to northern portions of the corridor, the speed and reliability of bus service are constrained by roadway congestion.

Section 3.4.1.1 describes transit performance for the No-Build Alternative as evaluated in terms of various measures of effectiveness established by SANDAG and MTS. Compared to existing conditions, travel time would improve for travel between certain areas; however, travel times would increase for trips between other areas of the corridor (e.g., South Bay [District 11] travel analysis district to the UCSD [District 17] or the Golden Triangle [District 16] travel analysis districts).

No Impact (Refined Build Alternative). Transit performance under the Refined Build Alternative also was evaluated in terms of measures of effectiveness established by SANDAG and MTS. As described in Section 3.4.1.2 and summarized in Table 3-20, long-term performance of the transit system under the Refined Build Alternative in 2030 would improve compared to that provided under the No-Build Alternative, reducing

transit travel time and increasing reliability—both important measures of effectiveness. These benefits were reflected by increases in transit ridership. Consequently, there would be long-term beneficial impacts from the Refined Build Alternative.

The performance of the transit system under the Refined Build Alternative in 2010 would be similar to its performance in 2030. Operationally, there would be one difference between the Refined Build Alternative in 2010 and 2030 with regard to the alignment between Santa Fe Depot and the OTTC. In 2030, this segment would be served by the Trolley Green Line under the No-Build Alternative and by the Trolley Blue and Trolley Green Lines under the Refined Build Alternative. However, under existing conditions in 2010, this segment is served by the Trolley Blue Line and this segment would continue to be served only by the Trolley Blue Line under the Refined Build Alternative in 2010. The difference would not materially alter the benefits of the Refined Build Alternative, which would be focused on areas north of the OTTC where the Trolley Blue Line would replace service provided by Route 150. The benefits of the Trolley Blue Line compared to Route 150 in 2010 would be similar to those experienced in 2030. The Trolley Blue Line would be more reliable than Route 150 as it would operate in an exclusive right-of-way and not be affected by traffic delays. The Trolley Blue Line also would provide more frequent service and longer hours of service than the Route 150.

As stated previously, changes in transit ridership indicate the effectiveness and performance of transit alternatives, in this case the Refined Build Alternative. Based on results from the Series 11 model, an 8 percent increase in systemwide transit boardings is projected with the Refined Build Alternative in 2010, which is slightly higher than the increase in systemwide boardings with the Refined Build Alternative in 2030 (5 percent). Trolley boardings with the Refined Build Alternative in 2010 would increase by 23 percent over existing conditions (compared to 19 percent in 2030). The increase in boardings both systemwide and on the Trolley indicate that improved transit performance would occur under the Refined Build Alternative in 2010. As a result, the Refined Build Alternative in 2010 and 2030 would comply with measures of effectiveness from adopted policies and plans and would result in a beneficial impact.

The existing bus network was used in the 2010 analysis, which is different from that used in the 2030 analysis. The 2030 RTP includes a number of improvements related to service coverage and frequency of bus service, which were coded into the Series 11 model. As a result, the higher increase in projected ridership for the Refined Build Alternative in 2010 could be related to the different bus network that operates under existing conditions compared to the network in 2030. The higher increase in ridership projections for 2010 also demonstrates the importance of this project today. Therefore, the Refined Build Alternative would result in a beneficial or no impact on the effectiveness of the transit system in both the short and long term.

Would the project conflict with adopted policies, plans, or programs regarding public transit or otherwise decrease the performance of such facilities?

Significant Impact (No-Build Alternative). As stated in Section 4.1.1, plans and policies adopted by SANDAG, the City of San Diego, and UCSD support LRT in the Mid-Coast Corridor and, therefore, the No-Build Alternative would conflict with these plans. Additionally, the benefits, in terms of improved transit performance, that would be provided

by the Mid-Coast Corridor Transit Project under the Refined Build Alternative would not be realized under the No-Build Alternative. As a result, the No-Build Alternative would reflect decreased transit performance when compared to the Refined Build Alternative.

No Impact (Refined Build Alternative). The Refined Build Alternative in 2010 and 2030 would not conflict with adopted policies, plans, or programs regarding public transit. As stated in Section 1.4.1, plans adopted by SANDAG, specifically the 2030 RTP, include policy objectives and goals related to the regional transportation system. The Refined Build Alternative in 2010 and 2030 would support these objectives and goals, in particular efficiency, accessibility, and reliability; refer to Chapter 7.0 of this Final SEIS/SEIR for a discussion of how the Refined Build Alternative supports these goals. Further, as described in Section 4.1.1, plans and policies adopted by SANDAG, the City of San Diego, and UCSD support LRT in the corridor. As a result, the Refined Build Alternative in 2010 and 2030 would not conflict with adopted policies and plans. Further, the Refined Build Alternative would improve overall transit system performance while providing benefits to passengers, particularly in terms of longer hours of service, shorter frequencies, reduced travel time, and increased reliability.

Significance after Mitigation

The Refined Build Alternative would be compatible with applicable plans, ordinances, and policies establishing measures of effectiveness for the transit system. Additionally, the Refined Build Alternative would not conflict with adopted policies, plans, or programs regarding transit nor decrease the performance of the transit system. Accordingly, no mitigation measures are required and there would be no impacts under the Refined Build Alternative.

3.4.2 Freeway and Roadway Impacts

Just as the growth in population and employment between 2010 and 2030 will place additional demand on the transit system, travel demand on freeways and roadways also will increase. Higher demand could impact the performance of the freeway and roadway system, as described in Section 3.3.2. Impacts of the No-Build and Refined Build Alternatives would occur if additional delay at freeway interchanges, roadways, and intersections results in conditions that are over capacity or operation at unacceptable levels of service. Refer to Section 3.3.2.2 under the subheadings of Freeway Interchange Performance, Roadway Performance, and Intersection Performance for a discussion of the methodology used for the impact analysis.

3.4.2.1 No-Build Alternative

No-Build Alternative Freeway and Roadway System Demand

Regionwide, there is projected to be a 25-percent increase in daily auto person trips between 2010 and the 2030, from 17 million to approximately 22 million in 2030. This increase in daily auto person trips would indicate increased vehicles on roadways, which could result in congestion. Drive-alone trips would account for approximately 12 million of the 22 million daily auto person trips, indicating that more than half of all vehicles would be single-occupant vehicles. Large increases in auto trips would occur on HOV facilities, which are expected as the 2030 RTP includes several HOV and toll lane

projects, including HOV lanes on I-5. Typically, as vehicles shift from general purpose lanes to the new HOV lanes, conditions would improve on the general purpose lanes. However, this improvement may be negated by the increase in vehicular traffic.

Table 3-21 presents daily VMT for the Mid-Coast Corridor under existing conditions in 2010 and the No-Build Alternative in 2030. As shown, approximately 12.5 million VMT per day are projected on the corridor's transportation system under the No-Build Alternative, a 17 percent increase from existing conditions. Similar to existing conditions, half of the corridor's VMT would occur on the freeway network, while 30 percent of VMT would occur on arterials and 20 percent would occur on collector roads. This indicates that, similar to existing conditions, freeways and arterials would be among the most used facilities in the corridor.

Table 3-21. Mid-Coast Corridor Daily VMT and VHD—2010 and 2030

	VMT	VHD
Existing Conditions (2010)	10,681,000	155,000
No-Build Alternative (2030)	12,450,000	238,000
% Change from Existing Conditions	17%	54%
Refined Build Alternative (2030)	12,393,000	237,000
% Change from No-Build Alternative	-0.5%	-0.4%

Source: Series 11 model
Notes: Numbers are rounded to the nearest thousand.
VHD = vehicle hours of delay; VMT = vehicle miles traveled

No-Build Alternative Freeway and Roadway System

Congestion from increased travel demand would affect the performance of freeways and freeway interchanges, roadways, and intersections. SANDAG has established goals for the performance of the transportation system, as stated in the 2030 RTP, specifically related to mobility, accessibility, and reliability. Performance of the freeway and roadway system is an important component to meeting those goals.

Vehicle Hours of Delay

While daily VMT is projected to grow by 17 percent by 2030, daily VHD (a measure of delay and thus an indicator of congestion) in the corridor is expected to increase by 54 percent (Table 3-21) as increased traffic volumes lead to more congested roadways. Within the corridor, VHD on arterials would increase by 53 percent, while VHD would increase by 45 percent on collectors. The smallest increase would occur on freeways (18 percent). These increases in VHD would affect the travel time, speed, and reliability of the transit services with routes along these facilities, leading to longer trips with potentially less reliability in service. Consequently, this would be an adverse impact for both automobiles and transit vehicles operating in mixed traffic.

Freeway Interchange Performance

As shown in Table 3-22, the peak-hour freeway interchange performance analysis for the No-Build Alternative revealed that both the I-5 northbound off-ramp and the I-5 southbound on-ramp at Nobel Drive would remain under capacity. The increased traffic volumes under the No-Build Alternative would not have an adverse impact on either intersection.

Table 3-22. Peak-Hour Signalized Intersection ILV Analysis—2030

Intersection	Peak Hour	No-Build Alternative (2030)		Refined Build Alternative (2030)	
		Total Operating Level (ILV/HR)	Capacity Analysis	Total Operating Level (ILV/HR)	Capacity Analysis
Nobel Dr and I-5 NB off-ramp	AM	887	Under capacity	896	Under capacity
	PM	1094	Under capacity	1095	Under capacity
Nobel Dr and I-5 SB on-ramp	AM	715	Under capacity	735	Under capacity
	PM	1045	Under capacity	1049	Under capacity

Source: SANDAG, 2014v
Notes: HR = hour; ILV = intersecting lane vehicles; NB = northbound; SB = southbound
ILV/HR less than or equal to 1,200 is considered under capacity.

Roadway Performance

Increases in population and employment between 2010 and 2030 would be reflected by increases in AWDT on arterials and collectors in the corridor (Table 3-23). While the 2030 RTP contains some capacity improvements, such as the addition of HOV lanes on I-5, V/C ratios for the roadways included in the analysis are forecast to increase. The five arterial segments that operated at unacceptable levels of service (LOS E or LOS F) under existing conditions in 2010 would continue to operate at unacceptable levels of service under the No-Build Alternative in 2030. The five segments are as follows:

- Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp (LOS F) and from the I-5 northbound off-ramp to Morena Boulevard (LOS F)
- Balboa Avenue from Morena Boulevard to Moraga Avenue (LOS E)
- Mission Bay Drive from Damon Avenue to Garnet Avenue (LOS F)
- La Jolla Village Drive from Villa La Jolla Drive to the I-5 southbound ramps (LOS F)

Table 3-23. Daily Arterial Segment Traffic Volumes and LOS—2010 and 2030

Roadway Segment	Existing Conditions (2010)			No-Build Alternative (2030)			Refined Build Alternative (2030)			
	AWDT	V/C Ratio	LOS	AWDT	V/C Ratio	LOS	AWDT	V/C Ratio	LOS	Adverse Impact
Tecolote Rd										
I-5 SB Ramp to I-5 NB Ramp	28,605	0.715	C	31,200	0.78	D	31,520	0.788	D	No
I-5 NB Ramp to Morena Blvd	24,380	0.61	C	32,900	0.823	D	33,220	0.831	D	No
West Morena Blvd										
Vega St to Buenos Ave	10,229	0.256	A	11,200	0.28	A	11,520	0.288	A	No
Buenos Ave to Morena Blvd	12,280	0.307	A	15,500	0.388	B	15,729	0.393	B	No
Balboa Ave										
Mission Bay Dr to I-5 SB On-Ramp	32,270	0.717	C	35,700	0.793	D	36,168	0.804	D	No

Table 3-23. Daily Arterial Segment Traffic Volumes and LOS—2010 and 2030 (continued)

Roadway Segment	Existing Conditions (2010)			No-Build Alternative (2030)			Refined Build Alternative (2030)			
	AWDT	V/C Ratio	LOS	AWDT	V/C Ratio	LOS	AWDT	V/C Ratio	LOS	Adverse Impact
I-5 SB On-Ramp to I-5 NB Off-Ramp	49,698	1.104	**F**	50,800	1.129	**F**	51,268	1.139	**F**	Yes
I-5 NB Off-Ramp to Morena Blvd	49,312	0.986	**E**	58,000	1.16	**F**	58,468	1.169	**F**	No
Morena Blvd to Moraga Ave	36,006	0.9	**E**	44,800	1.12	**F**	45,013	1.125	**F**	No
Mission Bay Dr										
Damon Ave to Garnet Ave	41,078	1.027	**F**	45,400	1.135	**F**	45,528	1.138	**F**	No
Morena Blvd										
Balboa Ave Overpass	11,668	0.292	A	15,000	0.375	B	15,468	0.387	B	No
Balboa Ave WB Ramps to Avati Dr	22,536	0.563	C	27,500	0.688	C	27,628	0.691	C	No
Nobel Dr										
Villa La Jolla Dr to La Jolla Village Square	16,139	0.403	B	19,400	0.485	B	19,751	0.494	B	No
La Jolla Village Square to I-5 NB Ramp	24,907	0.623	C	27,400	0.685	C	27,927	0.698	C	No
I-5 NB Ramp to Lebon Dr	26,644	0.533	B	27,700	0.554	B	28,051	0.561	C	No
Lebon Dr to Regents Rd	25,538	0.511	B	26,800	0.536	B	26,932	0.539	B	No
Regents Rd to Costa Verde Blvd	22,577	0.452	B	30,700	0.614	C	30,832	0.617	C	No
Villa La Jolla Dr										
Nobel Dr to La Jolla Village Dr	27,790	0.695	C	33,200	0.83	D	33,463	0.837	D	No
Genesee Ave										
La Jolla Village Dr to Esplanade Ct	28,387	0.568	C	40,100	0.802	D	40,321	0.806	D	No
Esplanade Ct to Nobel Dr	23,759	0.475	B	40,100	0.802	D	40,615	0.812	D	No
La Jolla Village Dr										
Villa La Jolla Dr to I-5 SB Ramps	68,466	1.141	**F**	77,200	1.287	**F**	77,376	1.29	**F**	NO

Source: SANDAG, 2014v
Notes: **Bold** values indicate roadway segments operating at LOS E or F
The V/C ratio is calculated by dividing the AWDT volume by each respective roadway segment's capacity.
AWDT = Average Weekday Daily Traffic; LOS = level of service; NB = northbound; SB = southbound; V/C = volume-to-capacity; WB = westbound

Additionally, level of service on nine roadway segments would deteriorate under the No-Build Alternative; however, these segments would continue to operate at an acceptable level of service and thus would not constitute an adverse impact (Table 3-23).

Intersection Performance

The increased volumes on roadways in the study area would result in adverse impacts at intersections when increases in average delay and level of service compared to existing conditions exceed thresholds established by the City of San Diego. However, Route 150 is not expected to contribute to increases in traffic volumes and delay. The increase in traffic volumes under the No-Build Alternative is the result of land use and development projects assumed in the 2030 RTP as established by local jurisdictions and community plans. These individual projects would be subject to separate environmental review independent of the Mid-Coast Corridor Transit Project. Measures for mitigation of impacts would be determined during environmental review for the individual projects and would be the responsibility of the sponsoring agencies.

Southern Subarea*:* The Trolley operating plan described in Section 2.2.1 for the No-Build Alternative was used for the intersection performance analysis. The operating plan provides for the extension of the Trolley Green Line from the OTTC south to the 12th and Imperial Transit Center at 15-minute frequencies during both peak and midday off-peak periods, and the termination of the Trolley Blue Line at Santa Fe Depot. This change would reduce the number of Trolley trains traveling through the Ash Street to Noell Street grade crossings. As described in Chapter 2.0, the frequency of COASTER and Amtrak service would increase between 2010 and 2030, thus increasing the number of times grade crossings are closed to vehicular movement. Table 3-24 presents the number of trains operating through the grade crossings in 2010 and 2030. Additional information on the traffic analysis is provided in Section 3.3.2.2 and the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

Table 3-24. Comparison of Bi-directional Train Crossings in the Two-Hour Peak Period between 2010 and 2030

Line	Existing Conditions (2010)		Existing Conditions with Refined Build Alternative (2010)		No-Build Alternative (2030)		Refined Build Alternative (2030)	
	Ash-Noell Streets	Taylor Street	Ash-Noell Streets	Taylor Street	Ash-Noell Streets	Taylor Street	Ash-Noell Streets	Taylor Street
Amtrak	3	3	3	3	4	4	4	4
COASTER	5	5	5	5	12	12	12	12
Trolley Blue Line	32	N/A	32	32	N/A	N/A	32	32
Trolley Green Line	N/A	16	N/A	16	16	16	16	16
Total	40	24	40	56	32	32	64	64

Source: Existing crossings are based on 2010 peak-period timetables; future crossings are based on projected increases in service, as described in the 2030 Regional Transportation Plan.
Note: N/A = not applicable (the Trolley line does not operate through the crossing[s]).

Under existing conditions, all intersections operated at acceptable levels of service (LOS A through D). However, under the No-Build Alternative in 2030, ten intersections are projected to operate at an unacceptable level of service (LOS E or F): one during the a.m. peak hour, six during the p.m. peak hour, and three during both peak hours. This indicates that future traffic volumes under the No-Build Alternative would adversely impact intersection performance by increasing delay compared to existing conditions. The following intersections were projected to operate at unacceptable levels of service under the No-Build Alternative:

- Ash Street and India Street (LOS F during the a.m. peak hour)
- Beech Street and Pacific Highway (LOS E and F during the a.m. and p.m. peak hours, respectively)
- Cedar Street and Pacific Highway (LOS E during the p.m. peak hour)
- Washington Street and Pacific Highway Southbound Frontage Road (LOS E during the p.m. peak hour)
- Taylor Street/Rosecrans Street and Pacific Highway (LOS E during the p.m. peak hour)
- Taylor Street and Congress Street (LOS F during the p.m. peak hour)
- Taylor Street and Calhoun Street (LOS E and F during the a.m. and p.m. peak hours, respectively)
- Taylor Street and Juan Street (LOS F during both peak hours)
- Pacific Highway and the OTTC Park-and-Ride Lot Access (LOS F during the p.m. peak hour)
- Rosecrans Street and Jefferson Street (LOS E during the p.m. peak hour)

Northern Subarea: Under existing conditions, three study area intersections operated at unacceptable levels of service. Under the No-Build Alternative, the following six intersections are forecast to operate at LOS E or F, indicating an adverse impact compared to existing conditions:

- Clairemont Drive and Denver Street (LOS E in the a.m. peak hour)
- Balboa Avenue eastbound ramps and Morena Boulevard (LOS F in both peak hours)
- Mission Bay Drive and Garnet Avenue (LOS E in both peak hours)
- Nobel Drive and La Jolla Village Square (LOS E in the p.m. peak hour)
- Genesee Avenue and La Jolla Village Drive (LOS F in the a.m. peak hour and LOS E in the p.m. peak hour)
- Genesee Avenue and Esplanade Court/UTC Driveway (LOS F in the p.m. peak hour)

The intersections of the Balboa Avenue eastbound ramps and Morena Boulevard, Mission Bay Drive and Garnet Avenue, and Genesee Avenue and La Jolla Village Drive also operated at unacceptable levels of service under existing conditions. At these

intersections, delay would exceed thresholds established by the City of San Diego and, in some cases, level of service would worsen from LOS E to LOS F. Additionally, under existing conditions, these intersections performed at an unacceptable level of service during only one peak hour but under the No-Build Alternative performance would be unacceptable during both peak hours. Therefore, there would be an adverse impact at all six intersections with the No-Build Alternative.

Summary

While improvements to Route 150 are not expected to result in direct, adverse impacts on freeway or roadway facilities, traffic conditions would worsen between 2010 and 2030 because of increases in traffic volumes, resulting in adverse impacts at 16 intersections and 5 roadway segments under the No-Build Alternative.

3.4.2.2 Refined Build Alternative

The freeway and roadway system under the Refined Build Alternative includes all planned improvements included in the No-Build Alternative plus roadway improvements required to accommodate the proposed alignment and new stations. These improvements primarily consist of widening and restriping roadways to accommodate the alignment of the Refined Build Alternative. The roadway improvements under the Refined Build Alternative are illustrated in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 2: Plan Set* (Final SEIS/SEIR Plan Set). Additional information on roadway system demand and performance is available in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

Refined Build Alternative Freeway and Roadway System Demand

By extending the Trolley Blue Line north to the UTC Transit Center, thus improving transit service along the I-5 corridor north of downtown, the Refined Build Alternative provides a competitive transportation alternative to driving. The Refined Build Alternative would result in some shift of trips from auto to transit, while possibly increasing travel on local streets in the vicinity of transit stations.

The Refined Build Alternative would have approximately 13,300 fewer daily auto person trips in the region compared to the No-Build Alternative. In general, the more transit trips an alternative attracts, the less auto person trips and vehicle trips produced. As shown in Table 3-21, under the Refined Build Alternative, approximately 12.4 million daily VMT are projected on the corridor's transportation system. This is a decrease of 57,000 VMT per day (a 0.5 percent decrease) from the No-Build Alternative. The most substantial decrease in VMT would occur on freeways (a 0.6 percent decrease).

The forecast changes in auto person trips and VMT under the Refined Build Alternative result from a single Trolley line extension. While these travel demand changes appear small when distributed across a large regional street and highway system, they could provide a minor but beneficial impact within the Mid-Coast Corridor. The Refined Build Alternative would offer an attractive and sustainable travel alternative for people facing highway congestion in the corridor.

Refined Build Alternative Freeway and Roadway System Performance and Impacts

Impacts from the Refined Build Alternative compared to the No-Build Alternative can be beneficial, such as shorter travel times as a result of decreases in congestion. Alternatively, impacts can be adverse, such as increases in delay at intersections or along roadway segments. The Refined Build Alternative would result in decreases in VHD and, although minor, freeway and roadway users would benefit. Nonetheless, additional gate down times or station area traffic resulting from implementation of the Refined Build Alternative would cause a deterioration in level of service at several intersections requiring mitigation.

Vehicle Hours of Delay

Table 3-21 also presents VHD for the corridor under the Refined Build Alternative. There would be approximately 1,000 fewer hours of vehicle delay in the corridor (a 0.4 percent decrease) compared to the No-Build Alternative. The largest decrease would occur on freeways (a 2.6 percent decrease), improving mobility for freeway users and any bus routes that travel along freeways, thus representing a beneficial impact.

Freeway Interchange Performance

The ILV analysis for the I-5 northbound off-ramp and I-5 southbound on-ramp at Nobel Drive revealed that both intersections would remain under capacity and, consequently, the Refined Build Alternative would not have an adverse impact on these intersections (Table 3-22). Since the Refined Build Alternative would not require any geometric changes to the freeway system nor introduce additional traffic to these facilities, the Refined Build Alternative would not have an adverse impact on the performance of freeways or freeway interchanges.

Roadway Performance

Under the Refined Build Alternative, vehicular traffic on some roadways would increase as a result of cars traveling to and from the new stations (Table 3-23). Traffic volumes would be higher on roadways near the five stations that include transit parking—the Tecolote Road, Balboa Avenue, Clairemont Drive, and Nobel Drive Stations and the UTC Transit Center. Adverse impacts on roadways are determined by changes in the V/C ratio on the roadway segment compared to guidelines established by the city. Based on the results of the roadway segment analysis, the V/C ratio on Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp would increase, representing an adverse impact from the Refined Build Alternative compared to the No-Build Alternative. This segment is located close to the Balboa Avenue Station and, as a result, many trips would travel along this roadway to and from the station and park-and-ride facility. This segment, which is approximately 720 feet (0.13 mile) long, operated at LOS F under both existing conditions and the No-Build Alternative, and would continue to operate at LOS F under the Refined Build Alternative. Under the Refined Build Alternative, daily traffic would increase from approximately 50,800 vehicles to 51,300 vehicles (less than 1 percent) and the V/C ratio would increase by 0.01, which meets—but does not exceed—the threshold established by the City of San Diego for a roadway operating at LOS F. Thus there would be an adverse impact on this segment based on city guidance.

Intersection Performance

Southern Subarea: The Refined Build Alternative would increase the number of trains traveling through grade crossings, from 32 to 64 trains during the two-hour peak period (Table 3-24). Each grade crossing is comprised of four tracks—two for the Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency (LOSSAN) trains (Amtrak and COASTER) and two for the Trolley. So while 64 train crossings would occur during the two-hour peak period, the number of times when the gate is down is expected to be less than 64 because multiple trains may pass through the grade crossing at the same time on separate tracks. When multiple trains pass through concurrently, the gates would be down for a longer period; however, this could be offset by the gates being up for a longer period before the next preemption event and would result in fewer events when the gates are down. With the approach of any train, traffic signals are preempted and the normal signal operation is modified to first serve vehicles that may be extending onto the tracks and then serve vehicles that would not travel toward the crossing gates. This process generally increases average delays.

Gate operations for the Trolley under the Refined Build Alternative would be improved by various measures that are included in the project, as described in Section 2.4. These improvements would reduce gate down times for Trolley crossings at all grade crossings and for northbound Amtrak and COASTER crossings at Taylor Street. For a few grade crossings, particularly Taylor Street, gate operation improvements would substantially decrease gate down times, thus reducing delay for vehicles at adjacent intersections. Nevertheless, for some intersections, even with gate operational improvements, the increased frequency of gate down events would result in adverse impacts to intersection level of service. Adverse impacts would occur at the following 13 intersections:

- Ash Street and Pacific Highway (LOS E during the p.m. peak hour)
- Ash Street and India Street (LOS F in the a.m. peak hour and LOS E in the p.m. peak hour)
- Beech Street and Pacific Highway (LOS F in the a.m. and p.m. peak hours)
- Beech Street and Kettner Boulevard (LOS E in the p.m. peak hour)
- Beech Street and India Street (LOS E in the p.m. peak hour)
- Cedar Street and Pacific Highway (LOS F in the p.m. peak hour)
- Cedar Street and Kettner Boulevard (LOS E in the p.m. peak hour)
- Sassafras Street and Pacific Highway (LOS E in the p.m. peak hour)
- Washington Street and Pacific Highway Southbound Frontage Road (LOS E in the a.m. peak hour and LOS F in the p.m. peak hour)
- Washington Street and Pacific Highway Northbound Frontage Road (LOS E in the p.m. peak hour)
- Washington Street and Hancock Street (LOS F in the a.m. and p.m. peak hours)
- Noell Street and Hancock Street (LOS F in the p.m. peak hour)
- Rosecrans Street and Jefferson Street (LOS F in the p.m. peak hour)

Table 3-25 identifies the level of service and delay for the intersections where the increased frequency of trains traveling through the grade crossings would result in adverse impacts; the impacts are summarized in Table 3-26.

Northern Subarea: There are no grade crossings in the northern subarea, so intersection impacts related to gate closures would not occur. However, increased traffic near new transit stations and parking facilities could impact intersection performance. Only those intersections that would experience an increase of 50 or more peak-hour trips were selected for study, consistent with guidance from the City of San Diego *Traffic Impact Study Manual* (City of San Diego, 1998c). These intersections are located near the five Trolley stations with transit parking. Vehicular traffic accessing the new transit parking would be higher during peak hours when transit passengers use the stations to travel to work or school. Accordingly, the intersection analysis focuses on delay and level of service during the a.m. and p.m. peak hours.

Intersections that would be modified by the Refined Build Alternative also were analyzed. These include intersections in the vicinity of stations and on Genesee Avenue where the street would be modified to accommodate the project alignment. Modifications also would be made to Morena Boulevard, the Morena Boulevard/Balboa Avenue interchange, and Balboa Avenue to accommodate access to the Balboa Avenue Station. These modifications are shown in the Final SEIS/SEIR Plan Set.

The analysis projected an increase in delay at two intersections, both during the p.m. peak hour: Mission Bay Drive and Garnet Avenue and Genesee Avenue and Esplanade Court/UTC Driveway would operate at LOS E and F respectively. Level of service and delay are shown in Table 3-25, and impacts are summarized in Table 3-26. There would be no adverse impacts during the a.m. peak hour.

3.4.2.3 Mitigation Measures

The Refined Build Alternative would not affect the freeway system or freeway interchanges; therefore, mitigation measures are not required for these facilities. The measures proposed to mitigate or minimize adverse impacts on the one roadway segment and 15 intersections (13 in the southern subarea and 2 in the northern subarea) from the Refined Build Alternative are described in the following sections. Implementation of these mitigation measures would be the responsibility of SANDAG; the mitigation measures would be in place on opening day of the project.

Roadways

The Refined Build Alternative would increase traffic on Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp, which would increase the V/C ratio and result in an adverse impact. As stated previously, this segment of Balboa Avenue is approximately 720 feet (0.13 mile) long, and the Refined Build Alternative would increase the daily volume by less than 1 percent. The increase in the V/C ratio is 0.01, which meets—but does not exceed—the threshold established by the City of San Diego for a roadway operating at LOS F.

Table 3-25. Intersection Level of Service and Delay (2010 and 2030)

Intersection	Peak Hour	Intersection Control Type	Existing Conditions		No-Build Alternative		Refined Build Alternative		Δ Delay	Adverse Impact	Refined Build Alternative with Mitigation		Adverse Impact after Mitigation
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			Delay (sec)	LOS	
Southern Subarea													
Ash St and Pacific Hwy	AM	Signalized	34.0	C	50.9	D	47.7	D	-3.2	NO	42.3	D	No
	PM		29.9	C	43.7	D	**71.5**	**E**	27.8	YES	41.0	D	No
Ash St and Kettner Blvd	AM	Signalized	23.9	C	33.9	C	34.4	C	0.5	NO	27.6	C	No
	PM		21.8	C	30.3	C	32.0	C	1.7	NO	30.7	C	No
Ash St and India St	AM	Signalized	12.2	B	93.5	**F**	137.1	**F**	43.6	YES	36.4	D	No
	PM		12.7	B	40.5	D	65.2	**E**	24.7	YES	35.6	D	No
Beech St and Pacific Hwy	AM	Stop-Control	22.5	C	42.3	**E**	57.6	**F**	15.3	YES	42.9	**E**	Yes
	PM		23.7	C	75.2	**F**	295.9	**F**	220.7	YES	53.6	**F**	No[1]
Beech St and Kettner Blvd	AM	Stop-Control	8.4	A	13.6	B	14.4	B	0.8	NO	15.0	C	No
	PM		10.6	B	18.4	C	40.8	**E**	22.4	YES	20.3	C	No
Beech St and India St	AM	Stop-Control	8.7	A	10.6	B	10.8	B	0.2	NO	10.5	B	No
	PM		10.5	B	12.7	B	37.4	**E**	24.7	YES	12.2	B	No
Cedar St and Pacific Hwy	AM	Signalized	25.4	C	39.2	D	51.4	D	12.2	NO	26.8	C	No
	PM		25.8	C	63.3	**E**	93.9	**F**	30.6	YES	33.9	D	No
Cedar St and Kettner Blvd	AM	Stop-Control[2]	10.7	B	24.8	C	34.7	D	9.9	NO	40.5	D	No
	PM		12.1	B	33.9	D	35.2	**E**	1.3	YES	36.4	D	No
Cedar St and India St	AM	Stop-Control	8.1	A	15.6	C	18.2	C	2.6	NO	22.1	D	No
	PM		9.4	A	15.8	C	15.0	C	-0.8	NO	16.4	C	No
Sassafras St and Pacific Hwy	AM	Signalized	21.3	C	25.7	C	26.9	C	1.2	NO	25.0	C	No
	PM		25.9	C	50.9	D	69.2	**E**	18.3	YES	53.2	D	No
Sassafras St and Kettner Blvd	AM	Signalized	17.6	B	26.4	C	48.1	D	21.7	NO	26.0	C	No
	PM		19.4	B	43.2	D	53.7	D	10.5	NO	50.9	D	No
Washington St and Pacific Hwy SB Frontage Rd	AM	Signalized	28.2	C	42.3	D	59.8	**E**	17.5	YES	44.4	D	No
	PM		38.2	D	76.6	**E**	126.3	**F**	49.7	YES	41.3	D	No
Washington St and Pacific Hwy NB Frontage Rd	AM	Signalized	34.6	C	33.3	C	47.0	D	13.7	NO	37.9	D	No
	PM		37.8	D	40.2	D	59.2	**E**	19.0	YES	48.8	D	No
Washington St and Hancock St	AM	Signalized	31.4	C	38.5	D	85.7	**F**	47.2	YES	39.6	D	No
	PM		32.4	C	41.5	D	156.5	**F**	115.0	YES	41.8	D	No

Table 3-25. Intersection Level of Service and Delay (2010 and 2030) (continued)

Intersection	Peak Hour	Intersection Control Type	Existing Conditions		No-Build Alternative		Refined Build Alternative		Δ Delay	Adverse Impact	Refined Build Alternative with Mitigation		Adverse Impact after Mitigation
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			Delay (sec)	LOS	
Noell St and Kurtz St	AM	Stop-Control	9.0	A	8.4	A	11.7	B	3.3	NO	11.7	B	No
	PM		10.3	B	8.4	A	19.9	C	11.5	NO	13.4	B	No
Noell St and Hancock St	AM	Signalized	7.6	A	8.5	A	20.8	C	12.3	NO	8.5	A	No
	PM		9.2	A	10.7	B	120.5	**F**	109.8	YES	10.8	B	No
Taylor St/Rosecrans St and Pacific Hwy	AM	Signalized	34.7	C	46.4	D	44.4	D	-2.0	NO	43.3	D	No
	PM		44.7	D	67.5	**E**	65.2	**E**	-2.3	NO	54.9	D	No
Taylor St and Congress St	AM	Signalized	22.1	C	53.1	D	43.8	D	-9.3	NO	31.7	C	No
	PM		35.8	D	94.2	**F**	77.7	**E**	-16.5	NO	67.0	**E**	No[1]
Taylor St and Calhoun St	AM	Stop-Control	4.8	A	38.0	**E**	22.9	C	-15.1	NO	9.9	A	No
	PM		19.6	C	65.7	**F**	37.8	**E**	-27.9	NO	14.2	B	No
Taylor St and Juan St	AM	Signalized	23.1	C	80.6	**F**	70.1	**E**	-10.5	NO	26.3	C	No
	PM		27.3	C	110.5	**F**	69.3	**E**	-41.2	NO	27.9	C	No
Pacific Hwy and OTTC Park-and-Ride Lot Access	AM	Signalized	22.7	C	23.5	C	23.3	C	-0.2	NO	23.6	C	No
	PM		26.6	C	241.5	**F**	219.6	**F**	-21.9	NO	21.7	C	No
Rosecrans St and Jefferson St	AM	Stop-Control	5.4	A	6.5	A	6.3	A	-0.2	NO	6.4	A	No
	PM		8.5	A	41.9	**E**	63.3	**F**	21.4	YES	7.5	A	No
Northern Subarea													
Mission Bay Dr and Garnet Ave	AM	Signalized	50.1	D	67.0	**E**	67.9	**E**	0.9	NO	**	**	No
	PM		62.0	E	73.2	**E**	77.0	**E**	3.8	YES	**	**	Yes
Genesee Ave and Esplanade Ct/UTC Drwy	AM	Signalized	20.3	C	21.2	C	21.9	C	0.7	NO	21.5	C	No
	PM		34.6	C	124.3	**F**	126.2	**F**	1.9	YES	114.5	**F**	No[1]

Source: SANDAG, 2014v
Notes: [1] Delay with mitigation would be reduced to levels better than the No-Build Alternative but not to LOS D or better.
[2] Intersection would be signalized as mitigation
Text in **bold** indicates an unacceptable level of service
** Mitigation was not identified to reduce the adverse impact.
Δ = Change in delay compared to the No-Build Alternative; LOS = level of service; NB = northbound; OTTC = Old Town Transit Center; SB = southbound; sec = seconds; UTC = University Towne Centre

Table 3-26. Summary of Adverse Impacts at Intersections—Refined Build Alternative (2030)

Intersection ID	Intersection	Description of Adverse Impact
Int 1	Ash St and Pacific Hwy	Queues along Pacific Hwy would extend back from Cedar St to this intersection resulting in slow traffic movements.
		Delays and queues would be experienced by the eastbound and westbound movements due to frequent train crossings.
Int 2	Ash St and India St	Queues along Ash St from Pacific Hwy and Kettner Blvd would extend back to this intersection.
Int 3	Beech St and Pacific Hwy	Queues along Pacific Hwy from Cedar St would extend back to this intersection causing delay to the northbound and westbound movements.
Int 4	Beech St and Kettner Blvd	Queues along Beech St from Pacific Hwy would extend back to this intersection causing delays.
Int 5	Beech St and India St	Queues along Beech St from Pacific Hwy would extend back to this intersection causing delays.
Int 6	Cedar St and Pacific Hwy	Delays and queues would be experienced by the northbound and southbound movements due to frequent train crossings and traffic signal operations.
Int 7	Cedar St and Kettner Blvd	Delays would be experienced by the eastbound movements when a train clears the tracks and from queues at the stop-controlled intersection.
Int 8	Sassafras St and Pacific Hwy	Delays would be experienced by eastbound and westbound movements due to frequent train crossings and from queues from Sassafras St and Kettner Blvd that would extend to this intersection.
Int 9	Washington St and Pacific Hwy SB Frontage Rd	Queues from Washington at NB Frontage Road and Hancock St would extend to this intersection causing delays to the eastbound and southbound movements.
Int 10	Washington St and Pacific Hwy NB Frontage Rd	Delays would be experienced for the southbound and westbound movements due to frequent train crossings.
Int 11	Washington St and Hancock St	Delays would be experienced for the southbound and westbound movements due to frequent train crossings.
Int 12	Noell St and Hancock St	Queues along southbound Hancock Street would extend back to this intersection causing delays.
Int 13	Rosecrans St and Jefferson St	Queues along eastbound Rosecrans St would extend back from the intersection of Pacific Hwy and Taylor St causing delays.
Int 14	Mission Bay Dr and Garnet Ave	Delays would occur from traffic traveling to/from the Balboa Ave Station and park-and-ride lot.
Int 15	Genesee Ave and Esplanade Ct/UTC Drwy	This intersection would be the main driveway to the UTC Transit Center and transit parking; delays would occur from traffic traveling to/from the UTC Transit Center and transit parking.

Source: SANDAG, 2014v
Note: NB = northbound; SB = southbound; UTC = University Towne Centre

This segment of Balboa Avenue crosses under I-5. Widening Balboa Avenue as mitigation would require reconstruction of the I-5 overpass and the railroad overpass, significantly expanding the scope and cost of the project. Widening would also require utility relocation and result in additional impacts due to, among other things, partial or full acquisitions from properties on the north side of the roadway. The significant cost of reconstructing the I-5 and railroad overpasses, combined with the additional impacts that would result, render mitigation of this impact infeasible. Consequently, this segment of Balboa Avenue would not be widened as mitigation and an adverse and unmitigated impact would remain.

Intersections

The Refined Build Alternative would result in adverse impacts at 13 intersections near 7 grade crossings in the southern subarea and at 2 intersections in the northern subarea near the Balboa Avenue Station and the UTC Transit Center. Mitigation measures have been identified for all but two of the affected locations, as discussed below. Level of service and delay for the Refined Build Alternative with mitigation are summarized in Table 3-25, which also identifies if any adverse impacts would remain after mitigation. In some instances, mitigation measures are proposed for intersections adjacent to those affected by the Refined Build Alternative or such measures could affect operation at an adjacent intersection. The level of service and delay for these intersections also are included in Table 3-25. Table 3-27 summarizes the mitigation measures proposed to address adverse impacts under the Refined Build Alternative, and Figure 3-7 shows the locations of mitigation measures.

Table 3-27. Intersection Mitigation Measures by Location

Location	Mitigated Intersection ID[1]	Summary of Mitigation Measure(s)	Adverse Impact after Mitigation
TR1: Ash St and Pacific Hwy	Int 1, Int 2	• Add exit phase to serve vehicles traveling eastbound and westbound and pedestrians crossing Pacific Hwy • Modify existing signal phasing—change westbound left turns from first movement served to be served later in the traffic cycle	No
TR2: Ash St and Kettner Blvd (mitigates impact at Ash St and India St)	Int 2	• Add exit phase to serve vehicles traveling eastbound and westbound	No
TR3: Cedar St at Pacific Hwy (mitigates impact at the Ash St intersection with Pacific Hwy and at Cedar St and India St and reduces impact at Beech St and Pacific Hwy)	Int 1, Int 3, Int 4, Int 5, Int 6	• Modify existing signal phasing—vehicles making southbound left turns would be served first; vehicles traveling southbound would be served with northbound through and right-turn movements • Add exit phase to serve vehicles making southbound left turns first, followed by westbound vehicles; the exit phase also would serve pedestrians crossing Pacific Hwy • Lengthen southbound left-turn lane to 650 feet	Yes (Beech St and Pacific Hwy)

Table 3-27. Intersection Mitigation Measures by Location (continued)

Location	Mitigated Intersection ID[1]	Summary of Mitigation Measure(s)	Adverse Impact after Mitigation
TR4: Cedar St and Kettner Blvd	Int 7	• Add traffic signal (intersection is currently an all-way stop-controlled intersection) • Add exit phase to serve eastbound and westbound vehicles • Add a 75-foot westbound left-turn lane (one does not currently exist)	No
TR5: Sassafras St at Pacific Hwy	Int 8	• Modify existing signal phasing—left-turns on Sassafras St would have a protected turn phase (indicated by a green arrow) rather than yielding to vehicles traveling in the other direction	No
TR6: Sassafras St and Kettner Blvd	Int 8	• Modify existing eastbound approach geometry—right-turn lane would be modified to a shared through/right-turn lane with two receiving lanes on other side of Kettner Blvd, indicating that vehicles in that lane could turn right or continue through the intersection	No
TR7: Washington St and NB Frontage Rd and Hancock St (also mitigates Noell St and Hancock St)	Int 9, Int 10, Int 11, Int 12	• Add exit phase to serve pedestrians and vehicles traveling eastbound and westbound • Modify existing limited-service phase during preemption so that the westbound left turn is served after the southbound through movement • Modify existing northbound approach geometry on the NB Frontage Rd to include a dedicated left-turn lane, one shared left-turn/through lane, and one dedicated right-turn lane	No
TR8: Taylor St/Rosecrans St and Pacific Hwy (to mitigate Rosecrans St and Jefferson St and Pacific Hwy)[3]	Int 13	• Add a second northbound right-turn lane • Reconfigure eastbound approach to have a third through lane • Realign southern sidewalk east and west of intersection to preserve existing dedicated bus-only lane • Add exit phase to serve vehicles making an eastbound left turn, vehicles traveling eastbound and westbound through the intersection, and pedestrians crossing Pacific Hwy • Lengthen northbound left-turn lane by 40 feet • Modify southbound approach geometry to include a second left-turn lane for general purpose vehicles • Change westbound left-turn phase from first movement served to be served later in the traffic cycle	No
TR9: Taylor St and Congress St	Int 13	• Add exit phase to serve vehicles traveling eastbound and westbound through the intersection	No[2]
TR10: Genesee Ave and Esplanade Ct/UTC Drwy	Int 15	• Modify westbound approach geometry to add a westbound left-turn lane, thus providing two left-turn lanes, one shared through/right-turn lane, and one exclusive right-turn lane	No[2]

Source: SANDAG, 2014v

Notes: [1] Mitigated intersection ID – Refer to Table 3-26

[2] While the intersection would continue to operate at an unacceptable level of service, the facility would operate at a better level of service with the Refined Build Alternative with mitigation than with the No-Build Alternative.

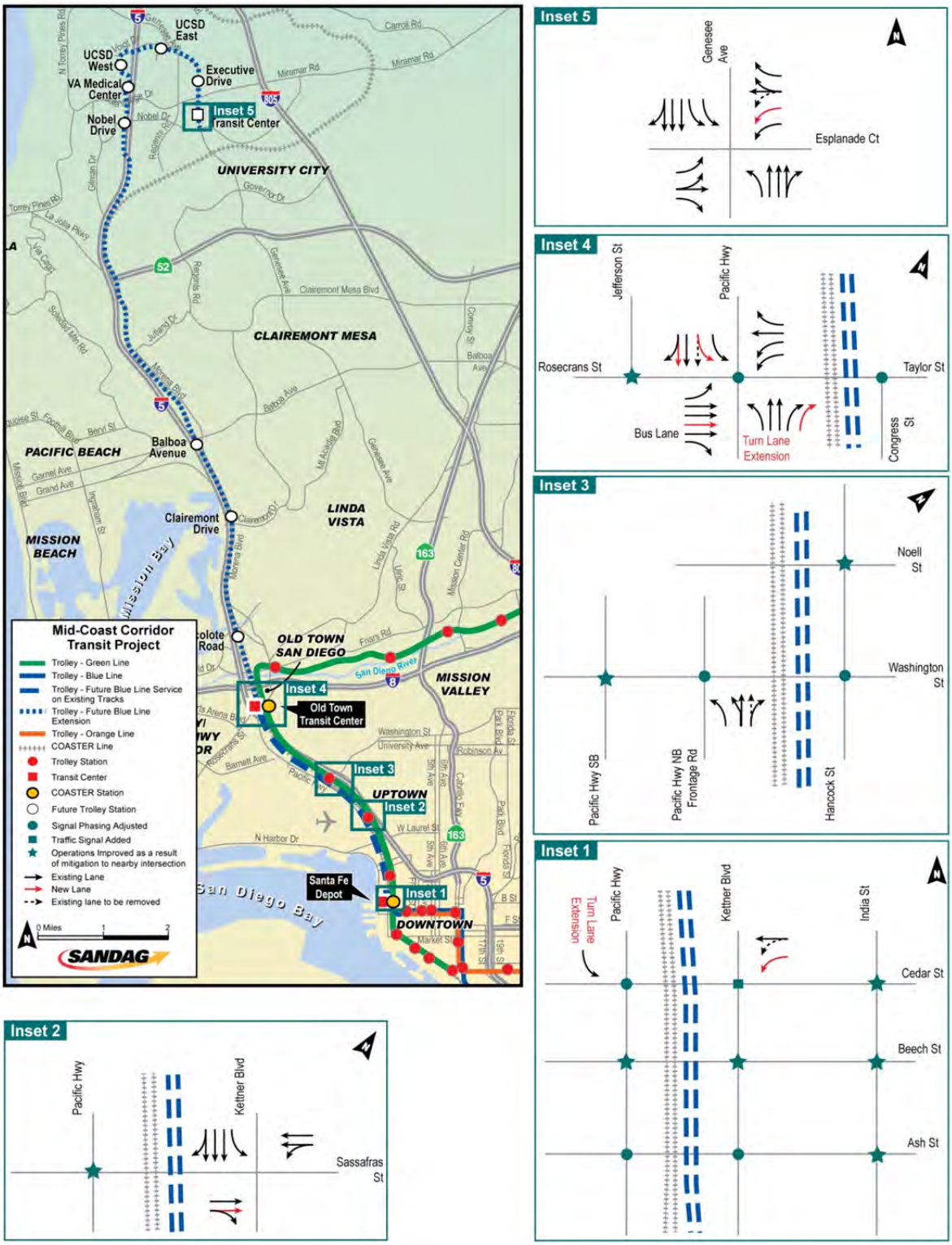
[3.] Mitigation at Taylor Street/Rosecrans Street and Pacific Highway would require widening Pacific Highway. The bike lane on Pacific Highway would be closed for up to 6 months during construction of the mitigation measures.

Exit phase = An exit phase can be programmed into the traffic-signal controller to serve a specific phase or phases prior to resuming standard operation. Typically, exit phases would serve the movement or movements that are preempted when a train travels through the grade crossing.

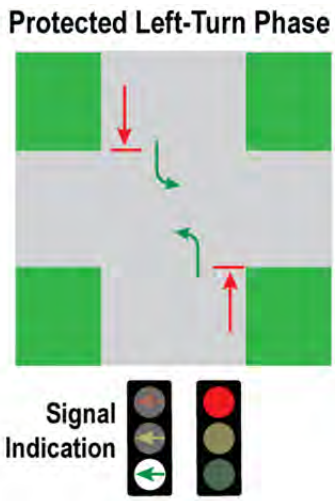
Limited-service phase = only movements that do not result in cars traveling toward the crossing gates are allowed to occur.

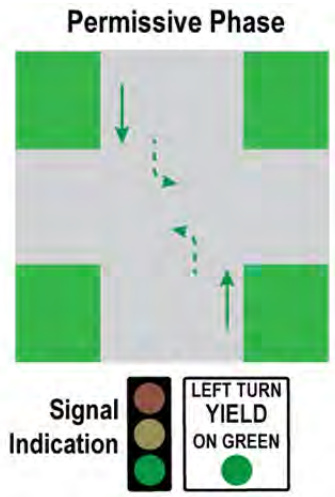
NB = northbound; UTC = University Towne Centre

Figure 3-7. Mitigation Measures for the Refined Build Alternative (2030)



Source: SANDAG, 2014v





Based on guidelines from the City of San Diego, the goal of mitigation is to restore an intersection back to an acceptable level of service (LOS D or better) or to conditions similar to the No-Build Alternative. For future year conditions, city guidance requires that mitigation measures restore an intersection to conditions similar to what would occur without the project, therefore, ensuring that the effects of the project are offset. The mitigation measures proposed to address intersection delay consist of geometric and operational modifications. Geometric modifications would include the addition of turn lanes or through lanes or extending an existing turn lane to provide more storage capacity for vehicles. In most cases, these modifications could be accommodated within the existing roadway right-of-way. Operational improvements at intersections generally consist of changes to traffic signal timing (the length of the traffic signal provided for each directional movement) and phasing (the traffic movements served by each signal phase), or, in one location, the addition of a traffic signal at an all-way stop-controlled intersection (Cedar Street and Kettner Boulevard). Additional information on the proposed mitigation measures, including detailed graphics illustrating geometric modifications and changes to traffic signal phasing, is provided in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v).

Southern Subarea

The increased frequencies of trains traveling through grade crossings would result in additional preemptions at adjacent intersections. Even with the improved gate operation included in the Refined Build Alternative (as described in Section 2.4), this would increase delay for motorists. Based on the results of the traffic analysis, as described previously, mitigation is required for intersections adjacent to the Ash Street, Beech Street, Cedar Street, Sassafras Street, Washington Street, Noell Street, and Taylor Street grade crossings, as identified in Table 3-27. Developing appropriate mitigation for these intersections required consideration of the following: (1) vehicular delay, (2) pedestrian wait times, and (3) vehicular queuing at intersections. Mitigation measures to address one impact could create or exacerbate another. Thus, analysis was conducted to ensure that mitigation measures for vehicular delay would not negatively affect the length of vehicular queues or how long a pedestrian would need to wait to cross an intersection. As identified in Table 3-25, traffic signal phasing and timing modifications, roadway and intersection restriping, and geometric changes would maintain or restore intersections to an acceptable LOS D or better at all locations except at the non-signalized intersection of Beech Street at Pacific Highway and the signalized intersection of Taylor Street at Congress Street.

Mitigation measures are proposed at several intersections adjacent to the Beech Street and Pacific Highway intersection that would reduce delay at this intersection compared to the Refined Build Alternative without mitigation. With mitigation at the adjacent

intersections, the intersection of Beech Street and Pacific Highway would operate during the p.m. peak hour at LOS F with 53.6 seconds of delay, an approximate 22-second improvement compared to the No-Build Alternative (LOS F with 75.2 seconds of delay). However, during the a.m. peak hour, the intersection would operate at LOS E with a delay 0.6 seconds greater than that experienced under the No-Build Alternative. When a train clears the crossing and the gates rise, a queue of traffic that had been waiting along westbound Beech Street is released, which arrives at the Pacific Highway and Beech Street intersection all at once. Because it is a stop-controlled approach, only one vehicle can be served at a time, which results in greater delays for all vehicles in the queue. Vehicles that arrive under normal conditions (i.e., not immediately after a train travels through the grade crossing) are not expected to experience an adverse delay.

A traffic signal was examined for Beech Street at Pacific Highway as a means of restoring the intersection to LOS D or better; however, the intersection does not meet traffic signal warrants based on the low number of vehicles traveling westbound through the intersection. Additionally, the intersection is within close proximity of two other signalized intersections. Adding a traffic signal at this location would reduce vehicular storage capacity in the area and increase delay along Pacific Highway; therefore, it is not considered feasible. The mitigation measure proposed at Cedar Street and Pacific Highway (TR3) would minimize the impact at Beech Street and Pacific Highway. However, because delay under the Refined Build Alternative with mitigation is greater than delay under the No-Build Alternative, the impact at Beech Street and Pacific Highway remains adverse and not mitigated.

View from the Beech Street Grade Crossing toward the Intersection of Beech Street and Pacific Highway

Source: SANDAG, 2013

Traffic signal modifications were incorporated at Taylor Street at Congress Street; nevertheless, because of the increased frequency of trains traveling through the Taylor Street grade crossing and the congested roadway conditions in this location, the level of service could not be restored to acceptable conditions. However, with improvement in gate down times, as explained previously, and the mitigation measures shown in Table 3-27, the delay at this intersection would be approximately 30 seconds less than that experienced under the No-Build Alternative. For future year conditions, city guidance requires that mitigation measures restore an intersection to conditions similar to the No-Build Alternative, which offsets impacts of the project. Consequently, there would not be an adverse impact at Pacific Highway or Taylor Street and Congress Street, even though it would operate at an unacceptable level of service.

Even with the increased frequency of gate down times, the mitigation measures and improvements to gate operation would benefit motorists traveling in the southern subarea. For the southern subarea, average delay per vehicle was analyzed for the a.m. and p.m. peak hours for the No-Build Alternative, the Refined Build Alternative, and the Refined Build Alternative with mitigation to compare conditions at all 24 intersections adjacent to the eight grade crossings analyzed. Based on results, delay during the p.m. peak hour is higher than that experienced during the a.m. peak hour. Under the No-Build Alternative, average delay per vehicle in the p.m. peak hour would be 149 seconds (approximately 2.5 minutes); however, under the Refined Build Alternative, average delay time would increase 38 percent to 206 seconds (over 3.5 minutes). With implementation of the mitigation measures summarized in Table 3-27, average delay per vehicle would decrease 42 percent to 86 seconds (approximately 1.5 minutes) when compared to the No-Build Alternative, indicating that mitigation and gate optimization combined would offset the increased frequency of trains traveling through the grade crossings, resulting in decreased delay for the system. Average delay per vehicle during the a.m. peak hour also would improve for the Refined Build Alternative with mitigation. However, because average delay during the a.m. peak hour was lower than during the p.m. peak hour, improvements in delay would not be as substantial as those experienced during the p.m. peak hour. Average delay for the No-Build Alternative during the a.m. peak hour would be 74 seconds (1 minute 14 seconds) but would increase 24 percent under the Refined Build Alternative to 92 seconds (approximately 1.5 minutes). With mitigation, average delay would be reduced by 11 percent compared to the No-Build Alternative, resulting in an average delay of 66 seconds (or 1 minute 6 seconds). Accordingly, roadway conditions under the Refined Build Alternative with mitigation would be better than conditions under the No-Build Alternative.

Northern Subarea

Traffic accessing the Balboa Avenue Station would increase delay at Mission Bay Drive and Garnet Avenue during the p.m. peak hour, resulting in an adverse impact at the intersection. Mitigation could include either a second southbound through lane or a dual westbound left-turn lane. These measures are deemed not feasible because they require additional right-of-way (three partial acquisitions would be needed for the southbound through lane and two partial acquisitions would be needed for the dual westbound left-turn lane). Both options would require utility relocation, including relocation of a storm drain. Under the Refined Build Alternative, delay at this intersection would be 4 seconds greater than the No-Build Alternative and the intersection would operate at LOS E, as it does under existing conditions. While the project does increase delay above city guidelines, its contribution is relatively minor when compared to existing and future conditions without the project. With implementation of either mitigation measure, level of service would remain at E but with slightly less delay than the No-Build Alternative. Therefore, the benefits of mitigating this intersection would not outweigh the secondary impacts and the Refined Build Alternative impact at this location would remain adverse and not mitigated.

The intersection of Genesee Avenue and Esplanade Court/UTC Driveway would serve as the primary access to the UTC Transit Center terminal station, which includes transit parking. Mitigation for the adverse impact at this intersection would include the addition of a westbound left-turn lane and re-striping to provide two left-turn lanes, one shared

through/right-turn lane, and one exclusive right-turn lane for the westbound approach. While the intersection would still perform at LOS F, the geometric changes would serve traffic movements more efficiently and improve the intersection level of service to a condition better than under the No-Build Alternative.

With implementation of the mitigation measures presented in Table 3-27, adverse impacts from the Refined Build Alternative would be fully mitigated at all intersections except Beech Street at Pacific Highway and Mission Bay Drive at Garnet Avenue. Mitigation is infeasible at these intersections and thus the impact would remain adverse.

3.4.2.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

This section discusses the CEQA determination for the freeway and roadway system. Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following thresholds of significance to evaluate the impacts of the Mid-Coast Corridor Transit Project on the freeway and roadway system under existing conditions in 2010 and future conditions in 2030.

Threshold 1: Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways?

The 2030 RTP and the *City of San Diego General Plan* (City of San Diego, 2008a) Mobility Element are among the primary documents establishing measures of effectiveness for the freeway and roadway system. The relevant goals from the 2030 RTP are described in Section 1.4.1. The Mobility Element from the *City of San Diego General Plan* seeks to attain a balanced, multi-modal transportation network that minimizes environmental and neighborhood impacts. The following are goals from the Mobility Element that are applicable to the Mid-Coast Corridor Transit Project:

- Vehicle congestion relief
- Improved performance and efficiency of the street and freeway system by means other than roadway widening or construction
- Optimization of traffic signal timing and coordination to improve circulation

Significant Impact (No-Build Alternative). The No-Build Alternative would not support the goals and policies from the 2030 RTP or the General Plan Mobility Element. As shown in Table 3-21, the No-Build Alternative in 2030 would have the highest VMT and VHD when compared to existing conditions in 2010 and the Refined Build Alternative in 2030; both VMT and VHD are measures of congestion on the roadway network. Further, as described in Section 3.4.2.1, the No-Build Alternative would result in significant impacts on 5 roadway segments and 16 intersections (10 in the southern subarea and 6 in the

northern subarea) when compared to existing conditions. This indicates that the performance of the roadway and freeway system would be worse under the No-Build Alternative than under existing conditions and thus would not support goals or measures of effectiveness from established plans and policies related to mobility, reliability, efficiency, or congestion relief.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would support the goals and policies from the 2030 RTP and the *City of San Diego General Plan* Mobility Element. As shown in Table 3-21, VMT and VHD would decrease by up to 1 percent on roadways under the Refined Build Alternative, indicating some improvements in congestion. These decreases occur without the need to widen roadways or construct new ones, which directly supports goals established by the General Plan Mobility Element. While minor, these improvements would benefit motorists and transit vehicles and thus would not conflict with applicable plans, policies, or ordinances.

A freeway interchange, roadway segment, and intersection analysis was performed for the Refined Build Alternative in 2010 and 2030 based on measures of effectiveness established in the *City of San Diego Traffic Impact Study Manual* (City of San Diego, 1998c). Based on the analysis described in Section 3.4.2.2 under the heading "Refined Build Alternative Freeway and Roadway System Performance and Impacts," the Refined Build Alternative in 2030 would result in long-term impacts at one roadway segment and 15 intersections. Feasible mitigation measures would be implemented, but impacts would remain at two intersections and one roadway segment, as described in Section 3.4.2.3. However, the mitigation measures proposed for the other intersections would improve the level of service and delay at these intersections compared to the No-Build Alternative, thereby supporting the policy of improving operations and circulation on city streets.

A discussion of traffic impacts for the Refined Build Alternative under existing conditions is provided under Thresholds 2 and 3, below.

Threshold 2: Would the project result in any intersection, roadway segment, or freeway segment operating at LOS D or better, to operate at LOS E or F or cause any ramp meter delays to exceed 15 minutes?

Threshold 3: Would the project impact any intersection, roadway segment, or freeway segment operating at LOS E or F under existing or cumulative conditions? If yes, then the impact would be significant if it exceeds the thresholds in Table 3-28.

No-Build Alternative

Impacts under Thresholds 2 and 3 are discussed together as both relate to deterioration in level of service based on impacts of the Refined Build Alternative compared to existing conditions. Refer to Threshold 1 and Section 3.4.2.1 for a discussion of long-term impacts.

Table 3-28. Traffic Impact Thresholds

Level of Service with Project[1]	Allowable Change Due to Project Impact[2]					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	Speed (mph)	V/C	Speed (mph)	Delay (sec)	Delay (min)
LOS E (or ramp meter delays longer than 15 minutes)	0.010	1.0	0.02	1.0	2.0	2.0
LOS F (or ramp meter delays longer than 15 minutes)	0.005	0.5	0.01	0.5	1.0	1.0

Source: City of San Diego, 2011a

Notes: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes. The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

[1] All LOS measurements are based upon *Highway Capacity Manual* procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an average daily traffic/24-hour traffic volume basis (using Table 2 of the *City of San Diego Traffic Impact Study Manual*). The acceptable LOS for freeways, roadways, and intersections is generally D (C in undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

[2] If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see note 1 above), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

Delay = average control delay per vehicle; LOS = level of service; min = minutes; mph = miles per hour; sec = seconds; V/C = volume-to-capacity

Less-than-Significant Impact (Freeway Interchanges). As shown in Table 3-22, the ILV analysis revealed that the intersections of Nobel Drive and the I-5 northbound off-ramp and I-5 southbound on-ramp would remain under capacity.

Significant Impact (Roadways and Intersections). As described in Section 3.4.2.1, the No-Build Alternative in 2030 would result in significant impacts on 5 roadway segments and 16 intersections (10 in the southern subarea and 6 in the northern subarea) when compared to existing conditions. The No-Build Alternative under consideration assumes that the Mid-Coast Corridor Transit Project would not be constructed and instead Route 150 would continue to serve the corridor. While the improvements to Route 150 are not expected to result in direct, adverse impacts on roadway segments or intersections, traffic conditions would worsen between 2010 and 2030, resulting in significant impacts under the No-Build Alternative. Additionally, four intersections near the Taylor Street grade crossing would have higher delay under the No-Build Alternative when compared to the Refined Build Alternative because the Refined Build Alternative includes project features that improve performance of the grade crossing, which results in reduced delay at these intersections. These improvements would not occur under the No-Build Alternative.

Refined Build Alternative

Refer to Threshold 1 and Section 3.4.2.2 for a discussion of long-term impacts.

Less-Than-Significant Impacts (Freeway Segments). The Refined Build Alternative would neither affect any freeway segments nor generate enough trips to require freeway ramp analysis per Caltrans or city guidelines; consequently impacts are considered less than significant.

Less-Than-Significant Impacts (Freeway Interchanges). With the addition of the project to existing conditions, the freeway interchanges on Nobel Drive at the I-5 northbound off-ramp and the I-5 southbound on-ramp would continue to operate under capacity. Thus the impact would be considered less than significant.

Significant Impact (Roadways). Similar to results for the Refined Build Alternative in 2030, the segment of Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp would experience an impact above the significance thresholds shown in Table 3-28 with the Refined Build Alternative in 2010. There is no feasible mitigation for this impact and thus, the project would result in a significant impact on this roadway segment.

Significant Impact (Intersections). In the southern subarea, the Trolley operating plan for the project under existing conditions would provide for the extension of the Trolley Blue Line north from the OTTC to the UTC Transit Center at 7.5-minute frequencies during both peak and midday off-peak periods. The Trolley Green Line would operate at 15-minute frequencies during both peak and midday off-peak periods, and terminate at the OTTC. Therefore, the project in 2010, compared to existing conditions, would increase the number of trains traveling through the Taylor Street grade crossing from 24 to 56 during the two-hour peak period, while the number of trains traveling through the other seven grade crossings south of the OTTC would remain unchanged (Table 3-24). The number of COASTER and Amtrak trains would remain the same as under existing conditions. The project would include improvements to gate operations that would result in shorter gate down times at many grade crossings, as compared to existing conditions.

During the a.m. and p.m. peak hours, all intersections in the southern subarea would operate at an acceptable level of service. Delays would be reduced at several intersections because of the shorter gate down times resulting from the more efficient gate operations provided by the project. Therefore, less-than-significant impacts to level of service at intersections would occur.

In the northern subarea, additional station-area traffic on Mission Bay Drive and Garnet Avenue, which operates at LOS E during the p.m. peak hour, would increase delay by 2.6 seconds and result in a significant impact at this location. No other intersections would experience a significant impact as a result of the project.

Threshold 4: Would the project result in a substantial restriction in access to publically or privately owned land?

No Impact (No-Build Alternative). Route 150 under the No-Build Alternative would not substantially restrict access to publically or privately owned land. However, it would not substantially improve access to these facilities either.

No Impact (Refined Build Alternative). The Refined Build Alternative would not restrict access to publically or privately owned land as roadways would not be closed as part of the project. Further, as discussed in Section 3.4.4.2, the Refined Build Alternative would not require removal of any parking spaces in a manner that would restrict access. The Refined Build Alternative would provide improved transit service between University City and the OTTC, thus improving access to San Diego State Historic Park near the OTTC and publically and privately owned lands in University City.

Threshold 5: Would the project increase traffic hazards to motor vehicles, bicyclists or pedestrians due to proposed non-standard design features (e.g., poor sight distance, proposed driveway onto an access-restricted roadway)?

No Impact (No-Build Alternative). Route 150 enhancements under the No-Build Alternative would not increase traffic hazards as a result of non-standard design features.

No Impact (Refined Build Alternative). The Refined Build Alternative would not increase traffic hazards due to proposed non-standard design features. While the Refined Build Alternative would include features that may be non-standard (e.g., reduced lane and median widths and setback from right-of-way), these features would not result in poor sight distance or result in hazards to motorists, bicyclists, or pedestrians. Additionally, all non-standard design features would be approved by the governing agency to ensure the features meet the safety requirements of that agency.

Threshold 6: Would the project result in inadequate emergency access?

No Impact (No-Build Alternative). Route 150 enhancements under the No-Build Alternative would not restrict the movement of emergency vehicles.

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.13.3, the Refined Build Alternative would not hinder emergency access and thus would have a less-than-significant impact. Further, all roadway modifications required for the Refined Build Alternative would be designed so as not to restrict the movement of emergency vehicles.

Significance after Mitigation

With implementation of the mitigation measures described in Section 3.4.2.3, there would be significant and unavoidable long-term impacts on the Balboa Avenue roadway segment between the I-5 southbound on-ramp and the I-5 northbound off-ramp and at the intersections of Beech Street at Pacific Highway and Mission Bay Drive at Garnet Avenue. With mitigation, all other long-term impacts would be less than significant.

The Refined Build Alternative in 2010 would result in significant impacts on the Balboa Avenue roadway segment between the I-5 southbound on-ramp and the I-5 northbound off-ramp and at the intersection of Mission Bay Drive and Garnet Avenue. No feasible

mitigation measures exist to reduce these impacts to below a level of significance; therefore, significant and unavoidable impacts would remain.

3.4.3 Bicycle and Pedestrian System Impacts

Bicycle and pedestrian facilities play a key role in providing access to and from transit stations. Further, these facilities are a component of the accessibility goals established by SANDAG and the city. Accordingly, various SANDAG and city plans seek to expand the pedestrian and bicycle system between 2010 and 2030 to serve the needs of a growing population and to encourage travel by modes other than the automobile.

3.4.3.1 Bicycle System Impacts

Adverse impacts on the bicycle system would occur if the No-Build or Refined Build Alternatives remove or degrade a facility; beneficial impacts would occur if either alternative enhances the system by adding new facilities or upgrading existing ones. Typically, impacts (both beneficial and adverse) would be limited to areas immediately adjacent to the alignment and stations.

No-Build Alternative

SANDAG and the City of San Diego have established plans to expand the bicycle system by 2030. Appendix J of the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) shows the 2030 bicycle system, based on these plans, beyond a quarter-mile of each Trolley station between and including the Santa Fe Depot and the UTC Transit Center. As the No-Build Alternative includes an expanded bicycle system compared to existing conditions, there would be a beneficial impact to bicyclists. Further, while the continuation and enhancement of Route 150 would require construction of new transit stops, it is not anticipated that bicycle facilities would be adversely affected.

Refined Build Alternative

The bicycle system under the Refined Build Alternative would be the same as that for the No-Build Alternative. The Refined Build Alternative was reviewed to determine whether it conflicted with the 2030 RTP, the *San Diego Regional Bicycle Plan Riding to 2050* (SANDAG, 2010d), and the *City of San Diego Bicycle Master Plan Update* (City of San Diego, 2011b). Construction of the Refined Build Alternative would encroach upon several portions of the Rose Canyon Bicycle Path between Santa Fe Street and the La Jolla Colony Drive/Gilman Drive interchange. The bike path would be realigned and reconstructed to City of San Diego and Caltrans requirements as part of the project; therefore, there would not be an adverse impact to the facility. Along Voigt Drive, support columns would impede upon existing bicycle facilities; however, these facilities would be realigned as part of the project and there would be no adverse impacts to the bicycle system with the Refined Build Alternative.

As part of the Refined Build Alternative, bicycle lanes near some stations would be restriped upon the completion of construction work. For passengers choosing to access stations by bicycle, bicycle lockers would be provided at all stations under the Refined Build Alternative, which would be designed per SANDAG Design Criteria. This would allow passengers to leave their bicycle in a secure location. For passengers who want

to bring their bicycle with them, bicycles would be allowed on Trolley vehicles, consistent with current practice. The Refined Build Alternative would not result in any adverse impacts to the bicycle system, and the provision of bicycle lockers at new stations could represent a beneficial impact in terms of connectivity between communities and transit.

3.4.3.2 Pedestrian System Impacts

Similar to impacts on the bicycle system, adverse impacts on the pedestrian system would occur if the No-Build or Refined Build Alternatives remove or degrade a facility, while beneficial impacts would occur if either alternative enhances the system. Typically, impacts (both beneficial and adverse) would be limited to areas immediately adjacent to the alignment and stations. Additionally, pedestrian activity around stations would increase under both alternatives.

No-Build Alternative

Some improvements to the pedestrian system could occur as new development or redevelopment occurs in the corridor; however, changes are not expected to be substantial. Consequently, there would not be an impact to the pedestrian system. Further, while the continuation and enhancement of Route 150 would require construction of new transit stops, it is not anticipated that pedestrian facilities would be adversely affected.

Refined Build Alternative

The Refined Build Alternative was reviewed and compared to the existing pedestrian system. As shown in the Final SEIS/SEIR Plan Set, construction of an aerial LRT station at Executive Drive proposed in the Refined Build Alternative would require the removal of the existing pedestrian bridge across Genesee Avenue near Executive Square. Pedestrian grade-separated access across Genesee Avenue at this location would be provided through the aerial station platform at Executive Drive via ramps, elevators, and stairway facilities linking to the existing pedestrian facilities to the west and east sides of Genesee Avenue.

Construction of the Refined Build Alternative would also require the removal of the pedestrian bridge across Genesee Avenue located mid-block between La Jolla Village Drive and Esplanade Court/UTC Driveway. Pedestrian access across Genesee Avenue would be provided approximately 500 feet to the south of the existing bridge at the intersection of Genesee Avenue and Esplanade Court/UTC Driveway. Grade-separated pedestrian access across Genesee Avenue would also be accommodated through the aerial station platform at the UTC Transit Center to be located just south of Esplanade Court/UTC Driveway via ramps, elevators, and stairway facilities linking the LRT station to the parkway area along the west side of Genesee Avenue and the UTC Transit Center to the east of the LRT station.

The Refined Build Alternative would not result in adverse impacts to the pedestrian system. Section 2.4.1.2 describes the pedestrian facilities that would be constructed as part of the project; all facilities would comply with the Americans with Disabilities Act (ADA). Examples of new pedestrian facilities include pedestrian access between the east side of West Morena Boulevard and Tecolote Road via new stairs and an ADA-

compliant ramp. Additionally, passengers using the Balboa Avenue Station would be able to cross over Balboa Avenue via the LRT bridge. Where new pedestrian facilities are constructed, the Refined Build Alternative would result in a beneficial impact.

Pedestrian activity would increase around existing and proposed Trolley stations from transit passengers walking to and from the Trolley. The Series 11 model forecasts that each day, there would be approximately 7,000 additional walk trips to and from the existing Trolley stations compared to the No-Build Alternative. Additionally, there would be approximately 17,160 daily walking trips, combined to or from the nine new stations. The greatest number of walking trips is projected to and from the UCSD West Station. The Refined Build Alternative would maintain the existing flow of pedestrian movements around each station and, therefore, would not result in an adverse impact. Beneficial impacts would occur where new pedestrian facilities are constructed.

3.4.3.3 Mitigation Measures

The Refined Build Alternative would encroach upon bicycle and pedestrian facilities in several locations; however, these facilities would be realigned as part of the project and, thus, no encroachment would remain. Consequently, there would not be any adverse impacts to bicycle and pedestrian facilities, and no mitigation is required.

3.4.3.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project to pedestrian and bicycle facilities under existing conditions in 2010 and future conditions in 2030.

Would the project conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities, or otherwise decrease the performance of such facilities?

SANDAG and the City of San Diego have adopted the following plans and policies related to the bicycle and pedestrian network: *San Diego Regional Bicycle Plan Riding to 2050* (SANDAG, 2010d), *City of San Diego Bicycle Master Plan Update* (City of San Diego, 2011b), and the 2030 RTP.

No Impact (No-Build Alternative). The continuation and enhancement of Route 150 under the No-Build Alternative would not result in any significant impacts to bicycle and pedestrian facilities. Improvements to bicycle and pedestrian facilities would occur consistent with applicable plans.

Less-Than-Significant Impact (Refined Build Alternative). The project would not conflict with any plans, policies, or programs regarding public transit, bicycle or pedestrian facilities, and would not decrease the performance of such facilities. The Refined Build

Alternative in 2010 and 2030 would support several goals and objectives of the bicycle plans adopted by SANDAG and the City of San Diego; specifically, the following objectives from the *San Diego Regional Bicycle Plan: Riding to 2050* (SANDAG, 2010d):

Objective 3: Support bicycle-transit integration to improve access to major employment and other activity centers and to encourage multimodal travel for longer trip distances.

Objective 4: Ensure the provision of convenient and secure bicycle parking and support facilities region-wide.

The Refined Build Alternative in 2010 and 2030 would provide reliable, efficient transit service connecting University City to downtown and areas west and south of downtown, thus improving access to major employment and activity centers. The *San Diego Regional Bicycle Plan: Riding to 2050* (SANDAG, 2010d) also recommends coordination with transit providers to ensure bicycles can be accommodated on transit vehicles and that convenient and secure short-term and long-term bicycle parking facilities are available at transit stations. Bicycle parking facilities would be included at all Refined Build Alternative stations, and bicycles would be allowed onboard Trolleys.

Significance after Mitigation

As the Refined Build Alternative would not result in significant impacts on the bicycle and pedestrian system, mitigation would not be required. As stated previously, the project would improve the bicycle and pedestrian system by providing bicycle parking at all stations and improving pedestrian facilities near some stations.

3.4.4 Parking Impacts

Two types of parking impacts could occur from the No-Build and Refined Build Alternatives: permanent removal of parking spaces or spillover parking. The transit facilities needed to support Route 150 under the No-Build Alternative or the Mid-Coast Corridor Transit Project under the Refined Build Alternative could require the permanent removal of on- and off-street parking spaces. Additionally, while many transit passengers would access stations via transfers or by walking or bicycling, some passengers may choose to drive. Spillover parking occurs when those passengers cannot find designated transit parking and park elsewhere, either in a private lot or along a street, thus spilling over into other areas. Public parking supply is not anticipated to change substantially between 2010 and 2030, although supply could change at private properties, such as shopping centers. However, demand for public parking would increase as population, employment, and travel demand grow.

3.4.4.1 No-Build Alternative

The continuation and enhancement of bus Route 150 under the No-Build Alternative would require construction of some transit stops; however, removal of parking is not anticipated. Parking demand at the OTTC under the No-Build Alternative was calculated based on projections from the Series 11 model. This is the only station in the corridor that would have a park-and-ride facility under the No-Build Alternative. Table 3-29 presents the demand for parking at the OTTC for all transit services at that station (COASTER; buses, including Route 150; and the Trolley, as applicable).

Table 3-29. Spillover Parking Demand—2010 and 2030

Station	Existing Conditions and No-Build Alternative Supply (No. of spaces provided)	Existing Conditions (2010)		No-Build Alternative (2030)		Refined Build Alternative (2030)		
		Total Demand (No. of spaces needed)	Total Demand in Excess of Supply (Spillover)	Total Demand (No. of spaces needed)	Total Demand in Excess of Supply (Spillover)	Refined Build Alternative Supply (No. of spaces provided)	Total Demand (No. of spaces needed)	Total Demand in Excess of Supply (Spillover)*
Old Town Transit Center	397	638	241	753	356	397	624	227
Tecolote Rd	N/A	N/A	N/A	N/A	N/A	280	280	0
Clairemont Dr	N/A	N/A	N/A	N/A	N/A	150	150	0
Balboa Ave	N/A	N/A	N/A	N/A	N/A	220	382	162
Nobel Dr	N/A	N/A	N/A	N/A	N/A	260	258	-2
UTC Transit Center	N/A	N/A	N/A	N/A	N/A	260	260	0
Total	397	638	241	753	356	1,567	1,953	389

Source: Series 11 model
Notes: * Negative spillover values indicate excess capacity
N/A = not applicable (new stations would only be constructed under the Refined Build Alternative);
UTC = University Towne Centre

Under existing conditions, 397 spaces are available at the OTTC for transit passengers to park during the day; there are no plans to expand parking supply. Based on forecasts from the Series 11 model, parking demand at the OTTC under the No-Build Alternative would increase to 753 spaces compared to 638 spaces under existing conditions (Table 3-29). As shown, parking demand would increase by 18 percent between existing conditions and the No-Build Alternative with demand exceeding supply in 2030 without the project. This would be an adverse impact; however, continuation and enhancement of bus Route 150 would not significantly contribute to this impact.

3.4.4.2 Refined Build Alternative

On- and Off-Street Parking Impacts

The Refined Build Alternative would affect on- and off-street parking spaces. As shown in Table 3-30, the Refined Build Alternative would result in the permanent loss of 602 parking spaces, including 15 on-street and 587 off-street spaces. Coordination has occurred with several stakeholders along the alignment to determine if any planned, future increases in parking could be affected by the Refined Build Alternative (primarily La Jolla Village Square shopping center, the VA Medical Center, UCSD, and the Westfield UTC shopping center). Based on this coordination, the Refined Build Alternative would not affect the location of any planned parking on the La Jolla Village Square, VA Medical Center, or UCSD properties. Representatives from the Westfield

Table 3-30. Impacts on Parking—Refined Build Alternative (2030)

Location	Anticipated Parking Spaces Removed			Description of Effect
	On-Street-NB/EB	On-Street-SB/WB	Off-Street	
West Morena Blvd from Vega St to Tecolote Rd	15	0	0	New bus bays would displace parking on east side of the street.
Tecolote Rd Station (Morena Plaza)	0	0	93	The Tecolote Road Station park-and-ride facility would permanently remove shopping center parking spaces.
Clairemont Dr Station Site	0	0	0	Station parking would displace unused business property parking, including three handicapped spaces; all on-street improvements affect current no parking areas; parking lot would be restriped; no net loss.
Nobel Dr Station Site	0	0	0	Station parking would displace some of the existing shopping center parking; the park-and-ride structure constructed for the Refined Build Alternative would accommodate displaced parking; no net loss.
South of Gilman (Leased to VA) UCSD Parking Lot P406 - north of VA Medical Center and Gilman Dr	0	0	12	Column location would block access to parking spaces.
UCSD East Campus Parking Lot west of baseball field (Lot 701)	0	0	7	TPSS would remove parking spaces.
UCSD East Campus and Parking lot west of Campus Point Dr (Lot P702)	0	0	183	Station parking would displace some existing campus parking; no effect on current on-street parking (on-street parking currently not allowed). Column location would land in parking spaces.
UCSD “Regents” Parking Lot	0	0	5	Column location would land in parking spaces and blocks access to those spaces.
UTC Transit Center	0	0	287	260 parking spaces would be acquired for transit parking, and TPSS would require removal of 27 spaces.
Total	**15**	**0**	**587**	

Source: *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 2: Plan Set*
Notes: EB = eastbound; NB = northbound; SB = southbound; TPSS = traction power substation; UCSD = University of California, San Diego; UTC = University Towne Centre; VA = Veterans Administration; WB = westbound

UTC shopping center indicated that the traffic mitigation at Genesee Avenue and Esplanade Court/UTC Driveway (referred to as Mitigation Measure TR10 in Table 3-27) could impact future parking. Coordination will continue with the shopping center during final design, and any potential reduction in the area available to construct future parking would be minimized to the extent feasible. Regardless of whether future parking spaces are affected by this mitigation measure, SANDAG would compensate the shopping center for the acquisition of property needed to accommodate the widening of the driveway.

On-street parking spaces would be removed near the Tecolote Road Station to allow for a bus turnout. The nearest business that was potentially using these spaces would be displaced by the project. Displacement of this business would reduce the need for on-street parking, so the parking impact would not be adverse.

Of the 587 off-street parking spaces removed, 380 spaces are from commercial/private properties, 195 are used by UCSD, and 12 are used by the VA Medical Center. Per federal, state, and local requirements, as described in Section 4.3.1, compensation would be provided to private property owners for the loss of parking spaces. Although 93 parking spaces would be removed from Morena Plaza, overall demand for parking at this location would be reduced as one commercial business would be displaced by the Refined Build Alternative.

Under the Refined Build Alternative, 287 parking spaces would be acquired from the Westfield UTC shopping center. Of these, 260 parking spaces are required for transit parking at the UTC Transit Center. The acquisition of these spaces would not result in adverse parking impacts because this acquisition would not reduce the shopping center's existing parking supply (approximately 4,500 spaces) below the current parking demand. Current demand is based on the existing amount of commercial space at the Westfield UTC shopping center and the ratio of parking spaces to commercial space as calculated from the approved development permit; this demand is estimated at approximately 4,200 spaces. Further, the shopping center, under a development permit with the City of San Diego, is required to provide a minimum number of on-site parking spaces to correspond to the planned redevelopment and expansion of the center. The shopping center site has the capacity to provide additional parking spaces as needed through the construction of multi-level parking garages at various locations on the site.

SANDAG also proposes to construct a traction power substation (TPSS) at the Westfield UTC shopping center. The location of the TPSS would require reconfiguration of the existing surface parking lot and removal of 27 parking spaces. Although the existing surface lot is located within an area of the shopping center proposed for redevelopment, the removal of these spaces may increase the number of parking spaces acquired from 260 to 287, depending on the design of the planned Westfield UTC shopping center expansion. However, the Westfield UTC shopping center’s parking supply would still remain above the minimum site requirements.

The loss of parking at the UCSD campus would occur in several parking lots and, with the exception of the parking lot west of Campus Point Drive, would represent between 1 and 3 percent of total supply within each parking lot. The largest number of lost parking spaces would occur at the parking lot west of Campus Point Drive (29 percent of the

638 spaces). Based on parking utilization surveys conducted by UCSD in the summer of 2013, this parking lot was approximately 49 percent utilized (UCSD, 2013) (according to quarterly parking surveys, the highest parking utilization for the year occurred in the summer of 2013). Therefore, sufficient parking would remain to accommodate demand and there would not be an adverse impact to parking at UCSD. Additionally, UCSD plans indicate that this parking lot will be eliminated with future development.

The removal of 12 parking spaces from the parking lot leased by UCSD to the VA Medical Center would represent approximately 4 percent of the total parking supply for that lot (340 total spaces). The VA Medical Center has other existing parking facilities and plans to increase its parking supply. Therefore, there would not be an adverse impact to parking at the VA Medical Center.

In other locations, off-street parking spaces would be relocated either by restriping the parking lot or including spaces in a joint-use parking facility constructed as part of the project. In these instances, there would be no net loss of parking and, therefore, there would not be an adverse impact on those parking spaces.

Spillover Parking Impacts

A spillover parking analysis was conducted for the OTTC and the five proposed stations that would provide transit parking. It was determined that a spillover parking analysis would not be needed at the UCSD West, UCSD East, or VA Medical Center Stations because parking in these areas is regulated by UCSD or the VA Medical Center. Consequently, transit passengers would be unable to park at existing spaces in these areas. Further, a spillover parking analysis was deemed unnecessary at the Executive Drive Station because there is little available parking around the Executive Drive Station and the station would be approximately 1,500 feet (0.3 mile) from the UTC Transit Center. Thus transit passengers wishing to park near the Executive Drive Station would be unable to find a place to park and likely drive to the UTC Transit Center instead. Analysis revealed that sufficient transit parking would be provided at the Tecolote Road, Clairemont Drive, and Nobel Drive Stations and at the UTC Transit Center (Table 3-29). Consequently, spillover parking is not expected to occur at these stations and there would not be an adverse impact.

Under the No-Build Alternative, the demand for parking at the OTTC would be nearly twice as high as available supply (Table 3-29). Under the Refined Build Alternative, however, parking demand would decrease by 129 spaces (17 percent) because additional parking would be provided at the new Trolley stations north of the OTTC. Consequently, some passengers who would have parked or desired to park at the OTTC would park at the new Trolley stations, thus reducing the demand for parking at the OTTC. As the Refined Build Alternative would reduce the demand for parking at this station, there would not be an adverse impact and mitigation would not be required.

The demand for parking at the Balboa Avenue Station would exceed the planned capacity of the parking facility by about 160 spaces. Additional capacity is not proposed to be added to the planned surface park-and-ride lot at this time because it is not feasible to construct a parking structure on site due to an active earthquake fault. Therefore, to account for worst-case conditions, parking is assumed to be limited to

surface parking only. Distance and topography, particularly the grade differential between the Balboa Avenue Station and the residential streets with on-street parking to the east of Morena Boulevard, would discourage transit patrons from parking on residential streets farther from the station. For example, parking at existing on-street facilities would require crossing busy streets, such as Morena Boulevard, or walking along Balboa Avenue and crossing under the I-5 overcrossing to reach the station platform. Such a walk likely would be a deterrent for those wishing to park near this station if parking spaces were not available in the station park-and-ride lot. Additionally, the majority of available on-street parking is located on residential side streets and is not visible from the main roadways that provide access to the station (i.e., Morena Boulevard and Balboa Avenue). Further, pedestrian access from parking on these side streets to the station is not convenient. Consequently, it is not expected that spillover parking would result in an adverse impact on the existing on-street parking supply in this area and mitigation would not be required.

As a result of comments received during the Draft SEIS/SEIR comment period, a spillover parking analysis was conducted for a one-half-mile area around the Balboa Avenue Station to assess available parking supply. The analysis identified 100 available spaces within a one-quarter-mile walk of the station and approximately 800 additional available spaces within a one-half-mile walk of the station during the midday period when parking at the Balboa Avenue Station could likely be full. The spillover parking analysis indicates there is adequate on-street parking to accommodate unmet demand in the unlikely event of spillover parking; however, the parking spaces that are closer to the station would be more desirable (e.g., along Morena Boulevard, a non-residential area).

In the unlikely situation that transit patrons do park on-street, they are anticipated to find on-street spaces within one-half mile of the station (approximately a 10-minute walk) without substantially displacing parking for existing residents. Drivers who do not park in the park-and-ride lot or on-street likely would drive to another station with available parking or drive to their ultimate destination rather than taking transit. The ridership numbers presented in this chapter are based on the planned supply of parking at each station; consequently, unmet parking demand at the Balboa Avenue Station would not decrease ridership below what is presented in the SEIS/SEIR.

3.4.4.3 Mitigation Measures

The Refined Build Alternative would result in the permanent loss of 602 parking spaces, including 15 on-street and 587 off-street spaces, which would be spread throughout the corridor. Compensation for removal of off-street spaces would be provided to private property owners in accordance with federal, state, and local regulations as described in Section 4.3; consequently, mitigation is not required for the loss of off-street spaces. Although 93 off-street parking spaces would be removed from Morena Plaza, overall demand for parking in this location would be reduced as one commercial business would be displaced by the Refined Build Alternative.

The acquisition of parking spaces from the Westfield UTC shopping center would not result in an adverse impact because the acquisition of these spaces would not reduce the center's existing parking supply (approximately 4,500 spaces) below the current parking demand. Current demand is based on the existing amount of commercial space

at the Westfield UTC shopping center and the ratio of parking spaces to commercial space as calculated from the approved development permit; this demand is estimated at approximately 4,200 spaces.

No mitigation would be required for the loss of the 15 on-street parking spaces near the Tecolote Road Station. The nearest business that would potentially use the spaces would be displaced and the site would be used for the Tecolote Road Station. Displacement of this business would reduce the need for on-street parking; therefore, no mitigation would be required.

3.4.4.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project on parking under existing conditions in 2010 and future conditions in 2030.

Would the project substantially affect parking supply?

No-Build Alternative
Significant Impact (Parking). The continuation and enhancement of bus Route 150 under the No-Build Alternative would require construction of some transit stops; however, removal of parking is not anticipated. Parking demand at the OTTC under the No-Build Alternative (Table 3-29) would be the highest compared to demand in 2010 (Table 3-31) and under the Refined Build Alternative in 2030, which would represent a significant impact on parking supply.

Refined Build Alternative
Less-Than-Significant Impact (On and Off-Street Parking). Since public on- and off-street parking supply is not anticipated to change substantially between 2010 and 2030, parking impacts from the Refined Build Alternative in 2010 would be the same as the long-term impacts shown in Table 3-30. Private property owners would be compensated consistent with federal, state, and local regulations. Although 93 parking spaces would be removed from Morena Plaza, overall demand for parking in this location could be reduced as one commercial business would be displaced by the Refined Build Alternative. The acquisition of parking spaces from the Westfield UTC shopping center would not result in a significant impact because the acquisition of these spaces would not reduce the center's parking supply (approximately 4,500 spaces) below the current parking demand. Current demand is based on the existing amount of commercial space at the Westfield UTC shopping center and the ratio of parking spaces to commercial space as calculated from the approved development permit, and is estimated at 4,200 spaces. Consequently, there would be no near-term significant parking impact. Therefore, there would be a less-than-significant impact to on- and off-street parking supply.

Table 3-31. Spillover Parking Demand—2010

Station	Existing Supply (No. of spaces provided)	Existing Conditions (2010)		Existing Conditions with Refined Build Alternative (2010)		
		Total Demand (No. of spaces needed)	Total Demand in Excess of Supply (Spillover)	Refined Build Alternative Supply (No. of spaces provided)	Total Demand (No. of spaces needed)	Total Demand in Excess of Supply (Spillover)*
Old Town Transit Center	397	638	241	397	442	45
Tecolote Rd	N/A	N/A	N/A	280	242	-38
Clairemont Dr	N/A	N/A	N/A	150	150	0
Balboa Ave	N/A	N/A	N/A	220	482	262
Nobel Dr	N/A	N/A	N/A	260	278	18
UTC Transit Center	N/A	N/A	N/A	260	253	-7
Total	397	638	241	1,567	1,847	280

Source: Series 11 model
Notes: * Negative spillover values indicate excess capacity.
N/A = not applicable (new stations would only be constructed under the Refined Build Alternative);
UTC = University Towne Centre

Less-Than-Significant Impact (Spillover Parking). A spillover parking analysis was conducted for the Refined Build Alternative in 2010 for the same stations analyzed under the Refined Build Alternative in 2030. As shown in Table 3-31, the Refined Build Alternative in 2010 would provide sufficient parking at the Tecolote Road and Clairemont Drive Stations and the UTC Transit Center. Consequently, spillover parking is not expected to occur near these stations.

Based on projections from the Series 11 model, parking demand is projected to exceed the supply at the OTTC and the Balboa Avenue and Nobel Drive Stations with the Refined Build Alternative in 2010. Under existing conditions, the Series 11 model projected the demand for parking at the OTTC to be nearly twice as high as available supply. With the addition of the project, the projected parking demand would decrease by 196 spaces (30 percent). Therefore, the project would reduce the total demand for parking, including the demand for parking for Trolley Blue Line passengers at the OTTC; there would not be a significant impact and mitigation would not be required. Long-term impacts at the OTTC would be the same as those described in Section 3.4.4.2.

The demand for parking at the Balboa Avenue Station would be approximately 260 spaces in excess of the planned capacity of the parking facility. Similar to long-term conditions in 2030, it is not expected that spillover parking would have a significant impact on the existing on-street parking supply near the Balboa Avenue Station. At the Nobel Drive Station, demand for parking would be approximately 18 spaces, or 7 percent, in excess of the planned capacity of the parking facility. Parking around the Nobel Drive Station is regulated for the use of patrons of the shopping center; therefore, spillover parking would be unlikely to occur. Consequently, the project would not have a significant impact on parking supply near the Nobel Drive Station. There would be no

long-term significant impacts on parking near the Nobel Drive Station as the park-and-ride facility would accommodate projected demand.

Significance after Mitigation

The Refined Build Alternative would result in less-than-significant impacts on parking supply and would result in less-than-significant spillover parking impacts near the OTTC or the Balboa Avenue or Nobel Drive Stations in 2010 or 2030; consequently, mitigation is not required.

3.4.5 Freight Impacts

In 2030, vehicular and rail freight will continue to be important means of moving freight through the Mid-Coast Corridor. Increases in traffic congestion from the No-Build and Refined Build Alternatives could impact vehicular freight movement, and operation and maintenance of the Refined Build Alternative in the LOSSAN corridor could impact rail freight.

3.4.5.1 No-Build Alternative

The continuation and enhancement of Route 150 under the No-Build Alternative would require additional bus service traveling on I-5 and major streets within the corridor, but these additional vehicles would have a minimal impact on vehicular freight traffic. A 25-percent increase in auto person trips is projected between existing conditions in 2010 and the No-Build Alternative in 2030, and VHD is estimated to increase by 54 percent within the corridor. This added delay on freeways and arterials would impact vehicular freight, which could result in increased costs and delays to deliveries. Consequently, there would be an adverse impact on vehicular freight movement. Route 150 would be separated from the LOSSAN rail tracks and consequently would not affect rail freight.

3.4.5.2 Refined Build Alternative

The Refined Build Alternative could affect vehicular and rail freight. Vehicular impacts could occur from modification of roadways to accommodate the Refined Build Alternative alignment and stations, the increased frequency of preemption events in the southern subarea, or the addition of traffic in the northern subarea. Additionally, impacts to rail freight could occur for the portion of the Refined Build Alternative that is adjacent to the LOSSAN tracks.

Vehicular Freight

Any street modifications required as part of the Refined Build Alternative would be designed so as not to adversely impact freight movement. However, in the southern subarea, the Refined Build Alternative would result in additional gate down time at grade crossings between Santa Fe Depot and the San Diego River, and in the northern subarea, there would be additional station area traffic on roadways, both of which could increase delay at intersections and impact vehicular freight movement. As described in Section 3.4.2.2, there would be adverse impacts at 15 intersections during peak periods under the Refined Build Alternative. However, vehicular freight travel generally occurs outside the peak period when the roadways are less congested. As station area traffic

and COASTER and Amtrak frequencies would also be lower during off-peak periods, there would be a minimal impact to freight movement during off-peak periods.

The Refined Build Alternative would also result in an impact on one roadway segment during the course of a day. However, this segment of Balboa Avenue is approximately 720 feet (0.13 mile) long, and the Refined Build Alternative would increase the daily volume by less than 1 percent. Therefore, while an unmitigated traffic impact remains, it is not anticipated to adversely impact vehicular freight.

Minor decreases in auto person trips and VHD are projected with the Refined Build Alternative compared to the No-Build Alternative, which could provide a minor benefit to vehicular freight movement and potentially offset delays from the additional gate down time and increased traffic near stations. As a result, there would be no adverse impacts on vehicular freight.

Rail Freight

For rail freight, improvements and modifications to approximately 1.3 miles of the LOSSAN tracks in the vicinity of SR 52 would be required under the Refined Build Alternative. Because of the separation of the Trolley and LOSSAN tracks, operation of the new Trolley tracks in the LOSSAN corridor would not have an adverse impact on rail freight. Future maintenance work on the Trolley tracks may require slow orders for all traffic on the LOSSAN tracks. As maintenance work is expected to occur infrequently, this would have a minor impact on freight operations. Access from Morena Boulevard to the west side of the LOSSAN tracks would be provided across the Trolley tracks at two locations south of Balboa Avenue. In the vicinity of SR 52, a maintenance access road to the existing Control Point Elvira would be removed to allow for the double tracking of the LOSSAN tracks and construction of the LRT tracks. The control point would be moved farther south where access can be provided from Santa Fe Street. Therefore there would not be an adverse impact.

Removal of the spur track located south of Tecolote Road would not have an impact because rail freight service is not provided to any of the businesses along this spur track (additional information on the spur track is provided in Section 4.3.3.2).

3.4.5.3 Mitigation Measures

The Refined Build Alternative would not result in adverse impacts on vehicular freight. Additionally, no adverse impacts have been identified to the rail freight system and, consequently, mitigation would not be necessary.

3.4.5.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project impede or slow the transport of freight?

No-Build Alternative

Significant Impact (Vehicular Freight). The continuation and enhancement of bus Route 150 under the No-Build Alternative would have no impact on the transport of freight; however, VHD would be substantially higher under the No-Build Alternative compared to existing conditions and higher than the Refined Build Alternative, which would result in significant impacts for vehicular freight.

No Impact (Rail Freight). The continuation and enhancement of bus Route 150 would not have an impact on rail freight.

Refined Build Alternative

Less-Than-Significant Impact (Vehicular Freight). Long-term impacts of the Refined Build Alternative in 2030 were identified in Section 3.4.5.2. Generally, impacts of the Refined Build Alternative on existing freight movement would be similar to those described for the Refined Build Alternative in 2030. In the southern subarea, the project would not result in additional preemptions as the same number of trains would travel through the Ash, Beech, Cedar, Washington, Sassafras, and Noell Street grade crossings compared to existing conditions. However, gate operations would be optimized, as described in Section 2.4.1.4, which would result in gates being down for a shorter period, thus benefitting freight movement in that area. At the Taylor Street grade crossing, the number of Trolley vehicles traveling through the crossing would increase; however, gate operation would be optimized. Consequently, there would be a less-than-significant impact on freight movement through this grade crossing. In the northern subarea, the Refined Build Alternative in 2010 would result in a significant impact at the Mission Bay Drive and Garnet Avenue intersection during the p.m. peak period and on Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp. However, as stated previously, freight movement primarily occurs outside peak periods. Additionally, the Refined Build Alternative in 2010 would increase the daily roadway volume by approximately 1 percent on this 720-foot-long segment of Balboa Avenue. Consequently, significant impacts are not anticipated to vehicular freight movement traveling through these areas.

Long-term impacts of the Refined Build Alternative in 2030 are identified in Section 3.4.5.2. Vehicular freight impacts would occur during the peak periods at intersections that would operate at an unacceptable level of service or along the segment of Balboa Avenue that would be significantly affected by the Refined Build Alternative. However, vehicular freight primarily operates outside peak periods; therefore, impacts are not anticipated to be significant.

Less-Than-Significant Impact (Rail Freight). Impacts to rail freight in 2010 would be the same as the long-term impacts described in Section 3.4.5.2 for the Refined Build Alternative in 2030. Operation of the new Trolley tracks in the LOSSAN corridor would not result in a significant impact. In addition, removal of the spur track located south of Tecolote Road would not have a significant impact because freight service is not provided to any of the businesses along this spur track.

Significance after Mitigation

Operation of the Refined Build Alternative in both the short and long term would result in less-than-significant impacts to vehicular and rail freight; consequently, mitigation is not required.

3.4.6 Indirect and Cumulative Impacts

This section discusses transportation-related indirect and cumulative impacts of the No-Build and Refined Build Alternatives.

3.4.6.1 Indirect Effects

Indirect effects include the reasonably foreseeable secondary effects of the project that generally occur later in time or that are farther removed in distance from the project. These impacts can only be discussed qualitatively, as quantification of these impacts would be speculative. Under the No-Build Alternative, this would include indirect effects from the continuation and enhancement of Route 150, while for the Refined Build Alternative indirect effects would be related to the Mid-Coast Corridor Transit Project.

Indirect effects of the No-Build and Refined Build Alternatives could include increases in traffic congestion at other intersections in the corridor, including those located farther from the Route 150 or Refined Build Alternative alignment. Under the No-Build Alternative, these impacts could occur because fewer new transit passengers would switch from automobiles to transit to make their trip. Under the Refined Build Alternative, increases in traffic on roadways could increase as passengers drive to access the stations; however, these additional trips would be below the city guidelines requiring an impact analysis and consequently any impacts would be minor. The decrease in VMT in the corridor under the Refined Build Alternative compared to the No-Build Alternative would reduce wear and tear on roadways, which also would decrease maintenance costs.

An indirect effect from the absence of new parking facilities under the No-Build Alternative could be an increase in parking demand in other locations of the corridor, particularly in Downtown San Diego and University City. Such an impact could occur because individuals may decide to drive to their destination, thus requiring parking, or may attempt to park near a bus stop, thus resulting in spillover parking impacts. In comparison, the Refined Build Alternative could indirectly decrease parking demand in other locations of the corridor—such as Downtown San Diego, UCSD, or University City—as individuals switch from an automobile to transit or use the new transit parking provided as part of the project.

The enhancement of Route 150 under the No-Build Alternative would include the construction of new bus stops along Morena Boulevard. These new bus stops could focus future land use development in these areas, consistent with adopted community plans. Under the Refined Build Alternative, enhanced mobility could create opportunities for more intensive and focused urban growth near new transit stations and corridors compared to the No-Build Alternative, as well as for continuing growth in areas made accessible by these new transit services. The growth created under the Refined Build Alternative would be consistent with adopted community plans, and growth in travel beyond that already anticipated in local or regional plans would not occur.

The Refined Build Alternative would directly result in increased pedestrian and bicycling activity near station areas. This would have a beneficial indirect effect, as pedestrian and bicycle activity would increase the perceived vitality of the surrounding communities. In addition, bicycle routes within the corridor, particularly Class I and Class II facilities, could directly experience higher usage from the increased access that the Refined Build Alternative would provide. This could have an indirect effect on bicyclists using these facilities who are not traveling to the stations if the increased volumes hinder their movement. However, the need for additional bicycle facilities is not anticipated and, consequently, an adverse indirect effect would not occur.

3.4.6.2 Cumulative Effects

The section evaluates potential cumulative impacts of the Refined Build Alternative when the impacts are combined with past, present, and reasonably foreseeable future actions (Code of Federal Regulations 1508.7), including both public and private actions. Section 15355 of the *CEQA Guidelines* defines cumulative impacts as two or more individual impacts that, when considered together, are considerable and may compound or increase environmental impacts. According to both federal and state guidelines, cumulative impacts can result from individually minor, but collectively significant, project impacts.

The cumulative analysis contained in this document includes an analysis of both (1) projects that are either approved or being considered for approval by SANDAG, the City of San Diego, USCD, and other agencies (or anticipated to be submitted for consideration, including projects in the design phase or under construction) and (2) growth projections set forth in regional plans, including regional modeling plans. Various related environmental documents and regional plans were reviewed and used in the cumulative analysis and included, but were not limited to, the following:

- *Final Environmental Impact Report (EIR) for the 2030 San Diego Regional Transportation Plan: Pathways for the Future* (SANDAG, 2007c)
- *2050 RTP Program EIR* (SANDAG, 2011c)
- *Final Program EIR for the Regional Comprehensive Plan (RCP) for the San Diego Region* (SANDAG, 2004b)
- *UCSD 2004 Long Range Development Plan (LRDP) Final Environmental Impact Report* (UCSD, 2004c)

- *Los Angeles to San Diego Proposed Rail Corridor Improvements (LOSSAN) Final Program Environmental Impact Statement/Environmental Impact Report* (Federal Railroad Administration and Caltrans, 2007)

Of the documents listed above, both the 2030 RTP and 2050 RTP EIRs evaluated the Mid-Coast Corridor Transit Project in the Revenue Constrained Scenario. Thus, the analyses in these documents were most applicable to evaluation of the project. The Mid-Coast Corridor served as the study area for the cumulative impact analysis; however, cumulative impacts could occur throughout the region.

The Refined Build Alternative would increase the capacity and expand the reach of the Trolley system in a congested corridor; therefore, the overall effect of the Refined Build Alternative on the transit system would be beneficial. Even when considering the time required for passengers to access the new Trolley service, the Refined Build Alternative would decrease travel time and improve system reliability. When combined with other planned transit projects and improvements assumed in the 2030 RTP, a beneficial cumulative effect would accrue to the entire San Diego region, and, in particular, to the Mid-Coast Corridor. In comparison, bus Route 150 would be enhanced under the No-Build Alternative, with the addition of bus stops in areas not served by express bus service under existing conditions. Such a modification would improve transit service in these areas; however, as buses would still operate in mixed traffic, this beneficial impact would be less than that achieved by the Refined Build Alternative.

The traffic analysis in Section 3.4.2.2 presented impacts for the Refined Build Alternative in 2030 compared to conditions that would occur under the No-Build Alternative. Traffic volumes for the No-Build Alternative were based on projections from the Series 11 model, which include the planned growth in population and employment as detailed in the city's general plan, community plans, and the 2030 RTP. Additionally, traffic volumes from other planning documents, such as the *UCSD LRDP* (UCSD, 2004a), and traffic studies approved by the city for private developments, were reviewed and incorporated into the traffic volumes for the No-Build Alternative. As a result, the traffic volumes used for the No-Build Alternative represent the cumulative future condition based on the effects of regional growth and various individual projects on the transportation system in 2030. To develop the traffic volumes used for the Refined Build Alternative, projections of the number of vehicles that would access the proposed Trolley stations during the peak hour under the Refined Build Alternative were added to the traffic volumes for the No-Build Alternative. Consequently, this analysis showed whether the addition of the project would contribute an adverse condition on any roadway segment or intersection.

The analysis showed that the Refined Build Alternative would contribute to cumulatively significant impacts to the roadway system as a result of an increase in gate down times at 13 intersections in the southern subarea and additional station-area traffic on 1 roadway segment and 2 intersections in the northern subarea. Mitigation measures were identified that would minimize the project impacts to below a level of significance at 13 of the 15 intersections. Mitigation for project impacts at these locations is sufficient to ensure that cumulatively significant impacts are eliminated or reduced to a level that is less than the impact level under the No-Build Alternative without the project. Thus, after mitigation, project impacts are not considered cumulatively considerable at these

intersections. No feasible mitigation measures were identified for one roadway segment (Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp) and two intersections (Beech Street at Pacific Highway and Mission Bay Drive at Garnet Avenue), and thus a cumulative impact that cannot be mitigated would occur at these three locations. Because the traffic analysis for the Refined Build Alternative represents the cumulative transportation system in 2030, these adverse impacts are considered adverse under NEPA and cumulatively considerable and significant under CEQA.

In general, the Refined Build Alternative is projected to decrease VMT, auto trips, and VHD compared to the No-Build Alternative. As a result, the incremental effect of the Refined Build Alternative on the regionwide roadway system would be beneficial and would not contribute to a cumulative adverse impact.

No cumulatively significant impacts to bicycle and pedestrian facilities, parking, or freight were identified. The Refined Build Alternative would not result in adverse impacts on the parking supply. Parking demand at the OTTC would decrease, resulting in a beneficial impact at this location. In addition, the Refined Build Alternative may have an indirect beneficial impact on parking demand, particularly in Downtown San Diego and University City, as travelers switch from automobiles to transit and use the transit parking provided as part of the project. Consequently, the project would not contribute to any cumulatively significant impact on the parking supply.

The cumulative impact determination was based in part on a review of regional land use planning documents. The cumulative impact findings for the Mid-Coast Corridor Transit Project are similar to those described in the Final EIR for the 2030 RTP (SANDAG, 2007c). The EIR found that implementation of the 2030 RTP projects would reduce regional transportation and circulation impacts that otherwise are expected to occur if the 2030 RTP projects were not implemented. The EIR concluded that the traffic and circulation impacts of the 2030 RTP would be beneficial and thus not cumulatively considerable. This is similar to the conclusions reached in the LOSSAN *Environmental Impact Statement/Environmental Impact Report* (Federal Railroad Administration and Caltrans, 2007).

The findings in the SEIS/SEIR differ slightly from those presented in the EIRs prepared for the 2050 RTP (SANDAG, 2011c), the RCP for the San Diego Region (SANDAG, 2004a), the City of San Diego General Plan (City of San Diego, 2008b), and the UCSD LRDP (UCSD, 2004a). The 2050 RTP EIR did not identify any significant direct transportation impacts in 2035 (one of the horizon years included in the RTP); however, it did identify significant cumulative transportation impacts from other proposed infrastructure projects. Similarly, the EIRs prepared for the RCP, the City of San Diego General Plan, and the UCSD LRDP identified cumulatively significant and unavoidable impacts to the localized roadway system. These EIRs largely assumed that while individual projects are required to prepare an environmental document before starting development, not all traffic impacts may be mitigated, as is the case for the Mid-Coast Corridor Transit Project. In the case of UCSD, many of the mitigation measures that would avoid cumulative transportation impacts were outside the university's jurisdiction and thus could not be guaranteed.

Largely, these EIRs did not consider cumulative impacts to other components of the transportation system, such as transit, bicycle and pedestrian facilities, or freight; although the EIR for the UCSD LRDP stated there would be no cumulatively significant impacts to parking, which is consistent with the findings of the SEIS/SEIR for the Mid-Coast Corridor Transit Project.

3.4.7 Transportation Impacts during Construction

Unlike the permanent impacts identified in the preceding sections, construction impacts are temporary in nature, lasting for the duration of construction activity in a particular area. Construction impacts and mitigation associated with the individual projects assumed in the No-Build Alternative would be determined during separate environmental review independent of the Mid-Coast Corridor Transit Project; therefore, these projects were not assessed for construction impacts within the SEIS/SEIR. Construction activity related to Route 150 would be limited to construction of new bus stops primarily within existing rights-of-way and would not be considered adverse.

Construction of the Refined Build Alternative would affect transit, freeways and roadways, bicycle and pedestrian facilities, parking, and freight systems. Several different techniques would be used to manage construction impacts to the transportation system, including detours, slow orders along rail routes, adjustments to vehicular freight routes, and road closures. Implementation of the mitigation measures described in this section would be the responsibility of SANDAG. For additional information, refer to the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v) and the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s).

The AA/DEIS/DEIR identified impacts to traffic resulting from construction of at-grade crossings and LRT stations in University City. Traffic impacts also were identified around construction staging areas. Based on findings in the SEIS/SEIR, construction activity and traffic around staging areas would impact traffic; however, there would not be construction of at-grade crossings. Mitigation in the AA/DEIS/DEIR included developing a Traffic Management Plan; establishing temporary lanes, sidewalks, and bus stops; and constructing at-grade crossings sequentially to minimize traffic impacts. These mitigation measures are similar to the project features proposed in the SEIS/SEIR. For example, left turns would be prohibited on Genesee Avenue at several intersections during construction, but construction activity would be phased so adjacent major intersections are not closed at the same time. The AA/DEIS/DEIR did not identify impacts to transit, bicycle and pedestrian facilities, parking, or freight and concluded that there would not be any adverse impacts after mitigation.

The 2001 FEIS identified construction impacts to bus transit service, rail service on LOSSAN tracks, traffic near proposed stations, and sidewalks. The FEIS concluded that parking impacts and impacts on rail freight would not occur. While the SEIS/SEIR does have similar conclusions, it differs in that parking impacts would occur, particularly in the University City area. Both the 2001 FEIS and the SEIS/SEIR propose to minimize impacts with a Transportation Management Plan (TMP).

Since circulation of the Draft SEIS/SEIR, one staging and laydown area was added while four construction staging and laydown areas were removed. The change in the number and location of staging areas reduced temporary parking impacts. The temporary parking impacts that were previously identified for Scripps Memorial Hospital La Jolla were eliminated and, therefore, Mitigation Measure TCON2 was revised so that it no longer applies to this medical facility. Temporary parking impacts also were updated for the La Jolla Village Square shopping center to reflect the maximum number of spaces affected at one time. On-street parking along La Jolla Village Drive east of Genesee Avenue would be affected during construction of the project. Additionally, the elimination of the staging areas resulted in a change in the location of haul routes and thus a minimization of impacts to residential streets, specifically Charmant Drive. The findings for temporary traffic, roadway, bicycle and pedestrian, and freight impacts in this Final SEIS/SEIR remain unchanged from those in Draft SEIS/SEIR.

3.4.7.1 Transit System

Construction would temporarily impact operation of the Trolley Green Line; MTS, NCTD, and UCSD bus routes; and COASTER and Amtrak trains. Mitigation would be required for any construction-related impacts on the transit system. The following sections describe impacts and proposed project measures to avoid or minimize impacts.

Construction-related Impacts on the Transit System

Trolley Green Line

Operation of the Trolley Green Line would be affected during construction of the San Diego River Bridge and installation of turnouts, TPSSs, and train signaling systems for the Refined Build Alternative alignment on the existing Trolley Green Line. Construction of the San Diego River Bridge would cause MTS “slow order operations” for approximately eight to ten months; however, slow orders would occur for one segment at a time. Slow orders would result in longer travel time for passengers on the Trolley; however, the overall schedule for the Trolley Green Line would not be affected as a result of the slow order operations and, thus, the effect is not anticipated to be adverse.

Installation of the turnouts, track slab, track, signaling, and overhead catenary system would require a single-track operation on the Trolley Green Line along the San Diego River Bridge under slow orders for approximately three to four months. Existing Trolley Green Line crossovers are adequate to support a single-track operation along the San Diego River Bridge without any other required improvements or impacts to the Trolley Green Line. Running both Trolley Green and Trolley Blue Lines between Santa Fe Depot and the San Diego River would require additional TPSSs along this reach. The additional TPSSs may require modification to the existing traction power system along the Trolley Green Line from the Santa Fe Depot to the OTTC, including new or up-sized TPSSs, wiring duct banks, additional or upsized messenger wire, and other enhancements as part of the Refined Build Alternative. Installation of these new features may require single tracking, and reverse running of the Trolley Green Line may be required along some segments between the OTTC and Santa Fe Depot for approximately three to four months. Single tracking and reverse operations would impact the Trolley Green Line schedule and cause some increase to travel time. The impact would be adverse.

MTS, NCTD, and UCSD Bus Routes

Local access to MTS, NCTD, and UCSD bus routes would be affected by lane closures within the construction corridor. Construction activity and lane closures could result in temporary diversions of bus routes and temporary closure of bus stops. Table 3-32 summarizes the MTS, NCTD, and UCSD bus and shuttle routes—and the streets on which these routes operate—that would be affected during construction. The approximate durations of impacts to the MTS, NCTD, and UCSD shuttle routes would be similar to the duration of roadway impacts described in Section 3.4.7.2 for the segment of the route that operates along those roadways. Lane closures would increase roadway traffic and congestion, thereby delaying transit riders. Further, bus detours could add to travel time if the route is longer. The relocation of bus stops could require additional walking for pedestrians to get to the relocated bus stations. This would result in adverse impacts to MTS, NCTD, and UCSD bus routes.

Table 3-32. Transit Routes Affected by Construction

Street Name	MTS Bus Route(s)*	UCSD Shuttle Route(s)
Morena Blvd	Route 105	
Garnet St/Balboa Ave	Route 27	
I-5 northbound off-ramp and Gilman Dr/ La Jolla Colony Dr	Route 150	Hillcrest/Campus Shuttle
Nobel Dr	Route 201, 202 (SuperLoop)	
La Jolla Village Dr	Routes 30, 41, NCTD 101, 150, 880, 921	COASTER West Shuttle, Nobel Shuttle, Mesa Housing Shuttle, Arriba Shuttle
Gilman Dr/Voigt Dr	Routes 201, 202 (SuperLoop)	Campus Loop Shuttle, COASTER East Shuttle, Hillcrest/Campus Shuttle, Mesa Housing Shuttle, East/Regents Shuttle
I-5 southbound off-ramp and La Jolla Village Dr		COASTER East Shuttle
Genesee Ave	Routes 30, 31, 41, 50, NCTD 101, 150, 201/202 (SuperLoop), 880, 960	

Source: SANDAG, 2014v
Notes: * All routes are MTS unless noted otherwise
MTS = Metropolitan Transit System; NCTD = North County Transit District; UCSD = University of California, San Diego

COASTER and Amtrak

The Refined Build Alternative would require reconstruction and/or relocation of a portion of the LOSSAN tracks located approximately 3,300 feet south of the SR 52 to the La Jolla Colony Drive/Gilman Drive interchange. Construction activities in this stretch also include the Rose Creek LRT Overhead, Rose Creek Open Channel, and various other project features. During construction of this segment of the Refined Build Alternative, a series of shooflies (temporary tracks) would maintain rail service around phased construction activities. Travel on the shooflies would be at a slower speed than under existing operations.

Construction of shooflies and the LOSSAN track improvements would generally occur at night when COASTER and Amtrak trains are not in revenue service, and thus would not cause an adverse impact to the operation of COASTER and Amtrak trains. However,

some construction activities along the LOSSAN corridor from Santa Fe Depot to the La Jolla Colony Drive/Gilman Drive interchange would occur during Amtrak and COASTER operating hours. This includes construction work within the existing MTS right-of-way or within 25 feet of the LOSSAN tracks. Construction activity would require slow orders to be issued. To reduce the schedule impact from slow orders, construction activities during operating hours would only occur in one area at a time and that area would not exceed 3 contiguous miles in length. At night when COASTER and Amtrak trains are not in revenue service, construction activities could exceed this 3-mile limit. By limiting the distance of construction activities during operating hours and coordinating construction activities with the NCTD, schedule impacts to the operation of COASTER and Amtrak trains would not be adverse.

Project Measures to Avoid or Minimize Transit Impacts

The following measures are proposed to minimize impacts to the Trolley Green Line and MTS, NCTD, and UCSD bus service:

- Impacts to Trolley operations would be minimized by single tracking, reverse running, and/or provisions for temporary crossovers from the Santa Fe Depot to the OTTC, and single-track operations at the San Diego River Bridge.
- Impacts to local bus operations would be minimized by temporarily relocating bus stops and diverting bus routes. Pedestrian access to relocated bus stops would be provided. Rerouting and relocating bus routes would be coordinated with the corresponding transit agencies and providers, including MTS, NCTD, and UCSD.

Even with implementation of these measures, the impact to Trolley Green Line and MTS, NCTD, and UCSD bus services would remain adverse. Impacts to local bus services would remain adverse because of the increase in travel time as buses travel along detoured routes and through traffic congestion caused by lane closures (as described in Section 3.4.7.2). This impact is expected to be more substantial during peak periods because of higher traffic volumes and congestion on roadways.

Transit Mitigation

All measures that reduce transit impacts would be incorporated into the design of the project and would be a requirement of project construction. No mitigation measures have not been identified that would reduce the adverse impacts to the Trolley Green Line or MTS, NCTD, and UCSD bus services; therefore, impacts would remain adverse and unavoidable during construction. There would be no adverse impacts to COASTER and Amtrak trains.

California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application
Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project.

Would project construction impact transit performance (e.g., increase travel time or reduce service coverage)?

Significant Impact (Refined Build Alternative). As described in the previous sections, construction of the project would require single tracking and reverse running of the Trolley Green Line, which would increase travel time on the Trolley Green Line and thus result in a significant impact. Additionally, construction would significantly impact the performance of MTS, NCTD, and UCSD buses because of bus route detours, relocated bus stops, and increases in travel time from traffic congestion. There would not be a significant impact on Amtrak and COASTER trains.

Significance after Mitigation
After implementation of the project measures listed above, significant impacts would remain to the Trolley Green Line and MTS, NCTD, and UCSD bus services. These impacts would consist of longer travel time, detoured bus routes, and relocated bus stops. Mitigation measures have not been identified that would reduce these impacts; therefore, impacts to the Trolley Green Line and MTS, NCTD, and UCSD bus services would remain significant and unavoidable.

3.4.7.2 Freeway and Roadway System

Construction would temporarily impact I-5, several freeway ramps, and roadways. Additionally, turn prohibitions are expected at some intersections where lane and roadway closures would be required. Minimization and avoidance measures have been identified for construction-related impacts on the freeway and roadway system.

Construction-related Impacts on the Freeway and Roadway System

Freeways and Roadways
Construction of several elements of the Refined Build Alternative, including at-grade guideway segments, aerial structures, retaining walls, the cut-and-cover undercrossing, Trolley stations, and transit parking facilities, would impact the freeway and roadway system, as summarized in Table 3-33. During installation and removal of falsework, nighttime roadway and freeway closures would be required. Such closures on I-5 would require detours on city streets and would be provided in consultation with Caltrans and the City of San Diego. To the extent practical, detour routes would avoid residential areas. Roadways affected by continuous closures (meaning closures that would last 24 consecutive hours or longer) are shown on Figure 3-8. Nighttime, off-peak, or continuous closures could result in increased congestion as the same volume of cars would need to be served by fewer travel lanes. As a result, an adverse impact would occur as travel time would be longer for motorists traveling along I-5 and the other roadways listed in Table 3-33 and shown on Figure 3-8.

Table 3-33. Construction-related Impacts to Freeways and Roadways

Name	Segment	Construction Type	Number of Existing Lanes (Bi-direction)	Impact	Approximate Duration/Frequency
Freeway or Ramps					
I-5	Between La Jolla Colony Dr and Nobel Dr	Aerial Structure	8	Continuous lane width reduction	30 months
				Nighttime lane closures	Intermittent
				Nighttime freeway closures	Intermittent (Falsework erection and take down)
	Between La Jolla Village Dr and Genesee Ave	Aerial Structure	8	Continuous lane width reduction	30 months
				Nighttime lane closures	Intermittent
				Nighttime freeway closures	Intermittent (Falsework erection and take down)
I-5 NB Off-ramp	Balboa Ave	Trolley Station	1	Nighttime closures	Intermittent (Falsework erection and take down)
I-5 NB ramp	La Jolla Colony Dr	Undercrossing at La Jolla Colony Dr	2	Nighttime closures	Intermittent (Cut-and-cover box structure construction)
I-5 SB On-ramps	La Jolla Village Dr	Aerial Structure	2	Nighttime closures	Intermittent (Falsework erection and take down)
I-5 SB Off-ramp	La Jolla Village Dr	Aerial Structure	2	Nighttime closures	Intermittent (Falsework erection and take down)
Roadway					
Friars Rd	Sea World Dr to Napa St	Grade-separated Bridge Structure	4	Continuous one-lane reduction in both directions	1 month
				Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
West Morena Blvd	Buenos Ave to Morena Blvd	Trolley Stations and Bus Stop	4	Off-peak lane closures	Intermittent

Table 3-33. Construction-related Impacts to Freeways and Roadways (continued)

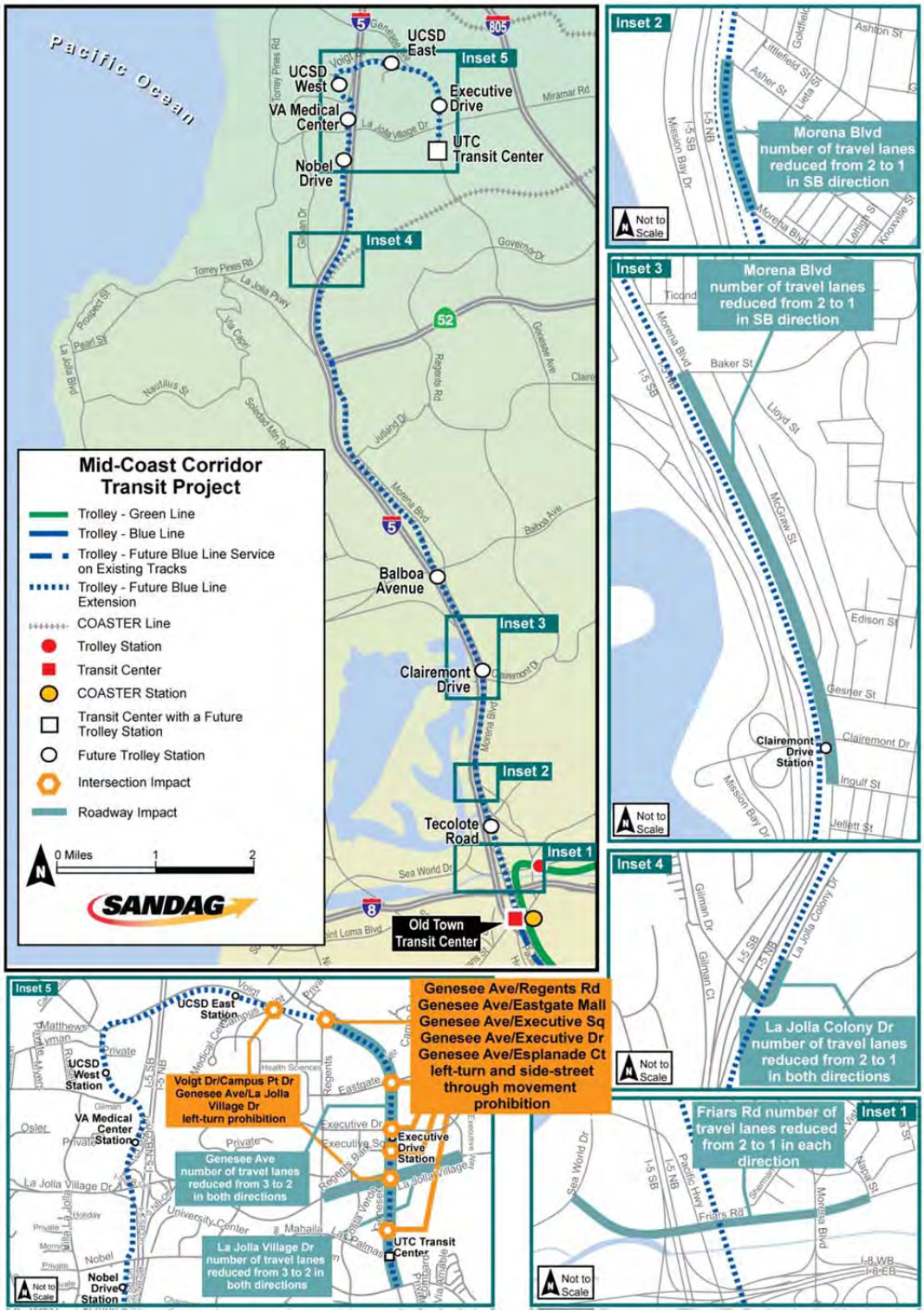
Name	Segment	Construction Type	Number of Existing Lanes (Bi-direction)	Impact	Approximate Duration/Frequency
Morena Blvd	West Morena Blvd to Balboa Ave	Retaining Walls; Stations	4	Off-peak lane closures	Intermittent
	Littlefield St to W. Morena Blvd		4	Continuous one-lane reduction in the southbound direction	18 months
				Off-peak lane closures	Intermittent
	Baker St to Ingulf St		4	Continuous one-lane reduction in the southbound direction	18 months
				Off-peak lane closures	Intermittent
	Paul Jones Ave to Avati Dr	Trolley Station	4	Off-peak lane closures	Intermittent
Balboa Ave	Mission Bay Dr Moraga Ave	Grade-separated Bridge Structure; Trolley Station	6	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
La Jolla Colony Dr	NB I-5 off-ramp to Rosenda Ct	Cut-and-Cover Undercrossing	4	Continuous one-lane reduction in both directions	15 months
				Nighttime roadway closures	Intermittent
Nobel Dr	Villa La Jolla Dr to I-5 NB Ramp	Aerial Structure	4	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
La Jolla Village Dr	Villa La Jolla Dr to I-5 NB Ramp	Aerial Structure	6	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
	Regents Rd to Executive Way	Aerial Structure	6	Continuous one-lane reduction in both directions	12 months
Gilman Dr	Villa La Jolla Dr to South of Voigt Dr	Aerial Structure	2	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)

Table 3-33. Construction-related Impacts to Freeways and Roadways (continued)

Name	Segment	Construction Type	Number of Existing Lanes (Bi-direction)	Impact	Approximate Duration/ Frequency
Lyman Ave	N/A	Aerial Structure	2	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
Sixth Ln	N/A	Aerial Structure	2	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
Voigt Dr	Lyman Ave to Campus Point Dr	Aerial Structure	2	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
Campus Point Dr	Genesee Ave to Voigt Dr	Aerial Structure	4	Off-peak lane closures	Intermittent
				Nighttime roadway closures	Intermittent (Falsework erection and take down)
Genesee Ave	Regents Rd to Nobel Dr	Aerial Structure; Trolley Stations	6	Continuous one-lane reduction in both directions of travel	36 months
				Off-peak lane closures	Intermittent
				Nighttime roadway closures	36 months of closure of one direction; Intermittent nights of full closures

Source: SANDAG, 2014v
Notes: Nighttime closures = closures that would occur between 9:00 p.m. and the morning peak period
Off-peak closures = closures that would occur during midday or midday and nighttime hours, but not during peak periods
Continuous closures = closures that would last for the entire day or longer, including during peak periods
Intermittent = closures that would occur occasionally during nighttime or off-peak periods throughout the construction period in that area
N/A = not applicable; NB = northbound; SB = southbound

Figure 3-8. Continuous Closures at Intersections and on Roadways



Source: SANDAG, 2014v

Intersections

During construction, several roadways identified in Table 3-33 would be affected by continuous lane closures, resulting in turn-movement restrictions at some intersections along these roadways. These closures would last 24 consecutive hours or more, including during peak periods and would be an adverse impact. The locations of continuous closures are listed in Table 3-34 and shown on Figure 3-8.

Table 3-34. Continuous Closures at Intersections

Intersection	Impacts	Approximate Duration
La Jolla Colony Dr and I-5 NB Ramp	Continuous one approach lane reduction on La Jolla Colony Dr	15 months
Voigt Dr and Campus Point Dr	Continuous left-turn and side-street through movement prohibitions	12 months
	Continuous lane reduction on Voigt Dr and Campus Point Dr	36 months
Genesee Ave and Regents Rd*	Continuous left-turn movement and side-street movement prohibitions	12 months
	Continuous lane reduction on Genesee Ave	36 months
Genesee Ave and Eastgate Mall*	Continuous left-turn and side-street through movement prohibitions	12 months
	Continuous lane reduction on Genesee Ave and Eastgate Mall	36 months
Genesee Ave and Executive Dr*	Continuous left-turn and side-street through movement prohibitions	12 months
	Continuous lane reduction on Genesee Ave and Executive Dr	36 months
Genesee Ave and Executive Sq	Continuous left-turn and side-street through movement prohibitions	12 months
	Continuous lane reduction on Genesee Ave and Executive Sq	36 months
Genesee Ave and La Jolla Village Dr*	Continuous left-turn prohibitions	12 months
	Continuous lane reduction on Genesee Ave and La Jolla Village Dr	36 months
Genesee Ave and Esplanade Ct/UTC Drwy	Continuous left-turn and side-street through movement prohibitions	12 months
	Continuous lane reduction on Genesee Ave and Esplanade Ct/UTC Drwy	36 months

Source: SANDAG, 2014v
Notes: Continuous closures = closures that would last for the entire day or longer, including during peak periods
* Closures and vehicular movement prohibitions at these intersections would be phased such that adjacent intersections would not be affected concurrently.
NB = northbound; UTC = University Towne Centre

During construction of aerial structures along Genesee Avenue, left-turn movements would be prohibited at the intersections of Regents Road, Eastgate Mall, Executive Drive, Executive Square, La Jolla Village Drive, and Esplanade Court/UTC Driveway under the Refined Build Alternative. Through-movement prohibitions on side streets also may be required. The turn-lane closures or movement prohibitions at intersections

on Genesee Avenue may result in diversion of traffic to adjacent intersections and nearby arterials, such as Regents Road, Nobel Drive, and Towne Centre Drive. The affected signalized intersections on these arterials and Genesee Avenue may require temporary modification and/or signal re-timing.

The proximity of Regents Road, Eastgate Mall, Executive Drive, and La Jolla Village Drive to each other allows for a nearby detour when left-turn movements are prohibited at one of these intersections. Hence, traffic impacts resulting from the elimination of left-turn movements to and from Genesee Avenue at these four intersections would be reduced by staging the construction activities such that left-turn movements at the adjacent intersections would not be affected at the same time.

During construction of the straddle bent in the median of Executive Square, Executive Square at the Genesee Avenue intersection would need to be closed. To minimize the impact at the intersection and avoid its closure during the daytime, construction of columns in the median of Executive Square would occur during nighttime. During the nighttime closure of Executive Square at the Genesee Avenue intersection, access to properties on the east and west sides of Genesee Avenue would be rerouted through Executive Drive and La Jolla Village Drive.

The anticipated lane closures or turning-movement prohibitions and detours along Genesee Avenue during construction would increase delays for motorists, particularly during peak periods. Because these delays occur during the peak hours and because of the long duration of these effects, the impacts are considered to be adverse.

Construction Vehicle Traffic

The Refined Build Alternative would be organized in several contract phases that group together specific activities and types of work to facilitate construction. Contract packages have not been identified at this time. The construction jobs created would generate construction-related traffic to and from the various contractor work areas. These trips would be spread between the various staging areas and over the duration of the construction schedule. The contractor would be encouraged to implement ridesharing to work areas to reduce traffic impacts. Arrangements would be made to provide nearby off-site parking that would be used by construction workers, and shuttle service would be provided by the contractors between these parking areas and the work sites, thus further reducing traffic impacts. Identified construction staging areas would serve as temporary parking lots for construction workers. Construction-related vehicles and equipment also would generate construction traffic; however, equipment would operate during off-peak periods or during peak periods with the use of a flagging operation. Consequently, construction vehicle traffic would not cause an adverse impact.

Construction-related vehicles and equipment also would generate construction traffic. Construction vehicles and equipment would be used to transport materials to and from contractor work areas, and construction vehicle traffic would be greatest at staging and station areas. Construction-related vehicles and equipment would be required to travel on designated haul routes that would be identified prior to the start of construction. Haul routes generally would be along major arterials where most land uses are commercial and industrial. However, there is one location in the University City community where construction vehicle activity would occur close to residences (the Matthews apartments on

Sixth Lane in UCSD). Additionally, some interior streets at UCSD are narrow and are not designed to handle major construction traffic (Lyman Avenue and Sixth Lane). It is expected that these roadways would be adversely affected by construction activity.

Project Measures to Avoid or Minimize Freeway and Roadway Impacts

Construction of the Refined Build Alternative temporarily would interfere with the normal flow of traffic and could delay travelers in the transportation system. A TMP would be prepared during the design phase, and designated truck haul routes would be identified prior to construction to minimize traffic impacts. The following sections discuss measures that would be included in the TMP and designated truck haul routes.

Transportation Management Plan

The TMP would include measures to minimize traffic impacts during construction with the goal to move motorists through work zones quickly and safely. These measures would be developed in consultation with Caltrans, the City of San Diego, UCSD, MTS, NCTD, Amtrak, emergency providers, and other appropriate agencies. The TMP would include the following measures:

- Public Awareness Campaign—A public awareness campaign would include effective means and channels to inform the public in advance about the project, roadway impacts, and construction activities, including closures of any facilities. Additional coordination and communication would be required with police and fire departments regarding road closures, detours, lane restrictions, and other changes during construction that may affect emergency response routes or times.
- Traveler Information—Key components would include the provision of real-time traffic information and alternate route information to motorists approaching the work zone.
- Incident Management—A plan would identify effective tools and procedures to respond to incidents on roadways near construction areas.
- Construction Strategies—Construction plans would describe the sequence of construction activities. Traffic management plans would show the routing of traffic through construction zones and include information about the use of temporary barriers, signage, striping, and channelization devices. Instructions as to the time of day or night when lanes can be closed would be provided to minimize impacts to motorists. Major haul routes and staging areas would also be identified.
- Demand Management—Strategies would be identified with the goal to reduce peak-hour traffic volumes within areas affected by construction by supporting the use of alternative modes of transportation. These strategies would build upon the demand management programs already available within the project corridor, including rideshare programs.
- Alternate Routes—Effective and safe alternate and detour routes would be identified for any roadway and lane closures. Traffic-control plans depicting the detour routes and proper signage along the detours would be prepared. Bypasses through residential or local streets would be avoided. Coordination would occur with area emergency responders to ensure adequate access is maintained at all times within the community and that construction zone and evacuation routes are not impeded.

Designated Haul Routes

Prior to the start of construction activities, major haul routes to and from the construction zones and staging areas would be identified through coordination with the City of San Diego and stipulated in the TMP. These routes would use major freeways and arterial roadways with the goal to minimize noise, vibration, and other possible impacts to surrounding property owners as much as practical. The major freeways and arterials that are anticipated to be used as haul routes include I-5, I-15, SR 52, Morena Boulevard, Balboa Avenue, Nobel Drive, La Jolla Village Drive, Genesee Avenue, Friars Road, and Tecolote Road. Impacts to traffic on these roadways would be minimized by scheduling haul route operations during off-peak hours, where feasible.

Emergency vehicle access would be maintained at all times to construction work sites, nearby businesses, schools, and residential neighborhoods. In addition, emergency vehicle access would be maintained at all times to and from fire stations, hospitals, and medical facilities near construction areas and along haul routes. Construction activities, planned roadway closures, and haul route operations would be coordinated with fire departments, hospitals, and law enforcement agencies. With incorporation of these project measures, there would be no adverse impacts on emergency vehicle access.

The elements of the TMP would minimize adverse impacts to I-5 and the roadway system during construction. For example, providing the public with advance information regarding planned and ongoing construction work would allow motorists to adjust their travel plans, which could reduce the number of vehicles traveling through the work area. Real-time traffic information would allow motorists to complete their trips more smoothly and help reduce overall congestion through the work area. Incident management programs also could reduce traffic congestion.

With implementation of these measures, the anticipated closures and detours during construction would still increase delay for motorists that are unavoidable; therefore, the impacts would remain adverse. The degree of impacts would vary. For example, traffic impacts along Genesee Avenue would be worse because of the degree of continuous lane and intersection closures expected with multiple phases of construction work and the high traffic volumes on the roadway. In other areas listed in Table 3-33 and Table 3-34 where existing traffic volumes are lower, the impacts are expected to be less.

With the designated haul routes, the impacts to roadways resulting from construction vehicle and equipment traffic are not expected to be adverse, except on local streets not designed to handle such construction traffic (Lyman Drive and Sixth Lane in UCSD); impacts would be adverse at these locations.

Freeway and Roadway Mitigation

Mitigation measures have not been identified that would reduce the adverse impacts to the freeway and roadway system. The impacts to roadways resulting from the expected closures and detours that would delay travelers and the impacts to local streets (Lyman Drive and Sixth Lane in UCSD) resulting from construction vehicle and equipment traffic would remain adverse and unavoidable.

California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project.

Would project construction substantially impede or slow traffic movement?

Significant Impact (Refined Build Alternative). Construction would result in significant impacts on roadways and intersections in the corridor resulting from continuous closures as well as intermittent off-peak and/or nighttime closures, as described previously in this section. Delays would also occur on I-5; however, closures would be limited to nighttime hours when fewer vehicles use the facility. Accordingly, closures would reduce the severity of the impact by reducing the number of vehicles affected, but would still result in significant short-term impacts.

Significance after Mitigation

Implementation of measures to avoid or minimize impacts (the TMP and designated haul routes) would minimize significant impacts to the freeway and roadway system during construction. However, significant impacts would remain as roadway closures and detours would increase travel time for travelers. Delays would vary throughout the corridor based on the existing volume on roadways and the length that detours and closures would be in place. No mitigation measures have been identified to offset these impacts; therefore, impacts are significant and unavoidable.

3.4.7.3 Bicycle and Pedestrian System

Construction would affect bicycle and pedestrian facilities, resulting in closures of sidewalks and bicycle facilities and detours. Measures to avoid and minimize these impacts and mitigation measures are proposed while ensuring the safety of pedestrians and bicyclists.

Construction-related Impacts on the Bicycle and Pedestrian System

Existing bicycle facilities and pedestrian sidewalks would be affected during construction. Because of the close proximity of construction-related activities to existing bike and pedestrian facilities, some facilities would be temporarily closed and disruptions would occur along adjacent sidewalks and bike lanes (Table 3-35).

On roadways where sidewalks on both sides of the street would be affected, construction would be phased when possible such that pedestrian access on one side of the street would be maintained whenever possible. However, phasing may not be possible in all locations, and construction work could require closures of sidewalks on both sides of a roadway. Closures would be limited to the nighttime, if feasible, and temporary detours for pedestrians would be provided where possible. As stated in Section 3.4.7.2, traffic movement restrictions would occur at intersections along

Table 3-35. Construction-related Impacts to Pedestrian and Bicycle Facilities

Roadway Name	From	To	Sidewalk(s) Affected	Bicycle Facilities Affected (Class)[1]
Ocean Beach Bicycle Path	Morena Blvd	I-5	N/A	Ocean Beach Bicycle Path (I)
Friars Rd	Sea World Dr	Napa St	Eastbound	Eastbound (I)
West Morena Blvd	Vega Rd	1,200 feet north of Vega Rd	Eastbound; Westbound	N/A
Morena Blvd	West Morena Blvd	Ashton St	N/A	N/A
	Jellett St	Ingulf St	Southbound	N/A
	Ingulf St	Gesner St	Northbound	N/A
	Ticonderoga Ave	Paul Jones Ave		N/A
	Paul Jones Ave	Balboa Ave	Northbound	N/A
Balboa Ave	Moraga Ave	I-5 interchange	Eastbound	N/A
Rose Canyon Bicycle Path	Santa Fe St	La Jolla Colony Dr/Gilman Dr Interchange	N/A	Rose Canyon Bicycle Path (I)
La Jolla Colony Dr	I-5 NB ramp	1,000 feet east of I-5 NB ramp intersection	Eastbound	N/A
Nobel Dr	La Jolla Village Sq entrance	I-5 interchange	Westbound	Both directions (II)
La Jolla Village Dr	I-5 interchange	I-5 interchange	Westbound	N/A
Gilman Dr	West of VA Medical Center parking lot drwy	East of VA Medical Center parking lot drwy	Eastbound	Both directions (II)
Lyman Ave	South of Voigt Dr		Northbound	Northbound (II)
Sixth Ln	East of Lyman Ave		Eastbound; Westbound	Eastbound (II)
Voigt Dr	East of Lyman Ave		Eastbound	N/A
	I-5 overcrossing	Campus Point Dr	Eastbound; Westbound	Eastbound (II)
Campus Point Dr	Voigt Dr	Genesee Ave	Westbound	Both directions (II)
Regents Rd	Genesee Ave	Health Sciences Dr	Northbound	N/A
Genesee Ave	Campus Point Dr	Nobel Dr	Northbound; Southbound	Both directions (II)
	Executive Square	Esplanade Ct/ UTC Drwy	Removal of pedestrian bridges spanning Genesee Ave	
Nobel Dr	East of Genesee Ave		Northeast corner of intersection of Genesee Ave and Nobel Dr	N/A

Source: SANDAG, 2014v
Notes: [1] Class I: bike path (separate right-of-way); Class II: bike lane (striped); Class III: bike route (signed, unstriped)
N/A = not applicable (no affected facility); NB = northbound; UTC = University Towne Centre; VA = Veterans Administration

Genesee Avenue between Regents Road and La Jolla Village Drive. Construction would be phased so traffic movements are not restricted at the adjacent major intersection. Where traffic movement restrictions are in place, pedestrian access across Genesee Avenue would also be prohibited at that intersection. However, pedestrians would be able to cross Genesee Avenue at the adjacent intersection. Because these closures would be temporary and connectivity would be maintained during these closures, the temporary impact would not be considered adverse.

Additionally, the pedestrian bridges spanning Genesee Avenue at Executive Square and south of La Jolla Village Drive would be removed during construction. Under existing conditions, crosswalks do not exist at every approach of the Executive Square, La Jolla Village Drive, or Esplanade Court/UTC Driveway intersections at Genesee Avenue (the intersections closest to the pedestrian bridges), which could impact pedestrian circulation after the bridges are removed.

During construction of the Refined Build Alternative, some Class II bike lanes on roadways would be closed temporarily (Table 3-35). Additionally, construction of mitigation measure TR8 (Table 3-27) would require the temporary closure of the Class II bicycle lane on Pacific Highway between Taylor Street and the OTTC park-and-ride lot access driveway for up to 6 months. Signage would be provided to identify alternate routes for bicyclists. In locations where detours are not available, bicyclists would share the roadway with vehicles. In these locations, roadway speed limits may be reduced. With implementation of these measures, temporary closure of Class II bike lanes would not be considered adverse.

A segment of a Class I bicycle facility, the Rose Canyon Bicycle Path, would require closure between Santa Fe Street and La Jolla Colony Drive during construction. Closure of the Rose Canyon Bicycle Path would result in adverse impacts to bicyclists. Mitigation, including the construction of a temporary bike path, is discussed in Section 3.4.3.3; with mitigation, the impact would not be adverse.

Construction would require nighttime closure of the Ocean Beach Bicycle Path along the San Diego River during erection and demolition of falsework for construction of the San Diego River Bridge. Because the closure would be limited to nighttime, impacts would be minimized on those that use the facility. During the time when the falsework is in place, bicyclists may have to disembark and walk while crossing falsework due to low vertical clearance. These limited and temporary impacts would not be adverse.

Project Measures to Avoid or Minimize Pedestrians and Bicycle Impacts

Pedestrian and bicycle access would be maintained during construction where possible while emphasizing safety. The TMP that would be developed during the design phase of the project would include measures to maintain pedestrian and bicycle access through construction zones with the emphasis on safety. These measures would be developed in consultation with the City of San Diego, UCSD, emergency providers, and other appropriate agencies. Measures to maintain safe and efficient pedestrian and bicycle access would meet ADA requirements and could include the following:

- Provide alternate routes as a result of any pedestrian and bike facility closure during construction where available
- Limit complete closures of pedestrian and bike facilities to locations in which there are no feasible alternatives
- Channel pedestrian flow to areas away from construction zones
- Make extensive use of signage to guide pedestrians and bicyclists to detour routes around or through construction zones
- Use proper deterrents, such as barriers and fencing, to prevent pedestrian access through construction areas
- Install shared-lane pavement markings on travel lanes and temporary signage where lanes would be shared by bicyclists and vehicles during construction; speed limits on roadways may be reduced to ensure safety of bicyclists where they share the roadway with motorists
- Provide warnings to pedestrians and bicyclists in advance of any planned sidewalk and bike facility closures

In coordination with the City of San Diego, SANDAG would develop a traffic control plan that would specify the use of advance warning signs. Pavement markings also would be provided on the Ocean Beach Bicycle Path to inform bicyclists of the reduced headroom clearance and to disembark from their bicycle during construction of the San Diego River Bridge.

If closures of sidewalks on both sides of a roadway at the same time cannot be avoided during construction, temporary pedestrian detours would be provided and identified in the TMP. Signage would be used to guide pedestrians to the detour routes. Proper deterrents, such as barriers or fencing, would be placed to prevent access through the construction area.

Under existing conditions, crosswalks are not provided across all approaches at the intersection of Genesee Avenue and La Jolla Village Drive, which is located between the two pedestrian bridges that would be removed during construction. The missing crosswalks would be temporarily striped at this intersection to allow pedestrian circulation once the pedestrian bridges are removed. The temporary crosswalks would require retiming traffic signals and installing temporary pedestrian signals where they do not exist. With this project measure, there would be no impact to pedestrian circulation on Genesee Avenue because of the removal of the pedestrian bridges. At the end of construction activities, these temporary crosswalks would be removed and access across Genesee Avenue would be provided through the Executive Drive Station and the UTC Transit Center.

With these project measures, the temporary adverse impacts would remain for bicyclists using the Rose Canyon Bicycle Path; however, temporary impacts to pedestrians and bicyclists traveling in other areas of the corridor would not be adverse.

Mitigation for Pedestrian and Bicycle Impacts

A mitigation measure has been proposed to mitigate the temporary impact to the Class I Rose Canyon Bicycle Path:

TCON1 Construct a temporary bicycle path adjacent to the construction site along the Rose Canyon Bicycle Path to maintain access and connectivity. During any short-term, intermittent closures, such as may be required for safety and at the time the temporary path is being constructed, provide informational signs and a detour route along local streets and pathways.

Although intermittent closure of the temporary bicycle path for up to two weeks at a time may still be required during construction for safety and other reasons, connectivity to the Rose Canyon Bicycle Path would be maintained during construction. During such intermittent closures, the public would be notified in advance of the closure and information signs and detour routes along local streets and pathways would be provided. With this mitigation measure, impacts to bicyclists using the Class I Rose Canyon Bicycle Path would not be adverse.

California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application
Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project, as described below.

Would project construction remove pedestrian and/or bicycle facilities?

Significant Impact (Refined Build Alternative). Construction of the project would require closure of some pedestrian and bicycle facilities, as listed in Table 3-35. Additionally, implementation of the mitigation measures at Taylor Street would involve the temporary closure of the Class II bicycle lane on Pacific Highway. Impacts to pedestrian facilities and Class II bike lanes would be temporary, lasting for the duration of construction activity in that area. Detours would be provided where available and impacts would be less than significant. The Class I Rose Canyon Bicycle Path would require temporary closures and, accordingly, the closure would result in a significant impact to bicyclists using this facility.

Significance after Mitigation
With implementation of project measures and TCON1, significant impacts would be eliminated.

3.4.7.4 Parking

Construction would impact on- and off-street parking supply while also generating additional demand for parking to serve construction workers. Project measures and mitigation are proposed where applicable. Parking spaces that are closed during

construction would be restored once construction is complete; therefore, the impacts discussed below would be temporary.

Construction-related Impacts on Parking

On-Street Parking

During construction, it may be necessary to prohibit temporarily on-street parking along segments of West Morena Boulevard and Morena Boulevard. On-street parking would be restricted for the duration that the temporary traffic controls are in place. These on-street parking areas generally are not heavily utilized, and alternate on-street parking areas are available on side streets that intersect West Morena Boulevard and Morena Boulevard. Approximately eight on-street parking spaces would also be temporarily restricted along La Jolla Village Drive east of Genesee Avenue. These spaces represent a small percentage of on-street parking on this roadway. Therefore, the temporary removal of these parking spaces on these streets would not be an adverse impact.

In addition, some on-street emergency access areas would be restricted for the duration that traffic controls are in place. These areas are identified by red curbs and provide for emergency parking near fire hydrants. Through coordination with the City of San Diego Fire-Rescue Department and direction to contractors to provide emergency access to fire hydrants at all times, impacts would not be adverse.

Off-Street Parking

A number of off-street parking locations would be used as staging areas to accommodate construction, thus requiring closure of parking spaces in those areas. Parking would be prohibited once temporary construction easements are put in place, thus resulting in an adverse impact on parking during construction. Table 3-36 lists the number of off-street parking spaces that would be affected during construction; the locations are presented in Figure 3-9. Not all spaces would be affected at the same time.

The parking lots on the West Campus of UCSD are fully utilized, and the loss of parking spaces would cause an adverse impact. As shown in Table 3-36, parking temporarily would be removed at the VA Medical Center. The number of parking spaces affected at the hospital would result in a temporary adverse impact.

Construction Worker Parking

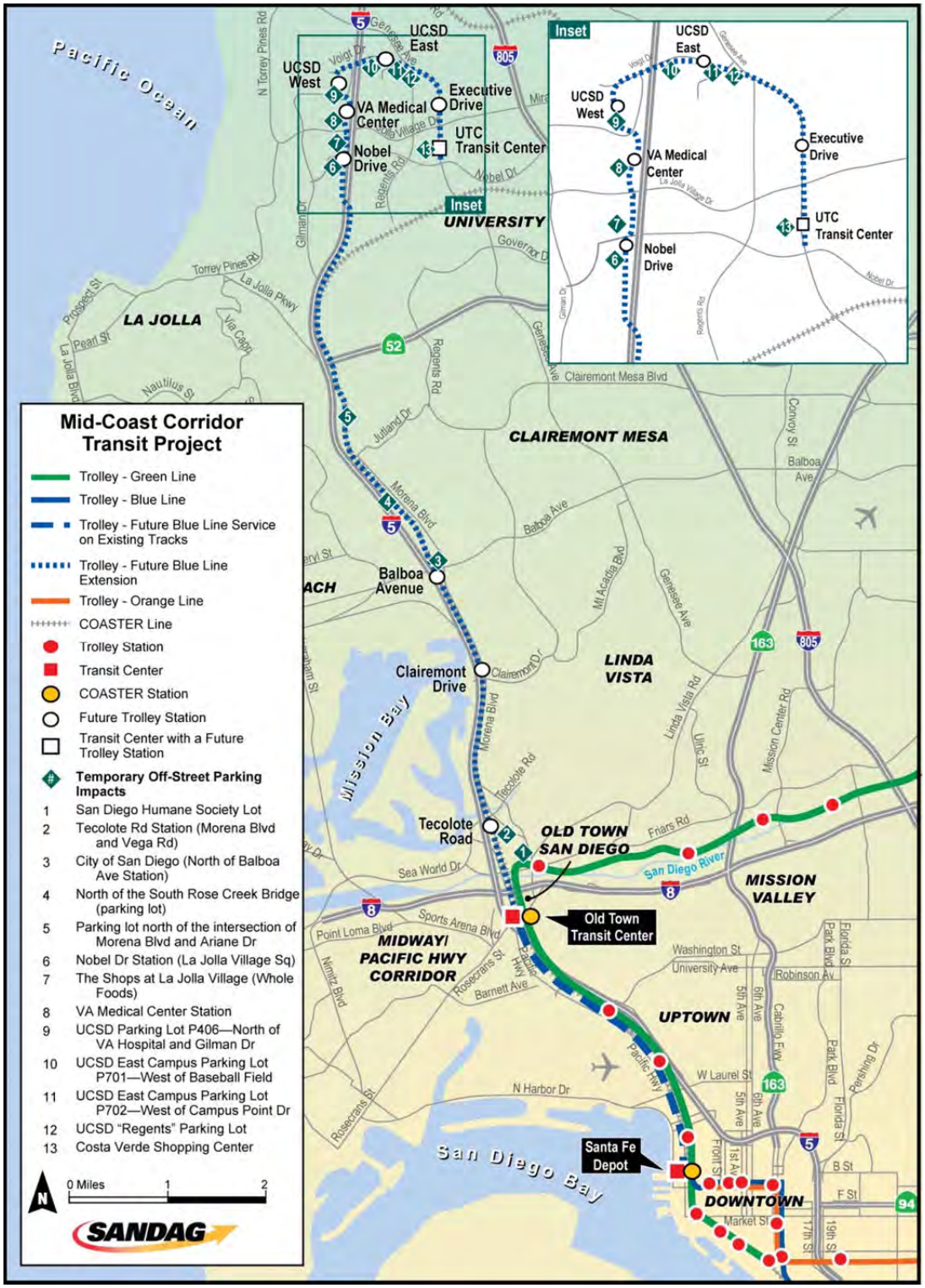
The number of construction workers on the various construction sites at any one time would vary depending on the activities being performed. In most situations, there would be concurrent construction operations and many crews of workers at each site. Off-site parking areas would be needed to accommodate parking demand. Construction staging areas would be used, but additional parking may be required, which would be secured by the contractor as the need arises. Because parking for construction workers is generally provided in designated areas where either an easement or right-of-use has been obtained, or through leases of parking areas negotiated with property owners, construction-worker parking is not expected to have a temporary adverse impact during construction.

Table 3-36. Temporary Off-street Parking Impacts during Construction

Location	Estimated Parking Spaces Removed during Construction	Description of Impacts
San Diego Humane Society parking lot	30	Temporary easement for construction
Tecolote Rd Station (Morena Blvd and Vega Rd)	22	Temporary easements for Tecolote Rd Station construction
City of San Diego (north of Balboa Ave Station)	76	Temporary easements for construction staging area
North of the South Rose Creek Bridge (parking lot)	20	Temporary easements for construction staging area and access road
Parking lot north of the intersection of Morena Blvd and Ariane Dr	33	Temporary easements for construction
Nobel Dr Station (La Jolla Village Square)	512	Construction easement for station parking structure
The Shops at La Jolla Village (Whole Foods)	9	Temporary easement would block access to parking behind Whole Foods
VA Medical Center (parking lot)	70	Temporary easement for station construction
UCSD Parking Lot P406—north of VA Medical Center and Gilman Dr	117	Temporary easement would block access to these parking spaces
UCSD East Campus Parking Lot P701 – west of Baseball Field	135	Temporary easement for construction
UCSD East Campus Parking Lot P702 – west of Campus Point Drive	134	Construction and staging area for UCSD East Station
UCSD “Regents” parking lot	280	Construction staging area
Costa Verde Shopping Center	16	Temporary easement for construction

Source: SANDAG, 2014v
Notes: UCSD = University of California, San Diego; VA = Veterans Administration

Figure 3-9. Temporary Off-Street Parking Impact Locations



Source: SANDAG, 2014v

Project Measures to Avoid or Minimize Parking Impacts

Measures to replace off-street parking spaces that would be lost temporarily during construction would be provided, where feasible, as described below.

At La Jolla Village Square shopping center, a maximum of 512 parking spaces would be affected at any one time during different construction phases. SANDAG would work with the property owner and the contractor to develop an approach to minimize the loss of parking spaces at the shopping center at any one time while maintaining required construction access. This may include constructing the transit parking structure in phases, if feasible, to offset parking affected during construction of the guideway and station. After the parking structure is constructed, parking spaces in the structure would be made available to shopping center patrons during later phases of construction, which include reconstruction of the shopping center parking lot area adjacent to the parking structure. The parking spaces in the transit parking structure would temporarily replace the parking spaces lost during the time when the shopping center parking area adjacent to the structure is being reconstructed. After the parking structure has been made available to shopping center patrons, no adverse parking impact to the shopping center is anticipated.

The contractor would be required to reduce the footprint of parking impacts at the La Jolla Village Square shopping center to the extent feasible during the November-to-January shopping season. With this project measure, parking impacts during construction at the La Jolla Village Square shopping center would be reduced but would remain adverse.

Construction-related vehicle parking would occur at designated off-street parking locations and construction staging areas only. Construction-related vehicles would not be allowed to park in residential neighborhoods or in adjacent commercial or businesses parking areas. To accommodate the construction-worker parking demand, arrangements would be made for nearby off-site parking that could be used by construction workers, and, if appropriate, shuttle service would be provided by the contractors between these parking areas and the work sites. Some identified construction staging areas also could serve as temporary parking lots for construction workers when excess area is not required for material storage. Because parking for construction workers generally would be provided in designated areas where either an easement or right of use has been obtained, construction-worker parking is not expected to have a temporary adverse impact during construction.

Impacts associated with restrictions in access to on-street emergency areas (red curbs) would not be adverse as a result of coordination with the City of San Diego Fire–Rescue Department and direction to contractors to provide emergency access to fire hydrants at all times.

Mitigation for Parking Impacts

The following mitigation measures have been identified to further reduce parking impacts during construction:

TCON2 To offset parking loss at the VA Medical Center, SANDAG would implement one or more of the following measures in coordination with the institution: provision of valet parking, temporary restriping of other areas of their parking lot, issuance of transit passes to employees, and assistance with ridesharing programs for employees.

TCON3 To offset parking loss at office and light industrial buildings, SANDAG would implement one or more of the following measures in coordination with the building management: joint-use parking arrangements with adjacent lots, provision of transit passes to employees, and assistance with ridesharing programs. If parking alternatives cannot be identified, the property owner would be compensated for lost parking.

The limited temporary parking loss at the VA Medical Center is not expected to have an adverse impact after mitigation. A large number of parking spaces would be removed temporarily during construction at the La Jolla Village Square shopping center and the UCSD campus. There is the likelihood that temporary replacement parking would not be available to offset all the parking removed. In these situations, parking impacts would remain adverse.

California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following thresholds of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project.

Would project construction substantially affect parking supply?

Significant Impact (Refined Build Alternative). Construction of the project would remove on-street parking along West Morena and Morena Boulevards and La Jolla Village Drive and off-street parking as listed in Table 3-36 and presented in Figure 3-9. Consequently, there would be significant impacts on parking supply.

Would project construction impede emergency access?

Less-Than-Significant Impact (Refined Build Alternative). Without the project measures described above, construction of the project temporarily would restrict some on-street emergency access areas and would have the potential to result in significant impacts to emergency access. These areas are identified by red curbs and provide for emergency parking near fire hydrants. However, with the project measures, including coordination

with the City of San Diego Fire-Rescue Department and direction to contractors to provide emergency access to fire hydrants at all times, the impact of these restrictions would be less-than-significant. Emergency vehicle access would be maintained at all times to construction work sites, nearby businesses, and residential neighborhoods. In addition, emergency vehicle access would be maintained at all times to and from fire stations, hospitals, schools, and medical facilities near construction areas and along haul routes. Construction activities, planned roadway closures, and haul route operations would be coordinated with fire departments, hospitals, and law enforcement agencies.

Significance after Mitigation
With implementation of TCON3, significant impacts could still occur as temporary replacement parking may not be available to offset all of the parking removed during construction, particularly in University City. After implementation of TCON2, there would not be a significant impact to the VA Medical Center.

Coordination would occur with the City of San Diego Fire-Rescue Department regarding restrictions of on-street emergency access and access to fire hydrants. Impacts would be minimized based on coordination and thus would not be significant.

3.4.7.5 Freight

Construction impacts on vehicular and rail freight are described in the following sections, with project measures proposed where applicable.

Construction-related Impacts on Freight

Vehicular Freight
Several roadways along the proposed alignment and I-5 are used as freight routes. Freight movement on the freeways and roadways listed in Table 3-33 would be affected during construction, particularly during nighttime and off-peak periods when roadways would be closed for construction activities. Nighttime and off-peak closures and detours could delay vehicular freight delivery times; however, because detours, advance notice, and signage would be provided, and because these delays would be of short duration (a few hours or one night at a time), impacts associated with delays to vehicular freight movement would not be considered adverse.

Rail Freight
As stated in Section 3.4.7.1 under the subheading “COASTER and Amtrak,” construction of the Refined Build Alternative within the LOSSAN corridor would occur. Slow orders would be implemented, requiring freight trains to travel at slower speeds near construction zones. At night, construction work may occur along the entire MTS right-of-way, and thus nighttime freight movement could be delayed because of slow orders being applied to additional segments of tracks. However, construction activities during the daytime would be limited to 3 contiguous miles at any one time and freight operation during daytime off-peak periods would not be adversely affected. Close coordination with NCTD and Burlington Northern Santa Fe would optimize construction activities while minimizing the need for slow orders to avoid adverse impacts to freight operations.

Project Measures to Avoid or Minimize Freight Impacts

Measures to avoid or minimize vehicular freight impacts would be similar to the measures used to minimize freeway and roadway impacts, as described in Section 3.4.7.2. Additionally, during project construction, detours for truck traffic would be required; detour routes would avoid U-turns. Signage would be posted to direct freight trucks to detour routes. Placement of falsework would be conducted so as to not preclude trucks from using the driveways, when feasible. The impact on vehicular freight would not be adverse with these project measures.

Mitigation for Freight Impacts

With the measures listed in Section 3.4.7.2, there would be no adverse impacts to vehicular freight during construction. Therefore, no mitigation measures for vehicular freight are required. There would not be adverse impacts to rail freight.

California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed the following threshold of significance for use in evaluating impacts of the Mid-Coast Corridor Transit Project, as described below.

Would project construction impede or slow the transport of freight?

Less-Than-Significant Impact (Refined Build Alternative). As stated previously, construction of the project would result in temporary significant impacts to vehicular freight, increasing the time needed to make deliveries. However, with the project measures described above, these impacts would be less than significant.

Slow orders along the LOSSAN corridor would slow the transport of rail freight. However, because the slow orders during daytime would be limited to 3 contiguous miles, there would be no significant impact on rail freight. Freight delivery during nighttime operation would have adequate time to recover any schedule loss, and the effects of slow orders would be less than significant.

Significance after Mitigation

There would be less-than-significant impacts on vehicular and rail freight.

3.4.7.6 Cumulative Construction Impacts

This section evaluates potential cumulative construction impacts of the Refined Build Alternative, when the impacts of the Refined Build Alternative are combined with existing conditions and reasonably foreseeable future projects in the Mid-Coast Corridor. These projects include planned improvements that are encompassed in the 2030 RTP. The *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s) summarizes the major foreseeable development projects in the study area,

including, among others, projects on the UCSD campus, the Westfield UTC shopping center, La Jolla Commons, the Monte Verde project, the Scripps Memorial Hospital project, the VA Medical Center expansion, construction of direct access ramps as part of the North Coast Corridor Project, and the double tracking of the LOSSAN tracks, which are expected to be under construction concurrently with the Refined Build Alternative from 2014 to 2019.

As described in the previous sections, construction of the Refined Build Alternative would result in temporary traffic disruption and rerouting of traffic, including buses. Such rerouting would contribute to cumulative increases in congestion within the corridor, particularly on roadways and at intersections adjacent to the construction area. Although the majority of the identified construction impacts on transit, traffic circulation, bicycle and pedestrian facilities, parking, and freight would be temporary, these impacts would be unavoidable during the construction period.

During the expected construction period of the Refined Build Alternative, additional impacts associated with construction of some projects, particularly those on the UCSD campus and in the University City area, would compound the construction impacts of the Refined Build Alternative. Although the majority of these construction effects would be localized and temporary, cumulative construction impacts could be considered adverse and unavoidable for short periods during the Refined Build Alternative construction period.

Mitigation for Cumulative Construction Impacts

As described in the previous sections, the Refined Build Alternative includes project measures and mitigation to minimize construction impacts. These measures would reduce the proposed project's construction impacts. Coordination would occur with other agencies and jurisdictions undertaking construction work near the Refined Build Alternative alignment, which would reduce cumulative construction impacts. However, impacts after mitigation would remain adverse and unavoidable during construction.

THIS PAGE INTENTIONALLY LEFT BLANK

4.0 ENVIRONMENTAL ANALYSIS, CONSEQUENCES, AND MITIGATION

This chapter describes the environmental impact analyses, which include both direct and indirect short-term, long-term, and cumulative impacts for the No-Build Alternative and the Refined Build Alternative described in Chapter 2.0. Operations and maintenance are considered long-term impacts. Construction impacts are considered short-term impacts. The analysis considers cumulative impacts from construction and operations and maintenance. A significance determination in accordance with the California Environmental Quality Act (CEQA) also is included. The CEQA analysis considers existing conditions and performance in 2010 and long-term conditions and performance in 2030.

The chapter is organized primarily by major environmental topic. Each section begins with a brief summary of the conclusions reached in the prior environmental documents being supplemented, followed by the conclusions presented in the *Mid-Coast Corridor Transit Project Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report* (SEIS/SEIR) (San Diego Association of Governments [SANDAG], 2013a) and any changes to those conclusions in this Final SEIS/SEIR. The three "prior environmental documents" being supplemented by this SEIS/SEIR are as follows:

- *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (AA/DEIS/DEIR) (Metropolitan Transit Development Board [MTDB], 1995a)
- *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b)
- *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement* (FEIS) (MTDB, 2001)

Each topic then includes a description of regulatory background and methodology, affected environment, environmental impacts (under the National Environmental Policy Act [NEPA]), and project and/or mitigation measures to address impacts. Project measures are incorporated as part of the project and consist of design features, best management practices (BMPs), or other measures (e.g., formation of plans to deal with hazardous materials) required by law and/or permit approvals, that avoid or minimize potential impacts. Where relevant, the project measures were included in the impact analyses presented in this chapter and the supporting technical reports. Appendix E of this document is a compendium of all project measures identified in this chapter and in the supporting technical reports. Upon certification of the Final Supplemental Environmental Impact Report and adoption of the project, SANDAG will use this appendix to ensure implementation.

Mitigation measures are additional actions, not otherwise part of the project, that are designed to avoid, minimize, or compensate for adverse or significant impacts. These measures are required where significant or adverse impacts have been identified based on the impact analyses. All mitigation measures identified in this chapter are presented in the Mitigation Monitoring and Reporting Program, attached to the Record of Decision in Appendix D of this Final SEIS/SEIR.

SANDAG is committed to implementing the project measures and mitigation measures stated in this chapter and the supporting technical reports. Certification of the Final Supplemental Environmental Impact Report and adoption of the project will include a commitment by SANDAG to implement these measures; this commitment is also reflected in the Record of Decision (included as Appendix D) issued by the Federal Transit Administration (FTA) with this Final SEIS/SEIR.

This chapter includes separate sections discussing the relationship between short-term uses of the environment and long-term productivity, as well as irreversible and irretrievable commitment of resources, and provides a list of anticipated required permits. Construction, growth-inducing, and cumulative impacts also are discussed in separate sections. Technical reports have been prepared that provide more detailed supporting analyses for most environmental topics; these are cited as appropriate. Refer to Appendix A for a complete list of technical reports and memoranda prepared in support of the SEIS/SEIR.

The analysis in this chapter is based on federal and state requirements. NEPA and CEQA require the evaluation of impacts of proposed government actions on the environment. In addition to regulations from the Council on Environmental Quality (CEQ), the U.S. Department of Transportation (USDOT), through the FTA and the Federal Highway Administration (FHWA), has adopted regulations to implement NEPA. The California *CEQA Guidelines* provide guidance to implement CEQA. Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

This chapter has been revised since publication of the Draft SEIS/SEIR (SANDAG, 2013a) to reflect the approval of the refinements to the Build Alternative (now referred to as the Refined Build Alternative) by the SANDAG Board of Directors for evaluation in the Final SEIS/SEIR. The Refined Build Alternative includes the Veterans Administration (VA) Medical Center Station and excludes the Genesee Avenue Design Option, as well as the other refinements described in Chapter 2.0, Section 2.3. As a result, the evaluation of the Genesee Avenue Design Option has been eliminated from the sections within this chapter. Revisions to this chapter have also been made based on comments received during the review and comment periods for the Draft SEIS/SEIR and the *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/ Supplement to the Subsequent Environmental Impact Report* (Supplement) (SANDAG, 2014ee) and any new or additional analysis required in response to the comments or as a result of the refinements to the project (Chapter 1.0, Section 1.1 and Chapter 8.0 Section 8.7 provide additional information on the Supplement). Refer to the individual sections within this chapter for a discussion of the specific changes made to the analysis and mitigation measures since publication of the Draft SEIS/SEIR.

Many of the technical reports prepared in support of the Draft SEIS/SEIR have been updated to reflect the refinements to the Build Alternative and comments received on the Draft SEIS/SEIR or Supplement, including any new or additional analysis. The analyses and conclusions presented in some technical reports were not affected by the

refinements to the Build Alternative or comments on the Draft SEIS/SEIR or Supplement; therefore, the following reports did not require updates:

- *Mid-Coast Corridor Transit Project Energy Impacts Technical Report* (SANDAG, 2014g)
- *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l)
- *Mid-Coast Corridor Transit Project Safety and Security Impacts Technical Report* (SANDAG, 2014n)

Additionally, six new reports have been prepared as a result of the development of the Refined Build Alternative, further studies, or in response to comments on the Draft SEIS/SEIR. The following reports were created after the Draft SEIS/SEIR review and comment period:

- *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment*[1] (SANDAG, 2014a)
- *Mid-Coast Corridor Transit Project Balboa Avenue Station Relocation Study Technical Memorandum* (SANDAG, 2014cc)
- *Mid-Coast Corridor Transit Project Construction Monitoring Plan*[1] (SANDAG, 2014c)
- *Mid-Coast Corridor Transit Project Cultural Resources Discovery Plan*[1] (SANDAG, 2014b)
- *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report* (SANDAG, 2014ee)
- *Mid-Coast Corridor Transit Project Tecolote Road Station Layout Options Technical Memorandum* (SANDAG, 2014bb)

[1] This document contains sensitive information regarding the location of archaeological sites and is not available to the public or other unauthorized persons.

4.1 Land Use Plans and Policies

This section evaluates the impacts of the No-Build and Refined Build Alternatives on land use and development. Local policies for land use and development regulate the types of uses allowed, as well as the intensity of development permitted on public and private property. As new development results in changes to land use patterns, the character of an area can be affected and adverse physical effects to the environment may occur. For additional information, refer to the *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report* (SANDAG, 2014d) prepared in support of the SEIS/SEIR.

The prior environmental documents concluded that the Mid-Coast Corridor Transit Project was consistent with local land use plans and policies.

The analysis in the Draft SEIS/SEIR determined that the Build Alternative remains consistent with local land use plans and policies and would not result in any adverse or significant land use or development impacts under NEPA or CEQA. This section has been revised since the Draft SEIS/SEIR; specifically, impacts within the Multi-Habitat Planning Area (MHPA) have been revised based on the updated analysis for biological resources.

Following the Draft SEIS/SEIR review period, the California Coastal Commission (CCC) provided a formal Coastal Zone boundary determination (refer to Appendix C for the correspondence regarding this determination). The Coastal Zone boundary differed from the boundary presented in the Draft SEIS/SEIR in the area between the San Diego River and Balboa Avenue. As a result, this Final SEIS/SEIR addresses the additional portion of the project that is within the Coastal Zone and includes an updated evaluation of consistency with the California Coastal Act (Coastal Act).

As discussed further in Section 4.1.3.2, the project would be consistent with the Coastal Act because it supports important policies regarding water quality, air quality, energy conservation, reduction in vehicle miles traveled, public access, and public transit, and on balance, the Refined Build Alternative is the more protective of coastal resources than the No-Build Alternative.

With the exception of new information regarding consistency with all policies of the Coastal Act, the conclusions of the land use impacts analysis remain unchanged for the Refined Build Alternative. The Refined Build Alternative remains consistent with all applicable local land use plans and policies and would not result in any adverse or significant land use or development impacts under NEPA or CEQA. The Preface in the *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report* (SANDAG, 2014d) contains additional information on the changes made to the technical report since the Draft SEIS/SEIR.

4.1.1 Regulatory Background and Methodology

Land use is regulated primarily at regional and local levels in accordance with state planning and zoning laws, Government Code Section 65000 et seq. The Mid-Coast Corridor is located within the City of San Diego in San Diego County. For San Diego

County, SANDAG defines the regional vision and planning principles (such as integrating land use and transportation); within the City of San Diego, the city defines and regulates local land uses through its general plan and zoning. Additionally, portions of the Mid-Coast Corridor Transit Project are located within the University of California, San Diego (UCSD) campus, where land use is regulated by the University of California Regents.

Portions of the project are located within or near the Coastal Zone, which is regulated by the CCC pursuant to the Coastal Act and in accordance with the Coastal Zone Management Act (CZMA) of 1972 (16 United States Code [USC] 1451-1464). The Coastal Act provides the standard of review for the portions of the project within the Coastal Zone and requires findings of project consistency with specific policies related to public access and recreation, habitat protection, visual resources, and water quality, among others, for issuance of a Coastal Development Permit (CDP). The CCC is responsible for issuance of the project CDP. Section 30007.5 of the Coastal Act requires the CCC to resolve conflicts between Coastal Act policies in a manner that on balance is most protective of coastal resources.

Because the project involves federal support, it would also require a consistency determination in accordance with the CZMA. The CZMA was passed in 1972 to encourage coastal states to develop and implement coastal zone management plans to protect, preserve, and enhance the coastal zone. It is implemented by the CCC through the federal consistency review process, which requires a finding that the project is consistent with the California Coastal Management Program (CCMP). The enforceable policies of this program are in Chapter 3 of the Coastal Act. Consistency with the Coastal Act generally satisfies the requirement for consistency review. CCC permits and approvals are discussed in Section 4.22 of this Final SEIS/SEIR, and impacts to biological resources within the Coastal Zone are discussed in Section 4.8.

Other agencies at the federal and state levels also play a role in land use decisions. These agencies' plans and policies regulate the types of uses allowed and the intensity of development permitted on public and private property. The *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report* (SANDAG, 2014d) contains detailed information on the state, regional, and local land use plans and policies reviewed for this analysis, including, but not limited to, the following:

- *UCSD Master Plan* (UCSD, 1989)
- *UCSD 2004 Long Range Development Plan* (UCSD, 2004a)
- *University Center/Sixth College Neighborhoods Planning Study* (UCSD, 2004b)
- *UCSD East Campus Health Sciences Neighborhood Planning Study* (UCSD, 2000)
- *Old Town San Diego State Historic Park Resource Management Plan and General Development Plan* (California Department of Parks and Recreation, 1977)
- *Regional Comprehensive Plan for the San Diego Region* (RCP) (SANDAG, 2004a)
- *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a)
- *City of San Diego General Plan* (City of San Diego, 2008a)

- *Old Town San Diego Community Plan* (City of San Diego, 1987)
- *Mission Valley Community Plan* (City of San Diego, 1985)
- *Linda Vista Community Plan and Local Coastal Program Land Use Plan* (LCP LUP) (City of San Diego, 1998a)
- *Clairemont Mesa Community Plan* (City of San Diego, 1989)
- *Pacific Beach Community Plan and LCP LUP* (City of San Diego, 1993)
- *La Jolla Community Plan and LCP LUP* (City of San Diego, 2001)
- *University Community Plan* (City of San Diego, 1986)
- *North City Local Coastal Program Land Use Plan* (City of San Diego, 1981)
- *City of San Diego Multiple Species Conservation Program (MSCP) Subarea Plan* (City of San Diego, 1997)
- *North Bay Redevelopment Plan* (City of San Diego, 1998b)
- *Transit-Oriented Development Design Guidelines* (City of San Diego, 1992)
- *Mission Bay Park Master Plan Update* (City of San Diego, 1994a)
- *Draft 2010 San Diego River Park Master Plan* (City of San Diego, 2010a)
- *City of San Diego Bicycle Master Plan Update* (City of San Diego, 2011b)

SANDAG is the metropolitan planning organization for the region. The 2030 RTP and the RCP were used to identify transportation priorities in the San Diego region. These plans support smart growth policies that rely on the integration of transit and land use. The *2050 Regional Transportation Plan: Our Region, Our Future* (2050 RTP) (SANDAG, 2011a) was also reviewed, and it was determined that it does not identify additional projects that would influence the land use review for this project.[2] For a further description of the differences between the 2030 and 2050 RTPs, refer to Chapter 2.0.

At the local level, the City of San Diego, through its general plan, has implemented policies to guide future land use development in its various community planning areas. The *City of San Diego General Plan* (City of San Diego, 2008a) Strategic Framework Element establishes the "City of Villages" smart growth strategy, which targets growth into mixed-use activity centers that are pedestrian-friendly districts linked to an improved regional transit system. In coordination with the general plan, community plans outline various policies to improve neighborhood quality of life and to ensure compatible development. In general, the community plans within the Mid-Coast Corridor share the following primary goals and objectives as they relate to the project:

- Facilitate the use of alternative modes of transportation by supporting light rail transit (LRT)

[2] The *2050 RTP/Sustainable Communities Strategy Final Environmental Impact Report* (SANDAG, 2011c), which is the subject of an ongoing legal challenge, was also consulted for informational purposes, but its analysis was not relied upon in the SEIS/SEIR.

- Support the provision of efficient and high-level public transportation (e.g., LRT)
- Support the provision of a comprehensive access network of transit stations and supportive uses that enhance regional accessibility to high-activity and high-density areas

Located in the northern portion of the corridor, UCSD also has developed provisions for its campus-wide land use decisions. Development on the UCSD campus is guided by the *UCSD Master Plan* (UCSD, 1989), the *UCSD 2004 Long Range Development Plan* (UCSD, 2004a), and various neighborhood plans. These plans anticipate future campus growth and emphasize the importance of using alternative transportation, including LRT.

For this analysis, the land use study area consists of the area 500 feet on each side of the project alignment (the corridor area) and the areas within one-half mile around the project stations (the station areas). The land use impact assessment evaluated project compatibility with surrounding land uses and consistency with land use plans and policies.

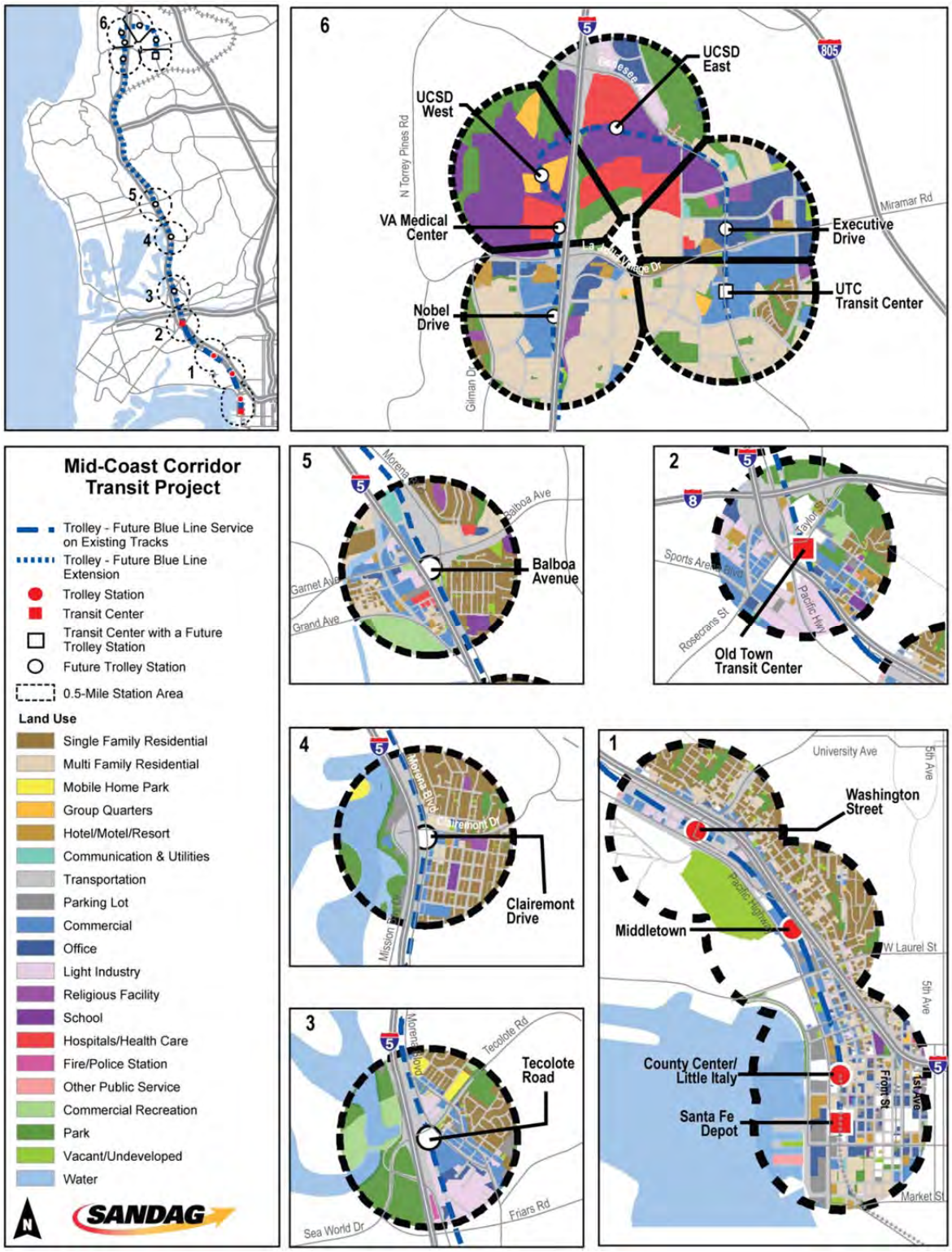
4.1.2 Affected Environment

As identified in Section 1.2.2, the Mid-Coast Corridor is a major regional destination with many key activity centers. The corridor contains two large urban nodes—Downtown San Diego in the southern end and University City[3] in the northern end—each of which includes a mix of office, commercial, and multifamily residential uses. Downtown San Diego has the highest employment density in San Diego County, followed by University City. Regional hospitals, universities, shopping centers, and parks also are located in the corridor, as shown in Figure 1-1 in Chapter 1.0.

Governmental agencies typically classify land uses into several general categories, including residential (either single-family or multifamily), commercial, office, industrial, public, and recreation. These general categories are broken down into more specific land use categories. Figure 4-1 shows existing land uses within one-half mile of proposed station areas, which vary widely in character and density. Figure 4-2 provides a more detailed breakdown of existing land uses in each proposed station area by percentage of total land use. Portions of the land use study area along the project alignment are located within the Coastal Zone, including the portions of the project within the Metropolitan Transit System (MTS) right-of-way between the San Diego River and Balboa Avenue. In addition, small sections of the UCSD West and UCSD East Campus areas west of Interstate (I-) 5 and north of Voigt Drive on the UCSD campus are also in the Coastal Zone. The portions of project development that are within the Coastal Zone would require a CDP from the CCC as it retains permit jurisdiction within these areas. Demonstrating consistency with specific Coastal Act policies must be satisfied for issuance of a CDP, including policies related to public access and recreation, habitat protection, visual resources, and water quality, among others.

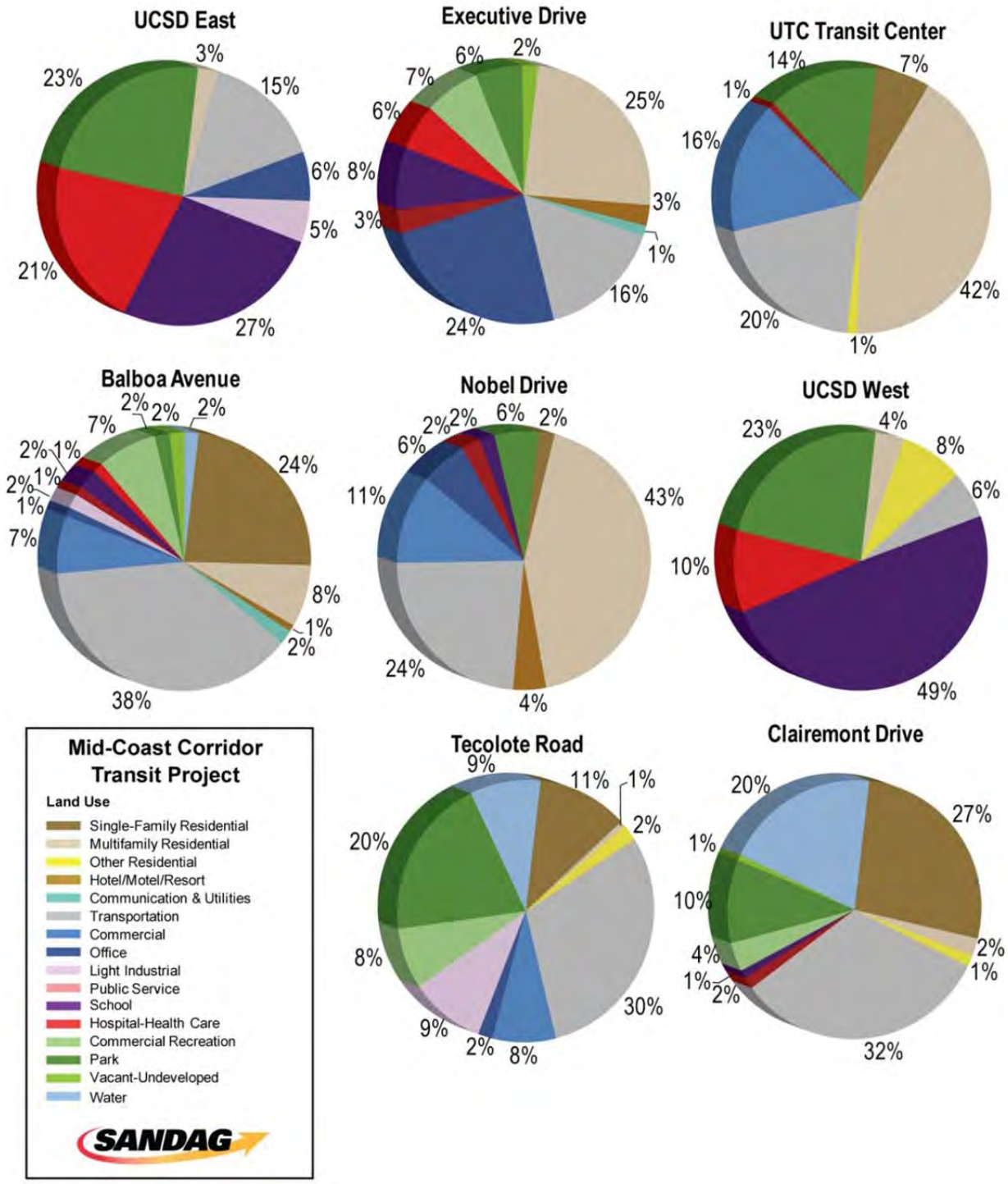
[3] The name "University City" is commonly used to refer to the entire University community planning area; however, University City also is a defined neighborhood within the University community planning area. Within this document, the term "University City neighborhood" will be used, as appropriate, to distinguish the neighborhood from the community. As with other community planning areas, University City is located within the City of San Diego.

Figure 4-1. Existing Land Uses



Source: SANDAG, Current Land Use Shapefile, 2009; SANDAG, 2014

Figure 4-2. Existing Land Uses within One-half Mile of Refined Build Alternative Stations



Source: SANDAG, Current Land Use Shapefile, 2009; SANDAG, 2014

Note: The VA Medical Center Station is less than 1 mile from adjacent stations—the UCSD West and the Nobel Drive Stations. Land uses within one-half mile of the VA Medical Center Station are very similar to land uses around these adjacent stations.

As mapped in 2009, at the Tecolote Road, Clairemont Drive, and Balboa Avenue station areas, transportation land uses, including I-5 and the MTS right-of-way, comprise approximately 30 to 38 percent of total land use. At the UCSD West and UCSD East station areas, 49 and 27 percent of total land use is school use, as these stations are located on the UCSD campus (note: the half-mile station areas extend beyond the campus boundaries). The Nobel Drive and University Towne Centre (UTC) Transit Center station areas have a large share of multifamily residential uses (43 and 42 percent, respectively), while multifamily and office uses each comprise approximately 25 percent of the Executive Drive station area. The VA Medical Center Station is near the Nobel Drive and UCSD West station areas and is largely comprised of school and hospital uses. Outside these station areas and within the corridor area, the project alignment mostly would be located within the existing railroad right-of-way, with adjacent uses including, but not limited to, transportation (e.g., I-5), light industrial, commercial, residential, and park uses. In Rose Canyon, the project alignment would be located within the existing MTS right-of-way.

The land uses permitted on privately owned properties are dependent on the zoning designations for each parcel. Zoning typically regulates the uses allowed, height and setback of buildings, and the amount of parking that must be provided. Accordingly, zoning also was evaluated to assess existing and future development in the corridor. Overlay zones can alter the requirements of a zoning designation, often to either ease or restrict development based on broader community goals; for instance, a transit overlay would reduce the amount of parking that a private property would be required to provide because transit is a viable option. Overlay zones have been implemented for the five existing San Diego Trolley (Trolley) Blue Line station areas from the Santa Fe Depot to the Old Town Transit Center (OTTC) to attract higher density development that is consistent with transit-oriented development (TOD). Most areas adjacent to the proposed new stations are permitted to develop at the highest development intensity within the Mid-Coast Corridor, transitioning to lower-density uses (e.g., single-family residential) in the areas farther from the proposed stations. Plans for the UCSD campus anticipate future growth and development supported by LRT.

4.1.3 Environmental Impacts

This section describes the compatibility of the No-Build and Refined Build Alternatives with surrounding land use and development, and consistency with local land use plans and policies.

4.1.3.1 No-Build Alternative

The No-Build Alternative assumes implementation of transportation improvements included in the 2030 RTP, except implementation of the Mid-Coast Corridor Transit Project. Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be constructed and service on bus Route 150, which operates between Downtown San Diego and the University area, would be continued and enhanced. The No-Build Alternative assumes regional growth and development consistent with the 2030 RTP.

Under the No-Build Alternative, buses would operate on existing or planned roadways, and no physical improvements would be required for improving transit services other

than the minor construction associated with new bus shelters within existing rights-of-way. Enhanced bus service typically would not result in land use changes. No adverse impacts to land use compatibility would be expected to occur under the No-Build Alternative. The No-Build Alternative would not require ground disturbance and would not result in impacts to biological resources; therefore, the No-Build Alternative would be consistent with the *City of San Diego MSCP Subarea Plan* (City of San Diego, 1997).

The 2030 RTP includes the Mid-Coast Corridor Transit Project. Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented; therefore, the No-Build Alternative would be inconsistent with the 2030 RTP. The No-Build Alternative also would be inconsistent with local land use goals and policies. Most of the identified transportation and land use goals and policies in the Mid-Coast Corridor aim to reduce automobile usage, increase intensity of development along transit corridors, seek cooperation and joint-development opportunities, enhance regional connectivity, minimize environmental impacts, and maximize transit ridership. Since the mid-1980s, communities in the study area have been identifying the Mid-Coast Corridor Transit Project in their plans and have been planning for its implementation. Additionally, SANDAG has designated the project station areas as smart growth opportunity areas, and the City of San Diego has developed the "City of Villages" strategy of integrating land use and transit to address potential growth. The transit improvements in the Mid-Coast Corridor associated with the No-Build Alternative are inconsistent with these strategies. This inconsistency with local plans and policies is considered an adverse impact.

Land use policies of the Coastal Act are not impacted by the No-Build Alternative because it would not trigger any new development within the Coastal Zone. The No-Build Alternative would conflict with the UCSD goals and policies that envision expanding alternative forms of transportation on campus. Therefore, an adverse impact would occur related to UCSD goals and policies, but no adverse effects would occur related to conflict of the No-Build Alternative with the Coastal Act.

4.1.3.2 Refined Build Alternative

The project alignment under the Refined Build Alternative would be located primarily within the existing MTS right-of-way from the Santa Fe Depot to Gilman Drive, which generally runs parallel to I-5. North of Gilman Drive, the alignment would be located adjacent to I-5, on the UCSD campus, and within existing roadway rights-of-way. The alignment would be in proximity to residential, commercial, and institutional uses. In addition, south of State Route (SR) 52, the alignment, located within the MTS right-of-way, is adjacent to open space areas that are designated MHPA as part of the city's MSCP subarea. Open space and designated MHPA also occur within the San Diego River floodplain.

The Refined Build Alternative would be consistent and/or compatible with each of the goals, objectives, policies, and plan recommendations of the 2030 RTP, the RCP, the general plan, and community plans because the project would reduce automobile use, provide transit stations in areas supportive of TOD, enhance regional connectivity, minimize environmental impacts, and maximize transit ridership. Opportunities for the corridor to develop in a more sustainable way would be enhanced by the project.

The Refined Build Alternative would be consistent with the Coastal Act because it supports important policies regarding water quality, air quality, energy conservation, reduction in VMT, public access, and public transit, and on balance, is more protective of coastal resources than the No-Build Alternative. Specifically, the Refined Build Alternative would be consistent with the policies of the Coastal Act that provide for preservation and enhancement of visual resources, water quality, air quality, energy conservation, reductions in vehicle miles traveled (VMT), public access, and public transit. However, because a small portion of project development would involve fill of coastal wetlands and impacts to a potential environmentally sensitive habitat area (ESHA), the project creates a potential conflict between the allowable use tests of the wetland and ESHA policies (Section 30233(a) and (c) and 30240(a)) on the one hand, and water quality, air quality, energy conservation, VMT reduction, public access, and public transit policies (Sections 30231, 30232, 30253(a)(c) and (d), 30254, 30210, 30212.5, and 30252) on the other. Section 30007.5 of the Coastal Act requires the CCC to resolve such conflicts in a manner that on balance is most protective of coastal resources.

The project has been designed to minimize wetland impacts to the maximum extent practicable, and would include off-site restoration, creation, and enhancement activities that mitigate the project's impacts and result in an overall increase in wetland habitat. Further, the impacts to the potential ESHA would be mitigated through off-site restoration, creation, and enhancement activities that would increase higher-quality habitat for the species affected. Additionally, implementation of the project would improve water and air quality, conserve energy, reduce VMT, and improve public access and public transit, benefits which would not be feasible absent the project. These benefits of the project, combined with the minimization and mitigation measures, support a finding that proceeding with the project would be most protective of coastal resources and would be consistent with the conflict resolution requirements of Section 30007.5. Therefore, inconsistencies with the coastal wetlands and ESHA policies would not be considered adverse, and the project is consistent with the Coastal Act. A final determination on the project's consistency with the Coastal Act will be made by the CCC as part of the CDP process.

The Refined Build Alternative also would be consistent with the *MSCP Subarea Plan* (City of San Diego, 1997). There would be 0.26 acre of long-term impacts to biological resources (i.e., wetlands and Tier II vegetation communities[4]) within the MHPA. However, these impacts would be confined primarily to the existing railroad right-of-way, are relatively small areas, and would not represent the expansion of existing or the introduction of new land uses within the MHPA. Therefore, although limited impacts would occur within the MHPA, the project would not be inconsistent with the MSCP, and impacts would not be considered adverse. Refer to Section 4.8 for additional details regarding impacts related to the MHPA.

The Refined Build Alternative would not result in land use incompatibility. Within the study area, adverse impacts would be avoided or mitigated with the exception of construction impacts. As described in Section 3.4.2, operation of the Refined Build Alternative would result in adverse and unavoidable impacts on traffic. As described in Sections 3.4.7 and

[4] Wetland vegetation communities include Disturbed Wetlands and Riparian and Bottomland Habitat. Tier II vegetation communities include Scrub and Chaparral.

4.17, construction of the Refined Build Alternative would result in short-term transportation, air quality, and noise impacts, which would remain adverse and unavoidable. However, these impacts are not considered adverse land use impacts.

The existing station areas, which have been supporting Trolley service since 1996, have been and would continue to be compatible with this high-capacity transit system. Land uses in these areas include high-density residential and office uses, destination-oriented uses such as the Old Town San Diego State Historic Park, commercial uses, and light industrial uses. The Refined Build Alternative would not introduce a new land use within the corridor and/or new station areas (with the exception of the UCSD West Station) and would be compatible with existing land use and zoning. While the UCSD West Station would introduce a new campus land use, the *UCSD Master Plan* (UCSD, 1989) and the *University Center/Sixth College Neighborhoods Planning Study* (UCSD, 2004b) anticipate this transportation facility and have proposed compatible adjacent land uses.

Based on the maps from the State of California Farmland Mapping and Monitoring Program, the Refined Build Alternative would not impact prime farmland, unique farmlands, or farmlands of statewide importance. The Refined Build Alternative would result in the elimination of a temporary urban farm located on the UCSD campus in Pepper Canyon. However, it is not located on prime or unique farmland or farmland of statewide importance. The temporary urban farm was approved by the UCSD Physical Planning Department in September 2010. The authorization stated that an 8,800-square-foot area in Pepper Canyon could be used temporarily for an urban farm until construction of the planned Mid-Coast Corridor Transit Project or for a period not to exceed three years (UCSD, 2010). This small area is not illustrated on the state's farmland maps and is a temporary use that is to cease operation once the project begins construction. The alignment would be elevated over 60 feet at this location. In summary, no adverse impacts to farmlands identified by the State of California Farmland Mapping and Monitoring Program would result from the Refined Build Alternative.

4.1.4 Mitigation Measures

Mitigation measures for impacts to coastal wetlands and ESHA are described in Section 4.8.4 and Section 4.17.3.2 under the “Ecosystems and Biological Resources” heading. The Refined Build Alternative would be compatible and consistent with all applicable land use plans and policies.

4.1.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.1.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

Significant Impact (No-Build Alternative). As stated in Section 4.1.3.1, under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented, which would be inconsistent with the land use plans and policies that have identified future Trolley service and envision and encourage additional public transit and TOD. The continuation and enhancement of bus Route 150 would not be sufficient to provide the level of transit service defined in the local and regional land use and transportation plans. Therefore, the No-Build Alternative would conflict with applicable land use plans, policies, and regulations and would result in a significant land use impact.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not conflict with applicable regional and local land use plans, goals, objectives, policies, or regulations, including, but not limited to, UCSD and SANDAG plans and policies. As described in Section 4.1.3.2, the Refined Build Alternative is consistent with the Coastal Act because it supports important policies regarding water quality, air quality, energy conservation, reduction in VMT, public access, and public transit, and on balance, is more protective of coastal resources than the No-Build Alternative.

The Mid-Coast Corridor Transit Project has been anticipated in several plans, and implementation of the project would facilitate regional plans and policies that envision and encourage additional public transit and TOD, particularly regional plans for smart growth at major activity centers. In addition, the Refined Build Alternative would be consistent with SANDAG's regional goals and policies identified in the RCP and the 2030 RTP. Therefore, no impacts would occur under the Refined Build Alternative.

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

No Impact (No-Build Alternative). The No-Build Alternative would not involve construction near biological resources, and thus would not be inconsistent with the MSCP.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not conflict with the MSCP. Refined Build Alternative impacts on biological resources within the MHPA would be confined primarily to the existing railroad right-of-way and would not represent the expansion of existing, or the introduction of new, land uses within the MHPA. Therefore, although limited impacts would occur within the MHPA, the project would not be inconsistent with the MSCP, and impacts would not be considered significant. For a more detailed description of these impacts and mitigation, refer to Section 4.8 of this document and the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u).

Would the project result in incompatible land uses?

No Impact (No-Build Alternative). The No-Build Alternative would not result in any new land uses that that have the potential to create an incompatibility.

Less-Than-Significant Impact (Refined Build Alternative). As explained in Section 4.1.3.2, although the Refined Build Alternative may influence surrounding land use and development, the project would not be incompatible with existing or planned land uses.

Would the project convert prime farmland, unique farmland, or farmland of statewide importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to a non-agricultural use, or conflict with existing zoning for agricultural use?

No Impact (No-Build Alternative). The No-Build Alternative would not affect prime farmland, unique farmland, or farmland of statewide importance.

No Impact (Refined Build Alternative). As stated in Section 4.1.3.2, the Refined Build Alternative would not affect prime farmland, unique farmland, or farmland of statewide importance.

4.1.5.2 Significance after Mitigation

The Refined Build Alternative would be compatible and consistent with applicable land use plans and policies.

4.2 Community and Neighborhoods

This section evaluates the impacts of the No-Build and Refined Build Alternatives on communities and neighborhoods. The analysis presented in this section relies on the analysis presented in the separate Land Use (Section 4.1), Visual (Section 4.4), Air Quality (Section 4.5), Noise (Section 4.7), Safety (Section 4.13), Transportation (Section 3.4), and Socioeconomic (Section 4.3) sections within this document. For additional information, refer to the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e) prepared in support of the SEIS/SEIR.

The prior environmental documents concluded that the project would not substantially alter community cohesion and character and would not result in an adverse impact.

The Draft SEIS/SEIR concluded that the Genesee Avenue Design Option would substantially change the character of Genesee Avenue within the University City neighborhood and thus would result in an adverse impact under NEPA and a significant impact under CEQA.

This section has been revised since the Draft SEIS/SEIR to reflect the refinements to the alignment within the La Jolla community and the University City neighborhood, as well as the elimination of the Genesee Avenue Design Option. Additionally, the summary of moderate noise impacts has been revised based on the updated noise analysis (as documented in Section 4.7 of this Final SEIS/SEIR). The Refined Build Alternative does not include the Genesee Avenue Design Option. As a result, the impacts associated with the Genesee Avenue Design Option have been eliminated. This section concludes that the Refined Build Alternative would not substantially alter community cohesion and character and would not result in an adverse impact under NEPA or a significant impact under CEQA.

Additionally, revisions were made to Chapter 5.0 of the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e) to reflect the refinements to the Build Alternative within the La Jolla community and the University City neighborhood. The impacts within these communities either decreased or did not change significantly with the project refinements, and the evaluation concludes that with mitigation the Refined Build Alternative would not result in new or increased impacts to the La Jolla community or the University City neighborhood. The Preface of the Social, Community, and Neighborhood Impacts Technical Report further summarizes the changes made to the technical report since the Draft SEIS/SEIR.

4.2.1 Regulatory Background and Methodology

The City of San Diego is divided into a series of community planning areas, or communities; each community has its own land use plan that guides decisions about future land use, transportation, and community facilities. Community and neighborhood development within the City of San Diego is guided by zoning and policies contained in the general plan and various community plans, as described in Section 4.1. On the UCSD campus, the *UCSD Master Plan* (UCSD, 1989) continues the vision of the original long-range development plan, prepared for UCSD in 1963, which envisioned UCSD as a campus of neighborhoods.

The study area used to determine impacts of the project focused on the communities and neighborhoods within one-half mile of the project alignment. Although there are no adopted

neighborhood areas (except within Downtown San Diego), the San Diego Geographic Information Source (SanGIS) provides the most comprehensive breakdown of neighborhoods within the city. These SanGIS neighborhood boundaries were slightly reconfigured to match the most recent 2010 U.S. Census block group boundaries so that data from the 2010 U.S. Census and the 2006–2010 American Community Survey (U.S. Census Bureau, 2012a; 2012b) were representative of the geographical depictions of the neighborhoods. Geographic information system datasets from SanGIS and Esri supplied further information regarding public services and recreational facilities in the study area.

The analysis approach of the impacts on community cohesion and character was derived from the *Community Impact Assessment*: *A Quick Reference for Transportation* (FHWA, 1996). The analysis determined whether the project would create physical, social, or perceived barriers within an established community or neighborhood; disrupt access to community assets; or displace community assets or institutions. The analysis also determined whether impacts would occur to vulnerable populations, such as the elderly, children, veterans, and persons with disabilities. The level of an environmental impact can be greater for members of vulnerable populations than it would be for the general public; for example, children and the elderly may be more sensitive to localized air quality emissions.

Any land use, visual, air quality, noise, safety, transportation, and socioeconomic impacts were reviewed to determine which community or communities would be affected. The long-term direct and indirect impacts on each of the communities in the study area were evaluated, describing qualitative—and where possible, quantitative—impacts associated with the changes to these communities.

4.2.2 Affected Environment

This section describes the existing population, housing, and employment in the overall Mid-Coast Corridor based on data from the U.S. Census Bureau. It also describes the communities and neighborhoods (including demographics), and community, park, and recreational facilities within the study area.

4.2.2.1 Population, Housing, and Employment

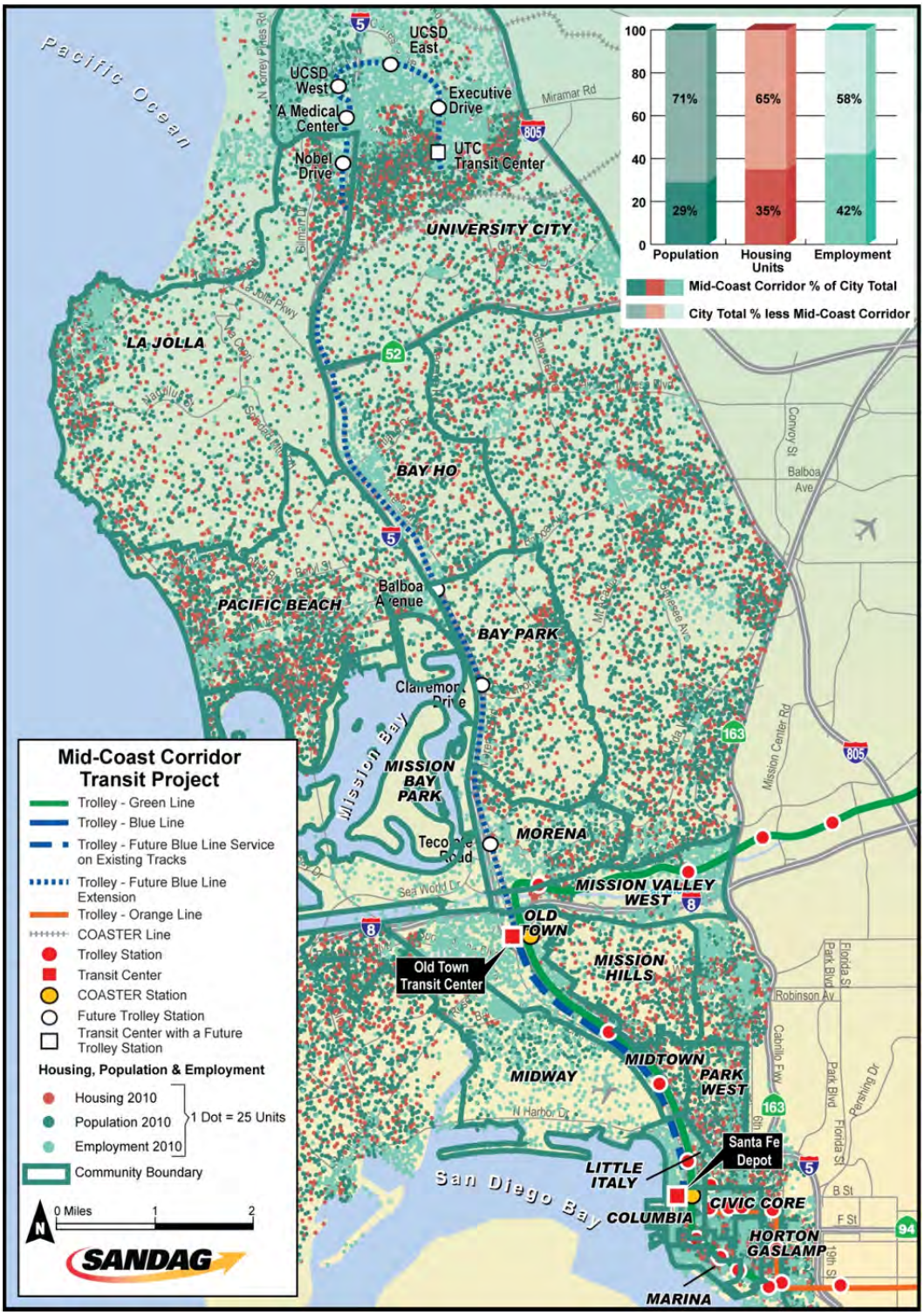
As shown in Table 4-1, in 2010, the Mid-Coast Corridor had 385,600 people and 366,100 jobs, which is 29 and 42 percent of the city total, respectively. This population and employment are distributed throughout the city's communities and neighborhoods, although they are more concentrated in some communities. The population density in the corridor is approximately 4,800 persons per square mile. Figure 4-3 presents 2010 housing, population, and employment densities in the corridor, which is concentrated in University City and Downtown San Diego.

Table 4-1. Population, Housing, and Employment—2010

Area	Population	Housing	Employment
Mid-Coast Corridor	385,600	170,300	366,100
City of San Diego	1,342,500	490,000	879,500

Source: U.S. Census Bureau, 2012a

Figure 4-3. Population, Housing, and Employment Density in the Mid-Coast Corridor



Source: U.S. Census Bureau, 2012a

In 2010, the corridor contained approximately 170,300 housing units, which is 35 percent of the city's housing stock. The corridor has a higher proportion of renters than the city (60 percent versus 54 percent) and therefore a lower proportion of owner-occupied housing units. The corridor has an average median household income of $70,183.

The corridor also contains a racially and ethnically diverse population, with approximately 35 percent of the population identified as a racial or ethnic minority. Refer to Section 4.20 and the *Mid-Coast Corridor Transit Project Environmental Justice Technical Report* (SANDAG, 2014t) for a description of minorities and low-income populations within the corridor. Within the corridor, the elderly (age 65 and older) comprise 13 percent; children comprise 21 percent; persons with disabilities comprise 17 percent; and veterans comprise 13 percent of the population.

As identified in Section 1.2.1, according to forecasts from the SANDAG Series 11 Travel Demand Forecasting Model (Series 11 model), the population within the Mid-Coast Corridor is forecast to increase by 19 percent by 2030, with the residential population in Downtown San Diego predicted to almost double by 2030. Employment in the corridor is predicted to increase 12 percent by 2030.

4.2.2.2 Communities and Neighborhoods

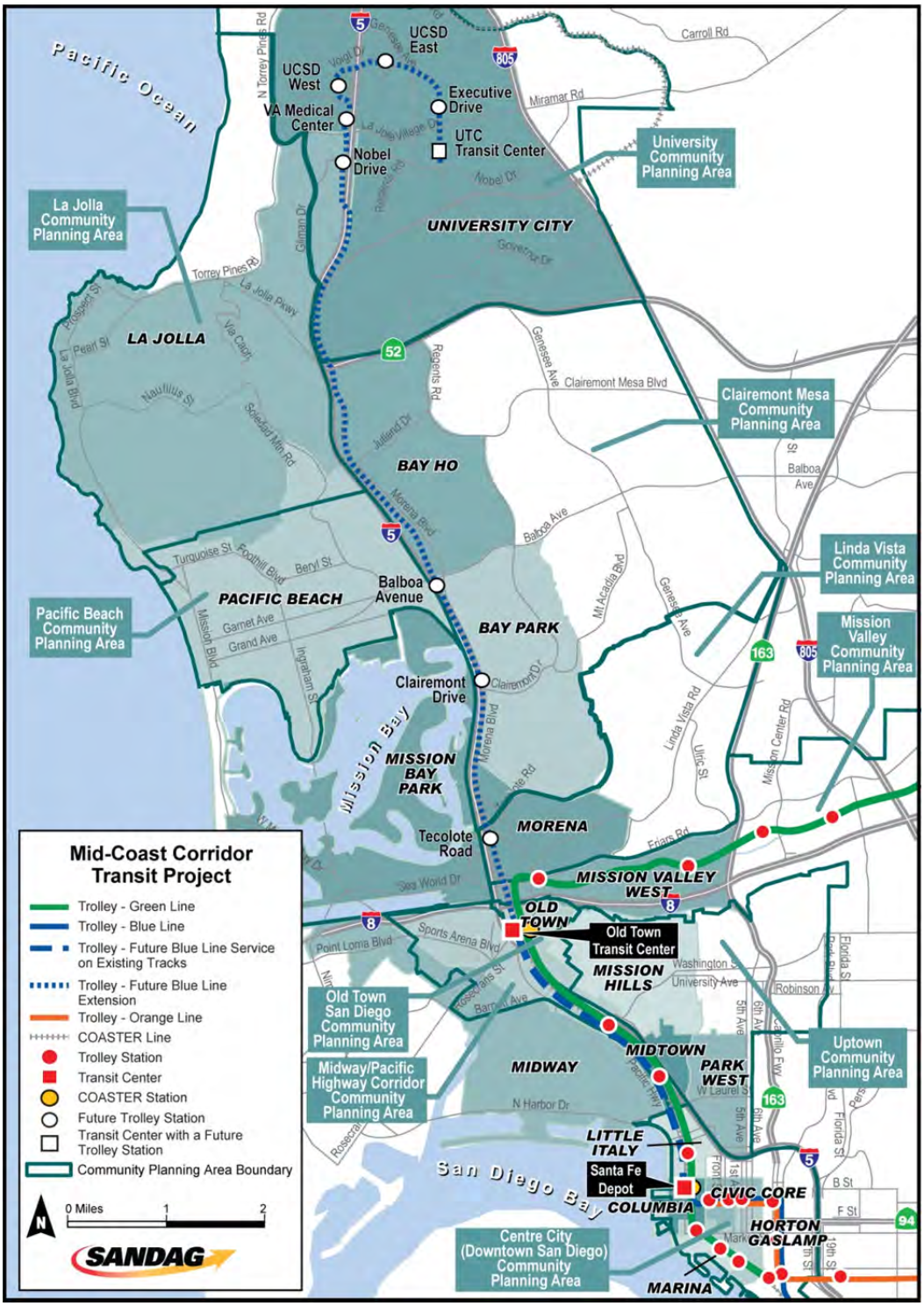
Within the Mid-Coast Corridor, there are 14 community planning areas. In some cases, communities are comprised of smaller neighborhoods. In other cases, communities have no identified neighborhoods; therefore, the entire community is treated as a single neighborhood. The study area for the project contains 10 communities, within which 17 neighborhoods have been defined. A neighborhood can be defined by shared perceptions or attitudes, behavior patterns and daily social interactions, the use of local facilities, participation in local organizations, and involvement in activities that satisfy the population's economic and social needs. The identification of neighborhoods within these community planning areas provides a more accurate description of where impacts from the project would occur in regard to populations and local businesses.

The 17 neighborhoods located within the study area are shown in Figure 4-4, and the demographic profiles for these neighborhoods are provided in Table 4-2. Figure 4-1 and Figure 4-2 in Section 4.1 present the existing land uses within one-half mile of each proposed station. Neighborhoods in the study area are summarized below by community and are described in more detail in the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e).

Centre City Community (Downtown San Diego) (Neighborhoods: Civic/Core, Columbia, Horton/Gaslamp, Little Italy, and Marina)

The Centre City community is located on the southern end of the Mid-Coast Corridor; it is a business, cultural, and civic center, supported by a convention center, Petco Park, and hotels. There are five neighborhoods within the study area: Civic/Core, Columbia, Horton/Gaslamp, Little Italy, and Marina. Two existing Trolley stations—Santa Fe Depot and the County Center/Little Italy Station—are located within this community.

Figure 4-4. Communities and Neighborhoods within One-half Mile of the Project Alignment



Source: SANDAG, 2004d; SanGIS, 2009
Note: Mission Bay Park is located within the study area but is not a neighborhood.

Table 4-2. Summary Comparison of Demographics for Potentially Affected Mid-Coast Corridor Neighborhoods

Neighborhood	Population	Percent Residential	Population Density (Pop/sq mi)	Median Income	Percent Owner-Occupied	Percent Residing in Same Residence > 7 years
Centre City Community (Downtown San Diego)						
Civic/Core	4,060	3	17,480	$47,392	30	48
Columbia	2,439	17	12,476	$47,392	30	48
Horton/Gaslamp	6,807	4	24,079	$47,392	30	48
Little Italy	2,725	22	8,735	$71,905	20	46
Marina	796	<1	3,684	$47,392	30	48
Midway/Pacific Highway Corridor Community						
Midway	13,034	14	4,548	$46,143	25	70
Uptown Community						
Park West	8,305	19	12,639	$47,899	22	69
Midtown	2,237	17	6,494	$72,833	39	75
Mission Hills	9,038	55	6,302	$73,192	55	85
Old Town San Diego Community						
Old Town	2,569	14	1,793	$30,553	15	84
Mission Valley Community						
Mission Valley West	2,221	2	1,864	$62,371	62	76
Linda Vista Community						
Morena	7,570	42	6,135	$55,108	48	76
Clairemont Mesa Community						
Bay Park	15,309	62	5,439	$69,746	57	91
Bay Ho	11,870	56	4,619	$74,647	66	80
Pacific Beach Community						
Pacific Beach	41,766	55	9,561	$70,270	31	80
La Jolla Community						
La Jolla	30,156	53	3,950	$108,674	63	82
University Community						
University City	61,294	31	5,239	$81,607	42	82

Source: SANDAG, 2014e
Note: Pop/sq mi = population per square mile

Midway/Pacific Highway Corridor Community (Neighborhood: Midway)

This community is primarily comprised of commercial and industrial uses, but contains a few small pockets of multifamily residential development. Commercial uses include large region-serving retail establishments, such as groceries, drugstores, and general and discount stores. There is also a wide variety of institutional uses, including the County Health Services complex on Rosecrans Street and the San Diego Fire-Rescue Department (SDFD) Fire Station #20.

Uptown Community (Neighborhoods: Park West, Midtown, and Mission Hills)

The Uptown community contains some of the oldest neighborhoods in San Diego (Park West, Midtown, and Mission Hills) that have a variety of historic architectural types and abundant landscaping. The Park West and Midtown neighborhoods are primarily

commercial and industrial, while the Mission Hills neighborhood is primarily residential. The Washington Street and Middletown Trolley Stations are located within the Midtown neighborhood.

Old Town San Diego Community (Neighborhood: Old Town)

As the first European settlement in present-day California, the Old Town San Diego community is the city's oldest settled area. Old Town encompasses 27 historic buildings and sites. Old Town San Diego State Historic Park and Presidio Park are located on the National Register of Historic Places. This community also includes the existing OTTC, which serves as a key intermodal connection to the existing Trolley Green and Trolley Blue Lines, several MTS bus lines, the COASTER, and Amtrak. The project would extend Trolley service north from the OTTC.

Mission Valley Community (Neighborhood: Mission Valley West)

Mission Valley is primarily an employment center, with numerous retail establishments, office buildings, and hotels located along Friars Road and the I-8 corridor. The community is served by the Trolley Green Line and has three regional shopping centers (Fashion Valley, Hazard Center, and Westfield Mission Valley), the Riverwalk Golf Course, and Qualcomm Stadium. The project alignment is located in the western edge of this community and would provide connections to this community from points north via the Old Town San Diego community.

Linda Vista Community (Neighborhood: Morena)

Linda Vista overlooks Mission Bay to the west and Mission Valley to the south. The University of San Diego campus is a major focal point for the community, with the dome of the Immaculata Church providing a distinctive landmark on the San Diego skyline. Tecolote Canyon Park is located on the northern portion of the neighborhood within one-half mile of the project alignment and the Tecolote Road Station. The project alignment and the Tecolote Road Station would be located along the western edge of the Morena neighborhood.

Clairemont Mesa Community (Neighborhoods: Bay Park and Bay Ho)

Clairemont Mesa is an urbanized, residential community characterized by automobile-oriented commercial centers, educational facilities, and recreational areas. The area is largely defined by its prominent topography: developed land is located primarily atop mesas interspersed between several major canyon systems. The project alignment and the Clairemont Drive and Balboa Avenue Stations would be located along the western edge in the Bay Park neighborhood, which is primarily residential. The Bay Ho neighborhood is within one-half mile of the project alignment and consists generally of industrial parks, commercial uses, and some residential areas.

La Jolla Community and Neighborhood

La Jolla is set along the coastal bluffs overlooking the Pacific Ocean, and this scenic oceanfront setting is the main focus of the community. The La Jolla Village Square shopping center is in the center of the neighborhood and contains a variety of stores, restaurants, and apartments and two movie theaters. Congregation Adat Yeshurun

includes a portion of an *eruv*, an enclosure comprised of existing boundaries and, where these are lacking, filament line, around a designated area extending the private domain of Jewish households into public areas. Activities that are normally forbidden in public on the Sabbath are allowed within the *eruv*. The Nobel Drive Station would be located on the southeastern corner of this neighborhood.

University Community (Neighborhood: University City)

The University community is located in the northern end of the Mid-Coast Corridor and functions as a regional education, research, health service, and office park center with numerous activity centers. The University community is commonly referred to as University City. However, this is also the name of a neighborhood within the community. Two distinct parts of the University City neighborhood are divided by Rose Canyon, which features the Rose Canyon Open Space preserve and the existing railroad tracks located within the MTS right-of-way. The older part of University City lies south of Rose Canyon while the newer part of University City lies to the north. The project alignment; the VA Medical Center, UCSD West, UCSD East, and the Executive Drive Stations; and the UTC Transit Center would be located in this community.

4.2.2.3 Community, Park, and Recreational Facilities

Within the Mid-Coast Corridor, fire protection is provided by the SDFD; police protection is provided primarily by the San Diego Police Department and the UCSD campus police; and emergency medical services are provided by several major hospitals. Within one-half mile of the project alignment, there are five SDFD stations, one fire station with equipment maintained by the San Diego Regional Airport Authority, two divisions of the San Diego Police Department, and six hospitals or medical facilities. Additionally, there are 26 churches, 18 schools, 20 parks, and 3 bike paths. Community facilities and parks within the study area are identified by name and location in Figure 4-5.

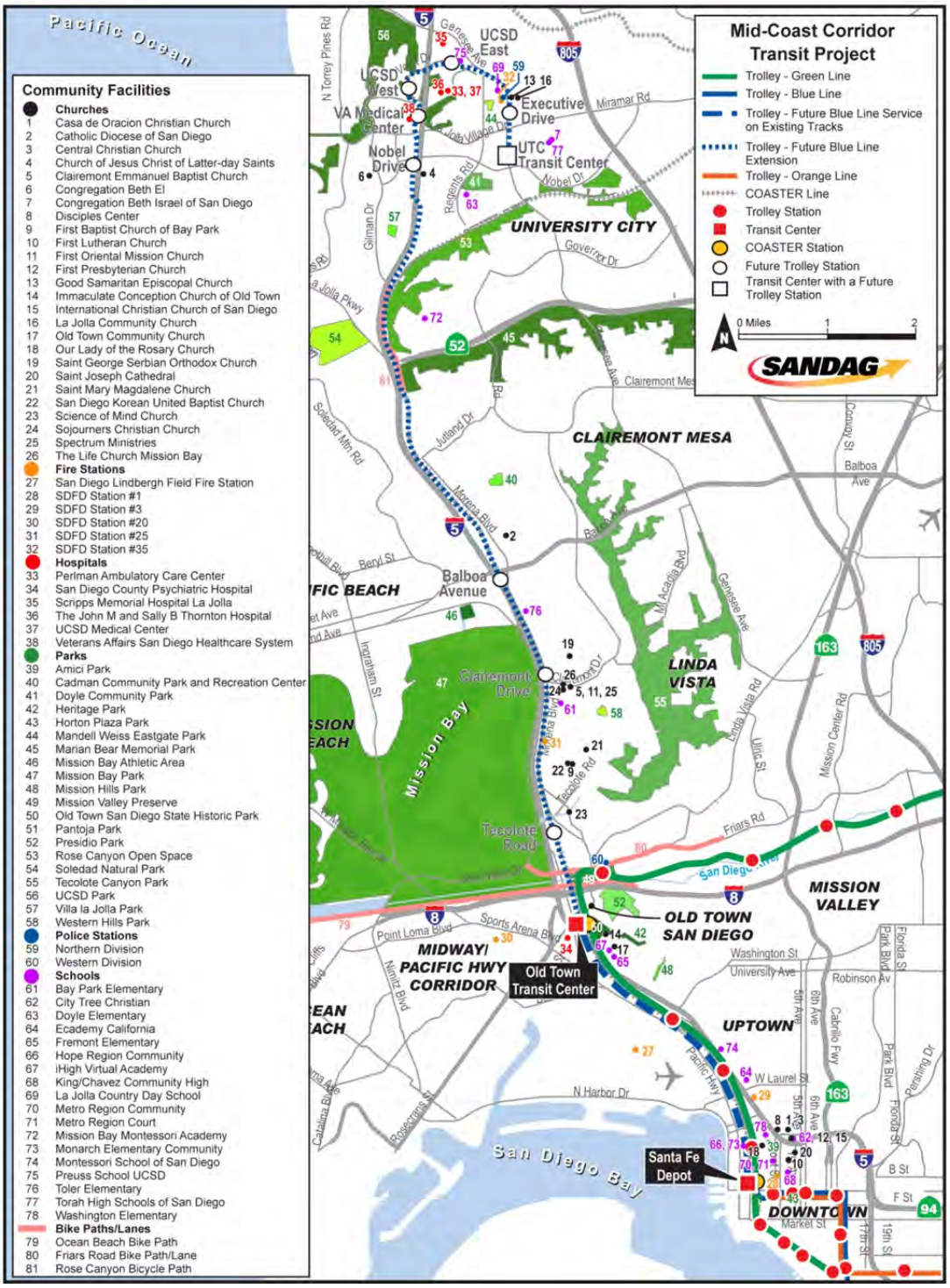
4.2.3 Environmental Impacts

This section describes the impacts of the No-Build and Refined Build Alternatives on communities and neighborhoods. Factors that may adversely impact community cohesion and character include the creation of a perceived or physical barrier, impacts on the environmental resources and transportation network in the community, and whether access to community and recreational facilities is impaired or eliminated.

4.2.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be built and bus Route 150, which operates between Downtown San Diego and the University area, would be continued and enhanced. These changes and other changes associated with the No-Build Alternative would not result in barriers, disruption, or displacement in a community or neighborhood. The operation of Route 150 would not impact environmental resources or the existing transportation networks within a community, alter or block access to community assets, displace on- or off-street parking spaces, or impact economic development or population and employment. Therefore, the No-Build Alternative would not result in adverse impacts to communities and neighborhoods.

Figure 4-5. Community, Park, and Recreational Facilities within One-Half Mile of the Project Alignment



Sources: City of San Diego Park and Recreation Department, 2011; California State Parks, 2011; Google Earth Pro mapping software; Esri

4.2.3.2 Refined Build Alternative

The Refined Build Alternative would be located within or along existing transportation rights-of-way (i.e., MTS, I-5, and Genesee Avenue) for most of its length, and is consistent with the existing character of these transportation corridors. The proposed new Trolley stations would be designed to be consistent with the existing character of the surrounding communities and neighborhoods, and would support existing development. Planned or future development and redevelopment near project stations, although not part of the Mid-Coast Corridor Transit Project, would be required to adhere to local land use plans and zoning designations and ordinances, which already anticipate development of the project. The project would provide the infrastructure to accommodate TOD, which would provide housing and a mix of uses within walking distance to public transportation. Therefore, no change in population and employment related to land use development is anticipated under the Refined Build Alternative beyond what is forecast in the community plans. However, as discussed in Sections 4.3 and 4.17, operation and construction of the project would generate new jobs, resulting in a positive impact on the regional economy. As identified in Section 4.3, a single business would be displaced and receive relocation assistance in compliance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act, as amended (49 Code of Federal Regulations [CFR] 24) (Uniform Act), the California Relocation Assistance Act of 1970, as amended (California Government Code Section 7260 et seq.) (California Act), and SANDAG Board Policy No. 021.

As discussed in Chapter 3.0, there are eight grade crossings in the corridor. Grade crossings are locations where Trolley, Amtrak, COASTER, and freight trains cross a roadway, stopping vehicular and pedestrian movements crossing the tracks. These crossings are located in the Columbia, Little Italy, Midtown, and Old Town neighborhoods and may represent an existing perceived intermittent barrier for those who must cross the tracks. However, the intermittent effect is not substantially different than what is experienced at major roadway intersections throughout the city. Because the Trolley Blue Line and other trains currently operate through these neighborhoods, continued operation under the Refined Build Alternative, although more frequent, would not divide a community and would not represent an adverse impact. Under the Refined Build Alternative, minor increases in congestion would occur in the Bay Park/Bay Ho and Mission Bay Park neighborhoods (see Section 3.4.2.2 for a description of traffic impacts). Additionally, in the Little Italy neighborhood, a stop-controlled intersection adjacent to the Beech Street grade crossing would operate at an unacceptable level of service that cannot be mitigated. As stated in Section 3.4.2.3, when a train clears the crossing and the gates rise, the queue of traffic on westbound Beech Street is released and then arrives at the Pacific Highway and Beech Street intersection all at once. Vehicles that arrive under normal conditions (i.e., not immediately after a train travels through the grade crossing) are not expected to experience any adverse delay. While an unmitigated impact would occur at this location, it would be limited in scope and would not substantially alter community cohesion or character. Therefore, the impact would not adversely affect the Little Italy neighborhood.

One business in the Bay Park neighborhood near the Tecolote Road Station would be displaced but, as addressed in Section 4.3, this is not considered an adverse impact. The displaced business is a nursery and may relocate nearby; furthermore, there is

another nursery within 1.85 miles that would continue to serve the community. Therefore, loss of this business would not result in an adverse impact to neighborhood character. Other full and partial acquisitions identified in Section 4.3 would not result in the displacement of businesses or residences.

The elimination of some outdoor advertising (billboards) from rail right-of-way identified in Section 4.3 would make the area consistent with the City of San Diego Sign Ordinance. Removal of these billboards would improve the aesthetic character of the neighborhood.

As identified in Section 4.4, the Refined Build Alternative would result in visual changes in the University City neighborhood. The project would be most noticeable where a portion of the project alignment would be on an elevated structure through the UCSD campus and through the surrounding office and commercial area along Genesee Avenue. However, because this section of the project alignment would be located in an area dominated by multi-story institutional, office, and commercial buildings, the contrast of this new visual element would be moderate and the change to the overall character of this community would not be adverse.

Within the UCSD campus, the project alignment would travel through Pepper Canyon, and the UCSD West Station would be located on the north side of the canyon adjacent to the Matthews Apartments. As described in Section 4.1, the urban farm at UCSD in Pepper Canyon was planned as a temporary use that would cease operation once project construction begins; thus, there would be no adverse impact to this temporary use.

Because the alignment would be on an elevated structure on the UCSD campus, motorists, bicyclists, and pedestrians would be able to cross under the facility, and the project would not create a physical barrier in this area. As such, this visual change would not affect neighborhood cohesion. However, the elevated structure would introduce a new visual element that would affect the physical and visual character of the adjacent Matthews Apartments, resulting in a localized adverse impact to the Matthews Apartments. The elevated structure would obstruct some private west-facing views but not public views of the ocean or other scenic coastal areas. Design of the UCSD West Station would be completed in coordination with UCSD to visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts. With respect to neighborhood character, this visual change as observed from the Matthews Apartments is not expected to result in an adverse impact. Section 4.4 provides additional information regarding visual impacts from the project.

Implementation of the project would improve accessibility and connectivity as a result of the new transit service. The benefits to transit users include increased transit options, improved mobility, proximity to transit links, and access to employment and activity centers. These benefits would be realized by all communities. Nine new stations would provide substantially increased opportunities to access the transit system for the communities and neighborhoods within the study area.

As travelers shift from automobiles to transit, the number of auto trips would decline, which would reduce pollutant emissions and benefit air quality (Section 4.5). The addition of an LRT system also would provide the infrastructure to accommodate TOD,

which can improve quality of life by providing housing and a mix of uses within walking distance to public transportation, as well as provide additional benefits to the environment, such as an increased sense of identity for communities.

Although the project would improve mobility and access to communities in accordance with adopted transportation and land use plans, it would not introduce a new population to these areas that could increase demand for parks, schools, hospitals/medical facilities, libraries, or affect response times for fire, ambulance, and police services. In addition, the project alignment would not disrupt or impair access to community facilities and services, as described in Section 4.13. Portions of the project located outside of the existing transportation rights-of-way would require some property acquisitions and easements; however, community facilities would not be displaced (see Section 4.3 for more detail on property acquisitions and easements).

The project alignment would cross over the San Diego River and would require the placement of bridge support columns within the river. These bridge support columns would not diminish the function and enjoyment of the San Diego River area. Similarly, there would be no adverse impacts to Warren Field on the UCSD campus from the placement of aerial structure support columns, which would require a permanent easement of approximately 0.38 acre on the northwestern and northeastern corners of Warren Field. It is likely that the area immediately under the structure (0.25 acre) would not be usable for athletic activities because of the height limitations and bridge pile placement; however, the loss of these small portions along the perimeter of Warren Field would not diminish the usability and function of the field for various activities and therefore would not be considered an adverse impact. Implementation of the project also would require an adjustment in the alignment of the Rose Canyon Bicycle Path; however, the realigned facility would provide the same amenities as the current facility, and the project would not diminish the function, enjoyment, or capacity of this recreational facility.

Implementation of the project is not expected to affect environmental conditions that could affect the quality of life in Mid-Coast Corridor communities. The Refined Build Alternative would result in moderate noise impacts requiring mitigation in the Little Italy neighborhood to the Camden Tuscany Apartments and in the University City neighborhood to single-family residences in the La Paz condominium complex on La Jolla Colony Drive (two locations), the Loft Apartments at the Shops at La Jolla, and the Sheraton La Jolla Hotel. There would be no noise impacts in these locations with implementation of the mitigation measures described in Section 4.7.4. Section 4.7 provides additional information regarding noise impacts from the project.

The project alignment would cross portions of the La Jolla Eruv[5] at the La Jolla Village Square shopping center, Nobel Drive, and La Jolla Village Drive. Impacts to the La Jolla Eruv would occur primarily during project construction and are described in more detail in Section 4.17.3.

[5] An *eruv* is a ritual enclosure around a designated area that creates and denotes the boundaries of a symbolic walled courtyard in which the private domain of Jewish households is extended into public areas; this permits activities within it that are normally forbidden in public on the Sabbath, such as carrying children and belongings across a property line.

Project Measures to Avoid or Minimize Impacts

The proposed new Trolley stations would be designed to be consistent with the existing character of the surrounding communities and neighborhoods, and would support existing development.

Design of the UCSD West Station would be completed in coordination with UCSD to visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts.

4.2.4 Mitigation Measures

The visual mitigation measures identified in Section 4.4.4 would mitigate visual impacts to the University community. Noise impacts would be mitigated with implementation of Mitigation Measure **N1**, which would fully mitigate the noise impact in the Little Italy neighborhood, and implementation of Mitigation Measures **N2** through **N4** for the University City neighborhood, as described in Section 4.7.4.

With implementation of these mitigation measures, the Refined Build Alternative would not result in an adverse impact to communities and neighborhoods.

4.2.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.2.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project physically divide an established community?

No Impact (No-Build Alternative). As described in Section 4.2.3.1, the No-Build Alternative would not divide any community or neighborhood.

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.2.3.2, elements of the Refined Build Alternative would create the potential for an increase in perceived barriers (e.g., grade crossings and elevated structures), but not to a degree that would divide any community or neighborhood.

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 would cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: Fire Protection? Police Protection? Schools? Parks? Other Public Facilities?

No Impact (No-Build Alternative). As described in Section 4.2.3.1, the No-Build Alternative would not result in adverse physical impacts as a result of social effects.

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.2.3.2, the Refined Build Alternative would not increase the corridor-wide demand for or accessibility of parks; schools; hospitals/medical facilities; libraries; or fire, ambulance, or police services in the corridor, and would not require the provision of new or physically altered facilities. The project would introduce new facilities, such as stations and park-and-ride facilities, which would require police and fire protection; however, the project would not significantly affect response times or exceed the capacity of existing service providers.

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?

No Impact (No-Build Alternative). As described in Section 4.2.3.1, the No-Build Alternative would not increase the use of existing neighborhood and regional parks or other recreational facilities.

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.2.3.2, the Refined Build Alternative would not increase population in the corridor, although it could redistribute a portion of existing travel and attract some transit users to major nearby community and recreational facilities within one-half mile of stations, such as Mission Bay Park. The corridor is primarily an urban environment and has many community facilities. Any minor redistribution in facility use associated with more convenient transit access as a result of the project is not expected to substantially increase or decrease the overall use of facilities.

Would the project significantly impact a vulnerable population?

No Impact (No-Build Alternative). The No-Build Alternative would not impact a vulnerable population.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would adjust signal phasing for grade crossings, which could increase pedestrian delays and add a level of inconvenience for pedestrians, including those with mobility impairments, as Trolleys travel through grade crossings. However, because pedestrian crossings would still provide sufficient time for all users to cross safely and the increased frequency of crossing delays would not affect overall pedestrian access to community services and facilities, the additional inconvenience to vulnerable populations would be very limited and is not considered significant.

Would the project adversely impact existing religious or sacred uses?

No Impact (No-Build Alternative). As described in Section 4.2.3.1, the No-Build Alternative would not alter community assets, including existing religious or sacred uses.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative is not anticipated to result in significant impacts to religious facilities (e.g., churches and temples), as the project would not impede access to these facilities and would not require property acquisition that would alter the use of any land by a religious institution. No long-term impacts would occur to the La Jolla Eruv. The *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e) states that the archaeological reviews for the project did not identify any sacred sites. Coordination with Native American groups was conducted in accordance with the Section 106 process.

4.2.5.2 Significance after Mitigation

Impacts from the Mid-Coast Corridor Transit Project related to physical barriers within communities, public service response times and facilities, community facilities, recreational facilities, and religious and sacred uses would be less than significant. Therefore, under CEQA, mitigation is not required because the Refined Build Alternative would not result in any significant impacts on communities and neighborhoods.

4.3 Socioeconomic and Fiscal Impacts

This section evaluates the socioeconomic and fiscal impacts of the No-Build and Refined Build Alternatives, including property acquisitions. Socioeconomic impacts include changes to the community and regional economy resulting from implementation of the project. Such impacts could consist of job growth, changes in government tax revenues, and increased business near Trolley stations. Property acquisition impacts could include displacements and relocation of existing land uses. For additional information, refer to the *Mid-Coast Corridor Transit Project Economic and Fiscal Impacts Technical Report* (SANDAG, 2014f); the *Mid-Coast Corridor Transit Project Property Acquisitions Impacts Technical Report* (SANDAG, 2014o); the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e); and the *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report* (SANDAG, 2014d) prepared in support of the SEIS/SEIR.

The prior environmental documents determined that the project would require approximately 34 acres for the I-5 alignment or 16 acres for the Genesee alignment. No relocations or displacements were required except for right-of-way from the Weiss/Mandell-Eastgate City Park. A potential displacement and relocation was identified as a result of the Tecolote Road Station, although it was uncertain if the displacement would be required.

The analysis in the Draft SEIS/SEIR determined that the Build Alternative would still require full and partial property acquisitions. However, the project alignment has been modified since completion of the prior environmental documents. Unlike the LRT alternatives in the prior environmental documents, the Build Alternative would not require right-of-way from the Weiss/Mandell-Eastgate City Park, but would require the displacement of one business located at the Tecolote Road Station. The project would require the partial and full acquisition of approximately 20.1 acres. Similar to the previous environmental documents, the analysis in the Draft SEIS/SEIR determined that the project would have a positive impact on the regional economy through the creation of new jobs. Together, these jobs and operation and maintenance expenditures associated with the project would have a positive economic impact on the San Diego region.

This section has been revised since the Draft SEIS/SEIR to reflect the updated property acquisitions required by the Refined Build Alternative. The Refined Build Alternative would require approximately 20.6 acres of partial and full acquisitions, an increase of approximately 0.5 acre from what was described in the Draft SEIS/SEIR. The Refined Build Alternative reduces the number of partial acquisitions required by 1 (for a total of 35 partial acquisitions) and does not change the number of full acquisitions (4). The property tax revenue and job creation figures presented in this section were updated based on changes to the property acquisitions and updated operating and maintenance costs associated with the Refined Build Alternative. Although the number of acquisitions changed since the Draft SEIS/SEIR was released for public review, the impacts did not change, and the Refined Build Alternative would not result in adverse or significant socioeconomic or fiscal impacts. The Prefaces of the *Mid-Coast Corridor Transit Project Economic and Fiscal Impacts Technical Report* (SANDAG, 2014f) and the *Mid-Coast Corridor Transit Project Property Acquisitions Impacts Technical Report* (SANDAG, 2014o)

further summarize the changes made to these technical reports since the Draft SEIS/SEIR.

4.3.1 Regulatory Background and Methodology

Federal, state, and regional governments regulate property acquisition for transportation projects. The Uniform Act requires all federal agencies to meet certain standards for fair and equitable treatment of property owners and persons displaced by federally supported actions. Compliance with the California Act is required if a public entity undertakes a project requiring private property acquisition for public use. The SANDAG Board Policy No. 021 ensures consistency in implementing public projects complying with Section 14085 et seq. of the California Government Code and with USDOT requirements.

Implementation of the project would require the acquisition of property. This would occur in locations where the existing railroad or street right-of-way is too narrow to accommodate the project alignment and facilities or where the alignment and facilities are outside of the existing railroad right-of-way. Along Genesee Avenue, the Refined Build Alternative would require widening the median, which would shift automobile travel lanes outward, requiring additional right-of-way.

Full acquisitions were assumed to occur when the amount of property required could result in an uneconomic remnant to the property owner, including displacement of the primary structure or elimination of access.

In comparison, partial acquisitions were assumed if the project required only a limited portion of the property, leaving the remainder of the site economically viable (e.g., acquisitions of narrow slivers of land adjacent to the existing right-of-way that affect only unimproved or landscaped areas or limited areas of parking). In these cases, the landowner of the property would not be relocated.

Permanent easements were assumed if the required right-of-way would be maintained indefinitely. The landowner would retain title to the property, but the easement would grant exclusive rights to MTS or SANDAG to access the easement area during project operations. For example, a surface easement may be needed for aerial structures.

The *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 2: Plan Set* (Final SEIS/SEIR Plan Set) was used to identify parcels or portions of parcels that would be acquired. Land used for the project located within existing public rights-of-way owned by the California Department of Transportation (Caltrans), the City of San Diego, UCSD, the federal government (the VA Medical Center), and MTS is not included in the property acquisitions. The County of San Diego tax assessor office provided the assessed value of affected properties that was used to estimate impacts on property tax revenues.

The number of jobs generated by operation of the project was calculated using the estimated operations and maintenance expenditures for the project (as described in Chapter 6.0 of this document) and economic multipliers obtained from the U.S. Bureau of Economic Analysis Regional Input-Output Modeling System for San Diego County. Additionally, property tax losses were estimated based on the assessed value of the parcel and property tax rates obtained from the San Diego County Assessor records.

4.3.2 Affected Environment

San Diego County is home to several major corporations, the North Island Naval Air Station/Naval Base, several major universities, and health care facilities. Sections 4.1 and 4.2 describe the land uses and demographics in the Mid-Coast Corridor. The project alignment would pass through or be adjacent to major commercial and industrial areas within the City of San Diego, including the key activity centers identified in Figure 1-1. The Bureau of Labor Statistics reported county unemployment to be 9.6 percent in 2009.

The city derives a substantial portion of its revenue from property and sales tax revenues. The fiscal year 2012 adopted budget reported more than one-third of revenues, or approximately $380 million, from property taxes. The next largest source is sales tax revenue at $211.6 million. Together, these revenues comprise more than half of the city's general revenue fund.

4.3.3 Environmental Impacts

This section analyzes the socioeconomic and fiscal impacts of the No-Build and Refined Build Alternatives.

4.3.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented, and service on bus Route 150 would be continued and enhanced. No physical improvements would be required for the improved transit services other than the minor construction associated with new bus shelters within existing rights-of-way. No property acquisition affecting residents or businesses would be necessary. Local government property tax revenues would not be affected.

With no major transportation improvement, there would be no impacts on public expenditures, employment opportunities, accessibility, or retail sales in established business districts. The No-Build Alternative would thus have no economic or fiscal impacts.

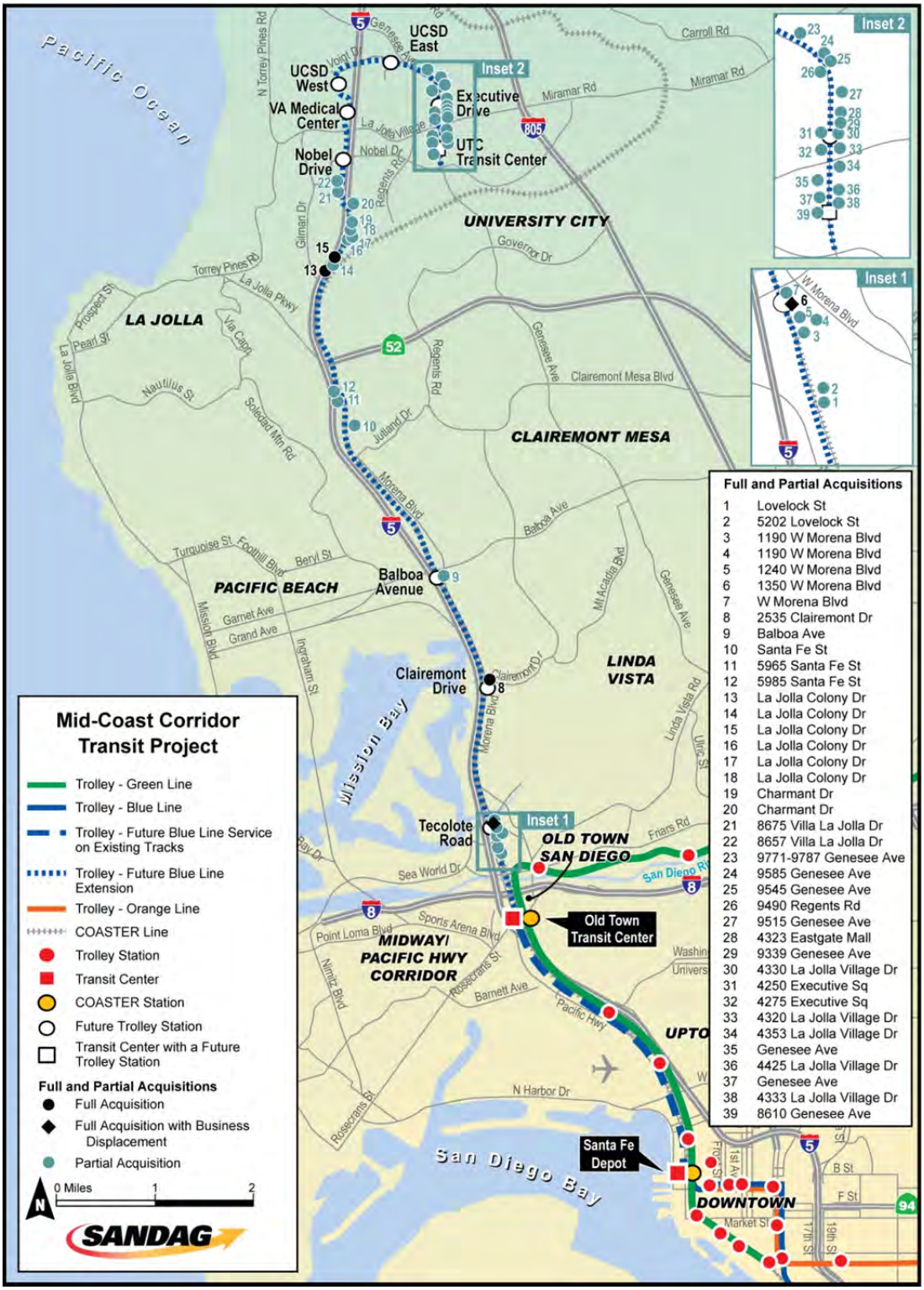
4.3.3.2 Refined Build Alternative

The impacts of the Refined Build Alternative would be associated with the acquisition of property (either full or partial) and any displacements or relocations required.

The Refined Build Alternative would require full and partial acquisitions, estimated at approximately 20.6 acres (4 parcels/6.0 acres for full acquisitions and 35 parcels/14.5 acres for partial acquisitions), as summarized in Table 4-3. The general locations of the full and partial acquisitions are shown in Figure 4-6. The specific locations, ownership, and area of the individual property acquisitions are shown on the right-of-way plans in the Final SEIS/SEIR Plan Set.

All property acquisitions would occur north of the OTTC. Improvements to the south would be located at existing Trolley system facilities and/or on public property. As such, no property acquisitions would be required south of the OTTC. Additional temporary construction easements that would be required are discussed in Section 4.17.3.2.

Figure 4-6. Refined Build Alternative—Full and Partial Property Acquisitions



Source: SANDAG, 2014

Table 4-3. Summary of Property Acquisitions—Refined Build Alternative

Ownership and Use	Full Acquisition		Partial Acquisition		Right-of-way Acquisition (Permanent Easement)	
	Acres	No. of Parcels	Acres	No. of Parcels	Acres	No. of Parcels
Residential	0	0	2.33	8	0	0
Commercial	4.87	2	4.12	21	5.87	17
Places of worship	0	0	0.11	1	0	0
School – private	0	0	0.14	1	0	0
Hospital – private	0	0	0	0	0.35	1
Undeveloped	1.17	2	1.76	2	0	0
Private Subtotal	**6.04**	**4**	**8.46**	**33**	**6.22**	**18**
Hospital – public	0	0	0	0	2.03	3
UCSD	0	0	0	0	6.84	4
Public other	0	0	6.07	2	2.70	6
Public Subtotal	**0**	**0**	**6.07**	**2**	**11.57**	**13**
Total	**6.04**	**4**	**14.53**	**35**	**17.97**	**31**

Source: SANDAG, 2014o
Note: UCSD = University of California, San Diego

Full parcel acquisitions would affect four properties—one vacant commercial property, two undeveloped parcels zoned as open space, and one property occupied by a retail business (a retail nursery and garden center). This business also leases adjacent property for outdoor nursery use as part of its business activity. There would be a displacement of this retail business located near the Tecolote Road Station (identified as number 6 on Figure 4-6). The retail business is estimated to employ up to 25 workers and is located on approximately 1.27 acres. As the business currently has use of adjacent public right-of-way to the rear of the property, replacement property would need to be somewhat larger than the current property.

The vacant commercial lot is a 3.60-acre property. As there are no buildings on this parcel, no businesses or employees would be displaced.

Implementation of the project would require the termination of several uses of public rights-of-way. Within the Mid-Coast Corridor, a number of existing spur tracks have historically provided freight railroad access to adjacent businesses that no longer have any connection to commercial rail use. The project alignment crosses an existing spur track on the east side of the right-of-way that currently provides railroad access to two properties. Neither property is using the connection for the commerce of rail freight. One property is a storage facility at Buenos Street that houses a privately owned railroad car that is only used for recreational purposes. The other property on Anna Avenue served by the spur is the former distribution facility of the former *San Diego Union Tribune.* This property was sold to another entity and no longer takes freight service. Under the Refined Build Alternative, the spur rail track would be removed.

In addition, agreements associated with several outdoor advertising signs (i.e., billboards) would be terminated. Clear Channel Outdoor has two one-sided billboards along the south side of Friars Road on the east and west sides of the San Diego River Bridge and a two-sided billboard on MTS property on the west side of the MTS rail tracks between Friars Road and Anna Avenue under a license agreement. CBS Outdoor has two billboards located on MTS property between West Morena Boulevard and the MTS rail tracks near Knoxville Street under a lease agreement. With the exception of the billboard south of Friars Road and west of the San Diego River Bridge, the remaining billboard structures would be displaced. Although relocation of these billboards in the City of San Diego would not be possible because the City of San Diego Sign Ordinance does not permit new off-site billboards, the underlying agreements provide for termination if required for construction of additional rail facilities, with no compensation due to the billboard companies.

Overall, the permanent full acquisition impacts would not be adverse because only one business would be displaced. The remaining permanent full acquisitions consist of vacant land, unoccupied property, or publicly owned land. Property and business owners affected by acquisitions and displacements would be compensated consistent with the Uniform Act, the California Act, and SANDAG Board Policy No. 021. Therefore, there would not be an adverse impact.

Additionally, beneficial impacts would result from increases in property values and station-area activity, and the resulting increases in retail sales and increased employment. Businesses and business districts near the proposed Trolley stations are expected to benefit as a result of increased sales from pedestrian and vehicular traffic as people arrive and depart from transit stations. Proximity to the stations likely would stimulate additional business development consistent with planned higher density and transit-oriented land uses in these station areas. This would result in a beneficial impact.

While many of the property acquisitions needed for the Refined Build Alternative are public right-of-way, some of the parcels needed are privately owned and generate property taxes. When these taxable parcels are converted to a transportation purpose, the parcels become government owned and tax exempt, and property tax revenue is lost. The loss of property tax revenue would be negligible compared to total property tax revenues (less than 0.06 percent of property tax revenues and approximately 0.02 percent of total city general fund revenues). Therefore, no adverse impacts to government revenue would occur under the project.

The Refined Build Alternative could increase property values and associated property tax revenues as a result of higher-density development around some of the proposed stations, as well as from the effects of improved mobility and accessibility on station-area properties. Such development is encouraged by Smart Growth Center designations. Property values also could rise as a result of increased foot traffic at commercial properties within walking distance of stations.

Operation of the expanded Trolley Blue Line would create an estimated 33 direct jobs and 130 total jobs when indirect and induced employment are included. Together, these jobs and operation and maintenance expenditures associated with the extension of the Trolley Blue Line would have a beneficial economic impact on the San Diego region. The Refined Build Alternative would not result in an adverse impact.

Project Measures to Avoid or Minimize Impacts

Property and business owners affected by acquisitions and displacements would be compensated consistent with the Uniform Act, the California Act, and SANDAG Board Policy No. 021.

4.3.4 Mitigation Measures

The Refined Build Alternative would not result in adverse socioeconomic and fiscal impacts; therefore, no mitigation measures would be required.

4.3.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA threshold of significance and additional analysis below.

4.3.5.1 Significance Criteria and Significance Criteria Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed a CEQA threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project displace substantial numbers of people or dwelling units necessitating the construction of replacement housing elsewhere?

No Impact (No-Build Alternative). The No-Build Alternative would not require any property acquisition and, thus, there would be no impact on residents or businesses.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would result in less-than-significant impacts. The project would displace one business, affecting the business owner and an estimated 25 employees. The project would not displace any dwelling units, necessitate construction of replacement housing, or displace a substantial number of people who would need to seek employment outside of the local employment area.

4.3.5.2 Significance after Mitigation

The project would result in less-than-significant impacts; therefore, no mitigation measures are required.

4.4 Visual Resources and Aesthetics

This section describes the existing visual environment and scenic resources in the study area, and includes a discussion of impacts on these resources that could result from the No-Build and Refined Build Alternatives. For additional information, refer to the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j) prepared in support of the SEIS/SEIR.

The prior environmental documents identified adverse impacts along several sections of the alignment. Adverse impacts were identified between I-5 and Charmant Drive in La Jolla Colony, near the UCSD student housing and La Jolla Colony Drive, and between Regents Road and Judicial Drive. The prior environmental review also identified impacts from retaining walls and substations between Clairemont Drive and Balboa Avenue, which would be visible from Mission Bay Park. Additionally, the prior environmental review identified a visual impact at Jutland Drive from a proposed park-and-ride facility. Since publication of the previous environmental documents, visual and scenic resources generally have not changed. The Jutland Drive park-and-ride facility is no longer part of the project.

The Draft SEIS/SEIR identified adverse impacts along several sections of the alignment and concluded that there would be moderate and moderately high visual changes at eight locations before mitigation. Under the Build Alternative and the Build Alternative with the VA Medical Center Station Option, no adverse impacts would occur with mitigation. With mitigation, the visual changes would be reduced to low to moderate at all locations with an adverse impact. The Draft SEIS/SEIR also concluded that under the Genesee Avenue Design Option, impacts at two locations would be considered adverse under NEPA and significant under CEQA.

This section has been revised based on comments received on the Draft SEIS/SEIR and updated analysis as a result of the refinements made to the Build Alternative. Specifically, the simulation of the I-5 crossing (Key View 26) has been revised to reflect the new crossing design that does not include straddle bents. Additionally, this Final SEIS/SEIR includes additional project measures to avoid or minimize visual impacts related to station lighting and traction power substations (TPSSs) based on comments received on the Draft SEIS/SEIR. The Refined Build Alternative does not include the Genesee Avenue Design Option. As a result, the impacts associated with that option have been eliminated. The conclusions in this section and for the visual impacts analysis remain unchanged for the Refined Build Alternative. With mitigation, the visual changes from the Refined Build Alternative would be reduced to low or moderate at all locations with an adverse impact.

Additionally, revisions were made to Chapter 5.0 of the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j). A new appendix (Appendix D) was added to this technical report documenting the additional visual analysis that was completed for Rose Canyon Open Space Park and Marian Bear Memorial Park. Appendix D also includes potential key views from trails within both parks and two visual simulations illustrating the location and scale of the project as seen from trails within Rose Canyon Open Space Park. These visual simulations and additional analysis were completed in response to comments received on the Draft SEIS/SEIR and to confirm the

conclusions presented in the Draft SEIS/SEIR regarding the visual impacts to these areas. The analysis concluded that the project would not contrast with the existing visual character or quality, and no adverse or significant impacts would occur. Therefore, the conclusions presented in the Draft SEIS/SEIR regarding no adverse or significant visual impacts to Rose Canyon Open Space Park remain unchanged in this Final SEIS/SEIR.

Chapter 5.0 of the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j) was also revised to reflect changes to the project design under the Refined Build Alternative. Project design changes were noted at the following Key Views: 14, 15, 16, 24, and 28; however, at each of these key views, impact conclusions remain unchanged. An updated simulation was prepared for Key View 28. Chapter 5.0 was also revised to reflect changes to the design of retaining and sound walls under the Refined Build Alternative. A discussion of safety walls also was added. With mitigation, there would not be adverse visual impacts as a result of retaining, sound, or safety walls. Refer to the Preface in the Visual Impacts Technical Report for additional information on the revisions to the visual analysis and technical report since the Draft SEIS/SEIR.

4.4.1 Regulatory Background and Methodology

The following sections describe the regulatory background and methodology used to determine visual impacts.

4.4.1.1 Regulatory Background

The FTA Circular 9400.1A, Design and Art in Transit Projects, contains policies to promote livable communities in and around transit systems by providing positive design and art elements to create vibrant spaces.

The Wild and Scenic Rivers Act (16 USC 1271–1287) was created in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition. The act is notable for safeguarding the special character of these rivers.

As stated in Section 4.1.1, portions of project development in the vicinity of Voigt Drive and the portions within the MTS right-of-way between the San Diego River and Balboa Avenue are located within the Coastal Zone and are subject to additional regulations under the Coastal Act and the federal CZMA. The Coastal Act provides the standard of review for the portions of the project within the Coastal Zone and includes specific policies that require consideration and protection of scenic and visual qualities of coastal areas.. Refer to Section 4.1 for additional information on Coastal Act and CZMA requirements.

The *City of San Diego General Plan* (City of San Diego, 2008a) includes policies to create multi-modal solutions, provide public art, promote sustainable development, prevent pollution, create vibrant public spaces, and support infrastructure development. Many policies focus on the visual character, major landmarks, and important scenic views and corridors within each community area. The community plans are part of the *City of San Diego General Plan* and provide specific policies relating to visual quality of each community.

4.4.1.2 Methodology

For purposes of assessing visual and aesthetic impacts, the FTA applies the FHWA guidelines. The FHWA assessment methodology is presented in the *Visual Impact Assessment for Highway Projects* (FHWA, 1988), which is applicable to many types of transportation projects. The methodology considers the level of change in visual quality and character (context of impact) and then applies the viewer experience (intensity of impact), which represents typical local values and goals. The assessment methodology includes the following components:

- Define the project setting and viewshed
- Determine who has project views
- Identify key views for visual assessment
- Analyze changes in existing visual resources and expected viewer response
- Depict the visual appearance of project alternatives
- Assess the visual impacts of project alternatives
- Propose methods to mitigate adverse visual impacts

"Visual impact" is defined as a change in visual character and quality of a visual resource and viewer response to that change, such as:

- Features are altered, introduced, made less visible, or are removed, such that the resultant effect is out of character with the existing visual environment. Changes seem out of place, discordant, or distracting.
- Views are substantially diminished or eliminated by screening or by blocking of the affected view, and/or physical access to public views is substantially restricted or eliminated.
- Locally important visual or scenic resources are removed, reduced, or changed to the extent that it results in a dramatic change in the visual character or quality of a viewing scene.

This evaluation uses the following terms—none or not applicable, low, moderate, moderately high, and high—to describe the level of visual change based on contrast, design quality, visibility, view duration, viewer response, and conformance to adopted plans. A visual change that is moderately high or high following mitigation could be adverse.

4.4.2 Affected Environment

The following resources along the project alignment represent important scenic resources, dominant landforms, highly valued viewing scenes, landmark architecture, or intact natural resources:

- Michael Graves architecture (Aventine Mixed Use Development) (Figure 4-7): Landmark along the I-5 corridor in University City
- Mission Bay: A local and regional landmark within the Coastal Zone (Figure 4-8 and Figure 4-9)

Figure 4-7. Unique Forms of Michael Graves Building (Hyatt Regency)

Source: SANDAG, 2012

Figure 4-8. Views to Mission Bay from the Bay Park Neighborhood

Source: KTU+A, 2012

Figure 4-9. Overview of Mission Bay

Source: KTU+A, 2012; Eagle Aerial, 2009

- San Diego California Church of Jesus Christ, Latter Day Saints Temple (Mormon Temple) (Figure 4-10): A distinctive visual landmark for the University City community
- UCSD: Recreational sports fields, university-related educational and medical facilities, Pepper Canyon
- University Towne Centre/ University City area: Shopping center and several high-end multistory office buildings and commercial complexes
- San Diego River corridor (Figure 4-11): Riparian habitat
- Tecolote, San Clemente, and Rose Canyons: Riparian habitat
- La Jolla Colony landscaping in the University City area: Screens residences and provides a landscaped vehicular corridor for commuters

Figure 4-10. Mormon Temple

Source: SANDAG, 2012

Figure 4-11. San Diego River

Source: SANDAG, 2012

- Mature eucalyptus trees providing a vegetative buffer between I-5 and the neighborhoods and commercial districts of Clairemont, and jacaranda trees providing visual interest along Morena Boulevard

Because the project is visible from a large area and there are many possible vantage points, representative viewpoints were identified and evaluated. As detailed in the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j), 94 potential key views were evaluated in the Draft SEIS/SEIR, representing different visual resources, such as regional landmarks, designated view corridors, and natural open spaces. These 94 potential key views were narrowed down to 32 candidate key views, identified as those views most clearly displaying the visual effects of the project. Figure 4-12 shows the locations of the 32 candidate key views. The candidate key views were refined based on screening, and 18 final key views were selected for detailed analysis, as described in Section 4.4.3.2.

There are no Wild and Scenic Rivers in the Mid-Coast Corridor.

Figure 4-12. Candidate Key View Photo Locations

Source: SANDAG, 2014

4.4.3 Environmental Impacts

This section describes the visual impacts of the No-Build and Refined Build Alternatives.

4.4.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be constructed, and service on bus Route 150 would be continued and enhanced. Buses would operate on existing or planned roadways, with limited physical improvements, such as new bus shelters within existing rights-of-way. Enhancement of Route 150 would not impact the existing visual quality, view quality, visual resources, or visual character of the corridor. Therefore, the No-Build Alternative would not have an adverse visual impact.

4.4.3.2 Refined Build Alternative

This section describes the impacts of the Refined Build Alternative with respect to key views and visual resources.

Impacts to Key Views

Of the 32 view locations originally evaluated for impacts in support of the Draft SEIS/SEIR, 18 final key views were selected for simulation and evaluation of project impacts. The final key views most clearly display the project's visual impacts and represent areas of high visual quality, regionally important views, and/or sensitive viewer groups. These final key views represent areas where the project could have an adverse impact to the visual setting for any of the following reasons:

- They are seen by a moderate-to-high number of viewers
- They are within areas of moderate-to-high visual quality
- They are in areas with a high level of sensitivity to change
- They include project elements that are visually prominent and likely to contrast with the visual setting where they are located

Two additional simulations were prepared in support of the Final SEIS/SEIR that illustrate the location and scale of the project as seen from trails within Rose Canyon Open Space Park. These visual simulations were completed in response to comments received on the Draft SEIS/SEIR and to confirm the conclusions presented in the Draft SEIS/SEIR regarding the visual impacts to these areas. The analysis concluded that the project would not contrast with the existing visual character or quality, and no adverse or significant impacts would occur. These simulations are included in Appendix D of the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j).

Table 4-4 summarizes project-related impacts for the final key views. Moderate, moderately high, and high levels of visual change have the potential to result in adverse impacts.

Moderately High Visual Changes

Figure 4-13 and Figure 4-14 show the two locations where the Refined Build Alternative would result in moderately high visual changes; at one location, impacts would be adverse without mitigation, and at the other, impacts would not be adverse.

Table 4-4. Summary of Impacts for Final Key Views

Key Views	Description	Visual Change				Adverse Impact Without Mitigation	Adverse Impact With Mitigation
		Visual Quality	Visual Resource	Viewer Response	View Quality		
Key Views 30 and 31	Looking southwest from Morena Blvd to Mission Bay	N	N	L	L	No	No
Key View 32	Looking east from I-5 to Santa Fe St	M	L	M	M	Yes	No
Key View 8	Looking southwest on La Jolla Colony Dr near Gilman Dr and I-5	M	MH	M	L	Yes	No
Key View 27	Looking north on La Jolla Colony Dr and I-5 northbound on-ramp	L	L	L	L	No	No
Key View 23	Looking north on I-5 north of La Jolla Colony Dr	M	M	M	L	Yes	No
Key View 7	Looking south at private HOA dog park from Charmant Dr	M	M	M	L	Yes	No
Key View 10	Looking northeast from 2nd floor at La Jolla Village Square	L	N	M	L	No	No
Key View 26	Looking southbound on I-5 south of Nobel Drive	MH	L	MH	N	No	No
Key View 24	Looking north on I-5 north of La Jolla Village Dr	M	L	M	N	Yes	No
Key View 12	Looking east into Pepper Canyon from UCSD residence halls	M	M	M	L	Yes	No
Key View 14	Looking west on Voigt Dr toward bridge on I-5	L	L	L	N	No	No
Key View 15	Looking northeast in stands from UCSD baseball field	L	L	L	L	No	No
Key View 28	Looking west along Voigt Dr toward I-5	L	L	L	N	No	No
Key View 16	Looking northwest from UCSD east commuter lot	L	L	L	N	No	No
Key View 18	Looking south from intersection of Executive Dr and Genesee Ave	M	L	M	M	Yes	No
Key View 20	Looking north at intersection of Genesee Ave and La Jolla Village Dr	M	L	M	M	Yes	No
Key View 19	Looking north from Westfield UTC along Genesee Ave	L	L	L	L	No	No

N None L Low M Moderate MH Moderately High

Source: SANDAG, 2014j
Note: HOA = homeowners association; UCSD = University of California, San Diego; UTC = University Towne Centre

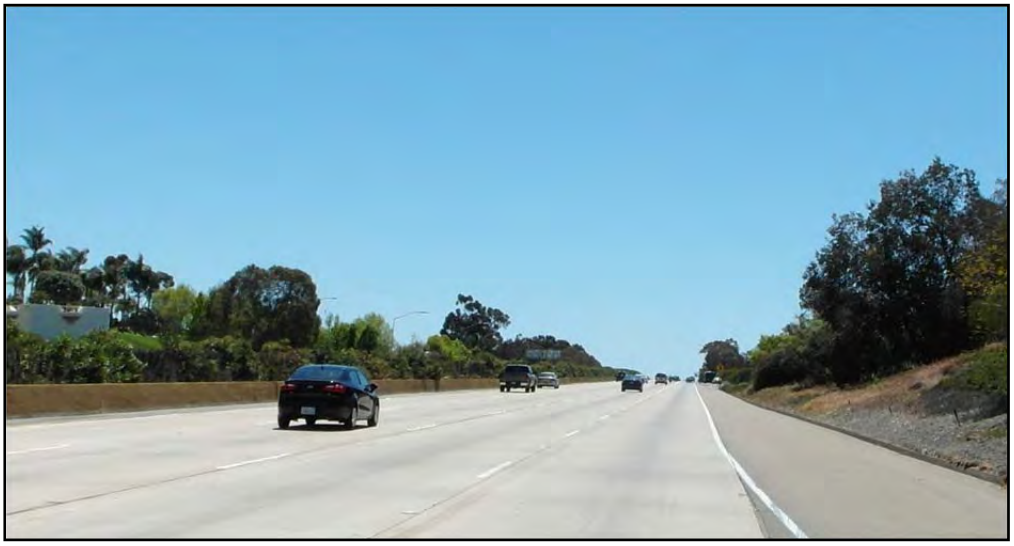
Figure 4-13. Key View No. 8
(Looking southwest on La Jolla Colony Drive near Gilman Drive and I-5)

Existing Conditions

Proposed Conditions Unmitigated

Note: This simulation represents an approximate rendering of project elements. The simulation shows the tops of the catenary poles, lines, and the concrete retaining walls. The simulation also reflects removal of existing landscaping, including several trees.

Figure 4-14. Key View No. 26
(Looking southbound on I-5 south of Nobel Drive)



Existing Conditions

Proposed Conditions Unmitigated

Note: This simulation represents an approximate rendering of project elements. The simulation illustrates the aerial structure as it crosses over the I-5 corridor with columns and catenary catenary wires and poles as the primary visible project features.

- Southwest at La Jolla Colony Drive near Gilman Drive and I-5 (Key View No. 8): Removal of prominent trees would reduce unity and intactness, and introduction of a retaining wall and fencing would contrast with the existing setting. This impact would be adverse without mitigation.
- Southbound on I-5 south of Nobel Drive (Key View No. 26): The support columns and massive scale of the I-5 crossing would contrast with the setting. No noteworthy visual resources would be removed. Given the impact location within an existing transportation corridor, the presence of other bridges and large structures throughout the I-5 corridor, and the low sensitivity and limited duration of exposure of viewer groups, this impact would not be considered adverse.

Moderate Visual Changes

The project would result in moderate visual impacts at the following locations; these impacts would be adverse without mitigation:

- East across Santa Fe Street from the northbound lanes of I-5 (Key View No. 32): Addition of retaining walls would contrast with visual setting of Rose Canyon.
- Northbound on I-5 north of La Jolla Colony Drive (Key View No. 23): Alteration of a landform and removal of mature trees would affect an existing visual resource and contrast with the existing visual setting.
- South to southwest toward the dog park along Charmant Drive (Key View No. 7): Removal of trees would affect an existing visual resource, and view of aerial structure would affect view quality and viewer response.
- North on I-5 north of La Jolla Village Drive (Key View No. 24): View of retaining wall at VA Medical Center and aerial structure leading away from wall would contrast strongly with setting.
- Pepper Canyon at UCSD (Key View No. 12): Loss of trees and vegetation within visual resource and view of aerial structure would affect an existing visual resource.
- South at the intersection of Executive Drive and Genesee Avenue (Key View No. 18): Aerial structure would be out of character with scale of street.
- North on Genesee Avenue at La Jolla Village Drive (Key View No. 20): Aerial structure would contrast with scale of street and buildings.

Impacts to Visual Resources

The following sections compare project features to visual resources along the alignment. Visually prominent features of the project include aerial structures, catenaries, bridges, retaining walls, topographic and grading changes, tree and vegetation removal, shade shelters, passenger platform areas, and station area parking lots and parking structures. If these visually prominent features affect highly sensitive and high quality visual environments, changes could result in a visual impact. Sensitive areas with visual resources within the corridor are described below.

San Diego River

The project calls for construction of a new bridge over the San Diego River. Project features would include a new aerial structure with tracks and catenary lines. This bridge would be located near several other existing bridges. Some removal of riparian vegetation would be required for the support columns, but the biological impact assessment has identified compensatory mitigation for permanent losses. The visual simulation of proposed improvements indicates the project features would neither contrast with the setting nor seem out of character with other elements in the area. Therefore, no adverse impacts would occur to this visual resource.

Mission Bay

A portion of the project alignment is located adjacent to Mission Bay and would include new rail lines, ballast, retaining walls, grading, and catenaries in this location. The catenaries would be a visually prominent feature for views from Morena Boulevard toward the water, but would not result in a dramatic change to the visual character or quality of the viewing scene. Existing residential areas along the east side of Morena Boulevard at lower elevations do not have views of the bay because of freeway and ancillary landscape and berm features. At higher elevations, the line of sight to Mission Bay from residences would be above any of the project features and, therefore, would not be affected. The Balboa Avenue Station and associated improvements would be located at a higher elevation. However, based on the station location, none of these improvements would block existing views of the bay. Therefore, no adverse impacts would occur.

Rose Canyon West and Rose Canyon North

Within Rose Canyon West and Rose Canyon North, project features would include tracks and catenaries. Project construction would entail limited grading, tree removal, and retaining walls. It would be built primarily within the existing MTS right-of-way where railroad tracks and other equipment already exist. The additional project features would not be visually prominent for recreational users because they would be adjacent to existing tracks, buildings, freeways, and above ground utilities, and mitigation measures would reduce the visual impact of retaining walls and the removal of trees and vegetation. Thus, with implementation of mitigation measures, the new project features would not contrast with the existing visual character or quality, and no adverse impacts would occur.

UCSD

At UCSD, project features include elevated structures, two stations, new rail lines, ballast, retaining walls, grading, catenary lines, and poles. The visual environment of the campus includes dense vegetation, including mature large trees interspersed with large-scale buildings that are often prominent in the surrounding landscape. Facilities associated with the project in this area would partially obstruct some existing views, and removal of some mature trees and vegetation may be required within Pepper Canyon. However, project features would not contrast substantially with the surrounding visual quality or character. The project would have a low-to-moderate visual change on the visual resources at UCSD that would not constitute an adverse impact.

The elevated structure would introduce a new visual element that would affect the physical and visual character of the adjacent Matthews Apartments, resulting in a localized adverse impact to the Matthews Apartments. This aerial structure would obstruct west-facing views. However, the obstructed views are not of the coast or of other scenic public view corridors. Coordination with UCSD would occur to implement station design features that would visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts. The project would have a low visual impact on the Matthews Apartments.

University Towne Centre/University City Area

The UTC and University City area contain architecture and mature landscaping with distinct visual character. The Refined Build Alternative includes an overhead structure with columns in the center of the Genesee Avenue median with two straddle bents on Genesee Avenue. One straddle bent would be located west of Regents Road where the alignment would enter Genesee Avenue, and the second straddle bent would be located at the intersection of Executive Square and Genesee Avenue to support the tracks and the station platform. The Refined Build Alternative would have a moderate adverse impact.

Project Measures to Avoid or Minimize Impacts

This section describes project measures to avoid or minimize visual impacts.

Stations

The proposed new Trolley stations would be designed to be consistent with the existing visual character of the surrounding communities and neighborhoods, and would support existing development.

Design of the UCSD West Station would be completed in coordination with UCSD to visually integrate the station with the Matthews Apartments, thus minimizing potential visual impacts.

Traction Power Substations

All TPSS enclosures located in highly urbanized and/or heavily traveled (vehicular or pedestrian) areas would be screened from public view with walls and/or vegetation. If walls are used, the material and design would be consistent with the existing visual character of the surrounding neighborhood. Additionally, TPSS enclosures would use the minimum footprint needed for operation and access.

All TPSS enclosures located in sensitive natural or public open space areas would also be screened from public view. Where appropriate, in sensitive natural open space areas, screening material would consist of native vegetation and would not use any non-native invasive species or noxious weeds. Screening vegetation for TPSS enclosures located near public open space areas, such as parks or public rights-of-way, and maintained by others would use ornamental plant material that is consistent with the surrounding or adjacent vegetation.

Lighting

At project stations and station areas, exterior lighting would include light fixtures for pedestrian safety, security, and signage. This lighting would be directed down and would minimize light trespass or spill-over into sensitive areas, such as residential neighborhoods, hotels, or medical facilities, using shielding where appropriate. Lighting levels would not exceed 2 foot-candles or more from the project area into the adjacent residential uses or other sensitive receptors. The project lighting would be designed to illuminate specific areas of the project site and station platforms, and the low level of lighting that would be visible from off-site locations would blend with the overall ambient glow that is associated with the immediate urban environment.

4.4.4 Mitigation Measures

The following mitigation measures, as implemented by SANDAG, would avoid or minimize adverse impacts. Mitigation measures would consist of design elements and/or landscaping. Examples of design elements and landscaping are provided in the *Mid-Coast Corridor Transit Project Visual Resources Technical Report* (SANDAG, 2014j), Chapter 6.0, Section 6.1.2 in Table 6-2 and Table 6-3. The following mitigation measures would incorporate design elements to minimize impacts:

VR1 The design of structures such as bridge columns, retaining walls, and sound walls within or adjacent to the Caltrans right-of-way would be compatible with Caltrans Design Guidelines, including those prepared for the I-5 North Coast Corridor Project.

VR2 Other structure elements beyond walls and columns would take into account contextual design principles. New architectural features, such as stairs, ramps, elevators, aerial structures, support columns, screen walls, bridge rail, and station design elements, would be similar to or compatible with the visual character and quality of the surrounding area.

VR3 Design plans developed for the project would include structure architectural design elements such as pilasters, recessed or raised concrete surfaces, and concrete surface treatments such as formliner textures and integrated colored concrete to reduce visual impacts associated with these elements.

The following mitigation measures would incorporate landscaping to minimize impacts:

VR4 Landscape design plans would be developed for the project by a qualified landscape architect and coordinated with local agencies and property owners. A plant establishment period would be included in construction documents developed for the project.

VR5 Where ornamental vegetation associated with maintained landscaped areas is affected, it would be replaced in-kind or with similar vegetation types and quantities contingent on the approval of the land owner.

VR6 Where the project requires removal of trees and the removal results in adverse visual impacts, a tree replacement ratio of 2:1 for trees larger than 6 inches in diameter at chest height and a 1:1 ratio for trees smaller than 6 inches in diameter at chest height would be implemented contingent on the approval of the land owner.

Specific tree replacement sizes, use of appropriate tree species, and consideration of native and low maintenance requirements would be determined by SANDAG in consultation with a qualified landscape architect and affected property owners.

VR7 All new plantings, regardless of location, would not include invasive plants or noxious weeds, but would include native and/or drought-resistant plants wherever appropriate. Replacement trees would not be planted in locations where their growth is likely to block a view corridor of a regionally important viewing scene.

A summary of impacts by level and type of mitigation for each of the key view locations is presented in Table 4-5. The effectiveness of the mitigation was evaluated to determine whether the severity of impacts could be reduced. As shown in the table, with mitigation at these key view locations, no adverse impacts would occur. Several of the measures above would apply to elements of the project regardless of the level of impact identified at key views.

4.4.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.4.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). The No-Build Alternative assumes development within the study area that would occur by 2030 with or without the Mid-Coast Corridor Transit Project. The principal change that would result from the No-Build Alternative is continuation and enhancement of Route 150 bus service between Downtown San Diego and the University City area. The modification of Route 150 would not reduce the existing visual quality, view quality, visual resources, or visual character of the corridor. The No-Build Alternative, therefore, would not have a significant visual impact and, accordingly, is not discussed further under the CEQA thresholds below.

Would the project substantially block a view of the coast and from the coast through a designated public view corridor as shown in an adopted community plan, the General Plan, or the Local Coastal Program?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not cause significant impacts because it would not substantially block coastal views or public view corridors. Drivers, cyclists, pedestrians, and area residents using Morena Boulevard would perceive a visual change with the addition of catenary poles and lines. The degree to which catenary poles and lines affect a view is dependent on the viewer's location and sensitivity. Although the catenary lines and poles do not block a high percentage of the view, their presence is visually dominant because of the views of the park and bay in the background.

Table 4-5. Summary of Mitigation Measures and Impacts for Final Key Views (Before and After Mitigation)

Key Views	Mitigation		Visual Changes				Impact	
	Design	Landscape	Visual Quality	Visual Resource	Viewer Response	View Quality	Adverse (NEPA)	Significant (CEQA)
Key View 7			**M**	**M**	**M**	L	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	L	No	No
Key View 8			**M**	**MH**	**M**	L	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	L	No	No
Key View 10			L	N	**M**	L	No	No
With Mitigation	√	√	L	N	L	L	No	No
Key View 12			**M**	**M**	**M**	L	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	L	No	No
Key View 14			L	L	L	N	No	No
With Mitigation		√	L	L	L	N	No	No
Key View 15			L	L	L	L	No	No
With Mitigation		√	L	L	L	N	No	No
Key View 16			L	L	L	N	No	No
With Mitigation		√	L	L	L	N	No	No
Key View 18			**M**	L	**M**	**M**	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	**M**	No	No
Key View 19			L	L	L	L	No	No
With Mitigation	√	√	L	L	L	L	No	No
Key View 20			**M**	L	**M**	**M**	**Yes**	**Yes**
With Mitigation	√	√	L	L	**M**	**M**	No	No
Key View 23			**M**	**M**	**M**	L	**Yes**	**Yes**
With Mitigation	√	√	L	**M**	**M**	L	No	No
Key View 24			M	L	**M**	N	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	N	No	No
Key View 26			**MH**	L	**MH**	N	**No**	**No**
With Mitigation	√		**M**	L	**M**	N	No	No
Key View 27			L	L	L	L	No	No
With Mitigation	√	√	L	L	L	L	No	No
Key View 28			L	L	L	N	No	No
With Mitigation		√	L	L	L	N	No	No
Key View 30 & 31			N	N	L	L	No	No
With Mitigation	√		N	N	L	L	No	No
Key View 32			**M**	L	**M**	**M**	**Yes**	**Yes**
With Mitigation	√	√	L	L	L	L	No	No

Legend: N = No Impact; L = Low Impact; M = Moderate Impact; MH = Moderately High Impact
Source: SANDAG, 2014j
Notes: Rows shaded in grey indicate the visual change and level of impact prior to mitigation. Rows in white indicate the visual change and level of impact with mitigation.
CEQA = California Environmental Quality Act; NEPA = National Environmental Policy Act

The number of viewers using Morena Boulevard is small and the duration in which views would be affected is short, lasting only a few seconds for motorists. In addition the elevation difference between Morena Boulevard and the existing grade of the tracks to the west would limit the extent to which the catenary lines and poles are expected to cross the viewer's line of sight. This would occur within a small segment of the corridor, about 300 feet of the 3,000-foot-long corridor (10 percent of the view corridor) where the alignment is parallel to Morena Boulevard. Therefore, the visual effects of the catenary lines and poles are considered less than significant.

At UCSD, the elevated structure would introduce a new visual element that would affect the physical and visual character of the adjacent Matthews Apartments, resulting in a localized significant impact to the Matthews Apartments. However, with implementation of the project measure described in Section 4.4.3.2 under the heading "Project Measures to Avoid or Minimize Impacts", this impact would not be significant. This aerial structure would obstruct west-facing views, but these views are not of the coast or of public view corridors, and the impact would not be significant.

Would the project substantially block a view from a public viewing area of a public resource (such as the ocean) that is considered significant by the applicable community plan?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not cause significant impacts. The project would not block views to the ocean. The previous threshold addressed the partial obstruction of views of Mission Bay and views from the Matthews Apartments at UCSD. From La Jolla Village Square, the project would affect views of significant local landmarks (the Mormon Temple and the Hyatt Regency Aventine Hotel). These views would be seen from the La Jolla Village Square surface parking lots, adjacent roads, walkways, and outdoor dining areas. The views would be partially obstructed by the aerial structure and station platform. However, as seen from this viewpoint, the obstruction would be similar to that presented by existing mature trees, and the landmarks would remain visible. The affected viewer groups would include retail workers and customers whose viewing duration and sensitivity to visual changes would be moderate. Views of the Mormon Temple and Hyatt Regency Aventine Hotel are not identified as significant public resources by the local community plan. Therefore, the impact to these views is considered less than significant.

Would the project strongly contrast with the surrounding development or natural topography through excessive height, bulk, signage, or architectural projections?

The Refined Build Alternative would cause some significant impacts. As a transit project, the project does not significantly conflict with the height, bulk, or coverage regulations of the applicable zoning ordinance. However, there are elements of the project that were evaluated for bulk, height, and scale from a visual perspective. Some walls, the aerial structure on I-5 south of Nobel Drive, and the aerial structures along Genesee Avenue are very large and would be out of scale with some features in the surrounding environment. The significance of these project features is discussed below.

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.4.3.2, impacts related to the aerial structure over I-5 south of Nobel Drive are considered less than significant because of the expected low level of view contrast, low sensitivity to change, the location of the impact within the I-5 corridor, the presence of bridges and similar structures throughout the I-5 corridor, and the limited duration of viewer exposure.

Significant Impact (Refined Build Alternative). The project includes several walls higher than 6 feet and longer than 50 feet that would result in strong visual contrast and significant impacts (i.e., considering wall visibility, viewer sensitivity, and viewer exposure), including seven retaining walls and one sound wall. The retaining wall in Rose Canyon, within the existing MTS right-of-way and east of the Rose Canyon Bicycle Path, would change the visual character from the path. The view, which provides long-distance views of Rose Canyon hillsides, would be blocked by the retaining wall, which would contrast sharply with the existing view/setting, with exposure of the wall instead of long-distance views occurring for a moderate duration of time. The five retaining walls and one sound wall along I-5 near La Jolla Colony Drive would significantly change the character of the existing setting due to the height and length of the walls and the larger number of viewers. The retaining wall along I-5 near the VA Medical Center would contrast strongly with the existing setting, which would be a significant impact.

Less-Than-Significant Impact (Refined Build Alternative). The other proposed retaining and sound walls would be partially visible and/or smaller than the walls described above, resulting in a lower view contrast and less-than-significant impacts. These walls would be seen by a moderate number of motorists, cyclists, and pedestrians along La Jolla Colony Drive, the Rose Canyon Bicycle Path, and miscellaneous Rose Canyon trails. Under CEQA, the level of impact would not be considered significant given the setting of these walls and the fact that the number of viewers from parks, recreation areas, or other public spaces and rights-of-way would be small. The remaining retaining walls would allow LRT trains to use open trenches where the topography changes, thereby avoiding or minimizing visual impacts associated with more extensive landform changes that would otherwise be required.

Would the project significantly alter the natural landform in a manner that substantially degrades the visual character of the surrounding area?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not cause significant impacts. The project would not disturb steep hillsides and would not result in major topographic changes. The project design does not include mass terracing of natural slopes with cut or fill slopes to construct flat-pad structures. Therefore, the project would have a less-than-significant impact on landform quality.

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

Less-Than-Significant Impact (Refined Build Alternative). With the exception of the loss of trees, discussed below, the Refined Build Alternative would not cause a significant impact. The project is generally located within a transportation corridor and would not create a disorganized appearance. The project elements are visually well organized,

consisting generally of very simple and well-designed forms and surface treatments. The project has been designed, engineered, and planned by engineers, architects, landscape architects, and planners, all with the intent to provide a positive design aesthetic while minimizing impacts to the environment and meeting the project's purpose and need.

Significant Impact (Refined Build Alternative). The loss of riparian trees and vegetation in both Rose Creek and Rose Canyon, and segments of the proposed project footprint from Gilman Drive to the I-5 crossover point south of Nobel Drive, through Pepper Canyon at UCSD, and along Voigt Drive to Genesee Avenue, would change the existing visual character of the project corridor. Therefore, the project would have a significant impact on these visual resources and the visual character of the project corridor within this area.

Several existing stands of trees along the alignment are noteworthy in size and quantity, are visually prominent, and contribute to the area's character. Their removal would contrast with the current setting that is composed of moderate-to-high-quality landscape units, including Rose Canyon North, La Jolla, University City Central, La Jolla Village, and University City North, that have a moderate-to-high sensitivity to change. A moderate to very high number of viewers would be affected by the removal of these trees. Although some viewers would have limited view durations, others would see this visual change for significant parts of the day. Therefore, the project would have a significant impact on these visual resources and the visual character of the project corridor within this area. The impacts of retaining walls and aerial structures to visual character and quality were discussed above.

Would the project emit or reflect a significant amount of light and glare that would adversely affect day or nighttime views in the area?

Less-Than-Significant Impact (Refined Build Alternative). The project would result in less-than-significant impacts with respect to light and glare and views in the area. In response to comments on the Draft SEIS/SEIR, project measures have been incorporated to further minimize light and glare, as described in Section 4.4.3.2 under the heading "Project Measures to Avoid or Minimize Impacts." The project lighting would be designed to illuminate specific areas of the project site and station platforms, and the low level of lighting that would be visible from off-site locations would blend with the overall ambient glow that is associated with the immediate urban environment.

Lighting associated with light rail vehicles (LRVs) on the aerial structures around the northern edge of the UCSD East Campus baseball stadium would be visible to ball players and spectators. However, this impact is expected to be less than significant.

4.4.5.2 Significance after Mitigation

Several significant environmental impacts discussed above would require mitigation to lessen the impacts. The mitigation measures for these impacts are described in Section 4.4.4.

The mitigation measures would be effective in reducing the impacts associated with the VA Medical Center wall and the aerial structure in the center of Genesee Avenue to a less-than-significant impact.

Walls identified as having a significant visual character impact under CEQA would require mitigation to improve their aesthetic quality. With implementation of aesthetic design treatments, as described in Section 4.4.4, the significant visual character impact would be reduced to a less-than-significant impact.

The effects on visual character include the loss of visual resources, including riparian trees and vegetation in and near Rose Creek and Rose Canyon and non-native tree groves along I-5 from Sea World Drive north to Balboa Avenue, and from Gilman Drive north through UCSD to Genesee Avenue. With implementation of design treatments, as described in Section 4.4.4, the significant visual impact would be reduced to a less-than-significant impact.

4.5 Air Quality

This section evaluates the air pollutant emissions that would occur under the No-Build and Refined Build Alternatives. Air pollution is a general term that refers to one or more chemical substances that degrade the atmosphere's quality. Air quality describes the amount of pollution in the air. Individual air pollutants affect the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or adversely affecting human or animal health. For more information, refer to the *Mid-Coast Corridor Transit Project Air Quality Impacts Technical Report* (SANDAG, 2014q) prepared in support of the SEIS/SEIR.

Similar to the findings of the prior environmental documents, the Draft SEIS/SEIR concluded that implementation of the project would reduce regional emissions of nearly all air pollutants. Similarly, results of the previous carbon monoxide (CO) hotspot analysis at intersections also concluded there would not be adverse impacts at intersections. The current analysis does not change any of the previous conclusions regarding regional emissions of air pollutants or CO hot spots. Both the prior environmental documents and this SEIS/SEIR include the heavily congested intersections of Mission Bay Drive and Garnet Avenue and an intersection along Genesee Avenue in the hotspot analysis and concluded that no CO exceedances would result. The project would have lower emissions burdens for all pollutants in the study area compared to the No-Build Alternative. Regionally, all pollutants except for particulate matter smaller than or equal to 10 microns in diameter (PM_{10}) would decrease under the project. PM_{10} would remain essentially unchanged. Overall, the project would have a beneficial air quality impact under NEPA. The project also was found to conform to the Clean Air Act Amendments (CAAA) (40 CFR 51) and the Final Transportation Conformity Rule (40 CFR Parts 51 and 93).

Comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any modifications to this section of the SEIS/SEIR, other than the minor editorial changes described in Section 4.0. The conclusions in this section and for the air quality analysis remain unchanged for the Refined Build Alternative. Overall, the Refined Build Alternative would have a beneficial air quality impact, would conform to CAAA and the Final Transportation Conformity Rule, and would have no significant air quality impacts.

4.5.1 Regulatory Background and Methodology

The Clean Air Act and CAAA require states and Metropolitan Planning Organizations to prepare air quality plans for nonattainment and maintenance areas that include strategies for attaining and maintaining the federal standards (referred to as State Implementation Plans [SIP]).

As required by the CAAA, National Ambient Air Quality Standards (NAAQS) have been established for six major air pollutants. Known as *criteria pollutants*, these include CO, nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and particulate matter equal to or smaller than 2.5 microns in diameter [$PM_{2.5}$]), sulfur dioxide (SO_2), and lead (Pb). In addition to these criteria pollutants, the Environmental Protection Agency (EPA) regulates air toxics and mobile source pollutants. Toxic air pollutants are those known

or suspected to cause cancer or other serious health impacts. Mobile Source Air Toxics are not generated by LRT projects, such as the Mid-Coast Corridor Transit Project.

According to 40 CFR Part 93.102, conformity determinations are required for projects in nonattainment and maintenance areas that require federal approval or funding. The Mid-Coast Corridor Transit Project would be required to comply with the EPA Transportation Conformity Rule (40 CFR Part 93).

The State of California also has established ambient air quality standards that are either the same or more stringent than the corresponding federal standards. California imposes standards for additional pollutants that are not generated by LRT projects.

The California Air Resources Board (CARB) is responsible for ensuring implementation of the California Clean Air Act and adherence to its requirements, including development of a SIP to attain and maintain NAAQS. In addition, CARB oversees the functions of local air pollution control districts, which have primary responsibility for issuing permits for stationary sources, and air quality management districts, which administer air quality activities at the regional and county levels. The San Diego Air Pollution Control District (SDAPCD) is responsible for permitting, monitoring air quality, planning, and implementing and enforcing programs designed to attain and maintain state and federal ambient air quality standards. The project area is located in the San Diego Air Basin, which encompasses all of San Diego County. The San Diego Air Basin's latest federal O_3 attainment plan (SDAPCD, 2007) continues commitments in its previous SIPs to reducing O_3 emissions. Locally, the City of San Diego also has adopted air quality standards.

CARB provided the existing (monitored) air quality levels; existing and future traffic conditions were obtained from the Series 11 model. Vehicular emission factors were obtained from CARB's EMission FACtor program, EMFAC2007, the EPA-approved emission inventory model for calculating mobile source emission factors for vehicles operating on state roads. The program used San Diego County input parameters.

The regional emissions analysis of a project determines a project's overall impact on air quality. For the Mid-Coast Corridor Transit Project, analyses were conducted for the study area and for the entire region. The analysis was based on estimates of regional VMT and vehicle hours traveled.

A CO hotspot analysis was performed following guidance provided in the EPA-approved *Transportation Project-Level Carbon Monoxide Protocol* (UCD-ITS-RR-97-21) developed by Caltrans and the Institute of Transportation Studies at the University of California, Davis (December, 1997) to assess impacts from congestion near project-area intersections and park-and-ride lots. The analysis considers the project's location, nearby receptors, traffic volumes, and level of service and air quality conditions for existing and future years.

4.5.2 Affected Environment

This section includes a description of the existing air quality conditions and an analysis of applicable criteria pollutants (O_3, PM_{10}, $PM_{2.5}$, CO, NO_2, Pb, and SO_2). As shown in Table 4-6, the EPA classifies San Diego County as a federal nonattainment area for O_3 and a maintenance area for CO. San Diego County is a state nonattainment area for O_3, PM_{10}, and $PM_{2.5}$.

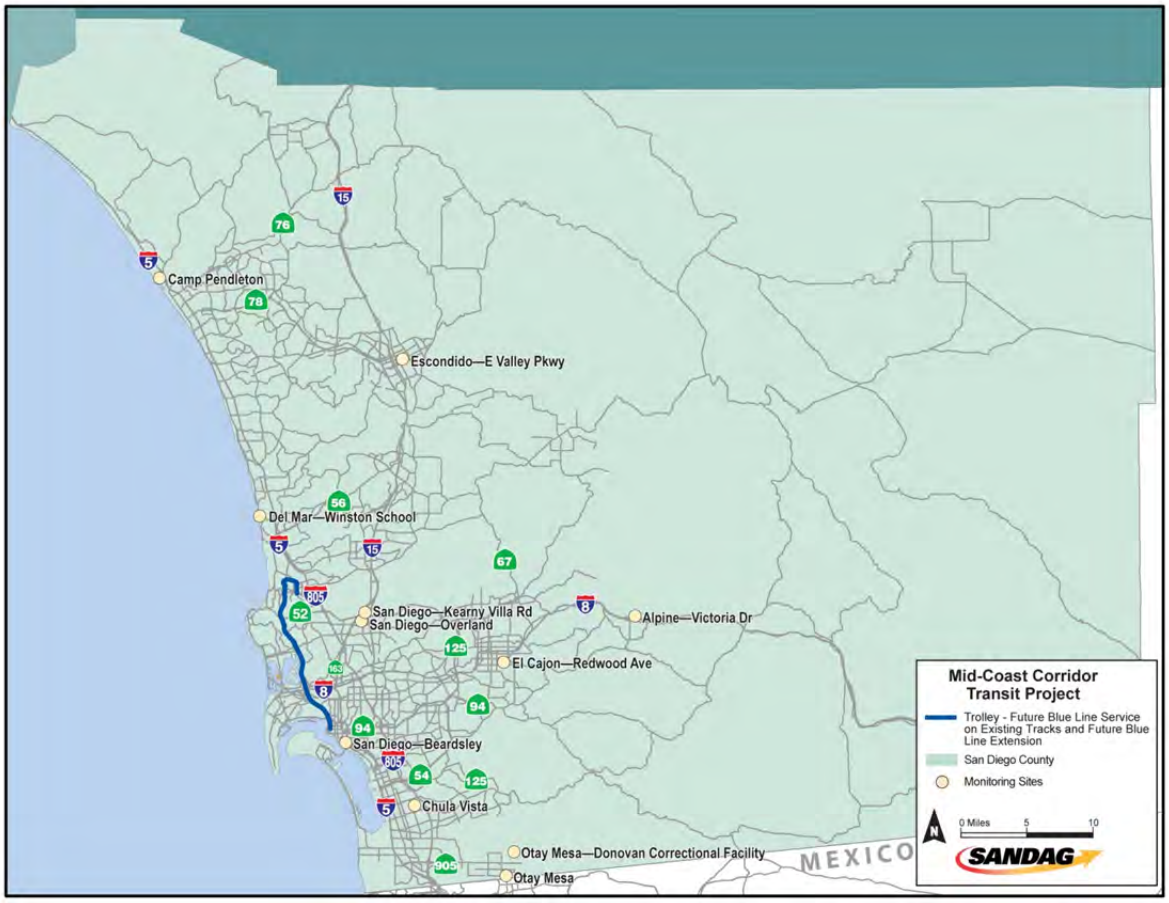
Table 4-6. Regional Air Quality Attainment Status

Pollutant	State	Federal
Ozone (O_3)	Nonattainment	Nonattainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Carbon Monoxide (CO)	Attainment	Attainment/Maintenance
Particulate Matter (PM_{10})	Nonattainment	Attainment
Particulate Matter ($PM_{2.5}$)	Nonattainment	Attainment
All others	Attainment	Attainment

Source: CARB, 2012a

CARB compiles ambient air quality data from monitoring stations, but none are located within the study area (Figure 4-15). Data collected from the monitoring stations nearest to the study area (San Diego–Overland and San Diego–Beardsley) from 2008 through 2010 were used as an estimate of background air quality concentrations (CARB, 2008–2010). Table 4-7 presents the number of exceedances and the maximum pollutant concentrations for the measurement intervals at these stations.

Figure 4-15. Regional Air Quality Monitoring Sites



Source: CARB, 2012b

Table 4-7. Ambient Air Quality Monitored Data, 2008–2010

Air Pollutant	Standard/ Exceedance*	Overland Avenue San Diego			1110 Beardsley Street San Diego		
		2008	2009	2010	2008	2009	2010
Carbon Monoxide (CO)	Maximum 1-hour concentration (ppm)	NM	NM	NM	3.5	4.0	2.8
	Maximum 8-hour concentration (ppm)	NM	NM	NM	2.6	2.8	2.2
	# days>federal 1-hour std. of >35 ppm	NM	NM	NM	0	0	0
	# days>federal 8-hour std. of >9 ppm	NM	NM	NM	0	0	0
	# days>California 8-hour std. of >9.0 ppm	NM	NM	NM	0	0	0
Ozone (O_3)	Maximum 1-hour concentration (ppm)	0.100	0.105	0.100	0.087	0.085	0.078
	Maximum 8-hour concentration (ppm)	0.093	0.082	0.073	0.073	0.063	0.066
	# days>federal 8-hour std. of >0.075 ppm	5	1	0	0	0	0
	# days>California 1-hour std. of >0.09 ppm	4	2	2	0	0	0
	# days>California 8-hour std. of >0.07 ppm	12	3	3	1	0	0
Nitrogen Dioxide (NO_2)	Maximum 1-hour concentration (ppm)	0.077	0.060	0.073	0.091	0.078	0.077
	Annual average (ppm)	0.014	0.014	0.013	0.019	0.017	0.015
	# days>California 1-hour std. of >0.18 ppm	0	0	0	0	0	0
Sulfur Dioxide (SO_2)	Maximum 24-hour concentration (ppm)	NM	NM	NM	0.007	0.006	0.002
	Annual average (ppm)	NM	NM	NM	0.003	0.001	0.000
Suspended Particulates (PM_{10})	Maximum 24-hour concentration (µg/m^3)	41.0	50.0	33.0	58.0	59.0	40.0
	#days>federal 24-hour std. of>150 µg/m^3	0	0	0	0	0	0
	#days>California 24-hour std. of>50 µg/m^3	0	0	0	4	3	0
	State annual average (µg/m^3)	23.8	24.9	18.7	29.3	29.4	23.4
Suspended Particulates ($PM_{2.5}$)	Maximum 24-hour concentration (µg/m^3)	27.2	25.1	18.7	42.0	52.1	29.7
	State annual average (µg/m^3)	*	10.5	8.7	10.7	11.8	*
	#days>federal 24-hour std. of>35 µg/m^3	0	0	0	3	3	0
	National annual average (µg/m^3)	*	10.5	8.7	13.7	11.7	10.4

Sources: CARB, 2008–2010; EPA, 2012 (for 1-hour and 8-hour CO only)
Notes: µg/m^3 = micrograms per cubic meter; NM = not measured; ppm = parts per million; std = standard
* = Insufficient data available to determine value

4.5.3 Environmental Impacts

This section describes air quality impacts, including results from a regional emissions analysis, under the No-Build and Refined Build Alternatives. Additionally, the local impacts and hotspot assessments and a conformity assessment are provided for the Refined Build Alternative. The analysis uses existing traffic data and forecasted traffic data for 2030 to allow for a comparison of the project's impact on existing and future year conditions. Air quality is based on the VMT and average network speed. Table 4-8 presents the criteria pollutant emission burdens for roadways based on VMT and EMFAC2007 emission rates for both the study area and the region.

Table 4-8. Existing and Projected Criteria Pollutant Emission Burdens, 2010 and 2030

Alternative	Roadway VMT[1]		CO (kg/day)		TOG (kg/day)		NOx (kg/day)		SO_2 (kg/day)		PM_{10} (kg/day)		$PM_{2.5}$ (kg/day)	
	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region
2010														
Existing Conditions	10,693,438	82,485,102	37,915	269,451	2,204	14,588	9,321	71,595	52	363	621	4,323	429	2,887
Existing Conditions with Refined Build Alternative[2]	10,628,469 (<1%)	82,329,327 (<1%)	37,235 (-1.8%)	268,955 (<1%)	2,197 (<1%)	14,562 (<1%)	9,369 (<1%)	71,457 (<1%)	52 (0%)	362 (<1%)	612 (-1.4%)	4,315 (<1%)	421 (-1.9%)	2,882 (<1%)
2030														
No-Build Alternative[3]	12,472,150	103,645,716	15,318	115,883	1,053	6,883	3,581	26,965	63	451	651	4,674	438	2,961
Refined Build Alternative[4]	12,407,490 (<1%)	103,512,567 (<1%)	15,239 (<1%)	115,109 (<1%)	1,047 (<1%)	6,857 (<1%)	3,553 (<1%)	26,825 (<1%)	63 (0%)	451 (0%)	647 (<1%)	4,692 (<1%)	436 (<1%)	2,928 (-1.1%)

Sources: CARB, 2008–2010; SANDAG, 2014q

Notes: CO = carbon monoxide; kg = kilograms; NO_x = nitrogen oxides; $PM_{2.5}$ = particulate matter equal to or smaller than 2.5 microns in diameter; PM_{10} = particulate matter equal to or smaller than 10 microns in diameter; SO_2 = sulfur dioxide; TOG = total organic gases; VMT = vehicle miles traveled

[1] Includes on-road VMT, including bus transit

[2] Number in parenthesis is the percent change relative to existing conditions. Values less than 1 percent (<1%) are within the margin of error of the modeling software; therefore, conditions are considered essentially unchanged.

[3] Emission burdens for the No-Build Alternative are associated with the assumed implementation of projects and growth characterized in the 2030 RTP. No measurable increase is associated with continuation and enhancement of bus Route 150.

[4] Number in parenthesis is the percent change relative to the No-Build Alternative. Values less than 1 percent (<1%) are within the margin of error of the modeling software; therefore, conditions are considered essentially unchanged.

4.5.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be built and service on bus Route 150 would be continued and enhanced. Continuation and enhancement of bus Route 150 would not measurably add to the emission burdens for the study area and region, but VMT would increase under the No-Build Alternative. Table 4-8 presents estimated roadway VMT and regional pollutant emission burdens for the study area and region in 2030 under the No-Build Alternative.

The No-Build Alternative has the highest projected roadway VMT. However, emissions of CO, total organic gases (TOG), and nitrogen oxides (NO_X) would be lower under the No-Build Alternative when compared to existing conditions as a result of improved fuel efficiency and pollution controls on future automobiles with respect to these pollutants. Levels of SO_2, PM_{10}, and $PM_{2.5}$ would be higher in 2030 under the No-Build Alternative compared to existing conditions. This is a result of increased VMT within the study area and the region under the No-Build Alternative. As a result, the No-Build Alternative would have an adverse impact on air quality.

4.5.3.2 Refined Build Alternative

The following sections describe the results of the air quality analysis for the Refined Build Alternative, as compared to the No-Build Alternative, in 2030. The project was included in the 2030 RTP, which was determined by the USDOT to conform to the SIP on October 4, 2004 and May 20, 2005. Subsequently, SANDAG adopted the 2050 RTP as the current Regional Transportation Plan, which was determined by the USDOT to conform to the SIP on December 2, 2011.

Local and Regional Emissions

Emissions burdens in the study area for all pollutants would be lower under the Refined Build Alternative compared to the No-Build Alternative. Regionally, all pollutants except for PM_{10} would decrease under the Refined Build Alternative. PM_{10} levels would remain essentially unchanged on a regional basis.[6] Therefore, impacts would not be adverse and would be beneficial to the study area and region.

Microscale Carbon Monoxide Analysis

Because San Diego County is a maintenance area for CO, the EPA requires a CO hotspot analysis for intersections likely to worsen to level of service E or F in 2030. Three intersections representing the locations where the maximum impact of the Refined Build Alternative is expected to occur were evaluated. The analyses of the maximum 1-hour CO concentrations and maximum 8-hour CO concentrations revealed no violations of the NAAQS would occur under the Refined Build Alternative; therefore, no adverse impacts would occur.

[6] Pollutant emission burden calculations are sensitive to small changes in forecast VMT and average speeds. As a result, calculated changes of less than 1 percent fall within the uncertainty of the calculation and are considered to be the same at a regional level.

Transportation Conformity Analysis

SANDAG used the latest planning assumptions in conjunction with EMFAC2007 for the purpose of preparing the regional conformity analyses. SANDAG adopted the 2030 RTP on November 30, 2007. Additionally, SANDAG adopted the *2010 Regional Transportation Improvement Program* (SANDAG, 2010h) on September 24, 2010, which was approved by FHWA/FTA on December 14, 2010 as conforming to the SIP. The project is also included in the 2050 RTP, which was determined by the USDOT to conform to the SIP on December 2, 2011. Thus, it is a regionally conforming project. The California *Transportation Project-Level Carbon Monoxide Protocol* (UCD-ITS-RR-97-21) was used to conduct a CO analysis to determine whether the project conforms at the local level. Based on the results of the CO analysis, the project is not predicted to cause or exacerbate a violation of the NAAQS. Therefore, the project conforms to the CAAA and the Final Transportation Conformity Rule.

The Refined Build Alternative would have lower emissions burdens in the study area for all pollutants compared to the No-Build Alternative. Regionally, all pollutants except for PM_{10}, which would remain essentially unchanged, would decrease under the Refined Build Alternative. As such, the Mid-Coast Corridor Transit Project is a conforming project from a regional viewpoint.

4.5.4 Mitigation Measures

Operation of the Refined Build Alternative is not expected to measurably increase regional emissions. Most criteria pollutants would decrease under the Refined Build Alternative, with the exception of PM_{10}, which would remain essentially unchanged. As such, operational activity would be generally beneficial to air quality, and mitigation measures are not required.

4.5.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.5.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

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

Significant Impact (No-Build Alternative). The No-Build Alternative would conflict with plans to lower levels of SO_2, PM_{10}, and $PM_{2.5}$, which would be higher under the No-Build Alternative compared to the Refined Build Alternative. Under the No-Build Alternative, the benefits of the Refined Build Alternative in terms of decreased VMT within the study area and the region would not be realized and, consequently, air emissions for SO_2, PM_{10}, and $PM_{2.5}$ would be higher (see Table 4-8 and Section 4.5.3.1 for additional information).

No Impact (Refined Build Alternative). The Refined Build Alternative would not conflict with or obstruct implementation of an applicable air quality plan. The Mid-Coast Corridor Transit Project is included in the 2030 RTP and 2050 RTP, both of which were approved by FHWA and FTA as conforming to the SIP.

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

Significant Impact (No-Build Alternative). Levels of SO_2, PM_{10}, and $PM_{2.5}$ would be higher under the No-Build Alternative compared to the Refined Build Alternative because of an increase in VMT within the study area and the region that would result from not implementing the project. Because San Diego does not meet air quality standards for PM_{10} and $PM_{2.5}$, the No-Build Alternative would contribute to future violations of air quality standards (see Table 4-8 and Section 4.5.3.1 for additional information).

No Impact (Refined Build Alternative). The Refined Build Alternative would have no impact and would provide a benefit as it would reduce or have no effect on pollutants (see Table 4-8 and Section 4.5.3.2 for additional information). On a regional basis, all pollutants except for PM_{10} would decrease under the project, as compared to the existing conditions in 2010 and the No-Build Alternative in 2030. PM_{10} would be essentially unchanged.

Would the project expose sensitive receptors to substantial pollutant concentrations?

No Impact (No-Build and Refined Build Alternatives). No significant impact would occur under the No-Build or Refined Build Alternatives. Congested intersections could expose sensitive receptors to substantial pollutant concentrations if CO concentrations exceed NAAQS standards, resulting in a CO hotspot. The greatest amount of intersection congestion would occur in 2030. A CO hotspot analysis was conducted, and no NAAQS violations are predicted at the intersections representing the maximum project impact level under the No-Build or Refined Build Alternatives (see Sections 4.5.3.1 and 4.5.3.2 for additional information). .

Would the project create objectionable odors affecting a substantial number of people?

No Impact (No-Build Alternative). The No-Build Alternative would not result in a significant impact because it would not create changes that would cause objectionable odors.

No Impact (Refined Build Alternative). Operation of the Refined Build Alternative would not result in a significant impact because the Trolley system would operate on electric power and would not produce odors.

4.5.5.2 Significance after Mitigation

No significant impacts would occur as a result of the Refined Build Alternative. As such, mitigation measures are not required. Overall, the project would be beneficial to air quality.

4.6 Climate Change

This section discusses the global climate change issue related to greenhouse gas (GHG) emissions for the No-Build and Refined Build Alternatives and the associated regulatory background and methodology. For additional information, refer to the *Mid-Coast Corridor Transit Project Air Quality Impacts Technical Report* (SANDAG, 2014q). The global climate change issue of sea level rise is addressed in Section 4.9 and the *Mid-Coast Corridor Transit Project Water Impact Analysis Technical Report* (SANDAG, 2014m) prepared in support of the SEIS/SEIR.

Climate change issues were not discussed in previous environmental documents. The analysis in the Draft SEIS/SEIR determined that no adverse long-term impacts related to GHG emissions would occur. The project would be beneficial under NEPA and less than significant under CEQA. Other than the editorial changes described in Section 4.0, comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to this section of the SEIS/SEIR. The conclusions in this section and for the climate change analysis remain unchanged for the Refined Build Alternative. The Refined Build Alternative would be beneficial under NEPA and would have no impacts under CEQA.

4.6.1 Regulatory Background and Methodology

Although climate change and reductions in GHG emissions are a concern at the federal level, no federal regulations currently exist regarding transportation projects. Additionally, legislation has not been enacted at the project level. The EPA, the FTA, and the FHWA have not promulgated explicit guidance or methodology to conduct project-level GHG analysis.

USDOT has four strategies to reduce climate change impacts, which also relate to California's efforts to deal with transportation and climate change: improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in the growth of VMT.

On December 7, 2009, the EPA Administrator signed two distinct findings regarding GHGs under Section 202(a) of the federal Clean Air Act: 1) that current and projected concentrations of atmospheric GHGs threaten public health and welfare of current and future generations, and 2) that the combined emissions of these GHGs from new motor vehicles and engines contribute to the GHG pollution that threatens public health and welfare. These findings were followed on May 7, 2010, with publication in the *Federal Register* of final Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards.

At the state level, California launched an innovative and proactive approach to dealing with GHG emissions and climate change through the passage of several pieces of legislation, including State Senate Bills (SB), Assembly Bills (AB), and Executive Orders. The Global Warming Solution Act of 2006 (AB 32), Executive Order S-3-05, and AB 1493 outline California's major initiatives for reducing GHG emissions.

Implementation of AB 32 has given rise to legislation, such as SB 375, that requires CARB to set regional targets for reducing GHG emissions from passenger vehicles for

2020 and 2035. The targets apply to the regions covered by California's 18 metropolitan planning organizations, including SANDAG. In 2010, as required by SB 97, the *CEQA Guidelines* were amended to address GHG emissions.

The 2030 RTP identified that the region is affected by global climate change and identified two approaches to reducing the region's GHG emissions: a reduction in VMT and the use of cleaner vehicles when traveling. The 2030 RTP stated that smart growth and demand management choices are integral to reducing energy and GHG emissions.

As part of the development of a Sustainable Communities Strategy for the 2050 RTP, and in compliance with SB 375, SANDAG followed a regional Climate Action Strategy to identify land use, transportation, and related policy measures and investments that could reduce GHGs from passenger cars and light-duty trucks. Policy measures are also identified for buildings and energy use, protecting transportation and energy infrastructure from climate impacts, and to help SANDAG and local jurisdictions reduce GHGs from their operations.

The impact of the project on roadway traffic is reflected in changes in the region's VMT and associated vehicular speeds. This methodology is in agreement with draft inventory guidance being developed by the GHG CEQA Significance Threshold Stakeholder Working Group No. 9 and presented at its working group meeting on March 19, 2009. The roadway GHG emission burdens were estimated based on the on-road fleet's GHG emission factors and VMT. To estimate on-road GHG mobile source emission factors, CARB's modeling tool called EMFAC2007 was used, which is based on speed, vehicle mix, and analysis year. The model predicted fuel economy factors that are forecast to improve only slightly between 2008 and 2035. Thus, the model and associated conclusion do not reflect recent regulatory actions that should result in substantial future improvements in fuel economy and carbon dioxide (CO_2) emission factors; therefore, future emissions should be less than predicted in this analysis.

GHG emissions resulting from additional power requirements for the project were calculated using EPA's Emissions and Generation Resource Integrated Database emission factors for California. Future GHG emissions were projected using the same mixture of electricity generation currently in use. Any shift to renewable energy sources for electricity generation would reduce predicted future GHG emissions associated with electricity.

4.6.2 Affected Environment

The GHG analysis includes emissions from roadways based on VMT and EMFAC2007 emission rates, as well as emissions from the Trolley, based on the energy use of the system. GHG emissions, shown as CO_2 equivalent, for both the Mid-Coast Corridor study area and the San Diego region in 2010 are presented in Table 4-9.

Table 4-9. Existing and Projected Greenhouse Gas Emission Burdens, 2010 and 2030

Alternative	Roadway VMT[1]		Roadway CO_2e (metric tons/day)		Trolley CO_2e (metric tons/day)		Total CO_2e (metric tons/day)		Percent Change in CO_2e from Existing/ No-Build	
	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region	Study Area	Region
2010										
Existing Conditions	10,693,438	82,485,102	5,296	37,382	20	56	5,316	37,439	-	-
Existing Conditions with Refined Build Alternative	10,628,469	82,329,327	5,271	37,313	37	74	5,308	37,387	-0.2%	-0.1%
2030										
No-Build Alternative[2]	12,472,150	103,645,716	6,490	46,179	19	64	6,509	46,243	-	-
Refined Build Alternative	12,407,490	103,512,567	6,457	45,919	37	81	6,494	46,000	-0.2%	-0.6%

Source: SANDAG, 2014q

Notes: Totals may not sum because of rounding. CO_2e = CO_2 equivalent; VMT = vehicle miles traveled

[1] Includes on-road VMT, including bus transit

[2] Emission burdens for the No-Build Alternative are associated with the assumed implementation of projects and growth characterized in the 2030 RTP. No measurable increase is associated with continuation and enhancement of bus Route 150.

4.6.3 Environmental Impacts

This section describes GHG impacts under the No-Build and Refined Build Alternatives.

4.6.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be built and bus Route 150 would be continued and enhanced. Continuation and enhancement of bus Route 150 would not measurably add to GHG, but GHG emissions related to additional VMT would increase under the No-Build Alternative. Table 4-9 presents roadway VMT and GHG emissions expressed as metric tons of CO_2 equivalent for roadways and the Trolley in 2030. As shown, total GHG emission burdens would increase by 2030 with the No-Build Alternative as a result of the increase in VMT; however, GHG emissions related to Trolley energy use would decrease in the study area. The net reduction in GHG emissions that would occur under the Refined Build Alternative would not be realized under the No-Build Alternative, which is an adverse impact.

4.6.3.2 Refined Build Alternative

Compared to the No-Build Alternative, the Refined Build Alternative would have lower roadway GHG emissions because of projected decreases in VMT associated with the project (Table 4-9). However, the Refined Build Alternative would have increased GHG emissions from Trolley energy use in the study area and at the regional level compared to the No-Build Alternative. This increase would be offset by the decrease in roadway GHG emissions, and total GHG emissions would decrease overall. This is considered beneficial.

4.6.4 Mitigation Measures

As shown in Table 4-9, operation of the Refined Build Alternative is expected to decrease GHG emissions in the study area by about 0.2 percent. Regionally, GHG emissions would decrease 0.6 percent under the Refined Build Alternative. As such, the project would have a beneficial effect on GHG emissions, and mitigation measures would not be required.

4.6.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.6.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Significant Impact (No-Build Alternative). GHG levels would be higher under the No-Build Alternative compared to the Refined Build Alternative because of increased VMT within the study area and the region. This is because the planned reductions in GHG emissions that would result from implementation of the project would not be realized (see Table 4-9 and Section 4.6.3 for additional information).

No Impact (Refined Build Alternative). The Refined Build Alternative would have no impact because it would reduce GHG emissions when compared to existing conditions or the No-Build Alternative in 2030 (see Table 4-9 and Section 4.6.3.2 for additional information). The lower GHG emissions result from projected decreases in VMT with the project. The increased energy requirements of the Trolley would increase GHG emissions at both the study area and regional levels. However, this increase is offset by the decrease in roadway-related GHG emissions, resulting in a net overall decrease in total GHG. This would be a beneficial effect on GHG emissions.

Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions?

Significant Impact (No-Build Alternative). The No-Build Alternative would result in a significant impact because it is not consistent with the 2030 RTP and 2050 RTP, which include implementation of the Mid-Coast Corridor Transit Project as one method of reducing GHG emissions.

No Impact (Refined Build Alternative). The Refined Build Alternative would have no impact because it is consistent with policies in the 2030 RTP and 2050 RTP that are designed to reduce GHG emissions.

4.6.5.2 Significance after Mitigation

The project would have beneficial impacts with respect to GHG emissions and would not conflict with an applicable adopted plan, policy, or regulation. Therefore, no mitigation measures are required and the Refined Build Alternative would have no significant impact on GHG emissions.

4.7 Noise and Vibration

This section describes the noise and vibration impacts under the No-Build and Refined Build Alternatives. The federal, state, and city criteria used to determine impacts and measures for mitigation also are described. For more information, refer to the *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p) prepared in support of the SEIS/SEIR.

The prior environmental documents evaluated noise and vibration impacts for the project alignment north of the OTTC; no noise or vibration analysis was conducted for the area south of the OTTC. The prior environmental documents identified noise impacts at four locations and proposed a noise barrier at Balboa Avenue and Morena Boulevard to reduce noise from the change in traffic circulation. The prior environmental documents also proposed noise barriers at four other locations, including the La Paz condominium complex. The prior environmental documents concluded that with implementation of mitigation, there would be no significant noise impacts as a result of the project. No vibration impacts were identified in the prior environmental documents and, therefore, vibration mitigation was not proposed.

Since the prior environmental documents were completed, development and redevelopment in the corridor have been concentrated primarily in the Downtown San Diego and University City areas, although increases in ambient noise have occurred throughout the corridor. Analysis of noise impacts south of the OTTC is included in the analysis presented in the SEIS/SEIR. Two impacts identified in the prior environmental documents were eliminated by changes to the alignment reflected under the Build Alternative in the Draft SEIS/SEIR. The Draft SEIS/SEIR identified impacts that required mitigation at seven locations, including one south of the OTTC. Two of these locations were identified in the prior environmental documents (a multifamily unit and a hotel), and five locations were new. Based on detailed analysis of the roadway and station design at Balboa Avenue and Morena Boulevard, no noise impact was identified at that location in the Draft SEIS/SEIR. As a result, no noise barrier at Balboa Avenue and Morena Boulevard was proposed. The Draft SEIS/SEIR incorporated mitigation measures similar to those described in the prior environmental documents, modified as appropriate to address the location of noise impacts associated with the Build Alternative alignment. The Draft SEIS/SEIR concluded that with implementation of the mitigation measures, there would be no significant noise impacts as a result of the project.

The Draft SEIS/SEIR identified one vibration impact under the Build Alternative and the Build Alternative with the VA Medical Center Station Option and two vibration impacts under the Genesee Avenue Design Option that would be considered impacts under NEPA and significant impacts under CEQA. Mitigation was identified for these vibration impacts. The Draft SEIS/SEIR concluded that with implementation of the mitigation measures, there would be no significant vibration impacts as a result of the project.

This section has been revised based on comments received on the Draft SEIS/SEIR, the elimination of the Genesee Avenue Design Option, and the updated analysis for refinements made to the Build Alternative. Because the Refined Build Alternative does not include the Genesee Avenue Design Option, the two vibration impacts associated with that option have been avoided (i.e., Clusters 88 and 89 La Jolla Country Day School and La Jolla Canyon

Apartments). One vibration impact under the Refined Build Alternative is still identified in this Final SEIS/SEIR, and mitigation is proposed for this impact that reduces it to a less-than-significant level.

Refinement to the project design eliminated three of the seven noise impacts requiring mitigation that were identified in the Draft SEIS/SEIR (i.e., moderate noise impacts at Cluster 56b Marian Bear Memorial Park, Cluster 79 Scripps Memorial Hospital La Jolla [Scripps Hospital], and Cluster 83 La Jolla Vista Townhouses were eliminated). A new location for noise impacts was identified for apartments at Cluster 71 (Loft Apartments at the Shops at La Jolla Village shopping center) due to a change in the location of special trackwork, bringing the total locations requiring mitigation to five; mitigation is proposed for all five locations. The mitigation identified reduces the five impacts below the moderate noise threshold under NEPA and to less than significant under CEQA.

In response to comments on the Draft SEIS/SEIR, additional noise analysis within Rose Canyon Open Space Park was completed. The results of this analysis are summarized in Section 4.7.3.2 of this Final SEIS/SEIR and detailed in Chapter 5.0 of the *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p). Also in response to comments, additional noise measurements were taken and analysis completed near UCSD residences; the conclusions in the Draft SEIS/SEIR for the UCSD residences remain unchanged for the Final SEIS/SEIR. Refer to the Preface in the Noise and Vibration Impacts Technical Report for additional information on the changes to the noise analysis since the Draft SEIS/SEIR.

In summary, the conclusions in this section and for the noise and vibration analyses remain unchanged for the Refined Build Alternative. Without mitigation, the Refined Build Alternative would result in noise and vibration impacts caused by LRV operations on the proposed LRT alignment. With implementation of the mitigation measures, there would be no significant noise or vibration impacts as a result of the Refined Build Alternative. Under CEQA, noise and vibration impacts would be less than significant with mitigation.

4.7.1 Regulatory Background and Methodology

The following sections describe the regulatory background and methodology used to analyze noise impacts.

4.7.1.1 Regulatory Background

The noise and vibration analysis was conducted in compliance with federal, state, and local regulations. FTA has developed guidelines and criteria for assessing noise impacts related to transit projects. These criteria, outlined in the *Transit Noise and Vibration Impact Assessment Guidance Manual* (FTA, 2006) (*FTA Guidance Manual*), are based on community reactions to noise. The criteria reflect changes in noise exposure using a sliding scale where the higher the level of existing noise, the smaller the increase in total noise exposure is allowed. Some land use activities are more sensitive to noise than others, such as parks, churches, and residences, as compared to industrial and commercial uses.

The *FTA Guidance Manual* states that the FHWA noise abatement criteria may be the appropriate criteria to use when a project involves transit as part of new highway construction or modifications to existing highways. The project could affect traffic noise between I-5 and Charmant Drive between Gilman and Nobel Drives because the project would modify the existing terrain both within and outside the I-5 right-of-way. The FHWA criteria and procedures included in 23 CFR 772 (FHWA, 2010) are the basis for evaluation of noise impacts from this project-created change to the topography along I-5, as described further in Section 4.7.3.2.

For traffic noise, Caltrans provides guidelines for application of the FHWA traffic noise analysis procedures and criteria in its *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects* (Caltrans, 2011) (Noise Protocol). Detailed technical guidance for the evaluation of highway traffic noise is provided in the *Technical Noise Supplement* (Caltrans, 2009a) to the protocol. Guidance for transportation-related vibration is provided in the *Transportation and Construction-Induced Vibration Guidance Manual* (Caltrans, 2004). The Caltrans guidance applies to locations where the project could affect traffic noise and require consideration of the FHWA criteria.

The *City of San Diego General Plan* (City of San Diego, 2008a) provides land use compatibility guidelines for development in the city. The city also addresses noise abatement and control in Article 9.5 of the *San Diego Municipal Code* (City of San Diego, 2010b).

4.7.1.2 Methodology

Environmental noise is composed of many frequencies, each occurring simultaneously at its own sound pressure level. The range of magnitude, from the faintest to the loudest sound the ear can hear, is so large that sound pressure is expressed on a logarithmic scale in units called decibels (dB). The commonly used frequency weighting for environmental noise is A-weighting (dBA), which simulates how an average person hears sound.

Environmental noise is commonly described using the equivalent sound level (L_{eq}). L_{eq} is a measure of total noise—a summation of all sounds during a period of time. L_{eq} measured over a one-hour period is the hourly L_{eq}. The day/night noise level (L_{dn}) is a descriptor of the daily (24-hour) L_{eq}, which incorporates a 10-dBA penalty for all sound occurring during the nighttime hours of 10:00 p.m. to 7:00 a.m. This penalty translates into noise during this late night period being assessed as if it were 10 dBA higher than the actual L_{eq}. L_{dn} is used by the EPA and FTA to evaluate noise levels in residential areas. The Community Noise Equivalent Level is an average sound level during a 24-hour period, with a similar purpose to the L_{dn}. It is used for noise planning in California and is well approximated by the L_{dn}.

Several different methods are used to quantify vibration. The root mean square (RMS) amplitude is most frequently used to describe the impact of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Vibration decibel (VdB) is commonly used to measure RMS.

The *FTA Guidance Manual* outlines methods for identifying sensitive receivers, determining existing conditions, and developing prediction models. The study area for the analysis of noise and vibration impacts included all areas containing residences, as well as other receivers potentially sensitive to noise and vibration from the project. Existing noise levels within the study area provided a baseline for the evaluation of noise impacts. Measurements were taken at representative noise-sensitive locations along the proposed alignments. Predictions of the LRV noise were based on measurements of the noise generated by LRT operations on the existing Trolley Orange and Trolley Green Lines, where the Trolley vehicles are the same as, or similar to, Trolley vehicles that would be used for the Mid-Coast Corridor Transit Project. TPSSs also could cause noise impacts. A typical modern TPSS unit produces noise levels less than 45 dB at a distance of 50 feet.

The FHWA Traffic Noise Model® Version 2.5 was used to predict traffic noise levels in areas where the project would affect traffic noise levels. Key inputs to the traffic noise model included roadway locations; shielding features, such as topography and buildings; noise barriers; and receiver locations and elevations.

The vibration prediction models were based on the procedures in the *FTA Guidance Manual*, the vibration propagation test results along the project alignment, and force density measurements (the quantity of vibration force transferred into the surrounding ground) at three sites on the existing Trolley system.

4.7.1.3 Impact Criteria

The impact criteria used in the noise and vibration analysis have been established by FTA and FHWA, as described in the following sections.

FTA Noise Impact Criteria

Table 4-10 presents the FTA land use impact categories for noise and the applicable noise metrics.

The FTA defines two levels of noise impact: moderate and severe. Severe noise impacts are significant within the context of NEPA or CEQA. Severe noise impacts require the evaluation of alternative locations/alignments or other mitigation measures to avoid severe impacts altogether. Mitigation measures must be considered and incorporated into the project to avoid severe impacts unless there are truly extenuating circumstances that prevent it. Moderate noise impacts are not necessarily significant within the context of NEPA and CEQA, but also require consideration and adoption of mitigation measures when it is reasonable. One consideration is the extent to which the predicted noise level exceeds the moderate impact threshold. For the SEIS/SEIR, if the predicted noise level equals, but does not exceed, the FTA moderate impact threshold, the impact is less than significant within the context of NEPA and CEQA and mitigation measures are not proposed.

Table 4-10. FTA Noise Land Use Categories and Noise Metrics

Land Use Category	Noise Metric (dBA)	Description of Land Use Category
1	Outdoor $L_{eq}(h)$[1]	A tract of land where quiet is an essential element of its intended purpose. This category includes lands set aside for serenity and quiet and such land uses as outdoor amphitheaters and concert pavilions, as well as national historic landmarks with significant outdoor use. Also included are recording studios and concert halls.
2	Outdoor L_{dn}	Residences and buildings in which people sleep. This category includes homes, hospitals, and hotels, where a nighttime sensitivity to noise is assumed to be of utmost importance.
3	Outdoor $L_{eq}(h)$[1]	Institutional land uses with primarily daytime and evening use. This category includes schools, libraries, and churches, where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material. Places for meditation or study associated with cemeteries, monuments, museums, campgrounds, and recreational facilities can be considered to be in this category. Certain historical sites and parks also are included.

Source: FTA, 2006
Note: [1] L_{eq} for the noisiest hour of transit-related activity during hours of noise sensitivity
dBA = A-weighted decibels; FTA = Federal Transit Administration; L_{dn} = day-night sound level; $L_{eq}(h)$ = hourly equivalent sound level

Figure 4-16 presents the FTA noise impact criteria. As existing noise levels increase, the amount of allowable increase in total future environmental noise levels, including noise exposure caused by the project, decreases. The future noise levels would be the combination of the existing noise levels and the additional noise exposure caused by a transit project.

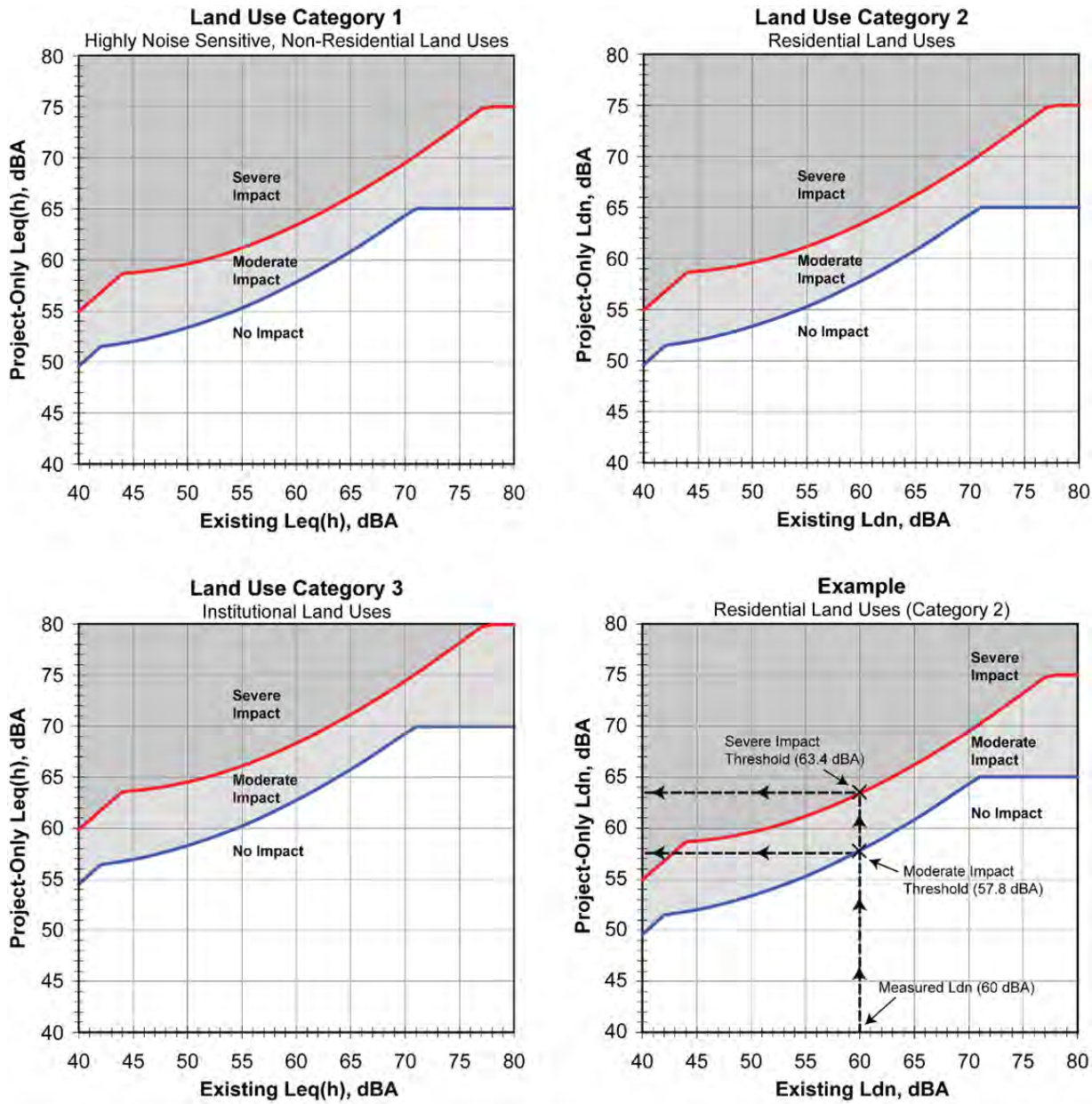
FHWA Noise Impact Criteria

The Caltrans Noise Protocol defines a substantial noise increase as being at least 12 dBA over existing conditions. It also specifies that a sound level is considered to approach the Noise Abatement Criteria (NAC) level when the sound level is within 1 dB of the NAC identified in 23 CFR 772 (FHWA, 2010) (e.g., 66 dBA is considered to approach the NAC of 67 dBA, but 65 dBA is not). Table 4-11 summarizes NAC as it corresponds to various land use activity categories.

FTA Vibration Impact Criteria

Table 4-12 presents the FTA general assessment criteria for groundborne vibration from rail transit systems. If the general assessment concludes that there may be a vibration impact, the *FTA Guidance Manual* recommends completing a detailed assessment using state-of-the-art tools to characterize how localized soil conditions affect levels of vibration. The assessment includes a vibration propagation test to measure how vibration is transmitted from the light rail tracks, through the ground, and into foundations of nearby buildings at the test site. Figure 4-17 presents detailed descriptions of the vibration impact criteria.

Figure 4-16. FTA Noise Impact Criteria



Source: FTA, 2006

Notes: dBA = A-weighted decibel; FTA = Federal Transit Administration; L_{dn} = day-night sound level; $L_{eq}(h)$ = hourly equivalent sound level

Table 4-11. FHWA/Caltrans Activity Categories and Noise Abatement Criteria

Activity Category	Activity $L_{eq}(h)$[1]	Evaluation Location	Description of Activities
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	67	Exterior	Residential
C	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	N/A	N/A	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing
G	N/A	N/A	Undeveloped lands that are not permitted

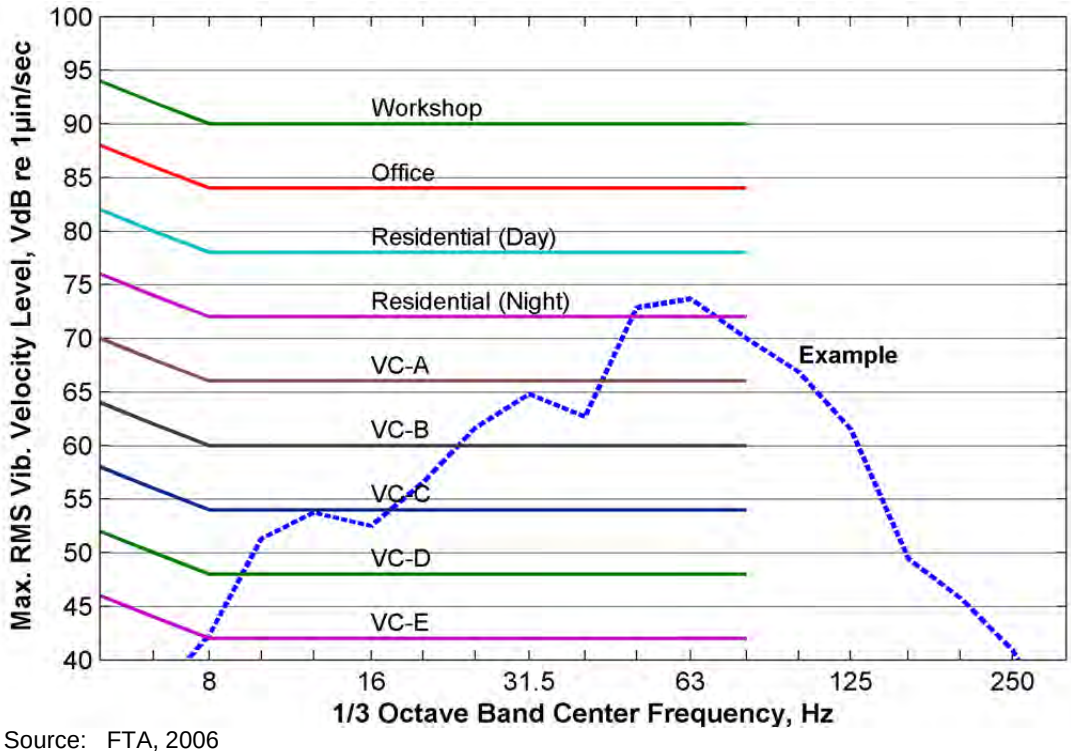
Source: Caltrans, 2011
Notes: [1] The $L_{eq}(h)$ activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).
Caltrans = California Department of Transportation; FTA = Federal Transit Administration; $L_{eq}(h)$ = hourly equivalent sound level; N/A = not applicable

Table 4-12. FTA Vibration Impact Criteria

Vibration Land Use Category	Groundborne Vibration (VdB Re 1 micro inch/sec)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where vibration would interfere with interior operations. Typical land uses include vibration-sensitive research and manufacturing, hospitals with vibration-sensitive equipment, and university research operations.	65 VdB	65 VdB	65 VdB
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB

Source: FTA, 2006
Notes: [1] Frequent events are defined as more than 70 vibration events per day.
[2] Occasional events are defined as between 30 and 70 events per day.
[3] Infrequent events are defined as fewer than 30 events per day.
FTA = Federal Transit Administration; sec = second; VdB = vibration decibel

Figure 4-17. Vibration Criteria for Detailed Analysis



Source: FTA, 2006

If existing rail traffic near the project alignment could cause an existing impact, it must be considered in the analysis. Based on the *FTA Guidance Manual,* the impact thresholds for the corridor sections with existing rail traffic are as follows:

- Existing Trolley Blue Line LRT: Impacts were assessed if there was a significant increase in the number of vibration events (approximately doubling the number of events) or if vibration from additional Trolley Blue Line trains would exceed vibration from existing trains by 3 VdB or more and the predicted vibration exceeds the applicable criteria in Figure 4-17.
- COASTER Commuter Rail and Burlington Northern Santa Fe Railway Freight: There are fewer than five freight trains per day, and the existing commuter trains do not exceed the FTA impact threshold. Therefore, thresholds presented in Figure 4-17, rather than the existing train traffic, were used to assess impacts of vibration.

4.7.2 Affected Environment

This section describes the existing noise and vibration conditions and provides an analysis of predicted noise and vibration levels. In the study area, there are no noise Category 1 land uses (i.e., land where quiet is an essential element of its intended purpose), but there are many noise Category 2 (i.e., residences where people normally sleep) and noise Category 3 (i.e., institutional land uses with primarily daytime and evening use) land uses. (Land uses are described in Table 4-10).

4.7.2.1 Existing Noise Levels

Between March 7 and March 16, 2011, noise and vibration measurements were conducted to document existing conditions (Figure 4-18 and Figure 4-19). Additional measurements were taken in 2013. The primary existing noise sources in the study area are vehicular traffic on local roads and I-5, freight and passenger rail traffic, aircraft overflights, and typical community noise from sources such as landscaping equipment. Existing freight, passenger, and Trolley operations are the dominant noise sources between the Santa Fe Depot and the OTTC. Aircraft activity associated with Marine Corps Air Station Miramar and San Diego International Airport is also part of the existing environment at some locations within the Mid-Coast Corridor.

The ambient noise measurements consisted of long-term unattended measurements for a minimum of 24 hours and short-term attended measurements ranging from 30 minutes to 1 hour. Short-term noise levels ranged from 48 dBA L_{eq} at multiple locations, including the UCSD Student Housing, to 78 dBA L_{eq} at the Hampton Inn on Beech Street. Long-term noise levels ranged from 55 dBA L_{dn} at the UCSD Student Housing to 84 dBA L_{dn} at the Hampton Inn. The *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p) provides a detailed discussion of existing noise levels and measurement locations.

4.7.2.2 Existing Vibration Levels

Several major existing sources of vibration are located near the project alignment. The Trolley, COASTER, and freight traffic cause vibration in the existing corridor between the Santa Fe Depot and the OTTC. COASTER and freight traffic also cause vibration for the portion of the alignment that parallels Morena Boulevard. Vehicular traffic on freeways and major arterial and intermittent construction activities also generate vibration along the entire project alignment. Maximum vibration levels ranged from 47 VdB at the Matthews Apartments on the UCSD campus on Eleanor Roosevelt Lane to 69 VdB at the Las Flores Apartments on Charmant Drive. Average vibration levels ranged from 32 VdB at the Matthews Apartments to 42 VdB at multiple receptors, including the Las Flores Apartments.

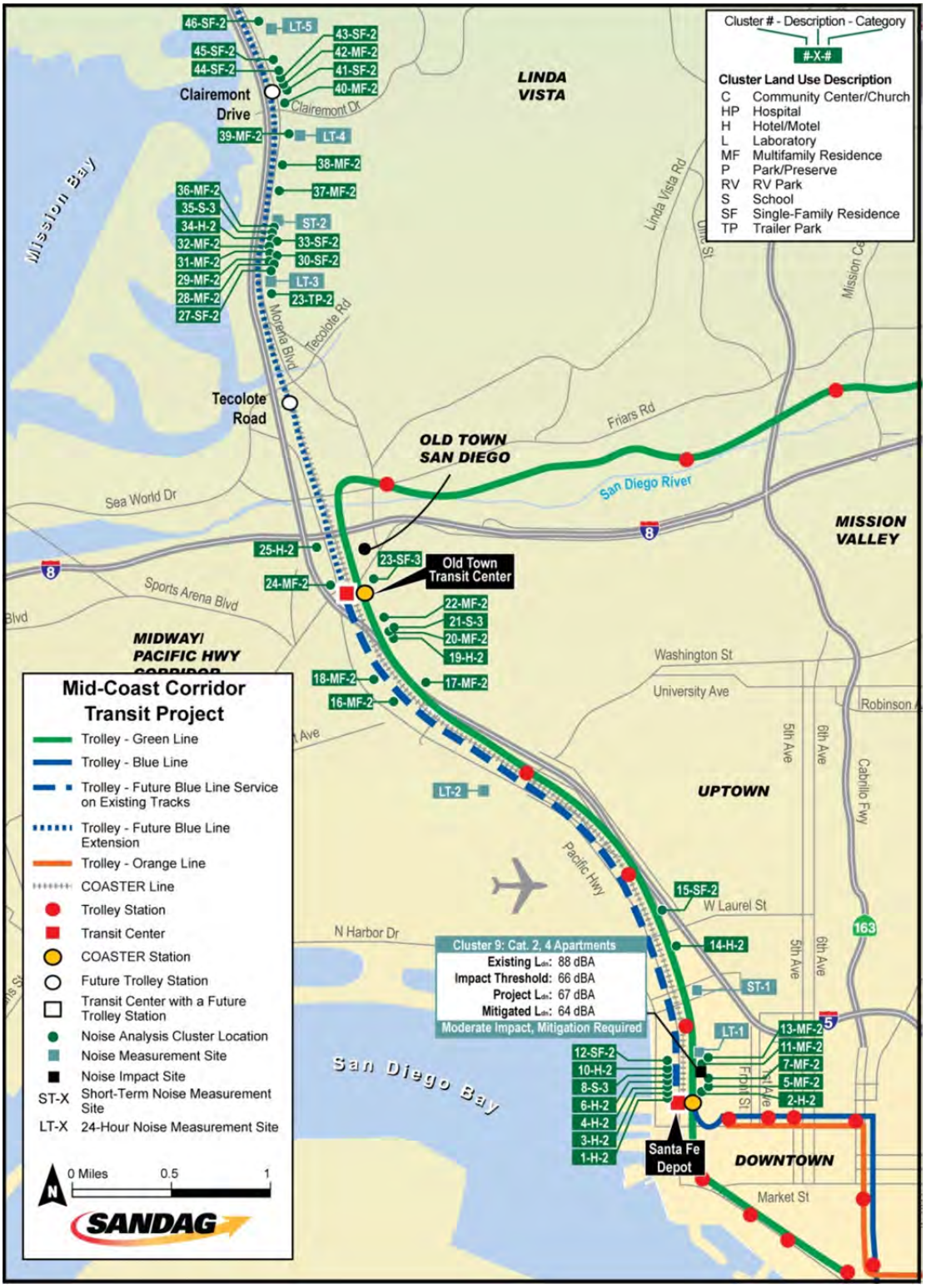
4.7.3 Environmental Impacts

The following sections describe noise and vibration impacts under the No-Build and Refined Build Alternatives.

4.7.3.1 No-Build Alternative

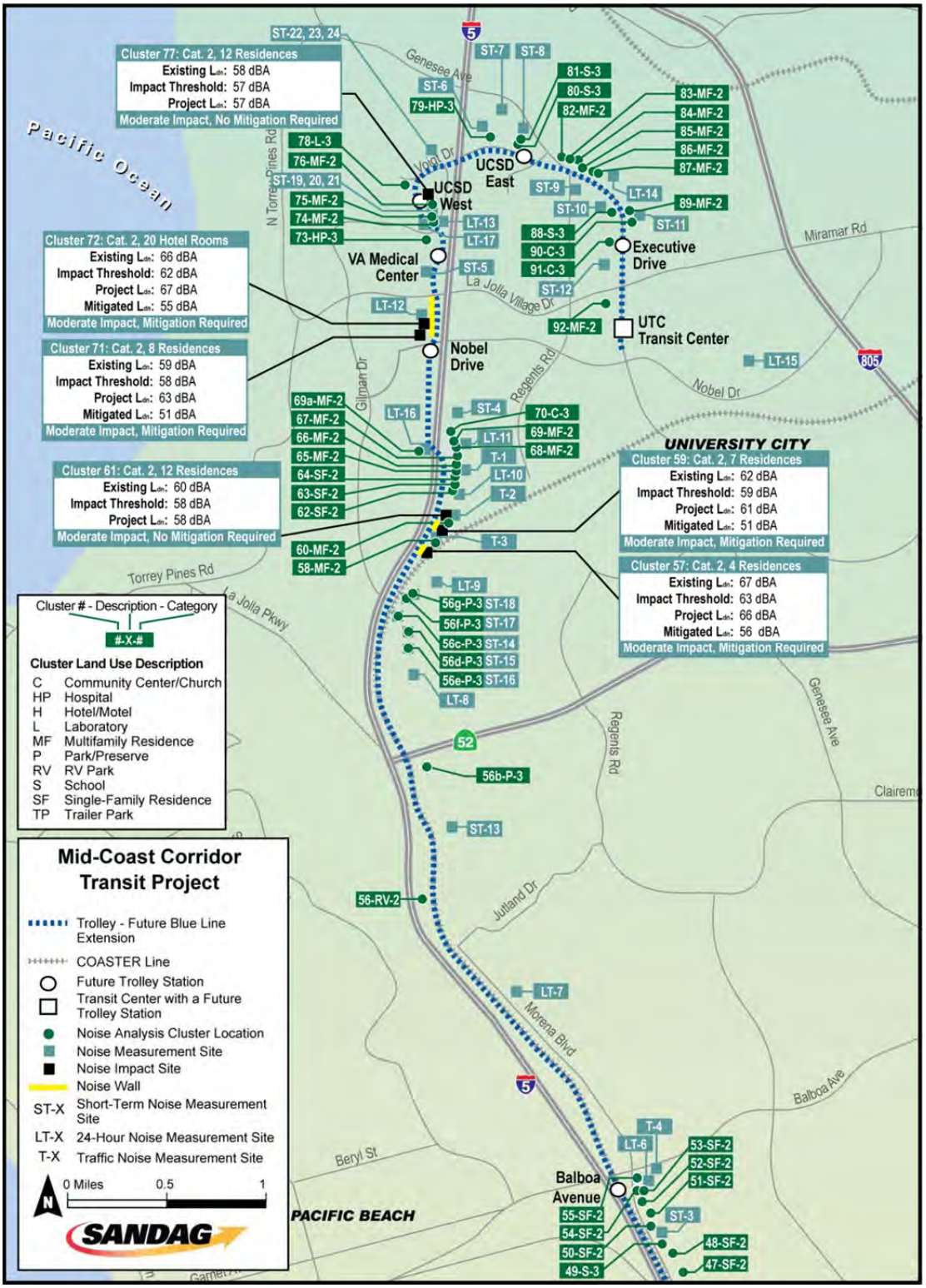
Under the No-Build Alternative, the project would not be constructed and the continuation and enhancement of Route 150 would occur. The buses would operate on existing or planned roadways, and no physical improvements would be required for improving transit services other than the minor construction associated with new bus shelters within existing rights-of-way. The increased bus frequency would not noticeably change the existing noise environment. Route changes would follow major arterials already experiencing substantial bus and truck volumes. Accordingly, the No-Build Alternative would not include any project-related improvements that could increase noise or vibration levels. Therefore, the No-Build Alternative would not result in an impact related to noise or vibration.

Figure 4-18. Noise Measurement and Impact Locations (South)



Source: SANDAG, 2014p

Figure 4-19. Noise Measurement and Impact Locations (North)



Source: SANDAG, 2014p

4.7.3.2 Refined Build Alternative

The Refined Build Alternative analysis includes an assessment of LRT noise and vibration, traffic noise, and TPSS noise. The *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p) contains additional information on impacts. Figure 4-18 and Figure 4-19 show the locations where operation of the Refined Build Alternative would result in noise impacts.

Light Rail Transit Noise Levels

Noise from LRT trains would add to the existing noise sources, including I-5 and passenger and freight rail, in the project corridor. Noise levels were evaluated at clusters of residences and other sensitive uses shown in Figure 4-18 and Figure 4-19. The Refined Build Alternative would result in moderate impacts under the FTA criteria at seven clusters, as described in the following sections. Noise levels that would equal, but not exceed, the moderate impact threshold would not require mitigation. Therefore, only five of these clusters were evaluated for mitigation (Table 4-13).

Table 4-13. Noise Impacts Evaluated for Mitigation

Cluster No.	Description	Near Track Distance (ft)	Design Speed (mph)	Noise Meas. Site	Sound Level (dBA)				No. of Impacts	
						Impact Threshold[1]				
					Existing	Mod.	Severe	Project[2]	Mod.	Severe
9	MFR	15	55	LT1	88 L_{dn}	66 L_{dn}	75 L_{dn}	67 L_{dn}	4	--
57	MFR	25	55	LT10	67 L_{dn}	63 L_{dn}	67 L_{dn}	66 L_{dn}	4	--
59	MFR	80	55	LT10	62 L_{dn}	59 L_{dn}	64 L_{dn}	61 L_{dn}	7	--
71	MFR	325	44	LT12	59 L_{dn}	58 L_{dn}	63 L_{dn}	63 L_{dn}	8	--
72	Hotel	115	44	LT12	66 L_{dn}	62 L_{dn}	67 L_{dn}	67 L_{dn}	20	--

Source: SANDAG, 2014p
Notes: [1] FTA impact threshold for Category 2 (L_{dn}) or Category 3 (L_{eq}) receivers in terms of project noise.
[2] "Project" is the noise created by the new LRT operations in the existing rail corridor, including the noise of warning bells at grade crossings.
dBA = A-weighted decibel; ft = feet; L_{dn} = day-night sound level; L_{eq}(h) = hourly equivalent sound level; MFR = multifamily residence; mph = miles per hour

Santa Fe Depot to the OTTC

The existing Trolley Blue Line operations between the Santa Fe Depot and the OTTC consist of 79 trains per day in each direction (158 trains total). The expected increase in train traffic as a result of the project is 49 trains per day in each direction for a total of 128 trains per day in each direction (256 trains total). The predicted levels of LRT operational noise and associated impacts from warning signals used for grade crossings are presented in Table 4-13. All predicted impacts relative to the FTA criteria would occur to noise Category 2 land uses. No impacts were identified at noise Category 3 land uses, and no noise Category 1 land uses were identified along this section of the alignment. A moderate noise impact from the warning bells at the Cedar Street grade crossing would occur at four apartment units in the Camden Tuscany Apartment complex at 1670 Kettner Boulevard (Cluster 9) (Figure 4-18).

North of the OTTC

The proposed operating plan on the Trolley Blue Line north of the OTTC provides for 128 LRT trains per day in each direction by 2030. Table 4-13 and Figure 4-19 show the predicted levels of LRT operational noise and associated impacts for sensitive receivers in the vicinity of the project alignment north of the OTTC. Moderate impacts from the project are predicted at 23 single-family residences in the La Paz condominium complex at Rosenda Court along La Jolla Colony Drive (Clusters 57, 59, and 61), 8 multifamily units above the Shops at La Jolla Village (Cluster 71), 20 rooms at the Sheraton La Jolla Hotel at 3299 Holiday Court (Cluster 72), and 12 multifamily residences at the UCSD Matthews Apartments (Cluster 77). At two of these locations representing 24 residences (Clusters 61 and 77), the project-generated noise level would equal but not exceed the moderate impact threshold. Therefore, mitigation would not be required for these 2 clusters, but would be required at the other 5 clusters representing 19 residential units and 20 hotel rooms.

Areas of frequent human recreational use within Marian Bear Memorial Park and Rose Canyon Open Space Park are considered in this analysis to be noise-sensitive noise Category 3 land use receivers. Noise levels within the park would not exceed the city's General Plan noise level compatibility standards or the FTA's moderate or severe noise impact criteria for noise Category 3 land use, nor would the project result in a perceptible increase in the existing noise levels experienced within the park.

Stationary Source Noise Levels

Noise analysis was conducted for each sensitive receiver in the vicinity of a planned TPSS unit. No stationary source noise impacts caused by TPSS units would occur with the Refined Build Alternative.

Traffic Noise Levels

The project alignment has a separate right-of-way from vehicular traffic and would result in minimal changes in traffic patterns. However, traffic noise was analyzed at Charmant Drive between Gilman Drive and the I-5 crossing because substantial changes to the existing terrain to accommodate the LRT tracks could affect the transmission of traffic noise. The analysis examined the effects of the Refined Build Alternative on receivers on La Jolla Colony Drive and Charmant Drive with and without the expansion of I-5 (one lane in each direction), which would be implemented as a separate project by Caltrans. Using the FHWA noise model and guidance, the resulting analysis indicated that the Refined Build Alternative, with or without the I-5 widening, would not substantially increase incremental traffic noise levels at Charmant Drive or La Jolla Colony Drive, or cause levels to exceed or approach the NAC. Therefore, traffic activity would not result in an impact related to noise.

The impacts of the project's retaining wall on traffic noise reflections to receivers on the west side of I-5 also were considered. If during final design, the height of the retaining wall on the east side of I-5 becomes greater than one-tenth the distance to the nearest receivers on the west side of I-5, a sound-absorptive finish to the wall would be incorporated into the project design to eliminate or substantially reduce traffic noise reflections.

Light Rail Transit Vibration Levels

Santa Fe Depot to the OTTC

In cases of heavily used rail corridors (more than 12 trains per day), the *FTA Guidance Manual* indicates that a project would cause a vibration impact only if the project substantially increases the number of vibration events that exceed the vibration impact criteria. Approximately doubling the events is required for a significant increase. If there is not a substantial increase in vibration events, there would be additional impact only if the project vibration would exceed the detailed assessment criteria and the existing vibration levels by 3 VdB or more.

Between Santa Fe Depot and the OTTC, the Trolley Blue Line would use existing LRT tracks, which are adjacent to the existing tracks used for COASTER commuter rail trains, Amtrak passenger trains, and Burlington Northern Santa Fe freight trains. The number of LRT trains would increase by 98 from 158 trains per day under existing conditions to 256 trains per day under the Refined Build Alternative in 2030. This increase in LRT trips of approximately 62 percent would not be a significant increase in vibration events (per FTA criteria described above, an approximate doubling of events is required) and would not generate vibration levels above existing conditions. The project would use LRT vehicles similar to those that already operate between the Santa Fe Depot and the OTTC. Therefore, project vibration would not exceed existing LRT vibration levels and would not cause any significant vibration impacts in this area.

North of the OTTC

In the sections of the project alignment that are adjacent to existing freight and passenger tracks, the number of vibration events would increase from approximately 24 trains per day in both directions (22 passenger trains and 2 freight trains) to 284 trains per day (260 LRT trains, 22 passenger trains, and 2 freight trains). Three vibration Category 1 land uses are located north of the OTTC: the VA Medical Center, the UCSD Structural and Mechanical Engineering Building, and Scripps Hospital XiMed Building. Detailed vibration analyses indicated that vibration levels from the Refined Build Alternative in all vibration Category 1 locations would be below vibration impact criteria.

A vibration analysis for vibration Category 2 and vibration Category 3 land uses indicated that vibration levels could exceed the General Assessment impact threshold at two clusters (numbers 57 and 59), both multifamily residences in the La Paz condominium complex. Because the general assessment criteria were triggered, a detailed assessment was completed for these two sites. The detailed assessment predicted vibration levels that exceed the FTA criteria for residential land uses at Cluster 57 but not at Cluster 59 (Figure 4-20). Therefore, without mitigation, LRT operations north of the OTTC would result in an impact related to vibration at Cluster 57.

Project Measures to Avoid or Minimize Impacts

If during final design the height of the retaining wall on the east side of I-5 becomes greater than one-tenth the distance to the nearest receivers on the west side of I-5, a sound-absorptive finish to the wall would be incorporated into the project design to eliminate or substantially reduce traffic noise reflections.

Figure 4-20. Vibration Impact Location

Source: SANDAG, 2014p

4.7.4 Mitigation Measures

Under the Refined Build Alternative, five noise-sensitive receiver clusters representing 19 residential units and 20 hotel rooms are predicted to experience moderate noise impacts at least 1 dBA greater than the impact threshold or an increase in the cumulative environmental noise level of more than 3 dBA. Implementation of the noise mitigation measures presented in Table 4-14 would eliminate noise impacts at these locations. The warning bell referenced in Mitigation Measure **N1** currently operates at a sound volume above the minimum level allowed by the California Public Utilities Commission (CPUC). Therefore, lowering the volume for the warning bell would be feasible.

Table 4-14. Noise and Vibration Mitigation Measures

Identification	Impact Location	Mitigation	Location
Noise Mitigation			
N1	Cluster 9, Camden Tuscany Apartments	Lower the sound level of the grade crossing bells by at least 2 dBA or to the lowest level allowed by the CPUC, resulting in a mitigated noise level of 64 dBA L_{dn}.	West Cedar St grade crossing
N2	Cluster 57, La Paz Condominiums	Install a sound wall (minimum 8 ft above top of rail) in front of the residential land use, resulting in a mitigated noise level of 56 dBA L_{dn}.	Station 572+60 to 574+90 (230 ft)
N3	Cluster 59, La Paz Condominiums	Install a sound wall (minimum 8 ft above top of rail) in front of the residential land use, resulting in a mitigated noise level of 51 dBA L_{dn}.	Station 577+50 to 580+80 (330 ft)
N4	Cluster 71, Loft Apartments at the Shops at La Jolla Village shopping center and Cluster 72, Sheraton La Jolla Hotel	Install a sound wall on the aerial structure in front of the Sheraton La Jolla Hotel such that the top of the sound wall is at least 4 ft higher than the highest point of rail activity, and the wall is sufficiently long to reduce impacts at the Loft Apartments at the Shops at La Jolla Village. This would result in a mitigated noise level of 51 dBA L_{dn} at the Loft Apartments and 55 dBA at the hotel.	Station 630+00 to 637+50 (750 ft)
Vibration Mitigation			
VIB1	Cluster 57, La Paz Condominiums	Install floating slab trackwork or similar measure in front of the residential land use for both northbound and southbound tracks. A minimum 10-VdB reduction would be achieved at 25 hertz, fully mitigating the impact.	Station 571+90 to 575+50 (360 ft)

Source: SANDAG, 2014p
Note: CPUC = California Public Utilities Commission; dBA = A-weighted decibel; ft = feet; L_{dn} = day-night noise level; TPSS = traction power substation; VdB = vibration decibel

Mitigation Measure **VIB1** would eliminate the vibration impact by installing floating slab trackwork or a similarly effective measure. Refer to the *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p) for additional information. With the implementation of this measure, there would be no remaining vibration impacts.

4.7.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination, which is based upon the analysis summarized above and the CEQA thresholds of significance and additional assessment below.

4.7.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). As stated previously, the No-Build Alternative would not include any project-related improvements that could increase noise or vibration levels. Therefore, the No-Build Alternative would not result in a significant impact and, accordingly, the thresholds below address only the Refined Build Alternative.

Would the project result in a substantial permanent increase in existing ambient noise levels in the project vicinity above levels existing without the project?

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). With mitigation, the project would not result in an increase of more than 3 dBA compared to existing ambient noise levels at any location; therefore, the impact would be less than significant. Levels at the Loft Apartments at the Shops at La Jolla Village (Cluster 71) would increase by more than 3 dBA; however, with mitigation, these noise impacts would be less than significant, with an increase of not more than 1 dBA relative to existing levels.

Would the project expose people to noise levels that exceed the city's adopted noise ordinance or expose existing land uses to noise levels that are considered incompatible under the city's Noise Land Use Compatibility Chart?

Less-Than-Significant Impact (Refined Build Alternative). No stationary source noise impacts caused by TPSS units would occur with the Refined Build Alternative. Therefore, noise levels would not exceed the applicable noise ordinance or create levels incompatible to the Noise Land Use Compatibility Chart.

Would the project expose people to future transportation noise levels that exceed FTA Guidance Manual definition of severe impacts?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not cause any severe impacts under the FTA impact criteria.

Would the project expose people to current or future transportation noise levels that exceed the Caltrans Noise Protocol definition of a substantial noise increase which is at least 12 dBA over existing conditions?

Less-Than-Significant Impact (Refined Build Alternative). Transportation noise levels would not increase by 12 or more dBA at any location.

Would the project result in vibration that is 3 vibration decibel (VdB) or more above existing conditions, and would the predicted vibration exceed the applicable FTA criteria?

Less-Than-Significant Impact With Mitigation (Refined Build Alternative). The vibration impact threshold criteria would be exceeded at Cluster 57, which would result in a significant impact without mitigation. However, a mitigation measure has been identified that would reduce the vibration impact to less than significant.

4.7.5.2 Significance after Mitigation

After implementation of the noise and vibration mitigation measures identified in Table 4-14, impacts would be reduced to a less-than-significant level.

4.8 Ecosystems and Biological Resources

This section evaluates the impact of the No-Build and Refined Build Alternatives on biological resources in the study area. These resources include vegetation communities, plants and wildlife, and their habitats. For additional information, including maps showing the location of these resources, refer to the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u) prepared in support of the SEIS/SEIR.

This section has been revised since the Draft SEIS/SEIR to reflect 2014 focused survey results, circulation of the Supplement regarding the San Diego fairy shrimp (*Branchinecta sandiegonensis*), formal Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to the federal Endangered Species Act, a formal determination of the Coastal Zone boundary between the San Diego River and Balboa Avenue, comments received on the Draft SEIS/SEIR, and updated analysis for the impact footprint of the Refined Build Alternative. The classification of vegetation communities according to the City of San Diego Habitat Tiers system has been corrected to apply only to upland vegetation communities. Calculations of impacts and mitigation have been updated to reflect the impact footprint for the Refined Build Alternative. These revisions are described in greater detail as follows.

The prior environmental documents determined that the project would result in the loss of habitat for special-status species. Similarly, the analysis presented in the Draft SEIS/SEIR concluded that four special-status species with the potential to occur in the study area require consultation with the USFWS. The coastal California gnatcatcher (*Polioptila californica californica*) and the San Diego fairy shrimp were identified to occur in the project area. The least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax trailii extimus*) were not recorded during the 2010 focused surveys or any other biological surveys conducted prior to the Draft SEIS/SEIR; however, two least Bell's vireos were detected in 2014 in separate locations (one in the Rose Creek area, the other in the San Diego River area). The observations of single male least Bell's vireos are assumed to not represent breeding pairs. No southwestern willow flycatchers have been observed. Although least Bell's vireo and southwestern willow flycatcher were not observed nesting in the study area, the loss of suitable riparian habitat could impact these species if either occupies the area prior to construction.

Wet season surveys for vernal pool branchiopods (fairy shrimp) for the 2013–2014 rainy season identified San Diego fairy shrimp within an ephemeral basin that would be directly affected by the Refined Build Alternative (Basin II). This impact was not identified in the Draft SEIS/SEIR; therefore, the Supplement was circulated to allow for review and comment on this impact (Chapter 1.0, Section 1.1 provides additional information on the Supplement). Formal Section 7 consultation with the USFWS was initiated on June 12, 2014 (refer to Appendix C for a copy of the initiation letter). The USFWS issued a Biological Opinion on September 5, 2014, which is included in Appendix C of this Final SEIS/SEIR. This section has been revised since the Draft SEIS/SEIR to address the detection of San Diego fairy shrimp within Basin II and mitigation for the impacts to this species (Mitigation Measure BIO5), comments received on the Supplement, and formal Section 7 consultation with the USFWS. Refer to Chapter 8.0, Section 8.7 for additional information on the comment period for the Supplement and comments received on that document.

Since circulation of the Draft SEIS/SEIR, the light-footed clapper rail (*Rallus longirostris levipes*) was determined to have a moderate potential to forage within the San Diego River, and text in this section has been revised accordingly. Additionally, comments received on the Draft SEIS/SEIR indicated the occurrence of the coastal California gnatcatcher on UCSD property. Therefore, this section now identifies these prior observations of the coastal California gnatcatcher on the UCSD campus. Updated 2014 focused surveys for coastal California gnatcatcher included suitable habitat adjacent to the project on the UCSD campus but did not result in the observation of new coastal California gnatcatcher locations. The Draft SEIS/SEIR identified the loss of habitat for special-status species and direct and indirect impacts to biological and ecological resources. Impacts were determined to be not adverse under NEPA and less than significant under CEQA with the incorporation of mitigation. These conclusions remain unchanged for this Final SEIS/SEIR.

In May 2014, the CCC provided a formal Coastal Zone boundary determination (included in Appendix C of this document). The determination concluded that the portion of the project within MTS right-of-way from the San Diego River to Balboa Avenue falls within the Coastal Zone and, therefore, construction of this portion of the project would require a CDP from the CCC. This section of the document has been revised since the Draft SEIS/SEIR to note when impacts are within the Coastal Zone boundary identified by the CCC.

This section has also been revised based on comments received on the Draft SEIS/SEIR and to reflect updated analysis for the Refined Build Alternative. The classification of Tier I through IV vegetation communities according to the *San Diego Municipal Code Land Development Code—Biology Guidelines* (City of San Diego, 2012b) was corrected throughout this section to apply only to upland vegetation communities. Wetlands are not included in the city's Habitat Tiers system and are therefore categorized separately. Calculations of impacts to biological resources were updated to reflect the impact footprint for the Refined Build Alternative, as identified in the Final SEIS/SEIR Plan Set, and mitigation was updated accordingly. Following the review and comment period for the Draft SEIS/SEIR, the mitigation available at Mast Park has been applied to other projects. Furthermore, the CCC preliminarily indicated that mitigation at Mast Park may not be acceptable for project-related impacts within the San Diego River. Therefore, references to Mast Park as a wetland mitigation site for the Mid-Coast Corridor Transit Project have been removed from this section.

Refer to the Preface of the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u) for additional information on the changes to the biological resources analysis and technical report since publication of the Draft SEIS/SEIR. The conclusions in this section and for the biological resources analysis remain unchanged for the Refined Build Alternative. Impacts were determined to be not adverse under NEPA and less than significant under CEQA with the incorporation of mitigation.

4.8.1 Regulatory Background and Methodology

The following sections discuss the regulatory background and methodology used to determine impacts on biological resources.

4.8.1.1 Regulatory Background

Federal Regulations

The Federal Endangered Species Act (16 USC 1531 et seq.) is administered by the USFWS for most plant and animal species and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species.

The Migratory Bird Treaty Act (MBTA) (16 USC 703–712) protects more than 1,000 species of migratory birds, including most native birds.

The project would be required to comply with Executive Orders 13112 and 11990. Executive Order 13112 ensures that federal programs and activities prevent and control the spread of invasive species. Executive Order 11990 states that measures should be taken to avoid to the extent possible adverse impacts associated with the destruction or modification of wetlands and to avoid new construction in wetlands wherever there is a practicable alternative.

State Regulations

The California Fish and Game Code Section 1602 states that it is unlawful for any person to "substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake" without first notifying the California Department of Fish and Wildlife (CDFW) of that activity.

The Native Plant Protection Act (California Fish and Game Code, Section 1900 et seq.) authorizes the California Fish and Game Commission to designate rare and endangered native plants and provide specific protection measures for these listed species.

Executive Order W-59-93 established state policy guidelines for wetlands conservation. Its primary goal is to ensure no overall net loss and to achieve a long-term net gain in the quantity, quality, and permanence of wetland acreage in California.

The CDFW administers the California Endangered Species Act (California Fish and Game Code, Section 2050 et seq.), which prohibits the take of plant and animal species designated by the California Fish and Game Commission as endangered or threatened in the state.

The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the Coastal Zone. Under the Coastal Act, Section 30107.5, ESHAs are areas within the Coastal Zone boundary that are "designated based on the presence of rare habitats or areas that support populations of rare, sensitive, or especially valuable species or habitats." In addition, the CCC regulates impacts to coastal wetlands defined in Section 30121 of the Coastal Act as, "lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens." The Coastal Act requires that most development avoid and buffer coastal wetland resources in accordance with Sections 301231 and 30233, including limiting the filling of wetlands to certain allowable uses. Refer to Section 4.1.1 for additional information on the Coastal Act and CDP process.

Regional and Local Regulations

The City of San Diego has responsibility for biological resources at the local level. The City of San Diego's overall MSCP Plan addresses habitat and species conservation within southwestern San Diego County (County of San Diego, 1998). The program establishes a preserve system designed to conserve large blocks of interconnected habitat having high biological value that are delineated in the MHPA (City of San Diego, 1997).

UCSD is responsible for protecting biological resources and mitigation for impacts to special-status species and vegetation communities on its lands (UCSD, 2004a).

Other local documents related to management of biological resources include, but are not limited to, the *Draft 2010 San Diego River Park Master Plan* (City of San Diego, 2010a), the *Marian Bear Memorial Park Natural Resources Management Plan* (City of San Diego, 1994b), and the *Draft San Diego River Natural Resources Management Plan* (City of San Diego, 2006a).

The *TransNet* Extension Ordinance and Expenditure Plan, approved countywide by voters in November 2004, includes an Environmental Mitigation Program (EMP), which is a funding allocation category for the costs to mitigate habitat impacts for regional transportation projects. The EMP goes beyond traditional mitigation for transportation projects by including annual funding allocations for habitat acquisition, management, and monitoring activities as needed to help implement the regional habitat conservation plans. This funding allocation is tied to mitigation requirements and the environmental clearance approval process for projects outlined in the Regional Transportation Plan. On March 19, 2008, SANDAG, Caltrans, the USFWS, and the CDFW entered into a Memorandum of Agreement (MOA), which outlines the roles and commitments of these organizations regarding the implementation of the *TransNet* EMP. The MOA outlines the commitment to implement a conservation and mitigation strategy that would: (1) identify conservation opportunities for habitat acquisition, creation, and restoration that promote regional habitat conservation planning; and (2) align these opportunities in such a way to fully mitigate the range of wildlife habitat, natural communities, fisheries, and sensitive species impacts resulting from transportation projects.

4.8.1.2 Methodology

The study area for biological resources generally included all areas within 500 feet of the alignment from the OTTC north to the UTC Transit Center. Exceptions existed for study-area boundaries for special-status plants and jurisdictional aquatic resources[7]. In these instances, the study area was limited to within 100 feet of the alignment. It excluded the area of the corridor between the Santa Fe Depot and the OTTC because this area is located entirely within urbanized and developed areas and does not support special-status biological resources that likely would be affected by the project. Where it was determined that physical impacts could impact resources outside of the defined study

[7] As described in Chapter 2.0 of the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u), features that convey or hold water are regulated by multiple agencies. Federal, state, and local agencies have different definitions and terminology for these types of features. Within this Final SEIS/SEIR, water-dependent resources regulated by the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, the California Department of Fish and Wildlife, the City of San Diego, and/or the California Coastal Commission are collectively referred to as jurisdictional aquatic resources.

area (e.g., protected nesting birds and roosting bats), impacts and mitigation measures, if appropriate, were identified.

The biological analyses included a literature review, field reconnaissance and focused surveys, and a jurisdictional delineation of the study area. Limited biological field surveys were conducted in 2009, including focused surveys for special-status upland plant species in Rose Canyon and the UCSD campus; for least Bell's vireo and southwestern willow flycatcher in Rose Canyon and on the UCSD campus; and for Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) at the San Diego River. Additional biological surveys were conducted in 2010, 2011, 2012, and 2014. The 2011 surveys included a focused survey for San Diego fairy shrimp and Riverside fairy shrimp (*Streptocephalus woottoni*), additional surveys for selected special-status plant species, and a formal wetland and waterways delineation. Additional focused surveys for California gnatcatcher and fairy shrimp (2011–2012 wet season) were conducted in 2012. In order to update the status of special-status species prior to construction, an additional year of surveys was conducted in 2014 for coastal California gnatcatcher, fairy shrimp, least Bell's vireo, and southwestern willow flycatcher.

Additional information, including maps showing the locations of surveys, is provided in the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u).

4.8.2 Affected Environment

The study area covers a cross-section of habitats, including riparian, marsh, open water, upland scrub and chaparral, and grasslands. Table 4-15 shows the vegetation communities and land covers in the study area (within 500 feet of the alignment), including wetlands. In the City of San Diego, sensitive vegetation communities include wetlands and those listed as Tier I through Tier III in the *San Diego Municipal Code Land Development Code—Biology Guidelines* (City of San Diego, 2012b) (as identified in Table 4-15). Refer to the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u) for figures showing the distribution of vegetation communities and land covers mapped within 500 feet of the alignment and additional information on each of these communities.

During the rare plant surveys, vegetation mapping, and jurisdictional delineations, 223 species of vascular plants were observed. During focused surveys for special-status species, 122 wildlife species were observed—4 amphibians, 5 reptiles, 1 fish, 85 birds, 14 mammals, and 13 invertebrates. The diversity of observed wildlife generally reflects the location of the project adjacent to highly urbanized areas.

Table 4-15. Vegetation Communities and Land Covers

General Vegetation Community/Land Cover Category	General Vegetation Type (Holland/Oberbauer Code)	Tier*	Acres	Percent of Study Area
Disturbed and Developed Areas (10000)	Disturbed Wetland (11200)	N/A	11.5	0.7%
	Disturbed Habitat (11300)	IV	57.3	3.7%
	Ornamental (N/A)	IV	117.9	7.5%
	Urban/Developed (12000)	IV	1,092.2	69.9%
Disturbed and Developed Areas Total			1,278.9	81.9%
Scrub and Chaparral (30000)	Diegan Coastal Sage Scrub (32500)	II	71.1	4.6%
	Disturbed Diegan Coastal Sage Scrub (32500)	II	36.4	2.3%
	Southern Mixed Chaparral (37120)	IIIA	4.5	0.3%
Scrub and Chaparral Total			112.0	7.2%
Grasslands, Vernal Pools, Meadows, and Other Herb Communities (40000)	Non-Native Grassland (42200)	IIIB	28.6	1.8%
Grasslands, Vernal Pools, Meadows, and Other Herb Communities Total			28.6	1.8%
Bog and Marsh (50000)	Cismontane Alkali Marsh (52310)	N/A	1.4	0.1%
	Coastal and Valley Freshwater Marsh (52410)	N/A	0.5	<0.1%
	Disturbed Coastal and Valley Freshwater Marsh (52410)	N/A	<0.01	<0.1%
	Herbaceous Wetland (52510)	N/A	0.3	<0.1%
	Disturbed Herbaceous Wetland (52510)	N/A	0.1	<0.1%
Bog and Marsh Total			2.3	0.1%
Riparian and Bottomland Habitat (60000)	Southern Riparian Forest (61300)	N/A	48.0	3.1%
	Disturbed Southern Riparian Forest (61300)	N/A	2.0	0.1%
	Southern Coast Live Oak Riparian Forest (61310)	N/A	2.9	0.2%
	Southern Arroyo Willow Riparian Forest (61320)	N/A	0.2	<0.1%
	Southern Riparian Scrub (63300)	N/A	1.4	0.1%
	Mulefat Scrub (63310)	N/A	1.2	0.1%
	Southern Willow Scrub (63320)	N/A	8.8	0.6%
	Disturbed Southern Willow Scrub (63320)	N/A	7.7	0.5%
	Arundo-Dominated Riparian (65100)	N/A	1.1	0.1%
	Non-Vegetated Channel or Floodway (64200)	N/A	3.0	0.2%
Riparian and Bottomland Habitat Total			76.3	4.9%
Woodland (70000)	Eucalyptus Woodland (79100)	IV	63.7	4.1%
Woodland Total			63.7	4.1%
Total			1,561.8	100.0%

Sources: Holland, 1986; Oberbauer and Buegge, 2008; City of San Diego, 2012b

Note: * Tiers represent the sensitivity status of upland vegetation as defined by the City of San Diego, with Tier I being most sensitive and Tier IV being least sensitive. Those vegetation communities without a tier classification are considered wetlands and, as such, are sensitive.

N/A = not applicable

4.8.2.1 Special-Status Species

No state or federally listed plant species were identified during the study area surveys, and none are expected to occur. The surveys did identify six special-status plant species in the study area and two special-status plant species with the potential to occur in the study area, as listed below:

- San Diego sagewort (*Artemisia palmeri*), a California Rare Plant Rank (CRPR)[8] List 4.2 species
- Orcutt's brodiaea (*Brodiaea orcuttii*), a CRPR List 1B.1 species
- Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*), a CRPR List 1B.2 species
- San Diego marsh elder (*Iva hayesiana*), a CRPR List 2.2 species
- Southern California black walnut (*Juglans californica*), a CRPR List 4.2 species
- Southwestern spiny rush (*Juncus acutus* spp. *Leopoldii*), a CRPR List 4.2 species
- Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), a CRPR List 1B.2 species (moderate potential to occur)[9]
- Bottle liverwort (*Sphaerocarpos drewei*), a CRPR List 1B.1 species (moderate potential to occur)

Figure 4-21. California Gnatcatcher

Source: Mock, 2004

Figure 4-22. San Diego Fairy Shrimp

Source: Chaparral Lands Conservancy, 2012

Three federally listed wildlife species were observed in the study area: (1) coastal California gnatcatcher (Figure 4-21), federally listed as threatened and an MSCP Covered Species; (2) San Diego fairy shrimp (Figure 4-22), federally listed as endangered; and (3) least Bell's vireo, federally and state listed as endangered. In addition, seven other special-status wildlife species were observed during the surveys:

- Cooper's hawk (*Accipiter cooperii*), a CDFW Watch List species and MSCP Covered Species

[8] CRPR designations: **1B:** Plants Rare, Threatened, or Endangered in California and elsewhere; **2:** Plants Rare, Threatened, or Endangered in California, but more common elsewhere; **4:** Plants of Limited Distribution—A Watch List
Threat Ranks: **0.1:** Seriously threatened in California (high degree/immediacy of threat); **0.2:** Fairly threatened in California (moderate degree/immediacy of threat)

[9] Moderate potential to occur means that based on habitat, elevation, and soils the species has a potential to occur within the project area. Because this species is difficult to observe, presence in the study area cannot be ruled out despite the negative results of the focused survey.

- Double-crested cormorant (*Phalacrocorax auritus*), a CDFW Watch List species
- Long-billed curlew (*Numenius americanus*), a CDFW Species of Special Concern and MSCP Covered Species
- Yellow-breasted chat (*Icteria virens*), a CDFW Species of Special Concern
- Yellow warbler (*Dendroica petechia*), a CDFW Species of Special Concern
- White-tailed kite (*Elanus leucurus*), a Fully Protected Species
- Mule deer (*Odocoileus hemionus*), an MSCP Covered Species

Coastal California gnatcatcher was observed in the study area during focused surveys conducted in 2010, 2012, and 2014. Two gnatcatcher pairs were observed during the 2010 focused survey, and a single male gnatcatcher, considered to represent a third gnatcatcher pair in the study area, was observed during the 2012 focused survey. Although the 2010 and 2014 surveys did not identify coastal California gnatcatcher within the upper portion (i.e., within 500 feet of the project alignment) of the finger canyon to the north of Voigt Drive on the UCSD campus (within the Ecological Reserve on West Campus), coastal California gnatcatcher was recorded in contiguous habitat immediately to the north in 2001 and 2004 surveys (UCSD, 2004a and Leonard, 2004). For purposes of the analysis, it is assumed that suitable coastal sage scrub habitat to the north of Voigt Drive is occupied by coastal California gnatcatcher. No new coastal California gnatcatcher locations were identified during the 2014 focused survey.

Although San Diego fairy shrimp were not observed during the focused surveys in 2010–2011, two males were detected on one occasion during the beginning of the second wet season surveys in 2011–2012 in Basin BB. This basin is approximately 72 feet from the project alignment (centerline of the southbound track), immediately adjacent to I-5. In addition, three males and one female San Diego fairy shrimp were collected from Basin II during the 2013–2014 wet season surveys. Basin II is approximately 76 feet long and 5.5 feet wide, and is located approximately 25 feet to the east of the existing Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency (LOSSAN) tracks.

Ten special-status wildlife species have a high potential to occur in the study area:

- Belding's orange-throated whiptail (*Aspidoscelis hyperythra beldingi*)
- Red-diamond rattlesnake (*Crotalus ruber*)
- Coast horned lizard (*Phrynosoma blainvillii*)
- Coronado Island skink (*Plestiodon skiltonianus interparietalis*)
- Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)
- Northern harrier (*Circus cyaneus*)
- Dulzura (California) pocket mouse (*Chaetodipus californicus femoralis*)
- Western mastiff bat (*Eumops perotis californicus*)

- Western red bat (*Lasiurus blossevillii*)
- San Diego desert woodrat (*Neotoma lepida intermedia*)

Of these ten special-status wildlife species, four are MSCP Covered Species and nine are California Species of Concern as designated by CDFW.

Eighteen other special-status species that were not observed but have a moderate potential to occur in the study area are as follows:

- Western spadefoot toad (*Spea hammondi*)
- Silvery legless lizard (*Anniella pulchra pulchra*)
- Two-striped garter snake (*Thamnophis hammondii*)
- Sharp-shinned hawk (*Accipiter striatus*)
- Grasshopper sparrow (*Ammodramus savannarum)*
- Bell's sage sparrow (*Amphispiza belli belli*)
- Western snowy plover (*Charadrius alexandrines nivosus*)
- California horned lark (*Eremophila alpestris actia*)
- Merlin (*Falco columbarius*)
- American peregrine falcon (*Falco peregrinus anatum*)
- Loggerhead shrike (*Lanius ludovicianus*)
- White-faced ibis (*Plegadis chihi*)
- Light-footed clapper rail—foraging only
- Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*)
- Spotted bat (*Euderma maculatum*)
- San Diego black-tailed jackrabbit (*Lepus californicus bennettii*)
- Pocketed free-tailed bat (*Nyctinomops femorosaccus*)
- Big free-tailed bat (*Nyctinomops macrotis*)

Although least Bell's vireo and southwestern willow flycatcher were not observed during focused surveys in 2009–2010, a single male least Bell's vireo was observed within the project area during preconstruction nesting bird surveys and protocol focused surveys conducted in 2014. This single male least Bell's vireo was observed using riparian habitat to the east and west of the existing rail bridge and to the west of the existing Santa Fe Street bridge over Rose Creek. In addition to focused surveys, weekly surveys were conducted following the initial detection to determine if the individual had established a breeding territory. No nesting behavior was observed during any of the surveys, and the individual was not observed in the area after May 13; therefore, it was assumed that the detection did not represent a breeding pair. The least Bell's vireo and southwestern willow flycatcher could occupy potentially suitable riparian habitat in the

study area prior to construction. Least Bell's vireo and southwestern willow flycatcher are federally and state-listed as endangered and MSCP Covered Species. Light-footed clapper rail may forage within the study area along the San Diego River; however, it is unlikely to nest in the area due to the marginal suitability of the habitat. Additionally, pre-construction surveys and focused surveys for light-footed clapper rail were conducted in the fall 2013 and spring 2014, respectively, in support of geotechnical activities for the LOSSAN San Diego River Bridge Double Track Project that crosses the San Diego River immediately to the west of the Mid-Coast Corridor Transit Project. Those surveys were negative (Merkel & Associates, 2014).

4.8.2.2 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features connecting large patches of natural open space and provide for animal dispersal or migration, as well as plant dispersal. Although areas north and south of the San Diego River are highly urbanized, the river corridor, which is part of the MHPA, provides a sheltered and relatively continuous corridor for fish and wildlife movement between coastal and inland habitats. The San Diego River ultimately links open space to the east of I-15 at Mission Trails Regional Park to the Pacific Ocean, and serves as a regional and local wildlife corridor and habitat linkage.

Rose Creek provides an avenue for local wildlife movement in a north–south direction between the portion of Rose Canyon to the east of I-5 and San Clemente Canyon. However, to the south, Rose Creek is generally surrounded by highly urbanized areas. Rose Canyon and San Clemente Canyon connect to undeveloped lands on Marine Corps Air Station Miramar located to the east of I-805; however, these corridors do not connect to larger patches of natural open space to the south. Therefore, the riparian corridor along Rose Creek within the study area does not function as a regional wildlife corridor or habitat linkage, but does act as a local corridor between Rose Canyon and San Clemente Canyon and connects upstream and downstream portions of Rose Creek. While the majority of Rose Creek includes riparian habitat that provides resources such as water, food, and cover in some capacity, an approximately 700-foot-long portion of the creek at the SR 52 and I-5 interchange is an open concrete-lined channel. The concrete channel offers no habitat cover for local wildlife use, but along with adjacent uplands that consist of disturbed areas, including the realigned Rose Canyon Bicycle Path, may support occasional wildlife movement, primarily by nocturnal species (e.g., coyotes, raccoons, and skunks). Because of the limited flow in the channel during the majority of the year, and because the channel lacks a natural bottom suitable for aquatic or semi-aquatic species, the potential use of the channel by fish and other aquatic or semi-aquatic species is considered to be low.

The portion of Tecolote Creek within the study area is a concrete-lined channel in a highly urbanized setting and has very limited value for wildlife movement with no connectivity to large, natural open space areas. This portion of Tecolote Creek is also of limited value to resident animals due to the lack of native habitat cover. In the study area, Tecolote Creek has limited potential to function as a local or regional wildlife corridor or habitat linkage.

4.8.3 Environmental Impacts

The following sections discuss impacts on biological resources from the No-Build and Refined Build Alternatives.

4.8.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be constructed and bus Route 150 service would be continued and enhanced. Physical changes associated with the No-Build Alternative would not result in direct or indirect impacts to biological resources, including impacts to special-status species, special-status vegetation communities, or jurisdictional aquatic resources.

4.8.3.2 Refined Build Alternative

Implementation of the project is not expected to introduce invasive plant species. Although landscaping likely would be incorporated at stations and related facilities, these areas are not near or adjacent to natural open space areas that are susceptible to the introduction of invasive plant species. Therefore, implementation of the project would not result in invasive plant species being introduced into natural open space areas.

Special-Status Species and Sensitive Natural Communities—Direct

Coastal California gnatcatcher, San Diego fairy shrimp, and least Bell's vireo were observed in the study area. No other wildlife species listed or proposed as federally threatened or endangered were observed in the study area. In addition, no critical habitat for wildlife species listed as federally threatened or endangered, including coastal California gnatcatcher and San Diego fairy shrimp, occurs in the study area. Although focused surveys for southwestern willow flycatcher were negative and the single male least Bell's vireo observed did not establish a breeding territory within the project area, these species could move into the area prior to construction.

Implementation of the project would result in long-term loss of 5.99 acres of coastal sage scrub (potentially suitable coastal California gnatcatcher habitat); however, impacts would occur along the project alignment and would not directly affect the three observed California gnatcatcher pairs. In total, 5.99 acres of coastal sage scrub (including disturbed) out of 107.5 acres present in the study area would be affected long-term. These impacts would be adverse and would occur primarily from the time site work begins until the time suitable habitat is established in mitigation areas. These impacts would be mitigated as described in Section 4.8.4, which would offset the long-term loss of habitat. In addition, breeding season restrictions would be implemented for construction activities within the MHPA. Therefore, after mitigation the project would not result in adverse impacts to the coastal California gnatcatcher.

During the 2011–2012 wet season survey, San Diego fairy shrimp were observed in the study area outside of the disturbance footprint of the project alignment (referred to as Basin BB). Because of the location of the project on the opposite side of the existing tracks (i.e., to the east), and the position of the occupied fairy shrimp basin below and to the west of the existing tracks, the occupied fairy shrimp basin and basin watershed are not expected to be affected by erosion and/or runoff. Therefore, this location of San Diego fairy shrimp would not be directly affected. During the 2013–2014 wet season

surveys, San Diego fairy shrimp were observed within the study area to the east of the existing tracks and within the disturbance footprint of the project alignment (referred to as Basin II). The project would result in the loss of this ephemeral basin occupied by San Diego fairy shrimp as a result of improvements within the existing MTS right-of-way associated with new track construction. In addition to the basin area itself, the basin watershed would be directly impacted by grading and other improvements associated with new track construction. Since Basin II is located within the Coastal Zone boundary and contains San Diego fairy shrimp, it could potentially be considered an ESHA under Section 30107.5 of the Coastal Act; therefore, impacts to this ephemeral basin would be subject to review by the CCC during the CDP process. This impact would be considered adverse without mitigation.

Implementation of the project would result in 0.68 acre of long-term direct impacts to potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher in the San Diego River, Rose Creek, and on the UCSD campus. Potentially suitable riparian habitat includes southern riparian forest and southern willow scrub (including disturbed), as well as contiguous areas of mulefat scrub, disturbed wetlands, and Arundo-dominated riparian. The majority of long-term direct impacts would occur to areas located within or immediately adjacent to the existing MTS right-of-way. These impacts would be mitigated as described in Section 4.8.4, which would offset the long-term loss of habitat. In addition, breeding season restrictions would be implemented for construction activities in suitable habitat areas if either of these species occupies the area prior to construction. Therefore, after mitigation the project would not result in adverse impacts to least Bell's vireo or southwestern willow flycatcher.

Coordination with the USFWS has been ongoing since February 25, 2013. On this date, SANDAG, in cooperation with FTA, requested to initiate informal Section 7 consultation with the USFWS regarding the federally listed threatened coastal California gnatcatcher and the federally listed endangered least Bell's vireo, southwestern willow flycatcher, and San Diego fairy shrimp. The request included pertinent project information and presented the basis for the preliminary finding made by the FTA and SANDAG that the proposed project may affect, but is not likely to adversely affect, the four species for which Section 7 consultation was requested. Upon receipt of the consultation request, Lauren Kershek was identified as the USFWS contact. On March 20, 2013, Ms. Kershek contacted SANDAG to request additional project-related information and subsequently indicated that the USFWS did not have any concerns regarding the project at this time. At SANDAG's request, Ms. Kershek agreed to keep the consultation open until the Draft SEIS/SEIR has been circulated for public review to ensure that any concerns regarding the project are adequately addressed.

On November 7, 2013, SANDAG spoke with Ms. Kershek to provide information to the USFWS regarding the current status of the project. Topics addressed included the close of the comment period, incorporation of refinements to the project engineering design, ongoing efforts to respond to comments received on the Draft SEIS/SEIR, and efforts to update the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u). Ms. Kershek also requested that the federally listed endangered light-footed clapper rail be included in the list of species subject to Section 7 consultation at this time.

On April 30, 2014, SANDAG and FTA discussed the positive survey findings with the USFWS and the need for formal Section 7 consultation with the USFWS. On May 6, 2014, SANDAG and FTA hosted a field visit with the USFWS to review the location of impacts to San Diego fairy shrimp and the proposed mitigation location. Formal Section 7 consultation was initiated with the USFWS on June 12, 2014 (refer to Appendix C for the consultation initiation letter). SANDAG and FTA continued to provide information as requested by the USFWS during the Section 7 consultation process. On September 5, 2014, the USFWS issued a Biological Opinion concurring with the FTA's determination that the project is not likely to adversely affect coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, light-footed clapper rail, or critical habitat for these species. While the project would directly affect San Diego fairy shrimp, the Biological Opinion concludes that the project is not likely to jeopardize the continued existence of the San Diego fairy shrimp, and included authorization for incidental take of San Diego fairy shrimp. The Biological Opinion is included in Appendix C of this Final SEIS/SEIR; the Biological Assessment is included as an appendix to the Supplement.

Special-status wildlife species not listed or proposed as federally threatened or endangered could be adversely affected by the project as a result of the long-term loss of 8.29 acres of riparian, Diegan coastal sage scrub, and non-native grassland (wetlands and Tiers II and III) that provide foraging habitat, including seven special-status wildlife species known to occur in the study area (i.e., Cooper's hawk, double-crested cormorant, long-billed curlew, yellow-breasted chat, yellow warbler, white-tailed kite, and mule deer), as well as others with a moderate or high potential to occur in the study area.

The long-term loss of 0.68 acre of wetlands and 1.43 acres of Tier III non-native grassland could remove nesting and/or foraging habitat for Cooper's hawk, yellow warbler, white-tailed kite, yellow-breasted chat, and long-billed curlew, as well as other special-status species that use these habitats. Double-crested cormorant and light-footed clapper rail may forage within aquatic and wetlands habitat at the San Diego River, but are unlikely to nest within the study area because of a lack of suitable habitat. Impacts to wetlands also could affect several other special-status species that were not observed but have a moderate potential to occur in the study area, including western spadefoot toad, silvery legless lizard, Coronado Island skink, and two-striped garter snake. Impacts to wetlands include the long-term loss of potentially suitable nesting habitat for least Bell's vireo and southwestern willow flycatcher.

Impacts to Tier III grassland also could affect several other special-status species, including grasshopper sparrow and California horned lark, and raptors that forage in grasslands such as northern harrier, merlin, and loggerhead shrike.

The long-term loss of 5.99 acres of Tier II Diegan coastal sage scrub (including disturbed) would reduce potentially suitable habitat for the coastal California gnatcatcher and other special-status species that use coastal sage scrub, including Belding's orange-throated whiptail, coast horned lizard, red-diamond rattlesnake, Bell's sage sparrow, loggerhead shrike, Southern California rufous-crowned sparrow, Dulzura California pocket mouse, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, and San Diego desert woodrat.

Impacts to wetlands, Tier II Diegan coastal sage scrub, and Tier III grassland also could affect area bats. Loss of riparian habitat would reduce potential roosting and foraging habitat for the western red bat, and loss of foraging habitat for the spotted bat, western mastiff bat, pocketed free-tailed bat, and big free-tailed bat.

The long-term loss of vegetation communities associated with implementation of the project would occur in relatively narrow linear areas and would not substantially affect the viability of adjacent habitat to support special-status species. New tracks and stations proposed outside of existing MTS right-of-way would be located in urbanized areas where habitat for special-status species is limited. There would be a long-term loss of habitat for special-status species, which would primarily occur along the outer edges of existing habitat. As stated above, the majority of impacts to coastal sage scrub would occur immediately along the existing right-of-way and are not expected to substantially affect the use of adjacent habitat occupied by the coastal California gnatcatcher and other special-status species. The two-striped garter snake was not observed within the study area during surveys; however, it has a high potential to occur in aquatic habitat within the active flow channel and adjacent wetlands of the San Diego River and Rose Creek. Bridge piers and abutments at these locations would be located outside of the active flow channel, and long-term impacts to potential habitat for the two-striped garter snake and other aquatic and semi-aquatic species would be limited. No special-status fish species are expected to occur within these areas. Therefore, no adverse impacts to special-status species would occur as a result of vegetation loss.

Implementation of the project would result in the overall long-term loss of 8.29 acres of breeding and/or foraging habitat for special-status wildlife species. Affected areas would be limited to locations within or immediately adjacent to the existing MTS right-of-way where comparatively large areas of native habitats remain available for breeding and foraging. In addition, impacts to vegetation communities would be mitigated, as described in Section 4.8.4 (Table 4-19, Table 4-20, and Table 4-21). As a result, impacts to special-status wildlife species due to a reduction of foraging and/or breeding habitat would not be adverse.

Special Status Species and Sensitive Natural Communities—Indirect

Four plant species considered special-status based on CRPR listings of 1B through 4 occur within the footprint of the proposed bridges over Rose Creek and the San Diego River and would be subject to long-term indirect impacts associated with shading: San Diego sagewort, decumbent goldenbush, San Diego marsh elder, and southwestern spiny rush. However, because these plants lie within areas that would be impacted by vegetation clearing, falsework construction, and other activities during construction, it is assumed that the affected plants would be removed during construction and long-term indirect impacts due to shading would not be relevant.

Indirect impacts to sensitive biological resources could result from adverse edge effects that can occur along the development–preservation interface. Although the Refined Build Alternative would introduce LRT train activity and add new tracks within the existing MTS right-of-way, the project would not introduce new land uses within or adjacent to the MHPA. Because portions of the project that are within or adjacent to the MHPA are entirely within existing MTS right-of-way, these areas are already subject to potential adverse edge effects that may include noise, vibration, and lighting associated

with current heavy rail, passenger rail, and commuter rail service operations. Although the frequency of LRT train activity would be greater than the frequency of current rail traffic along portions of the alignment adjacent to the MHPA to the north and south of SR 52, the potential increase in associated noise, vibration, and lighting is not expected to be a substantial increase over current conditions.

A comparison of existing noise levels and future noise levels with the Refined Build Alternative is included in Chapter 7.0, Table 7-1 of the *Mid-Coast Corridor Transit Project Noise and Vibration Technical Report* (SANDAG, 2014p). Along portions of the project adjacent to the MHPA to the north and south of SR 52, projected noise levels would not change from current levels in most cases and would only increase 3 dBA adjacent to Marian Bear Memorial Park.

According to the *FTA Guidance Manual*, locomotive-powered passenger or freight activity generates substantially greater vibration levels than light rail vehicles. For example, at a distance of 50 feet from the centerline and at 50 miles per hour, locomotive-powered passenger or freight trains generate a vibration level of 85 VdB and light rail vehicles generate a vibration level of 73 VdB.

Because stations are not proposed adjacent to the MHPA, potential sources of lighting from the project would be limited to train headlights moving along the alignment. Train headlights would be directed straight ahead, however, and would not substantially increase the extent of lighting in adjacent habitat areas in the MHPA; thus, edge effects related to lighting are not expected to be adverse. Therefore, indirect noise, vibration, and lighting impacts on listed, proposed, and other special-status wildlife species are not considered adverse.

Long-term indirect impacts from elevated project structures would affect 1.24 acres of wetlands and Tier II–III vegetation communities. The wetland communities subject to shading include disturbed wetland, mulefat scrub, southern willow scrub (including disturbed), Arundo-dominated riparian, and non-vegetated channel or floodway. Tier II communities include Diegan coastal sage scrub (including disturbed). Tier III communities affected by shading include non-native grassland.

Of the 0.89 acre of wetland communities and land covers subject to potential shading effects, 0.10 acre comprises non-vegetated channel or floodway that lack vegetation entirely and would not be adversely affected by shading. The remaining 0.79 acre of wetland communities is comprised of 0.25 acre of mulefat scrub and southern willow scrub, and 0.54 acre of disturbed southern willow scrub, disturbed wetland, and Arundo-dominated riparian areas that may be sensitive to changes in sunlight availability to varying degrees. However, the presence and condition (i.e., species cover and composition) of wetland communities in similar conditions beneath existing crossings over the San Diego River and Rose Creek suggest that while the project would result in reduced levels of available sunlight, sufficient sunlight would be available to support wetland communities. In the San Diego River, cismontane alkali marsh, mulefat scrub, southern willow scrub (including disturbed), and Arundo-dominated riparian communities are present beneath the Mission Valley West Trolley line and the LOSSAN tracks, and disturbed wetlands and southern willow scrub communities are present beneath the LOSSAN crossings over Rose Creek. Based on the presence of these communities in

shaded situations similar to those expected under the proposed bridges over the San Diego River and Rose Creek, a decrease in sunlight availability is not expected to have an adverse effect on community type. Certain communities such as southern willow scrub, for example, may be sufficiently affected by reduced growth and productivity that the typical progression toward a late seral tree-dominated community structure may not occur. Therefore, while shading is not expected to result in type conversion of existing wetland communities, the potential decrease of growth and productivity in certain wetland communities could have an adverse impact.

Elevated structures would shade 0.28 acre of coastal sage scrub (including disturbed) considered potentially suitable habitat for coastal California gnatcatcher. The entire 0.28-acre impact area is located beneath the proposed UCSD West Station. Although certain areas of coastal sage scrub near the outer edges of the elevated structures would have at least partial sunlight, areas located more centrally beneath the elevated station platforms would have little to no exposure to sunlight. Because germination and seedling growth of primary constituent species such as California sagebrush are sensitive to shade, even areas with partial sunlight may be adversely affected.

In addition, approximately 0.76 acre of potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher in the San Diego River, Rose Creek, and on the UCSD campus would be affected by shading.

However, because adverse impacts to wetlands and Tier II vegetation communities would be mitigated, as described in Section 4.8.4, effects to sensitive natural communities from long-term shading impacts would not be adverse.

As non-native grassland commonly occurs in partially shaded situations in natural and urbanized settings, and because proposed elevated structures at the Balboa Avenue crossing and UCSD West Station are expected to only partially reduce available sunlight, indirect shading impacts on 0.07 acre of Tier III non-native grassland would not be adverse.

Jurisdictional Aquatic Resources

The project would result in long-term impacts to wetland and non-wetland waters under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and the Regional Water Quality Control Board (RWQCB), streambed and riparian areas under the jurisdiction of the CDFW, wetlands under the jurisdiction of the City of San Diego, and coastal wetlands under the jurisdiction of the CCC. Table 4-16 and Table 4-17 present impacts by vegetation type and watershed, respectively. The jurisdictional aquatic resources affected are illustrated in Figure 5-3 and Figure 5-4 in the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* (SANDAG, 2014u).

As shown in Table 4-16 and Table 4-17, long-term direct impacts to wetland and non-wetland waters under USACE and RWQCB jurisdiction total 0.37 acre (0.17 acre of wetland and 0.19 acre of non-wetland waters). Including the construction and shading impacts, the total impacts to wetland and non-wetland waters under USACE and RWQCB jurisdiction is 3.01 acres.

Table 4-16. Impacts to Jurisdictional Aquatic Resources by Vegetation Type

Jurisdictional Aquatic Resource	General Vegetation Type (Holland/Oberbauer Code)	Long-Term (Acres)	Long-term Construction Indirect Shading (Acres)	Short-term Construction (Acres)	Total (Acres)
USACE/RWQCB Jurisdiction					
Wetland	Disturbed Wetland (11200)	0.02	0.28	0.18	0.47
	Southern Riparian Forest (61300)	0.03	—	0.05	0.08
	Mulefat Scrub (63310)	< 0.01	0.09	0.02	0.11
	Southern Willow Scrub (63320)	0.12	0.07	0.38	0.56
	Disturbed Southern Willow Scrub (63320)	< 0.01	0.11	0.27	0.39
	Arundo-Dominated Riparian (65100)	< 0.01	0.04	0.02	0.07
Wetland Subtotal		0.17	0.59	0.92	1.68
Non-Wetland Waters	Non-Vegetated Channel or Floodway (64200)	0.13	0.10	0.29	0.52
	Disturbed Wetland (11200) – Concrete Lined	0.06	0.03	0.64	0.73
	Disturbed Wetland (11200) - Riprap	—	—	0.08	0.08
Non-Wetland Waters Subtotal		0.19	0.13	1.0	1.33
USACE/RWQCB Total		0.37	0.72	1.92	3.01
CDFW and City of San Diego Jurisdiction					
Riparian Areas	Disturbed Wetland (11200)	0.02	0.28	0.18	0.47
	Disturbed Herbaceous Wetland (52510)	—	—	0.01	0.01
	Southern Riparian Forest (61300)	0.48	—	0.89	1.37
	Mulefat Scrub (63310)	< 0.01	0.09	0.02	0.11
	Southern Willow Scrub (63320)	0.16	0.16	0.66	0.98
	Disturbed Southern Willow Scrub (63320)	< 0.01	0.11	0.27	0.39
	Arundo-Dominated Riparian (65100)	0.02	0.10	0.10	0.22
Riparian Areas Subtotal		0.68	0.75	2.12	3.55
Streambed	Non-Vegetated Channel or Floodway (64200)	0.13	0.1	0.29	0.52
	Disturbed Wetland (11200) – Concrete Lined	0.06	0.03	0.64	0.73
	Disturbed Wetland (11200) - Riprap	—	—	0.15	0.15
Streambed Subtotal		0.19	0.13	1.08	1.40
CDFW and City of San Diego (Wetlands) Total		0.87	0.88	3.20	4.95
CCC Jurisdiction					
Wetlands	Disturbed Habitat (11300)	0.18	—	—	0.18
	Disturbed Wetland (11200)	< 0.01	0.13	0.02	0.15
	Mulefat Scrub (63310)	< 0.01	0.09	0.01	0.10
	Southern Willow Scrub (63320)	< 0.01	0.06	0.03	0.09
	Disturbed Southern Willow Scrub (63320)	< 0.01	0.11	0.10	0.22
	Arundo-Dominated Riparian (65100)	< 0.01	0.04	0.01	0.06
	Non-Vegetated Channel or Floodway (64200)	0.04	0.03	0.01	0.08
	Disturbed Wetland (11200) – Concrete Lined	< 0.01	0.01	—	0.01
CCC Total[1]		0.22	0.47	0.18	0.88

Source: City of San Diego, 1997; Holland, 1986; Oberbauer and Buegge, 2008

Notes: Totals may not sum due to rounding.

Acreages may vary slightly based on final design, and mitigation would be based on actual impacts.

[1] CCC jurisdictional areas include 0.18 acre of ephemeral basins within uplands in the impact area that could be considered coastal wetlands based on hydrology; this determination will be made during the Coastal Development Permit process.

CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers

Table 4-17. Impacts to Jurisdictional Aquatic Resources by Watershed

Watershed	Jurisdictional Aquatic Resource	Long-Term (Acres)	Long-term Construction Indirect Shading (Acres)	Short-term Construction (Acres)	Total (Acres)
USACE/RWQCB					
Carroll Creek	Wetland	—	<0.01	0.01	0.01
	Non-Wetland Waters	—	—	—	—
	Carroll Creek Subtotal	—	<0.01	0.01	0.01
Rose Creek	Wetland	0.17	0.15	0.33	0.65
	Non-Wetland Waters	0.08	0.06	0.93	1.07
	Rose Creek Subtotal	0.26	0.21	1.26	1.73
Tecolote Creek	Wetland	—	—	—	—
	Non-Wetland Waters	0.11	0.03	0.02	0.16
	Tecolote Creek Subtotal	0.11	0.03	0.02	0.16
San Diego River	Wetland	<0.01	0.44	0.59	1.03
	Non-Wetland Waters	—	0.03	0.04	0.08
	San Diego River Subtotal	<0.01	0.47	0.63	1.11
USACE/RWQCB Total		0.37	0.72	1.92	3.01
CDFW and City of San Diego					
Carroll Creek	Riparian Areas	—	0.06	0.15	0.21
	Streambed	—	<0.01	0.01	0.01
	Carroll Creek Subtotal	—	0.06	0.16	0.22
Rose Creek	Riparian Areas	0.67	0.25	1.46	2.39
	Streambed	0.08	0.06	0.93	1.07
	Rose Creek Subtotal	0.76	0.31	2.39	3.46
Tecolote Creek	Riparian Areas	—	—	—	—
	Streambed	0.11	0.03	0.02	0.16
	Tecolote Creek Subtotal	0.11	0.03	0.02	0.16
San Diego River	Riparian Areas	<0.01	0.44	0.59	1.03
	Streambed	—	0.03	0.04	0.08
	San Diego River Subtotal	<0.01	0.47	0.63	1.11
CDFW and City of San Diego Wetlands Total		0.87	0.88	3.20	4.95
CCC Jurisdiction					
Tecolote Creek	Wetlands	0.22	0.01	—	0.23
San Diego River	Wetlands	< 0.01	0.47	0.18	0.65
CCC Total[1]		0.22	0.49	0.18	0.88

Source: City of San Diego, 1997; Holland, 1986; Oberbauer and Buegge, 2008

Notes: Totals may not sum due to rounding.

[1] CCC jurisdictional areas include 0.18 acre of ephemeral basins in uplands within the impact area that could be considered coastal wetlands based on hydrology; this determination will be made during the Coastal Development Permit process.

CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers

CDFW regulates rivers, streams, lakes, and associated riparian habitat under state jurisdiction. Areas that meet the City of San Diego's definition of wetlands coincide with the areas under the jurisdiction of CDFW. Long-term direct impacts to areas under CDFW and City of San Diego jurisdiction total 0.87 acre. This total is inclusive of the majority of the area subject to USACE and RWQCB jurisdiction. When added to the temporary construction and long-term shading impacts, the total impact to streambed and riparian areas under CDFW and wetlands under City of San Diego jurisdiction is 4.95 acres.

The CCC provided SANDAG with a Coastal Zone boundary determination that concluded that the portion of the project within MTS right-of-way from the San Diego River to Balboa Avenue is within the Coastal Zone. The CCC asserts jurisdiction over aquatic features and vegetation not necessarily regulated by other agencies pursuant to the Coastal Act. CCC only requires evidence of a single parameter—wetland vegetation, hydric soils, or hydrology—to delineate wetlands. All areas within the Coastal Zone that meet one of these parameters are considered a coastal wetland under the Coastal Act. The acreages of CCC wetlands within the project area are shown in Table 4-17. Long-term direct impacts to CCC jurisdictional wetlands within the Coastal Zone total 0.22 acre. Including the construction and shading impacts, the total impact to CCC wetlands is 0.88 acre. Impacts to coastal wetlands under CCC jurisdiction would be subject to review and approval by the CCC during the CDP process.

The majority of long-term impacts to jurisdictional aquatic resources are associated with replacing an approximately 700-foot-long concrete-lined open channel portion of Rose Creek located at the SR 52 interchange with a narrower concrete-lined open channel and installing associated channel improvements immediately upstream and downstream.

Other long-term direct impacts are associated with the concrete piers and abutments of five bridge crossings (one over San Diego River, one over Tecolote Creek, and three over Rose Creek). Long-term impacts to Rose Creek north and south of SR 52 also would result from grading and/or retaining walls necessary to accommodate the proposed double-track LRT alignment alongside the existing main line within the MTS right-of-way.

Shading from elevated project structures could have long-term indirect impacts to 0.59 acre of wetland and 0.13 acre of non-wetland waters under the jurisdiction of the USACE and the RWQCB, and 0.88 acre under CDFW and City of San Diego jurisdiction. Based on the presence of similar wetland communities in shaded situations beneath the existing Mission Valley West Trolley line and the LOSSAN tracks in the San Diego River and along Rose Creek as those that would be subject to shading under the Refined Build Alternative, shading is not expected to substantially change species composition or community type and the affected areas are assumed to be capable of supporting wetland communities. Although shading could decrease growth and productivity in certain wetland communities, such as southern willow scrub, potentially adverse effects would be mitigated through the design and configuration of restored areas following construction. In addition, shading effects are not expected to have adverse impacts on jurisdictional aquatic resources lacking vegetation. Therefore, impacts to jurisdictional aquatic resources from long-term shading impacts would not be adverse.

Coordination with the USACE for the issuance of a Section 404 (Clean Water Act) permit is ongoing. As long-term impacts to areas under USACE jurisdiction do not exceed 0.5

acre within any of the affected watersheds, it is anticipated that the project would be authorized under Section 404 through the Nationwide Permit program. Although the Nationwide Permits appropriate for the activities associated with the proposed project would be determined by the USACE as part of the permitting process, potentially applicable Nationwide Permits include Nationwide Permit 3 (Maintenance), Nationwide Permit 12 (Utility Line Activities), Nationwide Permit 14 (Linear Transportation), and Nationwide Permit 33 (Temporary Construction, Access, and Dewatering). As shown in Table 4-17, long-term impacts to the Carroll Creek, Rose Creek, Tecolote Creek, or San Diego River watersheds under the jurisdiction of the USACE would be less than 0.5 acre.

Section 4.22 describes the anticipated permitting requirements. Chapter 8.0 describes the consultation to date with the USACE with respect to impacts to wetland and non-wetland waters. In May 2014, SANDAG requested, and was provided, a Coastal Zone boundary determination for the area between the San Diego River and Balboa Avenue. The determination identified that the Coastal Zone boundary extends to the eastern edge of the MTS right-of-way from the San Diego River to Balboa Avenue. Refer to Appendix C for a copy of the Coastal Zone boundary determination letter. A CDP would be obtained for the portions of the project within the Coastal Zone.

Additional requirements may be identified by regulatory agency staff during the permitting process, which would be implemented. With proposed mitigation, there would be no adverse long-term impacts to jurisdictional aquatic resources.

Wildlife Corridors and Habitat Linkages

Rose Creek may provide limited function as a local corridor and habitat linkage for wildlife movement in a north–south direction, while the San Diego River is a regional wildlife corridor between inland and coastal habitats. Long-term direct impacts along portions of Rose Creek that are inside the MHPA and identified as biological cores and linkage areas would be limited to the loss 0.19 acre of narrow slivers of riparian habitat from installation of new tracks and associated structures along the existing MTS right-of-way. In addition, during construction, an approximately 700-foot-long concrete-lined open channel portion of Rose Creek at the SR 52 and I-5 interchange would limit access to the channel and portions of the adjacent upland areas. However, adjacent upland disturbed areas, including the realigned Rose Canyon Bicycle Path, still would support occasional wildlife movement, primarily by nocturnal wildlife species, such as coyote, raccoon, and skunk. In addition, a path along the east side of the open concrete-lined Rose Creek channel under SR 52 would remain and continue to allow for north–south wildlife movement along the east side of the open channel. The existing concrete-lined channel provides minimal vegetative cover and does not contribute to regional connectivity. As such, the long-term function of Rose Creek as a local wildlife corridor would not be substantially affected. In the San Diego River, long-term direct impacts from the project would be limited to the loss of up to 0.01 acre of riparian habitat associated with the installation of concrete piers for the proposed bridge crossing. Based on the small overall impact footprint, and the presence of several existing bridges in the vicinity with similar structures in the river that do not appear to impede wildlife movement, the project would not impact the existing function of the San Diego River as a regional wildlife corridor or habitat linkage. Therefore, impacts to wildlife corridors and habitat linkages would not be adverse.

Edge Effects

Indirect impacts to biological resources could result from adverse edge effects, which typically occur along the development–preservation interface and result from lighting, noise, and invasive species. Edge effects adjacent to wildlife corridors and habitat linkages could further constrain these resources. As stated, the portion of Rose Creek within the study area provides limited function as a local corridor for wildlife movement in a north–south direction, while the San Diego River represents a regional wildlife corridor between inland and coastal habitats. However, portions of the project located outside of existing rail right-of-way, such as sections of the alignment north of La Jolla Colony Drive, are in urbanized areas with little or no native habitat, and the majority of the alignment in new MTS right-of-way is either aerial or along I-5. Therefore, considering the urbanized setting of the study area and the existing edge effects of the existing LOSSAN tracks along Rose Creek and of the several bridges across the San Diego River, the project is not expected to substantially increase edge effects. About 92 percent of the existing wetland and Tier II–III vegetation communities within the study area would remain, and direct impacts to wetland and Tier II-III vegetation would be mitigated as described in Section 4.8.4. Therefore, indirect impacts related to edge effects would not be adverse.

Regional Resource Planning

The study area is located within the "urban area" of the MSCP Subarea Plan (City of San Diego, 1997). Urban habitat areas within the MHPA include existing designated open space (such as Mission Bay Park and Marian Bear Memorial Park) and a variety of smaller canyon systems. Portions of the study area in Rose Canyon and south along the slopes above the existing railway on the east side of I-5 south to SR 52 are designated MHPA. These areas are within Rose Canyon and Marian Bear Memorial Park. Habitat within the San Diego River in the southern portions of the project area also is designated MHPA. The Refined Build Alternative would not represent the expansion of existing—or the introduction of new—land uses within the MHPA. Therefore, the project would not conflict with the MSCP Plan and would be consistent with the regional conservation objectives of the MSCP Plan.

Portions of the project alignment along the San Diego River, Tecolote Creek, and Rose Creek would be located within the MHPA, within which long-term impacts to wetland and Tier II vegetation communities would total 0.26 acre (Table 4-18). Of the 0.26 acre of permanent impacts, 0.01 acre of southern riparian forest is categorized as a "gain" in the HabiTrak system. HabiTrak is a set of tools developed by CDFW and USFWS, in conjunction with other agencies, that provides a standardized process for tracking and reporting on habitats conserved and lost over time. SANDAG would provide documentation to the city so that this 0.01 acre of impact would be subtracted from the HabiTrak "gain" as recorded by the City of San Diego's annual MSCP report. In addition, SANDAG would provide documentation to the city to allow mitigation areas (described in Section 4.8.4 and Chapter 6.0 of the *Mid-Coast Corridor Transit Project Biological Resources Technical Report* [SANDAG, 2014u]) to be tracked as "gain" in the HabiTrak system, where appropriate. There would be no impacts to Tier III vegetation within the MHPA. Long-term impacts within the MHPA would be limited in extent and mitigated as described in Section 4.8.4. They would not affect the function of identified cores or linkages. Therefore, impacts to regional resource planning efforts would not be adverse.

Table 4-18. Impacts to Wetland and Tier II Vegetation Communities/ Land Covers within the Multi-Habitat Planning Area

Vegetation Community/ Land Cover	General Vegetation Type (Holland/Oberbauer Code)	Total Impacts (acres)	Impacts within Multi-Habitat Planning Area (acres)		
			Long-Term	Shading and Construction	Construction
Wetland					
Disturbed and Developed Areas (10000)	Disturbed Wetland (11200)	0.38	<0.01	0.14	0.24
Riparian and Bottomland Habitat (60000)	Southern Riparian Forest (61300)	0.78	0.18	—	0.60
	Mulefat Scrub (63310)	0.09	<0.01	0.08	<0.01
	Southern Willow Scrub (63320)	0.28	0.01	0.06	0.21
	Disturbed Southern Willow Scrub (63320)	0.39	<0.01	0.11	0.27
	Arundo-Dominated Riparian (65100)	0.07	<0.01	0.04	0.02
	Non-Vegetated Channel or Floodway (64200)	0.16	—	0.03	0.13
	Wetland Total	2.14	0.19	0.47	1.48
Tier II					
Scrub and Chaparral (30000)	Diegan Coastal Sage Scrub (32500)	0.23	<0.01	—	0.23
	Disturbed Diegan Coastal Sage Scrub (32500)	0.06	0.06	—	—
Tier II Total		0.30	0.06	—	0.23
Total		2.44	0.26	0.47	1.71

Source: City of San Diego, 1997; Holland, 1986; Oberbauer and Buegge, 2008
Notes: Totals may not sum due to rounding.
Acreages may vary slightly based on final design, and mitigation would be based on actual impacts.

Project Measures to Avoid or Minimize Impacts

During final design, the project's footprint would be further reviewed and, where possible, the footprint would be minimized to reduce impacts to wetlands and vegetation.

In response to comments received on the Draft SEIS/SEIR, additional project measures were identified that would reduce impacts to bats and wildlife movement. Specifically, features would be added to the San Diego River Bridge to make it more "bat friendly." Several methods may be used to make the bridge more conducive to bat use as roosting and maternity colony sites. Potential add-on structures could include add-on panels, add-on collars, capped-edge drains, wooden-backed signs, and bat houses. The appropriate add-on structures would be selected based on consultations between a qualified bat biologist and bridge structural engineers with consideration given to site-specific conditions, maintenance and inspection accessibility, and safety. A qualified bat biologist would monitor the add-on structures annually for three years post-construction to ensure the add-on structures remain intact and to determine if the add-on structures are being used as bat roosts.

The concrete-lined channel has been designed with a slight inclination toward the center of the channel. During the dry season when the flows would be limited to irrigation runoff, the outer segments of the channel bottom would carry limited amounts of runoff and would continue to facilitate wildlife movement. The majority of riprap placed at the upstream and downstream ends of the proposed channel would not be grouted, which would allow sediment to fill gaps, creating a more natural surface for wildlife to cross.

4.8.4 Mitigation Measures

The Refined Build Alternative would include mitigation that is consistent with the MSCP Plan (County of San Diego, 1998) and therefore would require mitigation for impacts to special-status vegetation communities (wetlands and Tier II–III). Mitigation would reduce the overall biological impacts from a project through the restoration and/or conservation of vegetation communities. Often the mitigation ratios are higher than 1:1, which accounts for temporary losses and may increase net habitat area. Mitigation through the *TransNet* EMP, described in Section 4.8.1.1, would provide an equivalent level of protection and benefit to biological resources. SANDAG is the responsible agency for mitigation of project impacts to biological resources. Impacts to wetlands and Tier II–III vegetation communities would be mitigated in accordance with the ratios shown in Table 4-19, Table 4-20, and Table 4-21. Long-term impacts to wetland communities would be mitigated at a 3:1 ratio, including a minimum 1:1 ratio of wetlands creation to achieve no net loss, based on the vegetation community and subject to approval of resource agencies with jurisdiction. Additional mitigation may be required by resource agencies with jurisdiction over the affected area.

Table 4-19. Proposed Mitigation for Impacts to Wetland Vegetation Communities

Vegetation Community/ Land Cover	Impacts and Mitigation Ratios				
	Long-Term		Construction		Total Mitigation Required (Acres)
	Acres	Ratio	Acres	Ratio	
Disturbed Wetland (11200)	0.07	3:1	1.3	1:1	1.51
Disturbed Herbaceous Wetland (52510)	—	3:1	0.01	1:1	0.01
Southern Riparian Forest (61300)	0.48	3:1	0.89	1:1	2.33
Mulefat Scrub (63310)	<0.01	3:1	0.11	1:1	0.11
Southern Willow Scrub (63320)	0.16	3:1	0.82	1:1	1.30
Disturbed Southern Willow Scrub (63320)	<0.01	3:1	0.39	1:1	0.39
Arundo-Dominated Riparian (65100)	0.02	3:1	0.20	1:1	0.26
Non-Vegetated Channel or Floodway (64200)	0.13	3:1	0.39	1:1	0.78
Total	0.87	—	4.11	—	6.69

Source: City of San Diego, 2012b
Notes: Totals may not sum due to rounding.
Acreages may vary slightly based on final design, and mitigation would be based on actual impacts.

Table 4-20. Proposed Mitigation for Impacts to Tier II and Tier IIIB Vegetation Communities within the Multi-Habitat Planning Area

Vegetation Community/Land Cover	Impacts and Mitigation Ratios						
	Long-Term			Short-term Construction			Total Mitigation Required (Acres)
	Acres	Ratio	Total	Acres	Ratio	Total	
Mitigation Located Inside the MHPA							
Diegan Coastal Sage Scrub (including disturbed) (32500)	0.06	1:1	0.06	0.23	1:1	0.23	0.29
Mitigation Located Outside the MHPA							
Diegan Coastal Sage Scrub (including disturbed) (32500)	0.06	2:1	0.12	0.23	1:1	0.23	0.35

Source: City of San Diego, 2012b
Notes: Totals may not sum due to rounding.
Acreages may vary slightly based on final design, and mitigation would be based on actual impacts.
MHPA = Multi-Habitat Planning Area

Table 4-21. Proposed Mitigation for Impacts to Tier II and Tier IIIB Vegetation Communities Outside the Multi-Habitat Planning Area

Vegetation Community/ Land Cover	Impacts and Mitigation Ratios						
	Long-Term			Short-term Construction			Total Mitigation Required (Acres)
	Acres	Ratio	Total	Acres	Ratio	Total	
Mitigation Located Inside the MHPA							
Diegan Coastal Sage Scrub (32500)	1.88*	1:1	1.88	1.92	1:1	1.92	3.81
Disturbed Diegan Coastal Sage Scrub (32500)	4.37*	1:1	4.37	0.65	1:1	0.65	5.03
Non-Native Grassland (42200)	1.43	0.5:1	0.72	0.21	0.5:1	0.11	0.83
Total	7.68	—	6.97	2.78	—	2.68	9.67
Mitigation Located Outside the MHPA							
Diegan Coastal Sage Scrub (32500)	1.88	1.5:1	2.82	1.92	1.5:1	2.88	5.70
Disturbed Diegan Coastal Sage Scrub (32500)	4.37	1.5:1	6.56	0.65	1.5:1	0.98	7.54
Non-Native Grassland (42200)	1.43	1:1	1.43	0.21	1:1	0.21	1.65
Total	7.68	—	10.81	2.78	—	4.07	14.89

Source: City of San Diego, 2012b
Notes: Totals may not sum due to rounding.
Acreages may vary slightly based on final design, and mitigation would be based on actual impacts.
* Long-term impacts to Diegan coastal sage scrub include 0.15 acre of long-term indirect shading impacts. Long-term impacts to disturbed Diegan coastal sage scrub include 0.12 acre of long-term indirect shading impacts.
MHPA = Multi-Habitat Planning Area

For Tier II long-term impacts within the MHPA (Table 4-20), 0.12 acre of mitigation is required if the mitigation occurs outside the MHPA, and 0.06 acre of mitigation is required if the mitigation occurs within the MHPA. For Tier II and Tier IIIB long-term impacts outside the MHPA (Table 4-21), 10.81 acres of mitigation is required if the mitigation occurs outside the MHPA, and 6.97 acres of mitigation is required if the mitigation occurs within the MHPA.

One location has been identified for potential off-site mitigation for impacts to wetlands, Rose Canyon/San Clemente Canyon in the Rose Creek watershed. For impacts to uplands, one off-site mitigation location (i.e., the Sage Hill site) has been identified; additional sites for upland mitigation may be identified during project permitting. The Sage Hill site is in northern San Diego County near Harmony Grove and is identified as a Core Gnatcatcher Conservation Area. Agency consultation regarding mitigation, including the identification of off-site mitigation areas, will continue throughout the permitting process. Additional on- and off-site options may be identified to satisfy mitigation requirements for the Refined Build Alternative. Mitigation for impacts to wetlands and Tier II–III vegetation communities is currently proposed as listed below:

For impacts to wetland vegetation communities, proposed mitigation includes implementing a portion of the restoration and creation opportunities identified in the *Rose Creek Watershed Wetland, Riparian and Water Quality Restoration Opportunities Analysis* (San Diego Earthworks, 2012). As noted above, additional sites may be identified during the permitting process.

Additional mitigation for impacts to wetland vegetation communities, if required, as well as mitigation for impacts to Tier II–III vegetation communities, would be provided through the SANDAG *TransNet* EMP using one or more of the following mitigation approaches, in accordance with the ratios specified in Table 4-19, Table 4-20, Table 4-21, and Table 4-22:

BIO1 On-site Mitigation: To the extent feasible, disturbed lands within or adjacent to the existing MTS right-of-way would be revegetated with wetland and Tier II–III vegetation communities. Revegetated areas would be maintained and monitored for approximately five years to ensure successful reestablishment of vegetation communities.

BIO2 Off-site Mitigation: Where mitigation requirements cannot be accommodated within existing disturbed lands in the study area, impacts to wetlands and Tier II–III vegetation communities would be mitigated inside or outside of MHPA lands elsewhere within the County of San Diego (e.g., Sage Hill site). Off-site mitigation may include creation (establishing wetlands and Tier II–III vegetation communities in areas that are currently disturbed, developed, or supporting non-native vegetation communities) or enhancement (improving the quality of existing areas of wetlands and Tier II–III vegetation communities through removal of non-native species, establishment of native species, restoration of prior impacts, and protection from future disturbance).

BIO3 Mitigation Credits: In addition to on-site and off-site mitigation, impacts to wetlands and Tier II–III vegetation communities may be mitigated through the purchase of mitigation credits. The purchase of mitigation credits result in the

long-term preservation of vegetation communities within established mitigation banks where these communities have been created and/or enhanced and are maintained in perpetuity.

Mitigation for temporary impacts (e.g., restoration of temporarily disturbed areas) would occur on site; refer to Section 4.17.3.2 for additional information and mitigation measures for construction-related impacts. Mitigation for permanent impacts likely would occur outside of the MTS right-of-way to minimize future direct or indirect impacts to mitigation areas associated with use of right-of-way. The location and type of mitigation for impacts to Diegan coastal sage scrub (including disturbed) and non-native grassland would be determined prior to construction through the *TransNet* EMP. Mitigation for impacts to Diegan coastal sage scrub (including disturbed) and non-native grassland would occur at the Sage Hill site and would consist of creation, preservation, or enhancement. Table 4-22 lists the impact acreages and applicable ratios for mitigation.

Table 4-22. Proposed Compensatory Mitigation for Impacts to Jurisdictional Aquatic Resources

Vegetation Community/ Land Cover	Impacts and Mitigation Ratios						
	Long-Term			Short-term Construction			Total Mitigation Proposed (Acres)
	Acres	Ratio	Total	Acres	Ratio	Total	
USACE/RWQCB Jurisdiction							
Wetland							
Disturbed Wetland (11200)	0.02	3:1	0.06	0.45	1:1	0.45	0.51
Southern Riparian Forest (61300)	0.03	3:1	0.09	0.05	1:1	0.05	0.14
Mulefat Scrub (63310)	<0.01	3:1	<0.01	0.11	1:1	0.11	0..11
Southern Willow Scrub (63320)	0.12	3:1	0.36	0.44	1:1	0.44	0.80
Disturbed Southern Willow Scrub (63320)	<0.01	3:1	<0.01	0.39	1:1	0.39	0.39
Arundo-Dominated Riparian (65100)	<0.01	3:1	<0.01	0.07	1:1	0.07	0.07
Wetland Subtotal	0.17	3:1	0.51	1.51	1:1	1.51	2.02
Non-Wetland Waters							
Non-Vegetated Channel or Floodway (64200)	0.13	3:1	0.39	0.39	1:1	0.39	0.78
Disturbed Wetland (11200) – Concrete Lined	0.06	3:1	0.18	0.67	1:1	0.67	0.85
Disturbed Wetland (11200) - Riprap	—	3:1	—	0.08	1:1	0.08	0.08
Non-Wetland Waters Subtotal	0.19	3:1	0.57	1.14	1:1	1.14	1.71
USACE/RWQCB Jurisdiction Total	0.37	—	1.11	2.64	—	2.64	3.75
CDFW and City of San Diego Jurisdictional Aquatic Resources							
Riparian Areas							
Disturbed Wetland (11200)	0.02	3:1	0.06	0.45	1:1	0.45	0.51
Disturbed Herbaceous Wetland (52510)	—	3:1	—	0.01	1:1	0.01	0.01
Southern Riparian Forest (61300)	0.48	3:1	1.44	0.89	1:1	0.89	2.33
Mulefat Scrub (63310)	<0.01	3:1	<0.01	0.11	1:1	0.11	0.11

Table 4-22. Proposed Compensatory Mitigation for Impacts to Jurisdictional Aquatic Resources (continued)

Vegetation Community/ Land Cover	Impacts and Mitigation Ratios						
	Long-Term			Short-term Construction			Total Mitigation Proposed (Acres)
	Acres	Ratio	Total	Acres	Ratio	Total	
Southern Willow Scrub (63320)	0.16	3:1	0.48	0.82	1:1	0.82	1.31
Disturbed Southern Willow Scrub (63320)	<0.01	3:1	<0.01	0.39	1:1	0.39	0.39
Arundo-Dominated Riparian (65100)	0.02	3:1	0.06	0.20	1:1	0.20	0.26
Riparian Areas Subtotal	0.68	3:1	2.04	2.86	1:1	2.86	4.9
Streambed							
Non-Vegetated Channel or Floodway (64200)	0.13	3:1	0.39	0.39	1:1	0.39	0.78
Disturbed Wetland (11200) – Concrete Lined	0.06	3:1	0.18	0.67	1:1	0.67	0.85
Disturbed Wetland (11200) – Riprap	—	3:1	—	0.15	1:1	0.15	0.15
Streambed Subtotal	0.19	3:1	0.57	1.21	1:1	1.21	1.78
CDFW and City of San Diego Total	0.87	—	2.61	4.08	—	4.08	6.69
CCC Jurisdictional Aquatic Resources							
Disturbed Wetland (11200)	< 0.01	3:1	< 0.01	0.14	1:1	0.14	0.14
Mulefat Scrub (63310)	< 0.01	3:1	< 0.01	0.10	1:1	0.10	0.10
Southern Willow Scrub (63320)	< 0.01	3:1	< 0.01	0.09	1:1	0.09	0.09
Disturbed Southern Willow Scrub (63320)	< 0.01	3:1	< 0.01	0.22	1:1	0.22	0.22
Arundo-Dominated Riparian (65100)	< 0.01	3:1	< 0.01	0.06	1:1	0.06	0.06
Non-Vegetated Channel or Floodway (64200)	0.04	3:1	0.12	0.04	1:1	0.04	0.16
Disturbed Wetland (11200) – Concrete Lined	< 0.01	3:1	< 0.01	0.01	1:1	0.01	0.01
CCC Total	0.04	—	0.12	0.66	—	0.66	0.78

Source: City of San Diego, 2012b; Holland, 1986; Oberbauer and Buegge, 2008
Notes: Totals may not sum due to rounding.
Mitigation may include creation, enhancement, or restoration. Acreages also may vary slightly based on final design, and mitigation would be based on actual impacts.
CCC = California Coastal Commission; CDFW = California Department of Fish and Wildlife; RWQCB = Regional Water Quality Control Board; USACE = U.S. Army Corps of Engineers

Implementation of the project would result in the long-term loss of jurisdictional aquatic resources. The project would avoid and minimize these impacts to the extent practicable. As discussed above, one wetland mitigation site has been identified through the *TransNet* EMP, the Rose Creek watershed. Additional mitigation requirements may be identified by the CCC for impacts to CCC wetlands during the CDP permitting process. The requirement for a CDP for the project is presented in Sections 4.1.1 and 4.22.

Mitigation to impacts on jurisdictional aquatic resources would be fulfilled through the following:

BIO4 Any impacts that cannot be mitigated on-site or at the identified off-site mitigation sites, SANDAG will implement a combination of one or more of the following mitigation alternatives: mitigation bank credits; in-lieu fee program credits; on-site creation, restoration, or enhancement; and off-site creation, restoration, or enhancement.

Mitigation for temporary impacts (e.g., restoration of temporarily disturbed areas) is expected to occur on-site. Mitigation for permanent impacts likely would occur outside of the MTS right-of-way to minimize future direct or indirect impacts to mitigation areas associated with use of the right-of-way. As shown in Table 4-22, project impacts, including long-term and short-term construction impacts, would affect 3.01 acres of USACE/RWQCB wetland and non-wetland waters and 4.95 acres of CDFW riparian areas and streambed/City of San Diego wetlands. This would require 10.44 acres of mitigation (3.75 acres of USACE/RWQCB and 6.69 acres of CDFW/City of San Diego jurisdictional resources). Long-term and short-term construction impacts would also affect 0.88 acre of CCC wetlands, which would require 1.32 acres of mitigation. Impacts and mitigation for each agency are calculated separately but include areas of overlapping jurisdiction.

Special-Status Wildlife Species

Impacts to San Diego fairy shrimp in Basin II would be mitigated through the following mitigation measure. Should future surveys identify San Diego fairy shrimp in additional basins impacted by the project, impacts also would be mitigated in accordance with the following mitigation measure:

BIO5 Impacts to ephemeral basins occupied by San Diego fairy shrimp, including Basin II, would be mitigated at a 2:1 ratio through restoration and/or enhancement of vernal pools within west Otay Mesa on the 40-acre Anderprizes parcel, which was previously acquired for future mitigation of vernal pools and which has been approved by the USFWS for mitigation of impacts to San Diego fairy shrimp, or within another approved mitigation area acceptable to the USFWS. Restoration would be conducted at a minimum 1:1 ratio to achieve a no-net-loss of San Diego fairy shrimp habitat; a combination of restoration and enhancement would make up the remaining mitigation. Restoration would be conducted in accordance with a vernal pool restoration plan to be developed by SANDAG and subject to approval by the USFWS prior to project construction.

The 40-acre Anderprizes parcel has sufficient mitigation areas to offset the impacts associated with the project. However, in the event that other mitigation locations are identified, mitigation at such sites also would include the implementation of a vernal pool restoration, enhancement, and/or preservation plan subject to the approval of the USFWS prior to project construction. SANDAG would ensure that the mitigation areas would be conserved in perpetuity, including providing financial assurances and/or securing conservation easements, as necessary for USFWS approval.

As stated in Section 4.8.3.2, due to the presence of San Diego fairy shrimp, Basin II could potentially be considered an ESHA subject to CCC regulation. The CCC may impose additional conditions related to impacts to ESHA during the permitting process for the CDP. The requirement for a CDP for the project is presented in Sections 4.1.1 and 4.22, including the need to satisfy Coastal Act policies relating to habitat protection. Regardless of any additional permit requirements for the CDP, with implementation of Mitigation Measure BIO5, impacts to the San Diego fairy shrimp would not be adverse.

With the incorporation of mitigation measures, the Mid-Coast Corridor Transit Project would not have any adverse impacts.

4.8.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.8.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the CEQA Guidelines) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project to the biological resources discussed below.

No Impact (No-Build Alternative). As described in Section 4.8.3.1, the No-Build Alternative would not result in short-term or long-term impacts to biological resources. Thus, the analysis below focuses on the Refined Build Alternative.

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in the MSCP or other local or regional plans, policies, or regulations, or by the CDFW or the USFWS?

Significant Impact (Refined Build Alternative). The Refined Build Alternative would have significant impacts on special-status species and species identified in the MSCP Plan (County of San Diego, 1998), both through direct effects on species themselves and through the loss of potentially suitable habitat. Long-term impacts—including direct impacts, indirect impacts such as shading, and habitat loss—to special-status species are discussed in Section 4.8.3.2. However, mitigation measures are proposed to reduce these impacts to below significance, as described in Section 4.8.4.

Would the project have a substantial adverse[10] effect on any Tier I Habitats, Tier II Habitats, Tier IIIA Habitats, or Tier IIIB Habitats, as identified in the San Diego Municipal Code Land Development Code—Biology Guidelines (City of San Diego, 2012b) or other sensitive natural communities identified in local or regional plans, policies, or regulations, or by the CDFW or the USFWS?

Significant Impact (Refined Build Alternative). Direct and indirect impacts to sensitive natural communities are discussed by tier level in Sections 4.8.3.2. However, mitigation

[10] Impacts of less than 0.1 acre are not considered significant (City of San Diego, 2011a).

measures have been proposed to reduce these impacts to below significance under CEQA, as described in Section 4.8.4.

Would the project have a substantial adverse[11] impact on wetlands (including, but not limited to, marsh, vernal pool, riparian, etc.) through direct removal, filling, hydrological interruption, or other means?

Significant Impact (Refined Build Alternative). Direct and indirect impacts to waters and wetlands are discussed in Section 4.8.3.2. However, mitigation measures have been proposed to reduce these impacts to below significance under CEQA, as described in Section4.8.4.

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, including linkages identified in the MSCP, or impede the use of native wildlife nursery sites?

Less-Than-Significant Impact (Refined Build Alternative). As stated in Section 4.8.3.2, although limited impacts would occur to local wildlife movement corridors, there would not be any direct or indirect impacts to regional wildlife corridors and habitat linkages.

Would the project conflict with the provisions of an adopted habitat conservation plan, natural conservation community plan, or other approved local, regional, or state habitat conservation plan, either within the MSCP area or in the surrounding region?

Less-Than-Significant Impact (Refined Build Alternative). The project would be consistent with adopted plans, as discussed in Section 4.8.3.2.

Would the project introduce land use within an area adjacent to the MHPA that would result in adverse edge effects?

Less-Than-Significant Impact (Refined Build Alternative). Impacts related to edge effects are discussed in Section 4.8.3.2. Considering the urbanized setting of the study area and the existing edge effects of the existing LOSSAN tracks along Rose Creek and of the several bridges across the San Diego River, the project is not expected to substantially increase edge effects.

Would the project introduce invasive species of plants into a natural open space area?

Less-Than-Significant Impact (Refined Build Alternative). Implementation of the project is not expected to introduce invasive plants into natural open space areas. Although landscaping likely would be incorporated at stations and related facilities, these locations are not near or adjacent to natural open space areas that would be susceptible to the introduction of invasive plant species. Therefore, implementation of the project would not introduce invasive plant species into natural open space areas and a less than significant impact would occur.

[11] Substantial adverse impacts on wetlands include any direct loss of wetlands. Total wetland impacts less than 0.01 acre are not considered significant, except for vernal pools or wetlands within the Coastal Zone (City of San Diego, 2011a).

4.8.5.2 Significance after Mitigation

Impacts to Diegan coastal sage scrub (including disturbed) would be mitigated according to the mitigation ratios found in Table 4-20 and Table 4-21. Therefore, with mitigation, impacts to coastal California gnatcatcher would be less than significant.

Impacts to potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher would be mitigated according to the mitigation ratios found in Table 4-19. Therefore, with mitigation, impacts to least Bell's vireo and southwestern willow flycatcher, should the two species occupy the area prior to construction, would be less than significant.

Impacts to areas occupied by San Diego fairy shrimp (Basin II) and the surrounding watershed would be mitigated according to Mitigation Measure BIO5. Should future surveys identify San Diego fairy shrimp in additional basins impacted by the project, impacts would be mitigated at a minimum ratio of 2:1 in accordance with Mitigation Measure BIO5 through restoration and/or enhancement of vernal pools within the Anderprizes property or within another approved mitigation area acceptable to the USFWS and CCC. Therefore, with mitigation, impacts to San Diego fairy shrimp would be less than significant.

Long-term significant impacts to wetlands and Tier II–III vegetation communities would be mitigated according to the ratios found in Table 4-19, Table 4-20, and Table 4-21. Therefore, with mitigation, impacts to sensitive natural communities would be less than significant.

Indirect shading impacts to vegetation communities could substantially affect riparian and wetland habitats and other sensitive natural communities identified by the City of San Diego (2011a). These impacts would be considered significant. However, shading impacts would occur entirely within areas temporarily impacted during construction and would be mitigated in conjunction with mitigation for temporary construction impacts. Therefore, with mitigation, impacts to sensitive natural communities would be less than significant.

The Mid-Coast Corridor Transit Project, with the incorporation of mitigation measures, would result in a less-than-significant impact under CEQA.

4.9 Water Resources

This section describes existing water resources and impacts of the No-Build and Refined Build Alternatives on water resources, including surface waters and water quality, floodplains, and ground water. It also identifies measures to avoid, minimize, or mitigate water quality impacts. For additional information, refer to the *Mid-Coast Corridor Transit Project Water Impact Analysis Technical Report* (SANDAG, 2014m) prepared in support of the SEIS/SEIR.

The analysis conducted for the prior environmental documents concluded that the LRT alignments would not result in significant impacts on water resources. Despite these findings, the AA/DEIS/DEIR included mitigation, including construction of new storm drain facilities, development of a Storm Water Pollution Prevention Plan, monitoring of non-point source pollution, and construction of bridges during the dry season. The 2001 FEIS concluded the LRT alignment would increase storm-water runoff, but would not result in significant impacts to other water resources. Mitigation was proposed, similar to the measures included in the AA/DEIS/DEIR.

The Draft SEIS/SEIR concluded that there would be no adverse impacts to water resources under the project because features incorporated into the project would minimize impacts.

This section has been revised based on comments received on the Draft SEIS/SEIR and updated analysis as a result of the refinements made to the Build Alternative. Specifically, revisions were made regarding study area acreages from impervious surfaces associated with the Refined Build Alternative. Additionally, in response to comments received on the Draft SEIS/SEIR, revisions were made in Section 4.9.5.1 to clarify or expand impact discussions related to the nature and treatment of contaminants. The Preface in the *Mid-Coast Corridor Transit Project Water Impact Analysis Technical Report* (SANDAG, 2014m) contains additional information on changes to the analysis and technical report since the Draft SEIS/SEIR. The conclusions in this section and the water resources analysis remain unchanged for the Refined Build Alternative.

In summary, the Refined Build Alternative would result in water quality impacts; however, to reduce these impacts, the project would include BMPs and other project measures. Overall, the project would not have an adverse impact under NEPA and would have a less-than-significant impact under CEQA.

4.9.1 Regulatory Background and Methodology

The following sections describe the regulatory background and methodology used to analyze hydrology and water quality impacts.

4.9.1.1 Regulatory Background

The federal Clean Water Act (33 USC 1251 et seq.), as amended by the Water Quality Act of 1987, establishes the basic structure for regulating pollutant discharges into Waters of the U.S. Section 401 requires a State Water Quality Certification to show that the project will comply with state water quality standards for any activity that results in a discharge to a water

body. Section 404 requires a permit from the USACE when a discharge of dredged or fill material into wetlands and Waters of the U.S. occurs.

Section 10 of the Rivers and Harbors Act of 1899 (33 USC 401-403) protects navigable waters and prohibits obstructing or altering U.S. navigable waters. For any work performed in, over, or under U.S. navigable waters, the owner must obtain a Section 10 Permit from the USACE or, in certain circumstances, from the U.S. Coast Guard. The EPA designates the San Diego River, Tecolote Creek, and Rose Creek as navigable waters.

Under Executive Order 11988, federal agencies must avoid, to the extent possible, direct adverse impacts associated with modifying floodplains.

Any alteration to the bed, channel, or bank of any river, stream, or lake first requires the CDFW, to issue a Lake or Streambed Alteration Agreement, as required by Section 1600 et seq. of the California Fish and Game Code.

The CCC, in partnership with coastal cities and counties, plans and regulates the use of land and water in the Coastal Zone. The CZMA (16 USC 1451–1464) was passed in 1972 to encourage coastal states to develop and implement coastal zone management plans to protect, preserve, and enhance the coastal zone. The CCC implements the CZMA via the federal consistency review process. Refer to Sections 4.1 and 4.8 for additional information on the CCC and CZMA.

Sea Level Rise, California Executive Order S-13-08, requires agencies that are planning construction in areas vulnerable to sea level rise to consider a range of scenarios for the years 2050 and 2100 to assess vulnerability and, to the extent feasible, reduce expected risks. Other state regulations related to water resources include, but are not limited to, the Porter-Cologne Water Quality Control Act, the California Toxics Rule, and the State Antidegradation Policy.

The San Diego Regional Water Quality Control Board (SDRWQCB) is responsible for implementing the National Pollutant Discharge Elimination System (NPDES) permitting process at the regional level, for issuing Water Quality Certifications pursuant to Section 401 of the Clean Water Act, and for implementing the State Porter-Cologne Water Quality Control Act in accordance with the *Water Quality Control Plan for the San Diego Basin* (SDRWQCB, 1994). Additionally, the County of San Diego is responsible for watershed management and implementing the Storm Water Quality Management Program.

The City of San Diego has responsibility for flood control, water resource management, and permitting at the local level. The city's overall Storm Water Program incorporates the Watershed Urban Runoff Management Program, Jurisdictional Urban Runoff Management Program, and other needed programs to comply with waste discharge requirements. UCSD also is responsible for protecting water quality and for storm-water management within its jurisdiction.

4.9.1.2 Methodology

Hydrology and water-quality impacts resulting from the project were evaluated based on data gathered on hydrology, drainage patterns, surface- and ground-water quality, and floodplains; beneficial uses in watersheds in the study area; and applicable water-quality regulations.

The study area for the floodplain and ground-water analysis was defined as the watershed boundaries within the Mid-Coast Corridor. The study area for the drainage and water-quality analysis was defined as the area within 100 feet of the right-of-way for the project alignment, including the project's physical ground disturbance footprint (e.g., stations, tracks, equipment storage areas, substations, and temporary construction areas).

4.9.2 Affected Environment

This section describes existing water resources within the study area.

4.9.2.1 Surface-Water Hydrology

Figure 4-23 illustrates how the study area discharges to multiple receiving surface waters designated as navigable waters by EPA and thus considered Waters of the U.S. under USACE jurisdiction. Table 4-23 lists the hydrologic units, hydrologic areas, hydrologic subareas, watershed management areas, and receiving water bodies in the study area.

Table 4-23. Study Area Hydrologic Unit Classification

Hydrologic Unit	Hydrologic Area	Hydrologic Subarea	Hydrologic Unit/Hydrologic Subarea Number	Watershed Management Area	Receiving/ Affected Water Body[2]
San Diego	Lower San Diego	Mission San Diego	907.11	San Diego River	San Diego River
Peñasquitos	Tecolote	None Identified[1]	906.50	Mission Bay	Tecolote Creek
Peñasquitos	Miramar	None Identified[1]	906.40	Mission Bay	Rose Creek
Peñasquitos	Miramar Reservoir	None Identified[1]	906.10	Los Peñasquitos	Soledad Canyon Creek
Pueblo San Diego	San Diego Mesa	Lindbergh	908.21	San Diego Bay	None

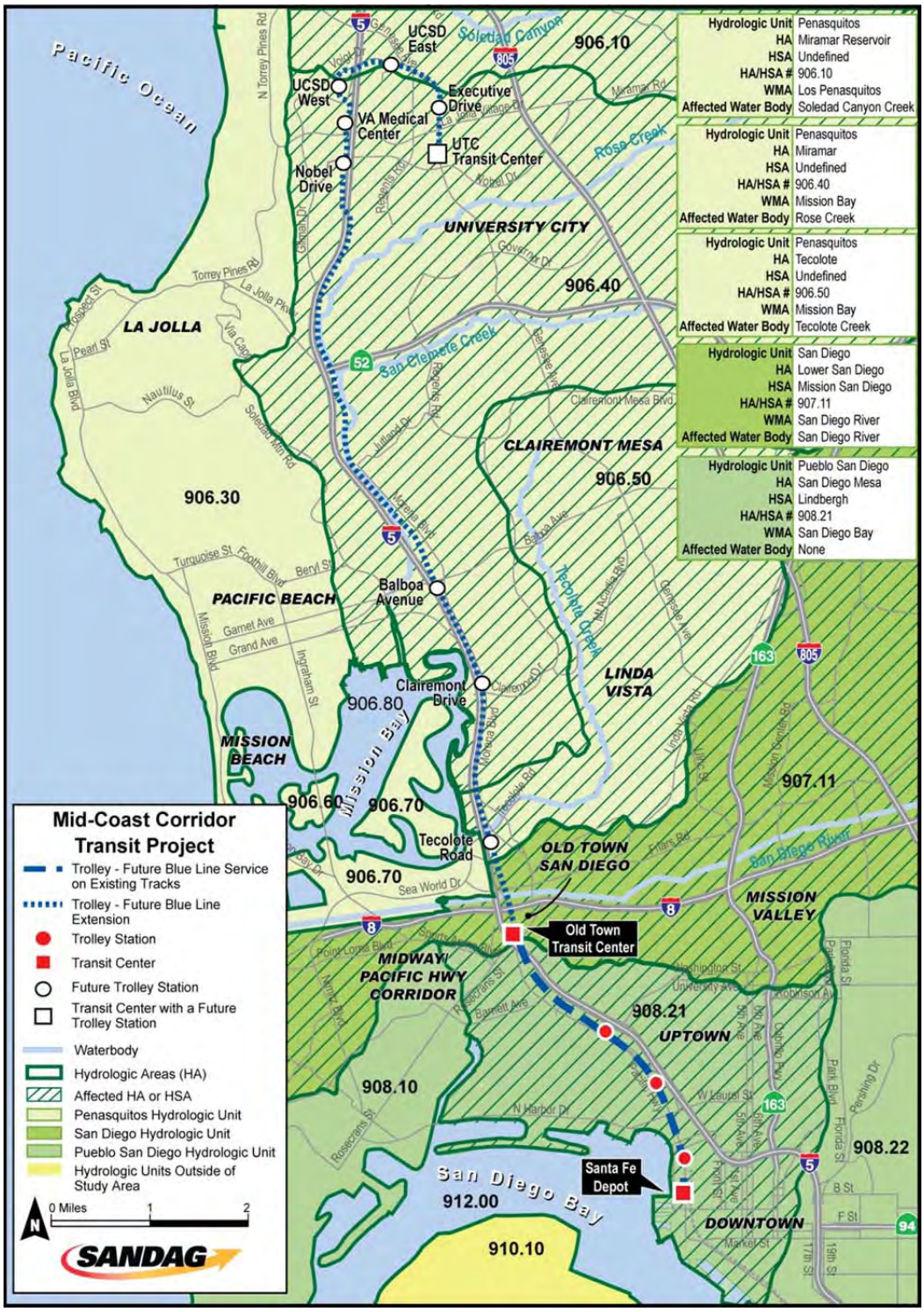
Source: SANDAG, 2014m
Notes: [1] There are no Hydrologic Subareas listed within the Peñasquitos Hydrologic Unit.
[2] The receiving water bodies within the study area are classified as perennial streams.

Within the study area, these receiving water bodies include the San Diego River, Tecolote Creek, Rose Creek, Soledad Canyon Creek, Mission Bay, Los Peñasquitos Lagoon, and the Pacific Ocean. The majority of these receiving water bodies are unlined, natural streambeds, with the exception of one concrete-lined, trapezoidal channel at Tecolote Creek (the lower portion of the creek adjacent to the residential neighborhood, which empties into Mission Bay) and three concrete-lined, trapezoidal channels along Rose Creek (from La Jolla Colony Drive in the north, down to Santa Fe Street in the south).

4.9.2.2 Drainage and Water Quality

The study area includes portions of Caltrans, City of San Diego, MTS, and Regents of the University of California (UCSD lands) rights-of-way and property. Within the MTS

Figure 4-23. Study Area Hydrologic Units, Areas, and Subareas



Source: SANDAG, 2014m
Notes: Los Peñasquitos Lagoon is not shown on the map.
HA = hydrologic areas; HAS = hydrologic subareas; VA = Veterans Administration

right-of-way, the predominant feature is the railroad track; as such, the amount of impervious surface area is minimal (ballasted track). Both Caltrans and the City of San Diego have higher impervious surface quantities in their respective rights-of-way.

Soils in the study area generally belong to groups C or D[12], which provide poor infiltration. However, small patches of group A and B soils occur throughout the study area. The MTS right-of-way contains soils with properties that minimize storm-water infiltration. Hence, storm water has a short infiltration period before it begins to sheet flow as runoff.

The SDRWQCB developed beneficial uses and water-quality objectives for water bodies in the study area, as listed in the *Water Quality Control Plan for the San Diego Basin* (SDRWQCB, 1994). The San Diego River, Tecolote Creek, Rose Creek, Soledad Canyon Creek, Mission Bay, and Los Peñasquitos Lagoon fail to meet the water-quality standard for beneficial uses. As a result, they are included on the 303(d)[13] list of Water Quality Limited Segments, which lists surface-water bodies that do not meet water-quality standards even after discharges of wastes from point sources are treated. In addition to the constituents of concern identified in Table 4-24, the SDRWQCB set an Indicator Bacteria Total Maximum Daily Load requirement for the San Diego region, establishing discharge limits and monitoring requirements for the San Diego River, Tecolote Creek, and Rose Creek. A Sediment Total Maximum Daily Load requirement also was established for Los Peñasquitos Lagoon.

Table 4-24. Section 303(d) Impaired Water Bodies

Section 303(d) Impaired Water Body	Hydrologic Unit/Hydrologic Subarea Number	Constituents of Concern
San Diego River (lower)	907.11	Enterococcus, fecal coliform, low dissolved oxygen, manganese, nitrogen, phosphorus, total dissolved solids, and toxicity
Tecolote Creek	906.50	Cadmium, copper, indicator bacteria, lead, nitrogen, phosphorus, selenium, toxicity, turbidity, and zinc
Rose Creek	906.40	Selenium and toxicity
Soledad Canyon Creek	906.10	Sediment toxicity and selenium
Mission Bay (area at mouth of Tecolote Creek only)	—	Eutrophic and lead
Mission Bay (area at mouth of Rose Creek only)	—	Eutrophic and lead
Los Peñasquitos Lagoon	906.10	Sedimentation/siltation

Source: SWRCB, 2010

[12] Soils of the U.S. are placed into four groups: A, B, C, D. Group A consists of soils with low runoff potential; Group B soils have moderate infiltration rates even when thoroughly wetted; Group C soils have slow infiltration rates even when thoroughly wetted; and Group D soils have high runoff potential.

[13] Section 303(d) of the Clean Water Act requires states, territories, and authorized tribes to develop a list of water quality impaired segments of waterways. The 303(d) list includes water bodies that do not meet water quality standards for the specified beneficial uses of that waterway.

4.9.2.3 Flood-Related

Flood Insurance Rate Maps generated by the Federal Emergency Management Agency ([FEMA], 1997, 2012) show that the project alignment would cross several floodplains (i.e., San Diego River, Tecolote Creek, and Rose Creek) and one floodway associated with the San Diego River. Table 4-25 lists water bodies within the project study area and their associated flood zones. Figure 4-24 shows the associated FEMA flood zones and flood insurance risk zone designations for waters within the study area. High flood risks exist within the study area at the San Diego River Bridge crossing, the Tecolote Creek Bridge crossing, and along Rose Creek.

Table 4-25. FEMA Flood Zones and Associated Waters within the Study Area

Water Body	Flood Insurance Rate Map No.		Associated Zone
San Diego River	06073C1614 G		AE, X
Tecolote Creek	06073C1614 G		AE, AO, X
Rose Creek	06073C1603 G	06073C1601 G	AE, X

Sources: FEMA, 2012
Notes: FEMA Flood Zone Designations:
A = High risk: Areas outside the 1% annual chance floodplain and no base flood elevations or depths are shown.
AE = High risk: Areas with a 1% chance of flooding where base flood elevations are derived from detailed analyses and shown at selected intervals on Flood Insurance Rate Maps.
AO = High risk: River or stream flood-hazard areas and areas with a 1% or greater chance of shallow flooding each year, usually in the form of sheet flow, with an average depth of 1 to 3 feet. Average flood depths are derived from detailed analyses and shown within these zones.
VE = High risk: Coastal areas with a 1% or greater chance of flooding and an additional hazard associated with storm waves; no base flood elevations are shown within these zones.
X = Low to moderate risk: Areas outside the 1% annual chance flooding and no base flood elevations or depths are shown within this zone; or shaded X which equals a 1% change of flooding to a depth of less than 1 foot, or a 0.2% chance of flooding.
FEMA = Federal Emergency Management Agency

Over the past century, the sea level in the San Diego area has risen by just under 1 inch per decade, on average. Mission Bay is the closest water body to the project, ranging from 350 to 1,300 feet west of the project alignment. In the Mission Bay area, a rise in sea level would cause coastal flooding that would reach farther inland and occur more frequently. The San Diego River, Tecolote Creek, and Rose Creek could be vulnerable to a rise in sea level because of their topography, elevation, and proximity to Mission Bay.

4.9.2.4 Ground Water

All major drainage basins in San Diego contain ground-water basins, which are relatively small in area and usually shallow. To obtain information on the condition of ground water along and near the project alignment, data from borings were collected. For areas south of La Jolla Colony Drive, these borings typically encountered ground water at a depth of less than 25 feet below the ground surface. Ground water was not encountered in borings north of La Jolla Colony Drive; ground water in this area is expected to be at depths greater than 80 feet below the ground surface. Ground-water levels are subject to change based on tidal and seasonal effects, irrigation, and rainfall. Ground water in the project area contains calcium and sodium cations (positive ions) and bicarbonate

Figure 4-24. Study Area Associated FEMA Flood Zones

Source: SANDAG, 2014m
Note: See Table 4-25 for FEMA Flood Zone Designations. Flood insurance risk zone designations for the 0.2% Annual Chance Flood Hazard and Open Water zones are not defined by FEMA.

and sulfate anions (negative ions). The analysis found local impairments due to nitrate, sulfate, and total dissolved solids. There are no private or commercial ground-water wells within the project study area.

4.9.3 Environmental Impacts

This section describes the hydrology and water quality impacts under the No-Build and Refined Build Alternatives.

4.9.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented, and service on bus Route 150 would be continued and enhanced. Physical improvements would be limited to installing bus shelters at some bus stops. Bus shelters would not increase impervious surfaces or alter flow patterns because they would be generally located in urban areas and along existing streets where many surfaces already are paved or impervious. In addition, they would be built in compliance with regulations that require new construction to limit increases and adverse impacts of surface runoff though project and BMP measures. Therefore, any change in storm-water runoff quantities from the No-Build Alternative would be negligible, and its impact on water quality would not be adverse.

4.9.3.2 Refined Build Alternative

This section presents the results of the analysis of the Refined Build Alternative on drainage and water quality, floodplains, and ground water.

Drainage and Water Quality

New impervious surfaces would be created where project elements are constructed on unimproved lands. Such features would include stations, bridges, depressed section structures, roadway improvements (e.g., roadway widening, minor realignment, bus turnouts and new driveways, median modification, and Americans with Disabilities Act and pedestrian access ramps at station locations), and support facilities (e.g., substations and station parking). The estimated new net impervious area is approximately 18 acres for the project.

The additional impervious surfaces would alter flow patterns and incrementally reduce natural soil surfaces available for rainfall and runoff infiltration. This could increase storm-water runoff that discharges through the existing drainage network during storms. In addition, increases in impervious surface and surface-water runoff could increase the discharge of non-point source pollutants. Such contaminants would degrade the quality of receiving water bodies (e.g., San Diego River, Tecolote Creek, Rose Creek, and Soledad Canyon Creek). The proposed BMPs, as identified below, would treat the increase in contaminated runoff caused by increased impervious surfaces to the maximum extent practicable, consistent with applicable water quality regulations; therefore, there would be no adverse impact. Accordingly, the Refined Build Alternative would not result in any adverse drainage or water quality impacts.

Flood-Related

The goal in designing the proposed drainage systems is to use the existing systems to the maximum extent practicable to minimize impacts to existing drainage facilities and to eliminate increases in discharge flow rates downstream of the study area. Project measures include a storm drainage network developed on a site-specific basis according to local flood-control requirements and design criteria. The system would safely and efficiently convey the estimated runoff from the 100-year storm through the study area.

Although the project would not affect structures at existing bridge sites, portions of the project alignment would be within the 100-year flood zone and are located downstream of existing reservoirs. Therefore, the project would increase the potential to obstruct or exacerbate floodwaters during a major storm event. The project includes bridge supports designed to minimize the effect of blockage from waterway debris, thereby reducing obstructions and elevated upstream flood levels.

Proposed drainage management measures (e.g., channel stabilization, low impact development [LIDs], etc.) would avoid or accommodate any increase in peak runoff, and proposed structures, channel modifications, and longitudinal encroachments would not raise the 100-year water surface elevation (WSEL) more than 1 foot. The minimal floodway increase would not affect existing buildings, structures, or other beneficial uses. Additionally, the project would document any impacts through the FEMA Conditional Letter of Map Revision approval process, as well as meet the requirements of the SDRWQCB, as applicable.

Under the high 2100 extreme event condition, a scenario evaluated to comply with the Sea Level Rise Executive Order, an increase in WSEL of 0.01 and 0.11 feet could occur at the San Diego River and Tecolote Creek Bridges, respectively. There would be no increase in the low and medium 2100 extreme event conditions. Although projections show an increase in WSEL at these locations, sufficient freeboard (more than 1 foot) exists above the projected 2100 sea-level rise plus the 100-year storm flows to handle the increase in WSEL. Hydrologists expect no sea-level rise impacts on the Rose Creek structures. Although the potential exists for sea-level rise, the consequences (i.e., flooding) at the San Diego River and Tecolote Creek resulting from a rise in sea level would be low and would not result in an adverse impact.

Accordingly, the Refined Build Alternative would not result in any adverse flood-related impacts.

Section 4.11 discusses the impact analysis for tsunami, seiche, and mudflow (mudslides), as evaluated in the *Mid-Coast Corridor Transit Project Geotechnical, Geologic, and Seismic Impacts Technical Report* (SANDAG, 2014i).

Ground Water

Project features that result in new impervious surfaces could reduce rainwater infiltration and ground-water recharge. Infiltration rates vary depending on the overlying soil types. The potential for reducing ground-water recharge along the project alignment is low because stations, street improvements, and support facilities (e.g., substations and station parking) are generally located in urban areas and along existing streets where

many surfaces already are paved or impervious. In addition, extensive storm-drainage systems in these areas currently intercept rainfall and runoff, thus limiting the amount of ground-water recharge that occurs. These storm-drainage systems do not currently allow for direct percolation within the underlying ground-water basins. Therefore, there would be no substantial reduction in ground-water recharge due to increased impervious surfaces. Additionally, the use or extraction of ground water for project operations is not expected. Accordingly, the Refined Build Alternative would not result in any adverse ground-water impacts.

Project Measures to Avoid or Minimize Impacts

BMPs would be included as part of project design to reduce the amount of contaminants added to the 303(d) listed waters identified above, and to eliminate potential increases in surface runoff that could otherwise impact existing downstream facilities. SANDAG would implement BMPs where site constraints, soil characteristics, and expected pollutants justify their use. General site BMPs and control measures incorporated into the project design would include, but not be limited to, conserving natural areas, protecting slopes and channels, and minimizing impervious areas. Treatment-control BMPs may include the use of vegetated swales and buffers, detention basins, and infiltration basins. The project would incorporate LIDs and hydromodification approaches into site design and storm-water management to maintain the site's pre-development runoff rates and volumes. The LID measures and techniques would be selected and implemented depending on site location/size and storm-water treatment needs. All proposed treatment BMPs, LIDs, and hydromodification measures would be located within the project study area and would be implemented to target project-specific constituents of concerns. Table 4-26 identifies the general treatment efficiencies of various devices.

Table 4-26. Proposed BMPs and Treatment Efficiencies

	Measure		Treatment Efficiency						
Treatment BMP	LID	HM	Sediment/ TSS/TDS	Nutrients	Trash/ Litter	Metals	Bacteria/ Pathogens	Oil/ Grease	Organics
Infiltration Devices	Y	Y	H	H	H	H	H	H	H
Detention Devices	Y	Y	H	M	H	H	H	H	H
Biofiltration Devices	Y	Y	M	L	L	M	L	M	M
Media Filters	N	N	H	L	H	H	H	H	H

Source: City of San Diego, 2011c; Caltrans, 2010c
Notes: BMP = Best Management Practice; H = High; HM = Hydromodification Management; L = Low; LID = Low Impact Development; M = Medium; N = No; TDS = Total Dissolved Solids; TSS = Total Suspended Solids; Y = Yes

4.9.4 Mitigation Measures

The Refined Build Alternative incorporates project measures and long-term BMPs, as identified in Section 4.9.3.2, into the design of the project to avoid or minimize impacts on water resources; therefore, no mitigation measures would be required and there would be no remaining adverse impacts.

4.9.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA thresholds of significance and additional discussion below.

4.9.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating significant impacts on water resources of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). As described in Section 4.9.3.1, the continuation and enhancement of Route 150 under the No-Build Alternative would not affect drainage or water quality, flooding, or ground water. Therefore, the discussion below focuses only on the Refined Build Alternative.

Would the project comply with the City's Storm Water Standards?

Less-Than-Significant Impact (Refined Build Alternative). The project would conform to regulatory standards for water quality, as identified in Section 4.9.1, during planning, design, and construction activities (*Storm Water Standards Manual* [City of San Diego, 2011c] and *Storm Water Quality Handbook: Project Planning and Design Guide* [Caltrans, 2010c]). These measures would include, but not be limited to, the BMPs listed in Table 4-26.

Would the project violate any water quality standards or waste discharge requirements?

Less-Than-Significant Impact (Refined Build Alternative). BMPs proposed for incorporation into the project (including, but not limited to, those identified in Table 4-26), in compliance with applicable water quality standards and waste discharge requirements identified in Section 4.9.1, would treat the increased runoff caused by increased impervious surfaces. Therefore, no violations of water quality standards or waste discharge requirements would result with incorporation of the identified water quality requirements.

Would the project substantially deplete ground-water supplies or interfere substantially with ground-water recharge such that there would be a net deficit in aquifer volume or a lowering of the local ground-water 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)?

Less-Than-Significant Impact (Refined Build Alternative). Project elements, such as stations, street improvements, and support facilities (e.g., substations and station parking) would result in new impervious surfaces that could reduce rainwater infiltration and groundwater recharge. The project does not anticipate use/extraction of ground water for operations. In addition, the potential for a reduction in ground-water recharge along the project alignment would be low because the project elements generally are located in urban areas and along existing streets where many of the surfaces already

are paved or impervious. Extensive storm drainage systems in these areas currently intercept rainfall and runoff waters, thus limiting the amount of ground-water recharge that occurs. In addition, existing storm-water drainage systems do not currently allow for direct percolation within the underlying ground-water basins. Therefore, the project would not substantially deplete ground-water supplies or interfere with ground-water recharge.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on- or off-site?

Less-Than-Significant Impact (Refined Build Alternative). Drainage management measures proposed for incorporation into the project would negate the increase in runoff caused by increased impervious surfaces that could otherwise result in an increase in erosion or siltation. Therefore, the impacts to drainage, erosion, and siltation on or off-site as a result of the project would be less than significant.

Would the project substantially alter the existing drainage pattern of the site or area including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site?

Less-Than-Significant Impact (Refined Build Alternative). Drainage management measures proposed for incorporation into the project would avoid or accommodate any increase in runoff caused by increased impervious surfaces that could otherwise result in flooding. Therefore, the impacts to drainage patterns, surface-water runoff, and flooding would be less than significant.

Would the project create or contribute runoff water that would exceed the capacity of existing or planned storm-water drainage systems or provide substantial additional sources of polluted runoff?

Less-Than-Significant Impact (Refined Build Alternative). The proposed storm drainage network has been designed to safely and efficiently convey the anticipated runoff from the 100-year storm event through the study area. BMPs proposed for incorporation into the project would reduce potential increases in surface runoff that could overwhelm existing downstream facilities, would treat the increased runoff caused by increased impervious surfaces, and avoid substantial additional sources of polluted runoff.

Would the project result in discharges into receiving waters listed on the Regional Water Quality Control Board 303(d) Impaired Water Body List?

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.9.3.2, BMPs proposed for incorporation into the project would treat runoff caused by increased impervious surfaces and remove contaminants to the maximum extent practicable, consistent with applicable water quality regulations. All proposed treatment BMPs, LIDs, and hydromodification measures would be implemented to target project-specific constituents of concerns. Therefore, the impacts to water quality for receiving

waters listed on the 303(d) Impaired Water Body List, as a result of the discharge of contaminants, would be less than significant.

Would the project otherwise substantially degrade water quality?

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.9.3.2, project BMPs would treat and remove contaminants, to the maximum extent practicable, from water runoff caused by increased impervious surfaces. Therefore, the impacts to water quality as a result of the discharge of contaminants would be less than significant.

Would the project place within a 100-year flood hazard area structures that would impede or redirect flood flows?

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.9.3.2, portions of the project elements would be within the 100-year flood zone. However, the project would be designed and constructed in a manner that does not impede or redirect flood flows, and the impacts to flooding as a result of changes to the floodplain from project structures would be less than significant.

Would the project 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?

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.9.3.2, the flood-related impacts associated with implementation of the project are not expected to be adverse, as the proposed structures and longitudinal encroachments would not raise the 100-year WSELs more than 1 foot and the increase in the floodway (approximately 0.02 foot) would not impact existing buildings, structures, or other beneficial uses and would be documented through the FEMA Conditional Letter of Map Revision approval process, as well as the requirements of the SDRWQCB, when applicable. Additionally, channel modifications would not cause headwaters to rise above an elevation that would result in objectionable backwater depths or outlet velocities that would impact existing buildings, structures, or other beneficial uses. Therefore, the exposure of structures and people to the consequences of flooding as a result of changes to the floodplain from structures would be a less-than-significant impact.

The project does not include ground-disturbing or other activities that would encroach on existing USACE-certified levees. In the vicinity of the San Diego River, the project alignment is within an identified dam inundation zone, and the potential exists for additional people to be exposed to the consequences of flooding at the San Diego River Bridge as a result of upstream dam failure. However, the potential of dam failure would be extremely low, the duration of exposure limited, and the probability of dam failure further reduced by proactive preventative action on the part of the Unified San Diego County Emergency Services Organization and the Unified Disaster Council through implementation of the *San Diego County Multi-Jurisdiction Hazard Mitigation Plan* (County of San Diego, 2010). This plan includes avoidance, minimization, and mitigation measures such as emergency response (post-disaster), repairs and modifications, periodic safety inspections, and enforcement. The project would comply with all applicable avoidance, minimization, and

mitigation measures of the plan. Therefore, the exposure of structures and people to dam or levee failure would be less than significant. The project would not increase the likelihood of upstream dam failure, and the incremental increase in exposure to the risk is not significant given that the project would not expose people to risks in any one location along the alignment for a substantial amount of time and no stations are proposed within the dam inundation zone.

Would the project expose people or structures to inundation by seiche, tsunami, or mudflow?

Less-Than-Significant Impact (Seiche) (Refined Build Alternative). The potential for the project to be affected by a seiche is low. The only nearby source for a seiche is Mission Bay, which is 350 to 1,300 feet from the project alignment. Because of the distance and topography between the project alignment and Mission Bay, it is unlikely that structures and people would be exposed to a seiche event.

Less-Than-Significant Impact (Tsunami) (Refined Build Alternative). Tsunami hazards are low along the project alignment except at the Tecolote Creek Bridge, where the tsunami hazard is considered low-to-moderate because it lies near the edge of the State of California Tsunami Inundation Map (California Department of Conservation, 2009). Project measures would reduce the potential exposure of structures and people to the consequences of a tsunami hazard at the Tecolote Creek Bridge to a less-than-significant impact.

Less-Than-Significant Impact (Mudflow) (Refined Build Alternative). The impact with respect to mudflow (mudslides) over most of the project alignment is considered low or low-to-moderate. Where a potential for mudflow/mudslide exists, the incorporation of project measures would reduce the potential for inundation caused by mudflow (mudslide) to a less-than-significant impact.

Section 4.11 provides additional impact analysis for tsunami, seiche, and mudflow (mudslides).

4.9.5.2 Significance after Mitigation

No mitigation would be required. The project would have a less-than-significant impact on water resources.

4.10 Hazardous Materials

This section describes the presence of hazardous materials within or near the No-Build and Refined Build Alternatives, particularly near the alignment and stations, as well as impacts on the alternatives from such hazardous materials. Short-term impacts related to these sites and project construction are addressed in Section 4.17. This section addresses the long-term direct and indirect adverse impacts of operation of the Refined Build Alternative. For additional information, refer to the *Mid-Coast Corridor Transit Project Hazardous Materials Technical Report* (SANDAG, 2014h) prepared in support of the SEIS/SEIR.

The analysis of impacts in the prior environmental documents concluded that operation of the LRT would have no adverse impacts from hazardous materials. Minor impacts could occur from utility poles within the MTS right-of-way, but impacts could be mitigated and would not be adverse.

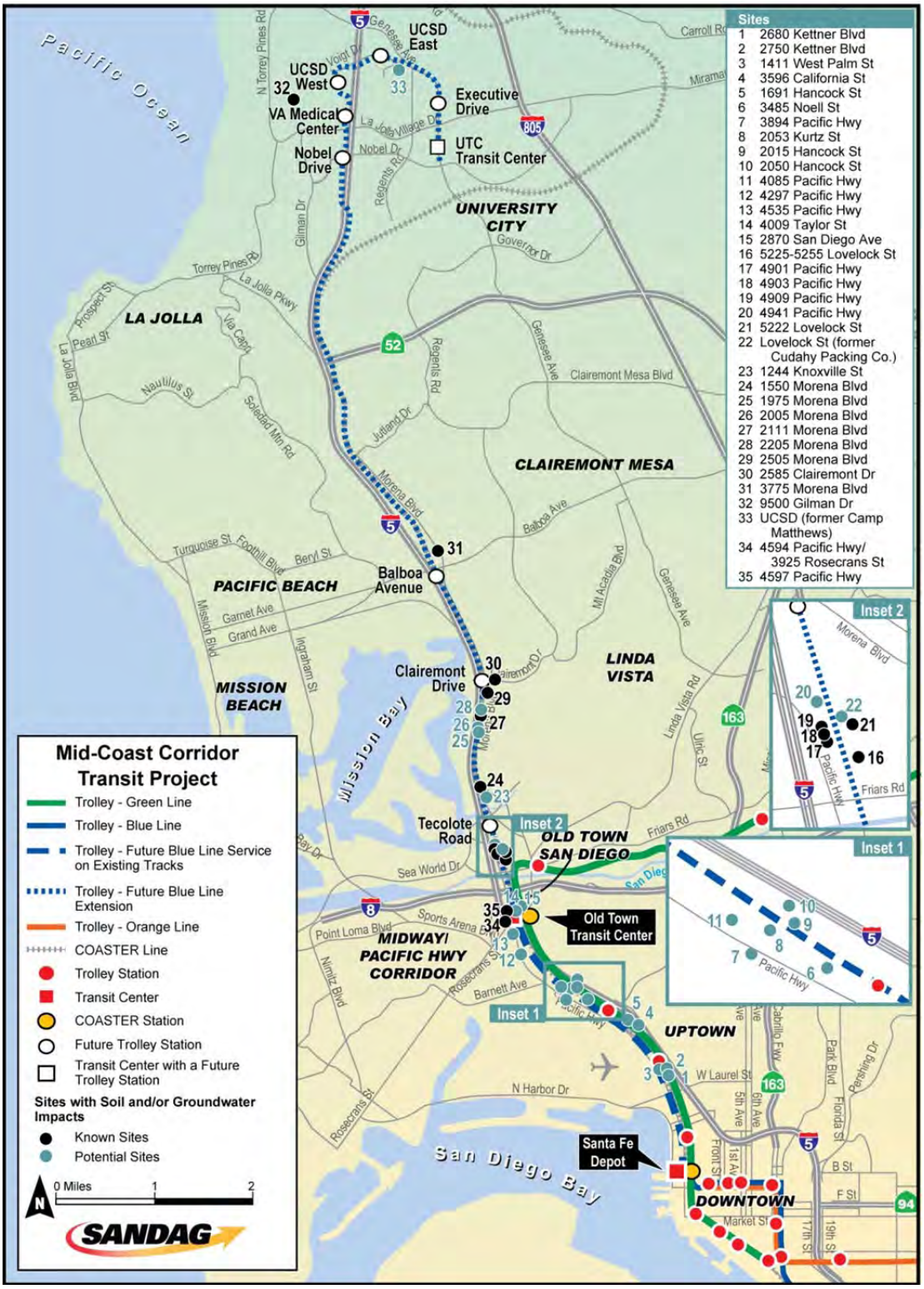
The Draft SEIS/SEIR identified 36 sites of environmental concern along the project alignment, particularly near the existing TPSSs south of the OTTC and in the portion of the corridor north of the OTTC where new rail tracks would be installed. Operation of the Build Alternative would neither require regular use of substantial amounts of hazardous materials nor would it result in ground-disturbing activities that would expose people or the environment to hazardous materials. The Draft SEIS/SEIR concluded that there would not be adverse or significant impacts.

This section has been revised as a result of refinements to the Build Alternative, which changed the location of some property acquisitions required for the project. This resulted in the identification of two new sites of concern (sites 34 and 35 on Figure 4-25). However, three sites of concern were removed from the study area due to the relocation of the TPSS that was previously proposed near the Wright Street Yard. Therefore, 35 sites of concern are identified within this Final SEIS/SEIR, 1 less than what was identified in the Draft SEIS/SEIR. A TPSS previously identified near the OTTC was eliminated; however, the sites of concern near this TPSS are also within 1,000 feet of the roadway modifications proposed at Taylor Street/Rosecrans Street and Pacific Highway and therefore, they were not removed from the study area. The Preface in the *Mid-Coast Corridor Transit Project Hazardous Materials Technical Report* (SANDAG, 2014h) contains additional information on changes to the analysis and technical report since the Draft SEIS/SEIR. The conclusions in this section and for the analysis remain unchanged for the Refined Build Alternative. There would be no adverse or significant impacts from hazardous materials as a result of the Refined Build Alternative.

4.10.1 Regulatory Background and Methodology

A variety of laws govern acquisition, cleanup, and use of potentially contaminated properties, construction protocols (e.g., excavation, storage, transport, and disposal), and operation and maintenance practices that may affect the environment and worker and public health resulting from the presence or accidental release of hazardous materials.

Figure 4-25. Study Area Sites of Environmental Concern



Source: SANDAG, 2014h

Applicable federal laws include the Hazardous Materials Transportation Act of 1975 (49 USC 5101 et seq.), the Resource Conservation and Recovery Act of 1976 (RCRA) (42 USC 6901 et seq.), the Toxic Substances Control Act of 1976 (15 USC 2601 et seq.), the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 known as "Superfund" (42 USC 103), the Superfund Amendments and Reauthorization Act of 1986 (42 USC 9601 et seq.), and the Emergency Planning and Community Right-To-Know Act (1986) (42 USC 300 et seq.).

Because California is a fully authorized state according to RCRA, California Code of Regulations (CCR) Title 22, particularly Division 4.5, Environmental Health Standards for the Management of Hazardous Waste, includes most RCRA regulations. California also has compiled regulations related to hazardous materials, hazardous waste, and toxics found in Titles 3, 8, 13, 17, 19, 22, 23, 24, and 27 of the CCR into one consolidated section—Title 26 (Toxics). Numerous state, regional, and local agencies have responsibility for implementing these regulations.

To investigate the potential contamination risks in the Mid-Coast Corridor, a review of public documents and environmental databases of properties with known or suspected hazardous materials releases was performed to identify a list of initial properties of concern. Historical aerial and land use maps of the corridor were examined; geologic and hydrologic information was reviewed; and field investigations were conducted from public access areas. In the historically industrial portion of the corridor between the Santa Fe Depot and the OTTC, investigations extended 1,000 feet from the existing TPSSs at Olive Street, Bean Street, and the Wright Street Yard. Between the OTTC and the UTC Transit Center where land uses are primarily residential and commercial, investigations were limited to approximately 700 feet from the project alignment and project stations.

4.10.2 Affected Environment

The review of public documents and environmental databases identified 35 sites of environmental concern within the study area (Figure 4-25). Three sites are within 1,000 feet of the Olive Street TPSS; two sites are within 1,000 feet of the Bean Street TPSS; six sites are within 1,000 feet of the Wright Street Yard; and two sites are within 1,000 feet of the roadway modifications near the OTTC. From the OTTC to University City, there are 19 sites between the OTTC and Clairemont Drive, 1 site located just north of Balboa Avenue, and 2 sites located in University City east of I-5.

A large number of the sites within the study area are characterized by known petroleum hydrocarbon-affected soil and ground water, while others were formerly occupied by gasoline stations or other uses that generated hazardous materials that could have affected soil and ground water.

Portions of the study area encompass existing public rights-of-way that are likely contaminated as a result of previous and ongoing transportation and railroad uses. The I-5 right-of-way likely has elevated concentrations of Pb from the former use of leaded gasoline, as well as other metals likely present in adjacent soils. Residual hydrocarbon concentrations may have collected in runoff channels along I-5. In addition, the existing

railroad right-of-way is expected to have elevated concentrations of metals, petroleum hydrocarbons, and volatile organic compounds from historic railway operations.

4.10.3 Environmental Impacts

The following sections describe impacts from hazardous materials under the No-Build and Refined Build Alternatives.

4.10.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented and service on bus Route 150, which operates between Downtown San Diego and the University area, would continue and be enhanced. No other project-related changes would result from the No-Build Alternative. The buses would operate on existing or planned roadways and would not result in the release of hazardous materials. No physical improvements would be required for improving transit services other than the minor construction associated with new bus shelters within existing rights-of-way, and such improvements are not anticipated to result in exposure or release of hazardous materials. Therefore, the No-Build Alternative would not result in adverse impacts from hazardous materials.

4.10.3.2 Refined Build Alternative

Operation and maintenance of the Refined Build Alternative would not involve the regular use of hazardous materials. Trolley operation and power distribution from the TPSSs would not require the handling of hazardous or acutely hazardous materials. The LRVs would use small volumes of oil and diesel for operation but would not transport hazardous materials. LRVs would be maintained at existing maintenance facilities and would not require any new or different maintenance activities at these facilities.

People would not be exposed to contamination from current or historical uses of hazardous materials in the corridor during operation and maintenance of the Refined Build Alternative. Operation of the project would not involve ground-disturbing or other activities that would expose contaminated soil or ground water. Therefore, operation of the Refined Build Alternative would not create an adverse hazardous materials impact to the public or the environment.

4.10.4 Mitigation Measures

No mitigation measures would be required because no adverse impacts are expected from operation of the Refined Build Alternative.

4.10.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA thresholds of significance and additional discussion below.

4.10.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the hazardous materials impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). The No-Build Alternative does not propose any ground-disturbing activities or the handling or transportation of hazardous materials and, as described in Section 4.10.3.1, would not result in adverse impacts related to hazardous materials. Thus, there would be no impact under CEQA with respect to the thresholds below.

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

Less-Than-Significant Impact (Refined Build Alternative). Ten schools were identified within one-quarter mile of the project alignment and station areas, of which eight are in close proximity to the existing rail corridor where the Trolley already operates. In those eight locations, the project is a continuation of an existing use. Project operations and maintenance would not involve regular use of hazardous materials. The LRVs would use small volumes of oil and diesel for operation but would not transport hazardous materials. The amount of oil and fuel used would be limited, and potential exposure to emissions would be limited in occurrence and duration within close proximity of existing or planned schools.

Would the project be located on a site included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or environment?

Less-Than-Significant Impact (Refined Build Alternative). The analysis determined that the study area for the project includes 35 sites with environmental concern. Some sites contain registered underground storage tanks, leaking underground storage tanks, and other facilities that fall under Government Code Section 65962.5. The existing I-5 and railroad rights-of-way also are expected to be contaminated as a result of previous and ongoing transportation and railroad uses. Operation and maintenance of the project would not require ground-disturbing or other activities that would expose contaminated soil or ground water. Therefore, operation and maintenance of the Refined Build Alternative would not create a significant hazard to workers, the public, or the environment.

Would the project expose people to toxic substances, such as pesticides and herbicides, some of which have long-lasting ability, applied to the soil during previous agricultural uses?

No Impact (Refined Build Alternative). Based on a review of historical documents, the Refined Build Alternative alignment would not be located within an area used for agricultural purposes. Therefore, there would be no exposure to toxic substances and

no impacts as a result of the previous use of agricultural-related chemicals. Within UCSD, the alignment would cross the recently established, temporary urban farm in Pepper Canyon. This area supports organic farming activities; thus, no toxic substances or agricultural chemicals are expected at this location. Therefore, no impacts are expected as a result of the project because people would not be exposed to toxic substances related to agriculture.

Would the project result in excavation, which would disturb contaminated soils, potentially resulting in the migration of hazardous substances?

Less-Than-Significant Impact (Refined Build Alternative). Operation and maintenance of the Refined Build Alternative would not include ground-disturbing activities that would expose contaminated soil or ground water that is present at past hazardous materials sites. Operation and maintenance of the project would not disturb contaminated soils that could migrate; therefore, the impact would be less than significant.

4.10.5.2 Significance after Mitigation

Operation and maintenance of the Mid-Coast Corridor Transit Project would result in a less-than-significant impact on hazardous materials under CEQA, and no mitigation is required.

4.11 Geotechnical and Seismic Conditions

This section evaluates the geotechnical and seismic hazard impacts of the No-Build and Refined Build Alternatives. The geologic conditions assessed included the following: fault rupture and earthquakes; liquefaction and seismic settlement; lateral spread; tsunami and seiche; landslides, mudslides, and slope stability; compressible soils; subsidence; corrosive soils; expansive soils; and erosion potential. These conditions could adversely affect public safety or cause substantial structural damage. For additional information, refer to the *Mid-Coast Corridor Transit Project Geotechnical, Geologic, and Seismic Impacts Technical Report* (SANDAG, 2014i) prepared in support of the SEIS/SEIR.

The prior environmental documents found that the project would not result in any adverse geotechnical or seismic hazard impacts. Consistent with these findings, the analysis in the Draft SEIS/SEIR determined that implementation of the project would not result in any adverse geotechnical or seismic hazard impacts. By following the design standards of the California Building Code (CBC), the American Association of State Highway Transportation Officials, Caltrans, and SANDAG, and taking into account the design concept adopted specifically for the project, the project would not expose people or structures to substantial risk of loss or injury resulting from existing geotechnical, geologic, or seismic hazards. Other than the editorial changes described in Section 4.0, comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to this section of the SEIS/SEIR. However, this section and the technical report have both been updated to reflect the results of the geologic field study in the vicinity of the Balboa Avenue Station site. The conclusions in this section and for the geotechnical and seismic analyses remain unchanged for the Refined Build Alternative. Implementation of the Refined Build Alternative would not result in any adverse or significant geotechnical or seismic hazard impacts.

4.11.1 Regulatory Background and Methodology

Enacted in 1975 and amended in 1993, the Alquist-Priolo Fault Zoning Act (A-PA), provides policies and criteria to assist cities, counties, and state agencies in exercising their responsibility to prohibit the location of developments and structures for human occupancy across the strand of active faults. An active fault is one that has undergone movement within the past 11,000 years (the Holocene geologic period). The A-PA addresses only the hazards of surface fault rupture and does not address other earthquake hazards. The intent of the A-PA is to provide citizens with increased safety and to minimize the loss of life during and immediately following earthquakes, according to the *Probabilistic Seismic Hazards Assessment—Peak Ground Acceleration*. (California Geological Survey, 2003).

Primarily as a result of the Northridge earthquake of 1994, the California Legislature enacted the Seismic Hazard Mapping Act in April 1997 ([Public Resources Code] PRC Sections 2690–2699.6). This act requires the creation and publication of maps showing areas where earthquake-induced liquefaction or landslides could occur.

Identification of geologic hazards in the study area was conducted through a review of aerial photographs, geologic and topographic maps, research literature, project plans, and

previous consultant reports. The initial review and analysis of these data were followed by a field reconnaissance of the study area to assess the initial findings. Following the field reconnaissance, the data were revisited and an assessment made on the geologic conditions to adversely impact public safety or cause substantial structural damage.

The California Building Standards Commission published a series of amendments to the International Building Code in 2010 to further protect structures from damage and failure during seismic events or other natural disasters. Known as the CBC, this is the building code used throughout California. Local codes may be more restrictive than the CBC, but are required to be no less restrictive.

4.11.2 Affected Environment

This section describes existing geotechnical, geologic, and seismic conditions within the study area.

4.11.2.1 Fault Rupture and Earthquakes

Geologically, the project area is composed of two distinct terrains, divided into southern and northern sections near the I-5/Gilman Drive interchange. The geologic variation of these sections is largely distinguished by active faulting along the Rose Canyon Fault Zone in the southern section. This fault zone stretches north from offshore of Imperial Beach through Coronado, into Downtown San Diego, and northward along the I-5 corridor, where it continues into southern Rose Canyon, then crosses Mount Soledad, and finally passes offshore just south of the La Jolla Beach and Tennis Club. The sections in Coronado, Downtown San Diego, and between the north end of Mission Bay (near De Anza Cove) and the coast in La Jolla are designated within the active Alquist-Priolo Fault Zone. The section north of Downtown San Diego to De Anza Cove has not been designated as an active fault zone. Although there are many faults in the northern section (e.g., north of SR 52), they ceased their activity sometime before about 11,000 years ago and thus are not considered active. Figure 4-26 shows the portion of the project alignment affected by active faulting within the corridor.

4.11.2.2 Liquefaction and Seismic Settlement

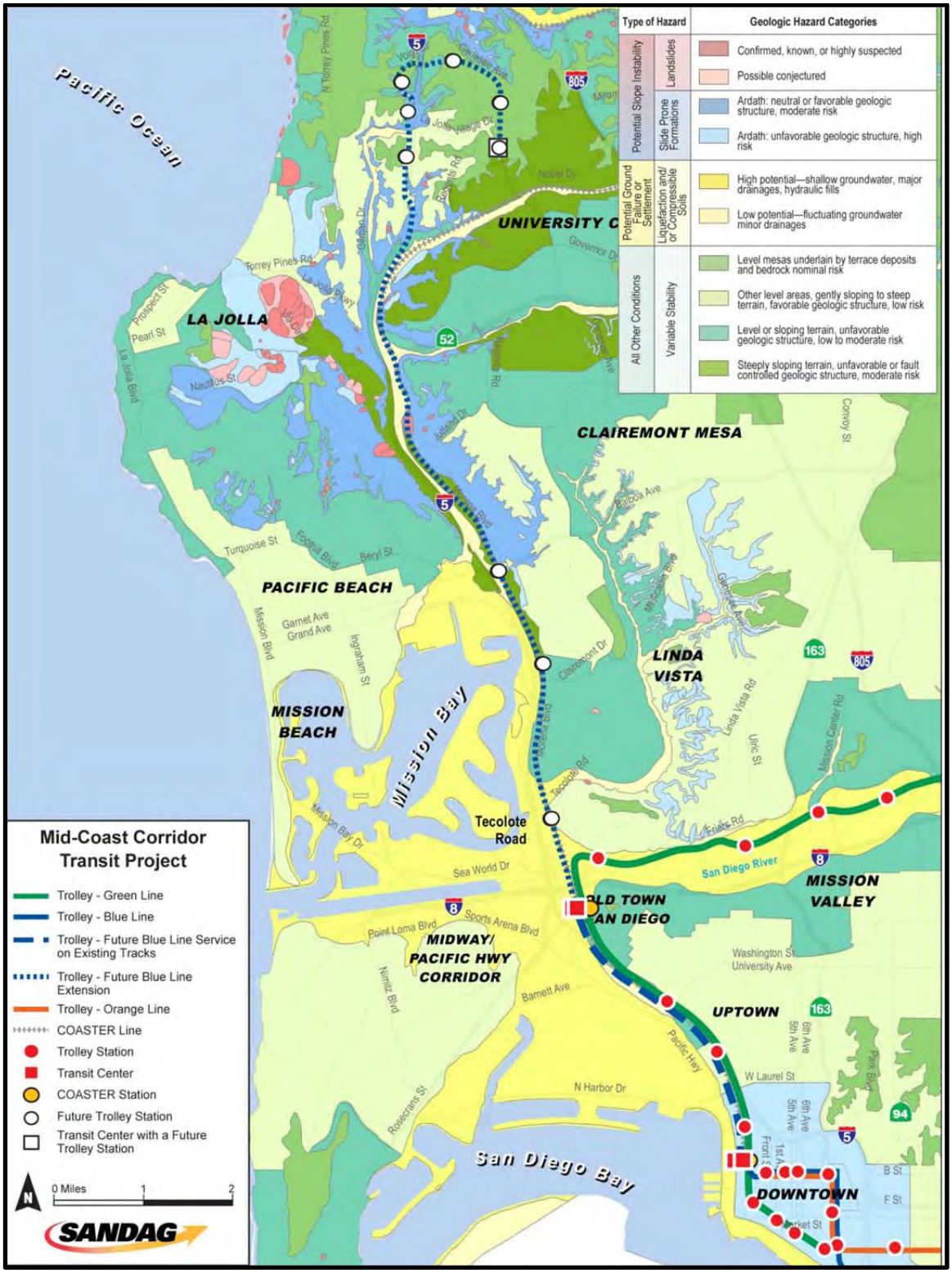
Liquefaction occurs when loosely packed sandy or silty materials saturated with water are shaken hard enough to lose strength and stiffness, resulting in soil behaving like a liquid. Soil liquefaction can cause substantial damage during an earthquake depending on the extent and amount of liquefaction. Seismic settlement is the settling (e.g., becoming more compact and typically lower) of the ground surface due to densification of soils during earthquake-induced ground shaking. Seismic settlement does not result in a hazard if the ground over a large area settles uniformly. However, if more seismic densification occurs beneath one area than beneath an adjacent area, differential levels of seismic settling can occur, which could damage structures, pavement, and utilities.

Liquefaction and seismic settlement hazards exist within the Mid-Coast Corridor, as shown in Figure 4-27. An area of potentially high liquefaction hazard is associated with the area of deep alluvium between Washington Street and the Morena Boulevard/West Morena Boulevard intersection, particularly in and around the San Diego River channel. An area of low-to-moderate liquefaction hazard exists within Rose Canyon, where the

Figure 4-26. Faults and Tsunami Inundation Area

Sources: California Department of Conservation, 2009; SanGIS, 2003a

Figure 4-27. Geologic Hazards



Source: SanGIS, 2003b

project alignment follows the drainage course of Rose Creek. North of Rose Canyon, the liquefaction potential is nominal because of the presence of consolidated material that is not prone to liquefaction.

4.11.2.3 Lateral Spread

Lateral spread is a liquefaction-related phenomenon in gently sloping areas or areas having a free-face condition, such as the slope of a riverbank. Lateral spread horizontally displaces large masses of soil, often as intact or broken-up blocks, because of earthquake-induced liquefaction. The northern section of the project corridor faces no substantial hazard in regard to lateral spread. In the southern section, lateral spread poses a potential hazard in several areas of the Rose Canyon drainage basin.

4.11.2.4 Tsunami and Seiche

Tsunamis are large sea waves that are most often generated by earthquakes or underwater landslides. A seiche is an oscillatory wave that develops in an enclosed or partially enclosed water body, such as a bay or lake, in response to seismic shaking from an earthquake. Tsunami hazards are low along the project alignment except at the Tecolote Creek Bridge, where the tsunami hazard is considered low-to-moderate since the proposed bridge lies near the edge of the potential inundation zone, as indicated on the State of California Tsunami Inundation Map (California Department of Conservation, 2009). The tsunami inundation area is shown in Figure 4-26. The only nearby source for a seiche is Mission Bay, which is 350 to 1,300 feet from the project alignment.

4.11.2.5 Landslides, Mudslides, and Slope Stability

Landslides occur when the stability of the slopes underlain by soil or bedrock is decreased during prolonged rainfall or by other factors, such as earthquakes. Landslides can damage structures both above and below the slide mass. A mudslide is a type of slope failure that typically consists of a relatively rapid fluid flow of saturated sediments or soil. A mudslide often results from failure of saturated soils on slopes during periods of heavy rainfall or from saturation that is due to over irrigation. Slope stability is a measure of the resistance to sliding of an inclined ground surface to failure, such as a landslide. Areas most prone to landslides are steep slopes composed of materials with high clay content.

Because landslide locations near the project alignment were graded during previous construction in the area, soils within the corridor are now more stable. Mudslides are considered a hazard because of the steep slopes north of Rose Canyon. Mudslides are not likely to occur in the southern section because of its flatter terrain.

4.11.2.6 Compressible Soils

Compressible soils are materials that are prone to a reduction in volume when subjected to loading. Compressible soils are likely to occur in areas of alluvial soils, including the area extending from Washington Street to the Morena area and from the Rose Creek South Bridge to Gilman Drive, with isolated zones occurring in the Morena area to Clairemont Drive. Areas of large settlement can damage or, in extreme cases, destroy structures.

4.11.2.7 Subsidence

Subsidence is the reduction of pore space in the ground that was formerly occupied by a fluid, such as oil or water, or in some cases, organic materials. When subsidence occurs, the ground elevation becomes lower and, if there is differential subsidence between two adjacent areas, it can undermine the structural support of structures between these two areas. Subsidence is not a hazard along the project alignment since no large-scale ground-water pumping exists within this region and this area has no known petroleum resources.

4.11.2.8 Corrosive Soils

The corrosivity of soils is related to several key features, including pH level. Typically, the most corrosive soils are those with the lowest pH and the highest concentrations of chlorides and sulfates. Low pH and/or low-resistivity soils corrode buried or partially buried metal structures. Corrosive soils are expected to occur at various locations within the project alignment. Soils within the project segment from Old Town to Gilman Drive have a low-to-moderate corrosion potential. Soils north of Gilman Drive have a moderate-to-high corrosion potential.

4.11.2.9 Expansive Soils

Expansive soils are soils subject to fluctuations in volume in response to changes in moisture content (wetting and drying). Expansive soils contain a substantial amount of clay particles, which can both release water (shrink) or absorb and hold water (swell). The resultant changes in soil volumes can exert stress on structural foundations resting upon them. Expansive soils likely are to be encountered in an isolated area just north of the Tecolote Road Station. Expansive soils also could occur halfway between SR 52 and Gilman Drive to the UCSD West Station in areas of soil with high clay content.

4.11.2.10 Erosion

Six areas of severe erosion potential exist within the project study area as a result of soils with loam, escarpment soil, and Altamont clay on steep slopes. The southernmost area is an approximately 500-foot-long area one-quarter mile south of Clairemont Drive. Within Rose Canyon, there are three approximately 1,500-foot-long areas, one straddling the Rose Creek South Bridge, another north of Jutland Drive, and the third approximately 1,000 feet north of SR 52. Another area approximately 200 feet long is located approximately 300 feet east of the proposed UCSD East Station. The longest area of severe erosion potential is a nearly continuous stretch of approximately 8,200 feet extending between Gilman Drive and La Jolla Village Drive.

The Altamont clay on moderate slopes has a slight erosion potential, and Salinas clay loam has a slight-to-moderate erosion potential. One area of moderate erosion potential exists along an approximately 1,500-foot-long stretch just north of Tecolote Road. The majority of soils with erosion potential in the project corridor are south of Gilman Drive.

4.11.3 Environmental Impacts

This section describes the geotechnical and seismic hazard impacts of the No-Build and Refined Build Alternatives.

4.11.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented and service on bus Route 150, which operates between Downtown San Diego and the University area, would be continued and enhanced. Route 150 buses would operate on existing or planned roadways, and minimal physical improvements would be required (e.g., new bus shelters within existing rights-of-way). The No-Build Alternative would not result in project-related geotechnical or seismic hazard impacts, including those related to slope stability and settlement potential.

4.11.3.2 Refined Build Alternative

The geotechnical and seismic hazard impacts of the Refined Build Alternative are described in the sections below.

Fault Rupture and Earthquakes

During moderate-to-large earthquakes, the fault slip usually creates breaks (or ruptures) in the ground. Fault surface rupture is a substantial hazard for the southern section of the project alignment between Downtown San Diego and the I-5/SR 52 interchange. As shown in Figure 4-26, this is because this segment lies within the area of influence of the active Rose Canyon Fault Zone and within the active Alquist-Priolo Earthquake Fault Zone between Clairemont Drive and Jutland Drive (just south of SR 52).

As a result, substantial surface displacements from fault rupture are possible at certain locations. Fault rupture could expose structures along the project alignment to sudden differential displacements during a strong earthquake. This could damage or destroy structures and expose people to harm. South of SR 52, eight locations have been identified where suspected active faults may affect the project alignment. Three locations are at or near proposed Trolley stations; two locations cross at-grade track sections; and the remaining three locations are within or near proposed bridge sites.

The Balboa Avenue Station is located within both an active State of California Earthquake Fault Zone and a potentially active City of San Diego Fault Zone. As stated in Chapter 3.0, Section 3.4.4.2, parking demand would exceed the planned capacity of the proposed surface parking facility, which could be alleviated by the construction of a parking structure. Standards established in the CCR prohibit the construction of habitable structures, including parking structures, within 50 feet of an active fault.

A geologic field investigation was performed in the summer and fall of 2013 to assess the presence and activity of faulting in the Balboa Avenue Station area. While the work was specifically undertaken to evaluate faulting for a bridge that would span Balboa Avenue, the Trolley tracks and approximately the western half of the Balboa Avenue Station site also were included in the study area. The study concluded that active faulting is present just east of and approximately parallel to the tracks. No other active faulting was observed in the western half of the station area. A potentially active fault has been mapped in the eastern half of the station site, and additional field investigation would be required to confirm that this fault is not active. The location of the active fault east of the tracks would preclude construction of a parking structure on the western half of the station site. Since active faulting could be present within the eastern station site,

and to account for worst-case conditions, parking at this station is assumed to be limited to surface parking. For additional information on the geologic field investigations, refer to the *Mid-Coast Corridor Transit Project Earthquake Fault Rupture Field Investigation* (Kleinfelder, 2014).

Strong seismic shaking from a local event on the Rose Canyon Fault or another regional fault is a project hazard. The Rose Canyon Fault and other faults near the project alignment could generate large magnitude earthquakes that could affect project structures and the alignment as a result of strong seismic ground shaking. Without proper design, structures could be damaged or destroyed, and people could be harmed, during a major seismic event. The project would incorporate design standards to prevent structural collapse at these locations and reduce the exposure of people to harm from fault rupture hazards. All project structures would be designed in accordance with current seismic design standards, as found in the CBC (2010), the latest version of the Caltrans *Seismic Design Criteria* (2010b), and Caltrans Memo to Designers 20-10, "Surface Fault Rupture Displacement Hazard Investigations" (Caltrans, 2007). Therefore, structures are expected to remain standing during a strong earthquake, although they may be subject to damage that results in their closure or replacement. The combination of project measures and seismic design criteria would reduce the exposure of people to harm from fault rupture hazards such that there would not be an adverse impact.

The region north of SR 52 does not lie within a recognized area of active faulting, and no active faults have been observed in the vicinity of the project alignment. Because of the long period of non-activity, the exposure of structures and people to surface fault rupture north of SR 52 would not be an adverse impact.

Project structures are expected to remain standing during a strong earthquake; therefore, the exposure of people or structures to harm from strong ground shaking hazards would be minimized such that there would not be an adverse impact.

Liquefaction and Seismic Settlement

The potential liquefaction impacts to engineered structures include loss of bearing capacity, buoyancy forces on underground structures, ground oscillations, increased lateral earth pressure on retaining walls, post-liquefaction settlement, and "flow failures" in slopes that could damage or destroy structures and harm people.

Since project measures would include design to reduce the exposure of people and structures to hazards from seismic risk associated with liquefaction and seismic settlement, there would not be an adverse impact due to liquefaction with implementation of the Refined Build Alternative.

Lateral Spread

Lateral spread poses a hazard in several areas of the Rose Canyon drainage basin where the project alignment is close to creek banks. The alignment is closest in the section between the Rose Creek South and Rose Creek North Bridges. Lateral spreading is considered moderate-to-high in the area extending from Old Town to

Clairemont Drive. Lateral spreading displacements could damage or destroy structures or harm people.

Since project measures would reduce impacts on structures and exposure of people or structures to harm there would not be an adverse impact due to lateral spread with implementation of the Refined Build Alternative.

Tsunami and Seiche

The potential impacts of tsunami inundation on the Tecolote Creek Bridge would be addressed in accordance with Caltrans Memo to Designers 20-13, "Tsunami Hazard Guidelines" (Caltrans, 2010a). The reduced exposure of structures and people to the consequences of a tsunami hazard at the Tecolote Creek Bridge would not be an adverse impact.

Impacts on the project by a seiche are low. The only nearby source for a seiche is Mission Bay, which is 350 to 1,300 feet from the project alignment. Because of the distance between the project alignment and Mission Bay—and given the existing topography—it is unlikely that structures and people would be exposed to the consequences of a seiche. Therefore, the project would not result in an adverse impact.

Landslides, Mudslides, and Slope Stability

Because landslide locations near the project alignment were graded during previous construction in the area, soils within the corridor are now more stable. As a result, the potential for a landslide near the project is low and the exposure of structures and people to the consequences of a landslide in this area would not be an adverse impact. Mudslides are considered a hazard because of the steep slopes north of Rose Canyon. Mudslides are not likely to occur in the southern section because of its flatter terrain.

Loss of slope stability can damage structures both above and below the resulting land- or mudslide mass. Structures above the slide would be damaged by the undermining of foundations, and areas below the slide would be damaged or destroyed by being covered or crushed by land- or mudslide material. People in the slide path could be harmed. Slope stability is not an issue along the alignment between Old Town and Clairemont Drive because it is relatively flat, as well as the area east of I-5, where the topography is flat.

Slope stability is a hazard along several segments of the alignment, however. The area extending from north of Clairemont Drive to the Rose Creek South Bridge poses a moderate risk in regard to slope stability. Segments with low-to-moderate risk extend from the Rose Creek South Bridge to Gilman Drive; north of Gilman Drive to the UCSD West Station; and from the UCSD West Station to the I-5 crossing. Because several segments of the alignment pose a moderate risk of slope failure, the potential for a slide would be moderate, resulting in exposure of structures and people to the consequences of a landslide or mudslide.

State and federal design codes adopted for the project require that slopes be designed for adequate stability. Between Clairemont Drive and the Rose Creek South Bridge, the cuts would be supported by retaining walls that would be designed for slope stability and

would limit risk. North of Gilman Drive, most of the slopes would have favorable geologic structure with respect to slope stability. All slopes and retaining walls would comply with project and state design and safety requirements. Since these project measures would reduce the potential damage to structures and exposure of people to harm from inadequate slope stability, there would not be an adverse impact with implementation of the Refined Build Alternative.

Compressible Soils

The presence of compressible soils throughout the Mid-Coast Corridor poses a hazard to structures and people. Design codes require that structures be designed to reduce the impact of compressible soils. Meeting the design code would reduce the exposure of people or structures to this hazard such that there would not be an adverse impact with implementation of the Refined Build Alternative.

Subsidence

Subsidence is not a hazard along the project alignment since no large-scale ground-water pumping exists within this region and this area has no known petroleum resources. Therefore, the exposure of structures and people to the consequences of subsidence would be low and would not result in an adverse impact with implementation of the Refined Build Alternative.

Corrosive Soils

The impacts of corrosive soils include the corrosion of concrete, which results in incomplete curing and reduces concrete strength, as well as corrosion of buried or partially buried metal components and structures. The weakening of structures from corrosive soils could result in some structural damage or failure of underground utilities, which could expose people to harm. Therefore, the presence of corrosive soils at various project locations poses a potential hazard to structures and people.

Design standards, according to the previously described codes, require that structures be designed to minimize impacts from corrosive soils. These project measures, or a combination thereof, would reduce the impact of corrosive soils such that there would not be an adverse impact with implementation of the Refined Build Alternative.

Expansive Soils

Lightly loaded structures are more susceptible to damage by expansive soils, and expansive soils can damage or, in extreme cases, destroy structures. Expansive soils at specific project locations pose a potential hazard to structures and people.

Design standards, according to the previously described codes, require that structures be designed to reduce the impact of expansive soils. These project measures, or a combination thereof, would reduce the impact of expansive soils such that there would not be an adverse impact with implementation of the Refined Build Alternative.

Erosion

Grading for the project could increase erosion. Approved BMPs, as identified below, would be used to minimize impacts from erosion along the project alignment. Therefore, the Refined Build Alternative would not result in adverse erosion impacts.

Project Measures to Avoid or Minimize Impacts

The design of the project would comply with design standards to avoid adverse geotechnical, geologic, and seismic impacts to people and structures. This would be reflected in applicable project plan sets and other project construction specifications.

To prevent structural collapse, the project would incorporate design standards such as using a continuous superstructure over intermediate support locations, isolating the superstructure from the substructure, and increasing support widths. Single-column bents are preferred over multicolumn bents to prevent differential displacements. In addition, all project structures would be designed in accordance with current seismic design standards, as found in the CBC (2010), the latest version of the Caltrans *Seismic Design Criteria* (2010b), and Caltrans Memo to Designers 20-10, "Surface Fault Rupture Displacement Hazard Investigations" (Caltrans, 2007).

Design measures to reduce liquefaction and seismic settlement impacts include ground-improvement techniques such as *in-situ* densification or solidification, load transfer to underlying bearing layers (which are non-liquefiable), and over-excavation (removal and replacement with compacted engineered fill).

The impact of lateral spreading would be reduced through design measures, such as *in-situ* ground-improvement methods of densification or solidification, designing the foundation to resist horizontal permanent ground displacement, or installation of subsurface barrier walls.

The Tecolote Creek Bridge would be designed in accordance with Caltrans Memo to Designers 20-13, "Tsunami Hazard Guidelines" (Caltrans, 2010a). Primary design measures include the use of deep foundations (cast-in-drilled-hole piles) to protect from scour and tie-down anchors to alleviate buoyancy effects.

Methods that could be used to increase slope stability include, but are not limited to, retaining walls, remedial grading, soil nails, soldier pile walls, tiebacks, and rock bolts. Mudslide impacts also could be reduced by using debris flow walls.

Compressible soils would be addressed through the specification of *in-situ* densification of compressible soils, transferring the load to underlying non-compressible layers (i.e., by using pile or drilled shaft foundations), and surcharging or over-excavation (removal and replacement with compacted engineered fill) as appropriate.

Design standards incorporated to minimize impacts from corrosive soils include the use of a low water-to-cement ratio to decrease the permeability of concrete and the use of sulfate-resistant cement. Cathodic protection can minimize the impacts of corrosive soils on steel structures.

The risks of expansive soils would be addressed through drainage measures such as drainage-control devices to limit water infiltration near foundations, over-excavation methods to remove and replace soil with compacted engineered fill, and support of structures on piles designed to counter expansive soil impacts. BMPs to limit erosion would include hydroseeding of slopes and the use of plantings, mulch, bonded fiber matrix, geosynthetics, and fiber rolls.

4.11.4 Mitigation Measures

The Refined Build Alternative incorporates project measures and BMPs, as identified in Section 4.11.3.2, into the project to avoid or minimize geotechnical, geologic, and seismic impacts. No mitigation would be required and the project would not result in any adverse geotechnical, geological, or seismic impacts.

4.11.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA thresholds of significance and additional discussion below.

4.11.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating significant geotechnical, geological, and seismic impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). As stated in Section 4.11.3.1, under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be constructed and bus Route 150 would be continued and enhanced, which would not result in geologic and seismic impacts with respect to the thresholds below. Thus, the discussion below is limited to impacts of the Refined Build Alternative.

Would the project expose people or structures to geologic hazards involving earthquakes, landslides, mudslides, ground failures, or similar hazards?

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.11.3.2 under the headings “Fault Rupture and Earthquakes”; “Liquefaction and Seismic Settlement”; “Lateral Spread”; and “Landslides, Mudslides and Slope Stability”; the Refined Build Alternative has the potential to expose people or structures to geologic hazards without the project measures described in Section 4.11.3.2 under the heading “Project Measures to Avoid or Minimize Impacts” and would result in a significant impact without these measures. However, the Refined Build Alternative would not result in a significant impact because, as described in Section 4.11.3.2, project measures would comply with design criteria to reduce exposure of people and structures to the consequences of geologic hazards, including strong seismic events, to a less-than-significant impact.

Would the project be inundated by seiche, tsunami, or mudflow?

Less-Than-Significant Impact (Seiche) (Refined Build Alternative). The potential for the project to be impacted by a seiche is considered low. The only nearby source for a seiche is Mission Bay, which is 350 to 1,300 feet from the project alignment. Because of the distance between the project alignment and Mission Bay and existing topography, the potential exposure of structures and people to the consequences of a seiche would be a less-than-significant impact.

Less-Than-Significant Impact (Tsunami) (Refined Build Alternative). Tsunami hazards are low for the project alignment, except at the Tecolote Creek Bridge where the tsunami hazard is considered low to moderate because it is near the edge of the State of California Tsunami Inundation Map (Figure 4-26). As shown in Figure 4-26, a maximum tsunami event would not reach the project alignment except at the Tecolote Creek Bridge location. Without the project measures described in Section 4.11.3.2, there would be the potential for inundation caused by a tsunami at the location of the Tecolote Creek Bridge, which would result in a significant impact. However, the effects of tsunami inundation on the Tecolote Creek Bridge would be addressed in accordance with the Caltrans Memo to Designers 20-13, "Tsunami Hazard Guidelines." Primary design measures include the use of deep foundations (cast-in-drilled-hole piles) to protect from scour and tie-down anchors (if warranted) to alleviate buoyancy effects. These project design measures would reduce the potential hazard associated with the exposure of structures and people to the consequences of a tsunami at Tecolote Creek to a less-than-significant impact.

Less-Than-Significant Impact (Mudflow) (Refined Build Alternative). As described in Section 4.11.3.2 under the heading "Landslides, Mudslides and Slope Stability", the Refined Build Alternative has the potential for inundation caused by mudflow and would result in a significant impact. However, the Refined Build Alternative would not result in a significant impact because, as described in Section 4.11.3.2, the impacts with respect to mudflow (mudslides) over most of the project alignment are considered low or low-to-moderate. Where a potential for mudflow/mudslide exists, the incorporation of project measures described in Section 4.11.3.2 under the heading "Project Measures to Avoid or Minimize Impacts" would reduce the potential for inundation caused by mudflow (mudslide) to a less-than-significant impact.

Would the project result in a substantial increase in wind or water erosion of soils, either on or off the site?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would not result in a significant impact because the project would conform to standards for soil conservation during planning, design, and construction activities (*National Engineering Handbook* [Natural Resources Conservation Service, 1983] Sections 2.0 and 3.0). Approved BMPs would be used to minimize impacts from erosion along the project alignment.

Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

Less-Than-Significant Impact (Refined Build Alternative). As described in Section 4.11.3.2 under the headings "Liquefaction and Seismic Settlement"; "Lateral Spread"; and "Landslides, Mudslides and Slope Stability"; the Refined Build Alternative has the potential to result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, and would result in a significant impact. However, the Refined Build Alternative would not result in a significant impact because, as described in Section 4.11.3.2 under the heading "Project Measures to Avoid or Minimize Impacts", where project features are located in areas with unstable soil, the project would incorporate design features and comply with design standards to prevent conditions that could lead to on- or off-site landslides, lateral spreading, subsidence, liquefaction, or collapse.

4.11.5.2 Significance after Mitigation

Project measures, including compliance with design standards and implementation of BMPs, as described in Section 4.11.3.2, would result in the avoidance and/or minimization of direct or indirect geotechnical, geologic, or seismic impacts. No mitigation is required.

4.12 Energy

This section describes the transportation energy impacts under the No-Build and Refined Build Alternatives. This includes fuel consumed by buses, electricity used to power LRVs, and additional power used for signals, lighting, and maintenance activities. For additional information, refer to the *Mid-Coast Corridor Transit Project Energy Impacts Technical Report* (SANDAG, 2014g) prepared in support of the SEIS/SEIR (this report has not been revised since circulation of the Draft SEIS/SEIR).

The previous environmental documents had a 2005 planning horizon and stated that regional VMT would decrease by 55,000 or 58,000, depending on the LRT alignment, compared to the No-Build Alternative. The previous review concluded that there would not be a net change in energy use as the increase in energy needed for the expanded Trolley service and extra bus service proposed for the LRT alignment would not be offset by the decrease in VMT. Since the previous environmental review was completed, the project has been refined, and the project includes only minimal changes to bus routes.

The analysis conducted for the Draft SEIS/SEIR found that the 2030 regional VMT would decrease by approximately 133,000 for the Build Alternative; bus VMT largely would remain unchanged. While the Build Alternative would increase energy usage as a result of the expanded Trolley services, the shift to transit would decrease overall energy demand because of reduced VMT in both the study area and the region. Other than the editorial changes described in Section 4.0, comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to this section of the SEIS/SEIR.

The conclusions in this section and for the energy analysis remain unchanged for the Refined Build Alternative. The Refined Build Alternative would decrease overall energy use and result in a beneficial energy impact compared to the No-Build Alternative.

4.12.1 Regulatory Background and Methodology

In recent years, federal, state, and regional government agencies have been addressing long-term energy policy issues. The National Energy Policy Act of 2005 (42 USC 15801) sets new policies to improve energy efficiency and promote efficient investment in energy sectors. Additionally, the Corporate Average Fuel Economy standards specify fuel consumption efficiency standards for new passenger vehicles sold in the United States.

In California, the primary energy policy and planning agency is the California Energy Commission (CEC). It is responsible for keeping historical energy data and forecasting future energy needs. In 2011, the CEC adopted California's *2010 Integrated Energy Policy Report Update* (CEC, 2011), which requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing California's transportation fuel sectors.

Regionally, SANDAG has sought ways to use energy more efficiently and expand transportation fuel choices. SANDAG updated its Regional Energy Strategy in 2009,

establishing goals of increased energy efficiency and enhanced regional energy infrastructure to meet growing demand.

Changes in VMT and vehicle speeds affect the amount of fuel, or energy, used by vehicles. To calculate changes in vehicular energy use, CARB's EMFAC2007 program was used. The amount of fuel used—and, therefore, the amount of energy consumed—on roadways was estimated by applying the specific miles per gallon factors (for estimated vehicular speeds), calculated through the EMFAC2007 program to corresponding estimated VMT developed for the project alternatives.

The project would require electrical power for the Trolley propulsion, station operation, and maintenance. Estimates of the project's electrical power requirements and the cost of these requirements were based on electrical billing and usage information for the existing transit system.

4.12.2 Affected Environment

California's energy consumption continues to be dominated by passenger vehicle growth. Almost 40 percent of the state's energy consumption is related to transportation (U.S. Department of Energy, 2009) and includes petroleum, natural gas, electricity, liquefied petroleum gas, hydrogen, and biofuels such as ethanol. Table 4-27 presents total daily energy use expressed in million British thermal units (mBtus) for roadways and the Trolley system.

Table 4-27. Existing and Projected Future Daily Energy Use (mBtus)

Scenarios	Total Energy (mBtu)		Percentage Change in Energy Use from Existing/No-Build Alternative	
	Study Area	Region	Study Area	Region
2010				
Existing Conditions	62,200	434,700	-	-
Existing Conditions with Refined Build Alternative	61,800	434,100	-0.5%	-0.1%
2030				
No-Build Alternative	74,700	527,500	-	-
Refined Build Alternative	74,500	524,700	-0.3%	-0.5%

Source: SANDAG, 2014g
Notes: Numbers rounded to nearest hundred; totals may not sum due to rounding.
mBtu = million British thermal units

4.12.3 Environmental Impacts

This section describes the results of the analysis of energy use under the No-Build and Refined Build Alternatives. Vehicle types and numbers, extent of their use (in VMT), and their fuel economy (in miles per gallon) determine energy use. Table 4-27 presents daily energy use expressed in million mBtu. VMT is presented in Table 4-8 in Section 4.5.

4.12.3.1 No-Build Alternative

The No-Build Alternative would result in the largest increase in VMT compared to existing conditions because of the area's projected growth. This increase in VMT would occur because few auto trips would shift to transit trips without the project. The No-Build Alternative would result in the lowest Trolley energy use (Table 4-27); however, this energy savings from the Trolley system would not offset the energy increase from additional roadway VMT.

4.12.3.2 Refined Build Alternative

The Refined Build Alternative would decrease roadway energy use as a result of decreased roadway VMT in the study area and region. This is due to projected mode shifts from roadway vehicles to the Trolley system. The Refined Build Alternative would increase Trolley energy use because of increased demand for energy associated with operation and maintenance of the expanded Trolley system. In 2030, LRT operations under the Refined Build Alternative are expected to require approximately 54 megawatt hours (183 mBtus) of electrical energy above the No-Build Alternative. In 2010, the demand for electrical energy in San Diego County was about 19 million megawatt hours. Because the demand of the project for electrical energy is a small fraction of the regional energy use, the project would not cause an adverse effect to the supply of electric power and would not require construction of new electrical substations; however, modification to existing substations may be required. The increase in Trolley energy use is less than the projected energy decrease resulting from VMT reductions in the study area and region. As such, the Refined Build Alternative would decrease overall energy use compared to the No-Build Alternative, and, therefore, would result in a beneficial energy impact (Table 4-27).

4.12.4 Mitigation Measures

Operation of the Refined Build Alternative would result in beneficial effects related to energy consumption. Mitigation measures would not be required.

4.12.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis above and the CEQA threshold of significance and additional analysis below.

4.12.5.1 Significance Criteria and Application

Based on Appendix F and Appendix G (the Environmental Checklist) of the *CEQA Guidelines*, and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed a CEQA threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

Would the project place a substantial demand on the regional energy supply or require significant additional capacity, or significantly increase peak- and base-period electricity demand?

Less-Than-Significant Impact (No-Build Alternative). The continuation and enhancement of bus Route 150 under the No-Build Alternative would not place a substantial demand

on energy use. Under the No-Build Alternative, the energy demand reduction associated with implementation of the Refined Build Alternative would not be realized. However, the resulting increase in regional energy consumption would not place a substantial demand on the regional energy supply or require significant additional capacity. Further, there would not be a significant increase in peak- or base-period electricity demands.

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would reduce overall energy consumption (Table 4-27). This reduction in energy use would be consistent with CEQA's energy conservation goals. In 2030, the Refined Build Alternative is expected to increase daily Trolley electricity demand by 54 megawatt hours above the No-Build Alternative, or by 51 megawatt hours above existing conditions. In 2010, the demand for electrical energy in San Diego County was about 19 million megawatt hours. The demand of the project for electrical energy would be small compared to regional energy use, and the project would not require construction of new electrical substations. The project would not place a substantial demand on the existing regional energy supply and does not significantly increase peak and base period electrical demand. No mitigation would be required, and impacts would be beneficial.

4.12.5.2 Significance after Mitigation

The project would reduce energy use, thus resulting in a beneficial impact. No mitigation measures are required, and the project would result in a beneficial impact under CEQA.

4.13 Safety and Security

This section describes the safety and security impacts of the No-Build and Refined Build Alternatives. Safety relates to the prevention of unintentional harm, such as from accidents, to the public and employees during operation of the transit system. Security relates to the protection of people and property from intentional acts that could injure or harm them. For additional information, refer to the *Mid-Coast Corridor Transit Project Safety and Security Impacts Technical Report* (SANDAG, 2014n) prepared in support of the SEIS/SEIR (this report has not been revised since circulation of the Draft SEIS/SEIR).

The prior environmental documents found that the project would be designed to provide for the safety and security of passengers, transit employees, and the public in the vicinity of the transit facilities, and would be operated in accordance with MTS standard operating procedures, operator rules, and the emergency plan; therefore, the project would not have an adverse impact on the safety and security of passengers and employees.

The analysis in the Draft SEIS/SEIR also determined that the project would not result in any adverse or significant safety or security impacts under NEPA or CEQA. This section was revised since the Draft SEIS/SEIR based on comments received on the Draft SEIS/SEIR, which requested additional information on safety and crime prevention at Trolley stations. The conclusions in this section and for the safety and security analysis remain unchanged for the Refined Build Alternative. The Refined Build Alternative would not result in any adverse or significant safety or security impacts under NEPA or CEQA.

4.13.1 Regulatory Background and Methodology

Federal, state, and local standards, laws, and regulations govern the design and safety and security of mass transit systems, which are described in detail in the *Mid-Coast Corridor Transit Project Safety and Security Impacts Technical Report* (SANDAG, 2014n). The project is being designed in accordance with applicable federal, state, and local laws and regulations, including applicable FTA regulations, Federal Railroad Administration and U.S. Department of Homeland Security Transportation Security Administration (TSA) regulations, CPUC General Orders, California Division of Industrial Safety Orders, the Americans with Disabilities Act, and regional and local regulations promulgated by SANDAG, MTS, and the City of San Diego.

The safety analysis considered impacts on the safety of passengers on board transit vehicles, and pedestrians, bicyclists, and motorists in locations where they would cross the track, enter stations, or encounter hazards in the vicinity of other transit facilities, such as TPSSs. The analysis also considered impacts on emergency response services in the community through review of grade crossing operation and emergency response times.

The analysis of security issues and crime prevention focused on the potential for crime on or near the transit system. The security analysis considered crime prevention, including Crime Prevention Through Environmental Design (CPTED), law enforcement, and protection against terrorism. The assessment followed the general guidelines outlined in *Public Transportation System Security and Emergency Preparedness Planning Guide* (FTA, 2003).

4.13.2 Affected Environment

MTS operates bus and rail transit services throughout the study area and is responsible for the safety and security for operations and maintenance of transit services. MTS provides transit security at existing transit facilities and on board Trolley vehicles through a contract service of armed, uniformed officers. The officers issue citations to violators of rules of the transit system; however, they do not have the authority to make arrests. If Trolley officers witness a crime, the local police are called. MTS also has roving uniformed code enforcement or compliance inspectors that patrol Trolley vehicles and stations and are responsible for fare inspection. Code enforcement or compliance inspectors are responsible for enforcing all ordinances and laws approved by the San Diego MTS Board of Directors. Each Trolley station is equipped with closed-circuit television cameras, a public address system, telephones, shelters, accessible ramps, protective fencing where required, warning devices such as truncated domes (tactile paving) at platform edges, and lighting.[14]

There are 11 existing grade crossings in the Mid-Coast Corridor, all of which are located south of San Diego River where the LOSSAN tracks operate next to the existing Trolley tracks. Of these grade crossings, the Trolley tracks are grade-separated from the roadway at three locations (Hawthorne, Grape, and Laurel Streets). The remaining eight grade crossings are equipped with automatic crossing gates, flashing light signals, and signs and markings. These eight grade crossings are located at Ash, Beech, Cedar, Palm, Sassafras, Washington, Noell, and Taylor Streets. MTS implements guidelines established by the CPUC, which has jurisdiction over the safety of the crossings. The COASTER, Amtrak, and freight trains operate on the existing LOSSAN tracks within the corridor. The COASTER is operated by the North County Transit District (NCTD), and freight trains are operated by Burlington Northern Santa Fe.

The accident rate on the Trolley system is approximately one-half of the national rate for LRT systems. For 2010, the nationwide average accident rate for LRT systems was approximately 16.0 per million revenue service miles, compared to 8.0 for the San Diego Trolley System. Accident data are provided in the *Mid-Coast Corridor Transit Project Safety and Security Impacts Technical Report* (SANDAG, 2014n). There were 21 total accidents on the Trolley system in 2010, of which 3 were at a grade crossing and 18 were other incidents (e.g., slips and falls). There were no accidents associated with trespassing. There were 10 injuries and no fatalities during that year, with most of the injuries occurring in accidents between Trolley vehicles and auto passengers or pedestrians (SANDAG, 2014n).

Within the Mid-Coast Corridor, police services are provided by the City of San Diego Police Department and fire protection and emergency medical services are provided by the SDFD. Ambulance services are provided by several private companies operating in the corridor. UCSD has an on-site fire marshal to ensure code compliance, but assistance from the SDFD is required for fire–rescue services. The UCSD Police Department is responsible for safety and security on the university campus and for a

[14] Truncated domes are the federally legislated standard design requirement for detectable warnings that enable people with visual disabilities to determine the boundary between the sidewalk and street. Because truncated domes have a unique design, they can be detected underfoot and by sound on cane contact.

1-mile area surrounding the campus. Figure 4-5 in Section 4.2 shows the locations of fire stations, police stations, and hospitals within one-half mile of the project alignment. Emergency response services are provided from these facilities.

4.13.3 Environmental Impacts

This section describes the impacts of the No-Build and Refined Build Alternatives on safety and security in the Mid-Coast Corridor.

4.13.3.1 No-Build Alternative

Under the No-Build Alternative, service on bus Route 150 would be continued and enhanced. In particular, bus frequency would be improved. This enhanced bus service would operate in accordance with current MTS safety and security program procedures and would have no adverse impacts on the safety and security of the public or MTS employees.

4.13.3.2 Refined Build Alternative

This section describes the impacts of the Refined Build Alternative on the safety of the transit system, grade crossings, pedestrians and bicyclists, trespassing, rail safety and transport of hazardous materials, crime prevention and security, community emergency response services, and seismic safety.

Transit System Safety

The project is being designed to provide for the safety and security of passengers, transit employees, and the public in or near MTS transit vehicles and facilities. The FTA requires a Safety and Security Certification Plan for the project that addresses design, construction, testing, and initiation into revenue service. The CPUC must certify that the project is safe and secure before the project can be placed in revenue service. Following construction of the project, the project would operate in accordance with MTS standard operating procedures, operator rules, and the emergency plan. Therefore, the project would not have an adverse direct impact on the safety of passengers and employees of the system and the public in the vicinity of stations, station parking facilities, and TPSS sites.

Grade-Crossing Safety

The project would use the existing Trolley tracks for approximately 3.5 miles, from the Santa Fe Depot to a point just north of the OTTC and south of the San Diego River. The Trolley Blue Line trains would share these existing tracks with the Trolley Green Line trains.

The number of trains traveling through the eight existing grade crossings between Santa Fe Depot and the San Diego River would increase with implementation of the project, as shown in Table 3-24 in Chapter 3.0. The traffic-control devices at these crossings provide the level of advanced warning and protection from an oncoming train required by the CPUC and the *California Manual on Uniform Traffic Control Devices* (MUTCD) (Caltrans, 2012). These grade crossings currently meet the requirements of the CPUC and the California MUTCD. The project would not modify the existing grade crossing devices and would not require the approval of the CPUC. As noted in Chapter 2.0, gate operation at these grade crossings would be optimized to accommodate the increased

number of activations. North of the San Diego River, the alignment would be separated from roadways and would not introduce any new grade crossings.

Therefore, there would be no impact on the safety of grade crossings under the Refined Build Alternative.

Pedestrian and Bicycle Safety

As discussed in Sections 3.4.1.2 and 3.4.3.2, many Trolley passengers would walk or bike to or from the new transit stations. All new track constructed for the project would be in exclusive right-of-way; therefore, it would not conflict with pedestrians and bicyclists using existing sidewalks and roads. Although the number of pedestrians and bicyclists at station entrances and in station areas would increase under the Refined Build Alternative, this would not create unsafe conditions or adversely affect pedestrians and bicyclists. The exit capacity of existing sidewalks in the vicinity of new transit stations would be checked against the requirements of National Fire Protection Association (NFPA) 130: Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA, 2010) to ensure that they would be able to accommodate the increase in pedestrian activity and in conformance with the most recent California Fire Code.

Pedestrians and bicyclists would cross the tracks and adjacent intersections near the existing grade crossings. The traffic-control devices at these grade crossings would continue to provide the level of advanced warning and protection from an oncoming train required by the CPUC and California MUTCD. Therefore, the Refined Build Alternative would not adversely affect pedestrian and bicycle safety at these crossings or at adjacent intersections.

To reduce passenger walk access time, aerial stations within or near roadways would include pedestrian bridges that connect to public sidewalks. Such pedestrian bridges are proposed over Voigt Drive and Genesee Avenue and are incorporated into the aerial structural design. Exit capacity from each station would meet the safety requirements of NFPA 130: Standard for Fixed Guideway Transit and Passenger Rail Systems (NFPA, 2010) and would not result in an adverse safety impact to pedestrians and bicyclists and would be in conformance with the most recent California Fire Code.

At the Clairemont Drive Station, the platforms would be separated from the parking facilities by Morena Boulevard. Access between the platforms and the parking lot would be provided by a pedestrian crosswalk at the existing signalized intersection at Ingulf Street and Morena Boulevard. The pedestrian capacity of the signalized intersection is sufficient to serve passenger demand. Direct connection of the parking lot and the station platforms via a pedestrian bridge is not possible due to lack of available right-of-way at the platforms. Therefore, the Refined Build Alternative would not adversely affect pedestrian and bicycle safety.

Trespassing

To reduce the risk of trespassing into the existing MTS right-of-way north of the San Diego River, the project would include access-control measures, such as fencing, signage, and retaining walls. The project is primarily on an aerial structure north of SR 52, and access to the guideway would be limited because of this vertical separation.

The Refined Build Alternative would not increase or encourage trespassing; therefore, it would not result in an adverse impact.

Rail Safety and Transport of Hazardous Materials

The Burlington Northern Santa Fe Railway operates freight service in the LOSSAN corridor within the study area. Hazardous materials could be transported on the LOSSAN corridor tracks. Based on the accident history of the study area, the potential for derailment and subsequent exposure of Trolley passengers to hazardous materials is low. If a derailment were to occur, the derailment would be communicated to all rail operators and any safety measures and cleanup would be under the control of city emergency responders with assistance from rail operators. In the event of a derailment, Trolley service would be suspended and passengers would be bused to their destination.

The potential exists for Trolley vehicles to derail along the alignment. However, derailment is very rare and no derailments have occurred since 2009. In case of a derailment, the accident would be communicated to the MTS dispatcher and all rail operators in the area, and Trolley service would be terminated and passengers would be safely evacuated in accordance with MTS policies and procedures. Any derailment of the Trolley that could impact the LOSSAN tracks would be communicated to the LOSSAN dispatcher, and all LOSSAN services would be terminated until the operating entities cleared the tracks for operation. Therefore, the project would have no adverse impact on passenger safety resulting from the transport of hazardous materials on freight rail or from a Trolley derailment.

Crime Prevention and Security

Each station would have closed-circuit security cameras, roving code enforcement or compliance inspectors, and a transit security force. The code enforcement inspectors and transit security force would be expanded as required to serve the new Trolley stations within the Mid-Coast Corridor. The station designs would incorporate the principles of CPTED, such as open visible platforms with lighting and security cameras. Additionally, signs with phone numbers would be posted at stations for use if transit patrons or the general public observe suspicious activity within the station area. Consistent with current MTS policy, anyone observed by the roving code enforcement inspectors in a fare paid area without proof of a paid fare would be asked to leave the premises. It is anticipated that the project would incorporate design features, such as benches, that do not allow people to lie down comfortably, consistent with current MTS practice.

Research conducted for the Mission Valley East Trolley extension found that the extension did not substantially affect crime around stations (SANDAG, 2007b); the results were used to assess potential impacts of the Trolley Blue Line extension into the Mid-Coast Corridor. The results of the study indicate that the Trolley Green Line extension has not negatively impacted crime rates in the Mission Valley Corridor, and it concluded that it is unlikely that the Trolley Blue Line extension would significantly impact crime rates in the Mid-Coast Corridor. Therefore, the Refined Build Alternative would not have an adverse impact on the security of neighborhoods around stations.

Mass transit systems could be a target for terrorists because of the potential to inflict mass casualties and cause substantial damage or disrupt critical infrastructure. Project design would meet all requirements of the TSA to reduce the risk of terrorist attack. The potential for a terrorist attack on the system would not increase with implementation of the project. The potential of a terrorist attack on the system because of the project is low and would be reduced through compliance with the requirements of the TSA. The project would not create conditions that facilitate criminal activity or create an opportunity for terrorism with a moderate-to-high likelihood that such an act would be perpetrated. Therefore, the project is not anticipated to have an adverse security impact due to criminal activity or terrorism.

Community Emergency Response Services

An adverse impact on fire and police services would occur if operation of the Refined Build Alternative were to increase emergency response times in the community or require additional emergency or safety personnel. Independent of the Mid-Coast Corridor Transit Project, a new fire station is under construction on the west side of the tracks at Pacific Highway and Cedar Street to address existing service delays related to grade crossings (Figure 4-28). This new fire station will eliminate any concerns regarding emergency service delay for accidents on either side of the alignment. Fire and emergency medical services personnel also use live mapping software that alerts drivers of any activities that may impede travel times to and from the scene of an emergency. Emergency responders are able to see which roadways are experiencing delays caused by construction, accidents, or other events, and would be able to take alternate routes by using Grape, Hawthorn, and Laurel Streets, which all are grade separated from the Trolley tracks, or another grade crossing. Locations of police stations and hospitals within the corridor are shown in Figure 4-5 in Section 4.2.

Although no new grade crossings would be created, the gates at existing grade crossings would be activated more frequently under the Refined Build Alternative compared to the No-Build Alternative. To minimize the impact to traffic from the additional trains, gate down times would be optimized for Trolleys at all grade crossings and for the northbound COASTER and Amtrak trains traveling through the Taylor Street grade crossing. These improvements, which would be included in the project, would decrease the average and maximum times that the gates are down. Under the Refined Build Alternative, maximum gate down times could be half the maximum gate down times experienced under the No-Build Alternative. This improvement in gate operation would benefit emergency responders traveling near and through the grade crossings.

As noted in Section 4.13.2, accidents and injuries on the existing Trolley system are infrequent and less than national rates for LRT systems. Additionally, the Refined Build Alternative would be in exclusive right-of-way north of the San Diego River and would be operated in accordance with MTS standard operating procedures, operator rules, and the emergency plan. The rate of accidents and injuries under the Refined Build Alternative is not expected to increase compared to the No-Build Alternative and would not substantially increase demands on emergency service providers. No adverse impact is expected on hospitals and other emergency medical facilities or responders in the study area as a result of the project.

Figure 4-28. Location of Fire Stations Relative to Grade Crossings

Source: SANDAG, 2013

Seismic Safety

The stations, aerial structures, cut-and-cover undercrossing, and bridges constructed as part of the project could be susceptible to ground shaking, seismically induced settlement, and fault rupture. During the Engineering phase of the project, studies will be conducted to determine the exact location of potential fault ruptures so that bridges can be designed to meet current seismic design standards of SANDAG and Caltrans. With the structural design measures for seismic safety included in the project, as described in Section 4.11 and the *Mid-Coast Corridor Transit Project Geotechnical, Geologic, and Seismic Impacts Technical Report* (SANDAG, 2014i), no adverse direct safety impacts would occur as a result of the Refined Build Alternative. Additionally, MTS has established operating procedures in case of a seismic event during operating hours. Therefore, no adverse direct safety impacts are expected under the project.

Project Measures to Avoid or Minimize Impacts

The project measures noted in the previous sections would avoid or minimize the impacts of the Refined Build Alternative. These project measures are summarized as follows:

- Development of a Safety and Security Certification Plan and compliance with the plan
- Safety certification by CPUC
- Construction of all new tracks in exclusive right-of-way without any new grade crossings, and installation of access control features, such as fencing, along the right-of-way
- Compliance with NFPA 130 requirements (NFPA, 2010)
- Installation of pedestrian bridges at aerial stations that would be located near or within public streets, thereby reducing the number of passengers that would cross the streets at crosswalks
- Incorporation of security features at stations, such as closed circuit televisions and roving security forces
- Incorporation of the principles of CPTED in station design
- Compliance with the requirements of the TSA
- Code compliance in design of bridges and other major structures for seismic events

4.13.4 Mitigation Measures

Safety and security measures would be incorporated into the design of the project. Therefore, the project would avoid adverse impacts to the safety and security of Trolley system employees; the general public, including Trolley system passengers; and vehicular, pedestrian, and bicycle traffic in the vicinity of the stations and grade crossings during long-term operations. As a result, no mitigation would be required by the project.

4.13.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA threshold of significance and additional discussion below.

4.13.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed a CEQA threshold of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project on safety and security.

Would the project substantially limit delivery of community safety services, such as police, fire, or emergency services, to locations along the proposed alignment?

No Impact (No-Build Alternative). The No-Build Alternative would have no impact because, as discussed in Section 4.13.3.1, it would not alter conditions within the community in a manner that would affect the delivery of community safety services, nor would it generate demand for any increase in staff or new facilities.

Less-Than-Significant Impact (Refined Build Alternative). As discussed in Section 4.13.3.2, the Refined Build Alternative would not substantially limit the delivery of community safety services. Although no new grade crossings would be created, the gates at existing grade crossings would be activated more frequently with the additional trains under the Refined Build Alternative compared to the No-Build Alternative. To minimize the impact of the additional trains, gate down times would be optimized as part of the project for Trolleys at all grade crossings and for the northbound COASTER and Amtrak trains traveling through the Taylor Street grade crossing. Traffic mitigation measures (as described in Section 3.4.2.3) would include optimization of traffic signals and lane modifications at some intersections adjacent to several grade crossings; these measures would reduce vehicular delay. The improved gate operation and the traffic mitigation measures would reduce delay for all vehicles, including emergency service vehicles.

To address the existing emergency response delays resulting from gate down times, a new fire station is under construction on the west side of the tracks at Pacific Highway and Cedar Street. This new fire station will eliminate potential emergency service delay for accidents on either side of the alignment. In addition, emergency responders would be able to use streets with Trolley grade separations to respond to emergencies.

4.13.5.2 Significance after Mitigation

Impacts of the Refined Build Alternative would be less than significant, and no mitigation would be required for the project.

4.14 Electromagnetic Interference

This section describes impacts of the No-Build and Refined Build Alternatives on exposure to electric and magnetic fields, known as electromagnetic fields (EMFs). It also identifies measures to minimize or mitigate EMF impacts. For additional information, refer to the *Mid-Coast Corridor Transit Project Electromagnetic Field Impacts Technical Report* (SANDAG, 2014r) prepared in support of the SEIS/SEIR.

The prior environmental documents concluded there would be no adverse impacts from electromagnetic interference (EMI). The analysis in the Draft SEIS/SEIR stated that land uses have been identified in the Mid-Coast Corridor that contain equipment sensitive to interference from EMF produced by Trolley operations. Equipment that is very sensitive, such as electron microscopes, could be adversely impacted by EMF fluctuations caused by the project and could require mitigation through incorporation of additional design features into the project or mitigation at the receptor location. The Draft SEIS/SEIR concluded that with the implementation of mitigation, impacts would not be adverse under NEPA and would be less than significant under CEQA.

This section has been revised based on comments received on the Draft SEIS/SEIR, refinements to the Build Alternative, and coordination with stakeholders. During the comment period for the Draft SEIS/SEIR, comment letters were received from project stakeholders indicating their concern over potential EMF impacts. Specifically, UCSD and Scripps Hospital both have facilities that house equipment and instruments sensitive to magnetic field perturbation in the vicinity of the alignment. As a result, additional analysis was conducted to determine whether the mitigation measures identified in the Draft SEIS/SEIR would be sufficient to avoid impacts to equipment at these facilities. It was determined that mitigation at the source would be sufficient to avoid impacts to sensitive equipment in the UCSD Structural and Materials Engineering (SME) Building; however, even with mitigation at the source, the project could affect sensitive equipment located in the Scripps Hospital XiMed Building. Based on these findings, and comments from Scripps Hospital, a refinement to the Build Alternative was developed that shifts the LRT alignment to the south side of Voigt Drive. With the shift, the project-related EMI at the Scripps Hospital XiMed Building would be substantially reduced, and mitigation at the source would be sufficient to avoid impacts to equipment. As a result of the updated analysis, the mitigation measures that were presented in the Draft SEIS/SEIR were refined. Refer to the Preface of the *Mid-Coast Corridor Transit Project Electromagnetic Field Impacts Technical Report* (SANDAG, 2014r) for additional information on the changes to the EMF analysis and technical report since the Draft SEIS/SEIR. The conclusions in this section remain unchanged for the Refined Build Alternative. With the mitigation as refined, there would not be adverse or significant impacts as a result of EMF interference under the Refined Build Alternative.

4.14.1 Regulatory Background and Methodology

EMFs are produced by voltages and currents wherever wires distribute electric power and electrical equipment is used. Federal and state governments have not set EMF exposure standards for health and safety. The International Commission on Non-Ionizing Radiation Protection and the American Conference of Governmental Industrial Hygienists have set guidelines for alternating current magnetic fields, but these are

much higher than the levels that occur near the Trolley system. There is no consensus in the scientific and regulatory communities in regard to whether low-level EMF exposure adversely impacts human health, and no scientific evidence that the extremely low levels of EMFs that would be produced by the Refined Build Alternative could result in adverse health impacts. The City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a) direct that evaluations be conducted in accordance with CEQA Section 15145, which summarizes the known information without reaching a conclusion of significance. The city's CEQA thresholds state that a statement or conclusion of CEQA significance for EMF health impacts would be speculative.

Fluctuations in EMFs may temporarily interfere in a measurable way with the operation of sensitive equipment, which can include, but may not be limited to, electron microscopes, nuclear magnetic resonance spectrometers, and magnetic resonance imaging equipment used for medical diagnostic purposes. The thresholds at which a change in the static levels of EMF could impact sensitive instruments are identified in Table 4-28. The thresholds are expressed in milligauss (mG), which is a unit of magnetic field strength. The most sensitive equipment can be affected by a fluctuation of 0.5 mG in the background levels of EMF. Electronic household items are generally not impacted by fluctuations in EMF and they generate their own EMFs that could affect sensitive equipment at close distances.

Table 4-28. Static Magnetic Field Thresholds for Sensitive Instruments

Instrument	Static Field Change Threshold, mG
Research nuclear magnetic resonance spectrometer	0.5
Research mass spectrometer	0.5
Magnetic resonance imaging	4
Electron microscopes and X-ray analyzers (Hitachi and JEOL)	1 mG/5 min, (0.3 mG/5 min ac)[1]
Scanning electron microscope (FEI–Philips)	1 mG @ dc and other low frequencies (3 mG @ 60 Hz)

Source: Bracken, 2000
Notes: [1] Rate of change to the magnetic field over a 5-minute period at 60 Hz
ac = alternating current; dc = direct current; Hz = hertz; mG = milligauss; min = minutes
Static Field Change = The change in the background levels of electromagnetic fields

The study area for analysis of EMF impacts included all areas that may have sensitive equipment that could be impacted by EMF in the vicinity of the project alignment and TPSSs. The distance at which equipment could be impacted by EMF varies by the type, sensitivity, location, and sometimes the orientation of the equipment employed at a particular site. Very sensitive equipment, such as electron microscopes, could be impacted by changes in the levels of EMF generated by the project at distances several hundred feet away from the tracks.

EMF levels generated by the project were estimated from a three-dimensional (3-D) computer model developed to calculate magnetic field densities. The model was developed for areas identified to contain facilities with equipment sensitive to the EMI from Trolley operations. It was then calibrated based on the data collected from a field

survey of the magnetic fields from existing Trolley operations, and populated with currents from a computerized load-flow simulation program. Magnetic fields at various distances from the Trolley were determined, and contour plots of the density of magnetic fields surrounding the project alignment were generated. The model assumed a typical standard traction power distribution system employed elsewhere on the Trolley system where the electrical current is supplied to each vehicle from a substation to the overhead messenger wire, then to the overhead contact wire, through the pantograph, and then returned back to the substation via the wheels and steel rails. This configuration creates a magnetic field that decreases inversely with the square of the distance from the tracks.

The 3-D model was used to calculate project-induced magnetic fields for areas of the project alignment with sensitive equipment. Potential impacts to sensitive equipment were estimated under a worst-case condition with the highest magnetic fields. The highest magnetic fields were found to occur when the light-rail trains accelerate away from a station, so the worst-case condition would occur when trains occupying both sets of tracks accelerate away from a station. To determine whether equipment sensitive to EMF would be affected, the magnetic field contours at the location of the equipment were compared to the threshold levels at which the functionality of the equipment could be affected. The results of the modeling are presented in the *Mid-Coast Corridor Transit Project Electromagnetic Field Impacts Technical Report* (SANDAG, 2014r).

4.14.2 Affected Environment

EMF-sensitive equipment is used in research, manufacturing, medical, and military facilities. Many facilities use tools and equipment dependent upon the Earth's steady geomagnetic field for reliable operation. EMF levels in areas surrounding the existing MTS tracks south of the San Diego River already are subject to substantial fluctuations in EMF levels as a result of existing Trolley operations. The Refined Build Alternative would change the characteristic of the EMF levels through the addition of TPSS stations, increased frequency of service, and more frequent use of longer (four-car) trains. These changes could affect the frequency of EMF fluctuation events and may increase the frequency of higher magnitude EMF fluctuation events. However, this is not expected to impact sensitive equipment that is already operating in the area, as the area is subject to similar levels of EMF fluctuations from the existing Trolley service. For this reason, the assessment of EMI impacts on sensitive equipment focused on areas north of the San Diego River.

Based on a review of existing land uses, it was determined that the following areas near the Mid-Coast Corridor alignment could have facilities with EMF-sensitive equipment:

- University City: Existing land uses possibly affected by project EMFs include office buildings and medical facilities near Genesee Avenue and Voigt Drive. These facilities are located as close as 70 feet from the centerline of the nearest track. No facilities were identified in this area during public review of the Draft SEIS/SEIR or as part of ongoing outreach efforts as housing equipment that could be affected by Trolley-generated EMFs.
- UCSD: The newly constructed SME Building and its future extension could house equipment that could be affected by Trolley-generated EMFs. The existing building

is located about 100 feet from the nearest track, and the future extension would be located as close as 37 feet from the nearest track. No other existing facilities on the UCSD campus were identified during coordination to house equipment that could be affected by Trolley-generated EMFs.

- Regional Hospitals: Hospitals in proximity to the Trolley line that could be affected by EMFs include the VA Medical Center and Scripps Hospital. Both facilities are proposing expansions that would bring their footprints closer to the Trolley line. Scripps Hospital identified that the XiMed Building houses medical equipment that could be affected by Trolley-generated EMFs. These facilities are located between 100 and 300 feet from the nearest track. No other regional hospital facilities were identified during coordination to house equipment that could be affected by Trolley-generated EMFs.
- Balboa Avenue Station: Several medical offices are located near Balboa Avenue. The closest is within 500 feet of the tracks, along the west side of I-5. No facilities were identified in this area during public review of the Draft SEIS/SEIR or as part of ongoing outreach efforts as housing equipment that could be affected by Trolley-generated EMFs.

Coordination with stakeholders identified sensitive equipment located in buildings adjacent to the project alignment on the UCSD West Campus and at Scripps Hospital adjacent to the project alignment on Voigt Drive. The VA Medical Center does not have any sensitive equipment within the vicinity of the alignment that could be affected by EMI from Trolley operations.

On the UCSD West Campus, a nanoengineering facility is located in the far west end of the SME Building located northwest of the proposed UCSD West Station. The facility houses a suite of instruments, including several transmission and scanning electron microscopes. The electron microscopes at UCSD generally have an operating threshold of 1.0 mG, beyond which the functionality of the instruments could be adversely affected. This equipment is more than 400 feet from the nearest LRT track.

The Scripps Hospital XiMed Building on the north side of Voigt Drive and east of I-5 contains several magnetic resonance imaging (MRI) units. SANDAG established an operating threshold of 4.0 mG for the MRI equipment in the Scripps Hospital XiMed Building based on the referenced threshold in Table 4-28. The building is 168 feet from the edge of the aerial structure for the project alignment.

4.14.3 Environmental Impacts

This section describes the EMF impacts of the No-Build and Refined Build Alternatives on sensitive equipment. There are no conclusive findings regarding the health effects of low-level EMF typical of electrically powered rail vehicles. Magnetic fields from the planned direct current traction system for the Mid-Coast Corridor Transit Project would be transient in nature and low frequency. Further, EMF levels produced by the project, under all anticipated conditions, would be well below the threshold limits specified by voluntary guidelines to prevent short-term adverse health effects from EMF exposure across a wide range of frequencies. Therefore, a conclusion regarding health impacts from EMF would be speculative. EMF levels experienced by passengers and individuals

near the Trolley system would be substantially less than criteria established by the Institute of Electrical and Electronics Engineers (2002), which are frequency-dependent and range between 2,290 mG and 180,100 mG in the range of 1 hertz to 3 kilohertz. For this reason, the analysis of EMF impacts was limited to adverse impacts of EMF on sensitive equipment.

4.14.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be constructed and the only physical change would be the continuation and enhancement of service on bus Route 150. The enhanced bus service would be located on existing or proposed roads using standard (non-electrified) vehicles, and would not change EMF levels. Therefore, no adverse impacts would result under the No-Build Alternative.

4.14.3.2 Refined Build Alternative

The Refined Build Alternative would be powered by electricity from a traction power distribution system fed from TPSSs located along the project alignment. The power system generates electromagnetic emissions as well as the movement of transit vehicles that disturbs the earth's naturally occurring magnetic field. The latter is referred to as geomagnetic or ferromagnetic perturbation. The power system would generate emissions with frequencies in the range of 0 to 3 kilohertz. Levels of EMF generated at any one location by the flow of electricity depend on the configuration of the traction power distribution system, the locations of TPSSs and passenger stations, and the movement of transit vehicles relative to the sensitive receptor and the equipment of concern.

To determine the potential for adverse impacts on sensitive equipment at the UCSD SME and Scripps Hospital XiMed Buildings as a result of the project, site-specific 3-D modeling was conducted for the project alignment from the VA Medical Center Station north through the UCSD campus and then along Voigt Drive near Scripps Hospital to Genesee Avenue. The model was used to calculate project-induced magnetic field fluctuation contours over an area covering both the UCSD SME and Scripps Hospital XiMed Buildings.

The magnetic field fluctuation contour plots for trains accelerating away from the UCSD West Station showed the UCSD SME Building to be within magnetic field contours of 5 to 50 mG. These levels, although they are within the range of the ambient fluctuations observed at some exterior locations at UCSD, would exceed the threshold of 1.0 mG for electron microscopes operating in the UCSD SME Building, and the instruments would be adversely affected by Trolley operations under worst-case conditions. The magnetic field contour plots for trains accelerating away from the UCSD East Station showed the Scripps Hospital XiMed Building to be within magnetic field fluctuation contours of 20 to 50 mG. These EMF fluctuations would exceed the threshold of 4.0 mG for MRI machines operating in the Scripps Hospital XiMed Building. Under these conditions, the MRI machines could be adversely affected by Trolley operations.

In addition to the modeling of the worst-case condition from the traction power system for each sensitive equipment location, a model run was conducted to determine impacts of combined ferromagnetic fields with electromagnetic fields on sensitive equipment in

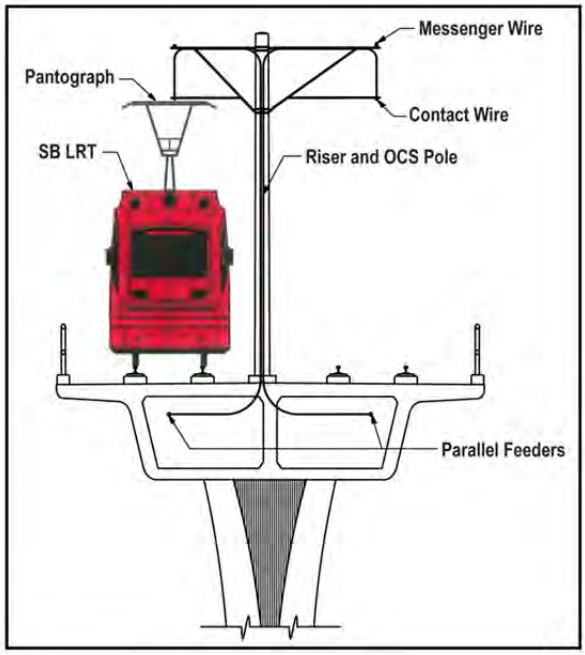
the UCSD SME and Scripps Hospital XiMed Buildings. Ferromagnetic field impacts are generated by metallic objects, such as trains and vehicles, moving through the Earth's magnetic field. The analysis determined that the impact of ferromagnetism due to the motion of the trains does not materially affect the maximum field disturbance.

4.14.4 Mitigation Measures

Because the project-generated levels of EMF could adversely affect sensitive equipment, mitigation measures would be implemented to reduce EMF levels when necessary to avoid adversely impacting sensitive equipment. SANDAG considered a range of potential mitigation strategies to eliminate EMI impacts to sensitive equipment. These included implementing design measures to reduce EMF fluctuations at the source, as well as measures that would reduce EMI impacts at the receptor (that is, at the location of the sensitive equipment). The evaluation of mitigation for adverse impacts on the UCSD SME and Scripps Hospital XiMed Buildings as a result of the project focused first on mitigation at the source. The Draft SEIS/SEIR also included mitigation measures at the receptor, such as the use of active magnetic field cancelation and passive shielding, as well as the potential relocation or reoriented of sensitive equipment. These would have been required if mitigation at the source was not fully effective in reducing EMI impacts.

Mitigation considered at the source consisted of modifications in the design and configuration of the project's traction power supply. The project design provides for a standard power configuration. The modification in the configuration of the project's traction power supply would consist of replacing the overhead catenary system (OCS) messenger wire located above the contact wire with a parallel feeder cable located below each track but connected to the OCS wire intermittently with cable risers at OCS poles (Figure 4-29). The modified electrical system would create a quadrupole, which is an electrical system composed of two dipoles of equal but oppositely directed electric current. This design is known as a split-power (or more specifically a high-low, single-split) system and has been used successfully on other projects to reduce the magnitude of the magnetic fields in areas where sensitive equipment is located.

Figure 4-29. Modified Electrical System with Parallel Feeder Cable Below Tracks



Source: SANDAG, 2013

The effectiveness of the split-power configuration system was modeled within the UCSD West and UCSD East

Station areas to estimate peak magnetic fields at the UCSD SME Building and the Scripps Hospital XiMed Building under a worst-case condition when the light rail trains occupying both sets of tracks are accelerating away from a station. The results of the modeling found that the EMF fluctuations would be below 1 mG at the location of sensitive equipment identified at the UCSD SME Building and would be below 4 mG at the Scripps Hospital XiMed Building. Therefore, EMI impacts would not be adverse. SANDAG has incorporated the mitigation specified in EMF1 below into the project design.

EMF1 Project impacts to identified equipment that is sensitive to EMI at the UCSD SME Building and the Scripps Hospital XiMed Building would be mitigated through the use the split-power configuration system with a parallel feeder cable located below each track connected to the OCS wire intermittently with cable risers at OCS poles, rather than using the overhead messenger wires, in the areas near these buildings. In these areas, the feeder cables would be located in line with the centerline of the track (single-split power supply) in order to get feeder cable and return current (the rails) as close as possible and reduce the magnetic fields.

This modeling confirms that mitigation at the source can be implemented to minimize potential magnetic field effects on identified sensitive equipment or instruments located in proximity to the project alignment. Therefore, no additional mitigation (e.g., mitigation at the receptor) is required.

4.14.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA threshold of significance and additional analysis below.

4.14.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has determined that with regard to health impacts, in accordance with CEQA Guideline Section 15145, the known information regarding EMF and health impacts has been summarized without reaching a conclusion of significance. SANDAG has determined that a statement or conclusion of CEQA significance for EMF health impacts would be speculative.

With regard to significant EMF impacts to sensitive equipment, SANDAG has adopted the following CEQA threshold of significance:

Would the project create fluctuations in EMF levels that could affect the operation of EMF-sensitive equipment?

No Impact (No-Build Alternative). The No-Build Alternative would have no impact because it would not create fluctuations in EMF levels.

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). The Refined Build Alternative would result in a significant impact because, as described in Section

4.14.3.2, it could create fluctuation in EMF levels where sensitive equipment is located and affect the operation of the equipment. Mitigation would reduce interference from project-generated EMF to below impact criteria.

4.14.5.2 Significance after Mitigation

As described in Section 4.14.4, a split-power distribution system would reduce interference from project-generated EMF to below impact criteria (1.0 mG for electron microscopes operating in the UCSD SME Building and 4.0 mG for MRI machines operating in the Scripps Hospital XiMed Building). This measure has been effectively implemented to reduce the levels of EMF for other transit systems. With mitigation, impacts would be reduced to a less-than-significant level. No significant impacts would remain.

4.15 Historic Architectural, Archaeological, and Paleontological Resources

This section describes the effects of the No-Build and Refined Build Alternatives on historic architectural, archaeological, and paleontological resources and any required mitigation measures to minimize effects. The resources are collectively referred to as cultural resources. For additional information, refer to the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c) and the *Mid-Coast Corridor Transit Project Historic Property Effects Report* (SANDAG, 2014k). The analysis in this section is also based upon information contained in the following confidential reports: the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e), the *Mid-Coast Corridor Transit Project Archaeological Resources Supplemental Research Report* (SANDAG, 2013d), the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a), and the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l)[15]. Correspondence with the State Historic Preservation Officer (SHPO) is provided in Appendix C.

The prior environmental documents identified direct and indirect impacts to 14 historic architectural and archaeological resources in the corridor. Of the 14 identified resources, 10 were listed, or potentially eligible for listing, in the National Register of Historic Places (NRHP), and the analysis in those documents determined that the project would avoid or minimize impacts to the identified resources. The prior environmental documents concluded that no adverse effects to cultural resources would occur during operation and maintenance of the project.

A new survey was conducted for the Draft SEIS/SEIR because the previous surveys were conducted in 1991, 1992, and 1998, and required updating. The analysis in the Draft SEIS/SEIR also concluded that there would be no adverse effects to cultural resources during operation and maintenance of the project. However, during construction of the project, it was assumed that there would be adverse effects to four archaeological sites that were preliminarily determined eligible for listing in the NRHP, subject to verification during the Extended Phase I investigations, as described in Section 4.17 of the Draft SEIS/SEIR.

This section has been revised based on comments received on the Draft SEIS/SEIR, additional coordination with the SHPO, and results of the Extended Phase I investigations conducted subsequent to the distribution of the Draft SEIS/SEIR. As evaluated in the Draft SEIS/SEIR, the FTA preliminarily determined five historic architectural properties and four archaeological sites within the Area of Potential Effects (APE) to be eligible for listing in the NRHP and the California Register of Historical Resources (CRHR). The four archaeological sites were preliminarily determined eligible for listing in the NRHP subject to verification during the Extended Phase I investigations. In a letter dated August 2, 2013, the SHPO concurred that the five historic architectural properties were eligible for listing in the NRHP, but stated that further consultation would be needed to determine NRHP eligibility of the four archaeological sites. As documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a), archaeological deposits associated with the four archaeological sites were not identified

[15] Note, this report has not been revised since circulation of the Draft SEIS/SEIR.

or detected within the archaeological APE during the Extended Phase I investigations; therefore, the project would not result in impacts on previously recorded archaeological resources. Based on prior analysis conducted for the Draft SEIS/SEIR and results of the Extended Phase I investigations, the FTA made a determination of "no historic properties affected" with respect to archaeological resources and a finding of "no adverse effect" on the five historic architectural properties pursuant to Section 106 of the National Historic Preservation Act (NHPA). On April 9, 2014, the SHPO concurred with the FTA's finding of "no adverse effect" for the undertaking. Comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to the evaluation of the five paleontologically sensitive geologic units within the Mid-Coast Corridor in this section of the SEIS/SEIR. The conclusions in this section have changed from the conclusions in the Draft SEIS/SEIR. Based upon the additional investigation conducted and consultation, this section now concludes that the Refined Build Alternative would not result in any adverse or significant impacts to cultural resources under NEPA or CEQA, and there would be no adverse effect to historic properties under Section 106.

4.15.1 Regulatory Background and Methodology

This section describes the federal, state, and local historic architectural, archaeological, and paleontological resources preservation laws, regulations, and requirements and how they were applied for the analysis of effects of the No-Build and Refined Build Alternatives.

4.15.1.1 Regulatory Background

The project is subject to compliance with the NHPA of 1966, as amended. Section 106 of the NHPA requires federal agencies with jurisdiction over a proposed undertaking to consider the undertaking's effect on historic properties (consisting of any prehistoric or historic district, site, building, structure, or object) eligible for inclusion or listed in the NRHP. The lead federal agency, in consultation with the SHPO and/or Tribal Historic Preservation Officer, is responsible for determining eligibility for the NRHP listing and for the finding of effect. The federal Advisory Council on Historic Preservation may participate in the consultation process.

Section 4(f) of the U.S. Department of Transportation Act of 1966 also applies to historic properties. Section 4(f) is addressed in Chapter 5.0 of this document.

According to CEQA, historical resources include any resource listed, or determined to be eligible for listing, in the CRHR. The CRHR automatically includes properties listed in or determined eligible for listing in the NRHP, such as those identified in the Section 106 process. This automatically makes all "historic properties" under federal preservation law "historical resources" under state preservation law. Historical resources also are presumed significant if they are included in a local register of historical resources or identified as significant in a qualified historical resources survey. Section 15064.5 of the *CEQA Guidelines* sets forth the criteria and procedures for determining significant historical resources and a project's effects on such resources. The City of San Diego has regulations and guidelines to protect, preserve, and—if damaged—restore historical resources. The city has defined CEQA significance criteria for properties eligible for the San Diego Register of Historical Resources (SDRHR). If a property is determined to be NRHP or CRHR eligible and SHPO concurs, it will automatically meet Criterion E of the SDRHR, which states: a property that "is listed or has been determined eligible by the National Park Service for listing

on the [NRHP] or is listed or has been determined eligible by the State Historical Preservation Office for listing on the State Register of Historical Resources."

Paleontological resources are not considered historic properties and generally are not evaluated under the Section 106 process. The American Antiquities Act and NEPA protect paleontological resources on federal lands; however, as none of the right-of-way for the project is on federal land, paleontological resources are not evaluated under NEPA for this project.

CEQA categorizes paleontological resources as cultural resources and requires an impact evaluation for such resources. California Code—Chapter 1.7: Archaeological, Paleontological, and Historical Sites, protects paleontological resources (PRC 5097.5).

4.15.1.2 Methodology

This section describes the methodology for identification and consultation with interested parties in compliance with Section 106; identification of the APE; criteria for identification and evaluation of historic architectural, archaeological, and paleontological resources; research and survey efforts undertaken to identify historic architectural, archaeological, and paleontological resources within the APE; and assessment of effects on historic properties.

Identification and Consultation with Interested Parties

Section 106 regulations require federal agencies to identify all historic properties within the APE and to evaluate historic properties by gathering information from consulting parties, applying the NRHP criteria, and seeking concurrence from SHPO or Native American tribes, as appropriate. In accordance with 36 CFR Part 800.3, the FTA initiated the Section 106 process with SHPO and personnel from the Office of Historic Preservation on October 6, 2011, via a notification letter. The results of the consultation efforts are documented in the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c).

SANDAG made an extensive effort to identify, contact, and consult with groups who have demonstrated interest relating to historic architectural, archaeological, and paleontological resources within the APE. Local historical societies, archaeological societies, and museums were contacted to identify historic properties and/or cultural resources within the APE. None of the contacted organizations identified historic properties, but the San Diego Archaeological Center offered to curate any archaeological artifacts that might be found.

The FTA also consulted with federally recognized Native American Tribes, as documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e). In response to consultation and as part of Draft SEIS/SEIR comments, the Native American Heritage Commission and tribal representatives identified areas of potential resources in the vicinity of the project. The Draft SEIS/SEIR comments and responses can be found in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR—Volume 3: Comments and Responses*.

Identification of Area of Potential Effects

A project's APE is "the geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist" (36 CFR 800.2(c)). For the Mid-Coast Corridor Transit Project, the FTA defined a project-specific APE in accordance with 36 CFR Part 800.16(d) and the SHPO concurred with the APE on October 28, 2011. The APE is shown on maps in Appendix A of the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c). The project's APE was delineated to ensure the identification of significant historic architectural, archaeological, and cultural resources that may be directly or indirectly affected by the project and that are listed in or eligible for inclusion in the NRHP and CRHR.

The archaeological APE includes areas that could be affected by the maximum extent of project-related ground disturbance, including construction of new tracks, stations, and TPSSs; modification of existing public or private facilities, including existing TPSSs proposed for equipment upgrades; use of temporary construction easements, temporary encroachments, and construction staging areas; grading; and utility trenching. Additionally, the historic architectural APE also includes additional areas that the project could directly or indirectly affect. Direct effects include physical changes to historic architectural resources. Indirect effects include visual effects or effects caused by noise or vibration.

Criteria for Identification and Evaluation of Historic Architectural, Archaeological, and Paleontological Resources

This section describes the criteria for identification and evaluation of historic architectural, archaeological, and paleontological resources.

Historic Architectural and Archaeological Resources

The NRHP criteria (36 CFR 60.4) assess whether properties that would be 50 years or older at project completion would meet the eligibility requirements for listing in the NRHP. For listing, a property must meet one of the NRHP criteria for evaluation, as described below:

- Criterion A: A resource associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B: A resource associated with the lives of persons significant in our past
- Criterion C: A resource that embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction
- Criterion D: A resource that has yielded or may be likely to yield information important in prehistory or history

In addition, Criterion G allows a property of exceptional importance that is less than 50 years old and meets one of the above criteria to be considered for the NRHP.

Under California law, generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets one or more of the criteria for listing on the CRHR (Pub. Res. Code §5024.1, Title 14 CCR, Section 4852), including the following:

- Criterion 1: Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage
- Criterion 2: Associated with the lives of persons important in our past
- Criterion 3: Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values
- Criterion 4: Has yielded, or may be likely to yield, information important in prehistory or history

If a property does not qualify for listing in the CRHR, it still may be considered historically significant at the local level. In the City of San Diego, the *Guidelines for the Application of Historical Resources Board Designation Criteria* (City of San Diego Historical Resources Board, 2011), state the following: *…any improvement, building, structure, sign, interior element and fixture, site, place, district, area, or object may be designated a historical resource by the City of San Diego Historical Resources Board if it meets one or more of the following criteria:*

- Exemplifies or reflects special elements of the city's, a community's, or a neighborhood's, historical, archaeological, cultural, social, economic, political, aesthetic, engineering, landscaping or architectural development
- Identifies with persons or events significant in local, state, or national history
- Embodies distinctive characteristics of a style, type, period, or method of construction or is a valuable example of the use of indigenous materials or craftsmanship
- Represents notable work of a master builder, designer, architect, engineer, landscape architect, interior designer, artist, or craftsman
- Listed or has been determined eligible by the National Park Service for listing on the NRHP or is listed or has been determined eligible by the State Historical Preservation Office for listing on the State Register of Historical Resources
- Represents a finite group of resources related to one another in a clearly distinguishable way or is a geographically definable area or neighborhood containing improvements which have a special character, historical interest, or aesthetic value or which represent one or more architectural periods or styles in the history and development of the city

The above described federal and state criteria were used to evaluate the APE's pre-1966 historic architectural and archaeological resources. Properties listed on the SDRHR were evaluated. Furthermore, if a property is determined to be NRHP or CRHR eligible and SHPO concurs, it will automatically meet Criterion E of the SDRHR.

Paleontological Resources

Paleontological resources include fossilized plants and animals. Paleontologists assign geologic units a high, low, or undetermined sensitivity as it relates to the potential to contain paleontological resources (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995).

A paleontological resource may be significant because of its rarity and the scientific information it provides if it meets any of the following criteria (Scott and Springer, 2003):

- Provides data on the evolutionary relationships and developmental trends among organisms, both living and extinct
- Provides data useful in determining the age(s) of the geologic unit or stratigraphy, as well as timing of associated geological events
- Provides information pertaining to past biological community development and zoological/botanical biota interaction
- Demonstrates unusual or spectacular circumstances in the history of life
- Is not abundant or found in other geographic locations and may be in danger of being depleted or destroyed by the elements or vandalism
- Is considered a type or topotype (taken from its normal habitat) specimen

CEQA does not define what constitutes "a unique paleontological resource or site." However, Section 21083.2 does define unique archaeological resources and states the following: *As used in this section, "unique archaeological resources" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:*

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized import prehistoric or historic event

CEQA Section 15064.5 (a)(3)(D) also indicates "generally, a resource shall be considered historically significant if it has yielded, or may be likely to yield, information important in prehistory or history."

Research and Survey Efforts to Identify Historic Architectural, Archaeological, and Paleontological Resources

This section summarizes the research and survey efforts undertaken to identify historic architectural, archaeological, and paleontological resources within the APE.

Historic Architectural and Archaeological Resources

To identify known and potential historic architectural and archaeological resources, a variety of research methods was used, including the following:

- Records searches, including, but not limited to, a review of South Coastal Information Center, NRHP, CRHR, and state and local historical landmarks records, as well as previous cultural resource studies
- Consultation with federally recognized Native American tribes who may have knowledge of archaeological resources or sites of Native American concern within the APE
- Archival research, including, but not limited to, a review of historic aerial photographs, historic maps, building and facility permits and construction dates, online databases, and reports documenting the area's history
- Contact of parties who may have information or knowledge of historic properties within the APE

Field surveys and investigations were conducted to verify previously recorded information and to identify and document previously unrecorded historic architectural and archaeological resources within the APE. Historic architectural resources more than 45 years of age (pre-1966) were recorded on California Department of Parks and Recreation 523 forms.

Paleontological Resources

To identify known and potential paleontological resources, paleontologists conducted background research that included the following:

- A paleontological records search through the San Diego Natural History Museum
- A review of published documents describing area geology and paleontological resources
- A review of published geologic maps

This research helped determine the corridor's paleontologically sensitive geologic units. Through identification of these sensitive geologic units and a formation's past fossil productivity, the likelihood of where fossils may be found was predicted. Field investigations also were conducted to determine the likelihood of deposits being exposed at the ground surface.

Assessment of Effects on Historic Properties

As mandated by Section 106 of the NHPA, federal agencies must consider the effects of their undertakings on historic properties, assess these effects, and seek ways to avoid, minimize, or mitigate any adverse effects on such properties (36 CFR 800.1[a]). According to federal regulations, "*Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register" (36 CFR 800.16[i]).

For identified historic properties within the APE, the agency shall apply the criteria of adverse effect (36 CFR 800.5[a]):

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. (36 CFR 800.5[a][1]).*

When the effects of the proposed undertaking do not meet the criteria of adverse effect, then a finding of "no adverse effect" may be proposed (36 CFR 800.5[b]). If an "adverse effect" is found, the agency shall act pursuant to 36 CFR 800.6 (36 CFR 800.5[d][2]) to resolve the adverse effect by developing and evaluating alternatives or modifications to the undertaking that "could avoid, minimize or mitigate adverse effects on historic properties" (36 CFR 800.6[a]).

The above criteria were used to evaluate the effects under Section 106 of the project on identified historic properties in the project APE.

4.15.2 Affected Environment

This section summarizes the historic architectural, archaeological, and paleontological resources and conditions associated with the Mid-Coast Corridor.

4.15.2.1 Historic Architectural Resources

Historians divide San Diego's history into four periods: the Spanish, Mexican, Early American, and American periods. The following discussion emphasizes the American Period since the resources expected to be encountered and evaluated in the APE would be from this period.

American Period Historic Context

From the 1860s to 1880s, San Diego's development shifted from its initial location in Old Town to approximately 3 miles south along San Diego Bay in an area called New Town (present-day Downtown San Diego). Despite New Town's development, the area encompassed by the APE was not settled until several decades later.

The southern portion of the APE (present-day Midway/Pacific Highway Corridor) became a major transportation artery, lacking residential and commercial development. In 1882, the California Southern Railroad (a subsidiary of the Atchison Topeka and Santa Fe Railroad) was completed. In the decades that followed, roads were paved, electric streetcars began operation, and scattered industrial properties were developed within the area.

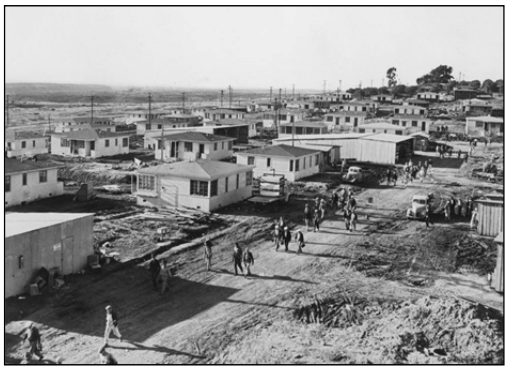
Residential developments in the APE were first proposed in the late 1800s and spanned the length of Mission Bay (approximately between Balboa Avenue and Tecolote Road). The Morena Subdivision and Eureka Lemon are the earliest examples of residential development in the APE. These developments contained a scattering of wood-framed,

single-family residences constructed before the citywide real estate boom ended around 1888. One such residence is the Stough-Beckett Cottage, listed in the NRHP, CRHR, and SDRHR. Significant residential development in the APE did not occur until the mid-1930s and 1940s when the newly formed Federal Housing Administration developed specifications for smaller homes that featured more traditional architectural designs.

The military's presence in San Diego began at the turn of the 19th century and expanded in the 1920s. In the northern portion of the APE (present-day University City), the Marine Rifle Range La Jolla, renamed Camp Calvin B. Matthews in 1942, was established. It is bounded by present-day Regents Road to the east, Voigt Drive (formerly Miramar Road) to the north, Gilman Drive (formerly Coast Highway) to the west, and present-day La Jolla Village Drive to the south. In the 1950s, local residents became concerned about the rifle range's proximity to civilian neighborhoods. The camp was closed in 1964 and the area eventually became the UCSD East Campus.

During World War II, industrial development in the APE along Pacific Highway increased dramatically. As a result, military personnel and defense workers poured into the city to work at military installations and defense factories. This population influx resulted in the construction of large-scale tracts of workers' housing. The Linda Vista housing project (Figure 4-30), the city's largest wartime residential development, is an early example of the planned residential and commercial development that shaped San Diego in the post-war period.

Figure 4-30. Linda Vista Housing Project



Source: Photo courtesy of San Diego History Center (1941)

In the 1950s, development of the Clairemont Mesa neighborhood began pushing the city's limit farther north. This subdivision included amenities for suburban living and featured curvilinear (curved) streets that rejected the traditional street grid system and took advantage of scenic views. The homes were typically Minimal Traditional or Ranch style, with the most significant example within the APE located at 4875–4883 Naples Street. This property consists of four small dwelling units arranged around a central court and is exceptional for the degree and detail of design integrity retained from the historic period.

Historic Architectural Properties within the Historic Architectural APE

In a letter dated August 2, 2013, the SHPO concurred with the FTA's determination that, within the APE, five historic architectural properties are eligible for listing in the NRHP and therefore are also eligible to be listed in the CRHR: 2750 Kettner Boulevard, 4875–4883 Naples Street, 2335 Morena Boulevard, 3435 Morena Boulevard, and the Camp Calvin B. Matthews Sentry Booth (UCSD East Campus Regents Road parking lot). The five properties determined eligible for listing in the NRHP are hereafter referred to as "historic properties." These properties are listed by address, type, date of construction, criteria for listing on the NRHP or CRHR, and California Historical Resources status code in Table 4-29 and shown by location in Figure 4-31.

Table 4-29. Historic Architectural Properties Eligible for Listing in the NRHP and CRHR within the Historic Architectural APE

Photo of Property	Property Address	Property Name/Type	Construction Date	NRHP/CRHR Criteria	CHR Status Code
	2750 Kettner Blvd	Light industrial building	ca. 1959	NRHP/CRHR Criteria C/3, SDRHR Criterion E	2S2, 1CL
	4875–4883 Naples St	Multifamily residence	ca. 1953	NRHP/CRHR Criteria C/3, SDRHR Criterion E	2S2, 1CL
	2335 Morena Blvd	Old Trieste Restaurant	1952; 1963	NRHP/CRHR Criteria A/1 and C/3, SDRHR Criterion E	2S2, 1CL
	3435 Morena Blvd	Single-family residence	1904	NRHP/CRHR Criteria A/1, SDRHR Criterion E	2S2, 1CL
	UCSD Regents Rd East Parking Lot	Camp Matthews Sentry Building	ca. 1943–1944	NRHP/CRHR Criteria A/1 and C/3, SDRHR Criterion E	2S2, 1CL

Source: SANDAG, 2014

Notes: APE = Area of Potential Effects; NRHP = National Register of Historic Places; CHR = California Historical Resource; CRHR = California Register of Historical Resources; SDRHR = San Diego Register of Historical Resources; UCSD = University of California, San Diego

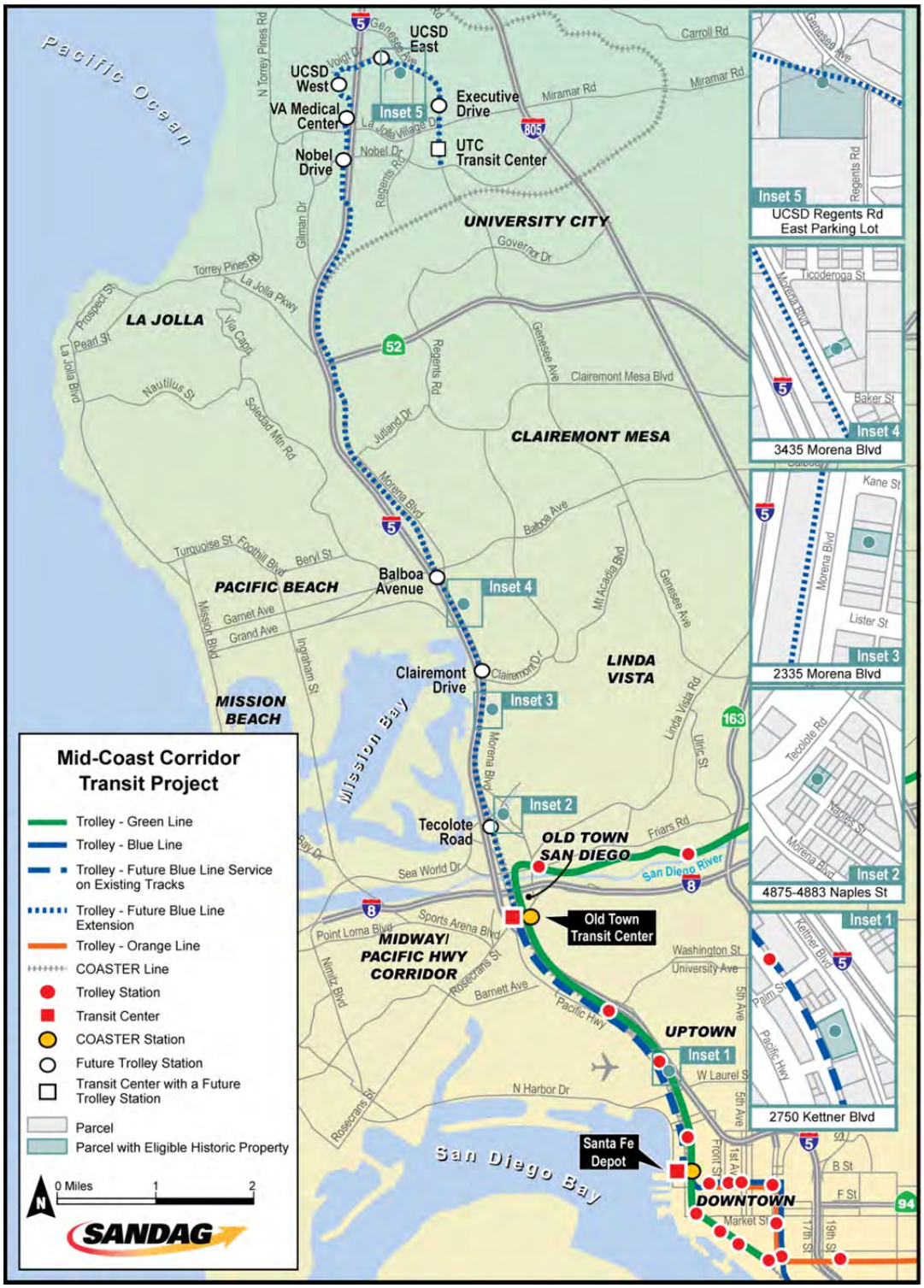
NRHP Criteria: A = Associated with events that have made a significant contribution to the broad patterns of our history; C = Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criteria: 1 = Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; 3 = Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

CHR Status Codes: 2S2 = Individual property determined eligible for NRHP by a consensus through Section 106 process. Listed in the CRHR; 1CL = Automatically listed in the CRHR.

SDRHR Criterion E: As a result of SHPO concurrence with the FTA's determination of NRHP eligibility, the five above-listed resources became City of San Diego Landmarks under Criterion E. The city's guidelines for the application of Historic Resources Board (HRB) designation criteria state: "resources identified as significant by the State or Federal Government with SHPO concurrence through listing or determinations of eligibility for listing on the California or National Registers are eligible for designation by the HRB under Criterion E."

Figure 4-31. Historic Architectural Properties Eligible for Listing in the NRHP and CRHR within the Historic Architectural APE



Source: SANDAG, 2014

Coordination with the SHPO in February 2013 indicated the potential presence of two historic districts within the APE that needed to be evaluated for NRHP eligibility. Both are located within San Diego's Bay Park neighborhood: one along Morena Boulevard and one along McGraw Street. The Morena Boulevard Postwar Commercial District does not appear to hold together as a potential historic district because there are numerous recent out-of-scale intrusions and altered historic-era buildings that compromise its integrity of design, materials, workmanship, feeling, setting, association, and its ability to convey its period of significance. Within the potential Vista Bahia Unit No. 1 District on McGraw Street, some intact buildings remain. However, the street contains numerous two-story intrusions that visually affect the street's low-lying west shoulder. Many extant houses have been altered through re-stuccoing, exterior re-styling, and window replacements. These alterations have substantially diminished McGraw Street's integrity of design, materials, workmanship, association, and feeling from its historic late-1950s era construction period. Neither district appears to have NRHP or CRHR eligibility under any of the four criteria.

4.15.2.2 Prehistoric and Archaeological Resources

The Mid-Coast Corridor lies within the ethnographic territory of the Yuman-speaking Kumeyaay who inhabited the San Diego area prior to 1769. Their territory encompassed the area between the San Luis Rey River to the north, the Sand Hills to the east, the area south of Ensenada, Mexico, to the south, and the Pacific Ocean to the west. Library research of the Sacred Lands File indicated the presence of Native American cultural resources within the APE and in the Old Town, Pacific Beach, and La Jolla areas.

As documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e), the records search identified 329 previously conducted cultural resource studies within a quarter-mile of the project alignment. Sixty-three of these studies are at least partially within the archaeological APE. The search identified nine previously recorded archaeological sites within the archaeological APE, including a protohistoric village site, prehistoric lithic and shell scatters, and a prehistoric habitation site with midden deposit. Additionally, a pedestrian archaeological survey of the archaeological APE identified and recorded three new archaeological resources (i.e., two historic sites and one prehistoric isolate).

Of these 12 previously or newly recorded archaeological resources, 7 archaeological sites (P-37-032491, CA-SDI-20616, CA-SDI-53, CA-SDI-54, CA-SDI-9288, CA-SDI-13761H, and CA-SDI-17689H) have been destroyed or lack integrity for listing in the NRHP, CRHR, or SDRHR. Likewise, the isolated artifact (P-37-032493) is considered a non-significant resource type. The Draft SEIS/SEIR considered the remaining four archaeological sites (CA-SDI-41, CA-SDI-12453/H, CA-SDI-12557, and CA-SDI-12558) as having the potential for subsurface archaeological deposits within the archaeological APE, and preliminarily determined these archaeological resources to be eligible for listing in the NRHP and CRHR. However, following distribution of the Draft SEIS/SEIR, Extended Phase I investigations were completed, verifying extensive ground disturbance and the absence of archaeological deposits in the vicinity of the four archaeological sites within the archaeological APE. As shown in Table 4-30, these four archaeological sites were not detected within the archaeological APE and were not assigned a California Historical Resource Status Code. The NRHP/CRHP criteria could not be applied to these sites within the APE as no resources were detected.

Table 4-30. Determinations of Eligibility for Archaeological Resources within the Archaeological APE

Resource No.	Resource Type	Resource Description	Sites in APE	CHR Status Code	NRHP/CRHR Criteria
P-37-032491	Historic site	Concrete foundation	Yes	6Z	Ineligible
CA-SDI-20616	Historic site	Formed concrete culvert	Yes	6Z	Ineligible
CA-SDI-41	Prehistoric site	Possible habitation site	Previously recorded in APE, not identified or detected in APE during Extended Phase I	N/A	N/A
CA-SDI-53	Prehistoric site	Possible campsite	Previously recorded, but no longer extant	6Z	Ineligible
CA-SDI-54	Prehistoric site	Prehistoric dump	Previously recorded, but no longer extant	6Z	Ineligible
CA-SDI-9288	Prehistoric site	Lithic and shell scatter	Previously recorded, but no longer extant	6Z	Ineligible
CA-SDI-12453/H	Multi-component site	Lithic and shell scatter with historic glass	Previously recorded, not identified or detected in APE during Extended Phase I	N/A	N/A
CA-SDI-12557	Prehistoric site	Habitation site with midden deposit, previous study evaluated as CRHR-eligible property	Previously recorded and excavated adjacent to APE, not identified or detected in APE during Extended Phase I	N/A	N/A
CA-SDI-12558	Prehistoric site	Shell scatter	Previously recorded and tested, not identified or detected in APE during Extended Phase I	N/A	N/A
CA-SDI-13761H	Historic site	Foundry trash dump	Previously recorded, but no longer extant in APE	6L (formerly 5S3)	Ineligible
CA-SDI-17689H	Historic site	Residential trash dumps	Previously recorded, but no longer extant in APE	6Z	Ineligible
P-37-032493	Prehistoric isolate	Primary, rhyolite flake	Yes	6Z	Ineligible

Source: SANDAG, 2014

Notes: APE = Area of Potential Effects; CHR = California Historical Resource; CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places

CHR Status Codes:

5S3: Appears to be individually eligible for local listing or designation through survey evaluation

6L: Determined ineligible for local listing or designation through local government process; may warrant special consideration in local planning

6Z: Found ineligible for NRHP, CRHR, or local designation through survey evaluation

(Appendix C of the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e) contains a complete list of the CHR Status Codes)

N/A = Not applicable; resource was not detected within the APE during Extended Phase I investigations; therefore, eligibility criteria could not be applied.

4.15.2.3 Paleontological Resources

The City of San Diego lies in the Coastal Plain province, which is composed of dissected, mesa-like terraces that transition inland into rolling hills. Sedimentary rocks composed mainly of sandstone, shale, and conglomerate beds underlie the terrain. A sequence of marine and non-marine sedimentary rock units that record portions of the last 140 million years of earth history lies beneath the province.

Five paleontologically sensitive geologic units underlie the Mid-Coast Corridor. These are, from oldest to youngest, the Ardath Shale, Scripps, San Diego, Lindavista, and Bay Point Formations. Within the archaeological APE, these formations have a high paleontological resource sensitivity rating.

The Ardath Shale Formation has yielded diverse and well-preserved assemblages of marine microfossils, macroinvertebrates, and vertebrates. The formation extends along the project alignment from the Clairemont Drive Station to the Executive Drive Station.

The Scripps Formation is known to be potentially full of fossils consisting of the remains of marine organisms, land mammals, and well-preserved pieces of fossil wood. This formation was identified along the project alignment from the Clairemont Drive Station to the UTC Transit Center.

The San Diego Formation is a marine sedimentary deposit that contains rich fossil beds that have yielded extremely diverse assemblages of marine organisms. In addition, rare remains of terrestrial mammals, fossil wood, and leaves have been recovered from this formation. The formation was identified in the direct vicinity of the project alignment from the Middletown Station to the Washington Street Station, as well as northeast of the Balboa Avenue Station.

The Lindavista Formation represents a marine and/or non-marine terrace deposit that accumulated on the sea floor during a period of sea-level decline. Today, the Lindavista Formation forms extensive mesa surfaces. Portions of the formation with high paleontological resource sensitivity were identified directly in the project alignment in an area extending from the Executive Drive Station to the UTC Transit Center.

The Bay Point Formation is a near shore marine sedimentary deposit that has produced a large and diverse amount of well-preserved marine invertebrate and vertebrate fossils. This formation was identified along the project alignment from the Santa Fe Depot to the Balboa Avenue Station. Additionally, during the field survey, paleontologists observed a fossil shell hash layer in the formation west of the intersection of Morena Boulevard and McGraw Street, indicating the surface presence of paleontological resources.

The San Diego Natural History Museum identified 88 recorded locations of fossil finds within one-quarter mile of the project alignment. These fossils included various marine invertebrates (e.g., bryozoans, barnacles, ostracods, pectens, chitons, tusk shells, foraminifers, brachiopods, worms, shrimp, crabs, snails, clams, oysters, and sea biscuits), marine vertebrates (e.g., fish, sharks, and rays), and plants (e.g., almond trees, sycamore, willows, and horsetails). Although none of the previously recorded fossil localities is located in the archaeological APE, they fall within the identified

paleontologically sensitive geologic units. Each of the five geologic units could yield additional important paleontological resources.

4.15.3 Environmental Impacts

This section summarizes the long-term impacts of the No-Build and Refined Build Alternatives (i.e., impacts from ongoing operation and maintenance) on the five historic architectural properties that were determined eligible for listing in the NRHP. No NRHP-eligible archaeological resources were identified or detected within the APE. Project operation and maintenance activities would not result in ground disturbances that would impact paleontological resources. Short-term construction impacts are discussed in Section 4.17.

The remaining analysis in this section focuses on historic architectural resources (i.e., historic architectural properties or historic properties), which could be affected during operation and maintenance.

Historic Properties

Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties. According to 36 CFR 800.16(i), "*Effect* means alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register."

No-Build Alternative

Under the No-Build Alternative, the project would not be constructed; bus service on Route 150, which operates between Downtown San Diego and the University area, would be continued and enhanced. The buses would operate on existing or planned roadways, and no physical improvements would be required for enhancing transit services other than the minor construction associated with new bus shelters within existing rights-of-way.

There would be no effect on historic architectural properties within the APE as a result of enhancing bus Route 150 because no new construction or use would occur, other than operation of the buses and improvements to bus stops within existing rights-of-way.

Refined Build Alternative

Although the Refined Build Alternative would include modifications to existing facilities and the construction of new track and facilities, there would be no adverse effect on historic architectural properties within the APE. The location and operation of these project facilities would not physically alter, relocate, or demolish historic architectural properties within the architectural APE or meet any other of the adverse effect criteria.

- 2750 Kettner Boulevard (Property No. 3): The improvements to the existing Olive Street TPSS site (i.e., replacement of the existing TPSS and the addition of a second TPSS on the same site), would be approximately 150 feet to the north across West Olive Street. The property is eligible for listing on the NRHP under Criterion C for its mid-century Modern architectural characteristics. The project would not affect any of

the property's defining characteristics, including the property's location, design, setting, materials, workmanship, feeling, or association.

- 4875–4883 Naples Street (Property No. 30): The new at-grade track, the Tecolote Road Station, and TPSS No. 6 would be approximately 400 feet to the southwest across West Morena Boulevard. The new Tecolote Creek Bridge would be approximately 650 feet west across the intersection of Tecolote Road and West Morena Boulevard. The property is eligible for listing on the NRHP under Criterion C for its distinctive architectural characteristics and exceptional integrity. The project would not affect any of the property's defining characteristics, including the property's location, design, setting, materials, workmanship, feeling, or association.
- 2335 Morena Boulevard (Property No. 64): The new at-grade track would be approximately 100 feet to the west across Morena Boulevard. The building, erected in 1952 and known as the Old Trieste Restaurant since 1963, represents an increasingly rare example of a Continental-style fine-dining restaurant along a once major highway. As such, the property is eligible for listing in the NRHP under Criterion A for its association with the broad pattern of postwar fine dining in San Diego, and under Criterion C as an excellent example of a rare property type. The project would not affect any of the property's defining characteristics, including the property's location, design, setting, materials, workmanship, feeling, or association.
- 3435 Morena Boulevard (Property No. 120): The new at-grade track would be approximately 100 feet to the west across Morena Boulevard. The property is eligible for listing on the NRHP under Criterion A for its associations with the pre-Pacific Highway agricultural land use of the area. The project would not affect any of the property's defining characteristics, including the property's location, design, setting, materials, workmanship, feeling, or association.
- Camp Matthews Sentry Booth (Property No. 161): The new aerial track would be approximately 174 feet to the north across Voigt Drive. The property is eligible for listing on the NRHP under Criterion A and under Criterion C as an example of a World War II-era military structure. The project would not affect any of the property's defining characteristics, including the property's location, design, setting, materials, workmanship, feeling, or association.

Therefore, the Refined Build Alternative would not alter any of the characteristics of these historic architectural properties that qualify them for inclusion in the NRHP in a manner that would diminish the integrity of their location, design, setting, materials, workmanship, feeling, and association. There would be no adverse effects on historic architectural properties. The SHPO concurred with the FTA finding of "no adverse effect" in a letter dated April 9, 2014 (Appendix C).

4.15.4 Mitigation Measures

No adverse impacts on historic architecture, archaeological, and paleontological resources would occur during project operation and maintenance; therefore, no mitigation is necessary. Although no archaeological resources were identified within the archaeological APE, the potential for unanticipated discoveries still exists within the archaeological APE. Specific mitigation measures to avoid, minimize, and treat adverse

or significant impacts on historic archaeological, and paleontological resources during construction are included in Section 4.17.3.

4.15.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above and the CEQA thresholds of significance and additional discussion below.

4.15.5.1 Significance Criteria and Significance Criteria Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). Operation and maintenance of the No-Build Alternative would have no impact on historic architectural, archaeological, or paleontological resources. Thus, there would be no impact under CEQA with respect to the thresholds below.

Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?

No Impact (Refined Build Alternative). Operation and maintenance of the Refined Build Alternative would have no impact because such activities would not physically impact the five historic architectural properties in the Mid-Coast Corridor.

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

No Impact (Refined Build Alternative). Operation and maintenance of the Refined Build Alternative would have no impact because such activities would not physically impact significant archaeological resources identified in the Mid-Coast Corridor.

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

No Impact (Refined Build Alternative). Operation and maintenance of the Refined Build Alternative would have no impact because such activities would not physically impact paleontological resources.

Would the project disturb any human remains, including those interred outside of formal cemeteries?

No Impact (Refined Build Alternative). Operation and maintenance of the Refined Build Alternative would have no impact because such activities would not disturb any human remains.

4.15.5.2 Significance after Mitigation

No mitigation is required because there would be no impacts during operation and maintenance of the Refined Build Alternative.

4.16 Utilities

This section evaluates impacts on utilities under the No-Build and Refined Build Alternatives. Temporary utility relocations for this project are identified in Section 4.17.3. For additional information, refer to the Final SEIS/SEIR Plan Set.

Prior environmental documents included a limited description of utility impacts that emphasized short-term construction-related impacts and did not address operational impacts to utilities. The analysis in the Draft SEIS/SEIR considered short-term construction and long-term operational impacts to utilities and determined that the Build and No-Build Alternatives would have no adverse impacts under NEPA and less-than-significant impacts under CEQA. Based on comments received on the Draft SEIS/SEIR, additional information related to water supply needs has been incorporated into this section. Other than the editorial changes described in Section 4.0, refinements to the Build Alternative did not require any changes to this section of the SEIS/SEIR. The conclusions in this section remain unchanged for the Refined Build Alternative. The Refined Build Alternative would have no adverse utility impacts under NEPA and less-than-significant impacts under CEQA.

4.16.1 Regulatory Background and Methodology

The Federal Energy Regulatory Commission regulates the interstate transmission of electricity, natural gas, and oil, including siting and abandoning natural gas pipelines and storage facilities. The CPUC regulates privately owned electric, natural gas, telecommunications, water, railroad, rail transit, and passenger transportation companies. The San Diego Municipal Code contains laws and regulations to promote and protect public peace, health, safety, and welfare, while guiding growth and development in the city.

The Water Pollution Control Act of 1948, amended by the Clean Water Act and Water Quality Act, requires states to set standards protecting water quality, including regulating storm water and wastewater discharge during facility construction and operation.

This analysis divides utilities into two categories: wet and dry utilities. Wet utilities include sewer, water, and oil lines; dry utilities include gas, electric, telephone, television, and other telecommunications lines. The project's design was reviewed to determine if it would require expansion of utility service and where it would affect existing utilities, which could result in an impact.

4.16.2 Affected Environment

Both public and private utilities lie on and/or adjacent to the project alignment and station areas. The city provides many urban services, including wastewater and water services. The city manages its own water supply, providing drinking water to its residents. San Diego Gas & Electric (SDG&E) provides electricity and natural gas to residential and business customers. A variety of cable and telecommunication companies provide services, including Cox Communications, Time Warner Cable, Comcast, Verizon, and AT&T. The City of San Diego owns and operates the nearest landfills.

Many utilities and associated infrastructure are located in the study area. The three primary underlying property owners where these utilities are located are MTS (railroad right-of-way), the city (roadway right-of-way), and UCSD (campus).

Within the MTS right-of-way, generally all water and wastewater pipelines crossing perpendicular to the project alignment have been placed in a steel sleeve under the adjacent corridor tracks. In addition, an aviation fuel line owned and operated by the U.S. Department of the Navy, gas pipelines, electrical conduit, and telecommunication facilities are also located within the MTS right-of-way.

Within the UCSD property boundary, most wet and dry utilities are owned by UCSD, but some wet utilities are owned by the City of San Diego and some dry utilities are owned by various other companies.

The city's street right-of-way along Genesee Avenue contains numerous wet and dry utilities. Regarding wet utilities, with the exception of a large-diameter water main adjacent to the project alignment, the majority of pipelines are of small diameter and serve smaller areas. The majority of the dry utilities are located near the edges of the roadway and are mostly local communication lines supplying power and communications services to businesses along Genesee Avenue.

4.16.3 Environmental Impacts

This section describes impacts to utilities under the No-Build and Refined Build Alternatives. Utility relocation activities during construction include both wet and dry utilities. For a more detailed discussion of utility relocations, refer to Section 4.17.3.2.

4.16.3.1 No-Build Alternative

The No-Build Alternative would continue and enhance service of bus Route 150 but would not include construction of new facilities outside existing rights-of-way. This alternative would not conflict with existing utilities or require the construction of new utilities. No adverse impact would result.

4.16.3.2 Refined Build Alternative

Water supply needs for the project are anticipated to be minimal (approximately 0.01 percent of the total regional water usage) compared to development of housing units or commercial and industrial land uses, and would be limited to irrigation (e.g., landscaping) and maintenance (e.g., platform and vehicle cleaning) activities. Additionally, the project is consistent with the assumptions of the City of San Diego's *2010 Draft Urban Water Management Plan* (City of San Diego, 2011d) and would be well within available water supply capabilities outlined in that plan. As the project represents a negligible fraction of the City of San Diego's water supply demand, the project would not have an adverse impact on water supply. Where feasible, reclaimed water would be used for construction and irrigation activities. The project's water supply needs would be coordinated with the City of San Diego.

Utility relocations could begin as early as 2014. The project would result in the construction of TPSSs in several locations along the project alignment, necessitating

additional electricity for operation of the Trolley system. However, this additional electricity would not exceed system-operating capacity but may require upgrades to existing SDG&E electrical substations. During the Engineering phase, coordination with SDG&E would occur and upgrades to its substations, if any, would be identified. These upgrades would be performed within the existing footprint of SDG&E's electrical substations. Feeder conduits from SDG&E substations to the TPSSs would be required. The routing of these feeder cables would be identified during the Engineering phase. Transit stations would require utility services, including water, electricity, and telephone services. Most electrical use at the stations would be at night when electricity is plentiful. Other utilities would be used intermittently, such as water for landscaping and washing of the stations. Hence, the project would not have an adverse impact on these utilities. Routing of utilities to substations, transit stations, and other facilities along the guideway are expected to utilize existing utility corridors, public right-of-way, and public properties.

4.16.4 Mitigation Measures

Because there would be no adverse impacts, no mitigation measures are required.

4.16.5 California Environmental Quality Act Determination

This section presents the CEQA significance determination based upon the analysis above and the CEQA thresholds of significance and additional analysis below.

4.16.5.1 Significance Criteria and Application

Based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), SANDAG has developed CEQA thresholds of significance for use in evaluating the utility impacts of the Mid-Coast Corridor Transit Project.

No Impact (No-Build Alternative). As stated in Section 4.16.3.1, the continuation and enhancement of Route 150 under the No-Build Alternative would not impact utilities. Therefore, the No-Build Alternative would have no impact with respect to the thresholds below, and the discussion below focuses only on the Refined Build Alternative.

Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Less-Than-Significant Impact (Refined Build Alternative). The Refined Build Alternative would generate very little wastewater. The Trolley cars would not generate wastewater, but some wastewater would be generated at stations, depending on final design. The small amounts of wastewater from the project would be routed to a City of San Diego or UCSD sanitary sewer system and would be treated by a wastewater treatment facility. Impacts would be less than significant.

Would the project result in a need for new natural gas, water, wastewater, storm drain, communications, electrical supply or solid waste disposal systems, or require substantial alterations to existing utilities, the construction of which would create physical impacts?

Less-Than-Significant Impact (Refined Build Alternative). The project would have nominal natural gas, water, wastewater, communications, and solid waste disposal system needs, which would not exceed the capacity of existing services. Hence, the impact to these facilities would not be significant.

Operation of the project would require electrical power. The electrical distribution infrastructure for operation of the project would be constructed as part of the Refined Build Alternative, connecting the project's TPSSs to the existing electrical grid. The environmental impacts of these connections, including the TPSSs, have been addressed within this Final SEIS/SEIR and are not anticipated to cause significant impacts. The operation of the Refined Build Alternative is expected to require approximately 54 megawatt hours of electrical energy daily above the No-Build Alternative. In 2010, the demand for electrical energy in San Diego County was about 19 million megawatt hours. Because the demand of the project for electrical energy is a small fraction of the regional energy use, the project would not cause an adverse effect to the supply of electric power and would not require construction of new electrical substations; however, modification to existing substations may be required. These modifications would occur within the existing footprint of SDG&E's electrical substations and would not be substantial. Hence, the impact to the electrical supply would be less than significant.

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

Less-Than-Significant Impact (Refined Build Alternative). The project would not exceed regional wastewater treatment requirements nor require the construction or expansion of water or wastewater treatment facilities; therefore, the impact would be less than significant.

Would the project be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less-Than-Significant Impact (Refined Build Alternative). Nominal amounts of solid waste resulting from maintenance of stations and vehicles would be generated by operation of the project. These nominal amounts of trash and other solid wastes generated by the project would not exceed landfill capacity; therefore, the impact would be less than significant.

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

Less-Than-Significant Impact (Refined Build Alternative). The project would comply with all solid waste regulations; therefore, the impact would be less than significant.

4.16.5.2 Significance after Mitigation

No mitigation measures are required, and the project would result in a less-than-significant impact under CEQA.

4.17 Construction Impacts

This section evaluates the construction impacts of the No-Build and Refined Build Alternatives and describes project and mitigation measures proposed to minimize adverse impacts. Section 3.4.7 in Chapter 3.0 summarizes construction impacts on traffic and the transportation system separately from this section. For additional information, refer to the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s) prepared in support of the SEIS/SEIR.

The CEQA determination is provided for each environmental discipline. CEQA thresholds of significance were developed by SANDAG based on the CEQA Environmental Checklist (Appendix G of the *CEQA Guidelines*) and the City of San Diego *CEQA Significance Determination Thresholds* (City of San Diego, 2011a).

The prior environmental documents concluded that there would be impacts as a result of construction in the topical areas of neighborhoods (localized air quality, dust, traffic, and noise/vibration impacts, particularly in the Clairemont Mesa and University City neighborhoods), hazardous wastes (utility poles in the corridor containing creosote and tacky oils), air quality (short-term localized impacts), water (increased erosion, sedimentation, and drainage impacts), economic development (disruption of access and activities for residents and businesses and interruptions of rail freight service in the south segment), utilities (disruption of utilities), paleontological (destruction of resources), and geotechnical (alluvial soils subject to settlement). All construction impacts could be mitigated to below CEQA significance through a combination of measures included in project design, mitigation measures, compliance with regulations, and BMPs.

The analysis in the Draft SEIS/SEIR concluded that with project measures or mitigation, impacts from construction would not be adverse under NEPA or significant under CEQA, with the exception of temporary parking impacts to businesses in University City and on the UCSD campus, nighttime construction noise in some locations, and air quality impacts due to emissions from construction equipment, which would exceed significance thresholds for NO_X, CO_2, and TOGs. These conclusions largely remain unchanged, but the analysis was updated as described below (under the Refined Build Alternative, emissions of TOGs would not exceed significance thresholds).

This section has been revised based on comments received on the Draft SEIS/SEIR and to reflect refinements to the Build Alternative, including elimination of the Genesee Avenue Design Option. Revisions were made to Section 4.17.2 reflecting two new segments of aerial structure north of La Jolla Colony in place of a retaining wall (i.e., Charmant North and South Bridges), and changes to the number and location of construction staging areas.

Additionally, updates were required to the following environmental topical areas:

Land Use, Socioeconomic and Fiscal, and Noise. The analysis was updated to more clearly identify significant nighttime construction and corresponding noise near the residences on the west side of I-5 (northeast corner of the Cape La Jolla Gardens housing complex). This information was added to the Land Use, Socioeconomic and

Fiscal, and Noise sections. Mitigation Measure CON2 was updated to include these residences.

Community and Neighborhoods. Community and neighborhood impacts were revised to address homeless encampments that may be located within the construction area and to provide a project measure in the event that encampments near construction activity are found.

Socioeconomic and Fiscal. The temporary construction easements and employment and earnings analysis were updated in the Socioeconomic and Fiscal section based on the Final SEIS/SEIR Plan Set and revised construction schedule and construction costs. The change in the construction schedule also required updates to the Air Quality and Energy sections.

Air Quality. The air quality analysis was updated based on changes to the construction schedule. As a result, TOG emissions would not exceed significance thresholds.

Ecosystems and Biological Resources. The categorization of vegetation communities has been revised to be consistent with the *San Diego Municipal Code Land Development Code—Biology Guidelines* (City of San Diego, 2012b). Wetlands are excluded from the city's vegetation community tier system and are categorized separately. Calculations of impacts and mitigation to biological resources were updated to reflect the impact footprint of the Refined Build Alternative, consistent with the Final SEIS/SEIR Plan Set. Two new project measures were added—the use of a biological monitor during construction work and the maintenance of a movement corridor for the light-footed clapper rail. Mitigation Measure CON8 was expanded to include exclusionary methods for the western mastiff bat. Mitigation Measure CON14 was added to address potential impacts to foraging light-footed clapper rail. Construction impacts to CCC wetlands were quantified based on the Coastal Zone boundary determination provided by the CCC, which concluded that the portion of the project within MTS right-of-way from the San Diego River to Balboa Avenue is located within the Coastal Zone.

Archaeological Resources. The section on archaeological resources was revised based on the completed Extended Phase I investigations. Whereas the Draft SEIS/SEIR preliminarily determined four archaeological sites (CA-SDI-41, CA-SDI-12453/H, CA-SDI-12557, and CA-SDI-12558) would be eligible for listing in the NRHP, the new field investigations did not detect archaeological deposits associated with these four archaeological sites within the project's APE. As such, the determination was revised to "no historic properties affected" with respect to archaeological resources and a finding of "no adverse effect" for the undertaking was made. Mitigation was revised to address "the possibility of unanticipated discoveries" (Mitigation Measure CON17).

Refer to the Preface of the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s) for additional information on the changes to the construction schedule, analysis, and technical report since the Draft SEIS/SEIR.

4.17.1 Regulatory Background and Methodology

All federal, state, regional, and local regulations and guidelines pertinent to construction of the Mid-Coast Corridor Project would be followed. While some regulations specifically address construction activities, other regulations focus more generally on protecting environmental resources and human health and safety. For additional regulatory information, refer to the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s).

The analysis of construction impacts considers the anticipated construction activities and phasing, and identifies where construction staging could occur. Impacts are evaluated based on the type of equipment and activities associated with each major phase or construction element on each portion of the site as well as the duration for each phase.

4.17.2 Construction Activities

This section describes the anticipated construction activities and schedule for the project. It includes construction of at-grade and elevated guideway, several bridges and grade separations, at-grade and elevated station platforms, station-related facilities, a cut-and-cover structure, retaining walls, and trackwork. Utility relocations and installation of specialty systems, such as traction power, communication, and signaling equipment, also would be required.

4.17.2.1 Overview of Construction Activities

During the construction period, the following activities would occur:

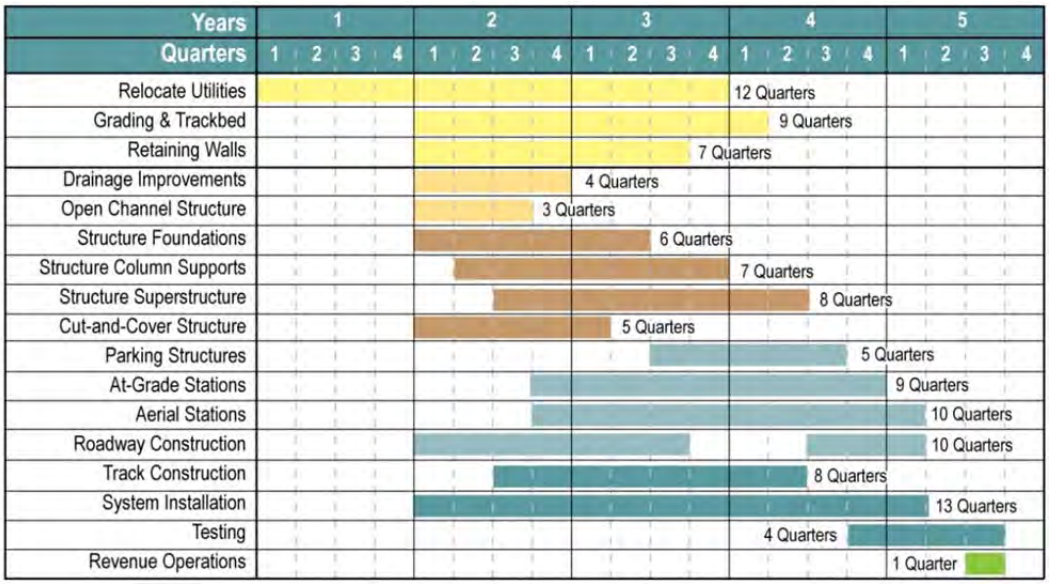
- Relocate, modify, or protect in-place existing utilities
- Remove or relocate structures along the proposed guideway, at construction staging sites, and the area around station parking areas
- Prepare and secure construction staging and work areas
- Relocate, modify, or protect in-place existing drainage facilities
- Construct the at-grade guideway, including grading operation, surface and subsurface drainage systems, underground duct banks for the electrical power feeds, and the OCS pole foundations
- Construct the at-grade guideway on retained cut or fill, including retaining walls, grading operation, surface and subsurface drainage systems, underground duct banks for the electrical power feeds, and the OCS pole foundations
- Construct the grade-separated crossings and bridges at the San Diego River Bridge/Friars Road, Tecolote Creek, Balboa Avenue, three crossings over Rose Creek, where the most northerly Rose Creek crossing also crosses over the realigned LOSSAN tracks, and crossings of two canyons north of La Jolla Colony Drive
- Construct the elevated guideways along I-5, UCSD, and Genesee Avenue, including foundations, abutments, support columns, girders, and deck slabs

- Construct a cut-and-cover structure at La Jolla Colony Drive and the approach U-sections, including drainage features, duct banks, and OCS pole foundations
- Reconstruct the Rose Canyon Bicycle Path at various locations between the northerly terminus of Santa Fe Street and La Jolla Colony Drive
- Construct streets and bike lanes at several locations to accommodate the guideway
- Construct the at-grade stations on West Morena Boulevard at Tecolote Road, on Morena Boulevard at Clairemont Drive and Balboa Avenue, along I-5 at the VA Medical Center, including canopies, station finishes, furniture, and other appurtenances
- Construct the elevated stations at Nobel Drive, the UCSD West and East Campuses, and on Genesee Avenue at Executive Drive and near Esplanade Court/UTC Driveway (UTC Transit Center), including stairs, elevators, pedestrian bridges, canopies, finishes, furniture, and other appurtenances
- Construct the at-grade parking facilities at the Tecolote Road, Clairemont Drive, and Balboa Avenue Stations, including driveways, associated street improvements, bus bay facilities, perimeter retaining walls, stairs, and ramps
- Construct a parking structure at the Nobel Drive Station
- Construct the tracks, including special trackwork at various locations along the alignment; prepare the track bed; and install the ballast and concrete ties, direct fixation fasteners, rail welding, and rail fasteners
- Construct the TPSSs with electrical power feeds at various locations between Santa Fe Depot and the UTC Transit Center
- Construct the traction power, communications, and signaling systems for train operations, including OCS poles and wires, and ancillary rooms at various locations between Santa Fe Depot and the UTC Transit Center
- Conduct system integration testing, simulated revenue operation test runs between Santa Fe Depot and the UTC Transit Center, and final system commissioning

4.17.2.2 Construction Activities and Schedule

The project would use conventional construction techniques and equipment typical to the Southern California region and would follow all applicable federal, state, and local laws for building and safety. Working hours would vary to meet special circumstances and restrictions. Customary local practices consistent with all applicable laws would be used to control traffic, noise, vibration, erosion, and dust during construction, as described further in Section 4.17.3. Design and construction would include project measures and mitigation commitments. Generally, construction would be divided into a series of often overlapping activities to minimize the duration of construction and associated impacts. Figure 4-32 depicts a potential construction schedule for construction of this project. Construction activities are estimated to take 4.5 years, although the duration of activities at specific locations along the alignment is anticipated to be substantially shorter, as described further in the *Mid-Coast Corridor Transit Project Construction Impacts*

Figure 4-32. Typical Construction Sequence and Average Construction Time



Source: SANDAG, 2014

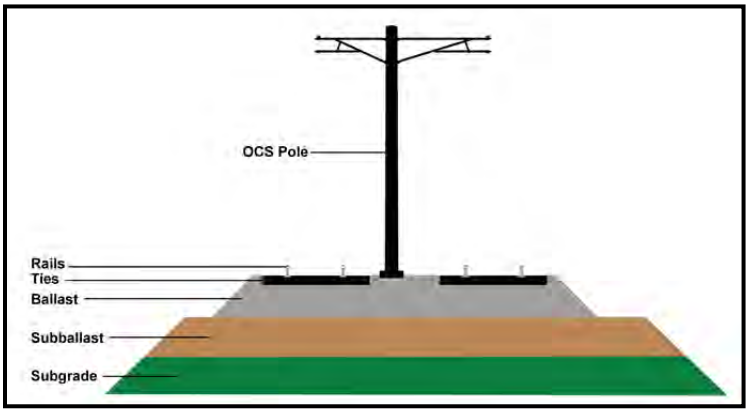
Technical Report (SANDAG, 2014s). Construction is assumed to begin in 2015, although some activities, such as utility relocations, could begin in 2014.

Construction equipment would include graders, bulldozers, cranes, drill rigs, excavators, concrete-batching equipment, pumping equipment, concrete trucks, flat bed trucks, dump trucks, and rail-mounted equipment.

At-Grade Guideway Construction

Figure 4-33 shows the elements in a typical at-grade guideway. Earth surrounding the tracks would be cut and filled as needed to ensure a relatively consistent grade, with only minor sloping for drainage. Where right-of-way impacts are determined to be substantial, a retaining wall likely would be needed and the walls would be constructed prior to completing the grading of the trackbed.

Figure 4-33. Typical At-Grade Guideway



Source: SANDAG, 2012

Other work items related to the at-grade guideway would include duct banks to carry communication and signaling conduits, foundations for the OCS poles, a drainage system,

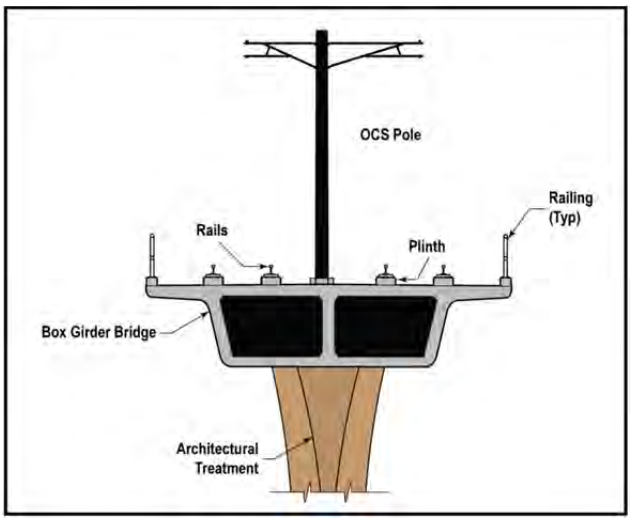
and relocation of utilities. The station improvements could include site clearing, grading, paving (including subbase material), new utilities, concrete walkways and surfaces, and landscaping.

Elevated Guideway and Bridge Construction

Figure 4-34 shows a typical elevated guideway that would be constructed for portions of the alignment. Seven bridges are needed to cross over existing waterways and roadways. From south to north, they are as follows:

- San Diego River Bridge
- Tecolote Creek Bridge
- Balboa Avenue Underpass (LRT Overpass)
- Rose Creek South Bridge
- Rose Creek North Bridge
- Charmant Drive South Bridge
- Charmant Drive North Bridge

Figure 4-34. Typical Elevated Guideway



Source: SANDAG, 2012

The bridge structures for the project would be areas of major construction. Typical construction methods would involve several stages of work, beginning with below ground work and terminating with completion of the superstructure. These steps include construction of the foundation, columns and abutments, and the girders and deck. For the San Diego River Bridge, the southerly 130 feet would be in conflict with the existing Trolley Green Line Bridge. The westerly curb along the Trolley Green Line Bridge would be removed, and the two bridges would be separated by a longitudinal expansion joint for this stretch.

There are three elevated guideways along the alignment; the last one has been divided into two parts (UCSD and Genesee), with Genesee Avenue as the approximate division point, for ease of presentation and discussion. As with bridge structures, construction of elevated guideways and viaducts would require intensive construction activity. From south to north, they are as follows:

- Rose Creek LRT Overhead
- Nobel Viaduct
- UCSD Viaduct
- Genesee Viaduct

The Genesee Viaduct requires columns placed in the center of Genesee Avenue and street widening to preserve travel lanes.

Cut-and-Cover Structure Construction

The La Jolla Colony Drive Overhead would separate the LRT line from vehicular traffic on La Jolla Colony Drive with a cut-and-cover structure that would be a cast-in-place concrete-box structure. The structure would be constructed in two stages, and vehicular traffic on La Jolla Colony Drive would be maintained in each direction during each stage. For each stage, the structure would be constructed in several phases starting with temporary shoring work and completing with construction of the roof slab.

Contractor Staging Areas

Construction staging areas would need to provide adequate space for construction equipment, construction materials, temporary spoil storage, materials stockpiling and transfer, parking, and other construction-related activities. A total of 12 construction staging areas have been identified, as shown on Figure 4-35. Some of these are located at future park-and-ride lots, station areas, and existing parking lots. Vacant areas near the project alignment also have been identified as staging areas. In addition, contractors and construction managers would establish field offices in existing office space near work areas or in temporary jobsite trailers at the staging areas.

Traffic Diversions and Handling

Construction activities would temporarily interfere with the normal flow of traffic, resulting in some lanes and streets, including I-5, being closed to vehicles for various durations, as shown in Table 3-33 in Chapter 3.0. These roadways would require traffic handling during a majority of the construction period and would require temporary full or partial closures during various construction activities, as identified in the table. Other cross streets also could be temporarily closed. Access to adjacent properties would be maintained during business hours. In addition to traffic impacts, Section 3.4.7 also identifies impacts to transit, bicycle and pedestrian facilities, parking, and freight. The specific locations of construction staging sites are shown in the Final SEIS/SEIR Plan Set.

In preparing the construction maintenance of traffic plans, the project team would meet with individual businesses to identify business usage, delivery, shipping patterns, and critical times for business activities. This information would be used to develop construction requirements and worksite traffic control plans, and identify alternative access routes and requirements to maintain critical business activities.

4.17.3 Construction Impacts, Mitigation Measures, and California Environmental Quality Act Determination

The following sections describe construction impacts for each environmental topic addressed in Chapter 4.0 of this document. Where feasible, project and/or mitigation measures have been identified to minimize or mitigate construction impacts. Mitigation measures would be the responsibility of SANDAG.

Figure 4-35. Construction Staging Areas

Source: SANDAG, 2014

4.17.3.1 No-Build Alternative

Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be implemented, and construction activities associated with the continuation and enhancement of bus Route 150 would be limited to installation of shelters at bus stops. Work primarily would occur within existing right-of-way. Construction work would be minor and all federal, state, and local laws and requirements would be observed. As a result, no adverse construction-related impacts to any environmental resource would occur under NEPA, and there would be no significant impacts under CEQA.

4.17.3.2 Refined Build Alternative

The following sections discuss temporary impacts from construction of the Refined Build Alternative organized by environmental discipline. Project and/or mitigation measures have been identified as applicable. The CEQA determination also is provided.

Land Use Plans and Policies Impacts

Construction would not result in any adverse changes to land uses along the project alignment or in areas immediately adjacent to the proposed stations. Construction activities between the Santa Fe Depot and La Jolla Colony Drive would not have adverse impacts to existing land uses because activities would occur within existing right-of-way (MTS, City of San Diego, or Caltrans) and would not require extensive long-duration construction activities.

Although substantial nighttime work may be required between the OTTC and La Jolla Colony Drive to reduce impacts to the LOSSAN tracks, most construction activities would occur during the day. Limited nighttime construction activities would be required near residential units in this area, which would not require temporary relocation of residents; thus, these impacts would not be adverse. Daytime construction activities near businesses, residences, and Marian Bear Memorial Park would increase ambient noise levels. However, the increase in noise levels would not be adverse.

North of La Jolla Colony Drive, the Refined Build Alternative alignment would be located outside of existing MTS right-of-way, with some portions within Caltrans right-of-way, some portions on the UCSD campus, and some portions within City of San Diego street rights-of-way (e.g., Genesee Avenue). In this segment, some construction activities, such as construction truck traffic, would temporarily impact nearby land uses, such as residences, schools, medical facilities, offices, and retail commercial uses. These temporary impacts typically would include constraints on vehicular access and parking, intermittent noise, and localized dust and particulate emissions. Construction of the aerial guideway across I-5 and along Genesee Avenue would require some nighttime roadway closures for construction. Nighttime construction work could result in adverse noise impacts during particularly loud activities, such as erecting falsework. This construction activity would occur on a limited number of nights near residents on Charmant Drive and at the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5, with a longer duration of nighttime construction activity anticipated along Genesee Avenue. These impacts are not anticipated to substantially alter or change existing land uses. Noise and air quality impacts and project measures and mitigation are described under the relevant headings in this section; transportation impacts are described in Section 3.4.7.

Construction staging areas would be needed throughout the study area, as shown on Figure 4-35. Temporary construction easements or rights-of-use would be required for approximately 2 years (3 years for the UCSD East Campus site); however, these temporary encroachments would not change existing land uses and thus would not result in an adverse impact. Upon completion of construction, contractors would vacate temporary staging areas and return them to their original uses. No businesses, residences, or other uses would be removed or displaced. As such, construction staging sites would not have an adverse impact on existing land uses. Figure 4-36 under the heading "Socioeconomic and Fiscal Impacts" shows the total estimated temporary encroachment acreage by land use type. Table 4-31 summarizes the temporary construction easements by number of parcels and acreage. The specific location, existing use, and size of the temporary construction easements are shown in the Final SEIS/SEIR Plan Set on the right-of-way plan sheets.

Table 4-31. Refined Build Alternative Temporary Construction Easements

Property	Number of Parcels	Acres
Refined Build Alternative		
Private Property		
Residential Subtotal	8	1.23
Commercial Subtotal	23	10.36
Places of Worship Subtotal	1	0.04
School – Private Subtotal	1	0.11
Hospital – Private Subtotal	1	0.40
Undeveloped Subtotal	1	0.35
Private Subtotal	**35**	**12.49**
Public Property		
Hospital – Public Subtotal	3	0.31
Open Space Subtotal	1	0.95
UCSD Subtotal	4	13.98
Public – Other Subtotal	4	0.80
Public Subtotal	**12**	**16.04**
Total for Refined Build Alternative	**47**	**28.53**

Source: SANDAG, 2014
Notes: [1] "Parcel Size" is generally based on data in the parcel list from Parcel Quest dated April 10, 2012. In some cases, however, the Parcel Quest data did not provide information about the total size of the parcel. In these cases, the size was estimated using GIS.
[2] The data are consistent with the Final SEIS/SEIR Plan Set, which includes right-of-way plans.
GIS = Geographic Information System; SEIS/SEIR = Supplemental Environmental Impact Statement/ Subsequent Environmental Impact Report; UCSD = University of California, San Diego

Mitigation Measures

Project construction would not result in adverse land use impacts; therefore, no mitigation is required. Project measures and mitigation for air quality and noise impacts are described under their respective sections below, while project measures and mitigation for transportation impacts are discussed in Section 3.4.7.

California Environmental Quality Act Determination

Would project construction substantially alter existing or planned land uses in the Mid-Coast Corridor?

Less-Than-Significant Impact (Refined Build Alternative). As described above, construction would not substantially alter land uses in the corridor and therefore impacts would be less than significant.

Community and Neighborhoods Impacts

Construction-related activities would be in close proximity to residential uses: Morena Boulevard between Clairemont Drive and Balboa Avenue; at La Jolla Colony Drive and Charmant Drive; at the northeast corner of Cape La Jolla Gardens housing complex along the west side of I-5; at the Sixth College area of UCSD; and along the east side of Genesee Avenue between Campus Point Drive and Eastgate Mall. The project's Transportation Management Plan would be designed to avoid detours that would encourage drivers to travel through adjacent communities and neighborhoods. A comprehensive Community Outreach Program would be developed prior to the start of construction activities to keep the community informed of construction activities. The program would also provide mechanisms (e.g., phone number and/or email address) for the community to comment on construction activities and directly report problems regarding construction activities. The nighttime noise impact in the University City community would remain adverse.

Construction activities would require the temporary relocation of the La Jolla Eruv boundary[16]. The La Jolla Eruv currently extends along the east side of the I-5 right-of-way and, because the project alignment crosses over I-5 and into the La Jolla Village Square shopping center parking lot, temporary relocation of the fencing along the right-of-way that serves as the *eruv* boundary likely would be required. In addition, the Refined Build Alternative would cross both Nobel Drive and La Jolla Village Drive in areas where monofilament line is used to demarcate the *eruv* boundary. To accommodate construction activities at these locations, poles and monofilament line representing the *eruv* boundary would be relocated temporarily in cooperation with representatives from Congregation Adat Yeshurun. As the boundary would be relocated in cooperation with the congregation, there would not be an adverse impact.

The use of a portion of Warren Field on the UCSD West Campus for construction staging would temporarily impact the use of that portion of the sports field. This would be a temporary impact to a portion of Warren Field. However, because of the limited and

[16] An *eruv* is an enclosure or boundary that traditionally observant Jewish communities construct in their neighborhoods as a way to permit the transference of objects from one domain type to another during the Sabbath, when the Jewish Torah prohibits carrying between public and private domains.

temporary nature of this impact and the availability of the remainder of the field for use, it is not considered adverse.

As described in Section 3.4.7.3, construction activities would require the temporary closure of several bicycle facilities, including the Rose Canyon Bicycle Path. With Mitigation Measure TCON1, this bike path would be re-routed on a temporary path around construction activities but may be temporarily subject to periodic closures of up to two weeks during certain phases of work on La Jolla Colony Drive and in the vicinity of SR 52. Notice of bike path closures would be made through the public outreach program, and detours would be signed. Additionally, the Ocean Beach Bicycle Path would be closed for several nights for the erection and removal of falsework for the San Diego River Bridge. During construction of the bridge, cyclists would need to dismount and walk their bikes below the falsework as there would be reduced vertical clearance. No detours of the Ocean Beach Bicycle Path are anticipated. Thus, impacts would result in some inconvenience, but connectivity of the Rose Canyon Bicycle Path and the Ocean Beach Bicycle Path would be maintained during the majority of the construction period and no adverse impact would occur with mitigation.

In the San Diego River and near other undeveloped areas along the alignment, homeless encampments may be located within the construction area. Typically these encampments do not contain large groups of people and are limited to individuals or small family groups. Due to the nature of these transient populations, it is not possible to predict the exact locations of these encampments, if they exist at all within the area affected by construction. Therefore an impact avoidance and minimization measure has been incorporated into the project in the event that the area of construction activity would require the removal of homeless encampments (as described in the following section). The measure would facilitate the provision of appropriate services or shelter, and there would not be an adverse impact.

Project Measures to Avoid or Minimize Impacts

To the extent possible, detours would not route non-local traffic through local streets in communities and neighborhoods that are adjacent to construction zones. Additionally, portions of the La Jolla Eruv boundary would be relocated temporarily in cooperation with representatives from Congregation Adat Yeshurun such that the ritual enclosure around the designated area would be maintained. The limits of the staging area on Warren Field would be fenced to ensure that activities within the staging area would not impact the remainder of the field.

Prior to the start of construction, a comprehensive Community Outreach Program would be developed with input from community members. Key elements would include a project website and newsletter and periodic meetings with community members to discuss construction activities.

The project would include fencing, natural barriers, and/or signs to preclude encroachments into the construction area. Any person or persons camped within the construction area would be notified to vacate and, if needed, removed. Persons requiring temporary shelter and/or social services would be directed to the City of San Diego Homeless Administrator regarding the city's Homeless Services program.

SANDAG would coordinate with the city prior to construction to advise them of the need for temporary shelter and services for homeless individuals within the project construction zone. Such services may be provided by the City of San Diego or an affiliate agency.

Mitigation Measures

With implementation of the project measures described above and the traffic control and public involvement plans and Mitigation Measure TCON1 as described in Section 3.4.7, construction would not result in adverse social, community, or neighborhood impacts.

California Environmental Quality Act Determination

Would project construction physically divide an established community?

Less-Than-Significant Impact (Refined Build Alternative). Project construction would not physically divide an established community. Construction work primarily would occur in existing rights-of-way. Vehicular and pedestrian detours would be provided and access to businesses, residences, and community facilities would be maintained, allowing individuals to continue to travel to destinations within each community.

Would project construction significantly impact a vulnerable population?

Less-Than-Significant Impact (Refined Build Alternative). As described under the Air Quality section below, construction of the project would result in significant impacts on air quality that cannot be mitigated. These air quality impacts could affect vulnerable members of the community, depending on their proximity to construction sites. However, the impacts would not be disproportionate in scope or severity with regard to vulnerable populations. Given the limited and regional nature of air quality impacts, they are not considered a significant impact to a vulnerable population.

Would project construction adversely impact existing religious or sacred uses?

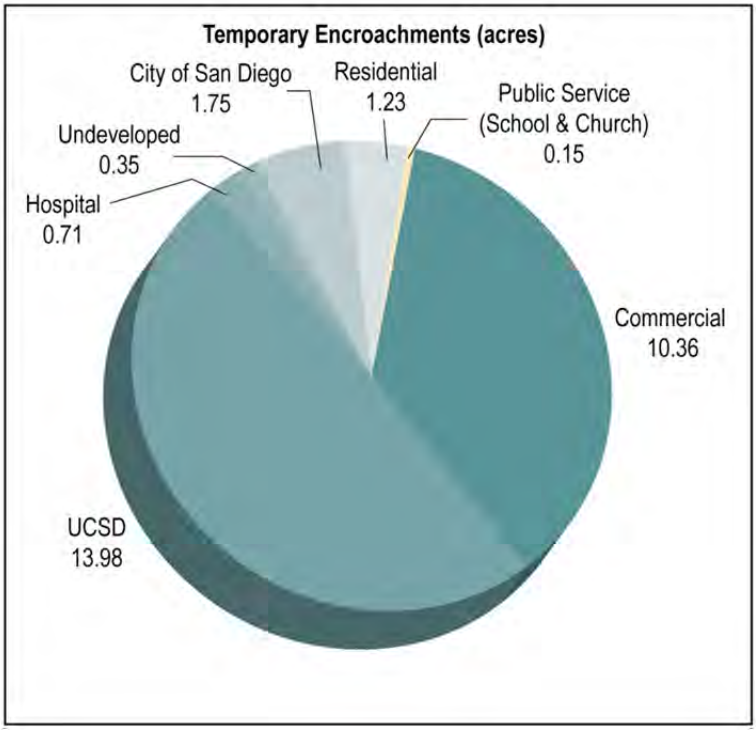
Less-Than-Significant Impact (Refined Build Alternative). As stated above, construction of the project would require the temporary relocation of the La Jolla Eruv boundary. The *eruv* boundary would be relocated temporarily in cooperation with representatives from Congregation Adat Yeshurun. Without this project measure, project construction has the potential to adversely impact existing religious or sacred uses because the La Jolla Eruv boundary could be removed, which could result in a significant impact. However, with the identified project measure, project construction would result in less-than-significant impacts on existing religious or sacred uses.

Socioeconomic and Fiscal Impacts

Property Acquisitions

Construction activities would require temporary encroachment on 47 parcels involving approximately 28.53 acres; 35 parcels are privately owned, totaling about 12.49 acres and the remainder are public (Table 4-31). The publicly owned parcels include those from the City of San Diego, the VA Medical Center, and UCSD. Figure 4-36 shows the total estimated temporary encroachment acreage by land use type. These parcels would return to their prior use upon expiration of the temporary use agreement or

Figure 4-36. Temporary Encroachment by Land Use Type



Source: SANDAG, 2014

easement. The project has been designed to minimize the number of temporary encroachments needed during construction. The *Mid-Coast Corridor Transit Project Property Acquisitions Impacts Technical Report* (SANDAG, 2014o) contains a detailed list of affected parcels.

Access and parking impacts to properties are discussed in Section 3.4.7. Businesses affected by temporary encroachments would be compensated, as appropriate, consistent with federal, state, and local regulations.

No adverse impact with respect to property acquisition is anticipated.

Fiscal

Construction impacts also include socioeconomic and fiscal effects. The U.S. Bureau of Economic Analysis Regional Input-Output Modeling System multipliers were used to estimate the direct and indirect impacts of project construction spending. By generating short-term employment, this spending would have a substantial beneficial effect on the regional and local economy. Table 4-32 provides the jobs impact of the Refined Build Alternative in person-years (i.e., the equivalent to the full-time employment of 1 person for 1 year; as an example, 50 person-years could be 25 people each working for 2 years, 10 people employed for 5 years, or 100 people working for 6 months).

Table 4-32. Employment, Earnings, and Output Generated by Construction-Phase Expenditures

Impact Category	Refined Build Alternative
Total Capital Cost (excluding right-of-way and finance)	$ 1,340,262
Jobs Created (in person-years of employment)	
Direct	8,508
Indirect and Induced	9,266
Total	**17,774**
Earnings (in thousands of 2013$)	
Direct	$ 498,723
Indirect and Induced	$ 400,096
Total	**$ 898,819**
Output (in thousands of 2013$)	
Direct	$ 1,340,262
Indirect and Induced	$ 1,347,239
Total	**$ 2,687,500**

Source: SANDAG, 2014
Note: All dollar amounts are in thousands of 2013 dollars and are not inflation-adjusted for year of expenditure.
Numbers may not sum due to rounding.

The average annual wage for jobs created by construction expenditures would be approximately $58,619 (in 2013 dollars). This is higher than the San Diego County mean annual wage of $50,800 (in 2011 dollars) (equivalent to approximately $52,636 in 2013 dollars, according to the Bureau of Labor Statistics Inflation Calculator). Overall, the average wage for all jobs created (direct, indirect, and induced) would be approximately $50,570 (in 2013 dollars). The indirect fiscal impacts associated with the project's wage generation during construction would include sales and income tax revenue increases. Therefore, there would be beneficial socioeconomic effects.

Construction would temporarily impact some commercial and industrial businesses, particularly those near or adjacent to construction sites. Impacts that could have an adverse economic impact include traffic disruption, reduced parking, increased noise and dust, and modified vehicular and pedestrian traffic patterns. Sidewalks may be obstructed temporarily and pedestrian traffic rerouted, thereby reducing direct access to businesses. Other business impacts could include reduced visibility of commercial signs and business locations. In particular, construction of the aerial guideway along the west side of I-5 and along Genesee Avenue would affect commercial signs on the La Jolla Village Square, the Shops at La Jolla Village, Costa Verde, and Westfield UTC shopping centers. At these locations, the contractor would be required to install temporary signage for businesses open during the construction period, as well as signage to direct vehicles to parking and/or access and provide pedestrian access routes. Additionally, construction traffic control plans would be designed to provide access to businesses during construction and would provide adequate signage to shopping centers and businesses.

As described in Section 3.4.7.4, a large number of parking spaces would be removed temporarily at the La Jolla Village Square shopping center and the UCSD campus, and temporary replacement parking may not be available to offset all the parking removed. Therefore, as described in Section 3.4.7.4, parking impacts would remain adverse at these locations.

Project Measures to Avoid or Minimize Impacts

To the extent possible, construction plans would minimize temporary encroachments and temporary impacts to parking spaces. Property owners would be compensated for temporary encroachments and associated business impact costs. Property and business owners affected by acquisitions and displacements would be compensated consistent with the Uniform Act, the California Act, and SANDAG Board Policy No. 021. Prior to termination of a temporary encroachment agreement or easement, the portions of properties acquired for temporary use would be returned to the condition prior to the start of construction activities or as agreed in the temporary use agreement.

In particular, construction of the aerial guideway along the west side of I-5 and along Genesee Avenue would affect commercial signs at the La Jolla Village Square, the Shops at La Jolla Village, Costa Verde, and Westfield UTC shopping centers. Along the west side of I-5 and along Genesee Avenue, the contractor would be required to install temporary signage for businesses open during the construction period, as well as signage to direct vehicles to parking and/or access and provide pedestrian access routes. However, as stated in Section 3.4.7.4, a large number of parking spaces would be removed temporarily during construction at the La Jolla Village Square shopping center. There is the likelihood that temporary replacement parking would not be available to offset all the parking removed. In these situations, parking impacts would remain adverse.

To minimize impacts on businesses during construction, the construction traffic control plans would be designed to provide access to businesses during construction and would provide adequate signage to shopping centers and businesses.

Mitigation Measures

Since no adverse property acquisition or fiscal impacts would occur with the incorporation of project measures, as discussed above, no mitigation measures are required. Refer to Section 3.4.7.4 for a discussion of project and mitigation measures that would minimize parking impacts.

California Environmental Quality Act Determination

Would the project construction result in the temporary displacement of occupants of either residential or commercial buildings?

Significant Impact (Refined Build Alternative). The project would require night-time construction and generate noise throughout the corridor. Nighttime construction would occur periodically for the Nobel Viaduct near residences along Charmant Drive and in the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5. Nighttime construction near residences along Genesee Avenue may continue intermittently for up to three years. Mitigation Measure CON2 would provide temporary relocation to an

approved hotel during nights where construction activities are anticipated to generate noise levels that exceed the ambient noise levels for that area by 5 dBA after implementation of project measures and other mitigation measures. This could constitute a temporary displacement. The relocation of residents to mitigate the noise impact would be less than significant because of its voluntary and temporary nature and because the relocation is not due to the temporary acquisition of properties. The construction noise impact is discussed further in the Noise and Vibration section below.

Visual Resources and Aesthetics Impacts

Construction activities would result in short-term visual impacts along the project alignment. Although these impacts would occur over the entire construction period, visual impacts would be localized to the areas of active construction and staging. Viewer responses to the construction activities are expected to differ from viewer responses to the completed structures. Construction activities are typically perceived as temporary, with the expectation that unsightly elements such as scaffolding and bulky equipment will be removed upon completion. Therefore, impacts associated with construction activities focus on the removal of visual resources, obstruction of vistas or scenic views, and introduction of sources of light and glare.

Construction would not result in adverse impacts on scenic resources or obstruct vistas or scenic views from a public place. Short-term visual impacts of the Refined Build Alternative would occur along the alignment right-of-way and at construction staging areas. Staging areas along the alignment north of La Jolla Colony Drive would produce new localized sources of light and glare. Nighttime work would require lighting and may cause light spillover and glare along the alignment, including along roadways and highways, and within staging areas. Vegetation along I-5 would be removed, which would temporarily change the visual quality of the area until replacement vegetation is planted.

Project Measures to Avoid or Minimize Impacts

Project specifications would require screening of construction zones and staging areas adjacent to residential neighborhoods; shielding light at construction zones and staging areas to minimize light and glare that might affect adjacent communities and neighborhoods, particularly in residential areas and on roads; minimizing light and glare into the night sky above the construction zone and staging areas; and restoring vegetated areas to previous conditions or as otherwise coordinated with property owners once those areas area no longer needed for construction.

Mitigation Measures

As project construction would not result in adverse visual impacts, mitigation is not required. Implementation of the design measures listed above would further reduce visual impacts during construction.

California Environmental Quality Act Determination

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

Less-Than-Significant Impact (Refined Build Alternative). As described above, construction activities are typically perceived as temporary, with the expectation that unsightly elements will be removed upon completion. During construction, many of the activities and temporary materials used may appear unsightly. In addition, highly visible construction equipment, such as cranes, would be visible along roadways, including from residential areas. The temporary falsework system would appear to be more visually prominent than the final form of the aerial structure or walls. These impacts would be less than significant; however, project specifications have been identified to further minimize temporary visual impacts.

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

Less-Than-Significant Impact (Refined Build Alternative). Nighttime construction activities would create new sources of light and glare and result in a significant impact on nighttime views in the area. However, project specifications would require shielding of light at construction zones and staging areas in residential areas and areas adjacent to native habitat areas. Additionally, the project would not introduce a new source of substantial light or glare during the day. With the identified project measures, project construction would result in less-than-significant impacts on day or nighttime views in the area.

Air Quality Impacts

The major sources of air pollutants during construction are emissions from diesel-fueled construction equipment, dust generated by mechanical disturbance, and windblown dust from exposed soil. The air pollutant generated in the largest quantity is particulate matter (both PM_{10} and $PM_{2.5}$). Particulate matter is a component of both construction dust and equipment exhaust, and is the primary air pollutant of concern during construction because of possible annoyances to the public. Particulate matter is also of concern because the project is located in a state nonattainment area for PM_{10} and $PM_{2.5}$.

Construction emissions were estimated based on the construction schedule, equipment usage (type and quantity), hours of operation, equipment horsepower, load factors, and utilization rates. Emissions from worker trips and material hauling, as applicable, were also quantified. Emission burdens from each activity were combined based on the construction schedule and compared to the applicable threshold levels. Emission factors from the CARB Off-Road 2011 Emission Database and from CARB's EMFAC2007 program were used to estimate air quality emissions generated from construction.

Table 4-33 and Table 4-34 present annual and daily estimated construction emissions, respectively. As shown in Table 4-34, thresholds for PM_{10} and $PM_{2.5}$ would not be exceeded. However, the project would exceed the daily SDAPCD and South Coast Air Quality Management District (SCAQMD) significance threshold for NO_X for the years 2014 through 2018.

Table 4-33. Annual Construction Emissions (Tons/Year)

Alternative	Year	NO_X	TOG	PM_{10}	$PM_{2.5}$	CO_2
Refined Build Alternative	2014	7	0.5	0.3	0.3	674
	2015	44	3.0	1.9	1.9	4,199
	2016	88	5.9	3.7	3.6	8,230
	2017	115	7.9	5.1	4.9	**10,687**
	2018	69	4.8	3.1	3.0	6,421
SCAQMD Significance Threshold		N/A	N/A	N/A	N/A	10,000*

Source: SANDAG, 2014s
Notes: * The greenhouse gas threshold is an interim threshold adopted by SCAQMD to apply to industrial facilities; as thresholds have not been adopted for transportation projects, this threshold was used (http://www.aqmd.gov/ceqa/handbook/signthres.pdf)
Values in **bold** are over SCAQMD Significance Thresholds
N/A = not applicable (annual thresholds have not been established); CO_2 = carbon dioxide; NO_X = nitrogen oxides; $PM_{2.5}$ = particulate matter equal to or smaller than 2.5 microns in diameter; PM_{10} = particulate matter equal to or smaller than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District; TOG = total organic gases

Table 4-34. Daily Construction Emissions (lbs/day)

Alternative	Year	NO_X	TOG	PM_{10}	$PM_{2.5}$	CO_2
Refined Build Alternative	2014	**155**	11	7	7	15,312
	2015	***332***	23	15	14	31,811
	2016	***667***	44	28	27	62,348
	2017	***873***	60	38	37	80,962
	2018	***519***	36	24	23	48,646
SCAQMD Significance Threshold		100	75	150	55	--
SDAPCD Significance Threshold		250	137	100	55	--

Source: SANDAG, 2014s
Notes: Values in **bold** are over SCAQMD Significance Thresholds
Values in ***bold*** and ***italics*** are over both SDAPCD and SCAQMD Significance Thresholds
CO_2 = carbon dioxide; NO_X = nitrogen oxides; $PM_{2.5}$ = particulate matter equal to or smaller than 2.5 microns in diameter; PM_{10} = particulate matter equal to or smaller than 10 microns in diameter; SCAQMD = South Coast Air Quality Management District; SDAPCD = San Diego Air Pollution Control District; TOG = total organic gases

Construction operations also are a source of GHG[17] emissions, typically as a result of construction equipment and increased traffic congestion. Annual emissions of CO_2, a GHG, would exceed SCAQMD thresholds in 2017 for the Refined Build Alternative.

Construction of the project is therefore expected to have adverse, although temporary, regional impacts, as NO_x emissions are of concern due to their role in regional ozone formation. Although considered adverse, air quality and GHG emissions during

[17] GHG include methane, chlorofluorocarbons, and CO_2. These gases act as a shield that traps heat in the earth's atmosphere and are thought to contribute to global climate change.

construction are temporary and would be offset by the overall reduction in air and GHG emissions that would result through implementation of the project.

Project Measures to Avoid or Minimize Impacts

During construction, the project would be required to comply with regional rules, which would help minimize substantial short-term air pollutant emissions. The regional and state rules and regulations include the following:

- SDAPCD Rule 12—Registration of Specified Equipment: Requires specific equipment to be registered and operated using specific fuels, equipment, and operating procedures (SDAPCD, 2011)
- SDAPCD Rule 54, Prohibition—Dust and Fumes: Requires that a person would not discharge in any one hour into the atmosphere from any source dust or fumes in excess of the amounts established under Rule 54 (SDAPCD, 2011)
- SDAPCD Rule 361.145—Asbestos Standard for Demolition or Renovation: Requires specific measures during the demolition or renovation of asbestos-containing buildings and structures (SDAPCD, 2011)
- CARB's Off-Road Diesel Vehicle Regulation: Imposes limits on idling, buying older off-road diesel vehicles, and selling vehicles; and institutes gradual requirements to clean up fleets by getting rid of older engines, using newer engines, and installing exhaust retrofits
- SANDAG would consult with SDAPCD regarding measures to minimize air pollutant emissions from construction.

Additionally the project would include the following BMPs:

- Minimize idle times of construction equipment
- Maintain equipment in good condition
- Control construction dust through watering of earthwork during grading activities

Detailed measures, such as minimizing equipment idle times, maintenance of equipment, and watering of earthwork to control dust, would be specified in the construction contract documents. The Construction Manager and SDAPCD would oversee and monitor the contractor's compliance with construction mitigation measures, rules, and regulations.

Mitigation Measures

The project measures and BMPs stated above would minimize air quality impacts during construction. However, even with these project measures and BMPs, emissions of NO_X and CO_2 would continue to exceed significance thresholds. No feasible mitigation has been identified beyond the project measures and BMPs and, therefore, depending on timing, emissions of NO_X would exceed SCAQMD and SDAPCD significance thresholds while CO_2 would exceed SCAQMD significance thresholds. Therefore, adverse impacts on air quality during construction would remain after mitigation.

California Environmental Quality Act Determination

Would the project during construction conflict with the adopted air quality plan and cause air quality to exceed regulatory thresholds?

Significant Impact (Refined Build Alternative). Construction of the project is expected to have significant, although temporary, impacts on air quality. Project measures and BMPs would minimize construction emissions. However, even with these measures, the SCAQMD and SDAPCD significance thresholds for NO_X and the SCAQMD significance thresholds for CO_2 are expected to be exceeded and the impacts would be considered significant and unavoidable.

Noise and Vibration Impacts

Project construction would require the use of heavy earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. In most areas, construction noise would occur for a limited period of time as the construction progresses along the linear corridor. At stations, park-and-ride lots, and major structures, including bridges and elevated viaducts, construction activities would be concentrated in the same area for longer periods of time. In the case of the Genesee Viaduct, which is the area that would experience the longest period of construction disturbance, construction noise would occur regularly over a period of approximately 3 years.

The majority of construction work would occur during daytime hours; however, as described in Section 3.4.7, substantial nighttime construction work would also be required to minimize impacts to vehicular and rail traffic. The duration of nighttime construction work would vary based on the construction activity, but would be longest along Genesee Avenue and through the LOSSAN corridor.

An assessment of the short-term construction noise and vibration impacts was conducted. The distance of the noise impact during construction would be dependent on a variety of factors—ambient noise, the type of construction activity, amount of shielding at the construction site, the nature of the environment in that location (amount and height of buildings, open space), and the time of day or night. In some places, construction noise may only affect sensitive receivers within 100 feet of the construction activity where in other places it could be more than 1,000 feet. Because general daytime construction activity would occur within 150 feet of sensitive land uses (e.g., student housing near Sixth Lane, La Jolla Country Day School, UCSD, and the Preuss School), daytime construction noise would result in an impact where construction noise levels exceed the City of San Diego Noise Ordinance average sound level limit of 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m.

Nighttime construction activity also would result in impacts because of the sensitivity of nearby persons in residences, nursing homes, hospitals, and similar land uses with nighttime sleep activities. Therefore, in locations where nighttime construction activity is required near sensitive land uses, this construction activity would result in increased noise levels and adverse impacts. Nighttime construction would occur at some locations in close proximity to existing residences. Because of heavy traffic or rail volumes, the construction activity within the LOSSAN corridor and for the I-5 crossing and Nobel Viaduct, UCSD Viaduct, and Genesee Viaduct would all include periods of nighttime

construction work over their construction schedules. When nighttime construction activity would exceed the noise level limit of 45 dBA established by the City of San Diego, the contractor would obtain a noise permit from the city.

Nighttime construction noise caused by traffic and construction activities would have impacts to residences along the north and east sides of Genesee Avenue, the east side of Charmant Drive, and in the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5. Nighttime construction along segments of Genesee Avenue in close proximity to residential units is expected to take up to three years, while nighttime construction activity near the residences along I-5 would occur intermittently for up to 30 nights. To the extent practicable, temporary sound walls would be constructed to reduce noise levels.

The project specifications would require the contractor to take all feasible and reasonable measures to reduce any construction noise during nighttime hours, such as temporary noise barriers, low emission construction equipment, and alternative construction methods that would generate lower noise levels. The contractor would be required to obtain a noise permit from the City of San Diego.

Construction activity can generate varying degrees of vibration, depending on the construction procedure and the construction equipment used. The primary concern regarding construction vibration relates to the risk of building damage. Activities that can result in damage include demolition and drilling in close proximity to sensitive structures. Construction vibration would result in an adverse impact without mitigation.

Project Measures to Avoid or Minimize Impacts

The following measures would be undertaken by SANDAG or the contractor to avoid or minimize noise impacts:

- Comply with all applicable noise regulations, including the City of San Diego Noise Ordinance (City of San Diego, 2010b). This may require that the contractor install temporary noise barriers at various locations along the rail track alignment and around station construction zones.
- Use specialty equipment with enclosed engines or high-performance mufflers when feasible.
- Locate equipment and staging areas away from noise-sensitive receivers and install temporary noise barriers where practicable.
- Limit unnecessary equipment idling.
- Follow the Transportation Management Plan (TMP) and reroute construction-related truck traffic away from residential streets to the extent allowable by local regulations.
- Establish the position of noise disturbance coordinator. The noise disturbance coordinator would be responsible for responding to any local complaints about construction noise. The noise disturbance coordinator would determine the cause of the noise complaint (e.g., starting too early, bad muffler, etc.) and would be required to implement reasonable measures such that the complaint is resolved.

Documentation of noise complaints and resolution of the complaint would be provided to SANDAG.

- Provide public notice to nearby residents prior to nighttime construction.
- Coordinate with the site administrators of nearby schools and other sensitive noise receptors to discuss construction activities that generate high noise levels. Coordination between the site administrators and the construction contractor would continue on an as-needed basis throughout the construction period to address potentially disruptive noise levels.

Mitigation Measures

Even with implementation of the project measures listed above, noise and vibration impacts would remain. The following mitigation measures are proposed to further minimize noise and vibration impacts:

CON1 The contractor would develop and implement a Noise Control Plan, approved by SANDAG prior to initiating construction. The plan would demonstrate how the contractor would reduce noise levels near sensitive noise receptors consistent with the city's Noise Ordinance. The plan would include analysis of construction noise based on measured background noise levels, a list of the major pieces of construction equipment that would be used, and predictions of the noise levels at the closest sensitive receivers (including residences, hotels, schools, churches, temples, and similar facilities where either outdoor or indoor activities would be sensitive to noise levels). The Noise Control Plan would include noise attenuation features as necessary, such as temporary sound walls, mufflers, and locating noisy equipment away from sensitive land uses. In addition, the plan would consider alternative construction methods when relevant.

CON2 To reduce nighttime noise impacts to sensitive receivers on Charmant Drive, in the Cape La Jolla Gardens housing complex adjacent to I-5, and along Genesee Avenue, the contractor would provide noise-reducing curtains or noise-masking machines where appropriate and approved by the occupant. Temporary lodging in an approved hotel would be offered by SANDAG to residents if, after implementation of noise-reducing measures, nighttime construction noise is predicted to exceed the ambient noise levels for that area by 5 dBA.

In areas where construction noise levels are less than 5 dBA above the ambient noise level for that area, noise-reducing curtains would eliminate the impact. For levels between 5 and 10 dBA above the ambient noise level for that area, a combination of curtains and noise-masking machines would be effective at reducing sleep disturbance for most residents. If residents are voluntarily relocated under CON2, no construction noise impacts would remain after mitigation. Implementation of project and mitigation measures would reduce short-term construction noise impacts to less than significant at all locations, except for nighttime noise impacts for residents who do not temporarily relocate.

CON3 During final design, and where permission can be obtained, a qualified structural engineer would survey the existing foundation and other structural aspects of buildings located within close proximity (25 to 100 feet depending on construction

activity and structure type) of the construction zone boundaries. Potholing or other non-destructive testing of the below-grade conditions may be necessary to establish baseline conditions. Depending on anticipated construction activities, the survey report would identify buildings that could be affected by construction vibration. The qualified structural engineer would document in the survey report baseline conditions at all buildings that may be affected by construction vibration.

The survey report would provide a shoring design to protect identified buildings from potential vibration damage. Alternatively, the structural engineer may recommend alternative construction methods that would produce lower vibration levels. Such measures would be implemented by the contractor at the direction of SANDAG and with the permission of the property owner.

With the implementation of Mitigation Measure CON3, vibration generated during construction would not result in damage risk to buildings.

California Environmental Quality Act Determination

Would project construction result in a substantial increase in existing ambient noise levels in the project vicinity above levels existing without the project?

Significant Impact (Refined Build Alternative). Some short-term impacts during construction would be significant. The noise levels generated by construction equipment would vary depending on several factors, including the type of equipment and the operation being performed. The Refined Build Alternative construction period is estimated to be approximately 4.5 years. Impacts associated with construction would be temporary and would occur in various locations within the corridor as construction progresses. Construction activities generally would be limited to an area within 50 feet of the tracks and stations, and would include various pieces of heavy equipment and numerous workers.

The construction of LRT guideways requires the use of heavy earth-moving equipment, pneumatic tools, generators, concrete pumps, and similar equipment. Construction activity typically would generate a noise level of approximately 86 dBA at 50 feet. The project would require drilled piles for foundation support. The typical noise level during drilling operations would be 85 dBA at 50 feet. The majority of construction activity would occur during the day or away from noise-sensitive land uses. Nevertheless, daytime construction activity would temporarily and intermittently increase ambient noise levels well above existing conditions at some residences within 150 feet of construction activity and at noise-sensitive land uses along Genesee Avenue (e.g., Preuss School). Nighttime construction also would be required for some construction activities near Charmant Drive, the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5, and along Genesee Avenue. These activities would have the potential to disturb residents. Construction activities would result in a substantial increase above existing ambient noise levels without implementation of project and mitigation measures, thus constituting a significant impact.

Would project construction expose people to noise levels that exceed the city's adopted noise ordinance or expose existing land uses to noise levels that are considered incompatible under the city's Noise Land Use Compatibility Chart?

Significant Impact (Refined Build Alternative). Some short-term impacts during construction would be significant. According to Section 21.04 of the San Diego Municipal Code, construction noise levels measured at or beyond the property lines of any property zoned residential should not exceed an average sound level higher than 75 dBA during the 12-hour period from 7:00 a.m. to 7:00 p.m. In addition, construction activity that would create disturbing, excessive, or offensive noise is prohibited between 7:00 p.m. of any day and 7:00 a.m. of the following day, or on legal holidays as specified, with the exception of Columbus Day and Washington's Birthday, or on Sundays. Construction noise that would exceed the above limits would result in significant impacts without implementation of project or mitigation measures. The construction contractor would be required to obtain a City of San Diego Construction Noise Permit and abide by the limits of the permit.

For some daytime construction activities, the 75-dBA standard could be exceeded at receivers located 150 feet or less from the noise source. Some nighttime construction could occur at some locations in close proximity to existing residences. The contractor would obtain a Construction Noise Permit, granted by the City of San Diego Noise Abatement and Control Administrator, for construction activities occurring after 7:00 p.m.

The permit would require that the contractor take all feasible and reasonable efforts to reduce construction noise during nighttime hours. Construction noise levels that exceed the average sound level limits of 75 dBA between 7:00 a.m. and 7:00 p.m. and any construction noise after 7:00 p.m. that exceeds the nighttime limits would result in a significant impact. New track construction would occur in close proximity to various schools, including UCSD and the Preuss School. School uses are sensitive to increased noise levels. Because typical construction activities would exceed 75 dBA, noise could interfere with learning activities and examinations. Construction noise at schools would result in significant impacts without implementation of the project and mitigation measures.

Would the project result in temporary construction noise that would interfere substantially with normal business communication or affect sensitive receptors, such as day-care facilities?

Significant Impact (Refined Build Alternative). Some short-term impacts during daytime construction would be significant if business communications are conducted outdoors. Although it varies with distance, background noises approaching 70 dBA typically make normal conversation difficult. Land uses within 300 feet could experience outdoor construction-related noise levels that exceed 70 dBA. In addition, construction noise would affect sensitive receptors such as residences and schools (e.g., Preuss School). Construction noise could interfere with normal business communication that must be conducted outdoors or affect outdoor educational activities and would result in significant impacts without implementation of the project and mitigation measures.

In summary, short-term construction noise impacts would result in significant impacts throughout the corridor. However, implementation of project and mitigation measures would reduce short-term construction noise impacts to less than significant at all locations except for nighttime construction noise impacts at Charmant Drive, in the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5, and along

Genesee Avenue. At these three locations, the impact would be significant when the noise levels could not be fully mitigated through the use of noise-reducing curtains and/or noise-masking machines, or temporary voluntary relocation of residents to a hotel. At other locations, there would be no significant impact.

Ecosystems and Biological Resources Impacts

Special-Status Plants

Short-term construction activities would result in the following impacts to special-status plant species:

- Removal of 107 of 600 individual San Diego sagewort, 11 of 56 individual southwestern spiny rush, and 2 of 456 individual decumbent goldenbush
- Loss of 2.85 acres of potentially suitable coastal sage scrub habitat for Robinson's pepper-grass and bottle liverwort

Because the majority of the observed individual San Diego sagewort (82 percent) and southwestern spiny rush (80 percent) in the study area would not be affected directly by construction and because these species have a relatively low level of rarity (CRPR 4), their removal as a result of construction would not have an adverse impact on the environment.

Construction impacts to 2 decumbent goldenbush individuals out of the 456 observed in the study area would not be adverse. Although decumbent goldenbush is a CRPR 1B.2 species, the number of individuals impacted relative to those that would be avoided within the study area is negligible.

Vegetation clearing during construction would remove coastal sage scrub (including disturbed coastal sage scrub) considered to be potentially suitable habitat for Robinson's peppergrass (CRPR List 1B.2 species, moderate potential to occur) and bottle liverwort (CRPR List 1B.1 species, moderate potential to occur). However, the majority of the affected habitat would be located within the existing MTS right-of-way or immediately adjacent to it, where substantial populations of either species are unlikely to occur given existing levels of disturbance, and where larger patches of adjacent habitat would not be impacted. Impacts to coastal sage scrub would be limited to narrow strips along the MTS right-of-way, in the vicinity of Rose Creek. The removal of potentially suitable habitat for Robinson's pepper-grass and bottle liverwort, and the potential loss of individuals that could occur, would not have an adverse impact.

During construction, dust, erosion, and runoff could indirectly affect special-status plant species observed or with a moderate potential to occur in adjacent habitat areas, including decumbent goldenbush, San Diego sagewort, southwestern spiny rush, and Southern California black walnut, a CRPR 4.2 species. However, standard construction BMPs would be implemented to minimize these effects. Specific BMPs and mitigation measures associated with construction dust, erosion, and runoff are described in detail below. Therefore, dust, erosion, and runoff generated by construction of the project would not have an adverse impact on plants.

No plant species listed or proposed as federally threatened or endangered would be affected as a result of construction.

Special-Status Wildlife

Construction would result in the following short-term impacts to special-status wildlife:

- Temporary loss of 7.16 acres of habitat (4.1 acres of wetlands, 2.85 acres of Tier II, and 0.21 acre of Tier III vegetation) used by a number of special-status wildlife species would occur (Section 4.8 provides additional information on these vegetation communities and special-status plant and wildlife species).
- Coastal sage scrub areas that may support coastal California gnatcatcher and other special-status species would be temporarily impacted during construction. These areas are located entirely within or along the existing MTS right-of-way or on the UCSD campus and surrounded by developed land uses. Temporary impacts include approximately 0.23 acre of coastal sage scrub within the MHPA along Rose Creek to the north and south of SR 52.
- Impacts to 2.13 acres of potentially suitable riparian habitat for least Bell's vireo and southwestern willow flycatcher could occur if either species occupies the area prior to construction.
- During the nesting season, generally between February 15 through August 31 for most species, and January 15 through August 31 for raptors, vegetation clearing, ground-disturbing activities, and disturbance of non-native or man-made nesting habitats associated with construction could directly impact nesting special-status birds (Cooper's hawk, yellow warbler, white-tailed kite, and yellow-breasted chat) and other species protected under the federal MBTA.
- Modification of approximately 130 feet of the existing bridge for the Trolley Green Line adjacent to the southern abutment at the San Diego River could directly impact roosting western mastiff bats, a California species of special concern, if present within cracks and weep holes along the underside of the bridge. The western mastiff bat has the potential to occur in the area and is known to use man-made structures. After mitigation, which includes avoidance of the breeding season (if feasible), installation of temporary and humane exclusionary devices, a pre-construction survey, and implementation of a 300-foot buffer from active maternity roosts if found, impacts to roosting western mastiff bat and potential roost sites would be not be adverse.
- Effects could occur to observed species nesting in the study area and additional special-status bird species with a moderate potential to occur in the study area.
- Vegetation clearing activities within riparian habitat could directly impact roosting western red bat, a California species of special concern. However, there is a low probability that breeding females roosting with young would occupy the project area.

Construction activities are not expected to cause vibration impacts to foraging, nesting, or reproductive activities. Vibration-causing activities, if any, would persist for a short duration and would occur near bridges during the initial stages of construction. Dust, erosion, and runoff would be controlled by implementation of project BMPs and are not

expected to have an adverse impact on special-status wildlife. Construction would result in short-term noise impacts in adjacent habitat areas, which can disrupt foraging, nesting, and reproductive activities in breeding birds. Native habitat areas adjacent to the project alignment with the potential to support special-status breeding bird species are present in the San Diego River, in Rose Creek, and in upland areas adjacent to Rose Creek. Existing ambient noise levels associated with freeway traffic and other nearby sources at these locations are relatively high.

Where habitat occupied by the coastal California gnatcatcher, least Bell's vireo, or southwestern willow flycatcher is present within 500 feet of construction, construction-related noise could have substantial adverse impacts on these species during the breeding season. However, potential indirect impacts from construction noise would be mitigated through breeding season avoidance if feasible, and by maintaining construction-related noise in occupied habitat within 500 feet of project construction at or below 60 dBA L_{eq}, or existing ambient conditions, whichever is greater. If necessary, noise attenuation measures, such as temporary sound walls, would be implemented. With these proposed measures, potential indirect impacts to the coastal California gnatcatcher, least Bell's vireo, and southwestern willow flycatcher from noise during construction would not be adverse. Additionally, with mitigation, construction-related noise levels in the adjacent areas would not substantially increase ambient noise levels during the breeding season; therefore, potential indirect impacts to most special-status wildlife species from noise during construction would not be adverse.

During construction, dust could indirectly impact the pool in which two male San Diego fairy shrimp were observed (Basin BB). However, this pool is located outside of the disturbance footprint of the project, approximately 72 feet west of the project alignment (centerline of the southbound track), and the pool would not be directly impacted. Because of the location of the project on the opposite side of the existing tracks (i.e., to the east), and the position of the occupied fairy shrimp basin below and to the west of the existing tracks, the occupied fairy shrimp basin and basin watershed are not expected to be affected by erosion and/or runoff during construction.

During construction, replacement of the existing 700-foot-long concrete-lined channel portion of Rose Creek at the SR 52 and I-5 interchange would limit access to the channel and portions of the adjacent upland areas. As a result, the occasional use of the area for wildlife movement by nocturnal species, such as coyote, raccoon, and skunk, could be affected. However, the adjacent disturbed upland areas would remain accessible during construction and would allow limited wildlife movement through the area. With the use of shielded lights for nighttime security lighting in the area, the occasional use of the area by coyote and other species is not expected to be substantially affected. In addition, because the potential for aquatic or semi-aquatic species to use the existing concrete-lined channel is low, project construction is not expected to affect aquatic or semi-aquatic species that may occur in Rose Creek. Short-term construction impacts to wildlife corridors and habitat linkages, therefore, would not be adverse.

Although some individuals could be directly affected and all or portions of some territories and home ranges could be temporarily lost, the number of individuals within

the 7.16 acres of affected habitat would represent a small percentage of the local population. The 7.16 acres of affected habitat consists predominantly of small patches along the edges of existing MTS, LOSSAN, and I-5 rights-of-way and urbanized areas. In addition, the overall temporary impacts to 2 percent of the wetlands, Tier II, and Tier III vegetation communities within the study area would be small relative to the available habitat in the study area. For these reasons, impacts to ground-dwelling special-status wildlife species and their habitats would be not be adverse.

Because of the small percentage of habitat affected, special-status wildlife would not be adversely affected with implementation of the mitigation measures to avoid construction activities during the breeding season if nesting birds are found (as described below) and the implementation of BMPs.

Vegetation Communities

Project construction would result in the temporary loss of 7.16 acres of wetlands, Tier II, and Tier III vegetation communities, considered sensitive natural communities by the City of San Diego (2011a). The affected vegetation communities would be confined to areas immediately adjacent to the existing MTS right-of-way and on the UCSD campus and would represent a temporary loss of vegetation communities in the study area. This impact would be adverse because it would affect riparian and wetland habitats and other sensitive natural communities identified by the city.

Construction activities would cause the temporary loss of the following sensitive natural communities, including wetland and riparian communities:

- Wetlands: 4.1 acres of construction impacts
- Tier II: 2.85 acres of construction impacts
- Tier III: 0.21 acre of construction impacts

Construction impacts to sensitive vegetation communities could result from adverse "edge effects," which occur along the development–preservation interface. Edge effects could include dust, which could disrupt adjacent plant vitality in the short-term, or soil erosion and surface-water runoff. Implementation of project BMPs to control dust and erosion would reduce impacts to vegetation communities such that any impacts would not be adverse.

Jurisdictional Aquatic Resources

The project would result in construction-related impacts to wetland and non-wetland waters under the jurisdiction of the USACE and the RWQCB pursuant to the federal Clean Water Act, and streambed and associated riparian areas under the jurisdiction of the CDFW pursuant to Section 1602 of the California Fish and Game Code. In addition, the project would impact CCC-defined coastal wetlands. A total of 2.64 acres of USACE and RWQCB jurisdictional areas (1.51 acre of wetland and 1.13 acre of non-wetland waters) 4.08 acres of CDFW and City of San Diego jurisdictional areas (2.87 acres of riparian areas and 1.21 acres of streambed), and 0.66 acre of coastal wetlands would be affected temporarily by construction-related ground disturbance or vegetation removal of long, narrow strips along the project alignment at the San Diego River, Tecolote Creek,

and Rose Creek, including Arundo-dominated riparian, southern willow scrub (including disturbed), southern riparian forest, disturbed wetland, mulefat scrub, nonvegetated channel or floodway, and disturbed herbaceous wetland.

Project Measures to Avoid or Minimize Impacts

During final design, the project's construction footprint would be further reviewed and, where possible, the footprint would be minimized to reduce impacts to wetlands and vegetation. Where construction occurs adjacent to sensitive biological resources, the limits of construction would be visibly delineated through brightly colored fencing or other highly visible means. Construction crews would be directed not to encroach beyond the limits of construction. BMPs, as described under the "Air Quality" and "Water Resources" sections, would minimize dust, erosion, and runoff generated by construction activities. To reduce impacts to nocturnal species, nighttime construction activity would be minimized whenever feasible and shielded lights would be used for nighttime security lighting in the area.

During construction, a biological monitor would be present to assist in the avoidance of impacts to native vegetation, jurisdictional aquatic resources, special-status plants and wildlife, and nesting birds. Activities and impacts would be recorded in a daily monitoring log. Specific biological monitoring and/or mitigation measures for nesting birds, bats, vegetation communities, and jurisdictional aquatic resources are described below. In addition to the specific biological monitoring requirements and mitigation measures outlined below, general biological monitoring would include verifying that the contractor has covered all steep-walled trenches or excavations used during construction at all times, except when being actively used. If trenches or excavations cannot be covered, the monitor would verify that the contractor has installed exclusionary fencing (e.g., silt fence) around the trenches or excavation areas, if feasible, to prevent entrapment of wildlife (e.g., reptiles and mammals). Open trenches, or other excavations that could entrap wildlife, would be inspected periodically by the biological monitor. If animals are encountered within any trenches or excavated areas, they would be removed by the biological monitor, if possible, or provided with a means of escape (e.g., a ramp or sloped surface) and allowed to disperse. In addition, the biological monitor would provide training to construction personnel to increase awareness of the possible presence of wildlife beneath vehicles and equipment and use best judgment to avoid killing or injuring wildlife. The biological monitor would be available to assist with moving wildlife, if necessary.

The light-footed clapper rail has not been observed in the study area and available suitable habitat in the project study area within the San Diego River is of marginal quality. However, during construction, a movement corridor for light-footed clapper rail would be maintained along the San Diego River main channel to allow clapper rails to move through the construction area, if present. The movement corridor would include exclusionary fencing along the project limits on both sides of the flow channel to prevent clapper rails from entering construction areas, if present.

Indirect construction impacts to the San Diego fairy shrimp in Basin BB would be avoided through the designation of a buffer. The buffer, to be developed in consultation with the USFWS and CCC, would be established to prevent construction from indirectly affecting the pool and its associated watershed.

To prevent the introduction of invasive plant species, construction vehicles and equipment would be washed prior to working in areas where sensitive vegetation communities are present adjacent to the project.

Mitigation Measures

With incorporation of the construction mitigation measures described below, there would be no adverse impacts.

Special-Status Wildlife

CON4 Biologists would conduct nesting bird surveys not more than 72 hours prior to initiating construction-related ground-disturbing activities (i.e., grading or ground-clearing activities) during the breeding season (February 15 through August 31 for most species, and January 15 through August 15 for raptors, or as determined by a qualified biologist). Biologists would determine if active nests of special-status birds or bird species protected by the MBTA and/or the California Fish and Game Code 3503 are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone during the nesting/breeding season of native bird species potentially nesting on the site. Despite the lack of native habitat, similar pre-construction nesting bird surveys would be conducted at the four TPSSs located outside of the biological study area to the south of the OTTC to ensure the avoidance of native birds potentially nesting in urbanized areas. If ground-disturbing activities are delayed, then additional pre-disturbance surveys would be conducted such that no more than 72 hours would have elapsed between the survey and the initiation of ground-disturbing activities.

CON5 If biologists find an active nest of a native bird species, then vegetation clearing, ground-disturbing activities, and construction equipment that generates high noise or vibration levels would cease and be postponed or halted at the discretion of the biologist in consultation with the CDFW. This work cessation would be effective within a buffer area from the nest at a distance appropriate to the sensitivity of the species and the distribution of the surrounding habitat (typically 300 feet for most species, up to 500 feet for raptors—the area may vary depending on the types of vegetation surrounding the nest). Construction work would not resume until the biologist has determined that the nest is no longer active, the juveniles have fledged, and there is no evidence of a second attempt at nesting. Alternatively, a qualified biological monitor would be present full-time while construction is occurring within the buffer area to observe the nesting birds and would have the authority to halt or redirect construction if the birds exhibit signs of distress. Limits of construction around active nests would be established in the field with flagging, fencing, or other appropriate barriers; and construction personnel would be informed about the sensitivity of nest areas. The biologist would serve as a construction monitor during those periods when construction activities would occur near active nest areas to ensure that no inadvertent impacts to nesting birds occur.

CON6 Vegetation clearing within suitable western red bat habitat would be avoided during the maternal roost season (May through August, or as determined by a qualified biologist) where feasible. Pre-construction surveys for roosting western red bat would be conducted within suitable habitat if construction would occur

within or adjacent to suitable roost sites during the maternal roost season. If a roost is detected, passive exclusion would include monitoring the roost for three days to determine if the roost is vacated. If the roost is determined to support a reproductive female with young, the roost would be avoided until it is no longer active. If the roost remains active within the three monitoring days and supports a dispersing male but no breeding female or young, the foliage of the tree would be trimmed after the male has left the roost at dusk. The tree would be monitored again the following evening after the foliage has been trimmed to determine if any activity remains at that roost location. If there is no activity, the tree would be removed. If it cannot be determined whether an active roost site supports breeding females or males, the roost site would not be disturbed and construction within 300 feet would be postponed or halted until the roost is vacated and the young are volant.

CON7 Focused surveys for the western mastiff bat maternity roosts would be conducted in the summer (May through August, or as determined by a qualified biologist) prior to construction, if feasible.

Pre-construction surveys would be conducted by a qualified biologist no earlier than 30 days prior to initiation of bridge modification activities if summer surveys in advance of construction are infeasible, Pre-construction surveys would include the bridge section planned for modification and would be conducted using visual search and ultrasonic recording devices to determine if active roosts of the western mastiff bat are present on or within 300 feet of the bridge section subject to modification. These surveys would concentrate on the periods when roosting bats are most detectable (i.e., when leaving the roost between one hour before sunset and two hours after sunset) and take place over a period of three to five days.

CON8 Temporary and humane exclusionary devices would be installed in the fall (September or October) preceding construction at those locations where summer surveys detected an active maternity roost for the western mastiff bat to avoid potential direct impacts. Prior to any exclusion measures being implemented to prevent bats from using an existing roost habitat, a qualified bat biologist would survey (e.g., visually and using an ultrasonic device to record bat calls in concert with sonogram analysis software) and identify nearby alternative maternity colony roost sites. If any supplemental measures must be implemented to ensure successful exclusion of bats from an existing roost and/or the identification of alternative roosting habitat, all related assessments and monitoring must be conducted by a qualified bat biologist, with biological monitoring reports and findings provided to the CDFW.

If construction activities must occur during the summer and pre-construction surveys have identified an active western mastiff bat maternity roost, the roost would not be disturbed and construction within 300 feet would be postponed or halted until the roost is vacated and juveniles have fledged.

If construction activities must occur when bats are active and pre-construction surveys have identified non-breeding bat hibernacula in portions of the Trolley Green Line Bridge subject to disturbance from bridge modification activities, the individuals would be safely evicted under the direction of a qualified bat biologist using appropriate means acceptable to the resource agencies (e.g., installation

of one-way doors, foam filling of roosting locations when bats are not present, or plastic sheeting hung vertically). In situations requiring one-way doors, a minimum of one week would pass after doors are installed prior to concluding that the roost has been vacated. During this time, temperatures should be sufficiently warm for bats to leave the roost because bats do not typically leave their roost daily during winter months or on unseasonably cold nights in southern coastal California. In situations where the use of one-way doors is not necessary in the judgment of the qualified bat biologist, roosts that need to be removed would first be disturbed at dusk by various means at the direction of the bat biologist to allow bats to escape during the darker hours and access to the roost site would be excluded the next day (i.e., there would be one night between initial disturbance and exclusion of the roost site).

These actions should allow bats to leave during nighttime hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight (Bat Conservation International, 2009).

Vegetation Communities

CON9 Temporary impacts to wetland vegetation communities would be mitigated at a 1:1 ratio, as shown in Section 4.8, Table 4-19, Table 4-20, and Table 4-21. The location and configuration of wetland vegetation communities within restoration areas in the San Diego River and Rose Creek would be adjusted to ensure that restored areas beneath bridges are limited to wetland communities that can tolerate reduced sunlight availability.

Based on the presence of wetland vegetation communities under existing bridges over the San Diego River and Rose Creek, similar communities, including cismontane alkali marsh, mulefat scrub, and in some cases southern willow scrub, would be planted under the proposed bridges. Restored areas adjacent to the proposed bridges and that are not subject to long-term shading would be revegetated primarily with southern willow scrub.

For temporary construction impacts to wetland vegetation communities, 4.11 acres of mitigation are proposed that would involve restoring construction areas to pre-existing contours and vegetation communities. Of the 4.11 acres of mitigation for short-term construction impacts to wetland vegetation communities, approximately 0.89 acre of the restored areas would be located beneath the proposed bridge crossing in the San Diego River and three crossings over Rose Creek.

CON10 Impacts to Tier II (coastal sage scrub) and Tier IIIB (non-native grasslands) vegetation communities would be mitigated according to the mitigation ratios shown in Section 4.8, Table 4-19, Table 4-20, and Table 4-21.

For short-term construction impacts to Tier II and Tier IIIB vegetation communities within the MHPA, 0.23 acre of mitigation is proposed. For short-term impacts to Tier II and Tier IIIB vegetation communities outside the MHPA, 4.13 acres of mitigation are proposed if the mitigation occurs outside the MHPA, and 2.68 acres of mitigation are proposed if the mitigation occurs within the MHPA.

Jurisdictional Aquatic Resources

CON11 Temporary impacts to jurisdictional aquatic resources would be mitigated at a minimum 1:1 ratio through on-site restoration, subject to approval by the USACE, RWQCB, CCC, and CDFW during the permitting process. On-site restoration would include the restoration of pre-existing contours, elevations, and vegetation communities within areas temporarily disturbed as a result of construction activities in the San Diego River, Tecolote Creek, and Rose Creek. The location and configuration of wetland communities within restoration areas in the San Diego River and Rose Creek would be adjusted to ensure that restored areas beneath bridges are limited to wetland communities that can tolerate reduced sunlight availability.

Based on the presence of wetland communities under existing bridges over the San Diego River and Rose Creek, similar communities, including cismontane alkali marsh, mulefat scrub, and in some cases southern willow scrub, would be planted under the proposed bridges. Restored areas adjacent to the proposed bridges and that are not subject to long-term shading would be revegetated primarily with southern willow scrub.

A total of 2.64 acres of USACE/RWQCB jurisdictional wetland and non-wetland waters, 4.08 acres of CDFW and City of San Diego jurisdictional streambed and associated riparian areas, and 0.66 acre of CCC wetlands would be restored as mitigation for temporary impacts, as shown in Table 4-22.

Indirect Construction Impacts to Coastal California Gnatcatcher

CON12 Construction-related noise levels in coastal California gnatcatcher occupied habitat within 500 feet of construction activity would not exceed 60 dBA L_{eq} or pre-construction ambient noise levels, whichever is greater, during the breeding season. Project construction within 500 feet of occupied habitat would occur outside of the breeding season if possible. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project, or noise attenuation measures, such as temporary sound walls, would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater.

Indirect Construction Impacts to Least Bell's Vireo and Southwestern Willow Flycatcher

CON13 To avoid potential adverse impacts to least Bell's vireo and southwestern willow flycatcher from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season if feasible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA L_{eq} or pre-construction ambient noise levels, whichever is greater. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project or noise attenuation measures would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater.

Light-footed Clapper Rail

CON14 To avoid potential adverse impacts to light-footed clapper rail from construction-related noise, project construction within 500 feet of occupied habitat would be timed to occur outside of the breeding season if possible. If project construction within 500 feet of occupied habitat must occur during the breeding season, construction-related noise within the occupied habitat areas would not exceed 60 dBA L_{eq} or pre-construction ambient noise levels, whichever is greater. If necessary, construction activities during the breeding season would be managed to limit noise levels in occupied habitat within 500 feet of the project or noise attenuation measures would be implemented to reduce noise levels below 60 dBA L_{eq} or below existing ambient noise levels, whichever is greater.

California Environmental Quality Act Determination

Would project construction result in short-term substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species?

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). Habitat modifications during construction would have significant impacts, but they would be reduced to less than significant with mitigation.

Special-Status Plants

Construction activities would result in the direct removal of CRPR 4.2 San Diego sagewort and CRPR 4.2 southwestern spiny rush and potentially suitable habitat for CRPR 1B.2 Robinson's pepper-grass and CRPR 1B.1 bottle liverwort. No plant species listed or proposed as federally threatened or endangered would be affected as a result of construction activities. Because the majority of the observed individuals of San Diego sagewort and southwestern spiny rush would not be directly impacted from construction activities and they have a relatively low level of rarity, impacts would be less than significant. Additionally, there would be less-than-significant impacts on Robinson's pepper-grass and bottle liverwort because the affected habitat is located within the existing MTS right-of-way or immediately adjacent to it, where substantial populations of either species are unlikely to occur.

During construction, dust, erosion, and runoff could indirectly impact special-status plant species observed or with a moderate potential to occur in adjacent habitat areas. However, construction BMPs and mitigation measures would be implemented to minimize these significant impacts. For this reason, indirect impacts to the species listed above would be less than significant.

Special-Status Wildlife

During construction, the project would require the direct removal of 4.1 acres of wetland vegetation, 2.85 acre of Tier II vegetation, and 0.21 acre of Tier III vegetation, resulting in a temporary loss of habitat for special-status wildlife species. Construction activities involving ground disturbance and vegetation clearing in wetlands, Tier II, and Tier III vegetation communities also could directly impact special-status ground-dwelling species (e.g., rodents, reptiles, and amphibians). Impacts to ground-dwelling special-

status wildlife species would be less than significant because the number of individuals within the 7.16 acres of affected habitat would represent a small percentage of the local population and the overall temporary impacts to 2 percent of the wetlands, Tier II, and Tier III vegetation communities within the study area would be small relative to the available habitat in the study area.

Ground improvements associated with bridge construction at the San Diego River and in Rose Creek would result in short-term construction vibration in adjacent native habitat areas that could affect ground-dwelling special-status species. Impacts would be less than significant since the extent and duration of vibration would be limited to the immediate vicinity of construction and would persist for only a short duration.

During the bird-breeding season, construction activities could directly impact nesting special-status birds and species protected under the federal MBTA. Mitigation measures, including breeding season avoidance and pre-construction surveys during the nesting season, would minimize or avoid impacts and, therefore, impacts to nesting birds would be less than significant with mitigation.

Vegetation clearing activities within riparian habitat also could directly impact roosting western red bat, a California species of special concern. However, there is a low probability that breeding females roosting with young would occupy the project area. Modification of approximately 130 feet of the existing bridge for the Trolley Green Line at the San Diego River could impact bats potentially roosting within cracks in the structure. The western mastiff bat has potential to occur in the area and is known to use man-made structures. After mitigation, which includes a pre-construction survey and a 300-foot buffer around active maternity roosts if found, impacts to western mastiff bats would be reduced to less than significant.

Implementation of the project would result in construction noise in adjacent habitat areas, which can disrupt foraging, nesting, and reproductive activities in special-status breeding birds. However, given existing ambient noise levels, short-term indirect impacts from construction-related noise during the breeding season would be less than significant.

Project construction in the vicinity of occupied habitat may have adverse indirect impacts on the coastal California gnatcatcher if construction occurs during the breeding season from February 15 through August 31 for most species, and January 15 through August 15 for raptors. However, with the implementation of breeding season avoidance, noise minimization, and/or noise attenuation measures, potential short-term indirect impacts to the coastal California gnatcatcher as a result of construction noise would be less than significant.

Because the ephemeral Basin BB in which San Diego fairy shrimp were observed and the associated microwatershed are located outside the disturbance footprint of the project, implementation of the project would have no impact on San Diego fairy shrimp.

Would project construction result in short-term substantial adverse effects on Tier I, Tier II, Tier IIIa, or Tier IIIb habitats, or other sensitive natural community?

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). Project impacts during construction would have significant impacts, but they would be reduced to less than significant with mitigation.

Construction access and staging areas, installation of falsework, and the completion of ground improvements at bridge crossings and elevated portions of the alignment would require the direct removal of 7.16 acres of wetlands, Tier II, and Tier III vegetation communities. According to the *CEQA Significance Determination Thresholds* (City of San Diego, 2011a), lands containing wetlands, Tier II, and Tier III vegetation communities are considered sensitive habitats. The affected vegetation communities would be confined to areas immediately adjacent to the existing MTS right-of-way and would represent a temporary loss of vegetation communities in the study area. As project construction is anticipated to occur over a 4.5-year period, the duration of temporal loss of vegetation communities could be 4.5 years or longer depending on the time required to restore vegetation to pre-construction conditions. Impacts to these resources would be mitigated at a minimum 1:1 ratio. Therefore, with the implementation of mitigation, short-term impacts to sensitive natural communities during construction would be less than significant.

Would project construction result in a short-term substantial adverse impact on wetlands?

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). Project impacts during construction would have potentially significant impacts, but they would be reduced to less than significant with mitigation. Construction would impact jurisdictional aquatic resources under the jurisdiction of the USACE and RWQCB, the CDFW, the City of San Diego, and the CCC. During construction, temporary impacts to jurisdictional aquatic resources would result from falsework installation, ground improvements, staging areas, and haul routes associated with bridge construction. A total of 2.64 acres of USACE and RWQCB jurisdictional areas, 4.08 acres of CDFW-only/City of San Diego jurisdictional areas, and 0.66 acre of CCC wetlands would be affected temporarily, including Arundo-dominated riparian, southern willow scrub (including disturbed), southern riparian forest, disturbed wetland, mulefat scrub, and non-vegetated channel or floodway, and disturbed herbaceous wetland. Construction impacts to jurisdictional aquatic resources would be mitigated at a minimum 1:1 ratio through restoration of affected areas to pre-construction vegetation and contours. Therefore, with implementation of mitigation, construction impacts to jurisdictional aquatic resources would be less than significant.

Would project construction result in a short-term substantial interference with the movement of any native resident or migratory fish or wildlife species or their wildlife corridors?

Less-Than-Significant Impact (Refined Build Alternative). During construction, installation of the proposed concrete-lined open channel and removal of the existing 700-foot-long concrete-lined trapezoidal channel portion of Rose Creek at the SR 52 and I-5 interchange would limit access to the channel and portions of adjacent upland areas. As a result, the occasional use of the area for wildlife movement by nocturnal species such as coyote, raccoon, and skunk could be affected. However, the Rose Creek Bicycle Trail and adjacent

disturbed upland areas would remain accessible during construction and would allow limited wildlife movement through the area. Without the project measures described above, impacts to nocturnal species due to nighttime construction activities could be significant. However, by minimizing nighttime construction activity whenever feasible and using shielded lights for nighttime security lighting in the area, the use of the area by nocturnal species is unlikely to be significantly affected and would be less than significant. In addition, because the potential for aquatic or semi-aquatic species to use the existing concrete-lined channel is low, project construction is not expected to affect aquatic or semi-aquatic species that may occur in Rose Creek. Therefore, impacts to wildlife corridors and habitat linkages would be less than significant.

Would the project construction result in adverse edge effects?

Less-Than-Significant Impact (Refined Build Alternative). Construction impacts to sensitive vegetation communities could result from adverse "edge effects," which occur along the development–preservation interface. During construction, edge impacts could result from dust, which could disrupt adjacent plant vitality in the short-term, from soil erosion and water runoff, or the introduction of invasive plant species via the transport of seeds or other plan propagules on construction vehicles and equipment. Because portions of the project are entirely within existing MTS right-of-way, these areas already are subject to adverse edge effects that may include noise and lighting associated with current rail service operations. Standard construction BMPs and construction mitigation measures to control dust, erosion, and runoff would be implemented. In addition, to prevent the introduction of invasive plant species, construction vehicles and equipment would be washed prior to working in areas where sensitive vegetation communities are present adjacent to the project. Therefore, short-term construction impacts related to edge effects would be less than significant.

Water Resources Impacts

Earth-disturbing construction activities (e.g., surface grading and removal of existing vegetation) could increase soil erosion in disturbed areas and deposition of sediments in water bodies. The total disturbed area during construction of the Refined Build Alternative is estimated to be approximately 151 acres. The project would be required to comply with the NPDES Construction General Permit and the Statewide Storm Water Permit and incorporate their requirements into construction plans and specifications. Construction activities also would be performed consistent with other federal, state, and regional water quality regulations and permits as identified in Chapter 2.0 of the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s). Construction activities would not alter 100-year floodways, except as approved through project review and permitting, and required design features would comply with conditions included in permits issued under Sections 404 and 401 of the federal Clean Water Act.

There are no known municipal and domestic water supply wells along the project alignment where deep foundations are located near water tables. If dewatering is required, such activity is covered under the NPDES Construction General Permit. If it is deemed that the volume is greater than the Construction General Permit allows, the contractor would obtain coverage under an NPDES Low Threat Discharge and

Dewatering Permit from the SDRWQCB. The NPDES Low Threat Discharge and Dewatering Permit would require water from the dewatering operation to be treated prior to discharge to any local waterway.

With the implementation of BMPs and compliance with regulatory requirements, the project would not result in adverse impacts on water resources during construction.

Project Measures to Avoid or Minimize Impacts

Temporary erosion control plans would be prepared in accordance with the NPDES Construction General Permit and the Caltrans NPDES Statewide Permit and would require implementation of BMPs to manage water quality and runoff from disturbed areas and to prevent uncontrolled storm-water flows, except as allowed for discharge in a public storm-water system. It is anticipated that the project may employ measures including, but not limited to, the construction site BMPs listed in Table 4-35.

Table 4-35. Temporary Construction Site BMPs

Purpose	BMP
Temporary Soil Stabilization BMPs	Scheduling (e.g., sequencing of construction activities with the implementation of construction site BMPs)
	Preservation of existing vegetation
	Hydraulic mulch, hydroseeding, and soil binders
	Geotextiles, plastic covers, and erosion-control blankets/mats
	Straw and wood mulch
	Streambank stabilization
Temporary Sediment Control BMPs	Silt fence
	Fiber rolls
	Gravel bag berm
	Street sweeping and vacuuming
	Storm drain inlet protection
Tracking Control BMPs	Stabilized construction entrance/exit
	Stabilized construction roadway
Non-Storm-Water Management BMPs	Dewatering operations
	Paving and grinding operations
	Clear water diversion
	Illicit connection/illegal discharge detection and reporting
	Vehicle and equipment cleaning, fueling, and maintenance
Waste Management and Material Pollution Control BMPs	Material delivery, storage, and use
	Stockpile management
	Spill protection and control
	Solid waste and hazardous waste management
	Concrete waste management
	Sanitary/septic waste management

Source: Caltrans, 2003
Note: BMP = best management practices

Additionally, a Storm Water Pollution Prevention Plan (SWPPP) would be prepared for construction activities that impact water quality (e.g., surface grading and removal of existing vegetation). The SWPPP has two major objectives: (1) to help identify the sources of sediment and other pollutants that affect the quality of storm-water discharges, and (2) to describe and ensure the implementation of BMPs to reduce or eliminate sediment and other pollutants in storm-water and non-storm-water discharges. Prior to construction, spill prevention and control measures would be identified and implemented as part of the project. In addition, in accordance with the SWPPP, a Spill Prevention, Containment, and Counter-Measure Plan would be prepared to avoid and minimize accidental contamination of water resources.

For additional details regarding BMPs and regulatory requirements, refer to the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s).

Mitigation Measures

Since no adverse impacts would occur with the incorporation of BMPs and compliance with regulatory requirements, no mitigation measures are required.

California Environmental Quality Act Determination

Would project construction violate applicable water-quality standards or waste-discharge requirements; deplete ground-water supplies or interfere with recharge areas; alter drainage patterns resulting in erosion or siltation on- or off-site; create or contribute runoff exceeding capacity of existing or planned storm-water drainage systems or provide substantial additional sources of polluted runoff?

Less-Than-Significant Impact (Refined Build Alternative). The project would not violate any regulations or standards regarding water quality or waste discharge. The project would comply with all requirements, implement a SWPPP, and employ BMPs. Thus, construction of the project would have a less-than-significant impact on water quality.

Construction would not rely on ground water and would not require substantial dewatering. Therefore, the impact of the project on depletion of ground water would be less than significant. There are no known ground water recharge areas, and construction would not impact existing ground-water recharge sites.

During construction, it may be necessary to temporarily reroute a water course or a pipe around the construction zone. However, the downstream connection point would be the same as existing conditions and flows would not be diverted to other streams or water courses. Together with implementation of BMPs, the project would have a less-than-significant impact on erosion or siltation due to alteration of drainage patterns.

With the incorporation of BMPs and compliance with regulatory requirements, construction impacts related to water quality would be less than significant.

Hazardous Materials Impacts

Within and adjacent to the I-5 right-of-way, elevated levels of Pb and other metals, as well as residual hydrocarbons, are likely present as a result of previous and ongoing

transportation uses. An investigation was conducted to assess known or suspected contaminated properties within or near the anticipated construction zone. There are 35 sites of environmental concern within the study area and within 1,000 feet of substations south of the OTTC (Figure 4-25). Of the identified hazardous material sites, one known site and three potential sites are specifically noted for Pb-contaminated soil.

In addition to the properties that were evaluated, relocation of underground utilities may require removal and disposal of buried asbestos-cement pipe. The Final SEIS/SEIR Plan Set shows some of the major utilities that may require relocation as part of the Refined Build Alternative.

Construction activities could require excavation of contaminated soils. In addition, construction would involve the use, storage, and transport of hazardous materials (e.g., fuel and oil) associated with construction equipment. Construction activities would be unlikely to result in accidents involving the release of hazardous materials or waste. The volumes of hazardous materials that would be used during construction would be small, and these materials would be handled according to applicable regulations. The project would prepare a site-specific safety plan to address potential hazards that could be encountered during construction. All hazardous materials, soils, drums, trash, and debris would be removed and disposed of in accordance with state and federal regulatory guidelines at a licensed Class I, II, or III disposal facility depending on the amount and type of material encountered.

A portion of the alignment is in an area of documented use as a Camp Matthews' rifle and pistol range. Live or spent ammunition, as well as metals (particularly Pb), could be present. Within the I-5 right-of-way, elevated concentrations of Pb and other metals, as well as residual hydrocarbon concentrations, likely may be present as a result of previous and ongoing transportation uses. In addition, the existing railroad right-of-way is expected to have elevated concentrations of metals, petroleum hydrocarbons, and volatile organic compounds from historic railway operations. Safety precautions would be taken prior to excavation activities in these areas.

With the incorporation of project measures noted below, such as BMPs, handling of contaminated materials, and adherence to a project-specific safety plan, the project would not have an adverse construction impact relative to hazardous materials.

Project Measures to Avoid or Minimize Impacts

A number of standard BMPs would be incorporated to minimize impacts from hazardous materials. A Spill Prevention, Containment, and Counter-Measures Plan would be prepared for all construction zones and staging areas to minimize potential spills of hazardous, toxic, or petroleum substances. The plan would require approval of SANDAG and would be developed by each contractor for the staging areas and work zones that fall within their responsibility. The plan would identify measures to reduce the risk of accidental spills of hazardous materials and would document procedures for containment of spills, if any. If a spill should occur that releases a hazardous material, the San Diego County Environmental Health Department would be notified and an Emergency Release Follow-up Notice Reporting Form would be submitted no more than 30 days following the release.

Additionally, a site-specific Health and Safety Plan would be prepared to address potential environmental hazards that may be encountered during construction activities. An Air Quality Monitoring Plan would be prepared to address potential exposure hazards pertaining to airborne dust in areas of contamination. The Air Quality Monitoring Plan would be adhered to during construction and site remediation activities.

Prior to ground-disturbing activities, samples would be gathered to evaluate potential soil and ground water contamination at sites of concern. Stained soils and above-ground storage tanks would be disposed of safely in accordance with all applicable regulations. If unidentified underground storage tanks or undocumented areas of contamination are encountered during construction, work would halt in that area until appropriate health and safety procedures have been implemented. A contingency plan would be prepared to address contractor procedures for such an event.

Samples would be collected within the MTS and I-5 rights-of-way; soils within the I-5 right-of-way would be tested for aerially deposited Pb. Within the railroad corridor, sampling would be performed to assess the potential environmental concerns from historical railroad use. This sampling can include, but is not limited to, hazardous materials associated with potential hydrocarbon releases (oil and diesel fuel) near or within the right-of-way where excavation of such material is anticipated. Ballasts, railroad ties, and wooden poles identified as contaminated with hydrocarbons or other hazardous materials would be removed and disposed of properly at an off-site facility.

A portion of the alignment area is in an area of documented use as a Camp Matthews rifle and pistol range. The possibility exists that live or spent ammunition, as well as metals (particularly Pb), may be present. Prior to drilling and during project excavation activities, metal detectors and ground-penetrating radar would be used near the historic rifle and pistol range to locate the presence of metallic objects. If unexploded ordnance is encountered during construction, then appropriate actions would be taken by specialists to remove it in accordance with local, state, and federal regulations. To ensure worker and public safety, construction workers would be provided with training to identify ordnance prior to the start of construction activities. If unexploded ordnance is discovered during construction, then work in the vicinity would immediately be stopped, access to the area would be controlled, and the onsite engineer would be notified to initiate steps for proper removal and disposal. The U.S. Department of Defense, through the Marine Corps Air Station Miramar Public Affairs Office and/or Explosive Ordnance Disposal, would be contacted for guidance and direction if unexploded ordnance is encountered on the former Camp Matthews Naval Reserve in the vicinity of the UCSD campus.

If asbestos-cement pipes are encountered during construction, then appropriate actions would be taken by specialists to remove asbestos-cement pipes in accordance with local, state, and federal regulations. To ensure worker and public safety, removal and disposal of asbestos-cement pipes would follow the requirements of the Occupational Safety and Health Administration as stated in 29 CFR 1910.1001 and 29 CFR 1926.1101. Removal must also follow worker protection rules as stated in 40 CFR Part 763 Subpart G, National Emission Standards for Hazardous Air Pollution, as specified under Rule 40, CFR 61, Subpart M, and the Clean Air Act as required under USC 7401

et seq. Asbestos cement pipe removal would require sealing the pipe prior to removal in order to minimize exposure.

In areas identified as contaminated or where soil contamination is suspected and cannot be used on site, the contaminated soil would be disposed of properly at an off-site facility. Imported fill soils would be characterized to verify that they are not contaminated.

Mitigation Measures

Because no adverse impacts would occur with the incorporation of project measures and compliance with regulatory requirements identified above, no mitigation measures would be required.

California Environmental Quality Act Determination

Would project construction result in excavation, which would disturb contaminated soils, potentially resulting in the migration of hazardous substances?

Less-Than-Significant Impact (Refined Build Alternative). Project construction has the potential to include excavation of soils that are identified as contaminated with hazardous materials. Should contaminated soil be encountered during construction, the soil would be disposed of off-site at an appropriate disposal facility; proper agencies would be notified; and an Emergency Release Follow-up Notice Reporting Form would be submitted no more than 30 days following the release. Without these project measures, project construction has the potential to result in migration of hazardous substances that would result in a significant impact. However, because of requirements for proper disposal of hazardous materials and the implementation of project measures to avoid and minimize impacts (as described above), construction would not result in migration of hazardous substances. Therefore, construction of the project would not have a significant impact on migration of hazardous materials.

Geotechnical, Geologic, and Seismic Impacts

Project construction would not result in geotechnical, geologic, or seismic effects. Similarly, construction activities would not be affected by compressible, corrosive, or expansive soils. Geotechnical and geologic studies would continue to be conducted through final design of the project, and these studies would verify locations of potentially unstable soils, including areas susceptible to landslide and subsidence. Additional geotechnical and geologic analysis would be conducted and additional soil borings would be made, especially in areas near planned bridges, the aerial guideway, retaining walls, and stations. The information obtained would be used to develop detailed design and construction plans. The construction plans and specifications would incorporate this information to minimize risks. Additionally, the worker health and safety plan would reduce risks associated with naturally occurring disasters.

Construction activities could cause short-term increased soil erosion and decreased soil stability.

Excavation could decrease soil stability. The stability of temporary excavations is governed by Occupational Safety and Health Administration regulations and

recommendations from a geotechnical engineer. These recommendations would be developed during the final design of the project.

The infrequency of earthquakes with magnitudes sufficient to trigger seismic hazards (fault surface rupture, strong ground shaking, liquefaction, seismic settlement, lateral spread, tsunami, and seiche) and the relatively short 4.5-year construction period means that the risk of a seismic-related hazard occurring during construction would be extremely low.

With the implementation of the project features listed below, and adherence to Occupational Safety and Health Administration requirements, there would be no adverse impacts on regional geologic or seismic conditions as a result of project construction.

Project Measures to Avoid or Minimize Impacts

The design of the project would include establishment and implementation of storm-water BMPs, including, but not limited to, the construction site BMPs listed in Table 4-35, for those areas with potentially unstable soils that are susceptible to landslide and subsidence. Adherence to these requirements would prevent substantial on-site erosion and minimize soil erosion and the loss of topsoil. Implementation of BMPs would reduce potential impacts to not adverse. Additionally, a Job Safety Analysis (JSA) would be prepared; the JSA would contain emergency procedures to cover a number of events that may occur at or near the project site by natural causes, equipment failure, or by human mistake, with earthquakes being one of these events.

Geotechnical and geologic studies would continue to be conducted through final design of the project, and these studies would verify locations of potentially unstable soils, including areas susceptible to landslide and subsidence. Additional geotechnical and geologic analysis would be conducted and additional soil borings would be made, especially in areas near planned bridges, the aerial guideway, retaining walls, and stations.

Mitigation Measures

Since there would be no adverse impacts, no mitigation measures are required.

California Environmental Quality Act Determination

Would the project construction result in substantial soil erosion or the loss of topsoil?

Less-Than-Significant Impact (Refined Build Alternative). As discussed under the Water Resources Impacts subheading above, soil erosion would be controlled by using erosion-control devices. Construction site BMPs also would be identified. Prior to construction, a SWPPP would be developed to identify how the contractor plans to comply with all regulatory requirements. Without these project measures, project construction has the potential to result in substantial soil erosion that would result in a significant impact. However, with the identified project measures, including the implementation of BMPs, the SWPPP, and compliance with all regulatory requirements, the project would have a less-than-significant impact on soil erosion.

With the implementation of BMPs, noting that the project is located in urbanized areas where the top soil has been disturbed, and that no significant farm land has been identified along the corridor, the project would have a less-than-significant impact to loss of topsoil. However, to the extent practical, the project would remove and store duff and topsoil from existing areas that would be disturbed and would use them along the corridor in areas that would be revegetated as part of the project. Duff and topsoil from areas dominated by invasive species would not be removed and stored. Without these project measures, project construction has the potential to result in the loss of topsoil that would result in a significant impact. However, with the identified project measures, including the incorporation of project features and adherence to the NPDES requirements, such as the BMPs and the SWPPP noted above, impacts of the project would be less than significant.

Energy Impacts

Energy use for construction of the Refined Build Alternative was estimated. Annual construction-related energy requirements for the project are less than 0.1 percent of the region's annual energy demand. Construction vehicles and equipment would use fuel, but construction energy use would not be substantial and would not require construction of new facilities or major modification to existing facilities. Project construction would not result in an adverse impact to energy.

Project Measures to Avoid or Minimize Impacts

Project construction would not result in adverse energy impacts; however, the following project measures would be implemented to conserve energy: project specifications would require contractors to minimize idle times of construction equipment and maintain equipment per manufacturers' specifications, and energy-efficient lighting would be used in all construction zones and staging areas.

Mitigation Measures

The project would not have an adverse impact to energy and would not require mitigation measures.

California Environmental Quality Act Determination

Would the project construction use excessive amounts of power, fuel, or energy or would require the construction of new systems or substantial modifications to existing systems?

Less-Than-Significant Impact (Refined Build Alternative). As stated previously, annual construction energy requirements for the project are less than 0.1 percent of the region's annual energy demand. Therefore, construction of the project would not use excessive amounts of energy or require the construction of new systems.

Safety and Security Impacts

Construction of the project could affect public and worker safety and security; however, all construction work would be performed consistent with federal, state, and local laws and regulations. Safety measures in construction zones would include fencing, signage, barricades, lighting, staging area night patrols, detours, and safety officers. Prior to any construction activity, contractors would be required to prepare a JSA for each work

activity and work site, taking into account the proximity of schools, community centers, and other public facilities. Contractors would be required to comply with MTS and NCTD safety procedures while working in the MTS right-of-way.

Construction would require temporary closure of traffic lanes, sidewalks, bicycle lanes and routes, driveways, streets, and freeway lanes. Closures would meet the requirements of the *California Manual on Uniform Traffic Control Devices* (Caltrans, 2012) and changes in access and mobility would be signed with advanced notice given to the public. Changes to routes would be identified in the project plans and, when required, adequate detours would be provided. The TMP would identify the requirements and procedures for coordination with area emergency responders to ensure adequate access is maintained at all times within the community and that construction zone and evacuation routes are not impeded. Additional information on the TMP is provided in Section 3.4.7.2.

Some on-street emergency access areas would be restricted for the duration that traffic controls are in place. These areas are identified by red curbs and provide for emergency parking near fire hydrants. Prior to construction, coordination would occur with local fire departments regarding these temporary closures to avoid an adverse impact at these fire hydrant locations. Longer emergency response times for medical assistance and law enforcement could occur during construction. All lane closures and full roadway closures would be coordinated with the SDFD, law enforcement, and other emergency response providers. Coordination with these responders and agencies would identify alternate routes that would not be affected by construction and would provide the required response time. Provisions would be made for emergency response providers and law enforcement to have access through specific zones within construction areas that may otherwise be prohibited to the general public.

With implementation of a TMP, JSA, coordination with emergency providers and law enforcement, and maintenance of emergency access, no adverse safety and security impacts are expected. Additional information regarding emergency access during construction is provided in Section 3.4.7.4.

Project Measures to Avoid or Minimize Impacts

For the duration of all construction activities, the contractor would have a designated safety officer to oversee construction work and compliance with federal, state, and local regulations, as well as the project's contract specifications related to both worker and public safety. Additionally, as described in Chapter 3.0, Section 3.4.7.2, access to all police and fire stations as well as area hospitals would be maintained at all times during construction. All construction zones and staging areas would be secured using fencing, lighting, and/or night patrols to prevent unauthorized persons from entering these areas. Prior to any construction activity, a JSA would be prepared to protect construction workers and ensure public safety. A JSA would be developed for each significant construction activity.

Mitigation Measures

No mitigation measures are required since there would be no adverse impacts with the incorporation of project measures, a TMP (described in Chapter 3.0, Section 3.4.7.2), a

JSA, coordination with emergency providers and law enforcement, and compliance with regulatory requirements.

California Environmental Quality Act Determination

Would project construction interfere with emergency response plans or emergency evacuation plans?

Less-Than-Significant Impact (Refined Build Alternative). Construction of the project would require major construction activities on residential streets, major roadways, and on I-5. Therefore, construction activities could interfere with emergency response plans and emergency evacuation plans. However, construction activities would be coordinated with all emergency responders, and emergency response times would not be significantly affected. As such, construction activities would have a less-than-significant impact on emergency response plans. Emergency evacuation plans may require modification to account for reduced lane widths and number of lanes on some streets, such as implementation of alternate or additional evacuation routes. Through coordination with the appropriate agencies, such as the County Office of Emergency Services, such modifications would be identified and implemented as appropriate throughout the construction period. Therefore, construction activities would have a less-than-significant impact on evacuation plans. With coordination and the maintenance of emergency access, safety and security impacts during construction would be less than significant.

Electromagnetic Interference Impacts

EMF levels generated by power tools, such as cordless drills and table saws, would be similar to those found inside many buildings that are generated by devices such as refrigerators, televisions, and florescent lights. However, power tools used for the project are expected to be farther away from buildings than EMF-generating devices typically found within a building. Therefore, EMF generated by construction activities would not affect existing buildings beyond the levels that are generally experienced in a building. Hence, construction activities would not cause adverse levels of EMF.

System integration tests would generate EMF levels similar to those generated during LRT operations. Impacts of EMF during system testing are not treated as a construction impact because the testing replicates operation of the system. For a description of the methodology for analysis of EMF impacts and impacts during operations, refer to the *Mid-Coast Corridor Transit Project Electromagnetic Field Impacts Technical Report* (SANDAG, 2014r).

Mitigation Measures

No mitigation measures are required as project construction would not generate adverse EMF impacts.

California Environmental Quality Act Determination

Project construction activities would not generate adverse EMF impacts. Therefore, no significant impacts would occur.

Historic Architectural Resources Impacts

In a letter dated August 2, 2013, the SHPO concurred with FTA's determination that five historic architectural resources are eligible for listing in the NRHP and therefore are considered "historic properties" for the purposes of Section 106/NEPA: 2750 Kettner Boulevard, 4875–4883 Naples Street, 2335 Morena Boulevard, 3435 Morena Boulevard, and the Camp Matthews Sentry Booth. Properties that are determined eligible for listing in the NRHP are automatically eligible for listing in the CRHR; therefore, these five historic properties are considered "historical resources" under CEQA. All five historic properties would be located more than 100 feet from construction activity and thus vibration caused by construction of the project would not result in damage to the buildings. Modifications to the Olive Street TPSS would occur approximately 150 feet north of the 2750 Kettner Boulevard property. New at-grade track, the Tecolote Road Station, Tecolote Road Bridge, and a TPSS would be located approximately 400 feet southwest of the 4875–4883 Naples Street property across Morena Boulevard. New at-grade track would be located more than 100 feet west of the 2335 and 3435 Morena Boulevard properties across Morena Boulevard and approximately 170 feet north of the Camp Matthews Sentry Booth, across Voigt Drive.

Proposed construction activities generally would require conventional earthwork equipment (e.g., cranes; tractors; and haul, concrete, and pick-up trucks). Drill rigs and similar vibration-generating equipment also would be used near the latter two sites. The distances between the construction equipment and the five historic properties would be greater than 25 feet; therefore, construction vibration or other activities would not have any adverse effect on the properties as a result of vibration or other activity that could affect the structural integrity of these buildings. As a result, construction activities would not diminish the integrity of location, design, setting, materials, workmanship, feeling, or association of these historic properties. Short-term construction activities would not result in an adverse effect to these historic properties.

Mitigation Measures

During project construction, there would be no adverse effect on the five historic architectural properties determined eligible for listing in the NRHP; therefore, no mitigation is required.

California Environmental Quality Act Determination

Would the project construction cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 (e.g., if inadvertent physical contact or damage from vibration affects the property)?

Less-Than-Significant Impact (Refined Build Alternative). Construction of the project would not have a significant impact. The five historic properties determined eligible for listing in the NRHP are automatically eligible to be listed in the CRHR and therefore are considered "historical resources" under Section 15064.5 of the *CEQA Guidelines*. Construction would not have a significant impact on these resources and no mitigation would be required. In each case, the distances between the construction equipment and the historical resources would be sufficient to avoid any risk of inadvertent physical damage to the five historical resources. As a result, construction activities would not diminish the integrity of location, design, setting, materials, workmanship, feeling, or

association of these historic properties. Hence, project construction would not cause a substantial adverse change in the significance of these historical resources under CEQA.

Archaeological Resources Impacts

The Refined Build Alternative would result in construction-related ground disturbances, including grading related to station preparation activities, utility relocations, cut-and-cover structure excavation, and construction of new track north of the San Diego River in the vicinity of four archaeological sites (CA-SDI-41, CA-SDI-12453/H, CA-SDI-12557, and CA-SDI-12558). Extended Phase I investigations were completed, verifying extensive ground disturbance and the absence of archaeological deposits in the vicinity of the four archaeological sites within the archaeological APE. Therefore, the project would not result in impacts on previously recorded archaeological resources. The FTA made a determination of "no historic properties affected" with respect to archaeological resources pursuant to Section 106 of the NHPA.

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). During project construction, there would be no effect on previously recorded archaeological resources because no resources eligible for listing in the NRHP or CRHR have been identified or detected within the APE; however, there remains a low potential that the project could result in the physical destruction of unknown archaeological resources discovered during construction (unanticipated discoveries). Such impacts could include damage to or removal of important resources, as well as impacts to the context and integrity, limiting the ability to recover important data. To account for the possibility of an unanticipated discovery of archaeological resources during project-related ground disturbance, Mitigation Measures CON15, CON16, and CON17 would be implemented, as described below. These construction-related measures are described in the confidential *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a) and outlined in greater detail in the *Mid-Coast Corridor Transit Project Construction Monitoring Plan* (SANDAG, 2014c) and the *Mid-Coast Corridor Transit Project Cultural Resources Discovery Plan* (SANDAG, 2014b).

Mitigation Measures

CON15 Construction Monitoring: No archaeological resources eligible for listing in the NRHP or CRHR were identified or detected within the archaeological APE during Extended Phase I investigations; however, there exists a low potential to encounter unknown cultural materials given the landform context and depth of construction. As such, monitoring for both prehistoric and historic archaeological deposits would be conducted during ground-disturbing construction activities in designated monitoring areas of the project archaeological APE.

Monitoring would occur under the supervision of a Designated Project Archaeologist (DPA) who meets the Secretary of the Interior's Professional Qualifications Standards. The DPA and archaeological monitors would be subject to the approval of SANDAG and/or the FTA.

Full-time cultural resources monitoring of all ground-disturbing activities within the archaeological APE would occur within 500 feet south of the San Diego River; within 500 feet north of the San Diego River; in designated portions of the Rose Canyon corridor; and in the portion of the archaeological APE located on the UCSD campus. Specific information regarding full-time monitoring areas is detailed in the confidential *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a). Spot-check monitoring would occur within the archaeological APE in two areas: from the north bank of the San Diego River to 1,100 feet north of Sea World Drive, and in the Rose Canyon Corridor between Balboa Avenue and La Jolla Colony Drive. If the FTA determines that full time or spot-check monitoring is needed in additional portions of the archaeological APE, monitoring would be provided in these additional areas.

In areas where full-time monitoring is designated, "full-time monitoring" is defined as follows: A qualified archaeological monitor is required during the entire work day on a daily basis during all ground disturbance throughout the course of the project until a sufficient depth of excavation has been reached at which it is unlikely to encounter buried resources. The DPA will determine the actual depth of excavation at which monitoring may cease based on soil conditions observed in the field. "Spot-check monitoring" is defined as part-time monitoring to be conducted by a qualified archaeological monitor throughout the duration of project-related ground disturbance. Spot-check monitoring will include inspection of open excavations, grubbed areas, and excavation spoils. The frequency and duration of the spot checks will be based on field observations of exposed soils at the discretion of the DPA.

In the event an unanticipated discovery of archaeological resources occurs during construction, the following measures would be implemented immediately following the discovery:

- The archaeological monitor would halt all construction within a 50-foot radius of the find until the DPA can assess the significance of the find.
- If the discovery is determined to be significant or potentially significant by the DPA, the following tasks would be undertaken:
  - Discussion with project engineers to determine if impacts can be avoided/minimized, including consideration of preservation in place
  - Recovery and analysis of archaeological material and associated data
  - Preparation of a data recovery report or other reports
  - Accessioning recovered archaeological material to an accredited archaeological repository, such as the San Diego Archaeological Center

Archaeological monitor qualification requirements, detailed approaches to archaeological monitoring of various project elements, and the procedures to follow in the event that unanticipated archaeological resources or human remains are discovered would be defined in the *Mid-Coast Corridor Transit Project*

Construction Monitoring Plan (SANDAG, 2014c) and the *Mid-Coast Corridor Transit Project Cultural Resources Discovery Plan* (SANDAG, 2014b) and would be submitted to SHPO for review and concurrence prior to the start of construction activities.

A Native American monitor would be present at all areas designated for full-time and spot-check monitoring. This monitoring would occur on an as-needed basis and would be intended to ensure that Native American concerns are considered during the construction process. Native American monitors would be retained from Tribes who have expressed interest in the project and have participated in the Section 106 consultation process. Roles and responsibilities of the Native American monitors would be detailed in the Construction Monitoring Plan prepared for the project.

CON16 Cultural Resource Awareness Training: Prior to, and for the duration of, ground disturbances, SANDAG would provide cultural resource awareness training to construction workers in accordance with the requirements listed in the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e). The training would describe appropriate measures for treatment and protection of cultural resources in compliance with the Secretary of the Interior's Standards for the Treatment of Historic Properties, and would include a discussion of applicable laws and penalties under the law, and samples or visual representations of artifacts that might be found in the project vicinity. The training would outline the steps that must be taken if cultural resources are encountered during project construction, including the authority of archaeological monitors to halt construction in the area of a discovery to an extent sufficient to ensure that the resource is protected from further impacts.

The training would be conducted by a qualified archaeologist. A hard copy summary of cultural resource laws, discovery procedures, and contact information would be provided to all construction workers. It may be necessary to conduct the training in English and another language, particularly Spanish. If so, an individual proficient in both languages would be present to translate the training. Hard-copy training summary cards would be produced in applicable languages to be distributed to all construction personnel.

CON17 Treatment of Human Remains: In the unlikely event that human remains are uncovered during ground disturbances, California Health and Safety Code Section 7050.5 requires that no further disturbances occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to PRC Section 5097.98. If the human remains are determined to be prehistoric, the coroner would notify the Native American Heritage Commission, which would determine and notify a Most Likely Descendant. The FTA, SANDAG, NCTD, and/or MTS would be notified immediately. Procedures to follow for the discovery of human remains would be included in the Discovery Plan. The plan would include provisions for preferred removal techniques, storage, and re-internment to the extent feasible.

California Environmental Quality Act Determination

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

Less-Than-Significant Impact (Refined Build Alternative). As documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a), no archaeological resources were identified or detected within the archaeological APE during Extended Phase I investigations; therefore, the project would not result in a substantial adverse change to a known archaeological resource.

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). To account for the possibility of an unanticipated discovery of archaeological resources during project-related ground disturbance, mitigation would be implemented, as described above.

Would the project construction disturb human remains, including interments outside former cemeteries?

Less-Than-Significant Impact (Refined Build Alternative). As documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a), no human remains were identified or detected within the archaeological APE; therefore, the project would not result in a significant impact to known burials.

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). To account for the possibility of an unanticipated discovery of human remains during project-related ground disturbance, mitigation would be implemented, as described above.

Paleontological Resources Impacts

Geologic units assigned a high paleontological sensitivity rating are located at the study area surface. Ground-disturbing activities during construction could cause significant impacts on paleontological resources. In accordance with the *City of San Diego Paleontological Guidelines* (City of San Diego, 2007), a significant impact may occur for areas rated with a high sensitivity if grading exceeds 1,000 cubic yards and is 10 feet deep or more. There is no impact when grading in fill material. Although such ground disturbance would be a comparatively short-term activity, the loss of fossil remains, unrecorded fossil localities, associated specimen data, and corresponding geologic and geographic locality data would be a permanent adverse impact.

Mitigation Measures

With implementation of the mitigation measure listed below, there would not be an adverse impact.

CON18 Paleontological Resources Monitoring and Mitigation Plan (PRMMP): Prior to final design and as a measure to protect significant paleontological resources, SANDAG would authorize a PRMMP to be prepared and implemented during construction. The PRMMP would be developed in accordance with the

guidelines and requirements listed in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l).

- Paleontological Awareness Training. Paleontological Awareness Training would be provided to construction workers involved in earthwork (excavation and grading) and foundation activities prior to the start of work on the project. Training would include a discussion of the laws protecting paleontological resources, the types of paleontological resources that could be encountered, and the procedures to be followed if a paleontological resource were discovered.
- Paleontological Monitoring. Paleontological resources monitoring is recommended because of the potential for impacts on paleontologically sensitive geologic units and, therefore, potentially significant paleontological resources, during construction activities. Detailed procedures regarding monitoring would be presented in the PRMMP.
  - Monitoring between the Santa Fe Depot and the Nobel Drive Station. Full-time paleontological monitoring of project ground disturbance would be required between the Santa Fe Depot and the Nobel Drive Station because of the presence of highly sensitive geologic units. Paleontological monitoring for this area would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP.
  - Monitoring between the Nobel Drive Station and the UTC Transit Center. Part-time paleontological monitoring of excavations would be conducted between the Nobel Drive Station and the UTC Transit Center. In the event that any unanticipated discoveries of significant fossils are made, full-time monitoring in this area would be required. Paleontological monitoring for this area would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP.
- Unanticipated Discovery of Paleontological Resources. If an unanticipated discovery of paleontological resources occurs during construction anywhere along the alignment, the procedures described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) would be followed as incorporated into the PRMMP.
- Data Recovery. In the event that paleontological resources are discovered, fossil specimens must be properly collected and sufficiently documented to be of scientific value. Data recovery would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP.
- Technical Reporting. In the event that paleontological resources are discovered, a data recovery report would be prepared that documents the methods and results of monitoring and provides an analysis of the nature and significance of fossils recovered. The report would contain the contents as

described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP.

- Curation of Recovered Fossils. After the data recovery report is prepared, the fossil material recovered during project monitoring activities would be accessioned for curation to a recognized paleontological repository, such as the San Diego Natural History Museum. Arrangements to accession fossil material should be made with such a repository before monitoring begins so that the repository can inform the qualified monitoring paleontologist of requirements necessary to accession the fossil material (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee, 1995). The data recovery report (see above) also will be submitted to the repository at which the fossils are curated. Curation would be conducted as described in the *Mid-Coast Corridor Transit Project Paleontological Survey Report* (SANDAG, 2014l) as incorporated into the PRMMP.

California Environmental Quality Act Determination

Would project construction cause substantial damage to, or destruction of, significant paleontological resources?

Less-Than-Significant Impact with Mitigation (Refined Build Alternative). Project impacts during construction would have significant impacts, but they would be reduced to less than significant with mitigation. Five geological units with a high sensitivity for paleontological resources were identified. Excavations would have a significant effect on paleontological resources unless mitigation measures are employed. With mitigation, the impact of the project on paleontological resources would be less than significant.

Geologic units assigned a high paleontological sensitivity rating are found at the surface in the study area. Mitigation measures, including those discussed above, would allow data recovery for affected paleontological resource localities affected by construction. This would reduce significant construction-related impacts on paleontological resources to a less-than-significant level. These measures are based on the Society of Vertebrate Paleontology guidelines (1995) and CEQA requirements, and are consistent with those used throughout California, with results that protect paleontological resources in areas of high paleontological sensitivity. Significant impacts can be mitigated by collection, preservation, and curation of a representative sample of a fossil assemblage and its geologic information in the study area where ground disturbances are proposed.

Utilities Impacts

Construction of the project would require relocation of electric, gas, cable, gasoline, water, sewer, and communication utility services. Gas and electric utilities are provided by SDG&E. Construction activities also would include installation of new service lines at stations (water, electric, telephone, and communication), along the guideway (water and electric), and at substations (electric). Construction activities would require relocation or installation of both aerial and buried utilities. Utility poles along the guideway would require relocation or other modification, such as raising overhead lines, to avoid conflict

with the alignment. Relocation of poles along the guideway may require relocation of other poles in the vicinity of the alignment.

Project Measures to Avoid or Minimize Impacts

A Utilities Relocation Plan would be developed as part of project design and would identify all required utility relocations, temporary routing, and reconstruction. The plan would also include a construction approach to minimize disruption. SANDAG would coordinate with affected utility companies. In developing the utilities relocation plan, SANDAG would include consultation with and reviews by affected utility providers. The plan would identify requirements for temporary rerouting of utilities where feasible. In addition, when service must be temporarily disconnected, it would be scheduled for a time when the service is least likely to be required and property owners would be notified of this temporary lack of service. With implementation of project measures to avoid or minimize impacts, no adverse impacts on utilities would occur as a result of short-term construction impacts.

Mitigation Measures

Because no adverse impacts would occur with the incorporation of temporary utility routings and public notices, no mitigation measures are required.

California Environmental Quality Act Determination

Would the project construction use excessive amounts of power, fuel, or energy or require the construction of new systems or substantial modifications to existing systems?

Less-Than-Significant Impact (Refined Build Alternative). Construction of the project would not use excessive amounts of power, fuel, or energy or require construction of new systems or substantial modifications to existing systems; therefore, impacts would be less than significant. As stated previously under the Energy section, annual construction energy requirements for the project are less than 0.1 percent of the region's annual energy demand. The amount of utility services expected to be used during construction would not be substantial and would not require the construction of new or modified utility facilities. Project construction would include implementation of the temporary utility relocation plan and public notices described under environmental impacts above, and in more detail in the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s).

4.18 Growth-Inducing Impacts

This section evaluates the long-term growth-inducing impacts of the No-Build and Refined Build Alternatives. Growth-inducing impacts are changes in the location, magnitude, or pace of future development as a result of changes in accessibility by a project.

The prior environmental documents concluded that because the Mid-Coast Corridor Transit Project has been included in all major planning documents prepared for the area as part of planned growth, it would not contribute to growth-inducing impacts. Specifically, the AA/DEIS/DEIR stated that "…any of the alternatives being considered would not induce the growth projected to occur in the Mid-Coast Corridor. There may be a readjustment in growth because of the increased access but it is not expected to be significant…" Similarly, the Draft SEIS/SEIR concluded that overall, the project would have no adverse growth-inducing impacts under NEPA and less-than-significant impacts under CEQA. Other than the editorial changes described in Section 4.0, comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to this section of the SEIS/SEIR. The conclusions in this section remain unchanged for the Refined Build Alternative. The Refined Build Alternative would have no adverse growth-inducing impacts under NEPA and less-than-significant impacts under CEQA.

4.18.1 Regulatory Background and Methodology

The CEQ established regulations for implementing NEPA (40 CFR Section 1500 et seq.), which requires an evaluation of indirect impacts that may occur at some distance from a proposed action or at some time in the future (40 CFR 1508.8). Such impacts include changes in housing, population density, and employment—all components of growth. As such, NEPA evaluates growth as an indirect impact.

CEQA requires consideration of how a "proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, and how that growth would affect the environment." "It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment" (*CEQA Guidelines*, CCR Section 15126.2(d)). An important consideration is whether the growth is consistent with adopted regional land use plans. Growth inducement would result in a significant impact if the growth is not consistent with land use plans and policies for the affected area. Alternatively, growth-inducing impacts are generally not significant when a project accommodates growth anticipated and considered in the General Plan and its Environmental Impact Report (EIR) for the affected area.

The RCP is the adopted regional planning framework for coordinated housing, land use, transportation, and sustainability planning. The RCP uses the *Smart Growth Concept Map* (updated in January 2012) as a key implementation tool. The map identifies approximately 200 existing, planned, and potential Smart Growth Opportunity Areas within the San Diego region. The 2030 RTP guides the development of regional transportation infrastructure and transit services with consideration of how best to support the smart growth policies and the integration of transit and land use.

The City of San Diego *Strategic Framework Element* (City of San Diego, 2002a) and the *City of San Diego General Plan* (City of San Diego, 2008a) support mixed-use, transit-supportive development. The latter document focuses growth into mixed-use villages linked to the transit system and transportation corridors.

The analysis of growth-inducing impacts considers whether the project would foster land use, density, population, or growth rate changes that are inconsistent with adopted plans and forecast land use changes.

4.18.2 Environmental Impacts

The following sections evaluate growth-inducing impacts of the No-Build and Refined Build Alternatives.

4.18.2.1 No-Build Alternative

The No-Build Alternative would not result in growth-inducing impacts. Under the No-Build Alternative, the Mid-Coast Corridor Transit Project would not be built, and bus Route 150 would be continued and enhanced. These changes would not induce growth and could result in less development in Smart Growth Opportunity Areas that would have been served by the Mid-Coast Corridor Transit Project.

4.18.2.2 Refined Build Alternative

The nine new Trolley stations included as part of the Refined Build Alternative would be located in Smart Growth Opportunity Areas where densities already meet or will soon meet the target development intensities, or where local government land use plans and zoning support higher density smart growth. In addition, the Morena and University City areas are subregional employment areas and can support additional medium- to high-density residential and mixed-use development. As such, the Refined Build Alternative would remove an existing barrier (the lack of access to Trolley service) to planned growth. This future development would be consistent with adopted land use plans and existing zoning regulations consistent with the *City of San Diego General Plan* (City of San Diego, 2008a) and the RCP, as discussed in Section 4.1.

Community infrastructure and public facilities would be improved and/or expanded in Smart Growth Opportunity Areas in accordance with adopted plans to support the planned urban development in areas targeted for growth. Because the project is consistent with adopted land use plans and implements the Smart Growth Strategy, the Refined Build Alternative would not result in unanticipated growth or related impacts to the environment. To the extent that growth occurs along the alignment and within Smart Growth Opportunity Areas around the stations, it is desired as a regional goal and would therefore be beneficial.

4.18.3 Mitigation Measures

Because the Refined Build Alternative would not result in adverse growth-inducing impacts, no mitigation measures are required.

4.18.4 California Environmental Quality Act Determination

This section presents the CEQA significance determination based on the analysis summarized above.

A significant growth-inducing impact would occur if the project induced growth that is not consistent with land use and growth management plans for the affected areas.

The Mid-Coast Transit Corridor Project would not result in a significant growth-inducing impact. The project would not foster additional population growth. The project would provide a transit option for the population growth that is projected for the region. As described in Section 4.18.2.2, the project would facilitate growth within transit station areas. This growth would include construction of additional housing and additional business growth and would be consistent with adopted land use plans and existing zoning regulations of the *City of San Diego General Plan* (City of San Diego, 2008a) and the regional goals of smart growth in the RCP as stated in Section 4.1. The project would also be consistent with the City of San Diego *Strategic Framework Element* (City of San Diego, 2002a) and the *City of San Diego General Plan* (City of San Diego, 2008a), which support mixed-use, transit-supportive development. The latter document focuses growth into mixed-use villages linked to the transit system and transportation corridors. The environmental impacts of the transit-related growth that would be fostered by the Mid-Coast Corridor Transit Project have been considered in the certified EIRs for the RCP and the city's planning documents. The project would neither stimulate nor contribute to growth in the Mid-Coast Corridor beyond what is envisioned in the adopted plans. Further, it would facilitate smart growth that is designed to reduce regional impacts by increasing use of transit in lieu of automobiles. As a result, the growth-inducing impact of the project would be less than significant.

4.19 Cumulative Impacts

This section evaluates the cumulative impacts of the No-Build and Refined Build Alternatives based on the impact analyses for each resource as summarized in the previous sections of this chapter. For additional information, refer to the technical reports prepared for each resource area in support of the SEIS/SEIR.

The prior environmental documents concluded that no adverse or significant cumulative impacts would result from the project. The Draft SEIS/SEIR concluded that no significant, long-term environmental cumulative impacts would result from the project, but identified the potential for cumulative short-term construction impacts from the Build Alternative. Although mitigation is proposed, the Draft SEIS/SEIR found that the following cumulative impacts from construction would remain:

- Localized cumulative community impacts to UCSD and University City would be adverse under NEPA and significant and cumulatively considerable under CEQA.
- Air quality construction impacts would be cumulatively adverse under NEPA and cumulatively considerable under CEQA. Although considered adverse, impacts to air quality and GHG emissions during construction would be temporary and would be offset by the overall reduction in emissions that would result through implementation of the project.
- Some damage or destruction of paleontological resources in the Mid-Coast Corridor could occur during the course of recovery. As a result, the combined impact to paleontological resources from the Build Alternative and other reasonably foreseeable projects located throughout the geologic units in the Mid-Coast Corridor could result in adverse cumulative impacts. The Build Alternative's contribution would be considered cumulatively considerable, resulting in a significant and unavoidable impact under CEQA.

Refinements to the Build Alternative, comments received on the Draft SEIS/SEIR, and updates to the analysis as presented in the preceding sections of Chapter 4.0 did not require any updates to this section. However, the discussion of historic architectural and archaeological resources under the "Construction" heading was revised based on additional coordination with SHPO and FTA, as well as the results of the *Mid-Coast Corridor Transit Project Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a). The conclusions in this section remain unchanged for the Refined Build Alternative.

4.19.1 Regulatory Background and Methodology

Although NEPA and CEQA define the term cumulative impact similarly, their definitions and analysis of the issue are slightly different. The NEPA definition of a cumulative impact comes from the CEQ, which defines a cumulative impact as the following:

> …the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other

> actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR §1508.7).

Section 15355 of the *CEQA Guidelines* provides the following definition and guidance:

> Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

CEQA generally requires the following:

> (a) Cumulative impacts shall be discussed when the project's incremental effect is cumulatively considerable.
>
> (b) The discussion of cumulative impacts shall reflect the severity of the impacts and their likelihood of occurrence, but the discussion need not provide as great a detail as is provided of the effects attributable to the project. The discussion should be guided by the standards of practicality and reasonableness.

In determining the cumulative impacts of a proposed project with other area projects, the cumulative analysis contained in the SEIS/SEIR includes an analysis of both of the following:

> (1) past, present, and probable future projects, which are either approved or being considered for approval by SANDAG, the City of San Diego, UCSD, and various agencies (or anticipated to be submitted for consideration, including projects in the design phase or under construction)
>
> (2) growth projections set forth in regional plans, including regional modeling plans

The combined effect of more than one action may be greater than the effects resulting from the individual actions. The timing and duration of each activity also is important when evaluating the cumulative effects of activities, as some impacts may occur only for a limited period, such as during construction. In such cases, a cumulative effect may occur only when two or more of the activities happen simultaneously and/or near each other.

An evaluation of cumulative effects is based on resource sensitivity, quality, and quantity.

Under NEPA, the cumulative analysis identifies the aggregate or total impacts that result when the incremental impacts of the project are added to other past, present, and reasonably foreseeable actions. Under CEQA, once a cumulatively significant impact has been identified, a determination must be made regarding whether the project's incremental contribution to the significant impact is cumulatively considerable, and thus, significant.

The study areas for the cumulative impacts analysis vary depending on the context of these environmental impacts. For example, built environment effects generally examine impacts on adjacent and nearby communities and neighborhoods, whereas cumulative impact analyses for natural resources may consider the entire natural resource system, such as the water basin or the habitats of special-status species.

Various related environmental documents and regional plans were consulted and used in the cumulative analysis and included, but were not limited to, the following:

- Final EIR for the 2030 RTP (SANDAG, 2007c)
- Final EIR for the 2050 RTP (SANDAG, 2011c)[18]
- Final Program EIR for the RCP (SANDAG, 2004b)
- *University of California San Diego 2004 Long Range Development Plan Final EIR* (UCSD, 2004c)
- *Los Angeles to San Diego Proposed Rail Corridor Improvements (LOSSAN) Final Program Environmental Impact Statement/EIR* (Federal Railroad Administration and Caltrans, 2007)

Of the documents listed above, both the 2030 RTP and 2050 RTP EIRs evaluated the Mid-Coast Corridor Transit Project in the Revenue Constrained Scenario. Thus, the analyses in these documents were most applicable to evaluation of the project.

The construction cumulative impact analysis included projects anticipated to be under construction during the same timeframe as the Refined Build Alternative, which are either approved or being considered for approval by SANDAG, the City of San Diego, UCSD, and various agencies (or anticipated to be submitted for consideration, including projects in the design phase or under construction). The assessment of cumulative construction impacts examines the compounding of construction impacts due to the construction of one or more other projects during the anticipated construction period for the Refined Build Alternative (2014 to 2019). The exact timing of construction for these projects is uncertain. It is unlikely that all of these projects would be constructed at the same time; therefore, the analysis represents a worst-case scenario.

[18] The Final EIR for the 2050 RTP (SANDAG, 2011c), which is the subject of an ongoing legal challenge, was consulted for informational purposes, but its analysis was not relied upon in this Final SEIS/SEIR.

4.19.2 Affected Environment

The affected environment for each resource is described in other sections of Chapter 4.0 under each resource heading. The past, present, and reasonably foreseeable projects, and the planning documents which include growth projections, are discussed in Chapters 1.0 and 2.0 and included in the documents listed in Section 4.19.1.

4.19.3 Environmental Impacts

The following sections evaluate the cumulative long-term and construction impacts of the No-Build and Refined Build Alternatives.

4.19.3.1 No-Build Alternative

The No-Build Alternative includes all existing highway and transit services and facilities, and assumes the implementation of the committed highway and transit projects in the Revenue Constrained Scenario of the 2030 RTP, with the exception of the Mid-Coast Corridor Transit Project. Under the No-Build Alternative, no new infrastructure would be built within the Mid-Coast Corridor except for the projects currently under construction or projects funded for construction, environmentally cleared, and planned to be operational by 2030. The No-Build Alternative includes continuation and enhancement of bus Route 150, as described in Chapter 2.0. The proposed physical changes resulting from the No-Build Alternative would be limited to minor improvements, such as installation of shelters at bus stops. Work primarily would occur within existing transportation rights-of-way.

Long-Term Impacts

The provision of new and enhanced transportation projects consistent with the RCP, 2030 RTP, and 2050 RTP under the No-Build Alternative would increase mobility and provide opportunities for local land use development, including TOD.

The region-wide environmental impact analysis conducted in the *Final Program Environmental Impact Report for the RCP for the San Diego Region* (SANDAG, 2004b), a CEQA document, identified cumulatively considerable impacts from growth and future development within the region. These included significant cumulative impacts on aesthetic and visual resources, agriculture and forest resources, air quality, biological resources, cultural resources, land use, geologic/soils/mineral resources, hazardous materials, noise, population and housing, public services and utilities, energy, recreation, transportation, and water supply. The RCP EIR also concluded that mitigation measures are not feasible to reduce all of the identified cumulative impacts to below a level of CEQA significance due to the magnitude of the population increase.

The No-Build Alternative would not contribute to the cumulative adverse impacts identified in the EIR for the RCP, with the exception of energy and air quality. The cumulatively significant land use impact under CEQA identified in the RCP EIR concerns the conversion of open space and farmland. The No-Build Alternative has a significant land use impact, but it is due to inconsistency with plans for transit development, not conversion of open space and farmland.

The cumulatively significant air impacts under CEQA identified in the RCP EIR concern localized CO hotspots. The No-Build Alternative would not contribute to localized CO

hotspots, but it would contribute to cumulatively significant air quality impacts on a regional basis. When compared to the Refined Build Alternative, the No-Build Alternative has the highest projected roadway VMT. As a result, levels of CO_2, TOG, NO_X, PM_{10}, and $PM_{2.5}$ would be higher in 2030 under the No-Build Alternative (Table 4-8). Because the San Diego region is in a non-attainment status for PM_{10} and $PM_{2.5}$, this is a cumulatively adverse and cumulatively considerable impact.

The No-Build Alternative would contribute to the cumulatively significant energy impact under CEQA identified in the RCP EIR, which is based on future population growth and energy demands. The No-Build Alternative would increase energy consumption due to increased VMT. This is a cumulatively adverse and cumulatively considerable impact.

The region-wide environmental impact analysis conducted in the Final EIR for the 2030 RTP (SANDAG, 2007c) identified cumulatively considerable impacts from growth and future development within the region. Significant cumulative impacts with respect to land use, air quality, noise, biological resources, energy, cultural resources, hazards and hazardous materials, global climate change, water resources, and visual resources under CEQA were identified in the Final EIR even with implementation of identified mitigation measures.

The No-Build Alternative would not contribute to the cumulative adverse impacts identified in the Final EIR for the 2030 RTP, with the exception of air quality, energy, and global climate change. The cumulatively significant land use impact identified in the Final EIR for the 2030 RTP concerns the conversion of open space and farmland. The No-Build Alternative has a significant land use impact, but it is due to inconsistency with plans for transit development, not conversion of open space and farmland.

The cumulatively significant air quality impacts identified in the Final EIR for the 2030 RTP concern on-road PM_{10} and off-road NO_X and $PM_{2.5}$ emissions. The No-Build Alternative would not contribute to these emissions directly, but it would contribute to cumulatively significant air quality impacts on a regional basis. When compared to the Refined Build Alternative, the No-Build Alternative has the highest projected roadway VMT. As a result, levels of on-road PM_{10}, $PM_{2.5}$, and NO_X would be higher in 2030 under the No-Build Alternative. Because the San Diego region is in a non-attainment status for PM_{10}, this is a cumulative adverse and cumulatively considerable impact. The increased VMT also would have a corresponding increase in energy use and GHG, which would contribute to the regional energy demand and global climate change on a cumulative basis.

The region-wide environmental impact analysis conducted in the Final EIR for the 2050 RTP (SANDAG, 2011c) identified cumulatively considerable impacts from growth and future development within the region. The 2050 RTP EIR identified significant cumulative impacts with respect to:

- Aesthetics (blocking of panoramic views, alterations of scenic highways, and added elements of urban character)
- Agriculture/forest resources (changes in land use and reduction of available agricultural and forest land)

- Biological resources (disturbance or elimination of sensitive vegetation, special status species, and wildlife corridors)
- Cultural resources (disturbance or elimination of cultural and paleontological resources)
- Geology and mineral resources (loss of mineral resource extraction locations)
- Hazards (increased wildfire risk)
- Population and housing (substantial population growth)
- Public services and utilities (solid waste disposal impacts)
- Recreation (loss of park lands)
- Air quality (increases in NO_x, $PM_{2.5}$, Toxic Air Contaminants, and other air pollutants)
- GHG emissions (contribution to global climate change)
- Hydrology and water quality (changes in water quality, drainage patterns, flood-related hazards, and tsunami)
- Land use (incompatibilities in planned land use)
- Transportation (inability to accommodate increased growth and resulting demand)
- Noise (temporary and permanent ambient noise increases)
- Energy (increase in demand)

The No-Build Alternative would not contribute to the cumulative adverse impacts identified in the EIR for the 2050 RTP, with the exception of energy, air quality, and GHG emissions. The cumulatively significant land use impact identified in the 2050 RTP EIR concerns land use compatibility and the potential for future development to be inconsistent with existing plans and policies. The No-Build Alternative would result in land use incompatibility. However, the No-Build Alternative would not necessarily result in development that is inconsistent with plans and policies, but is itself inconsistent with plans and policies for the region.

The No-Build Alternative would not contribute to air quality emissions directly, but it would contribute to cumulatively significant air quality impacts on a regional basis. When compared to the Refined Build Alternative, the No-Build Alternative has the highest projected roadway VMT. As a result, levels of CO_2, TOG, NO_X, PM_{10}, and $PM_{2.5}$ would be higher in 2030 under the No-Build Alternative. The increased VMT also would have a corresponding increase in energy use and GHG emissions, which would contribute to the regional energy demand and global climate change on a cumulative basis.

Construction Impacts

The EIRs for the RCP, 2030 RTP, and 2050 RTP identified cumulative construction-related impacts for certain resource areas. The 2030 RTP identified cumulative construction-related impacts on the social environment (relocation and/or displacement impacts), from noise, and on water resources. The 2050 RTP identified cumulative construction-related impacts for biological resources, cultural resources (including

historical, archaeological, and paleontological resources), geotechnical constraints, and water quality (through soil erosion and loss of topsoil). However, because no major construction activities are required for the enhancement of bus Route 150, the No-Build Alternative would not result in adverse or significant project-related cumulative construction impacts.

4.19.3.2 Refined Build Alternative

The Refined Build Alternative generally would include the same land use and transportation projects as the No-Build Alternative, except that Route 150 would be eliminated as planned under the 2030 RTP, and the Mid-Coast Corridor Transit Project would be implemented, as described in Chapter 2.0. The following sections discuss cumulative long-term and construction impacts under the Refined Build Alternative.

Long-Term Impacts

The discussion of direct and indirect cumulative impacts in the following sections examines the long-term impacts of the Refined Build Alternative in the context of other past, present, and reasonably foreseeable projects. For a more detailed discussion of the direct and indirect impacts of the Refined Build Alternative, refer to each resource section in this chapter (Chapter 4.0).

Transportation. Refer to Chapter 3.0 for a detailed description of the cumulative impacts of the Refined Build Alternative on the transportation system.

Land Use Plans and Policies. The Refined Build Alternative would not create or add to adverse or significant land use impacts. Current community plans, policies, and zoning relevant to the Refined Build Alternative already identify the project alignment and the station locations and reflect appropriate nearby land uses and future development projects to avoid adverse or significant impacts. The EIRs for the RCP and the 2030 RTP identified a cumulative impact to land use regarding the conversion of agricultural or open space lands to urban uses. However, the Refined Build Alternative would not convert agricultural or open space lands to urban uses as it would be located primarily in existing transportation rights-of-way. The EIR for the 2050 RTP identified a cumulative impact with regard to the potential deterioration of community character, particularly for transportation improvements in rural areas; however, the Refined Build Alternative is not located in a rural area. As a result, the Refined Build Alternative would not cause or contribute to an adverse or significant cumulative land use impact and would not result in a cumulatively considerable impact under CEQA.

Community and Neighborhoods. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative impacts with regard to communities and neighborhoods. The Refined Build Alternative would not create or add to adverse or significant community and neighborhood impacts.

Future projects in the study area would be served and connected to a larger regional transportation network. At a minimum, the Refined Build Alternative, along with the anticipated transportation projects identified in the 2030 RTP, would reduce traffic congestion in the region and improve air quality, thus benefitting the region. The Refined Build Alternative would contribute to these beneficial community and

neighborhood impacts. As a result, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Socioeconomic and Fiscal. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative socioeconomic and fiscal impacts. The Refined Build Alternative would not create or add to adverse socioeconomic or fiscal impacts. Because the project alignment is largely within existing right-of-way, property acquisitions would be minimal. Property acquisitions from other projects or developments are not anticipated to combine to create adverse impacts. As a result, the Refined Build Alternative would not cause or add to an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Visual Resources and Aesthetics. The EIR for the RCP identified cumulative visual impacts with respect to nighttime views and loss of significant landscape features and land forms. The EIR for the 2030 RTP identified cumulative visual impacts related to view blockage of oceans, bays, or visual resources; noise walls intruding into important vistas along roadways; or changing the scale, character, or quality of scenic highway corridors. The EIR for the 2050 RTP identified cumulative view impacts with respect to blocking panoramic views or significant landscape features or landforms. The EIR for the 2050 RTP also identified cumulative visual impacts regarding adding an urban visual element to rural and open space areas.

The additional traffic lanes and retaining walls associated with the construction of high-occupancy vehicle lanes on I-5 and the Voigt Drive direct-access ramps could combine to create a cumulatively significant impact on the visual quality and character of the I-5 corridor. The Refined Build Alternative would add an additional urban element within a coastal transportation corridor and open space area, and would result in the removal of some landscaping. However, the landscaping would be replaced through mitigation and the additional project features would not be considered visually important because they would be adjacent to existing tracks, buildings, and above-ground utilities. Review of the proposed design treatments for these projects, however, indicates that the LRT bridge and the Voigt Drive direct-access ramps would not contrast with the area's visual character and would not result in a cumulative impact. Another proposed project in the I-5 corridor is the Gilman Drive Bridge to the north of the VA Medical Center. The proposed bridge would cross under the Trolley's aerial structure; however, it would not cumulatively increase the impacts described in the Draft SEIS/SEIR related to the VA Medical Center wall and bridge abutments. All three projects would include design treatments compatible with the Mid-Coast Corridor Transit Project. Combined, these projects would not change the overall character of the area. The catenaries would be visible in views of Mission Bay for drivers, pedestrians, and cyclists traveling on Morena Boulevard. Existing residential areas along the east side of Morena Boulevard are at lower elevations, and residents do not have views of the bay because of freeway and ancillary landscape and berm features. At higher elevations, the line of sight of Mission Bay from residences would be above any of the project features and would not be affected by the project features. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

In addition to the transportation projects described above, future private development in the corridor may result in a cumulative visual impact. Expansion of the Westfield UTC shopping center is anticipated over the next several years and would include new residential, employment, and commercial spaces. Impacts from this project, in conjunction with impacts from the Mid-Coast Corridor Transit Project, could cumulatively affect the visual environment. However, given the urban and heavily developed context of the area, the Refined Build Alternative would not cause an adverse or significant visual cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Air Quality. The EIRs for the RCP, 2030 RTP, and 2050 RTP all identified cumulative air quality impacts due to future growth in the region. The Refined Build Alternative would not create or add to cumulatively significant air quality impacts. The analysis for the Refined Build Alternative included forecasts for future growth in population, employment, and travel within the region. The analysis, therefore, assumed the future air quality impacts from all past, present, and reasonably foreseeable future projects. The Refined Build Alternative would have lower study area emissions burdens for all pollutants in 2030. Therefore, air quality would be better in 2030 with the Refined Build Alternative than without. On a regional basis, all pollutants would decrease under the Refined Build Alternative as compared to the No-Build Alternative, except for PM_{10}, which would increase by less than 1 percent. The increase in PM_{10} from the Refined Build Alternative is considered negligible and thus would not be adverse. As such, the Refined Build Alternative would not contribute to a cumulative impact on air quality and would be beneficial under NEPA and less than significant under CEQA. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Climate Change. The EIR for the RCP did not address climate change, but the EIRs for the 2030 RTP and 2050 RTP both identified cumulative climate change impacts due to future growth in the region, which would increase GHG emissions. The Refined Build Alternative would be beneficial because it would reduce GHG emissions and associated climate change impacts. The analysis for the Refined Build Alternative included forecasts for future growth in population, employment, and travel within the region. The analysis, therefore, assumed the future GHG impacts from all past, present, and reasonably foreseeable future projects. Although GHG emissions are forecast to increase in the region by 2030 due to growth in the region, GHG emissions would be less in 2030 with the Refined Build Alternative than without. The projected GHG emissions are predicted to decrease compared to the No-Build Alternative, resulting in beneficial climate change effects. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Noise and Vibration. The EIR for the RCP and the 2050 RTP identified cumulative noise impacts caused by the increase in traffic volumes regionally and the increased operational activity in transportation corridors and increased operations of stationary sources, such as power plants. Noise levels decrease as the distance from the noise source to the receiver increases. Therefore, only noise sources in the immediate vicinity of the alignment would have the potential to combine with the Refined Build Alternative

to cause a cumulative noise impact. Additionally, within the Mid-Coast Corridor, implementation of future transportation improvements would deteriorate the existing noise and vibration environment.

Although the 2030 RTP EIR found that implementation of future transportation networks described in the 2030 RTP would deteriorate the existing noise environment and result in significant cumulative noise impacts, the project's contribution to this cumulative condition is not cumulatively considerable, as the major source of future noise impacts is roadway vehicle noise, not LRT noise.

To the extent that any cumulatively significant impact would occur, the project's contribution would not be cumulatively considerable. More specifically, traffic noise levels would increase as a result of the projected increase in traffic and as part of a planned future expansion of I-5 to include additional lanes (one in each direction). The existing terrain along the Charmant Drive segment of the project would be modified by the Refined Build Alternative to accommodate an additional lane being added at some point in the future on each side of the freeway. Where the LRT alignment crosses I-5 along Charmant Drive between Gilman Drive and the I-5 crossing, the Refined Build Alternative includes grading, topographic changes, and installation of retaining walls that would maintain or improve the noise-shielding effect between I-5 and sensitive receivers compared to the existing terrain. As such, the Refined Build Alternative would not result in a moderate or severe noise impact.

Additionally, double tracking of the LOSSAN tracks would occur near Cluster 56 (a recreational vehicle park between I-5 and Ariane Drive). The addition of LOSSAN tracks in this area could increase noise; however, the Refined Build Alternative would not result in a moderate or severe noise impact in this area. All project impacts would be mitigated to below significance. Mitigation measures for the project also would reduce the noise levels that would otherwise result from the I-5 widening project.

Furthermore, other projects, including the future I-5 widening and LOSSAN double tracking, would be required to undergo appropriate approval processes to minimize the potential for incompatible noise and vibration environments.

Vibration impacts of the Refined Build Alternative are localized and not likely to combine with vibration impacts of other projects. In addition, the vibration of project LRT vehicles would not increase or compound vibration from freight or passenger trains. Other foreseeable development that could contribute to cumulative noise or vibration levels would be more distant and attenuated from the project and, as such, less likely to result in combined noise or vibration impacts. Further, the vibration impacts of the Refined Build Alternative would be fully mitigated to no impact under NEPA and less than significant under CEQA. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative noise or vibration impact and would not result in cumulatively considerable impacts under CEQA.

Ecosystems and Biological Resources. The EIR for the RCP identified cumulative biological impacts due to the loss of sensitive habitats from development and indirect air, noise, light, and water impacts to sensitive wildlife. The EIR for the RCP noted that although San Diego has an MSCP that is designed to mitigate for cumulative biological impacts,

not all other areas have a completed MSCP. The EIR for the 2030 RTP identified cumulative biological impacts from growth and conversion of undeveloped lands to urban uses. The EIR for the 2030 RTP noted that, in some cases, mitigation measures for these impacts would be infeasible and the remaining unavoidable significant impacts would contribute to cumulative biological impacts. The EIR for the 2050 RTP also identified cumulative biological impacts from growth, and noted the potential for transportation projects to conflict with approved habitat conservation plans.

The Refined Build Alternative would not result in cumulative biological impacts. The Refined Build Alternative is primarily located within a transportation corridor, does not conflict with the approved habitat conservation plan, and does not result in significant and unavoidable biological impacts. The MSCP was designed to compensate for the regional loss of biological resources throughout the region. Projects that are consistent with the MSCP mitigation ratios as specified by the Subarea Plan (City of San Diego, 1997) and implementing ordinances (City of San Diego, 2012b) are not expected to result in a cumulatively considerable impact for those biological resources adequately covered by the MSCP. These resources include the vegetation communities identified as wetlands and Tiers I through IV and the MSCP Covered Species, including coastal California gnatcatcher. The Refined Build Alternative would include mitigation that is consistent with the Subarea Plan and therefore would require mitigation for impacts to special-status vegetation communities (wetlands and Tier II–III). Mitigation would reduce the overall biological impacts from a project through the restoration and/or conservation of vegetation communities. Often the mitigation ratios are higher than 1:1, which accounts for temporary losses and may increase net habitat area. Mitigation through the *TransNet* EMP, described in Section 4.8.1.1, would provide an equivalent level of protection and benefit to biological resources. Other foreseeable projects also would undergo environmental review and permitting and are expected to be consistent with the MSCP.

Although the San Diego fairy shrimp was observed in the study area, the affected basin is located within the existing MTS right-of-way in an otherwise developed area with limited long-term conservation value for the species. The San Diego fairy shrimp is not covered by the MSCP. The hydrology of the occupied basin consists solely of accumulated precipitation (storm-water runoff) from the 0.71-acre watershed. With implementation of the proposed mitigation, habitat for San Diego fairy shrimp would be restored in areas with greater long-term conservation value. As such, the project would not result in or contribute to cumulative impacts on San Diego fairy shrimp within the corridor and the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Water Resources. The EIR for the RCP did not identity cumulative impacts to water resources. The EIR for the 2030 RTP found that regional growth and transportation improvements would result in cumulative impacts to water quality. The EIR for the 2030 RTP found that even with conformance to existing federal, state, and local regulations for grading and the protection of water quality, combined with the implementation of BMPs and mitigation measures, there would be a residual cumulative impact. The EIR for the 2050 RTP did not find cumulative impacts for water quality, floodplain, or flood

hazards based on compliance with existing regulations, which are more stringent that the regulations in place when the EIR for the 2030 RTP was certified. The EIR for the 2050 RTP also identified the site-specific impacts to alterations of drainage patterns, which, depending on the severity, may not be fully mitigated by compliance with existing regulations, resulting in a cumulative impact to drainage.

The Refined Build Alternative would not result in cumulative impacts to water resources. Regulations have been adopted since the EIR for the 2030 RTP that fully mitigate cumulative impacts to water resources. Without BMPs, the Refined Build Alternative and other foreseeable transportation and urban development projects would increase impervious surface, degrade the quality of surface-water runoff, and negatively affect ground water and floodways. However, the Refined Build Alternative would implement appropriate BMPs. Other projects also would undergo their own environmental review and permitting processes, and BMPs and mitigation measures would be required for these projects to avoid and minimize adverse cumulative impacts. The Refined Build Alternative would not contribute to long-term cumulative impacts on water resources. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Hazardous Materials. The EIR for the RCP did not identify cumulative hazardous materials impacts. The EIR for the 2030 RTP and the 2050 RTP both identified the potential for people to be exposed to hazardous materials during transport, or from materials on industrial or former agricultural lands. The EIR for the 2050 RTP also identified the potential for people to be exposed to hazardous materials during an accidental release.

The Refined Build Alternative would not result in cumulative hazardous materials impacts. Operations and maintenance of the Refined Build Alternative would not involve regular use or transport of hazardous materials and thus would not contribute to adverse cumulative hazardous materials impacts. Additionally, future development projects would be subject to the laws and requirements related to hazardous materials and would be required to mitigate any existing or potential hazards to the environment or public that could occur from future development. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Geotechnical, Geologic, and Seismic**.** The EIRs for the RCP and 2030 RTP did not find cumulative geotechnical impacts. The EIR for the 2050 RTP found cumulative impacts to geology with regard to the loss of mineral resources; however, the EIR did not identify any cumulative impacts related to seiche, tsunami, or mudflows. The Refined Build Alternative would not result in cumulative geotechnical, geologic, or seismic impacts because the project does not contribute to the loss of mineral resources or have impacts related to seiches, tsunamis, or mudflows. The Refined Build Alternative would incorporate project measures to avoid adverse geotechnical impacts on people and structures and thus would not contribute to adverse cumulative geotechnical, geologic, or seismic impacts. Additionally, future development along the corridor would be subject to development and building standards designed to protect public safety in accordance with state and local laws and codes. Therefore, the Refined Build Alternative would not

cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Energy. The EIRs for the RCP, 2030 RTP, and 2050 RTP all identified cumulative energy impacts due to future growth in the region. The analysis for the Refined Build Alternative included forecasts for future growth in population, employment, and travel within the region. The analysis, therefore, assumed the future energy usage from all past, present, and reasonably foreseeable future projects. Although energy usage is projected to increase due to growth in the region, the Refined Build Alternative is projected to reduce overall energy use and costs in both the study area and the region, as compared to the No-Build Alternative, thus being beneficial. Furthermore, the demand of the Refined Build Alternative for electrical energy would be less than 0.0001 percent of the regional energy use. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Safety and Security. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative safety and security impacts. The Refined Build Alternative, when combined with other foreseeable highway and transit improvement projects, would result in lower VMT and more miles traveled by rail. Rail travel is statistically safer than travel on streets and would have a positive impact on safety. Security in the Mid-Coast Corridor would be improved by a project design that incorporates security measures, the use of a dedicated security force, and remote monitoring of the project's facilities. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Electromagnetic Interference. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative EMF impacts. The known information regarding EMF and health impacts has been summarized in Section 4.14. SANDAG has determined that a statement or conclusion of cumulative EMF health impacts would be speculative at this time.

Impacts related to EMF interference with sensitive equipment are site-specific. Therefore, the geographical area within which cumulative EMF impacts could occur is limited to each project and the directly adjacent areas. The likelihood that any combination of projects would result in cumulative EMF impacts is remote because there are no reasonably foreseeable projects within the Mid-Coast Corridor that would create EMF in proximity to the project alignment. Additionally, EMF impacts generated by the Refined Build Alternative would be mitigated. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Historic Architectural, Archaeological, and Paleontological Resources**.** The EIR for the RCP identified cumulative impacts from the loss of cultural resources. The EIRs for the 2030 RTP and 2050 RTP identified cumulative impacts from alteration or demolition of historic buildings and the loss of archaeological and paleontological resources. Operation of the Refined Build Alternative would not have a cumulative impact on historic architectural, archaeological, or paleontological resources. Cumulative construction impacts to these resources are identified under the Construction subheading, below. Therefore, the

Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Utilities. The EIR for the RCP and the 2030 RTP did not identify cumulative utility impacts. The EIR for the 2050 RTP identified cumulative utility impacts with regard to solid waste. The Refined Build Alternative would not result in cumulative utility impacts because the Refined Build Alternative would generate very little solid waste. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Construction Impacts

The assessment of cumulative construction impacts considers Refined Build Alternative construction impacts combined with other reasonably foreseeable projects in the Mid-Coast Corridor that are planned for construction during the same period, which are described in the *Mid-Coast Corridor Transit Project Construction Impacts Technical Report* (SANDAG, 2014s). These construction impacts, by nature, would be temporary and intermittent between 2014 and 2019. An assessment of each resource area is provided below.

Transportation. Refer to Chapter 3.0 for a detailed description of cumulative impacts of the Refined Build Alternatives on the transportation system.

Land Use Plans and Policies. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative land use impacts from construction. The majority of the project alignment is located within an existing transportation corridor. However, temporary construction impacts such as noise, light and glare, and dust and particulates would negatively affect some land uses, particularly outdoor activities. Construction of other reasonably foreseeable projects could result in similar adverse impacts, which could combine to impact adjacent land uses. However, the Refined Build Alternative would not result in any adverse changes to land uses and, in general, construction impacts from other projects would not change any land uses or result in adverse land use impacts. As a result, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Community and Neighborhoods. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative community and neighborhood impacts from construction. Construction of the Refined Build Alternative could disrupt communities and neighborhoods in the immediate vicinity of construction activities. Such impacts generally would be temporary in nature. With the implementation of project measures and mitigation, these construction impacts would not generally cause an adverse or significant impact. However, cumulative construction impacts would occur in UCSD and University City because of other planned projects that would be under construction concurrent with the Refined Build Alternative; these impacts are related to noise, air quality, and transportation, and are also identified under those topics. Even with project measures and mitigation, localized cumulative impacts to UCSD and University City would be adverse under NEPA and significant and cumulatively considerable under CEQA.

Socioeconomic and Fiscal. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative socioeconomic and fiscal impacts from construction. Cumulative construction impacts such as traffic congestion and modified access that could have an economic impact on businesses are expected to occur at UCSD and University City because of other planned projects that would be under construction concurrent with the Refined Build Alternative. Even with implementation of coordinated BMPs, such as business signage and traffic management, there would be a cumulative adverse impact under NEPA and cumulatively considerable impact under CEQA from concurrent construction.

Visual Resources and Aesthetics. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative visual impacts from construction. Temporary impacts during construction of the Refined Build Alternative, including increased dust, the stockpiling of construction-related materials, the presence of heavy equipment, temporary barriers, and light and glare from staging areas, would result in a negative impact on the visual environment. However, because of the temporary nature of these impacts, they are not considered adverse. Combined with similar construction impacts in the Mid-Coast Corridor from other foreseeable projects, the combined impacts generally would not be cumulatively adverse or significant because of their localized and temporary nature. The Refined Build Alternative would not result in an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Air Quality. The EIR for the RCP did not identify a cumulative air quality impact from construction, but the EIRs for the 2030 RTP and 2050 RTP both identify localized cumulative air quality impacts from construction. Construction air quality impacts such as dust and particulates tend to be localized to the construction area and the areas immediately adjacent. Emissions of other pollutants, such as NO_X and TOGs, are generally an impact on a cumulative basis only when combined with emissions from other past, present, or reasonably foreseeable other projects. Air quality regulations and general BMPs to reduce construction site dust, particulates, and emissions have been developed by regulatory agencies to reduce the cumulative air quality impacts of construction. Compliance with these air quality regulations and implementation of BMPs and project-specific measures would reduce impacts on air quality from construction-related emissions. However, even with project measures, construction of the Refined Build Alternative would result in exceedances of NO_X and CO_2 (a GHG). As a result, air quality construction impacts would be cumulatively adverse under NEPA and cumulatively considerable under CEQA. Although considered adverse, impacts to air quality and GHG emissions during construction are temporary and would be offset by the overall reduction in emissions that would result through implementation of the project.

Climate Change. The EIR for the RCP did not address climate change. The EIRs for the 2030 RTP and 2050 RTP both identify cumulative GHG impacts from construction. Construction of the Refined Build Alternative would release GHGs (i.e., methane, chlorofluorocarbons, and CO_2). However, the short-term increase in GHG would be offset by the overall reduction in GHG emissions as a result of project implementation. Thus, the project's contribution would not be an adverse impact and would not be cumulatively considerable under CEQA.

Noise and Vibration. The EIR for the RCP and 2030 RTP identified short-term cumulative noise impacts from construction. However, the EIR for the 2050 RTP did not identify cumulative noise impacts from construction. Construction of the Refined Build Alternative would have daytime and nighttime noise impacts. Cumulative construction impacts could occur at UCSD and University City because of other planned projects that could be under construction concurrent with the Refined Build Alternative. These other projects are not expected to require nighttime construction in proximity to the locations where the Refined Build Alternative would have nighttime noise impacts; thus, there would be no adverse or significant cumulative noise impact from nighttime construction work.

During the day, most construction activities would be permitted. Concurrent projects would have construction work during the day. Concurrent construction of improvements to the LOSSAN tracks could have adverse cumulative impacts to businesses along the MTS right-of-way. Additionally, construction of other projects within UCSD and University City together with the Refined Build Alternative could cause a significant cumulative impact under CEQA. However, the Refined Build Alternative includes project measures and mitigation that would minimize noise impacts during construction and, thus, there would not be a significant cumulative impact or a cumulatively considerable impact under CEQA to sensitive receptors in that vicinity, such as the Preuss School.

Vibration impacts from construction of the Refined Build Alternative are localized. Cumulative impacts would only occur in locations where other construction activity would occur in the immediate vicinity of the Refined Build Alternative construction zones. The Refined Build Alternative includes project and mitigation measures to minimize vibration impacts. Similarly, other projects would be required to implement similar measures. Therefore, there would not be a significant cumulative impact or a cumulatively considerable impact under CEQA.

Ecosystems and Biological Resources. The EIRs for the RCP, 2030 RTP, and 2050 RTP all identified cumulative biological impacts from construction, which results in the loss of habitat and sensitive species, and indirect impacts from noise, light, and glare. Construction would result in some localized impacts on ecosystems and biological resources. The Mid-Coast Corridor encompasses open space areas, and the project alignment, located within the existing MTS right-of-way, is near Rose Canyon Open Space and Marian Bear Memorial Park. The Refined Build Alternative also crosses the San Diego River. Limited grading and habitat removal would be required within these open space areas, adjacent to existing developed transportation rights-of-way. With mitigation, no adverse or significant impacts would occur. Regulations, BMPs, construction permits, and mitigation would require that affected resources be replaced and mitigated via restoration and preservation of additional habitat. It is reasonable to assume that other projects that would impact ecosystems and biological resources in the Mid-Coast Corridor also would mitigate their impacts and would be consistent with the MSCP. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Water Resources. The EIR for the RCP did not identity cumulative impacts to water resources. The EIR for the 2030 RTP found that even with conformance to existing federal, state, and local regulations for grading and the protection of water quality, combined with the implementation of BMPs and mitigation measures, there would be a residual cumulative impact. The EIR for the 2050 RTP did not find cumulative impacts for water quality, floodplain, or flood hazards based on compliance with existing regulations, which are more stringent than the regulations in place when the EIR for the 2030 RTP was certified. Construction of the Refined Build Alternative would comply with existing regulations and requirements, as well as site-specific BMPs. As a result, no adverse impacts are expected. All other projects under construction at the same time as the Mid-Coast Corridor Transit Project also would be required to implement BMPs. As a result, cumulative construction impacts due to the Refined Build Alternative on water resources, with the implementation of site-specific BMPs, would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Hazardous Materials. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative hazardous materials impacts from construction. The EIR for the 2050 RTP identified the potential for people to be exposed to hazardous materials during an accidental release, which could occur during construction. Although there is a potential for cumulative hazardous materials impacts during construction if the Refined Build Alternative is constructed at the same time as other reasonably foreseeable projects, impacts related to hazardous materials are site-specific. Therefore, the geographical area within which cumulative hazardous materials impacts could occur is limited to the construction limits of each project and directly adjacent areas. The likelihood that any combination of projects would result in a cumulative hazardous materials impact is extremely remote. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Geotechnical, Geologic, and Seismic. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative geotechnical, geologic, seismic, seiche, tsunami, or mudflow impacts from construction. Although there is a potential for cumulative geotechnical, geologic, or seismic impacts during construction if the Refined Build Alternative is constructed at the same time as other reasonably foreseeable projects, the potential is very low because these impacts are very site specific. Further, project measures for geotechnical, geologic, and seismic impacts are included to eliminate the project's potential to add to such impacts. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Energy. The EIRs for the RCP, 2030 RTP, and 2050 RTP all identified cumulative energy impacts from construction as a result of the use of fossil fuels. Construction of the Refined Build Alternative and other reasonably foreseeable projects would expend energy, but even combined, the energy expended for construction is a small portion of total energy used in the region. Section 4.17 describes the energy demand for construction activities for the Refined Build Alternative. Annual construction-related energy requirements for the Refined Build Alternative are less than 0.1 percent of the

region's annual energy demand. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

Safety and Security. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative safety and security impacts. The construction zone for the Refined Build Alternative would be in close proximity to other projects that would be constructed concurrently, particularly near UCSD and University City; therefore, cumulative construction impacts could occur at these locations. All projects would provide detours to ensure safe travel by motorists and pedestrians while also ensuring that emergency response times are not adversely affected. These measures would be coordinated with other projects in the vicinity. Consequently, adverse safety and security impacts would be avoided. Therefore, the Refined Build Alternative would not cause an adverse or significant cumulative impact with respect to safety and security and would not result in a cumulatively considerable impact under CEQA.

Electromagnetic Interference. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative EMI impacts. Construction activities for the Refined Build Alternative would involve the use of some electrically powered equipment; however, the levels of EMFs during construction would be very low and would not be adverse or significant. Additionally, any EMF impacts would be localized such that they would not combine with EMF levels from construction equipment at other construction sites to affect the operation of nearby equipment or machinery sensitive to background levels of EMF. As a result, construction of the Refined Build Alternative would not result in adverse or significant cumulative EMF impacts and would not be cumulatively considerable under CEQA.

Historic Architectural, Archaeological, and Paleontological Resources. The EIR for the RCP identified cumulative impacts from the loss of cultural resources, which generally occurs during construction. The EIRs for the 2030 RTP and 2050 RTP identified cumulative impacts from alteration or demolition of historic buildings and the loss of archeological and paleontological resources. Construction of the Refined Build Alternative would not physically alter, relocate, or demolish historic architectural properties. The Refined Build Alternative would not cause an adverse or significant cumulative construction impact to historic architectural properties and would not be cumulatively considerable under CEQA. The FTA has made a determination of "no adverse effect" for historic architectural properties.

During the Extended Phase I Investigations, no NRHP-eligible archaeological resources were identified or detected within the project APE. Therefore, the FTA has made a determination of "no historic properties affected" for archaeological resources pursuant to Section 106 of the NHPA. Three mitigation measures (construction monitoring, worker cultural resources awareness training, and treatment of discoveries consisting of archaeological or human remains) were recommended to be implemented during the construction phase of the project to address the possibility of unanticipated archaeological resource discoveries. Accordingly, the Refined Build Alternative would not cause an adverse or significant cumulative construction impact to archaeological resources and would not be cumulatively considerable under CEQA.

Paleontological resources within the Mid-Coast Corridor are finite and are viewed on a regional scale. Cumulatively, any ground disturbances associated with the construction of projects that are located in the Mid-Coast Corridor could result in cumulative impacts to the same formations. Impacts to paleontological resources would be mitigated for the Refined Build Alternative and other reasonably foreseeable projects, so the majority of paleontological resources would be recovered. However, even with mitigation, some damage or destruction of paleontological resources in the Mid-Coast Corridor during the course of recovery could occur. As a result, the combined impact to paleontological resources from the Refined Build Alternative and other reasonably foreseeable projects located throughout the geologic units in the Mid-Coast Corridor could result in adverse cumulative impacts. The Refined Build Alternative's contribution would be considered cumulatively considerable, resulting in a significant and unavoidable impact under CEQA.

Utilities. The EIRs for the RCP, 2030 RTP, and 2050 RTP did not identify cumulative utility impacts. Impacts to utilities as result of concurrent construction activities in the Mid-Coast Corridor, particularly near UCSD and University City, would be reduced through on-going coordination with utility companies. With the implementation of project measures, the Refined Build Alternative would not cause an adverse or significant cumulative impact and would not result in a cumulatively considerable impact under CEQA.

4.20 Environmental Justice

This section evaluates the environmental justice (EJ) impacts of the No-Build and Refined Build Alternatives. The analysis identifies study area EJ populations and determines whether disproportionately high and adverse impacts from the project would be experienced by minority and/or low-income populations, defined as EJ populations. Mitigation measures also are identified. For additional information, refer to the *Mid-Coast Corridor Transit Project Environmental Justice Technical Report* (SANDAG, 2014t) prepared in support of the SEIS/SEIR. As discussed in Section 4.3, property displacements would not be adverse; therefore, they are not discussed in this section.

An EJ analysis was not conducted during any of the prior environmental studies for the Mid-Coast Corridor. The Draft SEIS/SEIR identified disproportionately high and adverse impacts in University City with the Genesee Avenue Design Option and mitigation was proposed specific for this option.

This section has been revised since the Draft SEIS/SEIR based on refinements to the Build Alternative, elimination of the Genesee Avenue Design Option, and the updated analysis presented in Chapter 3.0 and the preceding sections in this chapter. The Refined Build Alternative does not include the Genesee Avenue Design Option. As a result, the project would not result in disproportionately high and adverse impacts and mitigation specific for EJ communities is not required. Additionally, the short-term construction-related noise impacts and location of haul routes were revised within this section and a discussion of public outreach during the Draft SEIS/SEIR comment period was added.

Chapter 5.0 of the *Mid-Coast Corridor Transit Project Environmental Justice Technical Report* (SANDAG, 2014t) was revised based on refinements to the Build Alternative and the corresponding updates to the long-term noise analysis, temporary parking impacts, haul route locations, and construction-related noise impacts. Refer to the Preface of the Environmental Justice Technical Report for additional information on the changes to the EJ analysis and technical report since the Draft SEIS/SEIR. Under the Refined Build Alternative, none of the adverse impacts to EJ populations would be disproportionately high and adverse.

4.20.1 Regulatory Background and Methodology

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,* and USDOT Order 5610 direct federal agencies to take appropriate and necessary steps to identify and address disproportionately high and adverse impacts of their projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Executive Order 12898 directs federal actions, including transportation projects, to use existing law to avoid discrimination on the basis of race, color, or national origin, and to avoid disproportionately high and adverse impacts on minority and low-income populations. These often are referred to as EJ populations.

FTA Circular 4703.1, *Environmental Justice Policy Guidance for FTA Recipients* (FTA, 2012), effective August 15, 2012, builds upon existing orders and authorities to incorporate EJ principles into plans, projects, and activities that receive funding from the FTA. The guiding EJ principles that are followed by the USDOT and FTA, contained in FTA Circular 4703.1, are as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health or environmental impacts, including social and economic impacts, on minority and low-income populations
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

The EJ analysis starts by identifying EJ populations that could be affected by the project. It then determines if any EJ populations would be adversely affected by the project. This is followed by a determination of whether adverse impacts to EJ populations would be disproportionately high and adverse.

FTA Circular 4703.1 defines adverse effect as follows:

> *…the totality of significant individual or cumulative human health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of man-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or non-profit organizations; increased traffic congestion, isolation, exclusion or separation of individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of benefits of DOT [U.S. Department of Transportation] programs, policies, or activities.*

FTA Circular 4703.1 defines low-income as "a person whose median household income is at or below the U.S. Department of Health and Human Services poverty guidelines." In lieu of the department's poverty guidelines, the circular encourages the use of locally developed thresholds.

Environmental Justice Guidance under the National Environmental Policy Act (Council on Environmental Quality, 1997) states that "minority populations should be identified when either: (a) the minority population of the affected area is 50 percent or (b) when the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." The City of San Diego was selected as the unit of geographical comparison because it is the most representative urban environment and contains approximately 67 percent of the Trolley stations in the region. The minority population percentage in the City of San Diego is 54.9 percent (U.S. Census Bureau, 2012a).

Therefore, for this analysis, minority populations in the affected area are defined when they comprise 50 percent of the population or more, which includes populations that are meaningfully greater than minority populations in the City of San Diego (54.9 percent).

Additionally, the percentage of persons living below poverty in the City of San Diego, used to identify low-income populations for this analysis, is 17.4 percent (U.S. Census Bureau, 2012a). To analyze regional transit service benefits, 2010 Census data for the County of San Diego also were used (U.S. Census Bureau, 2012a).

The analysis identifies minority and low-income populations within one-half mile of the project alignment for long-term impacts and within 350 feet of the project alignment for construction impacts. These distances represent the area that is most likely to be directly affected by the proposed project (e.g., ridership, access, traffic, parking, noise, vibration, and visual effects).

According to FTA Circular 4703.1, a disproportionately high and adverse impact on minority and low-income populations is defined as an adverse impact that (1) is predominately borne by a minority population and/or low-income population, or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse impact that will be suffered by the non-minority population and/or non-low-income population.

FTA Circular 4703.1 specifies a process for making determinations of disproportionately high and adverse effects that take into consideration mitigation and enhancement measures that will be incorporated into the project. The effects to EJ and non-EJ populations should be compared as a basis for determining disproportionality. The EJ analysis should include a review of the totality of circumstances before determining whether there will be disproportionately high and adverse effects on EJ populations. Determinations regarding whether potential impacts to EJ populations would be disproportionately high and adverse are made by considering the following questions:

- Would the project result in adverse effects predominately borne by an EJ population?
- Would adverse effects on an EJ population be appreciably more severe or greater in magnitude than adverse effects that would be suffered by non-EJ populations?
- Would mitigation and enhancement measures be taken to lessen impacts on an EJ population?
- Would any adverse effects impact a resource that is especially important to an EJ population?
- What are the offsetting benefits to an EJ population that could help to balance substantial adverse impacts?

4.20.2 Affected Environment

The analysis identified nine geographic areas within the Mid-Coast Corridor as having EJ populations because of their high proportion of minority and/or low-income (below the poverty level) populations when compared to the city as a whole. These geographic areas include:

- Little Italy (low-income populations greater than city average)
- Civic/Core (minority populations greater than 50 percent)
- East Village (minority populations greater than 50 percent)
- Mission Beach/Mission Bay Park (low-income populations greater than city average)
- Old Town (low-income populations greater than city average)
- Linda Vista (minority populations greater than 50 percent, low-income populations greater than city average)
- La Jolla Village (low-income populations greater than city average)
- Park West (low-income populations greater than city average)
- University City (low-income populations greater than city average)

Figure 4-37 shows the EJ populations within the corridor and Table 4-36 provides a demographic profile of the corridor, including the nine EJ populations.

Five of the nine geographic areas are within one-half mile of the project alignment: Little Italy, Civic/Core, Old Town, La Jolla Village, and University City. The remaining four geographic areas (Linda Vista, East Village, Mission Beach/Mission Bay Park, and Park West) are not within one-half mile of the project alignment and would not be affected by the project.

4.20.3 Environmental Impacts

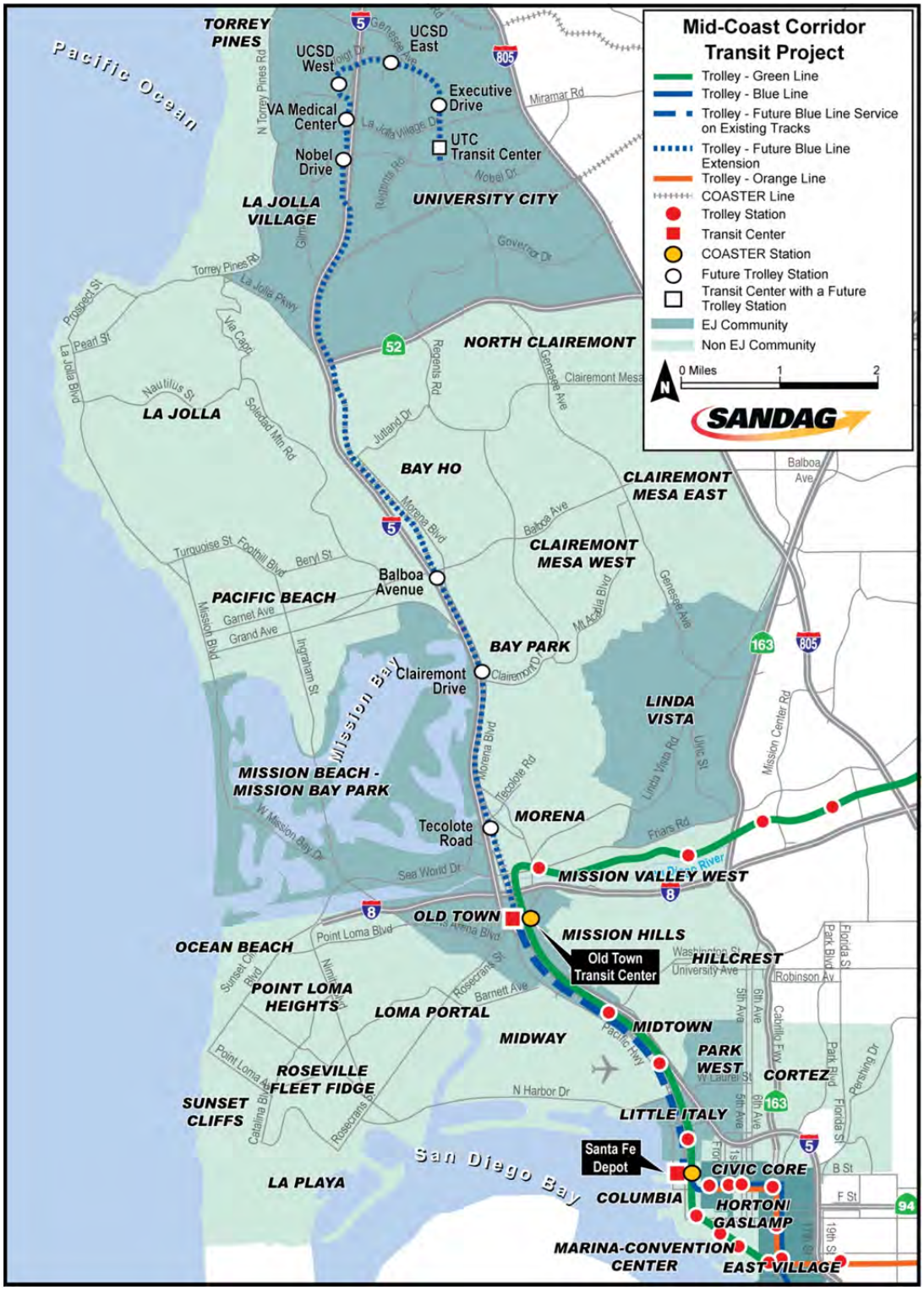
This section describes the adverse impacts of the No-Build and Refined Build Alternatives on EJ populations in the Mid-Coast Corridor.

The characterization of impacts for NEPA analysis, where impacts are described in terms of *beneficial, not adverse,* or *adverse*, has been modified to address impacts specific to EJ populations or communities for which the FTA requires supplemental analysis. This modification requires additional analysis of adverse impacts—whether adverse impacts to EJ populations are high and substantial and, further, if adverse impacts are disproportionately high and adverse (i.e., an adverse impact that is predominately borne by an EJ population or is appreciably greater in magnitude to EJ populations than to non-EJ populations).

4.20.3.1 No-Build Alternative

The No-Build Alternative includes the continuation and enhancement of service along bus Route 150, operating between Downtown San Diego, the OTTC, and University City. The enhancement of bus services for this route would not require new transit infrastructure and, therefore, would not result in physical impacts or changes to existing land uses within the Mid-Coast Corridor. The No-Build Alternative would not result in adverse impacts; therefore, there would be no disproportionately high and adverse effects on EJ populations.

Figure 4-37. Mid-Coast Corridor EJ Populations



Sources: U.S. Census Bureau, 2012a; SANDAG, 2014

Table 4-36. 2010 Demographic and Socioeconomic Data—Mid-Coast Corridor

Geographic Area	EJ Population	Percent Aggregate Minority	Percent of Population Below Poverty Level
City of San Diego		54.9	17.4
Threshold[a]		**50.0**	**17.4**
Mid-Coast Corridor		34.7	14.6
Little Italy	Yes	29.4	**17.8**
Columbia	No	27.8	15.2[b]
Cortez	No	34.6	10.4
Civic/Core	**Yes**	**66.0**	10.4[b]
Horton/Gaslamp	No	31.6	10.4[b]
Marina/Convention Center	No	16.5	10.4[b]
East Village	**Yes**	**54.0**	**36.2**
Park West	Yes	29.7	**19.6**
Hillcrest	No	29.8	12.2
Midtown	No	29.9	11.9
Point Loma Heights	No	18.8	6.1
Midway	No	39.3	14.9
Loma Portal	No	26.1	11.0
Sunset Cliffs	No	13.3	3.4
Roseville–Fleetridge	No	11.8	3.8
La Playa	No	11.4	7.5
Ocean Beach	No	18.3	12.4
Mission Hills	No	19.7	6.5
Old Town	**Yes**	36.0	**26.7**
Mission Beach/Mission Bay Park	Yes	14.7	**20.5**
Mission Valley West	No	31.7	4.7
Linda Vista	**Yes**	**68.7**	**20.1**
Morena	No	32.7	11.6
Clairemont Mesa West	No	29.9	10.7
Clairemont Mesa East	No	48.2	9.1
North Clairemont	No	40.1	8.7
Pacific Beach	No	20.9	12.7
Bay Park	No	26.8	8.7
Bay Ho	No	30.0	12.5
La Jolla	No	17.3	4.0
La Jolla Village	**Yes**	33.1	**23.0**
University City	**Yes**	48.2	**23.0**
Torrey Pines	No	18.5	3.2

Sources: U.S. Census Bureau, 2012a; U.S. Census Bureau, 2012b

Notes: [a] A community is identified as an EJ population (bold) if the total minority population is greater than 50 percent or if the percentage of persons below poverty level is greater than the City of San Diego average (17.4 percent).

[b] Data available at census tract level and the data for the one census tract represent the combination of the Columbia, Civic/Core, Gaslamp, and Marina/Convention Center neighborhoods.

EJ = Environmental Justice

4.20.3.2 Refined Build Alternative

The Refined Build Alternative would result in adverse long-term impacts and short-term construction impacts for the following transportation and environmental topics: traffic, transit (adverse short-term construction impacts only), parking (adverse short-term construction impacts only), air quality (adverse short-term construction impacts only), and noise and vibration. These effects would occur in four of the nine EJ communities within the Mid-Coast Corridor—Little Italy, Old Town, La Jolla Village, and University City. The Civic/Core, East Village, Park West, Mission Beach/Mission Bay Park, and Linda Vista EJ communities would not be affected by these adverse long-term and short-term construction impacts. These adverse impacts are discussed in Chapter 3.0 and Sections 4.7 and 4.17. This section evaluates adverse impacts remaining after the implementation of project measures, BMPs, and mitigation measures discussed in these sections and assesses the potential of high and substantial adverse impacts to cause disproportionately high and adverse impacts to EJ populations.

Adverse Impacts Remaining After Mitigation

After mitigation, adverse impacts would remain for the following elements of the environment:

- Noise (short-term construction impacts)
- Transportation—Transit (short-term construction impacts), traffic (long-term impacts and short-term construction impacts), and parking (short-term construction impacts)

Adverse Noise Impacts Remaining after Mitigation

Under the Refined Build Alternative, adverse short-term construction noise impacts to EJ populations would remain after mitigation; however, these impacts would be temporary. Noise impacts would occur when nighttime construction is required to avoid other impacts, which would create noise levels that exceed the ambient noise levels for that area. Mitigation measures would be implemented as required by the Noise Control Plan (Mitigation Measure CON1), the details of which are described in Section 4.17.3.2. In addition to the project-wide mitigation approach, the contractor would provide noise-reducing curtains or noise-masking machines where appropriate and approved by the occupant. Temporary lodging in an approved hotel would be offered by SANDAG to residents if, after implementation of the noise-reducing measures, nighttime construction noise is predicted to exceed the ambient noise level for that area by 5 dBA (Mitigation Measure CON2). These measures, which are also described in Section 4.17.3.2, would minimize adverse short-term construction noise impacts.

The Noise Control Plan would be developed prior to the start of construction to manage construction noise throughout the corridor. The Noise Control Plan would demonstrate how the contractor would reduce noise levels near sensitive noise receptors consistent with the City of San Diego Noise Ordinance. The plan would include an analysis of existing noise levels based on actual background noise levels, a list of the major pieces of construction equipment that would be used, and predictions of the noise levels at the closest sensitive receivers (including residences, hotels, schools, churches, temples, and similar facilities where either outdoor or indoor activities would be sensitive to noise levels). The Noise Control Plan would include noise attenuation features as necessary,

such as temporary sound walls and mufflers, and locating noisy equipment away from sensitive land uses.

Adverse Transportation Impacts Remaining after Mitigation

As described in Section 3.4.7, under the Refined Build Alternative, adverse short-term construction transit impacts to local bus services in University City and to the operation of the Trolley Green Line from the Morena/Linda Vista Station to the OTTC would remain after mitigation. Project measures would be incorporated to reduce these effects, and, although temporary, these impacts would remain adverse.

As described in Section 3.4.2, under the Refined Build Alternative, adverse long-term traffic impacts at the following three locations would remain after mitigation:

- Beech Street and Pacific Highway
- Mission Bay Drive and Garnet Avenue
- Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp

These adverse impacts would affect EJ populations in Little Italy and non-EJ populations in Pacific Beach. The adverse impact in Little Italy is at the stop-controlled intersection of Beech Street and Pacific Highway adjacent to the Beech Street grade crossing. When a train clears the crossing and the gates rise, all the backed-up traffic that had been waiting along westbound Beech Street is released, which arrives at the Beech Street and Pacific Highway intersection at one time. Because this is a stop-controlled approach, only one vehicle can be served at a time, resulting in greater delays for all vehicles in the queue. Vehicles that arrive under normal conditions (i.e., not immediately after a train travels through the grade crossing) are not expected to experience an adverse delay. Therefore, while an unmitigated impact would occur at this location, the impact on EJ populations in Little Italy would not be disproportionately high and adverse.

As described in Section 3.4.7, under the Refined Build Alternative, adverse short-term construction traffic and parking impacts to EJ and non-EJ populations would remain after mitigation; however, these impacts would be temporary. The volume of truck traffic would increase during construction of the project along haul routes. Truck volumes would be greatest at staging and station areas, depending on the amount of excavation and foundations required. There is one location within University City where haul truck activity would occur close to residences (the Matthews Apartments on Sixth Lane on the UCSD campus). Adverse impacts from construction staging and station areas would occur to four non-EJ populations.

Adverse Impacts that are Disproportionate to EJ Populations

Adverse impacts remaining after mitigation were assessed to determine if they would be disproportionate, that is predominately borne by an EJ population or appreciably greater in magnitude to EJ populations than to non-EJ populations.

Under the Refined Build Alternative, the adverse noise impacts from construction would occur in an urban environment with an existing L_{dn} noise measurements ranging between 55 and 84 dBA. The noise impacts would be temporary and not extend beyond

the end of the construction period. Daytime construction noise levels could exceed the City of San Diego noise limit of 75 decibels averaged over the 12-hour period from 7 a.m. to 7 p.m. when construction is allowed. Because it would be temporary, would be mitigated to the extent practicable, and would occur similarly throughout the corridor, construction noise impacts would not be disproportionate and adverse for sensitive receptors beyond 100 feet of the alignment.

Nighttime construction noise would cause adverse impacts at sensitive receptors within the project area. The majority of the elevated guideway portion of the alignment is located within University City, and nighttime construction, particularly along Genesee Avenue, would be required to limit road closures and maintain access to local businesses during normal business hours. Therefore, the majority of nighttime noise construction impacts would be concentrated in this community, which contains EJ populations. Mitigation Measure CON2, described in Section 4.17.3.2, would implement noise-control features to reduce nighttime construction noise effects to residents within the northeast corner of Cape La Jolla Gardens and along Charmant Drive and Genesee Avenue in University City. When noise from planned construction activities is anticipated to exceed the ambient noise levels for that area, which would result in a temporary adverse noise impact, residents would be offered noise-reducing measures or temporary lodging in an approved hotel if, after implementation of the noise-reducing measures, the ambient noise levels for that area are exceeded by 5 dBA. This additional mitigation offered when adverse impacts are predicted would reduce nighttime noise impacts such that impacts for relocated residents would not be adverse.

Under the Refined Build Alternative, the adverse long-term traffic impacts would not be disproportionate because they would occur in communities with EJ and non-EJ populations. With implementation of mitigation measures, long-term adverse traffic impacts to EJ populations in Little Italy would be eliminated in the p.m. peak hour and reduced to the greatest extent feasible in the a.m. peak hour, resulting in a 0.6 second greater delay than under the No-Build Alternative. As stated previously, vehicles that arrive at Beech Street and Pacific Highway under normal conditions (i.e., not immediately after a train travels through the grade crossing) are not expected to experience an adverse delay. There were no feasible mitigation measures to reduce the long-term traffic impacts to non-EJ populations within Pacific Beach. With implementation of mitigation, the remaining long-term traffic impacts would be greater in magnitude for the non-EJ populations within Pacific Beach. Therefore, the impacts on EJ populations would not be appreciably more severe or greater in magnitude than the adverse effects on non-EJ populations.

Under the Refined Build Alternative, the adverse transportation impacts from construction would not be disproportionate. With implementation of mitigation measures, construction-related adverse transportation impacts would be reduced for adjacent commercial areas, residential neighborhoods, and transit riders. Although increases in delay for transit riders would occur for local bus routes and UCSD shuttles in University City and for patrons of the Trolley Green Line from the Morena/Linda Vista Station to the OTTC, operation of these routes would be maintained and would result in minor inconveniences. Although temporary closures, detours, and changes in access points may occur during construction, access to businesses and residences would be

maintained. With mitigation in place, these construction-related transportation impacts would remain adverse, but they would not be disproportionately high with regard to EJ populations. The distribution of construction transit, traffic, and parking impacts shows that adverse impacts would not be predominately borne by EJ populations. Further, impacts on EJ populations would not be appreciably more severe or greater in magnitude than effects on non-EJ populations. The magnitude of construction transit, traffic, and parking impacts would be approximately the same for all populations.

Additionally, under the Refined Build Alternative, no important social, religious, or cultural resources would be permanently altered or disturbed by the proposed project. Therefore, under the Refined Build Alternative, there would be no adverse impacts on resources that serve an especially important social, religious, or cultural function for an EJ population.

For more information on community facilities, see Section 4.2 of this chapter and the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e).

Effects: Without considering offsetting benefits of the project, there would not be any disproportionately high and adverse impacts for low-income populations.

The totality of environmental effects, which includes offsetting benefits, is presented in Section 4.20.7.

4.20.4 Benefits

Transportation effects from the project are expected to be beneficial because of the improved accessibility and connectivity provided by the new transit service. The benefits to transit users include improved access to employment and activity centers. Traffic and transit performance would improve within the Mid-Coast Corridor, and these benefits would be realized by all populations. Nine new stations are proposed for the project, of which six are located in neighborhoods containing EJ populations. The project also would provide parking at five stations, in both EJ and non-EJ populations. As a result, these EJ populations would have the opportunity to access the corridor transit system as well as the region-wide transit system.

Using regional performance measures, ridership, mode of access, fare costs, and travel time, it is possible to assess the transportation benefits of the project. These performance measures were compared to the No-Build Alternative to identify a difference in time savings based on hours, referred to as a user benefit. The Trolley Blue Line extension under the Refined Build Alternative would benefit transit users by providing shorter travel times and more reliable transit service compared to travel by bus. The benefits of the Refined Build Alternative would be reflected by increases in transit ridership when compared to the No-Build Alternative. A reduction in regional VMT would reduce pollutant emissions and benefit air quality throughout San Diego County. The Refined Build Alternative also would provide transit infrastructure to accommodate TOD, which can improve quality of life by providing housing and a mix of uses within walking distance to public transportation and providing additional benefits to the environment, such as an increased sense of identity for communities.

Although all users within the corridor, including EJ populations, would benefit from the project, it also is important to determine if impacts would occur to users outside of the Mid-Coast Corridor who typically access the area. The vast majority of users would experience improved travel times, which would be a benefit resulting from project implementation. Travel time savings also would extend beyond the Mid-Coast Corridor throughout San Diego County.

The Refined Build Alternative would distribute station amenities, parking, improved jobs and housing access, and other beneficial project features in both EJ and non-EJ populations. Therefore, there would not be a denial, reduction, or delay in benefit to EJ communities with respect to access to the benefits of the project.

The elevated viaduct through University City, especially along Genesee Avenue, provides a substantial travel speed, reliability, safety, and long-term benefit to the community. Compared to at-grade LRT, the elevated line would have no roadway crossings, thereby eliminating conflicts with motor vehicles. Between stations, pedestrians would not be able to access the tracks either intentionally or inadvertently, eliminating the potential for pedestrian accidents between stations. In addition, LRT horn noise would be eliminated outside of stations, and the elevated guideway would provide some shielding of wheel noise.

4.20.5 Mitigation Measures

The temporary nighttime construction noise impacts to residents along Charmant Drive and Genesee Avenue and in the northeast corner of Cape La Jolla Gardens housing complex would affect EJ populations in University City. CON2, as described in Section 4.17.3.2, would reduce nighttime construction noise impacts to EJ populations in University City to the greatest extent feasible.

Effects after Additional Mitigation: No disproportionately high and adverse unavoidable impacts would occur

4.20.6 Public Outreach

To provide transit infrastructure that meets the needs of the community, public outreach and engagement approaches would be used. Public outreach would provide meaningful opportunities for populations to provide input, including EJ populations.

Previous public outreach targeted EJ populations. For CEQA scoping, four of the five meetings were located in EJ communities (i.e., all but the meeting in the Clairemont community). Additionally, many members of the Mid-Coast Corridor Transit Project Working Group are affiliated with University City.

Similar to CEQA scoping, three of the four public meetings and the public hearing for the Draft SEIS/SEIR were located in EJ communities (i.e., all but the Clairemont meeting). The Mid-Coast Corridor Transit Project Working Group continues to have members affiliated with the University City community. Of the approximately 1,420 comments received on the Draft SEIS/SEIR, 5 were related to the topic of EJ. However, none of these raised any issues that would require additional analysis or mitigation or outreach

to EJ populations. The comments received on the Draft SEIS/SEIR and responses to comments are provided in Volume 3 of this Final SEIS/SEIR.

Additional details on public outreach are provided in Chapter 8.0.

4.20.7 Summary of Environmental Justice Analysis

Given the totality of the environmental effects, which includes offsetting benefits, there would be no disproportionately high and adverse impacts to EJ populations under the Refined Build Alternative.

4.21 Other National Environmental Policy Act and California Environmental Quality Act Considerations

This section describes several other considerations required under NEPA and CEQA, including an evaluation of the relationship between short-term uses of the environment and long-term productivity, irreversible and irretrievable commitment of resources, and mandatory findings of CEQA significance.

Other than the editorial changes described in Section 4.0, comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any changes to this section of the Final SEIS/SEIR.

4.21.1 Relationship between Short-term Uses of the Environment and Long-term Productivity and Irreversible and Irretrievable Commitment of Resources

This section describes the relationship of local short-term impacts and resources use, as well as maintenance and enhancement of long-term productivity for both the No-Build and Refined Build Alternatives. It also describes the Refined Build Alternative's irreversible and irretrievable commitment of resources.

NEPA and CEQA consider "irreversible or irretrievable commitments of resources" (40 CFR Part 1502.16) during the construction and operation of the project that may be significant irreversible environmental changes. In addition, irreversible damage can result from environmental accidents associated with a project (*CEQA Guidelines* 15126(e)). Irretrievable commitments of resources are to be evaluated to ensure that such current consumption is justified.

NEPA also requires the discussion of "the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity" (40 CFR Part 1502.16). Primary and secondary impacts, such as the dedication of right-of-way to transportation uses, typically commit future generations to similar uses. Another example is the conversion of open space to urban uses, which should include a discussion of the loss of the long-term value of the land.

The 2030 RTP includes the Mid-Coast Corridor Transit Project. This plan considers the need for present and future transportation requirements within the context of present and future land use development in the San Diego region. As determined in the 2030 RTP EIR (SANDAG, 2007c), implementation of projects in the 2030 RTP, such as the Mid-Coast Corridor Transit Project, commit land to urban uses and would involve the consumption of energy derived from nonrenewable sources, such as petroleum and natural gas. In addition, the fuel and electricity consumed for projects in the 2030 RTP would release GHG into the atmosphere where they will remain for hundreds of years. Building materials could be considered permanently consumed, although these might be recyclable in part at some future date. Transportation improvements associated with the 2030 RTP would result in substantial land alterations and the introduction of substantial structures into the visual environment. These new elements would represent irreversible changes. Finally, the 2030 RTP EIR found that the 2030 RTP works to meet the region's long-term mobility needs, to better connect transportation and land use policy decisions, and to create a transportation network that would serve the region through 2030. The project does not attempt to meet

short-term goals but rather designs a plan that would continually improve the San Diego region's transportation system as it is implemented. The conclusions in this SEIS/SEIR are consistent with the analysis in the EIR for the 2030 RTP.

The Refined Build Alternative would include both short-term losses and benefits. One such loss would result from the displacement of 1 business, which supports about 25 employees, and the loss of off-street parking spaces from other businesses (as shown in Chapter 3.0, Table 3-30). These impacts would not result in displaced employees needing to look for a new job outside the region, as it is expected that the business would relocate and similar businesses are located within the corridor. Another short-term loss would include the removal of vegetation, which would be replaced through revegetation and compensatory mitigation. Short-term benefits would include increased jobs and the sales and income tax revenues generated during construction.

Long-term losses associated with the Refined Build Alternative would include the use of construction materials and energy, and the commitment of electrical energy to support ongoing Trolley operations.

Long-term gains include an improved transit network; increased access to regional and local activity centers, including a reduction in the number of transfers, which would increase transit ridership; improved transit reliability with more passengers riding in exclusive rights-of-way; better support for the region's goals for livability, sustainability, and equity; and increased jobs and economic activity through expanded transit services. The project alignment and stations would be located in areas with existing and planned land uses conducive to transit use and in areas that have the greatest potential to develop transit-supportive land uses. Therefore, the Refined Build Alternative would enhance local and regional long-term productivity.

Under the No-Build Alternative, no new project-related infrastructure would be built within the corridor; thus, there would be no irreversible and irretrievable commitment of nonrenewable resources. Construction of the Refined Build Alternative would entail the one-time irreversible and irretrievable commitment of nonrenewable resources, such as energy (fossil fuels used for construction equipment) and construction materials (such as lumber, sand, gravel, and metals). Additionally, labor and natural resources would be used to produce construction materials. These natural resources generally are not retrievable. However, they are not in short supply and their use would not have an adverse effect upon the continued availability of these resources. Land used for staging areas to construct the proposed facilities is not considered an irreversible commitment. After construction is completed, construction staging areas would be available for other uses. The project would commit the land used for the alignment and stations to transportation land use. Project elements are generally located within transportation rights-of-way, and would not require a substantial land commitment. However, although the EIR for the 2030 RTP found that some projects in the 2030 RTP could result in substantial encroachments to lands designated for conservation in regional habitat conservation plans and that such encroachment would be irreversible, the Mid-Coast Corridor Transit Project does not involve substantial encroachment into lands designated for conservation.

The project's commitment of long-term land resources is consistent with city policies promoting transit-oriented uses, and with UCSD plans, which anticipate the Trolley system to support planned campus growth.

The consumption of nonrenewable resources related to the Refined Build Alternative includes petroleum products and electricity. During construction, contractors would use fossil fuels to transport workers and materials, and the Trolley system would use electricity and fuel for LRVs, station and maintenance operations, and worker vehicles. The resource amounts consumed and the utilization rate would not result in significant environmental impacts or the unnecessary, inefficient, or wasteful use of such resources because they would facilitate increased transit use (which increases energy efficiency) and decreased automobile dependence (which uses fossil fuels). Because the project would use existing maintenance facilities, the incremental increase in the use of cleaning supplies and maintenance materials (e.g., oil, solvents, and other materials) would not be significant and would be within the existing facility's capacity.

Project benefits would include improved mobility, transit accessibility, travel time savings, and reliability; reduced VMT and GHG emissions; and increased energy savings compared to the No-Build Alternative. The resource commitment and consumption for the Refined Build Alternative are appropriate because regional and local residents and visitors would benefit from improved transit services. This, in turn, would result in an overall decrease in the irreversible and irretrievable commitment of nonrenewable resources. For example, transportation sources account for nearly 40 percent of California's energy consumption. The project is expected to remove automobile traffic from the regional roadway network, easing the increase in VMT and the accompanying fossil fuel usage that would occur between 2010 and 2030. Compared to the No-Build Alternative, the Refined Build Alternative would reduce regional VMT by 137,977 miles daily and reduce daily regional roadway energy usage by 3,100 mBtus. Therefore, the project could decrease the irreversible and irretrievable commitment of resources compared to the No-Build Alternative.

4.21.2 Mandatory Findings of California Environmental Quality Act Significance

Under Section 15065(a) of the *CEQA Guidelines,* a CEQA finding of significance is required if certain conditions would occur as a result of a project. As summarized in Table S-2, this Final SEIS/SEIR discloses environmental impacts, the level of CEQA significance prior to mitigation, project requirements that are otherwise required by law or are incorporated as part of the project description, feasible mitigation measures, and the level of CEQA significance after the incorporation of mitigation measures. This section discusses whether the project would result in any conditions that trigger mandatory findings of significance under CEQA.

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 an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory?

No. As described in Section 4.8, the project would not substantially degrade the quality of the environment. Although impacts would occur to habitat for fish and wildlife species, these impacts would be relatively minor and would be mitigated in accordance with the MSCP. No fish or wildlife species would drop below self-sustaining levels, and no plant or animal community would be eliminated. The project would not substantially reduce the number or restrict the range of any endangered, rare, or threatened species. Minor impacts would be mitigated, as outlined in Section 4.8.

As described in Section 4.15, the project would not eliminate important examples of major periods of California history or prehistory.

Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?

No. The project does not attempt to meet short-term goals but rather would advance long-term environmental goals to reduce VMT, with corresponding reductions in emissions of criteria pollutants and GHG. Long-term gains include an improved transit network; increased access to regional and local activity centers, including a reduction in the number of transfers; improved transit reliability with more passengers riding in exclusive rights-of-way; increased transit ridership; better support for the region's goals for livability, sustainability, and equity; and increased jobs and economic activity through expanded transit services. The project alignment and stations would be located in areas with existing and planned land uses conducive to transit use and in areas that have the greatest potential to develop transit-supportive land uses. Project benefits would include improved mobility, transit accessibility, travel time savings, and reliability; reduced VMT and GHG emissions; and increased energy savings compared to the No-Build Alternative. The project is consistent with city policies promoting transit-oriented uses, and with UCSD plans, which anticipate the LRT to support planned campus growth.

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.)

Yes. As described in Sections 3.4.6.2 and 3.4.7.7, the project would result in long-term cumulative impacts resulting from localized traffic impacts and short-term cumulative impacts on the transportation system. Additionally, as stated in Section 4.19, the project would result in cumulative impacts during construction in the following areas:

- Community and neighborhoods
- Socioeconomic and fiscal
- Air quality
- Paleontological resources

Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?

No. The majority of impacts would be mitigated to below CEQA significance through a combination of appropriate project measures, BMPs, and/or mitigation measures. The project would result in significant and unavoidable impacts to traffic. However, this impact would not result in substantial adverse effects on human beings, either directly or indirectly.

4.22 Anticipated Permits

This section lists the permits and approvals that would be needed for the Refined Build Alternative. California statutes charge SANDAG with implementing regional transit improvements and coordinating with other agencies, such as the USACE and Caltrans, and with local jurisdictions, such as the City of San Diego. The Mid-Coast Corridor Transit Project would comply with all applicable permits identified in Table 4-37.

Comments received on the Draft SEIS/SEIR and refinements to the Build Alternative did not require any substantive changes to this section of the Final SEIS/SEIR. The table footnote describing the jurisdiction of the CCC has been clarified.

Table 4-37. Applicable Project-related Permits and Agreements

Issuing Agency	Permit Name	Required	
		Yes	No
California Coastal Commission	Coastal Development Permit	X[1]	
California Coastal Commission	Coastal Zone Management Act Consistency Determination	X[2]	
California Department of Fish and Wildlife	California Fish and Game Code Section 1602 Lake or Streambed Alteration Agreement	X	
California Department of Transportation	National Pollutant Discharge Elimination System Statewide Permit		X[3]
California Department of Transportation	Joint Use Agreement	X	
California Department of Transportation	Encroachment Permit	X	
California Public Utilities Commission	Approval of Grade Separations/Crossings	X	
City of San Diego	Construction Noise Permit	X[4]	
City of San Diego	Traffic Control Permit	X[4]	
City of San Diego	No-Fee Tree Permit	X[4]	
City of San Diego	Public Right-of-Way Permit	X[4]	
Metropolitan Transit System/ North County Transit District	Right-of-Entry Permit	X	
San Diego Association of Governments	Section 149 Streets and Highways Code Approval	X	
San Diego Air Pollution Control District	Air Quality Conformity Determination—Confirm Transportation Improvement Program inclusion	X	
San Diego Regional Water Quality Control Board	Clean Water Act 401 Water Quality Certification	X	
San Diego Regional Water Quality Control Board	Dewatering Permit	X	
San Diego Regional Water Quality Control Board	Stormwater Municipal Separate Storm Sewer System Permit		X[5]

Table 4-37. Applicable Project-related Permits and Agreements (continued)

Issuing Agency	Permit Name	Required	
		Yes	No
State Water Resources Control Board	Clean Water Act 402 Construction General Permit	X	
U.S. Army Corps of Engineers	Clean Water Act Section 404 Permit	X	
U.S. Army Corps of Engineers	Rivers and Harbors Act Section 10 Permit	X[6]	
U.S. Coast Guard	Section 9 Bridge Permit	X	
U.S. Fish and Wildlife Service	Section 7 of the Endangered Species Act Review/Consultation	X	

Source: SANDAG, 2013

Notes:
[1] For development within the Coastal Zone, a Coastal Development Permit would be required by the California Coastal Commission for the portions of the alignment within the Coastal Zone.
[2] A Coastal Development Permit issued by the California Coastal Commission may, in some instances, satisfy the requirement of a consistency review.
[3] Project would be covered under the State Water Resources Control Board Clean Water Act 402 Construction General Permit.
[4] Permit would be acquired by the construction contractor.
[5] Project would be covered under the San Diego County Municipal Separate Storm Sewer System Permit; project site-specific permit is not anticipated.
[6] Any work performed in, over, or under navigable waters of the United States must obtain a Section 10 Permit from the U.S. Army Corps of Engineers. However, if the river is subject to tidal influence, then the U.S. Coast Guard is responsible for granting permission for any bridges that cross navigable waters. The provisions of the Rivers and Harbors Act would apply to construction of bridges across navigable waters, potentially including the San Diego River.

THIS PAGE INTENTIONALLY LEFT BLANK

5.0 SECTION 4(F) EVALUATION

5.1 Introduction

The San Diego Association of Governments (SANDAG) will seek federal transit-funding grants and discretionary approvals for the Mid-Coast Corridor Transit Project through the U.S. Department of Transportation (USDOT) and the Federal Transit Administration (FTA); therefore, a determination of compliance with Section 4(f) by the FTA is required. Section 4(f), as amended, of the USDOT Act of 1966 (United States Code 1983) protects public parklands and recreational lands, wildlife refuges, and historic sites of national, state, or local significance, commonly referred to as Section 4(f) properties or resources. Federal regulations that implement Section 4(f) are found in 23 Code of Federal Regulations [CFR] 774).

The FTA may not approve the use of a Section 4(f) property as defined in 23 CFR 774.17 unless the FTA determines the following:

- There is no prudent and feasible alternative to the use of land from the property,
- The program or project includes all possible planning to minimize harm to the property resulting from the use, or
- The administration determines that the use of the property, including any measures to minimize harm committed by the applicant, will have a *de minimis* impact, as defined in Section 774.17 on the property.

This Section 4(f) evaluation describes whether and how the project would use Section 4(f) resources. The analysis identified strategies that would avoid, minimize, and/or mitigate impacts on or—in the case where avoidance is not possible and the use is not *de minimis* (as described below in Section 5.2)—minimize the use of Section 4(f) resources. For such resources, a brief description of the resource and an overview of the Section 4(f) use, if any, is provided, which is followed by a description of avoidance alternatives (where there would be a direct use) and measures to minimize and mitigate any harm.

The Section 4(f) evaluation that was released with the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board, 1995a) in 1995 identified a use of Section 4(f) resources as a result of the need to acquire right-of-way from the Weiss/Mandell-Eastgate City Park. The Section 4(f) evaluation in the Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (SEIS/SEIR) identified that the project would not require right-of-way from the Weiss/Mandell-Eastgate City Park. Therefore, there would be no use of this Section 4(f) resource.

The Section 4(f) evaluation in the SEIS/SEIR determined that the project would have a *de minimis* direct use of Marian Bear Memorial Park, a Section 4(f) protected resource, and a temporary occupancy of three Section 4(f) resources during construction: Marian Bear Memorial Park, the Ocean Beach Bicycle Path, and Mission Valley Preserve Open Space. These temporary occupancies were stated to be minor and that they would qualify for an exemption under Section 774.13. As these Section 4(f) resources are

under the purview of the City of San Diego, the city provided preliminary concurrence on the Section 4(f) determinations in the Draft SEIS/SEIR. This Final SEIS/SEIR documents the city's final concurrence on the Section 4(f) findings and determinations.

5.1.1 Public Review and Comment

During the Draft SEIS/SEIR comment period, several comments were received regarding Section 4(f) resources under the purview of the City of San Diego Park and Recreation Department, including Mission Valley Preserve, Marian Bear Memorial Park, and Rose Canyon Open Space Park. One comment entry was received regarding the use of Section 4(f) resources under the purview of the City of San Diego Transportation and Storm Water Department (i.e., the Ocean Beach Bicycle Path). All comments and responses related the Draft SEIS/SEIR, including those related to Section 4(f) resources, are contained in the Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 3: Comments and Responses.

Comments were received from individuals, organizations, and agencies, including the Friends of Rose Creek, the Friends of Rose Canyon, the San Diego River Park Foundation, the Marian Bear Natural Park Recreation Council, the University Community Planning Group, City of San Diego Councilmember Sherri Lightner, and the California Department of Fish and Wildlife.

5.1.1.1 Mission Valley Preserve

One comment submission, a letter from the San Diego River Park Foundation, included comments related to the Mission Valley Preserve. The comments related to this resource concerned the following:

- Visual impacts related to the addition of a bridge over the San Diego River
- Noise and vibration impacts and mitigation within the preserve
- The presence of sensitive species and the function of the river as an urban wildlife corridor, and the corresponding importance of mitigating impacts to the river at nearby locations
- Temporary and permanent impacts to City of San Diego dedicated parkland, as well as proposed mitigation

The SEIS/SEIR and supporting technical studies document the evaluation of each of these topics. The comments do not raise any new issues that would affect the conclusion presented in this Final Section 4(f) Analysis regarding the temporary occupancy of the Mission Valley Preserve. As noted above, specific responses to each comment in this letter are presented in the Final SEIS/SEIR: Volume 3.

5.1.1.2 Marian Bear Memorial Park and Rose Canyon Open Space Park

The remaining comments pertaining to Section 4(f) resources relate to the Rose Canyon area, and specifically to Marian Bear Memorial Park and the Rose Canyon Open Space Park. The majority of the comments concerned the following topics:

- Requests to preserve habitat, particularly old-growth trees, in Rose Canyon, Rose Creek, and Marian Bear Memorial Park
- Requests to avoid placing Rose Creek underground or expanding the limits of concrete lining in the creek
- Concerns that the proximity of the alignment would result in indirect impacts (visual, noise, lighting) to park users and wildlife within Rose Canyon Open Space Park
- Concerns that the project would reduce the function of Rose Creek as a wildlife corridor and result in corresponding impacts to wildlife in Rose Canyon and San Clemente Canyon
- Recommendation of mitigation measures, such as construction of earthen berms, to reduce potential indirect noise, visual, and lighting impacts, as well as provide benefits to wildlife by serving as a buffer or barrier

As documented in this chapter of the SEIS/SEIR, Rose Canyon Open Space Park was evaluated as a potentially protected resource under Section 4(f), and it was concluded that there would be no direct use, temporary occupancy, or constructive use within the park. As such, no further evaluation is required.

The project will not physically encroach into Rose Canyon Open Space Park. Elimination of Light Rail Transit Alternative 3 after scoping in 2010 avoided potentially significant noise and visual impacts to Rose Canyon Open Space Park. The project has been designed to minimize the impacts to recreation within Rose Canyon Open Space Park and is located within the existing Metropolitan Transit System (MTS) right-of-way. The two existing Los Angeles–San Diego–San Luis Obispo Rail Corridor Agency tracks within the MTS right-of-way currently support freight, COASTER, and Amtrak services, and the project alignment is separated from the park by these two tracks. No project features would be located within the park. The additional project features would be adjacent to existing tracks and the Interstate (I-) 5 transportation corridor, where noise and visual impacts are less intrusive to recreational users and biological resources. The SEIS/SEIR concluded that although adverse and significant visual impacts to recreational users could occur, these impacts would be reduced to below significance through incorporation of mitigation measures related to project design and landscaping.

The Draft SEIS/SEIR and supporting technical studies document the evaluation of indirect impacts resulting from noise, vibration, visual changes, and lighting, and the effects of the project on local wildlife movement. Mitigation and avoidance measures are proposed to reduce and compensate for impacts, including, but not limited to, the following:

- Minimizing impacts to sensitive resources during construction
- Restoring temporarily affected areas
- Providing mitigation for permanent impacts to wetlands within Rose Canyon by implementing a portion of the restoration and creation opportunities identified in the *Rose Creek Watershed Wetland, Riparian and Water Quality Restoration Opportunities Analysis* (San Diego Earthworks, 2012)

- Conducting public outreach to park users during construction
- Maintaining access to park trails during construction

With incorporation of the avoidance and mitigation measures identified in this SEIS/SEIR, no significant direct or indirect impacts would occur to biological resources or park users in Rose Canyon Open Space Park or Marian Bear Memorial Park.

In response to the comments related to this issue, SANDAG conducted additional analysis regarding noise and visual impacts to park users and wildlife within Rose Canyon Open Space Park. The analysis confirmed the conclusions presented in the SEIS/SEIR: indirect noise and lighting impacts would be less than significant, visual impacts would be less than significant with the incorporation of mitigation measures related to landscaping and design, and biological resources impacts would be less than significant with incorporation of mitigation related to avoiding impacts, restoring temporary impact areas, and providing compensatory mitigation for permanent impacts.

Several comments recommended that noise and visual impacts to the Rose Canyon Open Space Park be mitigated through construction of a vegetated earthen berm along the east side of the alignment from approximately La Jolla Colony to State Route (SR) 52. The avoidance and mitigation measures included in this SEIS/SEIR effectively avoid any visual impacts, and there are no adverse noise impacts. The following information is provided related to the potential to construct an earthen berm. Typically, construction of a 6-foot-tall earthen berm with a 2:1 slope would require a minimum width of 24 feet on level ground. In the specific case of Rose Creek, the construction of a berm of this height adjacent to the project alignment would not only require use of land outside the designated railway corridor (MTS right-of-way), it would also physically extend into Rose Creek. Construction of earthen berms to serve as light shielding or to reduce noise or visual impacts would result in substantial temporary impacts to habitat and permanent impacts to aquatic resources, and would have minimal value for noise attenuation. Furthermore, a vegetated berm is not expected to serve as an effective buffer to protect wildlife unless fencing was also incorporated, which would result in additional visual impacts. The impacts associated with berms adjacent to the railroad corridor outweigh the potential benefits, particularly as no significant noise or visual impacts have been identified in this area.

With respect to maintaining wildlife movement along Rose Creek between Rose Canyon Open Space Park and Marian Bear Memorial Park, the project includes several features that would continue to provide a local connection for wildlife movement. Wildlife movement supports the wildlife preservation attributes of both Rose Canyon Open Space Park and Marian Bear Memorial Park. The existing multi-use path will continue to provide north–south connectivity for pedestrians and bicyclists. A path along the east side of the open concrete-lined Rose Creek channel under SR 52 would remain and continue to allow for north–south wildlife movement along the east side of the open channel. Additionally, in response to comments by the California Department of Fish and Wildlife and others, design features have been incorporated into the project to continue to allow wildlife to move through the area using the concrete-lined open channel below SR 52. These design features would allow the concrete-lined channel to concentrate low flows toward the center of the channel, leaving the outer portions dry

during typical conditions to allow for wildlife movement. In addition, the majority of riprap placed at the upstream and downstream ends of the proposed channel would not be grouted, which would allow sediment to fill gaps, creating a more natural and even surface for wildlife to cross.

5.1.1.3 Ocean Beach Bicycle Path

The San Diego River Park Foundation discussed impacts to the Ocean Beach Bicycle Path. The initial comment reflects a misunderstanding regarding the naming of the path; this SEIS/SEIR refers to this facility as the Ocean Beach Bicycle Path, whereas the organization referred to the same facility as the San Diego River Park Trail. The foundation's comments requesting an evaluation of impacts and mitigation related to the San Diego River Park Trail can be resolved by directing them to the analysis of the Ocean Beach Bicycle Path contained within this SEIS/SEIR. With respect to this facility, the foundation requested that the document consider noise and vibration impacts along the trail, impacts associated with the proposed traction power substation south of the river and north of I-8, visual impacts, and the need for mitigation. The foundation also requested notification of temporary closures of, or bicycle disembark requirements for, the Ocean Beach Bicycle Path, and the placement of signage in the event that a detour is required. This SEIS/SEIR considers each of these impacts as they relate to the Ocean Beach Bicycle Path, and the comment does not raise any new issues with respect to the analysis.

5.1.1.4 Conclusion

The comments on the Draft SEIS/SEIR do not raise any new issues that would affect either the conclusions presented in this Final Section 4(f) Analysis regarding the *de minimis* direct use or the temporary occupancy of Marian Bear Memorial Park, Ocean Beach Bicycle Path, and Mission Valley Preserve, or that there would be no use under Section 4(f) of Rose Canyon Open Space Park.

5.2 Regulatory Background

As defined in 23 CFR 774.17, the "use" of a protected Section 4(f) property occurs when any of the conditions described below are met.

A direct use of a Section 4(f) resource occurs when Section 4(f) land is permanently incorporated into a transportation facility (23 CFR 774.17). This may occur as a result of partial or full acquisition of the Section 4(f) property or permanent easements[1].

A temporary occupancy of a Section 4(f) resource occurs when there is a temporary occupancy of a property that is considered adverse in terms of the preservationist purpose of the Section 4(f) statute. Under FTA regulations (23 CFR Section 774.13), a temporary occupancy of a property does not constitute a use of a Section 4(f) resource when all the following conditions are satisfied:

[1] In cases where temporary easements are proposed for a substantial duration, they may be considered to be a direct use.

- The duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land.
- The scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).
- There are neither anticipated permanent adverse physical impacts nor interference with the protected activities, features, or attributes of the property on either a temporary or permanent basis.
- The land being used will be restored fully (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project).
- There must be documented agreement of the official(s) having jurisdiction[2] over the Section 4(f) resource regarding the previous conditions.

A constructive use of a Section 4(f) resource occurs when a transportation project does not permanently incorporate land from a resource, but the proximity of the project results in effects (e.g., noise, vibration, visual, and property access) so severe that the protected activities, features, or attributes that qualify the resource for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only if the protected activities, features, or attributes of the resource are substantially diminished as described in the regulations (23 CFR 774.15).

Some uses of Section 4(f) resources are minor in nature and may be determined to result in a *de minimis* impact. The requirements of Section 4(f) would be considered satisfied if it is determined that a transportation project use would have only a *de minimis* impact on the Section 4(f) resource. This provision allows for the consideration of avoidance, minimization, mitigation, and enhancement measures in making the *de minimis* determination. Agencies with jurisdiction must concur in writing with the determination.

De minimis impact is defined in 23 CFR 774.17 as follows:

- For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact occurs when the transportation use of the Section 4(f) resource, together with any impact avoidance, minimization, and mitigation or enhancement measures incorporated into the project, does not adversely affect the activities, features, and attributes that qualify the resource for protection under Section 4(f).
- For historic sites, *de minimis* impact means that the FTA has determined, in accordance with 36 CFR Part 800, that no historic property is affected by the project or the project would have “no adverse effect” on the property in question.

[2] In the case of historic properties potentially affected by the project, the official with jurisdiction is the State Historic Preservation Officer (SHPO); in the case of public parks, recreation areas, and wildlife and waterfowl refuges, the official(s) with jurisdiction are the official(s) of the agency or agencies that own or administer the property in question and who are empowered to represent the agency on matters related to the property.

5.3 Description of Section 4(f) Properties

This section describes Section 4(f) properties that were considered for evaluation. Properties subject to Section 4(f) consideration include historic resources of local, state, or national significance, whether privately or publicly owned, as well as publicly owned parks, recreation areas, and wildlife and waterfowl refuges of national or local significance.

5.3.1 Historic Architectural and Archaeological Resources

This section identifies historic architectural and archaeological resources listed or eligible for listing in the National Register of Historic Places (NRHP) that may be subject to Section 4(f) and describes the features that form the basis of the evaluation. Prior to completing this Section 4(f) evaluation, a National Historic Preservation Act Section 106 analysis identified historic architectural and archaeological resources in the historic architectural and archeological Area of Potential Effects (APEs) to determine their significance. For more detailed information on this process, refer to the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c); the *Mid-Coast Corridor Transit Project Historic Property Effects Report* (SANDAG, 2014k); the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e)[3]; the *Mid-Coast Corridor Transit Project Archaeological Resources Supplemental Research Report* (SANDAG, 2013d)[3]; and the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a) [3]; and their appendices.

With regard to Section 4(f), when a historic architectural or archaeological resource was identified within the APE that is listed or eligible for listing in the NRHP, the resource was evaluated for use. Under 23 CFR 774.13(b), impacts to archaeological resources that are important primarily because of what can be learned by data recovery and have minimal value for preservation in place are considered to be an exception and do not require approval under Section 4(f). Historic and archival research was undertaken to determine the presence of previously identified historical and archaeological properties eligible for listing in the NRHP. In addition, historic and archaeological surveys were completed for the APE to further identify and evaluate properties that may be historically significant and meet the criteria for eligibility for listing on the NRHP.

As evaluated in the Draft SEIS/SEIR, the FTA preliminarily determined five historic architectural properties and four archaeological sites to be eligible for listing in the NRHP and assumed project impacts, pending verification of archaeological deposits within the archaeological APE during Extended Phase I Investigations. In a letter dated August 2, 2013, the State Historic Preservation Officer (SHPO) concurred with the FTA's determination that the five historic architectural properties were eligible for listing in the NRHP. These five historic architectural properties are 2750 Kettner Boulevard, 4875–4883 Naples Street, 2335 Morena Boulevard, 3435 Morena Boulevard, and the Camp Calvin B. Matthews Sentry Booth (University of California, San Diego [UCSD] East

[3] This document contains sensitive information regarding the location of archaeological sites and is not available to the public or other unauthorized persons.

Campus Regents Road parking lot). The five properties determined eligible for listing in the NRHP are hereafter referred to as "historic properties." In a letter dated April 9, 2014, the SHPO concurred with the "no adverse effect" finding for the project. For additional details on the National Historic Preservation Act (NHPA) Section 106 analysis, refer to Sections 4.15 and 4.17.

5.3.1.1 Historic Properties

Under Section 106, when a federally funded project will affect a historic property, the agency must apply the criteria of adverse effect to determine if the effect will be adverse or negative. Adverse effect is defined in 36 CFR Section 800.5(a)(1) as an action that may:

> "… alter, directly or indirectly any of the characteristics that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative."

Adverse effects include, but are not limited to, demolition, alteration, removal of a property from its original setting, neglect, and abandonment; or the introduction of visual, atmospheric, or audible elements.

Properties within the APE determined to be eligible for listing on the NRHP as a result of the Section 106 process are summarized in the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c), which describes historic properties identified within the historic architectural APE. The report also includes properties that have a determination of eligibility for the NRHP by prior studies. The architectural distinctions, known associations with important historic persons or events, and other historic features of each property preliminarily determined to be eligible are discussed in the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c).

Properties were determined to be eligible if they met at least one of the following NRHP criteria:

- The property is associated with events that have made a significant contribution to the broad patterns of our history.
- The property is associated with the lives of persons significant in our past.
- The property embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.
- The property has yielded, or may be likely to yield, information important in prehistory or history.

Within the APE, the five historic properties determined eligible for the NRHP are identified in Table 5-1. Section 4.15 of this Final SEIS/SEIR provides additional information regarding these historic architectural properties.

Table 5-1. Historic Properties Eligible for Listing in the NRHP within the APE

Primary Number (Assigned by SCIC)	Property Name/Type	Property Address	Construction Date	CHR Status Code	NRHP/CRHR Criteria
None	Light industrial building	2750 Kettner Blvd	ca. 1959	2S2, 1CL	NRHP/CRHR Criteria C/3
None	Multifamily residence	4875–4883 Naples St	ca. 1953	2S2, 1CL	NRHP/CRHR Criteria C/3
None	Old Trieste Restaurant	2335 Morena Blvd	1952;1963	2S2, 1CL	NRHP/CRHR Criteria A/1 and C/3
None	Single-family residence	3435 Morena Blvd	1904	2S2, 1CL	NRHP/CRHR Criteria A/1
None	Camp Matthews Sentry Building	UCSD parking lot	ca. 1943–1944	2S2, 1CL	NRHP/CRHR Criteria A/1 and C/3

Source: SANDAG, 2012

Notes: APE = Area of Potential Effect ; CHR = California Historical Resource; CRHR = California Register of Historical Resources; NRHP = National Register of Historic Places; SCIC = South Coastal Information Center; UCSD = University of California, San Diego

NRHP Criteria: A = Associated with events that have made a significant contribution to the broad patterns of our history; C = Embodies the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction

CRHR Criteria: 1 = Associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; 3 = Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values

CHR Status Codes (Appendix G of the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* [SANDAG, 2013c] contains a complete list of CHR Status Codes): 2S2 = Individual property determined eligible for NRHP by a consensus through Section 106 process. Listed in the CRHR; 1CL = Automatically listed in the CRHR.

5.3.1.2 Archaeological Resources

As evaluated in the Draft SEIS/SEIR, the FTA preliminarily determined four archaeological sites (CA-SDI-41, CA-SDI-12453/H, CA-SDI-12557, and CA-SDI-12558) to be eligible for listing in the NRHP and assumed project impacts, pending further investigations. Following the preliminary determination, Extended Phase I Investigations were completed, verifying extensive ground disturbance and the absence of archaeological deposits in the vicinity of the four archaeological sites within the archaeological APE. The findings of the investigations are documented in the *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment* (SANDAG, 2014a). Based on these findings, the FTA determined that the project would not result in impacts on previously recorded archaeological resources. The FTA made a determination of “no historic properties affected” with respect to archaeological resources pursuant to Section 106 of the NHPA. Based on the landform context of the area, there remains a low potential for the unanticipated discovery of previously unrecorded archaeological resources; therefore, mitigation measures have been identified to address this potential impact. Additional information on archaeological resources is provided in Sections 4.15 and 4.17.

5.3.2 Parklands, Recreation Areas, and Wildlife and Waterfowl Refuges

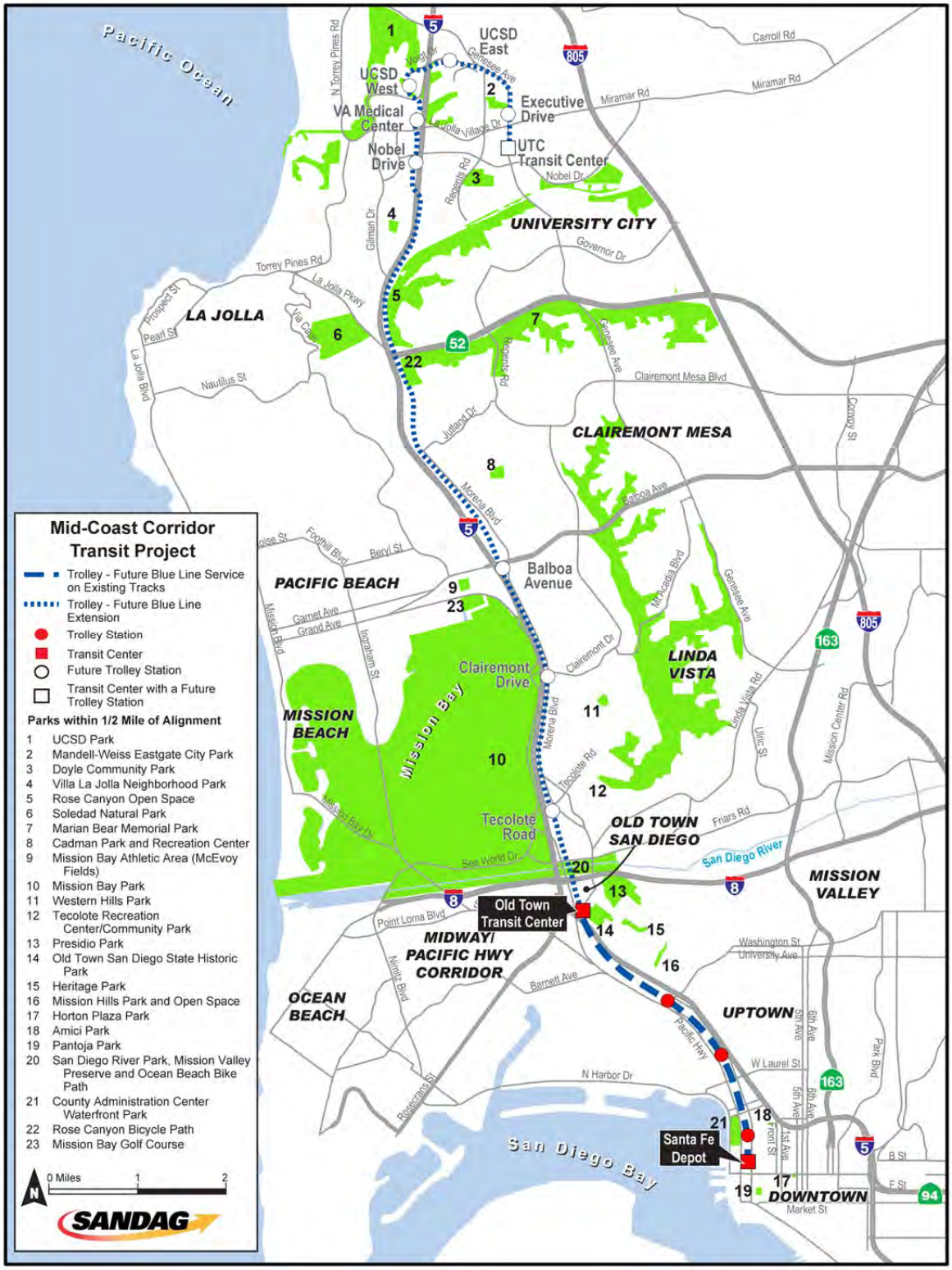
The project is located in proximity to several publicly owned parks and recreational areas. Some of the parks also have value as wildlife or waterfowl refuges, in addition to recreational value. Public parks and recreational areas within one-half mile of the alignment and stations are shown on Figure 5-1 and listed in Table 5-2, which includes all publicly owned parks and recreational facilities and all schools and recreational facilities available for public use. Twenty-three public parks and recreational areas are adjacent to, or within one-half mile of, the project alignment or a station. A more detailed description is provided in the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e).

Of the 23 public parks and recreational areas, two resources, Rose Canyon Bicycle Path and UCSD Park, do not require further evaluation with respect to Section 4(f) use. The Rose Canyon Bicycle Path is located within California Department of Transportation right-of-way. The path is used for both recreational and commuter bicycling, in addition to walking and in-line skating. The implementing regulations for Section 4(f), as amended, of the USDOT Act include exceptions (23 CFR Section 774.13). According to Sections 774.13(f)(3) and 774.13(f)(4), Section 4(f) approval is not required for “trails, paths, bikeways, and sidewalks that occupy a transportation facility right-of-way without limitation to any specific location within that right-of-way, so long as the continuity of the trail, path, bikeway, or sidewalk is maintained;” or for “trails, paths, bikeways, and sidewalks that are part of the local transportation system and which function primarily for transportation.” Both exceptions apply to the Rose Canyon Bicycle Path.

The Rose Canyon Bicycle Path is part of the local transportation system, and its primary function is transportation. The portion impacted by the project also is located in a transportation facility right-of-way and with implementation of the detour to keep the bike path open during construction (see Section 3.4.7.3), continuity would be maintained. As the conditions in 23 CFR Section 774.13(f)(3) and 774.13(f)(4) apply to the Rose Canyon Bicycle Path, further evaluation with respect to Section 4(f) use is not required.

UCSD Park is owned by the University of California, which is a state entity. Although the park is publicly owned, the property is not open to the public without the express permission of UCSD. Because access is limited to students, faculty, and staff, it is not considered open to the public. As such, UCSD Park is not considered a Section 4(f) resource.

Figure 5-1. Parks and Recreational Areas within One-Half Mile of Project



Source: SANDAG, 2014

Table 5-2. Parks and Recreational Areas within One-Half Mile of Project

Map #	Park or Recreational Feature	Location	Distance from Alignment (miles)	Nearest Station
1	UCSD Park	Hopkins Dr at Genesee Ave	Adjacent	UCSD West
2	Mandell-Weiss Eastgate City Park	Eastgate Mall at Regents Rd	0.01	Executive Dr
3	Doyle Community Park	Decoro Street at Cargill Ave	0.43	Nobel Dr
4	Villa La Jolla Neighborhood Park	Between Via Mallorca and Via Martin	0.20	Nobel Dr
5	Rose Canyon Open Space	Between I-5 and Genesee Ave, adjacent to SR 52	Adjacent	Nobel Dr
6	Soledad Natural Park	Between La Jolla Scenic Dr and I-5	0.07	Nobel Dr
7	Marian Bear Memorial Park	I-5 at SR 52	Adjacent	Balboa Ave
8	Cadman Park and Recreation Center	Moraga Ave at Avati Dr	0.37	Balboa Ave
9	Mission Bay Athletic Area (McEvoy Fields)	2639 Grand Ave at Mission Bay Dr	0.42	Balboa Ave
10	Mission Bay Park	2688 East Mission Bay Dr	0.20	Clairemont Dr and Tecolote Rd
11	Western Hills Park	Garfield Road at Arnold St	0.48	Clairemont Dr
12	Tecolote Recreation Center/Community Park	4675 Tecolote Rd	0.48	Tecolote Rd
13	Presidio Park	Taylor St and Jackson St	0.26	Old Town Transit Center
14	Old Town San Diego State Historic Park	4002 Wallace St	0.01	Old Town Transit Center
15	Heritage Park	2454 Heritage Park Row	0.29	Old Town Transit Center
16	Mission Hills Park and Open Space	1521 Washington Pl	0.29	Washington St
17	Horton Plaza Park	Broadway at 4th Ave	0.46	Santa Fe Depot
18	Amici Park	350 West Date St	0.25	County Center/Little Italy
19	Pantoja Park	524 G St	0.22	Santa Fe Depot
20	Mission Valley Preserve Open Space (part of San Diego River Park) Ocean Beach Bicycle Path	Open space: western portion of Mission Valley Bike Path: from Dog Beach to Hotel Circle Place along south side of San Diego River	Alignment crosses near I-5/ I-8 interchange	Old Town Transit Center and Tecolote Rd Station
21	County Administration Center Waterfront Park	Harbor Dr between Ash and Grape Sts (under development)	0.20	Santa Fe Depot
22	Rose Canyon Bicycle Path	North dead-end of Santa Fe St to Gilman Dr/La Jolla Colony Dr exit (I-5)	Adjacent	Nobel Dr
23	Mission Bay Golf Course	2702 North Mission Bay Dr	0.25	Clairemont Dr and Tecolote Rd

Sources: City of San Diego Park and Recreation Department (2011); California State Parks (2011); Google Earth Pro mapping software

Notes: Map # corresponds to Figure 5-1
UCSD = University of California, San Diego

5.4 Use of Section 4(f) Properties

As described in Section 5.2, a use of a Section 4(f) resource occurs when land is permanently or temporarily incorporated into a transportation facility (23 CFR 774.17) or when there is a constructive use. Incorporation may occur as a result of partial or full acquisition of the Section 4(f) property, permanent easements, or temporary easements (23 CFR 774.17). Constructive use occurs when the land is not incorporated into the project, but the project's proximate impacts are so severe that the attributes of the Section 4(f) resource are substantially impaired.

5.4.1 Historic Properties and Archaeological Resources

This section discusses the Section 4(f) use of historic properties and archaeological resources.

5.4.1.1 Historic Properties

As discussed in Section 5.3.1.1, five historic properties within the APE were determined eligible for listing in the NRHP (Table 5-1):

- 2750 Kettner Boulevard
- 4875–4883 Naples Street
- 2335 Morena Boulevard
- 3435 Morena Boulevard
- Camp Matthews Sentry Booth

Impacts to the five historic properties would be completely avoided by the project, and there would be no impairments to the properties caused by noise, vibration, or visual quality; therefore, there is no use under Section 4(f) (Table 5-3). For further discussion of these historic properties, refer to the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c) and the *Mid-Coast Corridor Transit Project Historic Property Effects Report* (SANDAG, 2014k).

Table 5-3. Section 4(f) Use of Historic Properties within the APE

Property Name/Type	Property Address	Direct Use or Temporary Occupancy	Constructive Use
Light industrial building	2750 Kettner Blvd	None	None
Multifamily residence	4875–4883 Naples St	None	None
Old Trieste Restaurant	2335 Morena Blvd	None	None
Single-family residence	3435 Morena Blvd	None	None
Camp Matthews Sentry Building	UCSD parking lot	None	None

Source: SANDAG, 2012
Notes: APE = Area of Potential Effect; UCSD = University of California, San Diego

5.4.1.2 Archaeological Resources

According to the USDOT, Federal Highway Administration (FHWA) *Section 4(f) Policy Paper* (FHWA, 2012):

> "Section 4(f) applies to archaeological sites that are on or eligible for inclusion on the National Register and that warrant preservation in place, including those sites discovered during construction. Section 4(f) does not apply if FHWA determines, after consultation with the SHPO/Tribal Historic Preservation Officer (THPO), federally recognized Indian tribes (as appropriate), and the [Advisory Council on Historic Preservation] ACHP (if participating) that the archaeological resource is important chiefly because of what can be learned by data recovery (even if it is agreed not to recover the resource) and has minimal value for preservation in place, and the SHPO/THPO and ACHP (if participating) does not object to this determination (23 CFR 774.13(b))."

Although the *Section 4(f) Policy Paper* was developed by FHWA, FTA and other modal administrations generally follow the guidance, where appropriate and applicable to transit projects and other proposals.

As discussed in Section 4.15, based on the results of Extended Phase I Investigations, the FTA made a finding of "no historic properties affected" with respect to archaeological resources pursuant to Section 106 of the NHPA. However, during construction, unknown archaeological resources (unanticipated discoveries) determined eligible for listing in the NRHP could be encountered, including those warranting preservation in place, such as human burials or sacred sites. For such archaeological resources, preservation of resources in place through avoidance will be accomplished whenever feasible. To the extent preservation in place is not feasible and data recovery is implemented, no Section 4(f) use would occur because the importance of a resource is primarily due to what can be learned by data recovery and not preservation in place (thus, impacts to the resources would be considered an exception pursuant to 23 CFR 774.13(b)). To account for the possibility of an unanticipated discovery of archaeological resources during project-related ground disturbance, mitigation measures (i.e., CON15, CON16, and CON17) described in Section 4.17, would be implemented. Accordingly, at this time, no use of Section 4(f) historic properties or archaeological resources is anticipated.

5.4.2 Parklands, Recreation Areas, and Wildlife and Waterfowl Refuges

The project is located in proximity to 21 publicly owned parks and recreational areas that are subject to Section 4(f). As discussed in Section 5.3.2, the Rose Canyon Bicycle Path and UCSD Park do not require further evaluation with respect to Section 4(f) use. Public parks and recreational areas within one-half mile of the alignment that are subject to Section 4(f) are listed in Table 5-4. Some of these areas also provide value as wildlife refuges or preserves, particularly those that include large areas of open space (e.g., Mission Valley Preserve Open Space, Rose Canyon Open Space, Soledad Natural Park, and Marian Bear Memorial Park). The Mission Valley Preserve Open Space and the Ocean Beach Bicycle Path are both features of the larger San Diego River Park, although they are managed by different departments in the City of San Diego.

Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations

Map #	Resource Name	Location	Publicly Owned?	Major Purpose for Park or Recreational Activities, Features, or Attributes?	Size	Distance from Alignment	Use	Constructive Use
2	Mandell-Weiss Eastgate City Park	Eastgate Mall at Regents Rd	Yes, City of San Diego	Yes. The park contains lighted tennis courts, multi-sports fields, a swimming pool, children's play area, and sand volleyball lots.	10.5 acres	0.01 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
3	Doyle Community Park	Decoro St at Cargill Ave	Yes, City of San Diego	Yes. The park includes a recreation center, children's play areas, multi-sports field, picnic areas, and sand volleyball courts.	24 acres	0.43 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
4	Villa La Jolla Neighborhood Park	Between Via Mallorca and Villa Martin	Yes, City of San Diego	Yes. The park contains a playground structure, swings, picnic tables, and open grass areas.	5.6 acres	0.20 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
5	Rose Canyon Open Space Park	Between I-5 and SR 52 interchange and I-805 southeast of railroad right-of-way	Yes, City of San Diego	Yes. The park provides wildlife protection, and hiking and biking trails. Park is within San Diego's MHPA.	312 acres	Adjacent	None	None. The project would not severely diminish the use and enjoyment of the park or the protection of wildlife.
6	Soledad Natural Park	Between La Jolla Scenic Dr and I-5	Yes, City of San Diego	Yes. The park is comprised of hiking and cycling trails and views. A memorial cross is dedicated to U.S. veterans.	277 acres	0.07 mile	None	None. The project would not severely diminish the use and enjoyment of the park.

Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations (continued)

Map #	Resource Name	Location	Publicly Owned?	Major Purpose for Park or Recreational Activities, Features, or Attributes?	Size	Distance from Alignment	Use	Constructive Use
7	Marian Bear Memorial Park	South of SR 52 between I-5 and Genesee Ave	Yes, City of San Diego	Yes. The park provides wildlife protection, hiking trails, parking, picnic areas, and restroom facilities. Park is within San Diego's MHPA.	467 acres	Adjacent	Permanent occupancy of approximately 32 square feet (0.0007 acre) of riprap associated with one storm drain outlet along the MTS right-of-way. Temporary occupancy from remedial grading and construction access (approximately 1 acre total) associated with the following: realignment of existing city sewer line within the park; construction of a shoofly and temporary and permanent retaining walls within the MTS right-of-way; and construction of a replacement lined open channel in Rose Creek north of the park boundary.	None. The project would not severely diminish the use and enjoyment of the park or the protection of wildlife.
8	Cadman Park and Recreation Center	4280 Avati Dr	Yes, City of San Diego	Yes. Facilities include two softball fields, baseball field, tot lot, off-leash dog park, tennis court, basketball court, horseshoe pit, and picnic areas.	8.4 acres	0.37 mile	None	None. The project would not severely diminish the use and enjoyment of the park.

Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations (continued)

Map #	Resource Name	Location	Publicly Owned?	Major Purpose for Park or Recreational Activities, Features, or Attributes?	Size	Distance from Alignment	Use	Constructive Use
9	Mission Bay Athletic Area (McEvoy Fields)	2639 Grand Ave	Yes, City of San Diego	Yes. Facilities include athletic fields and tennis courts.	10.7 acres	0.42 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
10	Mission Bay Park	2688 E Mission Bay Dr	Yes, City of San Diego	Yes. This is a multi-use park for bicycling, walking, jogging, swimming, wind surfing, water skiing, fishing, sailing, and motor boating. Additionally, the park contains playgrounds, basketball courts, and picnic areas with fire rings.	4,235 acres	0.20 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
11	Western Hills Park	Garfield Rd at Arnold St	Yes, City of San Diego	Yes. Features include playground, basketball courts, and walking paths.	12.8 acres	0.48 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
12	Tecolote Recreation Center/ Community Park	4675 Tecolote Rd	Yes, City of San Diego	Yes. This park contains five baseball fields, one flag football field, outdoor basketball courts, and picnic areas.	7.8 acres	0.48 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
13	Presidio Park	Taylor St and Jackson St	Yes, City of San Diego	Yes. This park contains picnic tables, restrooms, gathering places, and the Serra Museum.	40+ acres	0.26 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
14	Old Town San Diego State Historic Park	4002 Wallace St	Yes, State of California	Yes. This park contains several historic buildings and landmarks, a visitor center, and a museum.	22 acres	0.01 mile	None	None. The project would not severely diminish the use and enjoyment of the park.

Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations (continued)

Map #	Resource Name	Location	Publicly Owned?	Major Purpose for Park or Recreational Activities, Features, or Attributes?	Size	Distance from Alignment	Use	Constructive Use
15	Heritage Park	2454 Heritage Park Row	Yes, San Diego County	Yes. The park includes seven historic residences, which provide examples of Italianate, Queen Anne, and Classic Revival architecture.	7.8 acres	0.29 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
16	Mission Hills Park and Open Space	1521 Washington Pl	Yes, City of San Diego	Yes. Facilities include picnic areas, tennis courts, an event venue, and open space.	6.79 acres	0.29 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
17	Horton Plaza Park	Broadway at 4th Ave	Yes, City of San Diego	Yes. The park is a historic park and event venue.	1.5 acres	0.46 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
18	Amici Park	350 West Date St	Yes, City of San Diego	Yes. The park provides facilities for bocce ball, open space, a small amphitheater, and a large green playing field.	1.4 acres	0.25 mile	None	None. The project would not severely diminish the use and enjoyment of the park.
19	Pantoja Park	524 G St	Yes, City of San Diego	Yes. The historic park features a large grassy area, mature fig trees, shrub planting, public art, and a perimeter walkway.	2.2 acres	0.22 mile	None	None. The project would not severely diminish the use and enjoyment of the park.

Table 5-4. Section 4(f) Use of Parks and Recreational Areas within One-Half Mile of the Alignment and Stations (continued)

Map #	Resource Name	Location	Publicly Owned?	Major Purpose for Park or Recreational Activities, Features, or Attributes?	Size	Distance from Alignment	Use	Constructive Use
20*	Mission Valley Preserve Open Space (part of San Diego River Park)	Western portion of Mission Valley	Yes, City of San Diego	Yes. The preserve supports passive recreation (wildlife viewing, walking, cycling), and is within San Diego's MHPA.	52 acres	On small portion near I-5/I-8 interchange	Temporary occupancy during construction of bridge across river near I-5/I-8 interchange. Requires temporary construction area within Mission Valley Preserve Open Space.	None. The project would not severely diminish the use and enjoyment of the preserve or affect habitat recovery, protection, and preservation, and would not affect the bike path.
	Ocean Beach Bicycle Path	From Dog Beach to Hotel Circle Pl along south side of San Diego River	Yes, City of San Diego	Yes. The Ocean Beach Bicycle Path provides recreational access along the south side of the San Diego River and provides a connection between areas in Mission Valley and areas in Ocean Beach and Old Town.	5 miles	On small portion near I-5/I-8 interchange	Temporary occupancy would occur to Ocean Beach Bicycle Path users from reduced vertical clearance below bridge falsework	None. The project would neither severely diminish the use and enjoyment of, nor permanently affect, the bike path.
21	County Administration Center Waterfront Park	Harbor Drive Between Ash St and Grape St	Yes, San Diego County	Yes. Greens, play area, garden rooms, and interactive fountain.	12 acres	500 feet	None.	None. The project would not severely diminish the use and enjoyment of the park.
23	Mission Bay Golf Course	2702 North Mission Bay Dr	Yes, City of San Diego	Yes. Golf.	46 acres	None	None. No direct use of golf course.	None. The project would not severely diminish the use and enjoyment of the golf course.

Sources: SANDAG, 2014; City of San Diego Park and Recreation Department (2011); California State Parks (2011); City of San Diego (2010a)
Notes: * Map #20 depicts the location of both the Mission Valley Preserve Open Space and the Ocean Beach Bicycle Path. Both are located within the San Diego River Park; however, they are managed by different entities.
MHPA = Multi-Habitat Planning Area; MTS = Metropolitan Transit System
As the conditions in 23 CFR Section 774.13(f)(3) and 774.13(f)(4) apply to the Rose Canyon Bicycle Path, further evaluation with respect to Section 4(f) use is not required.

As identified in Table 5-4, of the 21 Section 4(f) resources, impacts to 19 parks and recreational areas are completely avoided by the project. The project would not physically encroach into these 19 parks and recreational areas, disrupt access, perceptibly increase noise, or introduce visual changes to these parks and recreational areas that would diminish the use and enjoyment of the parks; therefore, there is no use of these 19 areas under Section 4(f). For additional information, refer to the *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report* (SANDAG, 2014p), the *Mid-Coast Corridor Transit Project Visual Impacts Technical Report* (SANDAG, 2014j), and the *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report* (SANDAG, 2014e).

Of the remaining parks and recreational areas—Marian Bear Memorial Park, Mission Valley Preserve Open Space, and the Ocean Beach Bicycle Path —there would be no constructive use, but construction activities would occur on portions of the resources. The construction activities at Marian Bear Memorial Park, the Ocean Beach Bicycle Path, and Mission Valley Preserve Open Space would be characterized as temporary occupancy and would be subject to an exception under Section 774.13. The direct use of Marian Bear Memorial Park is considered to be a *de minimis* use. Use of the resources is described in more detail below.

5.4.2.1 Marian Bear Memorial Park

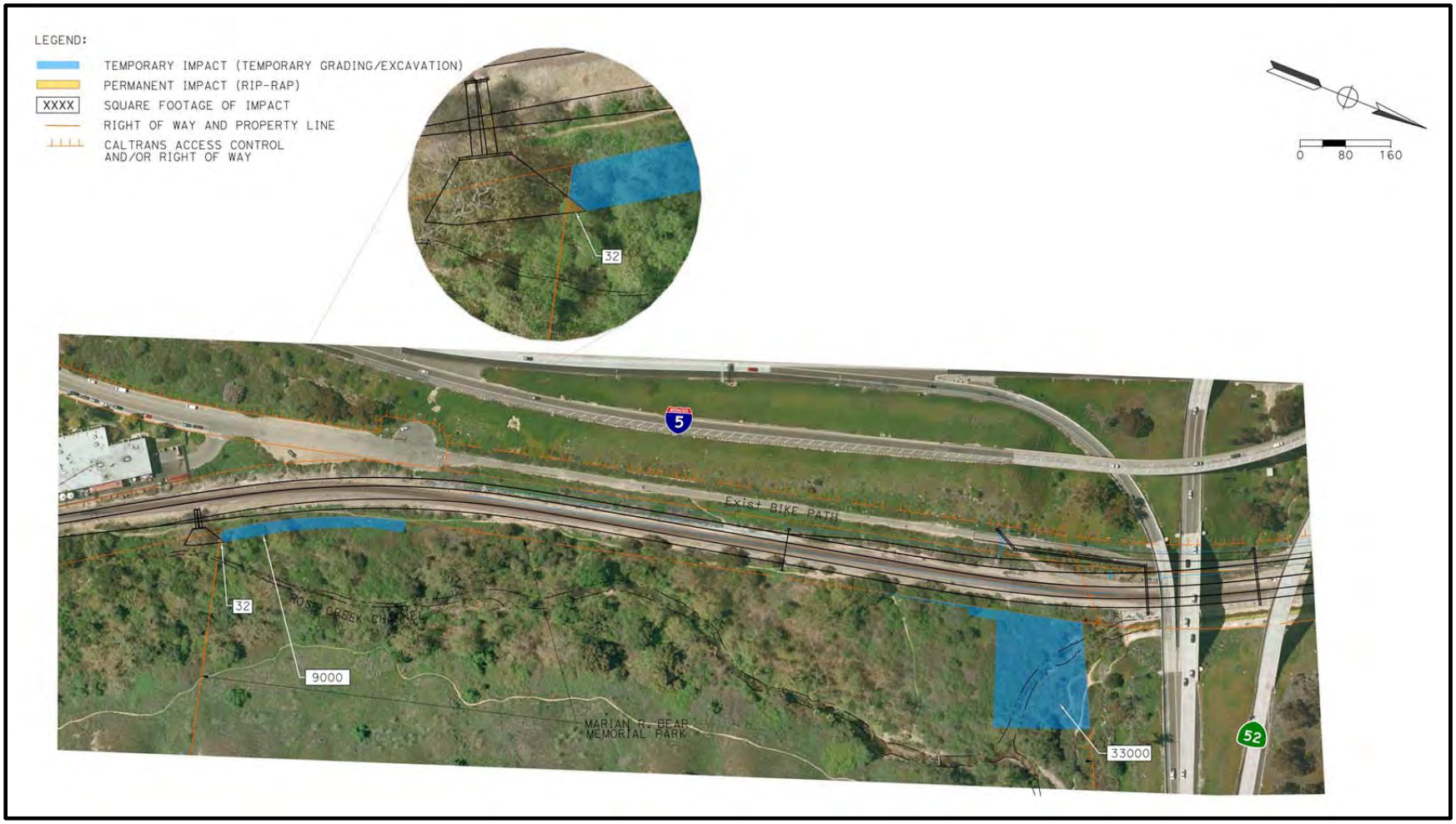
Description and Significance of Property

Marian Bear Memorial Park, a City of San Diego open space park, is located south of SR 52 and east of I-5. Open space parks are used for purposes such as preservation of natural resources, passive outdoor recreation, and scenic and visual enjoyment. The park consists of 467 acres and access is provided from Regents Road and Genesee Avenue. It is a natural park with hiking trails, parking, picnic areas, and restroom facilities. There are more than 3 miles of mostly flat trails along the canyon with more challenging trails in the finger canyons. Biking is permitted on the maintenance roads in the canyon. The park is part of the Tri-Canyon Parks, which comprise 1,500 acres of open space. The park is located within San Diego's Multi-Habitat Planning Area and provides an avenue for local wildlife movement and functions as a local wildlife corridor and habitat linkage.

Description of Use

Construction activities would occur along the western edge of Marian Bear Memorial Park, as shown in Figure 5-2, and would include realignment of an existing City of San Diego sewer line along the western side of the park boundary; grading and construction access associated with construction of a temporary retaining wall, a shoofly, and a permanent retaining wall within the MTS right-of-way; grading and construction access associated with construction of a replacement concrete-lined open channel in Rose Creek north of the park boundary; and placement of riprap associated with one storm drain outlet adjacent to the park.

Figure 5-2. Construction Activities in Marian Bear Memorial Park



Source: SANDAG, 2014

Permanent features within the park would be limited to the placement of small areas of riprap along the western edge of the park associated with a storm drain outlet (a total of approximately 32 square feet within the park for the one area). The riprap is needed to prevent scour at the outlet of a storm drain system and would reduce localized erosion within the park. The riprap would consist of angular rock in various sizes. The riprap areas needed at the outlet of the storm drain would partially lie within Marian Bear Memorial Park—approximately 32 square feet. The outlet, as well as the remaining areas of riprap, would be located outside the park boundary.

Of the 467 acres of parkland, the area of remedial grading for all activities is approximately 1 acre. Once project construction is completed, the graded areas would be revegetated with native plant species. The area of permanent impacts from riprap would be approximately 32 square feet. The riprap would accommodate vegetation and would not appreciably change the quality of the habitat adjacent to the railroad right-of-way. There would be no loss of recreational land or features after construction is complete.

Direct Use

Direct use would occur as a result of construction of a storm drain outlet requiring placement of up to 32 square feet of riprap in one location on the western side of the park boundary. As shown on Figure 5-2 and described above, the outlet would be located south of the park boundary and the area required for riprap would encroach approximately 32 square feet into the park. The outlet would not change the quantity of storm-water runoff conveyed to Rose Creek. There would be no change in the underlying land ownership as a result of the project.

Riprap placement would affect a small area (approximately 32 square feet total) and would not interrupt any park activities or public access. Because the project would minimally use a portion of the park's edge and would not disrupt access, perceptibly increase noise, or introduce visual changes that would diminish the use and enjoyment of the park or disturb wildlife or habitat, the use would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f) and would result in a *de minimis* impact. SANDAG has received concurrence with this finding from the City of San Diego.

Temporary Occupancy

Temporary occupancy would occur during several activities: the realignment of the sewer line that is located within the park, construction of the open channel adjacent to and north of Marian Bear Memorial Park, construction of the temporary shoofly and retaining wall west of and adjacent to the park, and construction of the permanent retaining wall adjacent to and west of the park. These activities would encroach upon the park as a result of construction access and temporary grading (including trenching during the sewer realignment) and would result in the temporary occupancy of two areas (approximately 1 acre total), as shown in Figure 5-2.

Because construction would use a relatively small portion of the park's edge and would not disrupt access, perceptibly increase noise, or introduce visual changes that would diminish the use and enjoyment of the park or disturb wildlife or habitat (refer to the *Mid-Coast Corridor Transit Project Biological Resources Technical Report,* SANDAG, 2014u), the temporary occupancy is not considered adverse in terms of the statue's

preservation purpose. The use would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f) and, as described in more detail below, meets the conditions for temporary occupancy and therefore qualifies as an exception under Section 774.13. The temporary occupancy is an exception because it meets the following conditions:

The duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land.

- Construction at this location is expected to take approximately 36 months out of the overall 4.5-year construction schedule for the project. The ownership of the land would remain unchanged.

The scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).

- The work at the northwesterly corner of the park consists of grading to accommodate the outlet of the open channel. The channel and its riprap energy dissipater would be in the MTS and California Department of Transportation rights-of-way, but an area of approximately 33,000 square feet within the park would be affected by grading and construction access. The area would be revegetated with native plant species following completion of construction activities at this location.
- The work at the southerly construction area (along the western edge of the park boundary) would include excavation and regrading associated with realigning an existing City of San Diego sewer line that currently lies within and under the park, as well as construction access to build a temporary retaining wall and shoofly and ultimately a permanent retaining wall within the MTS right-of-way. After completion of the construction activities, the approximately 9,000-square-foot area would also be revegetated and returned to its pre-construction state.

There are neither anticipated permanent adverse physical impacts nor interference with the protected activities, features, or attributes of the property on either a temporary or permanent basis.

- Except as described above for the direct use associated with the storm drain outlet, there would be no new above- or below-ground structures within the park that would remain upon completion of construction. The city's sewer line that exists within and beneath the park would be realigned slightly but would remain in essentially the same location below ground near the western edge of the park. Temporary grading would affect a total of approximately 1 acre along the boundary of the 467-acre park. The activity would not affect existing trails or user access, nor would it impact a substantial area of habitat. Mitigation measures would be implemented to avoid impacts to nesting birds and to bats. Therefore, there would be no permanent or temporary adverse physical impacts or interference with the protected activities, features, or attributes of the property.

The land being used will be restored fully (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project).

- Upon completion, all areas would be contour graded and re-vegetated with appropriate native species, consistent with existing conditions. Mitigation for temporary impacts to natural vegetation communities would include restoration of the impact area, which is described in more detail in Section 4.17. With restoration, the condition of the property would be fully restored as a result of mitigation (restoration of natural vegetation communities).

There must be documented agreement of the official(s) having jurisdiction over the Section 4(f) resource regarding the previous conditions.

- Documentation of the Section 4(f) evaluation has been submitted to the City of San Diego, which has provided concurrence with the requirements for the temporary occupancy exception.

Constructive Use

Constructive use occurs when a project results in proximity effects so severe that they impact the protected activities, features, and attributes of the resources that qualify it for Section 4(f) protection.

The project would result in the construction of additional tracks within the existing rail corridor at the western boundary of Marian Bear Memorial Park. The environment at this location is affected by noise from the existing rail line and by its proximity to I-5 and SR 52. Significant noise impacts are not anticipated within the park as a result of the addition of Trolley operations in the existing rail corridor, as noise from operation of the Trolley would not appreciably change the existing noise characteristics. Placing the new light rail tracks within the existing corridor avoids and minimizes other potential adjacency impacts, such as visual impacts, vibration, and property access. The presence of the project is not anticipated to diminish the protected activities, features, or attributes of Marian Bear Memorial Park.

In addition, construction activities would not result in constructive use of the park. Construction activities would not result in noise, visual, or vibration impacts that would substantially impair the activities and attributes of the resource.

5.4.2.2 Mission Valley Preserve Open Space (Part of the San Diego River Park)

Description and Significance of Property

The Mission Valley Preserve Open Space is located on the western end of Mission Valley extending on each side of the MTS right-of-way where the alignment crosses over the San Diego River. Mission Valley Preserve Open Space is one component of the larger San Diego River Park. The preserve is located within San Diego's Multi-Habitat Planning Area. The San Diego River provides a sheltered and relatively continuous avenue for wildlife movement between coastal and inland habitats, and functions as a regional wildlife corridor and habitat linkage. Recreational trails are located within the preserve, which provide passive recreational use.

The *Draft 2010 San Diego River Park Master Plan* (City of San Diego, 2010a) envisions a string of parks linked by open space, pathways, and green corridors along the river. The park will be a multi-layered system that will serve a variety of needs, offering recreational, environmental and habitat benefits. The City of San Diego is now completing its environmental review of the plan.

The San Diego's River Park's planning area is generally defined as a corridor extending one-half mile on each side of the river from the headwaters near Julian to the Pacific Ocean at Ocean Beach; for 17.5 miles it is within the boundaries of the City of San Diego extending from the Pacific Ocean to the city limits shared with the City of Santee. Much of the land along the river is in private ownership. Efforts are underway to work with the owners of these properties to open the river corridor to public access, either through acquisition of key parcels or by establishing public access easements. The park provides recreational opportunities in areas that serve the multiple functions of historic preservation, water management, habitat preservation, and recreational resource. The San Diego River Park Trail will offer a connected trail for bicycles and pedestrians along the length of the park. The San Diego River Park Trail is located on the Ocean Beach Bicycle Path within the Mission Valley Preserve Open Space.

Description of Use

Construction areas within the Mission Valley Preserve Open Space, as shown in Figure 5-3, would consist of temporary use of an approximately 40-foot-wide area adjacent to and east of the MTS right-of-way at the existing heavy rail bridge (less than 0.5 acre). This area would provide construction access and facilitate construction activities associated with the proposed bridge over the San Diego River. Once the bridge is completed, the area would be revegetated and returned to its pre-construction state. There would be no loss of wildlife or recreational use after construction and restoration are complete.

Direct Use

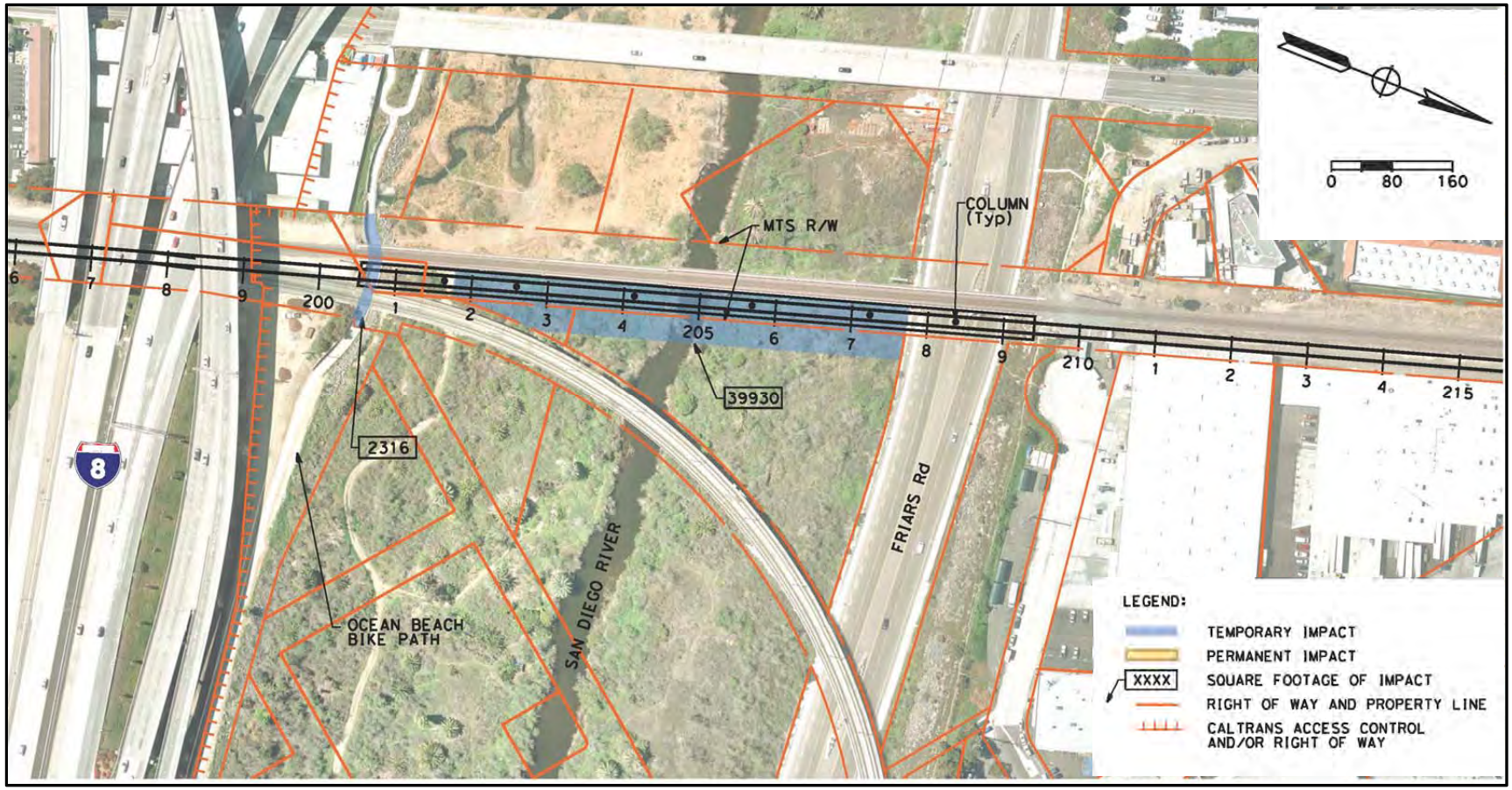
None of the area within the Mission Valley Preserve Open Space would be permanently incorporated into the Mid-Coast Corridor Transit Project. There would be no change in the underlying land ownership as a result of the project. Therefore, there would be no direct use of this resource.

Temporary Occupancy

Within the San Diego River corridor, the project would include a bridge across the river within existing MTS right-of-way, which would require five support piers within the river. All piers would be within MTS right-of-way; no permanent structures would be located within the preserve. Construction activities within the preserve would consist of site access and temporary use by construction equipment.

Because the construction would only occupy a small portion of the preserve and would not disrupt access, perceptibly increase noise, or introduce visual changes that would diminish the use and enjoyment of the park or disturb wildlife or habitat (refer to the *Mid-Coast Corridor Transit Project Biological Resources Technical Report,* SANDAG, 2014u), the temporary occupancy is not adverse in terms of the statute's preservation purpose. The use would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f) and, as described in more detail

Figure 5-3. Construction Areas in Mission Valley Preserve Open Space and the Ocean Beach Bicycle Path



Source: SANDAG, 2013

below, meets the conditions for temporary occupancy and therefore qualifies as an exception under Section 774.13. The temporary occupancy is an exception because it meets the following conditions:

The duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land.

- Construction at this location is expected to take approximately 24 months out of the overall 4.5-year construction schedule for the project. The ownership of the land would remain unchanged.

The scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).

- Within the Mission Valley Preserve Open Space, project activities would result in temporary impacts within an approximately 40-foot-wide area adjacent to and east of the MTS right-of-way. Following construction, the area would be fully restored. No permanent impacts would occur within the Mission Valley Preserve Open Space.

There are neither anticipated permanent adverse physical impacts nor interference with the protected activities, features, or attributes of the property on either a temporary or permanent basis.

- The project would include a bridge across the San Diego River within existing MTS right-of-way, which would require five support piers within the river and one at Friars Road. In MTS right-of-way in the San Diego River, long-term direct project impacts would be limited to the loss of not more than 0.01 acre of native riparian habitat associated with the installation of concrete piers for the proposed bridge crossing. Bridge piers and abutment placement would be within the MTS right-of-way and outside of the active flow channel; long-term impacts to aquatic and semi-aquatic species habitat would be limited. Impacts to vegetation would be mitigated. Based on the small overall footprint of permanent impacts (0.01 acre) and the presence of several existing bridges in the vicinity with similar structures in the river, the project would not interrupt any recreational activities or public access to the Mission Valley Preserve Open Space nor its function as a regional wildlife corridor or habitat linkage.
- For 24 months, construction activities would occur within MTS right-of-way and within a temporary easement extending across the river approximately 40 feet east into the Mission Valley Preserve Open Space. Short-term impacts to vegetation would be mitigated through on-site restoration. Impacts to wildlife would be minimized through measures to protect nesting birds and roosting bats, reduce dust and noise, minimize lighting in native habitat areas, protect water quality, and allow wildlife passage through the construction site. Impacts to recreation would be avoided and minimized by maintaining access to the area via trails and the Ocean Beach Bicycle Path throughout construction (except for a brief period during installation and removal of falsework). All areas within the preserve would be restored following construction.

The land being used will be restored fully (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project).

- All temporary impact areas would be restored with appropriate native vegetation following completion of construction. As stated above, no permanent impacts would occur within the Mission Valley Preserve Open Space. Permanent impacts within the adjacent MTS right-of-way would be limited to less than 0.01 acre as a result of the support piers. These permanent impacts would be subject to mitigation within the San Diego River watershed or, if acceptable to regulatory agencies, within the neighboring Rose Creek watershed. Temporary impacts within MTS right-of-way would also be restored with appropriate native vegetation. All mitigation would be subject to the approval of applicable regulatory agencies, including the United States Army Corps of Engineers, the Regional Water Quality Control Board, California Coastal Commission, and the California Department of Fish and Wildlife.

There must be documented agreement of the official(s) having jurisdiction over the Section 4(f) resource regarding the previous conditions.

- Documentation of the Section 4(f) evaluation has been submitted to the City of San Diego, which has provided concurrence with the requirements for the temporary occupancy exception.

Constructive Use

Within the San Diego River corridor, the project would include a bridge across the river within existing MTS right-of-way, which would require five support piers within the river. Based on the small overall footprint of permanent impacts (0.01 acre) and the presence of several existing bridges in the vicinity with similar structures, the project would not interrupt any park activities or public access of the San Diego River Park or affect Mission Valley Preserve's function as a regional wildlife corridor or habitat linkage. The project would not appreciably alter existing noise, vibration, or visual conditions at this location, as the new bridge would be located adjacent to existing rail bridges. No changes to property access would occur. Therefore, placement of the bridge would not result in a constructive use of the Mission Valley Preserve Open Space. The City of San Diego has indicated its concurrence with this finding.

5.4.2.3 Ocean Beach Bicycle Path

Description and Significance of Property

The Ocean Beach Bicycle Path extends from the Sefton Field Neighborhood Park east of Morena Boulevard in Mission Valley to Ocean Beach. It includes 3,000 feet of Class I bike path and 1,200 feet of Class III bike lane that is shared with baseball field users and maintenance vehicles. It provides non-vehicular traffic with a travel route from Ocean Beach and Old Town to the Mission Valley area. It also forms the San Diego River Trail within the Mission Valley Preserve Open Space and is located on the south side of the San Diego River.

The *Draft 2010 San Diego River Park Master Plan* (City of San Diego, 2010a) envisions a string of parks linked by open space, pathways, and green corridors along the river. The San Diego's River Park's planning area extends one-half mile on each side of the river

from the headwaters near Julian to the Pacific Ocean at Ocean Beach. The San Diego River Park Trail, which is part of the larger San Diego River Park, will offer a connected trail for bicycles and pedestrians along the length of the park.

Description of Use

The project alignment crosses this facility east of I-5, adjacent to the Mission Valley Preserve Open Space. Project activities include construction of a bridge over the San Diego River within existing MTS right-of-way and adjacent to the existing rail bridge.

The proposed project bridge over the San Diego River, as shown in Figure 5-3, would cross over both the river and Friars Road, which parallels the river on the north side. The southerly 130 feet of this bridge would be connected with the existing Trolley Green Line Bridge, requiring removal of the westerly curb along the existing bridge. The proposed bridge would be supported on single-column piers and concrete abutments. The concrete superstructure would be constructed using falsework. Limits of impact along the bridge would be limited to the area under the bridge and a 40-foot-wide strip, adjacent and parallel to the east side.

Direct Use

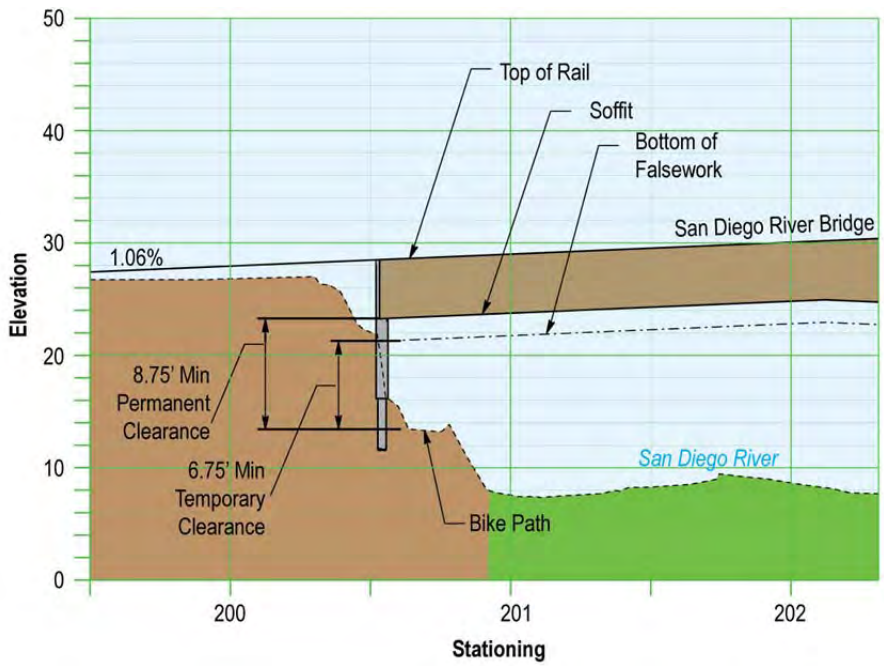
The Ocean Beach Bicycle Path would remain open and in use during construction and would not be altered in the long-term as a result of the project. No direct use would occur.

Temporary Occupancy

Within the San Diego River corridor, the project would include a bridge across the river within existing MTS right-of-way. During construction of the bridge over the San Diego River (7 to 12 months), cyclists would need to dismount and walk for a short distance as a result of the reduced vertical clearance of the falsework. The vertical clearance during construction would be as low as 6.75 feet for approximately 35 linear feet (Figure 5-4). Nighttime closures of the path would be required for construction of falsework. The path would be reopened once the falsework is complete; however, cyclists would need to dismount to cross the construction site as the overhead clearance would be reduced. Advance warning signs would be provided on both sides of the construction site advising riders of the need to dismount. Construction of the bridge would take between 7 and 12 months, at which time the falsework would be removed. This is anticipated to take approximately one night. The temporary impact area, including the bike path, would be restored to pre-project conditions.

Because the construction would occupy only a small portion of the path and access disruption would be minimal, the temporary occupancy is not adverse in terms of the statute's preservation purpose. The use would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f) and, as described in more detail below, meets the conditions for temporary occupancy and therefore qualifies as an exception under Section 774.13. The temporary occupancy is an exception because it meets the following conditions:

Figure 5-4. Clearance at Ocean Beach Bicycle Path



Source: SANDAG, 2013

The duration is temporary (i.e., less than the time needed for construction of the project), and there is no change in ownership of the land.

- Construction at this location is expected to take between 7 and 12 months out of the overall 4.5-year construction schedule for the project. The ownership of the land would remain unchanged.

The scope of work is minor (i.e., both the nature and magnitude of the changes to the Section 4(f) property are minimal).

- Within the Ocean Beach Bicycle Path, project activities would result in temporary impacts (reduced overhead clearance) within an approximately 35-foot-long stretch. Following construction, the area would be restored to pre-project conditions. No permanent impacts would occur to the path.

There are neither anticipated permanent adverse physical impacts nor interference with the protected activities, features, or attributes of the property on either a temporary or permanent basis.

- The Ocean Beach Bicycle Path is a multi-use path that supports transportation and recreation, and there would be an effect during construction on cyclists requiring them to dismount, the effect is minimal. Based on the limited extent of temporary impacts (35 linear feet), the project would not substantially interfere with any recreational or transportation activities or public access to the path.

The land being used will be restored fully (i.e., the property must be returned to a condition that is at least as good as that which existed prior to the project).

- Following the removal of the bridge falsework, the area would be restored to pre-project conditions. No permanent impacts would occur to the path.

There must be documented agreement of the official(s) having jurisdiction over the Section 4(f) resource regarding the previous conditions.

- Documentation of the Section 4(f) evaluation has been submitted to the City of San Diego, which has provided concurrence with the findings.

As described above, the Ocean Beach Bicycle Path would remain open and in use during construction—with the exception of brief closures to install and remove falsework—and would not be altered in the long-term as a result of the project. During the 7 to 12 months of construction across this portion of the San Diego River Bridge, cyclists would need to dismount and walk for a short distance as a result of reduced vertical clearance. However, as construction would not adversely affect the features, attributes, or activities qualifying the bike path for protection under Section 4(f), the project would result in a temporary occupancy. The City of San Diego has indicated its concurrence with this finding.

Constructive Use

Constructive use occurs when the project results in proximity effects that are so severe that they impact the protected activities, features, and attributes of the resource that qualify it for Section 4(f) protection. The construction of an additional bridge over the San Diego River would have no adverse effects on the use of the Ocean Beach Bicycle Path as a recreational resource. Therefore, no constructive use would occur. The City of San Diego has indicated its concurrence with this finding.

5.5 Determinations of Section 4(f) Uses

Of the 21 Section 4(f) historic, parks, or recreational properties within the Mid-Coast Corridor, Marian Bear Memorial Park, Mission Valley Preserve Open Space, and the Ocean Beach Bicycle Path would be affected by the project. A summary of the Section 4(f) properties affected by the project and determinations of use are presented in Table 5-5.

Marian Bear Memorial Park would have a *de minimis* direct use as a result of the encroachment and placement of riprap near one storm drain outlet. Temporary occupancy would occur on Marian Bear Memorial Park, the Ocean Beach Bicycle Path, and Mission Valley Open Space Preserve; these occupancies qualify for an exception under Section 774.13 and do not constitute “use” under Section 4(f).

The analysis conducted subsequent to public review of the Draft SEIS/SEIR confirms that there would be no constructive use under Section 4(f) of Rose Canyon Open Space Park.

Table 5-5. Summary of Section 4(f) Uses of Resources

	Marian Bear Memorial Park	Mission Valley Preserve Open Space	Ocean Beach Bicycle Path
Location	South of SR 52 between I-5 and Genesee Ave	Western portion of Mission Valley, within the San Diego River Park	From Dog Beach to Hotel Circle Pl along south side of San Diego River
Major Activities, Features, or Attributes	The park provides wildlife protection, hiking trails, parking, picnic areas, and restroom facilities. Park is within San Diego's MHPA.	The preserve features natural areas, trails, informational signage, and kiosk. The preserve is within San Diego's MHPA.	Provides recreational access along the south side of the San Diego River and a connection between areas in Mission Valley and areas in Ocean Beach and Old Town
Size	467 acres	52 acres	5 miles
Direct Use	Approximately 32 square feet (0.0007 acre) of riprap associated with two storm drain outlets along the MTS right-of-way. Property would not change ownership.	None	None
Temporary Occupancy	Remedial grading and construction access (approximately 1 acre total) associated with the following: realignment of existing city sewer line within the park; construction of a shoofly and temporary and permanent retaining walls within the MTS right-of-way; and construction of a replacement lined open channel in Rose Creek north of the park boundary; activities qualify for an exception under Section 774.13	Bridge construction within the MTS railroad right-of-way across the San Diego River near I-5/I-8 interchange; temporary construction area within approx. 0.3 acre of preserve; activities qualify for an exception under Section 774.13	Bridge construction for 7 to 12 months, requiring cyclists to dismount and walk for approximately 35 feet as a result of reduced vertical clearance below bridge falsework; closure of the path during installation and removal of bridge falsework
Constructive Use	None	None	None
***De minimis* Use**	Approximately 32 square feet (0.0007 acre) of riprap	None	None

Sources: SANDAG, 2014; City of San Diego Park and Recreation Department (2011); California State Parks (2011); City of San Diego (2010a)

Notes: MHPA = Multi-Habitat Planning Area; MTS = Metropolitan Transit System

5.6 Agency Coordination and Consultation

For parklands, recreation areas, and wildlife and waterfowl refuges, FTA and SANDAG are coordinating with the City of San Diego. Documentation of final concurrence from the City of San Diego Park and Recreation Department and the Transportation and Storm Water Department is included in Appendix C. Consultation will continue as needed with local agencies, jurisdictions, and historical societies and preservation groups, including the following:

- San Diego History Center
- San Diego Archaeological Center

- North Park Main Street
- Boosters of Old Town San Diego State Historic Park
- Friends of Rose Canyon
- Save Our Heritage Organisation
- Little Italy Association of San Diego
- Pacific Beach Town Council
- La Playa Trail Association
- La Jolla Historical Society
- The Committee of One Hundred

Additional discussion of coordination is provided in Chapter 8.0 of this Final SEIS/SEIR.

THIS PAGE INTENTIONALLY LEFT BLANK

6.0 COST AND FINANCIAL ANALYSIS

This chapter presents the capital and operating and maintenance (O&M) cost estimates and financial plans for the Refined Build Alternative. The chapter also presents the risks and uncertainties associated with the cost and revenue estimates and describes several mitigation strategies that the San Diego Association of Governments (SANDAG) could consider to address these risks.

This chapter has been updated from the *Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report* (SEIS/SEIR) to focus on the Refined Build Alternative and to reflect updates to the project capital cost estimate resulting from design refinements, updated escalation rates, and an updated project implementation schedule. The capital financial plan presented in this chapter reflects revisions to the sources and uses of funds for the SANDAG systemwide capital plan, including the Mid-Coast Corridor Transit Project and other SANDAG and Metropolitan Transit System (MTS) projects. Similarly, the O&M cost financial plan has been updated to reflect revisions to the sources and uses of funds for MTS systemwide operations, including the project when it is completed and opened for operations.

Unless otherwise specified, all costs and revenues in this chapter are presented in year-of-expenditure (YOE) dollars. Additionally, all costs and revenues are presented on the basis of the SANDAG fiscal year (FY), which runs from July 1 through June 30. For example, FY 2013 refers to the period from July 1, 2012 through June 30, 2013.

6.1 Cost Estimate Methodology

This section describes the methodology used to develop the capital and O&M cost estimates.

6.1.1 Capital Cost Estimate Methodology

The capital cost estimates are based on the engineering and station plans contained in the Mid-Coast Corridor Transit Project Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report Volume 2: Plan Set (Final SEIS/SEIR Plan Set). The estimates were developed in conformance with Federal Transit Administration (FTA) guidelines for estimating capital costs for New Starts projects. Capital cost estimates were prepared and reported using the latest version of the FTA's Standard Cost Categories (SCC) Workbook. Further information on the capital cost estimate methodology can be found in the *Mid-Coast Corridor Transit Project Capital Cost Methodology and Estimate Report* (SANDAG, 2014z).

For each project component, quantities were estimated based on the preliminary engineering drawings, and these quantities were multiplied by estimated unit costs. The results were then summed at the SCC level. Allowances for contingencies were added separately to the base cost for each of the SCC line items, with an additional amount assumed for unallocated contingency. All construction costs were estimated in base year (2013) dollars, including contingencies, and were then escalated to YOE dollars based on assumed annual cost escalation rates and the proposed project implementation schedule. The cost escalation rates were determined using a

comprehensive analysis of inflation forecasts, supplemented by interviews with industry suppliers and manufacturers. Further information on the cost escalation rates can be found in the *Mid-Coast Corridor Transit Project Cost Escalation Forecast (2014 to 2023)* (SANDAG, 2014x). As the project advances through the New Starts project development stage into Engineering, SANDAG will continue to review and refine the capital cost estimates.

6.1.2 Operating and Maintenance Cost Estimate Methodology

An O&M cost model was developed for the project based on a resource build-up approach that fully allocates O&M costs based on transit level-of-service variables. Unit costs were developed and calculated in 2012 dollars because 2012 was the most recently completed reporting period for the National Transit Database at the time of development of the estimates. These costs were then escalated to 2013 dollars and inflated to YOE dollars by applying different inflation rates. Inflated unit costs were then multiplied by the level-of-service variables taken from the transit operating plan to calculate total O&M costs. Additional information on the project's O&M cost model and estimates can be found in the *Mid-Coast Corridor Transit Project Operating and Maintenance Cost Methodology and Estimate Report* (SANDAG, 2014aa).

The O&M cost estimates for the project represent only MTS operations since MTS would be responsible for operating and maintaining the project. The analysis does not include the costs and revenues for the North County Transit District (NCTD) operations because NCTD would not operate or maintain the project and because MTS and NCTD have separate operating budgets.

6.2 Capital Plan

This section presents the capital cost estimates developed for the Refined Build Alternative in base year (2013) and YOE dollars, and identifies the proposed capital funding sources. This section also discusses SANDAG's ability to implement the project while maintaining the existing and planned transit system in a state of good repair. Additional information on the capital plan can be found in the *Mid-Coast Corridor Transit Project Financial Plan* (SANDAG, 2014y).

6.2.1 Capital Cost Estimate for Refined Build Alternative

Table 6-1 summarizes the total capital cost estimate for the Refined Build Alternative in base year (2013) dollars. As shown in the table, the capital cost estimate without finance charges or capital cost escalation is $1,489 million. Table 6-1 also presents the total capital cost estimate for the Refined Build Alternative in YOE dollars. The proposed project implementation schedule assumes that the project would open for revenue operations in May 2019, which is near the end of SANDAG's FY 2019. As shown in the table, the capital cost estimate, including finance charges and capital cost escalation, is $2,112 million.

Table 6-1. Capital Cost Estimates by Standard Cost Category

Standard Cost Categories	Base Year (2013) Dollars, Millions	YOE Dollars, Millions
10 - Guideway and track elements	332	381
20 - Stations, stops, terminals, intermodal	104	122
30 - Support facilities: yards, shops, administration buildings	-	-
40 - Sitework and special conditions	188	214
50 - Systems	130	152
60 - Right-of-way, land, existing improvements	146	155
70 - Vehicles	170	196
80 - Professional services	290	319
90 - Unallocated contingency	129	148
Capital cost	1,489	1,688
Finance charges	-	424
Total cost	1,489	2,112

Source: SANDAG, 2014
Note: Totals may not add due to rounding; base year (2013) cost estimates do not include finance charges or capital cost escalation.
YOE = year-of-expenditure

The capital cost estimate in Table 6-1 includes cost contingencies to cover unknown conditions that could lead to cost increases, consistent with FTA's recommendations for transit projects in this stage of project development. Contingency amounts were allocated to each SCC based on currently available information about project risks. In addition, a prudent amount of unallocated contingency (9.5 percent) was also added to cover unanticipated events. Together, allocated and unallocated amounts make up the total contingency estimate. Table 6-2 shows the total amount of contingency that is included in the cost estimates. The project's 33 percent level of contingency is conservative at this stage of its development.

Table 6-2. Total Allocated and Unallocated Contingencies (2013$, Millions)

Standard Cost Category	Amount
Allocated contingency	$243
Unallocated contingency	$129
Total contingency	$372
Total contingency as a percent of total capital cost estimate without contingency	33%

Source: SANDAG, 2014
Note: Totals may not add due to rounding.

6.2.2 Proposed Capital Funding Sources for Refined Build Alternative

SANDAG proposes to use a mix of federal and local sources to fund the project. The project's capital plan assumes federal Section 5309 New Starts funds in an amount equal to 49.4 percent of the total project cost. The remaining 50.6 percent of project

cost is assumed to be funded from SANDAG's *TransNet* sales tax program. Table 6-3 summarizes the proposed capital sources of funds for the Refined Build Alternative.

Table 6-3. Proposed Capital Funding Sources (YOE$, Millions)

Funding Source	Amount
FTA New Starts funds	$1,043
Federal share (percent)	49.4%
TransNet bond proceeds	$935
TransNet capital revenues	$134
Total sources of funds	$2,112

Source: SANDAG, 2014
Notes: Totals may not add due to rounding.
YOE$ = year-of-expenditure dollars

6.2.2.1 Federal Section 5309 New Starts Funds

Section 5309 New Starts funds are awarded by FTA on a discretionary basis to new fixed-guideway transit projects. To be eligible, projects must meet the New Starts criteria established in law and regulation. When the FTA approved the project into Preliminary Engineering (PE) in 2011, FTA determined that the project met those criteria and was likely to continue to meet the criteria as it was further developed. Subsequently, the Moving Ahead for Progress in the 21st Century Act (MAP-21) altered the New Starts process and criteria, and FTA has issued new rules and guidance on the criteria. FTA will rate the Mid-Coast Corridor Transit Project using the new criteria before approving the project into the next phase, Engineering, and recommending it for funding. The availability of funding for this project will depend upon further authorizing legislation and appropriations by Congress (see Section 6.5.2.1).

As shown in Table 6-3, SANDAG intends to request federal funds in an amount equal to 49.4 percent of the total capital cost (including finance charges). This proposed federal share results in a total federal contribution of $1,043 million, starting in FY 2016. Based on guidance received during FTA's assessment of the project's PE financial plan, the annual amount of New Starts funds is currently assumed to be limited to a maximum of $100 million. In order to offset the timing gap between the receipt of these funds and the project's cash flow needs during peak construction activities, the capital plan assumes that SANDAG would issue Grant Anticipation Notes (GANs) as a form of debt that would be repaid by New Starts funds as they are received. The remaining amount of annual New Starts funds net of annual GANs principal repayment would then be used toward project capital costs. Additional information on GANs is provided in Section 6.4.

6.2.2.2 Local *TransNet* Sales Tax Program

Revenues collected through SANDAG's *TransNet* sales tax program, approved by San Diego County voters in 1988 and extended by voters in 2004, are expected to provide all non-federal funding for the Mid-Coast Corridor Transit Project. The *TransNet* Extension Ordinance and Expenditure Plan (Ordinance) governs the distribution of the half-percent sales tax revenues beginning in FY 2009. In the Ordinance, the project is identified as 1 of 11 rail and bus rapid transit capital improvements that make up part of SANDAG's

Major Corridor Projects Program, which receive 38 percent of net annual *TransNet* sales tax revenues. The project also can receive funding from the *TransNet* Major Corridor Project Environmental Mitigation Program, which receives 4.4 percent of net annual *TransNet* sales tax revenues. Additionally, the Ordinance gives priority to funding and completing the Mid-Coast Corridor Transit Project along with two highway projects, the first of which already is completed and the other is currently under construction.

The capital plan relies on a combination of pay-as-you-go *TransNet* capital revenues and conventional long-term bonds backed by *TransNet* revenues to provide the proposed 50.6 percent local match. Pay-as-you-go capital revenues are used to pay the local share of the annual project finance charges, which is consistent with SANDAG's practice of using capital revenues to first pay off annual debt service amounts. Bonds backed by *TransNet* revenues are used to bridge the remaining gap in project funding in each year. Additional information on project borrowing and financing costs is presented in Section 6.4.

6.2.3 Evaluation of Financial Capacity

The Mid-Coast Corridor Transit Project Financial Plan (SANDAG, 2014y) presents the sources and uses of funds for the SANDAG systemwide capital plan, including the Mid-Coast Corridor Transit Project, between FY 2009 and FY 2030. The plan includes capital expenditures and associated funding for the remaining *TransNet* projects, SANDAG non-*TransNet* projects, and MTS capital projects, including bus, paratransit, and light rail transit vehicle replacement and acquisition purchases. The capital plan shows that the ending capital cash balance is expected to remain positive throughout the forecast period, which demonstrates that SANDAG and MTS possess the financial resources to undertake the project and fund the other major capital projects and routine replacements of existing assets, keeping the entire system in a state of good repair through FY 2030. This reserve balance exceeds $290 million in any given year and averages $843 million between FY 2009 and FY 2030.

If additional *TransNet* revenues are needed for the Mid-Coast Corridor Transit Project, SANDAG is required to dedicate such revenues to complete construction. As discussed earlier, the project is one of three projects identified in the Ordinance as having first priority for *TransNet* revenues. With one of the other projects already completed and the other expected to be completed by FY 2015, the project will become the only one with first priority for *TransNet* Major Corridor Projects funding.

6.3 Operating and Maintenance Plan

This section presents the annual O&M cost estimates prepared for the No-Build and Refined Build Alternatives, and assesses the region's ability to fund the project's O&M costs and the O&M costs for MTS' regional transit system. Additional information on the operating financial plan can be found in the *Mid-Coast Corridor Transit Project Financial Plan* (SANDAG, 2014y).

6.3.1 Operating and Maintenance Costs

Table 6-4 presents the annual costs to operate and maintain the project as well as the planned MTS transit system for FY 2030. The O&M costs include costs associated with light rail transit, bus (both directly operated and purchased services), paratransit, and other miscellaneous expenses. Although Chula Vista Transit is reported as a separate entity in the National Transit Database, it is consolidated under the bus purchased transportation services for reporting purposes. Commuter bus, paratransit, and Chula Vista Transit services are not expected to be affected by implementation of the project, but they are included for completeness of the analysis.

Table 6-4. Annual O&M Costs for FY 2030 for No-Build and Refined Build Alternatives (YOE$ Millions)

	No-Build Alternative	Refined Build Alternative
Light rail transit	$103.06	$135.21
Directly operated bus	$179.11	$175.58
Purchased transportation bus	$133.94	$134.07
Purchased transportation commuter bus	$6.59	$6.59
Paratransit and other	$25.72	$25.72
Total O&M cost	$448.43	$477.17
Project O&M cost (LRT)		$32.15
Project share (percent)		6.7%
Total net O&M cost		$28.74

Source: SANDAG, 2014
Notes: Totals may not add due to rounding.
FY = fiscal year; LRT = light rail transit; O&M = operating and maintenance; YOE$ = year-of-expenditure dollars

The net difference in annual O&M costs in FY 2030 between the No-Build and Refined Build Alternatives is $28.74 million. This is mostly due to the addition of the Mid-Coast Corridor Transit Project to MTS' light rail transit (Trolley) system, resulting in an incremental increase of $32.15 million to the total light rail transit O&M costs for FY 2030.

The increase in light rail O&M costs is offset by a decrease in directly operated bus O&M costs as a result of the project. The costs for the Refined Build Alternative include elimination of MTS Route 150 and minor modifications to other bus routes to improve station access. This reduction in directly operated bus service under the Refined Build Alternative decreases annual O&M costs for directly operated buses by $3.53 million compared to the No-Build Alternative. This decrease is approximately 2 percent of the No-Build Alternative directly operated bus O&M costs in FY 2030.

6.3.2 Operating and Maintenance Funding Sources

SANDAG and MTS use a combination of local, state, and federal funding sources to operate and maintain the existing transit system. This section describes the primary funding sources for the operation and maintenance of the system.

6.3.2.1 Fare Revenues

MTS currently relies on fare revenues to fund about 41 percent of its O&M costs (FY 2012). The financial plan assumes that, beginning in FY 2016, the average fare for each transit mode will increase every three years to keep pace with general inflation. In addition, for the first full year of project operation in FY 2020, MTS expects that the increased ridership resulting from the new service would also generate additional fare revenues for the light rail system. Fare revenues for the Trolley system in FY 2020 are expected to be $8 million higher than those in FY 2019 as a result of the additional expected ridership.

6.3.2.2 Federal Funding

MTS has been using FTA funds for preventive maintenance of its rail operations. Although the FTA program structure was changed by MAP-21, overall funding levels have not changed significantly. The financial plan assumes that federal formula funds (Section 5337 State of Good Repair and Section 5307 Urbanized Area) will be used to help pay for preventive maintenance costs in future years. The plan assumes that implementation of the project will also lead to an increase in the amount of formula funding apportioned to the San Diego metropolitan area. Between FY 2009 and FY 2030, the financial plan assumes that 100 percent of MTS' share of Section 5337 funds and 22 percent of MTS' share of Section 5307 funds would be used for transit operations.

6.3.2.3 State Funding

The State Transit Assistance (STA) fund constitutes the main state funding assistance for MTS transit operations. The forecasts used in the financial plan are consistent with projections in the SANDAG *2050 Regional Growth Forecast Process and Model Documentation* (SANDAG, 2010a). MTS allocates STA funds between the operating and capital budgets at the direction of its Board of Directors. The financial plan assumes that only 28 percent of total STA projected revenues would be used for MTS transit operations between FY 2009 and FY 2030.

6.3.2.4 Local Funding

Transportation Development Act (TDA) funding is the main local O&M revenue source, providing approximately 65 percent of the total local operating assistance. The forecast used in the financial plan assumes a 5.1 percent compounded annual growth rate between FY 2013 and FY 2030, consistent with projections in the SANDAG *2050 Regional Growth Forecast Process and Model Documentation* (SANDAG, 2010a). MTS policy is to use TDA funds for operations first; only if there is an operating surplus in a given year are these funds used for capital projects.

The *TransNet* program covers the remaining 35 percent share of local operating assistance. The program includes two sub-programs for funding transit operations: a subsidy for current transit services and an operating fund dedicated to new services. *TransNet* dedicates 16.5 percent of annual sales tax revenues to help fund existing transit operations. The new services operating fund also was established to subsidize the incremental cost of transit projects built under the *TransNet* program. As such, this funding source, which amounts to 8.1 percent of *TransNet* revenues, will provide an

additional subsidy to MTS for the operation and maintenance of those projects within MTS' service area.

6.3.2.5 Summary of O&M Sources and Uses

The Mid-Coast Corridor Transit Project Financial Plan (SANDAG, 2014y) presents the O&M sources and uses of funds for the entire MTS system, including the Mid-Coast Corridor Transit Project, between FY 2009 and FY 2030. The operating plan shows an operating surplus in almost every year that allows MTS to build an operating reserve and transfer some TDA funds to be used for ongoing capital needs. This demonstrates that SANDAG and MTS have sufficient financial capacity to operate and maintain the project while operating and maintaining the existing and planned transit system.

6.4 Cash Flow Analysis

This section compares the project's annual and total proposed capital funding to its capital costs. To make the financial plan work on a cash flow basis, SANDAG will use debt financing and incur finance charges.

6.4.1 Project Financing Assumptions

Total finance charges for the project equal $424 million (Table 6-5). These charges represent interest and upfront financing costs associated with two types of debt instruments: short-term GANs that will be repaid with FTA New Starts funds and long-term bond issuances that will be repaid with *TransNet* capital revenues.

The plan assumes an annual limit of $100 million on FTA New Starts funds. To address project cash flow needs, SANDAG plans to issue GANs as a form of short-term debt that would be repaid by New Starts funds. The capital plan assumes that these GANs would be issued in FY 2016, at the start of peak construction activities, at a 4 percent interest rate and with a 7-year maturity. The total amount of GANs issued for the project is currently estimated to be $550 million.

SANDAG also plans to use *TransNet* bond proceeds to bridge the project's funding gap in each year. SANDAG's Plan of Finance includes planned bond issuances every other year between FY 2015 and FY 2029 to provide funding for the entire *TransNet* program. The financial plan assumes that some proceeds from the following three planned debt issuances will be used for project funding:

- FY 2015 debt issuance: total of $354.4 million; 4 percent interest rate; 30-year maturity; 64 percent ($228.0 million) used for project funding
- FY 2017 debt issuance: total of $588.1 million; 4 percent interest rate; 30-year maturity; 89 percent ($523.2 million) used for project funding
- FY 2019 debt issuance: total of $311.1 million; 4 percent interest rate; 29-year maturity; 59 percent ($183.8 million) used for project funding

Table 6-5 summarizes the finance charges attributed to the project for each bond issue.

Table 6-5. Mid-Coast Corridor Transit Project Financing Costs (YOE$ Millions)

Debt Instrument	Finance Charges
FTA-backed Bond Proceeds	
FY 2016 GANs	$99
***TransNet* Bond Proceeds**	
FY 2015 debt issue	$93
FY 2017 debt Issue	$181
FY 2019 debt Issue	$51
Total Finance Charges	$424

Source: SANDAG, 2014
Note: Totals may not add due to rounding.
FTA = Federal Transit Administration; FY = fiscal year; GANs = Grant Anticipation Notes;
YOE$ = year-of-expenditure dollars

6.4.2 Project Cash Flow

Table 6-6 summarizes the proposed sources and uses of capital funds for the project. The table demonstrates that the project would be fully funded assuming receipt of 49.4 percent of total project cost from the federal New Starts program. All of the non-Section 5309 New Starts funds are committed for the project from *TransNet* revenues.

6.5 Risks and Uncertainties

This section describes the risks and uncertainties associated with the project's capital costs, operating costs, and funding. It also presents several mitigation strategies that SANDAG could implement in the event that any of these risks materialize.

6.5.1 Project Cost Uncertainties

Typical areas of capital cost risk for projects in this stage of project development include the potential for scope and schedule changes that can increase a project's capital cost and higher-than-expected inflation that can increase YOE costs. Project O&M costs also are subject to their own risk factors, which include changes to O&M unit costs, inflation, and unanticipated service changes.

Table 6-6. Mid-Coast Corridor Transit Project Sources and Uses of Funds (YOE$ Millions)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
Uses of Funds																	
Mid-Coast Corridor Transit Project Cost																	
SCC 10 to 90	$20.0	$13.1	$18.5	$43.5	$166.0	$335.5	$426.1	$480.1	$182.0	$2.8							$1,687.7
SCC 100 - Finance Charges					$3.2	$16.8	$38.3	$48.9	$48.1	$49.3	$45.4	$41.4	$37.2	$32.8	$32.0	$31.1	$424.4
Total Uses of Funds	$20.0	$13.1	$18.5	$43.5	$169.2	$352.3	$464.4	$529.1	$230.0	$52.0	$45.4	$41.4	$37.2	$32.8	$32.0	$31.1	$2,112.1
Sources of Funds																	
FTA Sec. 5309 New Starts						$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$100.0	$43.4	$1,043.4
FTA Sec. 5309 GANs Proceeds Drawdown						$181.8	$341.1	$27.0									$550.0
FTA Sec. 5309 GANs Principal Repayment							-$69.6	-$72.4	-$75.3	-$78.3	-$81.5	-$84.7	-$88.1				-$550.0
TransNet Bond Proceeds Drawdown					$166.0	$62.0	$73.5	$449.7	$181.0	$2.8							$935.0
TransNet Capital Revenues	$20.0	$13.1	$18.5	$43.5	$3.2	$8.5	$19.4	$24.8	$24.3	$27.6	$26.9	$26.1	$25.3	-$67.2	-$68.0	-$12.3	$133.7
Total Sources of Funds	$20.0	$13.1	$18.5	$43.5	$169.2	$352.3	$464.4	$529.1	$230.0	$52.0	$45.4	$41.4	$37.2	$32.8	$32.0	$31.1	$2,112.1

Source: SANDAG, 2014
Note: Totals may not add due to rounding.
FTA = Federal Transit Administration; FY = fiscal year; GANs = Grant Anticipation Notes; SCC = Standard Cost Category; YOE$ = year-of-expenditure dollars

6.5.1.1 Scope and Schedule Risks

The capital cost estimates presented in this chapter are based on the Final SEIS/SEIR Plan Set (Volume 2 of this Final SEIS/SEIR) at a level of design completion needed for this stage of project development. While the contingencies included in the estimates are considered to be sufficient to cover unknown factors at this stage of project development, cost increases could occur as a result of unexpected scope changes. Cost increases also could occur as a result of schedule delays. These delays could be related to unforeseen construction challenges, local decision-making processes, equipment malfunctions, or general construction delays.

Prior to FTA's approval of the project into PE, SANDAG, FTA, and FTA's Project Management Oversight Contractor assessed potential scope and schedule risks to the project and evaluated the level of contingency included in the project's budget. As the project advances through the project development stage into Engineering, SANDAG and the FTA will continue to collaborate to refine the cost estimate.

6.5.1.2 Cost Escalation Risk

The cost escalation rates used to convert the cost estimates from constant 2013 dollars to YOE dollars were developed specifically for the project using a comprehensive analysis of inflation forecasts, supplemented by interviews with industry suppliers and manufacturers. These rates are affected by regional economic conditions, commodity prices, real estate values, and labor availability. Changes in cost escalation rates could lead to cost increases in nominal terms, which would require additional capital funding.

6.5.1.3 Interest Rates and Municipal Market Risks

As with any capital project requiring this issuance of debt, the project is subject to uncertainty associated with fluctuations in interest rates. Variations in interest rates could affect the interest earned on cash balances and the interest paid on any outstanding debt, as well as the size of the debt requirements to finance the project. Fluctuations in interest rates are influenced by a number of factors, including the credit rating of the bond issuer (SANDAG) and other external factors that are not directly under the control of SANDAG, such as market risks.

6.5.1.4 Operating and Maintenance Cost Risks

The O&M unit costs (in constant 2013 dollars) that were developed to build the O&M cost model are based on recent MTS operating statistics. As a result, productivity factors, such as the number of gallons of fuel used per mile or work hours per revenue hour of service, are fairly well established and subject to limited uncertainty. Resource unit costs, such as dollar per gallon of fuel or hourly wages, on the other hand, are subject to inflationary pressures from national and regional factors.

Moreover, the project's O&M cost is based on an operating plan that makes assumptions about future systemwide levels of service. There is some risk that the systemwide levels of service might change, which could affect the overall O&M costs for the project and MTS.

6.5.2 Project Funding Uncertainties

The financial plan assumes certain levels of New Starts and other federal funds and *TransNet* revenues. There are potential risks associated with securing federal grants and/or securing them in the timeframes required to maintain the project schedule and avoid inflationary risk. Potential risks are also associated with *TransNet* revenue collections being below forecast levels.

6.5.2.1 FTA New Starts Funding

New Starts funding is subject to legislative uncertainties. MAP-21, the current federal legislation that authorizes the New Starts program, expires September 30, 2014. Considerable uncertainty exists regarding when Congress will reauthorize the surface transportation program, the amount of funding that will be provided for New Starts projects, and the potential changes to program eligibility and other requirements.

SANDAG is requesting federal New Starts funding in an amount that represents 49.4 percent of total project cost. The terms of this funding will be negotiated and described in a Full Funding Grant Agreement (FFGA) between SANDAG and the FTA, which would occur following completion of the National Environmental Policy Act/ California Environmental Quality Act processes and following the project's rating and approval into Engineering by FTA. Several projects around the country are competing for a limited supply of New Starts funds, and the amount of uncommitted funding available for new projects may become increasingly limited in the coming years. Any delay in the FFGA or reduction in the annual New Starts funding amount below the assumed $100 million could affect the construction schedule and increase project costs.

Even if an FFGA is negotiated and signed according to the schedule, there is risk associated with the timing of annual funding appropriations for the project. Although history has shown that Congress ultimately honors and appropriates the full amount spelled out in an FFGA, Congress could delay funding for the project by reducing or stretching out the annual appropriations. Any delay might necessitate additional borrowing, schedule delays, and cost increases.

6.5.2.2 *TransNet* Funding

The only source of non-federal funds for the project is being generated by *TransNet* revenues, which are based on sales taxes. Sales tax revenues tend to move in tandem with the overall economy. As such, *TransNet* revenues will be affected by the ebbs and flows of the local economy. This could lead to future *TransNet* shortfalls during times of economic recession. Any reduction in *TransNet* revenues could affect the ability of SANDAG to complete other projects in its capital program.

Moreover, the project's capital plan includes proceeds from several planned *TransNet* bond issuances between FY 2015 and FY 2019. If these bond issuances are not approved by the SANDAG Board of Directors, there is a risk that the agency may need to modify the project's schedule or scope.

6.5.3 Mitigation Strategies

In the event that any of these cost or funding risks materialize, SANDAG has several mitigation strategies that it can implement to absorb potential cost increases or revenue shortfalls.

6.5.3.1 Increase in Project Capital Cost

The project is one of three projects identified in the Ordinance as having first priority for *TransNet* revenues. The other two projects include an extension of State Route (SR) 52 from SR 125 to Highway 67, which opened to travelers in FY 2011, and improvements to SR 76, which will be completed by FY 2015. Once the work on SR 76 is complete, the Mid-Coast Corridor Transit Project will receive first priority for *TransNet* Major Corridor Projects funding. In the event of a cost increase, SANDAG is required to dedicate additional *TransNet* revenues to complete the project.

6.5.3.2 Delay in Federal New Starts Funding/Decrease in *TransNet* Revenue Collections

In the event that federal funding for the project is delayed, SANDAG has the ability to issue additional *TransNet* bonds to complete the project. Revenues generated by *TransNet* until FY 2048 would provide more than adequate debt capacity for the project.

SANDAG has forecasted that sales tax revenues will increase at a compounded annual growth rate of 4.9 percent between FY 2013 and FY 2030. If *TransNet* revenues increase at a lower rate than forecasted, SANDAG still is required to complete the project and would need to strategize its capital program capacity, including issuing more debt. SANDAG also can seek additional state and federal funding to help make up any shortfall in *TransNet* revenues. SANDAG will frequently review *TransNet* receipts as compared to forecasts and update forecasted amounts if needed.

6.5.3.3 Increase in Operating and Maintenance Cost

MTS has demonstrated its ability to control O&M cost increases through periods of economic change and price volatility. In the event that O&M costs increase at a greater rate than forecasted in the project's financial plan, the project will still be able to use the 8.1 percent *TransNet* operating fund that is dedicated to new services. If additional revenues are needed, MTS may use additional federal formula funding apportioned to the region to fund ongoing preventative maintenance activities required for the project.

THIS PAGE INTENTIONALLY LEFT BLANK

7.0 EVALUATION OF ALTERNATIVES

This chapter presents the results of the evaluation of the benefits, costs, and impacts of the Refined Build Alternative, as compared to the No-Build Alternative. This comparison is made from four perspectives—effectiveness in meeting the purpose and need, cost effectiveness, feasibility, and environmental and other considerations. Important trade-offs also are highlighted.

The evaluation in this chapter draws upon and summarizes the information provided in the previous chapters of this Final Supplemental Environmental Impact Statement/ Subsequent Environmental Impact Report (SEIS/SEIR). The evaluation measures used in this chapter reflect local goals for the Refined Build Alternative as described in Chapter 1.0. This chapter has been revised since the Draft SEIS/SEIR to reflect the approval of refinements to the Build Alternative (now referred to as the Refined Build Alternative) by the San Diego Association of Governments (SANDAG) Board of Directors for evaluation in the Final SEIS/SEIR. The Refined Build Alternative reflects decisions among the options presented in the Draft SEIS/SEIR, modifications to the project to reduce impacts, and further engineering refinements, as described in Chapter 2.0 of this document. Revisions to this chapter also reflect updates to the Section 5309 New Starts program criteria implemented under Moving Ahead for Progress in the 21st Century Act of 2012 (MAP-21). The cost information presented in Section 7.4 was revised based on the information presented in Chapter 6.0 of this document. Additionally, the findings of the environmental analysis, as summarized in Section 7.5, were revised to reflect changes in Chapter 4.0 of this document. Section 7.5.3 was revised to reflect impacts to an ephemeral basin containing San Diego fairy shrimp (*Branchinecta sandiegonensis*) and formal consultation with U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the federal Endangered Species Act. Impacts to San Diego fairy shrimp were evaluated in the *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/Supplement to the Subsequent Environmental Impact Report*, which was circulated for review and comment from July 18, 2014 to September 2, 2014.

7.1 Effectiveness in Meeting Purpose and Need

Chapter 1.0 presents the purpose and need for the Mid-Coast Corridor Transit Project. As stated in that chapter, the purpose of the proposed project is to provide for implementation of transit improvements that improve transit service in the Mid-Coast Corridor between Downtown San Diego, Old Town, and University City. Although the Mid-Coast Corridor is currently served by transit, the existing transit system does not offer the level of service needed to meet the region's goals for mobility, accessibility, reliability, and efficiency, as defined in the SANDAG *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP) (SANDAG, 2007a). The COASTER commuter rail service passes through the corridor, but its stations are widely spaced and it does not have a station in close proximity to the University of California, San Diego (UCSD) or the University Towne Centre (UTC) Transit Center. The San Diego Trolley (Trolley) Blue Line terminates at the Old Town Transit Center (OTTC)

under existing conditions[1]. While transit mobility and accessibility to northern portions of the corridor are provided by express and local buses, the speed and reliability of bus service are constrained by roadway congestion, and many transit riders are required to transfer in Downtown San Diego or at the OTTC to reach destinations in University City. With congestion projected to increase in the future, the level of service, reliability, and efficiency of the transit system will all decrease.

To meet the region's goals most effectively, the Mid-Coast Corridor needs a transit system that is better able to serve the major travel destinations of UCSD and the UTC Transit Center in University City. This transit system must provide a frequency of service, speed, and reliability that would better serve existing transit riders and attract new riders. The exclusive right-of-way for transit that is proposed for the Mid-Coast Corridor Transit Project would shorten travel times, improve reliability, and reduce the number of transfers required for travel between major travel markets, thereby improving service for existing riders and attracting new riders. With the improved transit service provided by the project, one-seat rides (trips that do not require a transfer) would be available from the U.S.–Mexico international border to University City, and between communities in South San Diego County, Downtown San Diego, and University City, making transit an attractive alternative to travel by automobile.

Section 1.6 identifies other important local goals related to livability, sustainability, and equity. The following sections describe the effectiveness of the Refined Build Alternative in meeting these goals and addressing the project's purpose and need.

7.1.1 Mobility and Accessibility

Just as mobility and congestion have worsened over the years, congestion in 2030 will be worse than it is today. Congestion reduces travel speeds and increases travel time. For transit riders, the increase in congestion would directly affect their mobility because travel times on buses would increase. Although the planned high-occupancy vehicle (HOV) lanes on Interstate (I-) 5 under the No-Build Alternative would offset the effects of congestion for transit riders using buses operating in the HOV lanes, other riders would be affected by congestion.

Mobility and accessibility under the No-Build and Refined Build Alternatives were evaluated in terms of transit travel time, the number of transfers required to complete a trip, and transit ridership with a focus on the key travel markets identified in Chapter 1.0 (Downtown San Diego and areas to the east and south and University City). Table 7-1 summarizes the mobility and accessibility benefits of the alternatives.

7.1.1.1 Transit Travel Time and Speed

Travel time represents how long it takes a passenger to complete a trip by transit and is affected by the speed of the transit vehicle, roadway congestion, the number of stops, and the distance between stops. Transit riders benefit if a transit investment helps them complete their trip more quickly. Additionally, choice transit riders, defined as those

[1] Existing conditions generally refers to conditions in 2010 when the Notice of Preparation for the California Environmental Quality Act was issued.

Table 7-1. Effectiveness of Alternatives—Mobility and Accessibility Benefits

Measures	No-Build Alternative	Refined Build Alternative	Difference
Transit Travel Time (peak period in minutes)			
Golden Triangle to Centre City/Downtown	47.1	43.5	-3.6
South San Diego to UCSD	68.6	51.9	-16.7
Mission Valley to UCSD	51.6	39.1	-12.5
Transit Ridership			
Average weekday linked trips—systemwide	309,900	323,300	+13,400
Average weekday boardings—local bus	360,300	367,100	+6,800
Average weekday boardings—express bus	59,300	53,000	-6,300
Average weekday boardings—Trolley	152,200	180,800	+28,600
Daily passenger miles	3,604,858	3,800,297	+195,439
Transfers (Daily Transfer Rate)			
University City to Centre City/Downtown	2.01	1.70	-0.31
South to University City	2.62	2.08	-0.54
East to University City	2.51	2.38	-0.13

Source: SANDAG, 2014v
Note: UCSD = University of California, San Diego

individuals who could complete a trip by either automobile or transit, may decide to ride transit if it becomes more competitive with automobile travel time. Despite implementation of the planned roadway and transit improvements identified in the 2030 RTP, highway speeds will be slower as regional population, employment, and congestion grow by 2030. As highway speeds become slower, transit projects that increase transit speeds will make transit a more attractive alternative to travel by automobile.

Travel times between three of the major travel markets identified in Chapter 1.0—Golden Triangle to Centre City (Downtown San Diego), South San Diego to UCSD, and Mission Valley to UCSD—are presented in Table 7-1. As described in Sections 1.2.3 and 1.2.4, a substantial number of trips currently occur between areas of San Diego south and east of the OTTC and the University City and UCSD area. Furthermore, the number of trips between these areas would increase by 2030. Connecting these areas with reliable, efficient transit service is one of the purposes of the project.

The Refined Build Alternative offers much faster transit travel time than the No-Build Alternative for the three major travel markets described above, with peak-period time savings ranging from 3.6 to 16.7 minutes per trip. These travel times include time spent on transit in addition to the initial wait time, walk time to reach a transfer, and any wait time for that transfer. As shown by the improvement in transit travel times and speed, the Refined Build Alternative achieves the project objective of increasing speed. Chapter 3.0 provides additional information on the project's travel-time benefits.

Under the Refined Build Alternative, the faster transit travel times and increased transit speeds result in transportation system user benefits, measured in terms of equivalent

hours of travel-time savings. Transportation system user benefits capture a diverse set of benefits to transit riders—including reductions in walk times, wait times, ride times, transfer time, and costs (converted to time)—expressed in terms of savings in travel time. There would be approximately 11,500 hours per day of user benefits under the Refined Build Alternative.

User benefit thematic maps are included in the *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report* (SANDAG, 2014v). These maps show that travelers starting their trips in the Mid-Coast Corridor would gain the greatest benefit. Travelers starting their trips in the Marina–Ballpark (District 29), Mission Valley (District 7), and South Bay (District 11) travel analysis districts and areas along the U.S.–Mexico international border would also benefit, indicating that user benefits of the project would be widespread (refer to Figure 1-2 for a map of travel analysis districts).

7.1.1.2 Transit Ridership

The extent to which a transit project can attract more ridership is a direct reflection of its benefits to potential riders, including changes in travel time, transfers, and reliability, among other factors. Linked transit trips in 2030 under the Refined Build Alternative would increase by 13,400 trips per day (4 percent) over the No-Build Alternative. Linked trips are a trip from origin to destination regardless of the number of transfers needed to complete the trip. This increase in transit ridership under the Refined Build Alternative reflects the improvement in mobility and accessibility provided by extending the Trolley Blue Line and providing continuous service from the San Ysidro Transit Center at the U.S.–Mexico international border to University City. These are trips that would not be made by automobile on congested roadways.

The Refined Build Alternative would increase systemwide ridership on the Trolley by 28,600 boardings per day compared to the No-Build Alternative, from 152,200 to 180,800 (19 percent). Some of these riders would be new to transit. Others would be riders who would use buses under the No-Build Alternative but would benefit from a faster and more reliable trip on the Trolley with the project. The increase in transit ridership under the Refined Build Alternative is an indication of the effectiveness in making transit an attractive alternative to the automobile.

7.1.1.3 Number of Transfers

Some transit passengers are able to take one bus route from their starting point to their end point without the need to board another vehicle. However, for other passengers, a transfer may be required. A transfer can be from one bus to another, or between bus and rail (for instance, taking a bus to reach a Trolley station and then taking the Trolley to complete the trip). The number of transfers needed to complete a trip is another way to measure mobility benefits. Transfers add travel time and uncertainty to the trip, especially if transit services at the transfer point are not coordinated and wait times are long.

Table 7-1 lists the number of transfers required to complete a transit trip between three of the major travel markets identified in Chapter 1.0: University City to Centre City (including Downtown San Diego), South San Diego to UCSD, and East San Diego (including Mission Valley) to UCSD. The table presents transfer rates; a transfer rate of

2.62 means that, on average, for every transit trip from the south to University City 1.62 transfers per trip are required. As shown, the Refined Build Alternative would reduce the number of transfers required to complete these trips. Consequently, the Refined Build Alternative achieves the project objective of reducing transfers for these major travel markets.

Transfers still would be required for passengers traveling between University City and areas east of downtown; however, these transfers would be easier under the Refined Build Alternative. With the extension of the Trolley Blue Line from Santa Fe Depot to the UTC Transit Center under the Refined Build Alternative, passengers who would take the Trolley Green Line and then transfer to bus Route 150 under the No-Build Alternative would instead use the Trolley Blue Line. The Refined Build Alternative would provide faster service than a bus and thus would reduce travel time, even with any required transfers. Additionally, passengers transferring between the Trolley Blue and Green Lines at the OTTC would walk across the Trolley platform, rather than walking through the pedestrian undercrossing to access the bus as they would under the No-Build Alternative. Further, the Refined Build Alternative would reduce transfer wait times, especially during the midday off-peak period, since it would operate with 7.5-minute headways from 6:00 a.m. to 6:00 p.m. Because of the improved convenience of transferring and shorter frequencies, transfers under the Refined Build Alternative would be more convenient than under the No-Build Alternative, thus benefitting passengers.

7.1.2 Efficiency

The Metropolitan Transit System (MTS) uses “passengers per in-service hour” as a measure of transit’s efficiency. It is a measure of the number of boardings on the route divided by the hours that the route is available to transport passengers. The *Coordinated Plan 2010-2014* (SANDAG, 2010c) established a guideline of 35 revenue passenger boardings per service hour. If a route does not meet the guideline, then it may be providing service for more hours than is needed to serve the ridership demand. In these cases, the transit agency may adjust service by reducing service during off-peak periods or reducing the service span to serve demand more efficiently.

Although the Refined Build Alternative would lead to substantially higher Trolley Blue Line ridership than under the No-Build Alternative, the Trolley Blue Line in-service hours would grow more rapidly than ridership. As a result, the Trolley Blue Line under the Refined Build Alternative would serve approximately 370 passengers per in-service hour, making it somewhat less efficient than under the No-Build Alternative (approximately 430 passengers per in-service hour). This would represent a 12-percent decrease in efficiency. Nonetheless, the Trolley Blue Line would be substantially more efficient than existing conditions (280 passengers per in-service hour) and would far exceed the guidelines established by the *Coordinated Plan 2010-2014*.

7.1.3 Reliability

Improved reliability is a third goal of SANDAG’s 2030 RTP. Transit system reliability generally is measured in terms of on-time performance (i.e., whether the bus or Trolley departs a stop less than zero seconds early and no more than five minutes past the scheduled time). Roadway congestion has a direct impact on the reliability of transit

services, particularly buses. In comparison, the Trolley operates in an exclusive right-of-way with a few grade crossings in Downtown San Diego and is not hindered by fluctuations in traffic. As a result, under existing conditions, the Trolley Blue Line has 93 percent on-time reliability throughout the day, whereas Express Bus Route 150, operating between Downtown San Diego and the UTC Transit Center, has 86 percent reliability during the p.m. peak period when roadways are more congested.

By 2030, a 54-percent increase in vehicle hours of delay is projected, representing increased congestion on corridor roadways. As highway congestion increases, the reliability of buses operating in mixed traffic is expected to decline. The exceptions include bus routes operating in I-5 HOV lanes; however, buses still would need to travel on arterials and local roadways to reach these lanes, which would affect reliability.

The 10.9-mile extension of the Trolley Blue Line under the Refined Build Alternative would be operated in exclusive right-of-way completely separate from roadway congestion, thus offering much greater reliability for transit riders. As identified in Section 3.4.1.2, passenger miles in exclusive right-of-way on the Trolley system would increase 27 percent compared to the No-Build Alternative. Because the Trolley operates primarily in exclusive right-of-way, the Trolley Blue, Green, and Orange Lines are currently able to maintain higher on-time performance, and similar performance would be expected under the Refined Build Alternative. Passenger miles on buses operating in HOV lanes would decrease under the Refined Build Alternative, partly because Route 150 would be eliminated and some bus passengers would switch to the Trolley. The Refined Build Alternative achieves the project objective of increasing transit reliability in the corridor.

7.2 Effectiveness in Supporting Other Local Goals

The 2030 RTP established goals not only for mobility, accessibility, efficiency, and reliability, but also for livability, sustainability, and equity. While these goals do not directly contribute to the purpose and need for a transit investment in the Mid-Coast Corridor, the project does support these other goals, as described in this section.

7.2.1 Livability

The livability goal seeks to focus transit improvements in areas with compatible land uses that support an efficient transit system, and to foster smart-growth land uses. As stated in Section 4.1.3, the continuation and enhancement of bus Route 150 under the No-Build Alternative would be inconsistent with local goals and policies, which aim to increase the intensity of development along transit corridors, enhance regional connectivity, and minimize environmental impacts.

The Refined Build Alternative would connect the region's two largest population and employment centers—Downtown San Diego in the southern area and University City in the northern area of the corridor—thus supporting this goal. Since the mid-1980s, communities in the corridor have been identifying the Mid-Coast Corridor Transit Project in their plans. Additionally, SANDAG has designated Smart Growth Opportunity Areas, and the City of San Diego has developed the "City of Villages" strategy of integrating

land use and transit to address potential growth. All nine of the proposed stations under the Refined Build Alternative are located in Smart Growth Opportunity Areas.

When evaluating proposed projects for New Starts funding, in accordance with federal law and regulations, land use and economic development are two of the criteria that the Federal Transit Administration (FTA) uses to establish a project justification rating. The other project justification criteria are mobility improvements, cost effectiveness, environmental benefits, and congestion relief. The land use and economic development criteria take into account both existing land use and adopted plans and policies to help shape development and foster more transit-oriented patterns. In 2011, FTA gave the Mid-Coast Corridor Transit Project a "medium" rating for land use and a "medium-high" rating for economic development. In its economic development rating, FTA cited the city's *Smart Growth Concept Map* that identifies Smart Growth Opportunity Areas in which all of the proposed stations would be located. It also cited the additional city plans and policies, including: (1) the *City of San Diego General Pla*n (City of San Diego, 2008a), which focuses new development and redevelopment in existing communities, (2) the *City of San Diego Pedestrian Master Plan* (City of San Diego, 2006b), and (3) the *San Diego Street Design Manual* (City of San Diego, 2002b).

7.2.2 Sustainability

This section discusses how the Refined Build Alternative supports the 2030 RTP's sustainability goal, which seeks to improve air quality and reduce greenhouse gas (GHG) emissions. Table 7-2 highlights key findings from the results of the air quality analysis presented in Sections 4.5 and 4.6.

Table 7-2. Effectiveness of Alternatives—Sustainability Benefits

Measures	Existing Conditions	No-Build Alternative	Refined Build Alternative
Roadway vehicle miles traveled within corridor (million miles per day)*	10.693	12.472	12.407
Greenhouse gas emissions within region (metric tons of carbon dioxide per day)	37,439	46,243	45,963

Source: SANDAG, 2014q
Note: * Includes on-road vehicle miles traveled, including bus transit

As shown in Table 7-2, vehicle miles traveled (VMT) would increase 17 percent between 2010 and 2030 under the No-Build Alternative. Emissions of air pollutants and GHG increase as VMT increases. Consequently, as stated in Section 4.5.3, emission levels for several air pollutants, including sulfur dioxide and particulate matter, would increase between 2010 and 2030. Similarly, emissions of GHG would increase.

The Refined Build Alternative would help reduce VMT, resulting in a decrease in air pollutants and GHG compared to the No-Build Alternative. The FTA's project justification criterion for environmental benefits, which is based on changes in VMT, will be addressed when SANDAG seeks approval to advance the project into the Engineering phase following the Record of Decision.

7.2.3 Equity

The 2030 RTP equity goal establishes that SANDAG will provide equitable levels of transportation services for all population segments, including low-income, minority, elderly, and persons with disabilities. Environmental justice (EJ) populations are communities with a higher proportion of minority and/or low-income populations compared to the surrounding community. The expanded bus service that would be provided under the No-Build Alternative may not offer faster or more convenient access to jobs and services in the corridor to the same extent as the Refined Build Alternative.

As noted in Section 4.20, five of the nine identified EJ populations are located within one-half mile of the project alignment and thus would be well served by the Refined Build Alternative. Benefits of the Refined Build Alternative to transit users include increased transit options, improved mobility, proximity to transit stations, and access to employment and activity centers. The project would be fully compliant with the Americans with Disabilities Act, thus ensuring equitable service to persons with disabilities. Transit performance would improve within the Mid-Coast Corridor, and all population segments would share in these benefits.

Table 7-3 compares the transportation system user benefits for low-income groups with those benefits for all income groups combined. More than 60 percent of the Refined Build Alternative's user benefits (7,066 out of 11,473 hours) would accrue to low-income groups. These benefits would accrue to low-income groups inside the Mid-Coast Corridor and those outside the corridor who have a travel destination within the corridor.

Table 7-3. Benefits to Low-Income Persons in 2030

	Low Income	All Income Groups Combined
Transportation System User Benefits (hours per day)	7,066	11,473

Source: Series 11 model

As described in Section 4.20, the Refined Build Alternative would not result in substantial and disproportionately high and adverse effects to EJ populations. In addition, the Veterans Administration Medical Center Station would provide convenient access for veterans, disabled and otherwise, seeking medical treatment.

7.3 Cost-Effectiveness

The cost-effectiveness analysis considers whether the project's benefits would justify its capital and operating costs. Cost-effectiveness analysis offers another perspective for evaluating the Refined Build Alternative and is one of the criteria that FTA uses to evaluate the justification for projects proposed for Section 5309 New Starts funding.

Cost-effectiveness has been evaluated using the measure that FTA required at the time that the Mid-Coast Corridor Transit Project was approved into Preliminary Engineering in 2011. That measure was the ratio of the project's incremental annual cost (both capital and operating) divided by the project's incremental annual benefits in terms of the hours of user benefit in 2030. Both costs and user benefits were calculated in relation to a

New Starts baseline, which represented the best that could be done to improve transit service without building a new fixed guideway. The resulting ratio was compared with the cost-effectiveness breakpoints that FTA established for rating projects on a five-level scale, from high to low. Using this measure, FTA gave the Mid-Coast Corridor Transit Project a "medium" rating for cost effectiveness in 2011.

More recently, in accordance with MAP-21, FTA revised its cost-effectiveness measure and breakpoints. In the future, a project's cost-effectiveness will be rated in terms of the annual cost (both capital and operating) per project trip. The Mid-Coast Corridor Transit Project will be rated using this new measure when SANDAG seeks approval to advance the project into the Engineering phase.

7.4 Feasibility

This section addresses two feasibility measures—financial feasibility and constructability—highlighting significant factors covered in Chapters 4.0 and 6.0.

Based on the assumptions underlying the *Mid-Coast Corridor Transit Project Financial Plan* (SANDAG, 2014y), as summarized in Chapter 6.0, the Refined Build Alternative is considered to be financially feasible. The financial plan expects that the Refined Build Alternative would be funded through a combination of available *TransNet* funds and FTA New Starts funds (Table 7-4).

Table 7-4. Financial Feasibility

Measures	No-Build Alternative	Refined Build Alternative
Capital cost (million 2013 $)[1]	Base	$1,489
Capital cost (million YOE $)[2]	Base	$2,112
TransNet funding (million YOE $)[3]	$0	$1,069
New Starts funding (million YOE $)	$0	$1,043

Source: SANDAG, 2014y
Notes: YOE $ = year-of-expenditure dollars
[1] Does not include financing costs
[2] Includes financing costs
[3] Includes both bond proceeds and capital revenues

Chapter 6.0 explains that *TransNet* funding is in place, but New Starts funding is not ensured. To receive New Starts funding, the project must complete the National Environmental Policy Act process—of which this document is a part—and the FTA New Starts process with at least a "medium" rating for both project justification and local financial commitment based in FTA's latest criteria. When FTA approved the project's entry into Preliminary Engineering on September 2, 2011, the project received an overall rating of "medium-high." In addition, New Starts funding is dependent upon future congressional actions to authorize the program when MAP-21 expires in September 2014 and to provide annual appropriations.

SANDAG intends to request federal funds in an amount equal to 49.4 percent of the total capital cost (including finance charges). As shown in Table 6-3, SANDAG has the ability to fund the capital cost of the project within the proposed federal and local revenue sources.

The financial plan also demonstrates that SANDAG and MTS have sufficient financial capacity to operate and maintain the project while operating and maintaining the existing system in a state of good repair.

In terms of constructability, the engineering performed to date has not revealed construction issues that cannot be managed. The cost estimate reflects current understanding about the complexity of construction, and the capital cost estimate includes contingencies for unknown conditions that may arise as design progresses.

7.5 Environmental and Other Considerations

While the Refined Build Alternative would provide mobility and accessibility, livability, and sustainability benefits, as discussed in the previous sections, the project would result in transportation and environmental impacts, which are discussed in Chapters 3.0 and 4.0, respectively. This section summarizes the major impacts, specifically traffic, visual, biological, and construction.

7.5.1 Traffic Impacts

As discussed in Section 3.3.2, the Refined Build Alternative would adversely affect roadway performance. Adverse impacts would occur at 15 intersections (13 intersections south of the San Diego River and 2 intersections north of the river) as a result of the increased frequency of trains traveling through grade crossings in the south or additional traffic accessing proposed stations and park-and-ride facilities in the north. The adverse impacts would be fully mitigated at all but two intersections through implementation of geometric (e.g., the addition of turning lanes) and operational (e.g., changes to traffic signal phasing or timing) modifications.

Adverse and unavoidable impacts would occur for one roadway segment and two intersections. The level of service on Balboa Avenue from the I-5 southbound on-ramp to the I-5 northbound off-ramp would deteriorate under the Refined Build Alternative because of traffic accessing the Balboa Avenue Station and park-and-ride facility. Traffic to the proposed Balboa Avenue Station also would increase delay at the intersection of Mission Bay Drive and Garnet Avenue during p.m. peak hours, exceeding guidance established by the City of San Diego. Mitigation measures for these adverse impacts were considered. Mitigating the impact to the segment of Balboa Avenue would require reconstruction of the I-5 and railroad bridges and thus was deemed infeasible. Mitigating the impact at Mission Bay Drive and Garnet Avenue would require right-of-way acquisition and utility relocations. This intersection operates at level of service (LOS) E today and would continue to operate at LOS E under the Refined Build Alternative, but with greater delay. The mitigation measures identified for this intersection would decrease delay but the intersection would continue to operate at LOS E. Therefore, the benefits of mitigating this intersection would not outweigh the

secondary impacts, and the Refined Build Alternative impact at this location would remain adverse and not mitigated.

An adverse and unmitigated impact was also identified at the stop-controlled intersection of Beech Street and Pacific Highway, located south of the San Diego River. During the a.m. peak hour, the intersection would operate at LOS E with a delay 0.6 second greater than that experienced under the No-Build Alternative. A traffic signal was examined as mitigation; however, the intersection is within close proximity of two other signalized intersections and adding a traffic signal at this location would reduce vehicular storage capacity in the area and increase delay along Pacific Highway. Therefore, the impact at Beech Street and Pacific Highway remains adverse and not mitigated.

7.5.2 Visual Impacts

The Refined Build Alternative would have adverse visual impacts, as described in Section 4.4. The adverse impacts would be fully mitigated through implementation of design and landscaping mitigation measures. At UCSD, project features consist of new rail lines, ballast, retaining walls, grading, catenary lines, and poles. These project elements would add to the visual landscape. The removal of some mature trees and vegetation may be required within Pepper Canyon. However, project features would not contrast substantially with the surrounding visual quality or character. The project would have a low-to-moderate visual impact on the visual resources at UCSD.

The elevated structure would introduce a new visual element that would affect the physical and visual character of the adjacent Matthews Apartments, resulting in a localized adverse impact to the Matthews Apartments. This aerial structure would obstruct west-facing views, but these views are not of the coast or of public view corridors, and thus the impact is not adverse.

The UTC and University City area contains architecture and mature landscaping with distinct visual character. The Refined Build Alternative includes an overhead structure with columns in the center of the Genesee Avenue median and with two straddle bents on Genesee Avenue. One straddle bent would be located west of Regents Road where the alignment would enter Genesee Avenue and the second one would be located at the intersection of Executive Square and Genesee Avenue to support the tracks and the station platform. The Refined Build Alternative would have a moderate adverse impact on this area; however, the impact would be mitigated.

Various mitigation measures would be implemented to minimize visual impacts. These measures include the replacement of trees and implementation of design treatments so project features blend with their surroundings.

7.5.3 Biological Resources

As described in Section 4.8, the Refined Build Alternative would result in the long-term loss of jurisdictional aquatic resources (refer to Section 4.8.1.2 for a definition of this term). Long-term direct impacts to wetlands and non-wetland waters under U.S. Army Corps of Engineers (USACE) and Regional Water Quality Control Board jurisdiction total 0.37 acre (or 3.01 acres including construction and shading impacts). Long-term direct impacts to streambed and riparian areas under the California Department of Fish and

Wildlife and the City of San Diego jurisdiction total 0.87 acre (or 4.95 acres including construction and shading impacts). Long-term direct impacts would occur to coastal wetlands under the jurisdiction of the California Coastal Commission, totaling 0.23 acre (0.88 acre including construction and shading impacts). The project would avoid and minimize impacts to jurisdictional wetlands and waters to the extent practicable. As long-term impacts to areas under USACE jurisdiction do not exceed 0.5 acre within any of the affected watersheds, it is anticipated that the project would be authorized under Section 404 through the Nationwide Permit program. Although the Nationwide Permits appropriate for the activities associated with the proposed project would be determined by the USACE as part of the permitting process, potentially applicable Nationwide Permits include Nationwide Permit 3 (Maintenance), Nationwide Permit 12 (Utility Line Activities), Nationwide Permit 14 (Linear Transportation), and Nationwide Permit 33 (Temporary Construction, Access, and Dewatering).

The Refined Build Alternative would result in the long-term loss of 8.29 acres of riparian, Diegan coastal sage scrub, and non-native grassland (wetlands and Tiers II–III) that provide foraging and/or nesting habitat for special-status wildlife species. Specifically, implementation of the project would result in direct impacts to an ephemeral basin containing San Diego fairy shrimp, and would also impact suitable habitat for coastal California gnatcatcher (*Polioptila californica californica*), least Bell's vireo (*Vireo bellii pusillus*), and southwestern willow flycatcher (*Empidonax traillii extimus*). The project would also impact suitable foraging habitat for light-footed clapper rail (*Rallus longirostris levipes*). Direct impacts to San Diego fairy shrimp triggered formal Section 7 consultation with the USFWS, which was initiated on June 12, 2014. On September 5, 2014, the USFWS issued a Biological Opinion concurring with the FTA's determination that the project is not likely to adversely affect coastal California gnatcatcher, least Bell's vireo, southwestern willow flycatcher, or light-footed clapper rail, or critical habitat for these species. While the project would directly affect San Diego fairy shrimp, the Biological Opinion concludes that the project is not likely to jeopardize the continued existence of the San Diego fairy shrimp, and included authorization for incidental take of San Diego fairy shrimp. Affected areas would be limited to locations within or immediately adjacent to the existing MTS right-of-way where comparatively large areas of native habitats remain available. In addition, vegetation community impacts would be mitigated through the SANDAG *TransNet* Environmental Mitigation Program using one or more of the ratios shown in Chapter 4.0, Table 4-19, Table 4-20, and Table 4-21 of this SEIS/SEIR. Mitigation for impacts to Tier II and Tier IIIB vegetation communities within and outside of the Multi-Habitat Planning Area is shown in Table 4-20 and Table 4-21. As a result, adverse impacts to special-status wildlife species through the reduction of foraging and/or nesting habitat would be negligible.

About 92 percent of the existing wetlands and Tier II–III vegetation communities would remain after implementation of the Refined Build Alternative, and direct impacts to wetlands and Tier II–III vegetation would be mitigated, as described in Section 4.8.4.

7.5.4 Construction Impacts

Construction impacts are described in Section 4.17. Despite the project's scope and length, the construction impacts of the Refined Build Alternative on the built and natural environment are limited. The land use encroachments for construction are temporary,

and the contractor would return these sites to their original condition when the construction phase ends. Additionally, the project has been designed to minimize the number of temporary encroachments needed during construction. Commercial signage and business visibility could be affected during construction; however, the contractor would be required to install temporary signage and signage to direct vehicles to parking and/or access. Therefore, adverse impacts to businesses would not be anticipated.

Some construction activities would occur during nighttime hours, which could result in adverse impacts to residences, particularly along Charmant Drive and Genesee Avenue and in the northeast corner of Cape La Jolla Gardens housing complex adjacent to I-5. Noise-reducing curtains, noise masking machines, or temporary lodging in an approved hotel would be offered to residents when excessive nighttime construction noise is expected.

Impacts to wetlands and waters under the jurisdiction of the USACE, the Regional Water Quality Control Board, the California Department of Fish and Wildlife, the California Coastal Commission, and the City of San Diego would be mitigated as specified in Section 4.17.3.2; additional measures may be required during the permitting processes. With the mitigation identified in Section 4.17.3.2, no adverse impacts would occur.

Air quality impacts during construction would be adverse. Emissions from construction equipment and from hauling and worker trips all would result in air pollutant emissions. Adverse and unavoidable impacts would remain even after implementation of project measures, resulting in exceedance of thresholds for nitrogen oxides and carbon dioxide.

Section 3.4.7 summarizes construction impacts on the transportation system. Construction of the project would affect Trolley and bus travel times, roadway traffic, and off-street parking supply. Project features and mitigation would be implemented to reduce impacts and would consist of detours and the provision of off-street parking in other locations, as available; however, some adverse and unavoidable impacts would remain.

7.6 Summary of Important Trade-offs

A decision to invest in the Refined Build Alternative reflects an assessment that the project's benefits justify its costs and impacts. Through more than 20 years of local planning, SANDAG and other local agencies have evaluated the project and concluded that the project has merit. The SANDAG Board of Directors reconfirmed the Locally Preferred Alternative in 2010 and approved the Refined Build Alternative in November 2013[2]. In addition, the project is a priority under the *TransNet* sales tax program adopted by San Diego County voters. By approving the Mid-Coast Corridor Transit Project into the New Starts program in 2011, FTA concluded that the project met its New Starts criteria for project justification and was likely to be a good candidate for funding.

[2] The SANDAG Board of Directors subsequently amended the Refined Build Alternative on May 9, 2014.

7.7 Environmentally Superior Alternative

California Environmental Quality Act Guidelines (Section 15126.6(e)(2)) require that an environmentally superior alternative be identified among the alternatives considered. The environmentally superior alternative is generally defined as the alternative that would result in the least adverse environmental impacts to the project site and surrounding area. If the No-Build Alternative is found to be the environmentally superior alternative, the document must identify an environmentally superior alternative among the build alternatives. The analysis in this document has found the Refined Build Alternative to be environmentally superior to the No-Build Alternative.

8.0 PUBLIC OUTREACH, AGENCY CONSULTATION AND COORDINATION

This chapter describes how the Federal Transit Administration (FTA) and the San Diego Association of Governments (SANDAG) have engaged agencies and the public in the advancement of the Mid-Coast Corridor Transit Project and preparation of this Final Supplemental Environmental Impact Statement and Subsequent Environmental Impact Report (SEIS/SEIR). While outreach began in 1990 with the original Notice of Intent (NOI) and Notice of Preparation (NOP), this chapter covers the consultation and coordination that occurred leading into California Environmental Quality Act (CEQA) scoping through the publication of this Final SEIS/SEIR and Record of Decision. Previous agency and public outreach is described in the *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report* (Metropolitan Transit Development Board [MTDB], 1995a); the *Final Environmental Impact Report for the Mid-Coast Corridor* (MTDB, 1995b); and the *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement* (MTDB, 2001).

The project's public outreach and involvement activities communicate project information while providing opportunities for input during the decision-making process and ensuring public awareness of opportunities to review and comment on the environmental document. Project outreach has included coordination with the public, as well as stakeholders and government and resource agencies.

This chapter has been revised to present the additional coordination that has occurred since completion of the Draft SEIS/SEIR (refer to Section 8.8). The Draft SEIS/SEIR was circulated for a 60-day review and comment period from May 17 through July 17, 2013. Comments received during this period are summarized in Section 8.6 and in the *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report* (SANDAG, 2014dd). This chapter has also been revised to summarize comments received on the *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/ Supplement to the Subsequent Environmental Impact Report* (Supplement) (SANDAG, 2014ee), which was circulated for a 45-day review and comment period from July 18 through September 2, 2014. Comments received during this period are summarized in Section 8.7. All comments received during the review and comment periods for the Draft SEIS/SEIR and the Supplement and responses to those comments are provided in the *Mid-Coast Corridor Transit Project Final SEIS/SEIR Volume 3: Comments and Responses*.

8.1 Regulatory Context

The public outreach program described in the *Mid-Coast Corridor Transit Project Public Involvement Plan* (SANDAG, 2010g), was developed in compliance with the requirements of federal and state statutes addressing public involvement for transportation projects, including the National Environmental Policy Act (NEPA), CEQA, and Title VI of the Civil Rights Act (42 United States Code 2000d et seq.). Additionally, the program complies with government outreach policies and guidelines, including the Federal Highway Administration (FHWA)/FTA Interim Policy on Public Involvement (1995), Presidential Executive Order 12898 of 1994, and the City of San Diego Land

Development Code, Chapter 12, Article 8. To meet the requirements of NEPA, CEQA, and Section 6002 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), SANDAG has prepared and followed the *Mid-Coast Corridor Transit Project Agency Coordination Plan* (SANDAG, 2011d). Per Section 139(g)(1) of SAFETEA-LU, the agency coordination requirements apply to all U.S. Department of Transportation Environmental Impact Statement documents for which the NOI was published in the *Federal Register* after August 10, 2005. Although the original NOI was published in 1990, a second NOI for the Mid-Coast Corridor Transit Project was published in the *Federal Register* on July 19, 2011, and is included in Appendix B of this Final SEIS/SEIR.

8.2 Public and Agency Outreach Prior to Scoping

Prior to formal scoping for the Draft SEIS/SEIR, SANDAG prepared the *Mid-Coast Corridor Transit Project Public Involvement Plan* (SANDAG, 2010g) to guide outreach efforts through the project development process. This plan was updated in 2011 prior to the public comment period for the Draft SEIS/SEIR. The plan identified stakeholder groups affected by and interested in the project, highlighted key project communication information, and outlined strategies and tactics to foster broad public involvement. In addition, these efforts included preparation and regular updating of a project stakeholder database.

During the phase prior to formal scoping of the project, SANDAG undertook an analysis of changed conditions in the Mid-Coast Corridor and re-evaluated transit alternatives for the project based on changed conditions since the original environmental documentation for the project was completed. Public and agency outreach efforts were conducted in support of this effort in the period extending from November 2008 through spring of 2010. The *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report* (SANDAG, 2010e) describes in detail the public and agency outreach conducted in this phase of the project prior to CEQA scoping, and these efforts are briefly summarized below. The purpose of early outreach efforts during this study period was both to inform and obtain input from the public and agencies about the project, its status, and the upcoming CEQA scoping.

8.2.1 Overview of Outreach Activities

SANDAG reached out to the following stakeholders during the pre-scoping phase:

- San Diego Mayor and City Council members
- Affected agencies (City of San Diego, California Department of Transportation [Caltrans], and the University of California, San Diego [UCSD])
- Independent Taxpayers Oversight Committee
- Community planning groups in the Mid-Coast Corridor
- Property owners
- Employers
- The accessibility community

- Minority groups
- Environmental organizations
- Transportation advocates
- Business groups

As part of stakeholder outreach and involvement activities, SANDAG also:

- Conducted stakeholder briefings
- Participated in community events
- Presented to interested organizations, including community and civic groups, employers in the corridor, minority and accessibility organizations, and environmental organizations
- Attended and provided status reports to interested stakeholders and community organizations
- Produced regular project e-newsletters starting in October 2009
- Produced and distributed the project fact sheet
- Maintained and promoted the project Web site (http://www.sandag.org/midcoast)

From initiating the public involvement program in November 2008 to the beginning of the CEQA scoping period in May 2010, SANDAG conducted key government agency and staff outreach activities, including, but not limited to, the following:

- Regular updates to the SANDAG Transportation Committee and the SANDAG Board of Directors
- Presentations to the Independent Taxpayers Oversight Committee
- Briefings to elected officials and their staff

8.2.2 Project Working Group

SANDAG formed the Mid-Coast Corridor Transit Project Working Group (Project Working Group) to provide input on the following:

- The *Mid-Coast Corridor Transit Project Public Involvement Plan* (SANDAG, 2010g)
- The project purpose and need statement
- The alternatives to be considered for analysis
- The Draft SEIS/SEIR
- This Final SEIS/SEIR

San Diego County Supervisor Ron Roberts serves as chair of the Project Working Group, and members include representatives from community planning groups, environmental organizations, employers, students, accessibility advocates, and others (Table 8-1). The Project Working Group held seven meetings prior to CEQA scoping.

Table 8-1. Mid-Coast Corridor Transit Project Working Group

CHAIRMAN Ron Roberts, Supervisor County of San Diego	VICE CHAIRMAN Bob Emery Retired Metropolitan Transit System Board Member and Poway City Council Member
MEMBERS	
Daniel Allen La Jolla resident	Rob Hutsel San Diego River Park Foundation
Anette Blatt Scripps Health	Janay Kruger University Community Planning Group
Joe LaCava La Jolla Community Planning Group	John Alderson Westfield LLC
Vacant SANDAG Social Services Transportation Advisory Committee	Evan McLaughlin La Jolla resident
Brian Gregory, Asst. Vice Chancellor UCSD	Vacant San Diego Convention Center
Debra Gutzmer CBRE, Inc.	Barbara Obrzut La Jolla resident
Chanelle Hawken San Diego Regional Chamber of Commerce	Jeff Barfield Clairemont Community Planning Group
Ann Van Leer Land Conservation Brokerage, Inc.	David Potter Clairemont resident
Mark Marcus La Jolla Country Day School	Ian Foster Clairemont resident

Source: SANDAG, 2014
Notes: Since the formation of the Project Working Group, some original members have stepped down from participating on the committee. Replacement members have been found. This list is current as of September 2014.
SANDAG = San Diego Association of Governments; UCSD = University of California, San Diego

8.3 Scoping

During April 2010 and July 2011, SANDAG conducted CEQA and NEPA scoping. This section describes the scoping activities and summarizes the comments received during each scoping period. The *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f) and the *Mid-Coast Corridor Transit Project National Environmental Policy Act Scoping Report* (SANDAG, 2011b) provide additional information on the respective scoping processes.

8.3.1 California Environmental Quality Act Scoping

This section describes the scoping notice process, scoping meetings, and key public and agency comments received during CEQA scoping. The purpose of CEQA scoping was to initiate early consultation with Trustee and Responsible Agencies, public agencies that have jurisdiction by law, and the public, regarding scope and content, including the

range of actions, alternatives, mitigation measures, and significant effects that were analyzed in the Draft SEIS/SEIR.

8.3.1.1 Scoping Notices

On April 28, 2010, SANDAG issued a NOP for a SEIR (see Appendix B). NOP packages were mailed to 120 organizations, including 22 federal agencies, 17 Native American tribes, 41 state agencies, 11 regional agencies, and 29 local agencies. In addition, the NOP was posted by the State Clearinghouse on April 28, 2010, and the San Diego County Office of the County Clerk on May 5, 2010.

Table 8-2 lists the newspapers used to publish the NOP notices, which provided information on the five scoping meetings and how to submit written comments. Table 8-3 lists the 20 libraries in which SANDAG posted meeting notices.

Table 8-2. Publications Used for Public Notices

Publication	Circulation
Asian Journal	35,000
Beach & Bay Press	18,500
Clairemont Community News	23,000
El Latino	80,500
La Jolla Village News	18,500
North County Times	85,790
San Diego Downtown News	18,500
San Diego Union-Tribune	317,855
Star News	33,500
UCSD Guardian	11,000
Voice & Viewpoint	25,000

Source: SANDAG, 2012

Table 8-3. Public Libraries Receiving Public Notices

Balboa Branch Library	Mission Valley Branch Library	San Diego County Public Law Library
City of San Diego Central Library	North Clairemont Branch Library	Serra Mesa-Kearny Mesa Branch Library
Clairemont Branch Library	North Park Branch Library	University Community Branch Library
Kensington-Normal Heights Branch Library	North University Community Branch Library	University Heights Branch Library
La Jolla/Riford Branch Library	Ocean Beach Branch Library	UCSD Geisel Library
Linda Vista Branch Library	Pacific Beach/Taylor Branch Library	University of San Diego Copley Library
Mission Hills Branch Library	Point Loma/Hervey Branch Library	

Source: SANDAG, 2012
UCSD = University of California, San Diego

SANDAG also sent direct mail postcards announcing the scoping meetings to 24,959 residents and businesses located within one-half mile of the project alignments being considered.

8.3.1.2 Scoping Meetings

Subsequent to the notices, SANDAG hosted five public scoping meetings in buildings that are compliant with the Americans with Disabilities Act and served by public transit (Table 8-4). SANDAG used an open-house format with display board stations featuring various topics. SANDAG staff and members of the technical team knowledgeable in each topic area were present at these stations. The stations addressed the following topics:

- Project and process overview
- Draft comparative evaluation of alternatives
- Alternatives for scoping
- Public involvement
- Comments

Table 8-4. CEQA Public Scoping Meetings

Meeting Time/Date	Community Location	Target Audience
Wednesday, May 5, 2010 4–7 p.m.	Downtown San Diego (SANDAG)	Agencies and General Public
Tuesday, May 11, 2010 3–6 p.m.	University of California, San Diego	General Public
Wednesday, May 12, 2010 4–7 p.m.	Clairemont	General Public
Wednesday, May 12, 2010 4–7 p.m.	University Community	General Public
Tuesday, May 25, 2010 4–7 p.m.	Old Town	General Public

Source: SANDAG, 2012

SANDAG made bilingual English/Spanish materials available at all scoping meetings, along with a Spanish interpreter who helped Spanish-speaking participants understand project information and submit comments.

8.3.1.3 Summary of California Environmental Quality Act Scoping Comments

The 30-day comment period began on May 3, 2010, and closed on June 1, 2010. SANDAG continued accepting comments for one week after the comment period closed to account for any comments that were sent via U.S. mail. Sixty-eight individuals provided verbal and written comments during the five public scoping meetings. SANDAG also accepted e-mail, letters, and telephone communications during the scoping period. Various groups, including agencies, community organizations, elected officials, and members of the general public, submitted comments.

In all, SANDAG received 244 comment submissions that included more than 700 individual comments. The *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f) includes a summary of comments and copies of all agency, organization, and individual citizen comments.

SANDAG summarized the comments into the following major issues:

- Project purpose and need
- Evaluation of alternatives
- Alternative alignments
- Stations and station locations
- Project cost and funding
- Traffic analysis
- Neighborhood concerns
- Land use and development
- Parklands
- Environmental justice
- Aesthetics
- Air quality
- Noise and vibration
- Solid waste and hazardous materials
- Ecosystems and wildlife
- Water resources and flood control issues
- Cultural resources

Nine government agencies submitted comment letters during the CEQA scoping period: the U.S. Environmental Protection Agency, the U.S. Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG)[1] (a Trustee Agency), the San Diego Regional Water Quality Control Board (SDRWQCB), the California Department of Toxic Substances Control, Caltrans, the California Native American Heritage Commission (NAHC), the California Public Utilities Commission (CPUC), UCSD (a Trustee Agency), and the City of San Diego. The *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f) includes copies of all agency letters received during CEQA scoping.

8.3.2 National Environmental Policy Act Scoping

This section describes scoping activities and coordination with cooperating and participating agencies during NEPA scoping.

8.3.2.1 Scoping Activities

On July 19, 2011, the FTA published a new NOI in the *Federal Register* to supplement the previous scoping period for the project's environmental document. The purpose of this second NOI was to ensure awareness of the ongoing project planning and environmental review processes and to provide opportunities to comment on the project. Communications regarding the NEPA scoping notification included the following:

- A report to the SANDAG Transportation Committee on July 15, 2011
- NOI and NEPA scoping notices on the SANDAG "Notices" Web site (www.sandag.org/notices)

[1] As of January 1, 2013, the California Department of Fish and Game (CDFG) has changed its name to the California Department of Fish and Wildlife, which is how it is referred to in this report for text describing actions subsequent to the name change. However, for publications and regulations published or issued before that date, as well as actions taken and meetings held before January 1, 2013, the CDFG name has been retained.

- Letters of invitation to potential cooperating and participating federal, state, and local agencies pursuant to SAFETEA-LU agency coordination guidance
- FTA letters to the region's 17 Native American tribes inviting them to participate in the project planning and environmental review processes
- E-mail notifications to members of the Project Working Group
- E-newsletter to the project's interested participants list (614 individuals)
- Information on the NOI and NEPA scoping process, and instructions for submitting comments on the project Web site

The NOI included a description of the relationship between NEPA scoping and the prior year's CEQA scoping process. SANDAG indicated in the NOI and in all public outreach materials that comments previously submitted during the CEQA scoping process also would be considered as part of the NEPA scoping process.

8.3.2.2 Coordination with Cooperating and Participating Agencies

The *Mid-Coast Corridor Transit Project Agency Coordination Plan* (SANDAG, 2011d) identifies the federal, tribal, state, regional, and local agencies affected by, having jurisdiction over, or an interest in the project. The Coordination Plan also identifies Trustee and Responsible Agencies, and agencies that have jurisdiction by law. The FTA and SANDAG are the lead agencies for the environmental review. The potential cooperating agencies identified in the *Mid-Coast Corridor Transit Project Agency Coordination Plan* (SANDAG, 2011d) include FHWA/Caltrans and the U.S. Army Corps of Engineers (USACE). The FTA and SANDAG also identified 46 federal, tribal, state, and local agencies as potential participating agencies, including Trustee and Responsible Agencies under CEQA.

The Letters of Invitation to these potential cooperating and participating agencies described the project study area, the purpose of the project, and the project history. The agencies were asked to identify issues of concern, comment on the project alternatives, participate in upcoming coordination activities, and review and comment on project information, the alternatives considered, and anticipated impacts and mitigation.

Eight potential cooperating or participating agencies responded to these letters: the Advisory Council on Historic Preservation, FHWA, the Department of Homeland Security, the U.S. Environmental Protection Agency, Caltrans, UCSD, City of San Diego, and North County Transit District (NCTD). Of the eight agencies, three submitted comments as part of the NEPA scoping process: the FHWA, Caltrans, and the American Council on Historic Preservation. The U.S. National Park Service and the Federal Emergency Management Agency also submitted comments. None of the agencies identified as potential cooperating agencies accepted the role of cooperating agency; instead they elected to serve in the role of participating agency. No written response was received from the USACE; however, since then, the USACE has indicated that it will serve in the role of participating agency based on the level of permit required.

8.3.2.3 Summary of National Environmental Policy Act Scoping Comments

The 30-day NEPA scoping period began on July 19, 2011, and closed on August 15, 2011, with mailed comments being accepted after August 15, 2011, to account for any delays in U.S. mail. The public submitted a majority of the comments, in addition to four federal agencies and one state agency. In all, SANDAG and the FTA received 17 comment submissions containing 51 individual comments. The *Mid-Coast Corridor Transit Project National Environmental Policy Act Scoping Report* (SANDAG, 2011b) includes a summary of comments and copies of all agency and public comments received during scoping and copies of all agency letters.

The NEPA comments were similar to those received during CEQA scoping or involved issues previously identified for analysis in the Draft SEIS/SEIR. They include the following major issues:

- Alternatives
- Access to tracks by a private railroad and warehouse located along the alignment
- Stations
- Transit access at stations, including pedestrian and bicycle accessibility and transit connectivity
- Economic impacts
- Safety, particularly in regard to safe track crossings by pedestrians and bicyclists in University City, Clairemont, and Pacific Beach
- Funding
- Recreational facilities, particularly in regard to impacts to the Rose Creek Bicycle Path
- Land use
- Air quality
- Noise
- Water resources, particularly in regard to contour, alignment, and channelization changes to Rose Creek
- Parklands, particularly in regard to compatibility of the project with the Rose Creek Watershed Opportunities Assessment and restoring degraded habitat and removing concrete impediments in Rose Creek

Government agency comments included the following:

- American Council on Historic Preservation—Encouraged early and ongoing consultation with appropriate State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer, Native American tribes, and other consulting parties
- FHWA—Stated several concerns for highway system impacts

- Caltrans—Encouraged transit-oriented development around proposed stations; encouraged continued interagency coordination; noted that the High-Speed Passenger Train Bond (Proposition 1A) includes funding for the Trolley Blue Line projects; and wanted the environmental document to be adequate for use for the State Highway Encroachment Permit, which is required for any construction work within Caltrans' right-of-way
- National Park Service—Stated "no comments" by letter
- Federal Emergency Management Agency—Requested review of current Flood Insurance Rate Maps for the City of San Diego and San Diego County; noted minimum federal National Flood Insurance Program floodplain management building requirements; and warned that the city and county agencies may have adopted more restrictive requirements

8.4 Public and Agency Outreach during Preparation of the Draft SEIS/SEIR

This section describes the public and stakeholder coordination activities and agency consultation that occurred between the CEQA and NEPA scoping periods and publication of the Draft SEIS/SEIR. Refer to Sections 8.5.2 and 8.8 for a summary of outreach efforts that have occurred since completion of the Draft SEIS/SEIR.

8.4.1 Public and Stakeholder Coordination Activities

The following public outreach activities were conducted between NEPA scoping and release of the Draft SEIS/SEIR:

- Project presentations to community, business, and transportation organizations
- Meetings with affected property owners near the project alignment and the project stations, including UCSD, Scripps Memorial Hospital La Jolla (Scripps Hospital), the Veterans Administration (VA) Medical Center, La Jolla Village Square shopping center, and Westfield University Towne Centre (UTC) shopping center
- Project updates to the SANDAG Transportation Committee
- E-newsletters providing project updates
- Meetings of the Project Working Group
- Briefings for elected officials

The focus of the public outreach efforts was to ensure that the public was kept up-to-date on the project status, share new project information, and notify the public about the Draft SEIS/SEIR public review period (from May 17 to July 17, 2013) and opportunities to provide comment.

8.4.2 Agency Consultation Activities

SANDAG coordinated and consulted regularly with local, regional, state, and federal government agencies prior to circulation of the Draft SEIS/SEIR. Frequent presentations, meetings, and informal communications occurred with the Metropolitan Transit System (MTS), NCTD, Caltrans, and the City of San Diego. Because the project

alignment traverses the UCSD West and East Campuses, coordination with UCSD included presentations and working meetings with technical staff and project update briefings with the UCSD Design Review Board. Through coordination with UCSD, the alignment and station locations on the UCSD West and East Campuses were refined for evaluation in the Draft SEIS/SEIR. Chapter 2.0, Section 2.1 describes the refinements to the Locally Preferred Alternative that were made prior to the circulation of the Draft SEIS/SEIR through coordination with UCSD. SANDAG also held meetings with UCSD to identify types and location of equipment sensitive to electromagnetic interference from Trolley operations near the proposed UCSD West Campus Station.

SANDAG held meetings with staff from several City of San Diego departments to discuss transportation impacts and mitigation, floodplain impacts, and impacts to parklands and recreational areas. Beginning in the fall of 2011, meetings were held on an ongoing basis with the Development Services Department and the Transportation and Storm Water Department to discuss traffic methodologies and traffic volumes; traffic impacts and mitigation at grade crossings and station area intersections; traffic impacts and mitigation during construction; and impacts to bicycle facilities (both long term and during construction). Meetings also were held with the city to discuss the project alignment on Genesee Avenue and design options to minimize impacts to the street and adjacent properties.

Additionally, SANDAG coordinated with the City of San Diego Park and Recreation Department and the Transportation and Storm Water Department to obtain concurrence determinations related to the *de minimis* impact and temporary occupancy exemption findings for the Section 4(f) evaluation. Specifically, on October 29, 2012, SANDAG met with the staff from the Transportation and Storm Water Department to discuss construction-related impacts to the Ocean Beach Bicycle Path. On November 7, 2012, SANDAG met with staff from the Park and Recreation Department to discuss the Section 4(f) evaluation for Marian Bear Memorial Park and Mission Valley Preserve. Documentation of preliminary concurrence is included in Appendix C. Subsequent to the initial meeting with the Park and Recreation Department, the location of impacts within Marian Bear Memorial Park changed. A new preliminary statement of concurrence was issued by the department on February 15, 2013, based on its review of the revised impacts. SANDAG also met with the City of San Diego Floodplain Manager from the Public Works Department on December 20, 2012, regarding the floodplain analysis and crossings of the San Diego River, Tecolote Creek, and Rose Creek.

Frequent meetings also were held with Caltrans to review the project alignment along the Interstate (I-) 5 corridor between State Route (SR) 52 and Voigt Drive, design of the freeway crossings south of Nobel Drive and at Voigt Drive, the alignment along Voigt Drive and the location of the proposed Voigt Drive direct-access ramps, the scope of the environmental and engineering studies, and the permits required for the project.

On January 22, 2013, a coordination meeting was held with the CPUC and the MTS to discuss project design, operations at the eight existing grade crossings (including the operating plan, gate optimization measures, and traffic mitigation measures), typical right-of-way sections, and pedestrian crossings at the two proposed aerial stations on Genesee Avenue. Coordination with the CPUC will continue throughout the design of the project.

Since initiating the outreach program, SANDAG has coordinated and consulted with state and federal resource agencies, including Trustee and Responsible Agencies under CEQA. In May 2010, project briefing meetings were held individually with the USACE, the CDFG, and the San Diego River Conservancy. Summaries of the meetings are contained in the *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report* (SANDAG, 2010f). A follow-up meeting was held with the USACE on July 23, 2012, and a pre-application meeting was held with the USACE, the CDFG, and the SDRWQCB on August 14, 2012. A telephone conference call was held with the USACE and the FTA on September 7, 2012, to discuss permitting requirements, the role of the USACE in the environmental review of the project, and the potential for minimizing impacts to water resources. A second pre-application meeting was held with the USACE on October 31, 2012, to discuss design options for the channel structure at Rose Creek and SR 52 (i.e., box culvert, open channel, bridge, and natural bottom channel), to minimize impacts to Waters of the U.S. in the Rose Creek watershed. Through coordination with the USACE, an open channel design at SR 52/Rose Creek was selected to replace the box culvert as the preferred design option for the Build Alternative; this project design change was incorporated into the Build Alternative analyzed in the Draft SEIS/SEIR. A letter of confirmation of impacts to Waters of the U.S. was transmitted to the USACE on February 13, 2013. A letter to the USFWS initiating Endangered Species Act Section 7 informal consultation was transmitted to that agency on February 27, 2013. Copies of this correspondence are included in Appendix C of this Final SEIS/SEIR. On February 27, 2013, a coordination meeting was held with the SDRWQCB to review the open channel design at SR 52/Rose Creek. The SDRWQCB did not express concern regarding the open channel design. The USACE also attended the meeting. Coordination with state and federal resource agencies will continue throughout the environmental review and project development process.

Section 106 consultation was initiated to identify historic and cultural resources and concerns related to the project's possible effects on historic properties. In response to CEQA scoping, in May 2010 the NAHC sent a letter recommending that the California Historic Resources Information System and 20 local Native American groups be contacted. In November 2011, FTA sent formal Section 106 consultation letters to 23 Native American groups, including those identified by the NAHC. SANDAG also sent letters to local interested public historical or cultural organizations. Additional information on the Section 106 consultation process is presented in the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* (SANDAG, 2013c), the *Mid-Coast Corridor Transit Project Historic Property Effects Report* (SANDAG, 2014k), and the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* (SANDAG, 2013e)[2].

As part of Section 106 consultation, coordination with the SHPO has been ongoing. In October 2011, FTA consulted with the SHPO for concurrence on the limits of the Area of Potential Effects (APE) for both archaeological and architectural resource investigations. On October 28, 2011, the SHPO concurred that the project APE is sufficient pursuant to

[2] This document contains sensitive information regarding the location of archaeological sites and is not available to the public or other unauthorized persons.

Code of Federal Regulations 800.4(1)(a). In July 2012, FTA sent two reports to the SHPO (the *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report* [SANDAG, 2013c] and the *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report* [SANDAG, 2013e]) and a letter requesting concurrence on the eligibility of historic properties within the APE. After receiving written and verbal comments from the SHPO, in January 2013 the two reports were updated along with the preparation of the *Mid-Coast Corridor Transit Project Archaeological Resources Supplemental Research Report* (SANDAG, 2013d)[3]. In February 2013, additional coordination was conducted with the SHPO to address the eligibility of historic architectural properties and archaeological resources within the APE.

SANDAG also held meetings with the VA Medical Center staff to review the alignment and optional station location at the VA Medical Center. SANDAG will continue to coordinate with agencies throughout the environmental review and permitting process and project construction.

8.5 Draft SEIS/SEIR Comment Period

On May 17, 2013, FTA issued a Notice of Availability in the *Federal Register*, inviting comments on the Draft SEIS/SEIR. In addition, the Notice of Completion was posted at the San Diego County Office of the County Clerk on May 8, 2013, and by the State Clearinghouse on May 14, 2013. Copies of the Notice of Availability and Notice of Completion are included in Appendix B of this Final SEIS/SEIR. The Draft SEIS/SEIR was made available for a 60-day public review and comment period from May 17 through July 17, 2013.

The document was distributed to all interested and concerned parties, including public agencies, elected officials, groups and organizations, businesses, and individuals. Specifically, copies of the Draft SEIS/SEIR were mailed to 20 federal agencies, 17 Native American tribes, 31 state agencies, 6 regional agencies, and 9 local agencies. In all, more than 450 copies of the Draft SEIS/SEIR were distributed. The Draft SEIS/SEIR and technical reports also were made available for review at area libraries (Table 8-3) and SANDAG offices, as well as posted on the project Web site (www.sandag.org/midcoast).

Comments on the Draft SEIS/SEIR were submitted via mail, e-mail, voice mail, fax, and at each meeting via comment cards or by speaking to a court reporter. Oral comments were also accepted at the public hearing held on the Draft SEIS/SEIR. SANDAG continued accepting comments after the comment period closed to account for any comments that were sent via U.S. mail. Responses to comments received by FTA and SANDAG are addressed in this Final SEIS/SEIR.

[3] This document contains sensitive information regarding the location of archaeological sites and is not available to the public or other unauthorized persons.

8.5.1 Public Meetings and Hearing

Four public meetings and one public hearing were held during the Draft SEIS/SEIR public review and comment period. Table 8-5 lists the newspapers used to publish the formal public notices, which provided information on the public meetings and public hearing and how to submit written comments. Additionally, an advertisement promoting the public meetings and public hearing was published in the publications identified in Table 8-6. SANDAG also sent direct mail postcards announcing the public meetings and public hearing to 37,173 residents and businesses located within one-quarter mile of the project alignment.

Table 8-5. Publications Used for Public Notices of the Draft SEIS/SEIR Comment Period

Publication	Circulation
Asian Journal	35,000
El Latino (Spanish)	80,500
San Diego Daily Transcript	Unknown
San Diego Voice & Viewpoint	25,000
*U-T San Diego**	317,855

Source: SANDAG, 2013
Note: * In 2012, the *San Diego Union-Tribune* was renamed *U-T San Diego*

Table 8-6. Publications Used for Advertisement of Public Meetings and Public Hearing for the Draft SEIS/SEIR Comment Period

Publication	Circulation
Asian Journal	35,000
Beach & Bay Press	18,500
Clairemont Community News	23,000
El Latino (Spanish)	80,500
Indian Voices	Unknown
La Jolla Today	18,500
La Jolla Light	18,080
La Prensa (Spanish)	Online
Peninsula Beacon	18,500

Publication	Circulation
Presidio Sentinel	35,000
San Diego Downtown News	18,500
U-T San Diego[1]	317,855
San Diego Uptown News	22,000
San Diego Voice & Viewpoint	25,000
Star News	33,500
UCSD Guardian[2]	11,000
Voice of San Diego	Online

Source: SANDAG, 2013
Notes: [1] In 2012, the *San Diego Union-Tribune* was renamed *U-T San Diego.*
[2] Advertisement was run twice in publication.

The public meetings and one public hearing were held in buildings that are compliant with the Americans with Disabilities Act and served by public transit (Table 8-7). At the public meetings, SANDAG used an open-house format with display board stations featuring various topics. SANDAG staff and members of the technical team knowledgeable in each topical area were present at these stations. The stations addressed the following topics:

Table 8-7. Public Meetings and Hearing

Meeting Time/Date	Community Location
Tuesday, June 4, 2013 4–7 p.m.	Clairemont
Monday, June 10, 2013 3–6 p.m.	University of California, San Diego
Wednesday, June 12, 2013 4–7 p.m.	University Community
Tuesday, June 18, 2013 4–7 p.m.	Old Town
Friday, June 21, 2013 4–7 p.m.	Downtown San Diego (SANDAG)*

Source: SANDAG, 2013
Note: * Served as the public hearing

- Purpose and Need
- Alternatives Evaluated in the Draft SEIS/SEIR
- Transportation
- Construction
- Property Acquisitions and Relocations
- Public Involvement
- Environmental

SANDAG made bilingual English/Spanish materials available at all public meetings, along with a Spanish interpreter who helped Spanish-speaking participants understand project information and submit comments. Approximately 350 individuals attended the four public meetings combined.

SANDAG also hosted one public hearing, which was held in conjunction with the SANDAG Transportation Committee meeting. The purpose of the public hearing was to give interested parties an opportunity to formally submit comments on the Draft SEIS/SEIR.

8.5.2 Public and Agency Outreach during the Comment Period

During the Draft SEIS/SEIR review and comment period, SANDAG gave presentations and/or met with members of the public and representatives from agencies, groups/organizations, property owners, and businesses. Some of the property owners and community groups SANDAG met with during the review and comment period included Scripps Hospital, La Jolla Country Day School, Westfield UTC shopping center, Garden Communities, the Colony La Paz Condominium Association, La Jolla Colony Home Owners Association, and the Lawrence Family Jewish Community Center.

SANDAG also meet with several agencies during the review and comment period. A meeting was held with the CPUC to discuss the project and traffic impacts and mitigation near the grade crossings. A meeting was held with the NCTD to discuss the project and permit requirements. A meeting also was held with UCSD to discuss the project alignment and stations on the UCSD campus, UCSD comments on the Draft SEIS/SEIR, and analysis results. Additional meetings were held with UCSD and Caltrans to discuss

the coordination of the Mid-Coast Corridor Transit Project with other construction projects in the vicinity of UCSD.

8.6 Comments on the Draft SEIS/SEIR

Comments on the Draft SEIS/SEIR were submitted via mail, e-mail, voice mail, fax, and at each meeting via comment cards or by speaking to a court reporter. Oral comments also were provided by 20 people during the public hearing held before the SANDAG Transportation Committee on June 21, 2013.

In total, 309 comment submissions (e.g., comment cards, e-mails, and letters) were received containing 1,416 individual comments. Table 8-8 lists the number of submissions and comments received by affiliation.

Table 8-8. Number of Submissions and Comments by Affiliation

Affiliation	Submissions	Comments
Federal agency	6	17
State agency	10	113
Local agency	3	41
Tribal agency	1	4
Elected official	2	23
Groups/organizations	30	402
Businesses	21	173
Individuals	236	643
TOTAL	**309**	**1,416**

Source: SANDAG, 2013
Note: The term "submission" refers to a comment card, e-mail, or letter containing comments. The term "comments" refers to individual comments within a submission.

The comments received on the Draft SEIS/SEIR addressed a variety of topics. Some included general statements of support or opposition to the project, or the options evaluated in the Draft SEIS/SEIR. Other comments offered suggestions on how to improve the project through refinements, as well as requests for changes, clarification, and new or additional analysis and mitigation to the Draft SEIS/SEIR. Additionally, other comments expressed concern over environmental impacts and funding/cost-effectiveness issues in regard to the project.

The dominant themes of comments received related to the following:

- Project alternatives or features (e.g., alignment, stations, traction power substations, construction staging areas)
- Impacts related to biological resources, noise, and visual changes
- Impacts related to construction
- Station area circulation

- Pedestrian and bicycle access to stations
- Parking

All of the comments received on the Draft SEIS/SEIR are addressed in Volume 3 Section V3-1 of this Final SEIS/SEIR.

8.7 Comments on the Supplement

On July 18, 2014, FTA issued a Notice of Availability in the *Federal Register*, inviting comments on the Supplement. In addition, the Notice of Completion was posted at the San Diego County Office of the County Clerk on July 9, 2014, and by the State Clearinghouse on July 11, 2014. Copies of the Notice of Availability and Notice of Completion are included in Appendix B of this Final SEIS/SEIR. The Supplement was made available for a 45-day public review and comment period from July 18 through September 2, 2014. Table 8-9 lists the newspapers used to publish the formal public notices, which provided information on how to submit written comments.

Table 8-9. Publications Supplement SEIS/SEIR Comment Period

Publication	Circulation
Asian Journal	35,000
El Latino (Spanish)	80,500
San Diego Daily Transcript	Unknown
San Diego Voice & Viewpoint	25,000
*U-T San Diego**	317,855

Source: SANDAG, 2014
Note: * In 2012, the *San Diego Union-Tribune* was renamed *U-T San Diego.*

Additionally, an advertisement regarding the review and comment period for the Supplement was published in the publications identified in Table 8-10.

Table 8-10. Publications Used for Advertisement of Supplement Comment Period

Publication	Circulation
Asian Journal	35,000
Beach & Bay Press	18,500
Clairemont Community News	23,000
Clairemont Times	15,000
El Latino (Spanish)	80,500
Indian Voices	Unknown
La Jolla Light	18,080
La Prensa (Spanish)	Online

Publication	Circulation
Peninsula Beacon	18,500
Presidio Sentinel	35,000
San Diego Downtown News	18,500
San Diego Uptown News	22,000
San Diego Voice & Viewpoint	25,000
Star News	33,500
*U-T San Diego**	317,855
Voice of San Diego	Online

Source: SANDAG, 2014
Note: * In 2012, the *San Diego Union-Tribune* was renamed *U-T San Diego.*

The document was distributed to all interested and concerned parties, including public agencies, elected officials, groups and organizations, businesses, and individuals. The document was also distributed to individuals who submitted comments on the Draft SEIS/SEIR. Specifically, electronic and/or hard copies of the Supplement were mailed to 20 federal agencies, 18 Native American tribes, 31 state agencies, 6 regional agencies, and 9 local agencies. The Notice of Availability was sent via e-mail to those who commented on the Draft SEIS/SEIR and provided an e-mail address rather than a postal address. In all, more than 600 copies of the Supplement were distributed. The Supplement also was made available for review at area libraries (Table 8-3) and SANDAG offices, as well as posted on the project Web site (www.sandag.org/midcoast).

The Notice of Availability specified that comments submitted during the Supplement comment period must be limited to the analysis of impacts to the San Diego fairy shrimp only. Comments on the Supplement were submitted via mail, e-mail, voice mail, and fax. SANDAG continued accepting comments after the comment period closed to account for any comments that were sent via U.S. mail. Responses to comments received by FTA and SANDAG are addressed in this Final SEIS/SEIR.

In total, nine comment submissions (e.g., comment cards, e-mails, and letters) were received containing ten individual comments. Table 8-11 lists the number of submissions and comments received by affiliation. All of the comments received on the Supplement are addressed in Volume 3 Section V3-2 of this Final SEIS/SEIR.

Table 8-11. Number of Submissions and Comments by Affiliation

Affiliation	Submissions	Comments
Federal agency	1	2
State agency	2	2
Groups/organizations	1	2
Individuals	2	2
TOTAL	**4**	**4**

Source: SANDAG, 2014
Note: The term “submission” refers to a comment card, e-mail, or letter containing comments. The term “comments” refers to individual comments within a submission.

The dominant themes of comments received during the comment period for the Supplement related to the following:

- Support for the project despite impacts to the San Diego fairy shrimp
- Emergency access during construction in south University City
- Mitigation for the San Diego fairy shrimp

8.8 Public and Agency Outreach since Close of the Draft SEIS/SEIR Public Review Period

SANDAG continued to hold briefings with community groups and coordinate with stakeholders and agencies after the close of the Draft SEIS/SEIR review and comment period. The focus of the briefings and coordination efforts primarily related to discussion of comments received on the project and Draft SEIS/SEIR and refinements made to the project in response to comments.

8.8.1 Continued Public and Stakeholder Coordination Activities

Comments received from UCSD and Scripps Hospital indicated concerns regarding electromagnetic field (EMF) impacts to sensitive equipment. As a result, coordination meetings were held with representatives from these stakeholders and mitigation measures were identified based on additional EMF analysis, as detailed in Chapter 4.0, Section 4.14.4 of this Final SEIS/SEIR. Meetings with UCSD and Scripps Hospital also focused on the project alignment and the Voigt Drive realignment, while additional meetings where held with UCSD regarding station design and results of the updated noise and vibration analysis.

Transit parking at the Nobel Drive Station and UTC Transit Center was refined based on coordination with the property owners, as described in Chapter 2.0, Section 2.3.3 of this Final SEIS/SEIR. Specifically, coordination meetings were held with representatives of the La Jolla Village Square shopping center regarding the design of the Nobel Drive Station park-and-ride facility. Meetings with representatives from the Westfield UTC shopping center focused on the shopping center's future development plans, the planned bus transit center, and transit parking for the Mid-Coast Corridor Transit Project.

Coordination also occurred with affected property owners along the alignment to discuss the project alignment and construction-related impacts. These included Armstrong Garden Centers, Narvarra Morena Properties near the Tecolote Road Station, Bayview Plaza near the Clairemont Drive Station, Good Samaritan Episcopal Church, the La Jolla Community Church, The Shops at La Jolla, Monte Verde/La Jolla Canyon Development, La Jolla Country Day School, and the VA Medical Center.

SANDAG also met with representatives of the Sheraton La Jolla Hotel regarding the noise and vibration analysis and mitigation. Additional analysis was performed to determine noise levels for the upper floors of the hotel and the hotel's inner courtyard. No modifications were made to the length and height of the sound wall in this location as proposed in the Draft SEIS/SEIR. This additional analysis is included in Volume 3 of this Final SEIS/SEIR as attachments to the Sheraton Hotel's comment response.

The Refined Build Alternative approved by the SANDAG Board of Directors on November 15, 2013, shifted the I-5 crossing, south of Nobel Drive, approximately 360 feet to the south of the crossing location shown in the Draft SEIS/SEIR. Following approval of the Refined Build Alternative by the SANDAG Board of Directors in November 2013, SANDAG received comments on the shift from the Cape La Jolla Gardens residential community located west of I-5 in the vicinity of the I-5 crossing. The comments expressed concerns on the shifted I-5 crossing being located closer to Cape

La Jolla Gardens and that the revised location of the I-5 crossing was not included in the Draft SEIS/SEIR before it was circulated for public review and comment. As part of the development of the refined alignment, additional engineering and environmental analysis was conducted to verify grades, alignment, and utility impacts, and to determine if any new and significant environmental impacts would be caused by shifting the alignment south from the I-5 crossing location shown in the Draft SEIS/SEIR. The analysis determined that the shift was feasible from an engineering perspective and that no additional noise or visual impacts would occur with the shift in the crossing location under the Refined Build Alternative.

On May 9, 2014, SANDAG staff made a presentation to the SANDAG Board of Directors on the Mid-Coast Corridor Transit Project that included a description of the I-5 crossing location as presented in the Draft SEIS/SEIR and the Refined Build Alternative, a summary of the impact analysis conducted for the shift in the crossing location, and a summary of the concerns expressed by the Cape La Jolla Gardens residential community. The SANDAG Board of Directors approved amending the Refined Build Alternative to return the I-5 crossing south of Nobel Drive to the location designated in the Draft SEIS/SEIR for inclusion in the final environmental documents. The design change of the crossing that eliminated the straddle bents over I-5 was retained.

In July and August 2014, four station design workshops were held in communities near the proposed new stations in the Mid-Coast Corridor to obtain input on station design features. These workshops were open to the public, and public notice was provided through newspaper advertisements, the project eNewsletter, the SANDAG Web site, on social media, and through coordination with community group leaders. The station design was advanced based on feedback gathered during these workshops; SANDAG will present this advanced station design to the University City, Clairemont, Linda Vista, and Pacific Beach Community Planning Groups in late 2014.

Coordination with stakeholders and the public along the alignment will continue throughout design and construction of the project.

8.8.2 Agency Consultation Activities

On November 7, 2013, SANDAG and the USFWS held a conference call regarding the presence of the coastal California gnatcatcher population on UCSD property, as identified by UCSD, fairy shrimp surveys for the 2013 to 2014 season, and the potential for light-footed clapper rail to occur within the San Diego River area. Mitigation for biological resources and informal Section 7 consultation were also discussed during this meeting. In March 2014, the federally endangered San Diego fairy shrimp was identified in an ephemeral basin on the east side of the existing LOSSAN tracks near Morena Boulevard. This basin would be directly impacted by construction of the project. On April 30, 2014, SANDAG and FTA discussed the positive survey findings with the USFWS and the need for formal Section 7 consultation with the USFWS. On May 6, 2014, SANDAG and FTA hosted a field visit with the USFWS to review the location of impacts to San Diego fairy shrimp and the proposed mitigation location. Formal Section 7 consultation was initiated with the USFWS on June 12, 2014 (refer to Appendix C for the consultation initiation letter). SANDAG and FTA continued to provide information as requested by the USFWS during the Section 7 consultation process. On September 5,

2014, the USFWS issued a Biological Opinion concurring with the FTA's determination that the project is not likely to adversely affect the subject species and critical habitat, and included authorization for incidental take of San Diego fairy shrimp.

Meetings were held with various departments at the City of San Diego, including the City Real Estate Assets Department, Storm Water Department, and Development Services Department. Meetings focused on comments received on the Draft SEIS/SEIR, permitting, utilities, and property requirements.

Following public review of the Section 4(f) evaluation as part of the Draft SEIS/SEIR, SANDAG coordinated with the City of San Diego to obtain final concurrence determinations related to the Section 4(f) findings. Specifically, on January 31, 2014, SANDAG met with staff from the Park and Recreation Department to discuss the findings of the Section 4(f) evaluation and to review comments on the Draft SEIS/SEIR that relate to Section 4(f) resources. Several comments indicated the potential for a constructive use of the Rose Canyon Open Space Park; however, upon further evaluation, SANDAG confirmed that no constructive use would occur. On February 13, 2014, the Park and Recreation Department provided a signed statement indicating its final concurrence with the Section 4(f) findings of *de minimis* direct use of Marian Bear Memorial Park, temporary occupancy exceptions of Marian Bear Memorial Park and Mission Valley Preserve Open Space, and no constructive use of Rose Canyon Open Space Park. On February 5, 2014, SANDAG met with the Transportation and Storm Water Department to discuss the findings of the Section 4(f) evaluation and review the comment received that related to the Ocean Beach Bicycle Path. On February 6, 2014, the Transportation and Storm Water Department provided a signed statement indicating final concurrence with the Section 4(f) findings of a *de minimis* impact to the Ocean Beach Bicycle Path. Documentation of final concurrence also is included in Appendix C.

A comment letter received from the California Coastal Commission (CCC) indicated that the Coastal Zone boundary shown in the Draft SEIS/SEIR between the San Diego River and Balboa Avenue was incorrect and that this portion of the project was within the Coastal Zone. On August 26, 2013 SANDAG met with the CCC in response to the comment letter received on the Draft SEIS/SEIR. SANDAG and the CCC staff identified an acceptable approach to obtaining letters of exemption for upcoming geotechnical survey work located within the area in question to allow work to proceed while the boundary issue was being resolved. A follow-up meeting was held with the CCC staff on May 8, 2014, regarding the Coastal Zone boundary and anticipated permitting requirements. Subsequently, SANDAG requested a formal Coastal Zone boundary determination for the area between the San Diego River and Balboa Avenue; the boundary determination was provided by the CCC on May 30, 2014, and stated that the boundary extended to the eastern edge of the MTS right-of-way. The boundary request and CCC response are included in Appendix C of this document. Another meeting was held on May 27, 2014, during which SANDAG and the CCC staff generally discussed SANDAG's upcoming application for a Coastal Development Permit for the project. On July 2, 2014, SANDAG met with CCC staff to discuss the acceptability of potential mitigation sites for anticipated impacts to coastal wetlands from several SANDAG projects.

A kick-off meeting also was held with the Federal Railroad Administration Rail Safety Group to provide an overview of the project. In addition, meetings were held with NCTD regarding track separation and the modifications to the signal systems at Taylor Street near the Old Town Transit Center.

On April 9, 2014, the SHPO concurred with the FTA's finding that the project would have "no adverse effect" on historic properties (including historic architectural and archaeological properties). In May 2014, SANDAG conducted a follow-up call with the SHPO to confirm the appropriate phrasing for conclusions regarding resources that were not detected within the area of potential effects during Extended Phase I surveys. That phrasing is reflected in this Final SEIS/SEIR.

REFERENCES

Advisory Council on Historic Preservation (ACHP). 2010. *Recommended Approach for Consultation on Recovery of Significant Information from Archeological Sites.* Updated September 30, 2010. Accessed August 2012 at: http://www.achp.gov/archguide.html.

Bat Conservation International. 2009. *Bats in Buildings, A Guide to Safe & Humane Exclusions.* Accessed March 1, 2013 at: http://batcon.org/index.php/bats-a-people/bat-exclusion-instructions.html.

Bracken. 2000. *Investigation of EMF Mitigation Schemes.*

California Air Resources Board (CARB). 2008–2010. *iADAM: Air Quality Data Statistics.* Accessed August 2012 at: http://www.arb.ca.gov/adam/index.html.

California Air Resources Board (CARB). 2012a. *Attainment Areas*. Accessed January 2012 at: http://www.arb.ca.gov/desig/desig.htm.

California Air Resources Board (CARB). 2012b. *Sites Measuring All Pollutants in San Diego County*. Accessed August 2012 at: http://www.arb.ca.gov/qaweb/sitelist_create.php.

California Building Code (CBC). 2010. *Seismic Design Standards.*

California Department of Conservation. 2009. *Tsunami Inundation Maps for Emergency Planning, La Jolla and Point Loma Quadrangles, State of California, County of San Diego.* 1:24,000 scale. June 1, 2009. Accessed August 2012 at: http://conservation.ca.gov/cgs/geologic_hazards/Tsunami/Inundation_Maps/SanDiego/Pages/SanDiego.aspx.

California Department of Parks and Recreation. 1997. *Old Town San Diego State Historic Park Resource Management Plan and General Development Plan.*

California Department of Transportation (Caltrans). 2003. *Construction Site Best Management Practices Reference Manual.*

California Department of Transportation (Caltrans). 2004. *Transportation and Construction-Induced Vibration Guidance Manual.* J&S 02-039. Noise, Vibration, and Hazardous Waste Management Office. June 2004.

California Department of Transportation (Caltrans). 2007. Caltrans Memo to Designers 20-10, "Surface Fault Rupture Displacement Hazard Investigations." January.

California Department of Transportation (Caltrans). 2009a. *Technical Noise Supplement.* ICF J&S 00183.08. Division of Environmental Analysis. November 2009. Accessed August 2012 at: http://www.dot.ca.gov/hq/env/noise.

California Department of Transportation (Caltrans). 2009b. *Highway Design Manual.* Chapter 400. June 24, 2009. Accessed October 2011 at: http://www.dot.ca.gov/hq/oppd/hdm/pdf/english/chp0400.pdf.

California Department of Transportation (Caltrans). 2010a. Caltrans Memo to Designers 20-13, "Tsunami Hazard Guidelines." January.

California Department of Transportation (Caltrans). 2010b. *Seismic Design Criteria*. Version 1.6. November 2010.

California Department of Transportation (Caltrans). 2010c. *Storm Water Quality Handbook: Project Planning and Design Guide.* Office of Surface Water Management. July 2010.

California Department of Transportation (Caltrans). 2011. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects.* Division of Environmental Analysis. May 2011.

California Department of Transportation (Caltrans). 2012. *California Manual on Uniform Traffic Control Devices.* 2012 Edition.

California Energy Commission (CEC). 2011. *2010 Integrated Energy Policy Report Update.* Publication Number: CEC-100-2010-001-CMF.

California Geological Survey (CGS). 2003. *Probabilistic Seismic Hazards Assessment—Peak Ground Acceleration*. Accessed at: http://www.consrv.ca.gov/cgs/rghm/psha/pga.htm.

California State Parks. 2011. *Old Town San Diego State Historic Park.* Accessed May 2011 at: http://www.parks.ca.gov/pages/663/files/OldSanDiego.pdf.

Chaparral Lands Conservancy. 2012. *San Diego Fairy Shrimp (Branchinecta sandiegonensis).* Accessed at: http://chaparralconservancy.org/wp-content/uploads/2010/09/.

City of San Diego. 1981. *North City Local Coastal Program Land Use Plan.* Approved March 31, 1981.

City of San Diego. 1985. *Mission Valley Community Plan.* Approved January 1985 and adopted June 1985 (last updated October 2008).

City of San Diego. 1986. *University Community Plan.* Approved December 1986 and adopted July 1987 (last updated December 2006).

City of San Diego. 1987. *Old Town San Diego Community Plan*. Approved May 1987 and adopted July 1987.

City of San Diego. 1989. *Clairemont Mesa Community Plan.* Approved April 1989 and adopted September 1989 (last updated May 2008).

City of San Diego. 1992. *Transit-Oriented Development Design Guidelines.* Approved August 4, 1992.

City of San Diego. 1993. *Pacific Beach Community Plan and Local Coastal Program Land Use Plan*. Approved December 1993 and adopted February 1995.

City of San Diego. 1994a. *Mission Bay Park Master Plan Update.* Adopted August 1994 (last updated July 2002).

City of San Diego. 1994b. *Marian Bear Memorial Park Natural Resources Management Plan.* January 1994.

City of San Diego. 1997. *City of San Diego Multiple Species Conservation Program Subarea Plan*. March 1997. Accessed at: http://www.sandiego.gov/planning/programs/mscp/pdf/subareafullversion.pdf.

City of San Diego. 1998a. *Linda Vista Community Plan and Local Coastal Program Land Use Plan*. Approved September 1998 and adopted December 1998 (last updated May 2008).

City of San Diego. 1998b. *North Bay Redevelopment Plan*. Adopted May 18, 1998 (last updated June 19, 2007).

City of San Diego. 1998c. *City of San Diego Traffic Impact Study Manual*. July 1998.

City of San Diego. 2001. *La Jolla Community Plan and Local Coastal Program Land Use Plan*. Approved December 2001 and adopted November 2003 (last updated February 2004).

City of San Diego. 2002a. *Strategic Framework Element.*

City of San Diego. 2002b. *San Diego Street Design Manual.*

City of San Diego. 2006a. *Draft San Diego River Natural Resources Management Plan.* May 2006.

City of San Diego. 2006b. *City of San Diego Pedestrian Master Plan.*

City of San Diego. 2007. *City of San Diego Paleontological Guidelines.*

City of San Diego. 2008a. *City of San Diego General Plan.* Adopted March 10, 2008.

City of San Diego. 2008b. *University Towne Centre Revitalization Project Environmental Impact Report.*

City of San Diego. 2010a. *Draft 2010 San Diego River Park Master Plan*. September 2010.

City of San Diego. 2010b. San Diego Municipal Code, Article 9.5: Noise Abatement and Control. July 2010.

City of San Diego. 2011a. *CEQA Significance Determination Thresholds.* Development Services Department. Adopted 1991. Updated January 2011.

City of San Diego. 2011b. *City of San Diego Bicycle Master Plan Update.* June 2011.

City of San Diego. 2011c. *Storm Water Standards Manual.* January 14, 2011.

City of San Diego. 2011d. *Draft 2010 Urban Water Management Plan*. May 2011.

City of San Diego. 2012a. *City of San Diego General Plan, City of Villages, 2008*. Adopted March 10, 2008, by City Council Resolution Number: R-303473. Last amended, January 31, 2012, by Resolution 307262.

City of San Diego. 2012b. *San Diego Municipal Code Land Development Code—Biology Guidelines.* June.

City of San Diego Historical Resources Board. 2011. *Guidelines for the Application of Historical Resources Board Designation Criteria.*

City of San Diego Park and Recreation Department. 2011. *Presidio Park.* Accessed May 2011 at: http://www.sandiego.gov/park-and-recreation/parks/presidio/index.shtml.

City of San Diego Park and Recreation Department. 2012. *Marian Bear Memorial Park.* Accessed at: http://www.sandiego.gov/park-and-recreation/parks/presidio/index.shtml.

Colliers. 2010. *North America CBD Parking Rate Survey.* Colliers International.

Council on Environmental Quality. 1997. *Environmental Justice Guidance under the National Environmental Policy Act.*

County of San Diego. 1998. *Final Multiple Species Conservation Program: MSCP Plan*. August 1998. Accessed at: http://www.sdcounty.ca.gov/pds/mscp/docs/SCMSCP/FinalMSCPProgramPlan.pdf.

County of San Diego. 2010. *San Diego County Multi-Jurisdictional Hazard Mitigation Plan.*

Federal Emergency Management Agency (FEMA). 1997. Flood Insurance Rate Maps, City of San Diego, 1997a-c.

Federal Emergency Management Agency (FEMA). 2012. Flood Insurance Rate Maps, City of San Diego, 2012.

Federal Highway Administration (FHWA). 1988. *Visual Impact Assessment for Highway Projects.*

Federal Highway Administration (FHWA). 1996. *Community Impact Assessment*: *A Quick Reference for Transportation.*

Federal Highway Administration (FHWA). 2010. Code of Federal Regulations, Title 23 Part 772, *Procedures for the Abatement of Highway Traffic Noise.* Document 23 CFR 772. Department of Transportation. July 13, 2010.

Federal Highway Administration (FHWA). 2011. *Questions and Answers on the Application of the Section 4(f) De Minimis Impact Criteria.* April 4, 2011. Accessed May 2012 at: http://www.fhwa.dot.gov/hep/qasdeminimus.htm.

Federal Highway Administration (FHWA). 2012. *Section 4(f) Policy Paper*.

Federal Railroad Administration and California Department of Transportation. 2007. *Los Angeles to San Diego Proposed Rail Corridor Improvements (LOSSAN) Final Program EIS/EIR.* September.

Federal Transit Administration (FTA). 2003. *Public Transportation System Security and Emergency Preparedness Planning Guide.* January 2003.

Federal Transit Administration (FTA). 2006. *Transit Noise and Vibration Impact Assessment Guidance Manual.* Office of Planning and Environment. Document FTA-VA-90-1003-06. May 2006.

Federal Transit Administration (FTA). 2012. *Environmental Policy Justice Guidance for Federal Transit Administration Recipients.* FTA Circular C 4703.1. August 15, 2012.

Herzan. 2012. MACS Active Cancellation System. Accessed at: http:// www.herzan.com/products/electromagnetic-interference-isolation/activeemi-cancellation.html.

Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California.* Nongame-Heritage Program, California Department of Fish and Game. 156 pp.

Institute of Electrical and Electronics Engineers, Inc. (IEEE). 2002. *IEEE Standard C95.6,,IEEE Standard for Safety Levels with Respect to Human Exposure to Electromagnetic Fields, 0-3 kHz*. IEEE Standards Coordinating Committee 28, IEEE International Committee on Electromagnetic Safety on Non-Ionizing Radiation. October 23, 2002.

Kleinfelder. 2014. *Mid-Coast Corridor Transit Project Earthquake Fault Rupture Field Investigation*, dated April 9 2014.

Leonard, D. 2004. "Year 2004 Protocol Gnatcatcher Survey Report for the University of California, San Diego Canyonview Aquatics Center Expansion." Letter report from D. Leonard (HELIX Environmental Planning Inc.) to D. Marquez (U.S. Fish and Wildlife Service). April 28, 2004.

Merkel & Associates, Inc., 2014. "Re: 45-day Letter Report of Light-footed Clapper Rail Protocol Surveys for the Support of the San Diego River Bridge Double Track Project in the City of San Diego, San Diego County, California." April 3.

Metropolitan Transit Development Board (MTDB). 1995a. *Mid-Coast Corridor Alternatives Analysis/Draft Environmental Impact Statement/Draft Environmental Impact Report. February 1995.*

Metropolitan Transit Development Board (MTDB). 1995b. *Final Environmental Impact Report for the Mid-Coast Corridor*. December 1995.

Metropolitan Transit Development Board (MTDB). 2001. *Mid-Coast Corridor Project Balboa Extension and Nobel Drive Coaster Station Final Environmental Impact Statement*. June 2001.

Metropolitan Transit Development Board (MTDB). 2003. *Mid-Coast Strategic Transportation Study: Light Rail and Bus Rapid Transit Comparative Assessment Report.* April 1, 2003

Metropolitan Transit System (MTS). 2007. *Policies and Procedures Number 42: Transit Service Evaluation and Adjustment.*

Metropolitan Transit System (MTS). 2010. *Fiscal Year 2010 Annual Route Statistics.*

Metropolitan Transit System (MTS). 2011a. *MTS Public Service Schedules.* October 2011. Accessed December 2011 at: http://sdmts.com/.

Metropolitan Transit System (MTS). 2011b. *Rail Fleet Management Plan*.

Metropolitan Transit System (MTS). 2011c. *MTS Route Maps.*

Metropolitan Transit System (MTS). 2011d. *MTS Bus Operations Fact Sheet.*

Metropolitan Transit System (MTS). 2011e. *San Diego Trolley, Inc. Fact Sheet.*

Mock, P. 2004. "California Gnatcatcher (*Polioptila californica*)" in *The Coastal Scrub and Chaparral Bird Conservation Plan: A Strategy for Protecting and Managing Coastal Scrub and Chaparral Habitats and Associated Birds in California.* California Partners in Flight. Accessed at: http://www.prbo.org/calpif/htmldocs/scrub.html.

National Fire Protection Association (NFPA). 2010. *130: Standard for Fixed Guideway Transit and Passenger Rail Systems.*

National Park Service. 1997. *How to Apply the National Register Criteria for Evaluation*.

Natural Resources Conservation Service (NRCS). 1983. *National Engineering Handbook*. Accessed at: http://www.mi.nrcs.usda.gov/technical/engineering/neh.html.

North County Transit District (NCTD). 2011. *NCTD Public Service Schedules.* October 2011.

Oberbauer, T., M. Kelly, and J. Buegge. 2008. *Draft Vegetation Communities of San Diego County.* Based on "Preliminary Descriptions of the Terrestrial Natural Communities of California." Robert F. Holland, Ph.D. (October 1986). March 2008.

San Diego Air Pollution Control District (SDAPCD). 2007. *Eight-Hour Ozone Attainment Plan for San Diego County*.

San Diego Air Pollution Control District (SDAPCD). 2011. *Rules and Regulations.* Accessed at: http://www.sdapcd.org/rules/rules.html. Visited in 2011.

San Diego Association of Governments (SANDAG). 2003. *Mid-Coast Strategic Transportation Study Technical Memo No. 9 – UCSD/University City LRT Study.* October 2003.

San Diego Association of Governments (SANDAG). 2004a. *Regional Comprehensive Plan for the San Diego Region.* Approved by the SANDAG Board of Directors on July 23, 2004, by Resolution No. 2005-01. Final July 2004.

San Diego Association of Governments (SANDAG). 2004b. *Final Program Environmental Impact Report for the Regional Comprehensive Plan for the San Diego Region.* State Clearinghouse Number 2004011141. June 2004.

San Diego Association of Governments (SANDAG). 2004c. *Mid-Coast Light Rail Transit Extension Locally Preferred Alternative Update Summary.*

San Diego Association of Governments (SANDAG). 2004d. *City Community Planning Areas.*

San Diego Association of Governments (SANDAG). 2007a. *2030 San Diego Regional Transportation Plan: Pathways for the Future* (2030 RTP).

San Diego Association of Governments (SANDAG). 2007b. *2006 Mission Valley Corridor Crime Study.*

San Diego Association of Governments (SANDAG). 2007c. *Final Environmental Impact Report for the 2030 San Diego Regional Transportation Plan: Pathways for the Future.*

San Diego Association of Governments (SANDAG). 2008a. *Series 11: 2030 Regional Growth Forecast Update: Process and Model Documentation.*

San Diego Association of Governments (SANDAG). 2008b. *Smart Growth Concept Map.* Accepted 2006 and updated January 27, 2012.

San Diego Association of Governments (SANDAG). 2010a. *2050 Regional Growth Forecast Process and Model Documentation*.

San Diego Association of Governments (SANDAG). 2010b. *Mid-Coast Corridor Transit Project SANDAG Mode Choice Model Calibration and Validation Report.*

San Diego Association of Governments (SANDAG). 2010c. *Coordinated Plan 2010-2014.*

San Diego Association of Governments (SANDAG). 2010d. *San Diego Regional Bicycle Plan Riding to 2050.*

San Diego Association of Governments (SANDAG). 2010e. *Mid-Coast Corridor Transit Project Comparative Evaluation of Alternatives Report*.

San Diego Association of Governments (SANDAG). 2010f. *Mid-Coast Corridor Transit Project California Environmental Quality Act Scoping Summary Report.*

San Diego Association of Governments (SANDAG). 2010g. *Mid-Coast Corridor Transit Project Public Involvement Plan.*

San Diego Association of Governments (SANDAG). 2010h. *Final 2010 Regional Transportation Improvement Plan. September 10, 2010.* Accessed at: http://www.sandag.org/uploads/publicationid/publicationid_1511_11835.pdf.

San Diego Association of Governments (SANDAG). 2011a. *2050 Regional Transportation Plan: Our Region, Our Future* (2050 RTP). Adopted October 28, 2011.

San Diego Association of Governments (SANDAG). 2011b. *Mid-Coast Corridor Transit Project National Environmental Quality Act Scoping Report.*

San Diego Association of Governments (SANDAG). 2011c. *2050 Regional Transportation Plan/Sustainable Communities Strategy, Final Environmental Impact Report.* October 2011.

San Diego Association of Governments (SANDAG). 2011d. *Mid-Coast Corridor Transit Project Agency Coordination Plan.*

San Diego Association of Governments (SANDAG). 2011e. *Mid-Coast Corridor Transit Project Jutland Drive Station Feasibility Study Technical Memorandum.*

San Diego Association of Governments (SANDAG). 2011f. *Mid-Coast Corridor Transit Project Evaluation of Voigt Drive Alignment Options Technical Memorandum.*

San Diego Association of Governments (SANDAG). 2012. *Mid-Coast Corridor Transit Project Veterans Administration Medical Center Station Feasibility Study Technical Memorandum.*

San Diego Association of Governments (SANDAG). 2013a. *Mid-Coast Corridor Transit Project Draft Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report (Volume 1) and Plan Set (Volume 2).*

San Diego Association of Governments (SANDAG). 2013c. *Mid-Coast Corridor Transit Project Historic Property Survey and Eligibility Determination Report.*

San Diego Association of Governments (SANDAG). 2013d. *Mid-Coast Corridor Transit Project Archaeological Resources Supplemental Research Report.*

San Diego Association of Governments (SANDAG). 2013e. *Mid-Coast Corridor Transit Project Archaeological Resources Survey Report.*

San Diego Association of Governments (SANDAG). 2014a. *Mid-Coast Corridor Transit Project Archaeological Resources Extended Phase I Investigation Results and Effects Assessment.*

San Diego Association of Governments (SANDAG). 2014b. *Mid-Coast Corridor Transit Project Cultural Resources Discovery Plan.*

San Diego Association of Governments (SANDAG). 2014c. *Mid-Coast Corridor Transit Project Construction Monitoring Plan.*

San Diego Association of Governments (SANDAG). 2014d. *Mid-Coast Corridor Transit Project Land Use Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014e. *Mid-Coast Corridor Transit Project Social, Community, and Neighborhood Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014f. *Mid-Coast Corridor Transit Project Economic and Fiscal Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014g. *Mid-Coast Corridor Transit Project Energy Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014h. *Mid-Coast Corridor Transit Project Hazardous Materials Technical Report.*

San Diego Association of Governments (SANDAG). 2014i. *Mid-Coast Corridor Transit Project Geotechnical, Geologic, and Seismic Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014j. *Mid-Coast Corridor Transit Project Visual Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014k. *Mid-Coast Corridor Transit Project Historic Property Effects Report.*

San Diego Association of Governments (SANDAG). 2014l. *Mid-Coast Corridor Transit Project Paleontological Survey Report.*

San Diego Association of Governments (SANDAG). 2014m. *Mid-Coast Corridor Transit Project Water Impact Analysis Technical Report.*

San Diego Association of Governments (SANDAG). 2014n. *Mid-Coast Corridor Transit Project Safety and Security Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014o. *Mid-Coast Corridor Transit Project Property Acquisitions Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014p. *Mid-Coast Corridor Transit Project Noise and Vibration Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014q. *Mid-Coast Corridor Transit Project Air Quality Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014r. *Mid-Coast Corridor Transit Project Electromagnetic Field Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014s. *Mid-Coast Corridor Transit Project Construction Impacts Technical Report.*

San Diego Association of Governments (SANDAG). 2014t. *Mid-Coast Corridor Transit Project Environmental Justice Technical Report.*

San Diego Association of Governments (SANDAG). 2014u. *Mid-Coast Corridor Transit Project Biological Resources Technical Report.*

San Diego Association of Governments (SANDAG). 2014v. *Mid-Coast Corridor Transit Project Transportation Impacts and Mitigation Report.*

San Diego Association of Governments (SANDAG). 2014w. *Mid-Coast Corridor Transit Project Travel Forecasting Results Report.*

San Diego Association of Governments (SANDAG). 2014x. *Mid-Coast Corridor Transit Project Cost Escalation Forecast (2014 to 2023).*

San Diego Association of Governments (SANDAG). 2014y. *Mid-Coast Corridor Transit Project Financial Plan.*

San Diego Association of Governments (SANDAG). 2014z. *Mid-Coast Corridor Transit Project Capital Cost Methodology and Estimate Report.*

San Diego Association of Governments (SANDAG). 2014aa. *Mid-Coast Corridor Transit Project Operating and Maintenance Cost Methodology and Estimate Report.*

San Diego Association of Governments (SANDAG). 2014bb. *Mid-Coast Corridor Transit Project Tecolote Road Station Layout Options Technical Memorandum.*

San Diego Association of Governments (SANDAG). 2014cc. *Mid-Coast Corridor Transit Project Balboa Avenue Station Relocation Study Technical Memorandum.*

San Diego Association of Governments (SANDAG). 2014dd. *Mid-Coast Corridor Transit Project Final Refined Build Alternative Report.*

San Diego Association of Governments (SANDAG). 2014ee. *Mid-Coast Corridor Transit Project Supplemental Environmental Impact Statement/Supplement to the Subsequent Environmental Impact Report.*

San Diego Earthworks. 2012. *Rose Creek Watershed Wetland, Riparian and Water Quality Restoration Opportunities Analysis.* Prepared by cbec, inc., eco-engineering, Trestles Environmental Corporation, and KTU+A. January 2012.

San Diego Geographical Information System (SanGIS). 2003a. Earthquake Faults SD. October 27, 2003. Accessed July 2012 at: http://www.sangis.org.

San Diego Geographical Information System (SanGIS). 2003b. Geohazard. October 27, 2003. Accessed July 2012 at: http://www.sangis.org.

San Diego Geographical Information System (SanGIS). 2009. Neighborhoods SD. October 5, 2009. Accessed May 2012 at: http://www.sangis.org.

San Diego Park and Recreation Department. 2011. Accessed May 2011 at: http://www.sandiego.gov/park-and-recreation/parks/index.shtml. .

San Diego Regional Water Quality Control Board (SDRWQCB). 1994. *Water Quality Control Plan for the San Diego Basin.*

Scott, E. and K. Springer. 2003. "CEQA and Fossil Preservation in California." *The Environmental Monitor.* Fall 2003, pp 4-10, 17.

Society of Vertebrate Paleontology (SVP) Conformable Impact Mitigation Guidelines Committee. 1995. "Assessment and Mitigation of Adverse Impacts to Nonrenewable Paleontologic Resources: Standard Guidelines." *Society of Vertebrate Paleontology News Bulletin, Number* 163, pp. 22-27.

State Water Resources Control Board (SWRCB). 2010. *2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report).* EPA Final Approval October 11, 2011. Accessed at: http://www.waterboards.ca.gov/water_issues/programs/tmdl/2010state_ir_reports/category5_report.shtml.

Transportation Research Board (TRB). 2000. *Highway Capacity Manual.*

Transportation Research Board (TRB). 2003. *TCRP Report 100 Transit Capacity and Quality of Service Manual—Second Edition*. Transit Cooperative Research Program.

University of California, Davis (UCD). 1997. *Transportation Project-Level Carbon Monoxide Protocol.* Institute of Transportation Studies. UCD, Research Report UCD-ITS-RR-97-21. December 1997.

University of California, San Diego (UCSD). 1989. *University of California, San Diego Master Plan.* July 1989.

University of California, San Diego (UCSD). 2000. *University of California, San Diego East Campus Health Sciences Neighborhood Planning Study*. July 2000.

University of California, San Diego (UCSD). 2004a. *University of California, San Diego 2004 Long Range Development Plan*. September 2004.

University of California, San Diego (UCSD). 2004b. *University Center/Sixth College Neighborhoods Planning Study*. September 2004.

University of California, San Diego (UCSD). 2004c. *University of California, San Diego 2004 Long Range Development Plan Final Environmental Impact Report*. September 2004.

University of California, San Diego (UCSD). 2010. Letter from UCSD Physical Planning Department Regarding Site for Temporary Urban Farm. Dated September 13, 2010.

United States Census Bureau. 2012a. 2010 Census. Accessed December 2012 at: http://www.census.gov.

United States Census Bureau. 2012b. 2006-2010 American Community Survey. Accessed December 2012 at: http://www.census.gov.

United States Department of Energy. 2009. *Transportation Sector Energy Consumption Estimates, Total End Use Energy Consumption Estimates*.

United States Department of Energy. 2012. *State Energy Consumption Estimates: 1960 through 2010.* U.S. Energy Information Administration. June 29, 2012. Accessed at: www.eia.gov/state/seds/seds-data-complete.cfm#summary.

United States Environmental Protection Agency. (EPA). 2012. *AirData Monitor Values Report.* Accessed August 2012 at: http://www.epa.gov/airdata/.

LIST OF FINAL SEIS/SEIR PREPARERS

Federal Transit Administration (FTA) Region 9

- Raymond Sukys, Director, Office of Planning and Program Development
- Hymie Luden, Transportation Program Specialist
- Alexander Smith, Community Planner
- Debra Jones, Environmental Protection Specialist (formerly FTA)
- Mary Nguyen, Environmental Protection Specialist

San Diego Association of Governments (SANDAG)

- Jim Linthicum, P.E., Director of Mobility Management and Project Implementation
- John Haggerty, P.E., Division Director of Rail Implementation
- Leslie Blanda, Project Manager, Environmental/New Starts/Planning
- Greg Gastelum, P.E., Project Manager, Engineering/Design
- David Hicks, Communications and Public Involvement Officer
- Rick Curry, Senior Transportation Modeler
- Chip Finch, P.E., Systems Engineer
- Tom King, Research Analyst/Transit Modeler

Metropolitan Transit System (MTS)

- Tim Allison, Real Estate Assets Manager
- Sharon Cooney, Chief of Staff
- Wayne Terry, Chief Operation Officer
- Devin Braun, Senior Transportation Planner

MJE Marketing Services

- Susanne Bankhead, Public Involvement
- Kristen Byrne, Public Involvement
- Lauren Bogart, Public Involvement

Worden Williams

- Wayne Brechtel, Public Agency, Real Estate, Land Use & Environmental Law Attorney
- Felicia Brechtel, Litigation and Land Use Paralegal
- Yin Ho, Associate Attorney

Dokken Engineering

- Chip Willet, Right-of-Way Manager

Project Management Consultant Team

- Tom Jenkins, P.E., Project Manager, InfraConsult/HDR, Inc.
- Laura Ray, Deputy Project Manager, InfraConsult/HDR, Inc.
- Liz Crenshaw, Deputy Project Manager, InfraConsult/HDR, Inc.
- Harvey Berliner, Design Manager, InfraConsult/HDR, Inc.
- David Calver, P.E., Design Manager, InfraConsult/HDR, Inc.
- Brett Stephens, P.E., Deputy Design Manager, TY Lin International
- S. Tesse Rasmussen, P.E., Risk Manager, InfraConsult/HDR, Inc.

- Patti Boekamp, T.E., Third Party Coordinator, TY Lin International
- Adrianne Beazley, Environmental Manager/Technical Reviewer, LSA Associates, Inc. (LSA)
- Jack Gouge, Environmental Manager/Technical Reviewer, TY Lin International
- Susan Robbins, AICP, Environmental Manager/Technical Reviewer, InfraConsult/HDR, Inc.
- Larry Engleman, Safety and Security Manager, InfraConsult/HDR, Inc.
- Sandipan Bhattacharjee, AICP, EIT, Associate Transportation Planner, LSA
- Natalie Brodie, Senior Cultural Resource Manager, Cultural Resources Specialist, LSA
- Eric Brown, Senior Geotechnical Engineer, Earth Mechanics, Inc.
- Ron Brugger, Senior Air Quality Specialist, LSA
- Kelly Czechowski, Senior Environmental Planner, Technical Reviewer, LSA
- Linda Meadows Davis, Safety and Security Manager, InfraConsult/HDR, Inc.
- Mona DeLeon, AICP, Principal Environmental Planner, LSA
- JD Douglas, AICP, Transportation Planner, InfraConsult/HDR, Inc.
- Wade Durant, P.E., Senior Bridge Construction Engineer, TY Lin International
- Bethany Garretson, P.E., Senior Transportation Engineer, TY Lin International
- Roya Golchoobian, P.E., Senior Bridge Engineer, TY Lin International
- Jacqueline Hall, Cultural Resources Manager, Cultural Resources Specialist, LSA
- Jayna Harris, Senior Land Use Specialist, LSA
- Ali Iqbal, P.E., Civil Engineer, InfraConsult/HDR, Inc.
- Keith Lay, Associate Acoustical and Air Quality Specialist, LSA
- Allison McEachern, EIT, Utility Coordination Engineer, TY Lin International
- Roderic McLean, M.A., RPA, Associate, Cultural Resources Specialist, LSA
- Henry Miranda, Safety and Security Manager, InfraConsult/HDR, Inc.
- Ambarish Mukherjee, AICP, EIT, Senior Transportation Planner, LSA
- Aga Napiatek, LEED-AP, Economic and Fiscal Specialist, Environmental Justice Specialist, LSA
- Henry Peng, P.E., Senior Transportation Engineer, TY Lin International
- Brianna Pilkinton, Senior Environmental Planner, Technical Reviewer, LSA
- David Preciado, ASLA, Estrada Land Planning
- Megan Ryan, Community and Neighborhoods Specialist, Visual Resources Specialist, LSA
- Christine Huard-Spencer, Senior Environmental Planner, Section 4(f) Specialist, LSA
- Mike Trotta, Principal Biologist, LSA
- Nicole West, CPSWQ, QSD/QSP, Associate Water Resources Specialist, LSA
- Lisa Williams, Associate Hazardous Materials Specialist, LSA

Parsons Brinckerhoff

- Dennis Henderson, Environmental/New Starts Project Manager
- Reddy Chidananda, Engineering Project Manager
- Hadi Samii, P.E., Engineering Manager
- Susan Killen, AICP, Environmental Manager for Draft SEIS/SEIR
- Kristin M. Carlson, AICP, Transportation and Final SEIS/SEIR Manager
- Jennifer Mitchell, Financial Planning Manager for Draft SEIS/SEIR
- Bassel Younan, Financial Planning Manager for Final SEIS/SEIR

- Bill Davidson, Travel Demand Forecasting Manager
- Lisa Nungesser, Ph.D., Senior Advisor and Technical Reviewer
- Don Emerson, Senior Advisor and Technical Reviewer—Transportation Planning and New Starts
- Sharon Henderson, Document Production/Graphics
- Ed Reynolds, Editor
- Melissa Estrada, Environmental Coordinator, Environmental Planning
- Christine Rychel, P.E., Construction Impacts
- Jeff Howard, L.A., Environmental Planning—Land Use Impact Analysis
- Tracey Nixon, AICP, Environmental Planning—Economic and Fiscal Impact Analysis
- Theresa Dickerson, Environmental Planning—Visual Analysis
- Betsy Minden, AICP, Environmental Planning—Property Acquisitions Impact Analysis
- Kimberly Jaskot, CPESC, FE/EIT, Environmental Planning—Water Impact Analysis
- Alice Lovegrove, Environmental Planning—Energy, Air Quality, and Climate Change Impact Analysis
- Edward Tadross, Environmental Planning—Energy, Air Quality, and Climate Change Impact Analysis
- David Gobelle, Environmental Planning—Electromagnetic Interference Impact Analysis
- Jinghua Xu, Ph.D., P.E., Travel Demand Forecasting Analysis
- Chris J. Wahl, Transportation Planning
- Michelle Go, Transportation Planning
- Laura Wojcicki, P.E., Traffic Analysis
- Jay A. Yenerich, P.E., Traffic Analysis
- Miriam Jim, P.E., T.E., Traffic and Construction Analysis
- Nirupa Kannan, P.E., Engineering
- Jeannie Pham, Engineering and Right-of-Way
- Jim Liao, P.E., Structural Engineering
- Joe Valencia, P.E., Trackwork Engineering
- John Trautmann, AIA, LEED AP, Architecture
- Mahesh Patel, Systems Engineering
- David B. McBrayer, AICP, PTP, Operating and Maintenance Cost Estimating
- Pat McNamee, Capital Cost Estimating

ATS Consulting

- Hugh Sauerman, Ph.D., Environmental Planning—Noise and Vibration Impact Analysis
- Steven Wolf, Environmental Planning—Noise and Vibration Impact Analysis
- Zack Dennis, Environmental Planning—Noise and Vibration Impact Analysis

Dudek

- Paul Lemons, Environmental Planning—Ecosystems and Biological Impact Analysis
- Thomas S. Liddicoat, Environmental Planning—Ecosystems and Biological Impact Analysis
- Kamarul J. Muri, TWS, CNPS, Environmental Planning—Ecosystems and Biological Impact Analysis
- Brock A. Ortega, Environmental Planning—Ecosystems and Biological Impact Analysis

- Patricia C. Schuyler, CNPS, Environmental Planning—Ecosystems and Biological Impact Analysis

Enertech Consultants

- Chris Hooper, Environmental Planning—Electromagnetic Field Measurements

Electric Research and Management

- David Fugate, Environmental Planning—Electromagnetic Interference Impact Analysis

Garcia and Associates

- Erica Shultz, MHP, Environmental Planning—Historic Architectural Impact Analysis
- Carole A. Denardo, M.A., RPA, Environmental Planning—Archaeological Impact Analysis
- Caprice "Kip" Harper, M.A., RPA, Environmental Planning—Paleontological Impact Analysis

ICF International

- Richard Starzak, Environmental Planning—Historic Architectural Impact Analysis
- Daniel Paul, Environmental Planning—Historic Architectural Impact Analysis
- Karen Crawford, MA, RPA, Environmental Planning—Archaeological Impact Analysis

Kleinfelder

- Elyssa Figari, Environmental Planning—Hazardous Materials Impact Analysis
- James Gingery, P.E., GE, Environmental Planning—Geotechnical, Geologic, and Seismic Impact Analysis
- Scott Rugg, Environmental Planning—Geotechnical, Geologic, and Seismic Impact Analysis
- Liz Simmons, Environmental Planning—Hazardous Materials Impact Analysis
- Robert Torres, P.E., Environmental Planning—Hazardous Materials Impact Analysis

KTU+A

- Michael L. Singleton, ASLA, AICP, LEED AP, Environmental Planning—Visual Impact Analysis
- Brooke Pietz, Environmental Planning—Visual Impact Analysis

Simon Wong Engineering

- Jim Frost, P.E., Structural Engineering
- Keith Gazaway, Structural Engineering

Sirius Environmental

- Wendy Lockwood, Environmental Planning

Terry A. Hayes Associates Inc.

- Terry A. Hayes, AICP, Environmental Planning—Community and Neighborhood Impact Analysis; Environmental Justice; Technical Reviewer
- Michael Sullivan, Environmental Planning—Community and Neighborhood Impact Analysis and Environmental Justice
- Madonna Marcelo, Environmental Planning—Community and Neighborhood Impact Analysis; Environmental Justice; Technical Reviewer

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FINAL SEIS/SEIR RECIPIENTS

Federal, State, Regional, and Local Agencies and Native American Tribes

Agency	Contact Name	Contact Address
Federal Agencies		
Advisory Council on Historic Preservation	John Fowler, Executive Director	401 F Street NW, Suite 308; Washington, DC 20001
Federal Aviation Administration	Dave Cushing, Manager Los Angeles Airports District Office (Western-Pacific Region)	P.O. Box 92007; Los Angeles, CA 90009
Naval Facilities Engineering Command	Teresa Bresler	2730 McKean Street, Building 291; San Diego, CA 92136-5198
U.S. Army Corps of Engineers	Colonel Kimberly M. Colloton, Commander (Los Angeles District)	915 Wilshire Boulevard, Suite 1101; Los Angeles, CA 90017
U.S. Army Corps of Engineers	Shanti Santulli, Project Manager, South Coast Branch cc: Meris Bantilan-Smith, Project Manager, South Coast Branch	5900 La Place Court, Suite 100; Carlsbad, CA 92008
U.S. Department of Commerce—NOAA National Marine Fisheries Service	Rodney McInnis, Regional Administrator (Southwest Region)	501 West Ocean Boulevard, Suite 4200; Long Beach, CA 90802-4213
U.S. Department of Defense	Christine E. Wormuth, Under Secretary of Defense for Policy	2100 Defense Pentagon; Washington, DC 20301-2100
U.S. Department of Energy	Carol Borgstrom, Director (Office of NEPA Policy and Compliance)	1000 Independence Avenue, S.W.; Washington, DC 20585
U.S. Department of Health and Human Services	Ken Shapiro, Region 9 Acting Director	90 Seventh Street, Federal Building, Suite 5-100; San Francisco, CA 94103
U.S. Department of Health and Human Services—Centers for Disease Control and Prevention	Thomas Frieden, Director	1600 Clifton Road; Atlanta, GA 30333
U.S. Department of Homeland Security—Federal Emergency Management Agency	Karen Armes, Acting Region 9 Administrator	1111 Broadway, Suite 1200; Oakland, CA 94607-4052
U.S. Department of Homeland Security—Federal Emergency Management Agency	Gregory Blackburn, Region 9 Floodplain Management and Insurance Branch Chief	1111 Broadway, Suite 1200; Oakland, CA 94607-4052
U.S. Department of Homeland Security—Transportation Security Administration	John S. Pistole, Administrator	TSA-1 Administrator; 601 S. 12th Street; Arlington, VA 20598

Agency	Contact Name	Contact Address
U.S. Department of Homeland Security—U.S. Coast Guard	Captain Sean Mahoney, Commander (Sector San Diego)	2710 North Harbor Drive; San Diego, CA 92101
U.S. Department of Housing and Urban Development	Ophelia B. Basgal, Regional Administrator (San Francisco Regional Office)	600 Harrison Street, 3rd Floor; San Francisco, 94107-1300
U.S. Department of the Interior	Willie R. Taylor, Director (Office of Environmental Policy and Compliance)	Main Interior Building, MS 2340; 1849 "C" Street, NW; Washington, DC 20240
U.S. Department of the Interior	Patricia S. Port, Regional Environmental Officer (Pacific Southwest Region)	333 Bush Street, Suite 515; San Francisco, CA 94104
U.S. Department of Transportation—Federal Highway Administration	Gregory G. Nadeau, Acting Administrator	1200 New Jersey Avenue, SE; Washington, DC 20590
U.S. Department of Transportation—Federal Highway Administration	Vincent Mammano, Division Administrator (California Division)	650 Capitol Mall, Suite 4-100; Sacramento, CA 95814
U.S. Department of Transportation—Federal Railroad Administration	Paul Nissenbaum, Associate Administrator (Office of Railroad Policy and Development)	1200 New Jersey Avenue, SE; Washington, DC 20590
U.S. Department of Transportation—Federal Railroad Administration	James Jordan, Region 7 Administrator	801 I Street, Suite 466; Sacramento, CA 95814
U.S. Department of Veterans Affairs	Jeffrey T. Gering, Director (VA San Diego Healthcare System)	3350 La Jolla Village Drive ; San Diego, CA 92161
U.S. Environmental Protection Agency	Susan Bromm, Director (Office of Federal Activities, EIS Filing Section)	Ariel Rios Building, MC 2251-A; 1200 Pennsylvania Avenue, NW; Washington, DC 20460
U.S. Environmental Protection Agency	Jared Blumenfeld, Region 9 Administrator	75 Hawthorne Street; San Francisco, CA 94105
U.S. Environmental Protection Agency	Carol Sachs, Region 9 EIS Review Coordinator	75 Hawthorne Street; San Francisco, CA 94105
U.S. Environmental Protection Agency	Connell Dunning, Region 9 Transportation Team Supervisor	75 Hawthorne Street; San Francisco, CA 94105
U.S. Fish and Wildlife Service	Ren Lohoefener, Regional Director (Pacific Southwest Region)	2800 Cottage Way, W-2606; Sacramento, CA 95825
U.S. Fish and Wildlife Service	Scott Sobiech, Acting Field Supervisor (Carlsbad Office) cc: Karen Goebel, Assistant Field Supervisor cc: Lauren Kershek, Biologist cc: David Zoutendyk, Chief (Coastal San Diego Division)	2177 Salk Avenue, Suite 250; Carlsbad, CA 92008
U.S. Marine Corps	C.L. Thornton, Community Plans and Liaison Officer (Marine Corps Air Station Miramar)	P.O. Box 452000; San Diego, CA 92145-2000
U.S. Marine Corps	Juan Lias (Marine Corps Air Station Miramar)	P.O. Box 452001; San Diego, CA 92145

Agency	Contact Name	Contact Address
State Agencies		
California Business, Transportation, & Housing Agency	Brian P. Kelly, Secretary	915 Capitol Mall, Suite 350B; Sacramento, CA 95814-2742
California Coastal Commission	Elizabeth Fuchs, Manager (Statewide Planning)	45 Fremont Street, Suite 2000; San Francisco, CA 94105-2219
California Coastal Commission	Sherilyn Sarb, Deputy Director (San Diego Coast District)	7575 Metropolitan Drive, Suite 103; San Diego, CA 92108-4402
California Coastal Commission	Gabriel Buhr, Coastal Program Analyst III	7575 Metropolitan Drive, Suite 103; San Diego, CA 92108-4402
California Coastal Conservancy	Joan Cardellino, South Coast Program Manager	1330 Broadway, 13th Floor; Oakland, CA 94612-2530
California Department of Conservation	Mark Nechodom, Director	801 K Street, MS 24-01; Sacramento, CA 95814
California Department of Conservation—State Mining and Geology Board	Steven Testa, Executive Officer	801 K Street, MS 20-15; Sacramento, CA 95814
California Department of Fish & Wildlife	Charlton H. Bonham, Director cc: Sandra Morey, Deputy Director (Ecosystem Conservation Division)	1416 Ninth Street, 12th Floor; Sacramento, CA 95814
California Department of Fish & Wildlife	Ed Pert, Region 5 Manager	3883 Ruffin Road; San Diego, CA 92123
California Department of Fish & Wildlife	Paul Schlitt	Paul.schlitt@wildlife.ca.gov
California Department of Fish & Wildlife	Gail K. Sevrens, Environmental Program Manager	3883 Ruffin Road; San Diego, CA 92123
California Department of Forestry and Fire Protection	Ken Pimlott, Director cc: Dale Hutchinson, Regional Chief (Southern Region)	P.O. Box 944246; Sacramento, CA 94244-2460
California Department of Housing and Community Development	Randall Deems, Acting Director	2020 West El Camino Avenue; Sacramento, CA 95833
California Department of Parks and Recreation	Major General Anthony L. Jackson, Director cc: Jay Chamberlin, Chief (Natural Resources Division)	P.O. Box 942896; Sacramento, CA 94296-0001
California Department of Parks and Recreation	Nellie Gonzalez, Acting Administrative Officer (San Diego Coast District)	4477 Pacific Highway; San Diego, CA 92110
California Department of Parks and Recreation	Clayton Phillips, District Superintendent	4477 Pacific Highway; San Diego, CA 92110
California Department of Resources, Recycling, and Recovery (CalRecycle)	Caroll Mortensen, Director	P.O. Box 4025; Sacramento, CA 95812-4025
California Department of Toxic Substances Control	Debbie Raphael, Director	P.O. Box 806; Sacramento, CA 95812-0806

Agency	Contact Name	Contact Address
California Department of Transportation (Caltrans)	Malcolm Dougherty, Director cc: Jay Norvell, Environmental Analysis cc: Bill Mosby, Transportation Planning	P.O. Box 942873, MS49; Sacramento, CA 94273-0001
California Department of Transportation (Caltrans)	Laurie Berman, Director (District 11)	4050 Taylor Street; San Diego, CA 92110
California Department of Transportation (Caltrans)	Allan Kosup, I-5 and SR-76 Corridor Director	4050 Taylor Street; San Diego, CA 92110
California Department of Transportation (Caltrans)	Ken Johansson, Route Manager (NPDES/Storm Water Compliance)	4050 Taylor Street; San Diego, CA 92110
California Department of Water Resources	Mark Cowin, Director cc: Nadell Gayou, Division of Engineering	P.O. Box 942836; Sacramento, CA 94236
California Emergency Management Agency	Mark Ghilarducci, Director cc: Christina Curry, Deputy Director—Planning, Preparedness, and Prevention	3650 Schriever Avenue; Mather, CA 95655
California Energy Commission	Roger Johnson, Deputy Director (Siting, Transmission, and Environmental Protection Division) cc: Eric Knight (Environmental Protection Office)	1516 Ninth Street, MS-29; Sacramento, CA 95814-5512
California Environmental Protection Agency	Matt Rodriquez, Secretary for Environmental Protection	P.O. Box 2815; Sacramento, CA 95812-2815
California Environmental Protection Agency—California Air Resources Board	Douglas Ito, Chief (Air Quality, Planning, and Science Division)	P.O. Box 2815; Sacramento, CA 95812
California Environmental Protection Agency—State Water Resources Control Board	Vicky Whitney, Deputy Director (Division of Water Quality)	P.O. Box 100; Sacramento, CA 95812-0100
California Environmental Protection Agency—San Diego Regional Water Quality Control Board	David W. Gibson, Executive Officer (San Diego Region 9) cc: Mike Porter cc: Chiara Clemente	2375 Northside Drive, Suite 100; San Diego, CA 92108
California Governor's Office of Planning and Research	Ken Alex, Director	P.O. Box 3044; Sacramento, CA 95812-3044
State Clearinghouse		1400 Tenth Street; Sacramento, CA 95814
California Health and Human Services Agency	Diana S. Dooley, Secretary	1600 Ninth Street, Room 460; Sacramento, CA 95814
California High-Speed Rail Authority	Gregg Albright, Deputy Project Manager cc: Bryan Porter cc: Thomas Fellenz	770 L Street, Suite 800; Sacramento, CA 95814
California High-Speed Rail Authority	Mark A. McLoughlin, Director (Environmental Services)	770 L Street, Suite 800; Sacramento, CA 95814

Agency	Contact Name	Contact Address
California Highway Patrol	Jim Abele, Division Chief (Border Division)	9330 Farnham Street; San Diego, CA 92123-1216
California State Lands Commission	Cy Oggins, Division Chief (Environmental Planning and Management)	100 Howe Avenue, Suite 100 South; Sacramento, CA 95825
California Native American Heritage Commission		915 Capitol Mall, Room 364; Sacramento, CA 95814
California Native American Heritage Commission	Dave Singleton, Program Analyst	1550 Harbor Boulevard, Suite 100; West Sacramento, CA 95691
California Natural Resources Agency	John Laird, Secretary for Natural Resources	1416 Ninth Street, Suite 1311; Sacramento, CA 95814
California Office of Historic Preservation	Carol Roland-Nawi, State Historic Preservation Officer	1725 23rd Street, Suite 100; Sacramento, CA 95816
California Office of the Governor	Jerry Brown Attn: Operations Department	c/o State Capitol, Suite 1173; Sacramento, CA 95814
California Public Utilities Commission	Daren Gilbert, Manager (Rail Transit and Crossing Branch, Safety and Enforcement Division)	180 Promenade Circle, Suite 115; Sacramento, CA 95834-2939
California Public Utilities Commission	Paul Clanon, Executive Director	505 Van Ness Avenue; San Francisco, CA 94102
California Public Utilities Commission	Anton Garabetian, Supervisor (Rail Crossings Engineering Section)	320 West 4th Street, Suite 500; Los Angeles, CA 90013
California Public Utilities Commission	Joey Bigornia	320 West 4th Street, Suite 500; Los Angeles, CA 90013
California Transportation Commission	Andre Boutros, Executive Director	1120 N Street, Room 2221 (MS-52); Sacramento, CA 95814
San Diego River Conservancy	Kevin McKernan, Executive Officer	1350 Front Street, Suite 3024; San Diego, CA 92101
University of California Office of the President	Patrick J. Lenz, Vice President (Budget and Capital Resources Department)	1111 Franklin Street, 6th Floor; Oakland, CA 94607
University of California, San Diego	Pradeep K. Khosla, Chancellor cc: Gary C. Matthews, Vice Chancellor for Resources Management and Planning	9500 Gilman Drive, MC 0005; La Jolla, CA 92093
University of California, San Diego	Robert Clossin, Director (Physical and Community Planning)	9500 Gilman Drive #0074; La Jolla, CA 92093-0074
Regional Agencies		
LOSSAN Rail Corridor Agency	Linda Culp, Principal Planner—Rail	401 B Street, Suite 800; San Diego, CA 92101
Metropolitan Transit System	Harry Mathis, Board Chairman	1255 Imperial Avenue, Ste. 1000; San Diego, CA 92101
Metropolitan Transit System	Paul Jablonski, Chief Executive Officer	1255 Imperial Avenue, Ste. 1000; San Diego, CA 92101

Agency	Contact Name	Contact Address
Metropolitan Transit System	Sharon Cooney, Chief of Staff	1255 Imperial Avenue, Ste. 1000; San Diego, CA 92101
Metropolitan Water District of Southern California	Deirdra West, Team Manager 7	P.O. Box 54153; Los Angeles, CA 90054-0153
North County Transit District	Bill Horn, Board Chairman	1600 Pacific Highway; San Diego, CA 92101
North County Transit District	Matthew Tucker, Executive Director	810 Mission Avenue; Oceanside, CA 92054
San Diego County Air Pollution Control District	Robert Reider, Supervisor (Planning and Rule Development)	10124 Old Grove Road; San Diego, CA 92131
Local Agencies		
City of San Diego	Kevin Faulconer, Mayor	202 C Street, 11th Floor; San Diego, CA 92101
City of San Diego	Thyme Curtis, Director (ADA and Disability Services)	1200 Third Avenue, Suite 924, MS-56G; San Diego, CA 92101
City of San Diego	Scott Chadwick, Chief Operating Officer	1200 Third Avenue, Suite 1300; San Diego, CA 92101
City of San Diego	Cathy Winterrowd, Assistant Deputy Director (Development Services Department)	1222 First Avenue, MS 301; San Diego, CA 92101
City of San Diego	Farah Mahzari, Development Services Department	1222 First Avenue, MS 301; San Diego, CA 92101
City of San Diego	Holly Kicklighter, Multiple Species Conservation Program	1222 1st Avenue, MS 413; San Diego, CA 92101
City of San Diego	Herman Parker, Director (Park and Recreation)	202 C Street, MS 37-C; San Diego, CA 92101
City of San Diego	Kris McFadden, Director (Transportation and Stormwater)	202 C Street, MS 9A; San Diego, CA 92101
City of San Diego	Halla Razak, Director (Public Utilities)	1222 First Avenue, MS 413; San Diego, CA 92101
City of San Diego	Tony Heinrichs, Deputy Chief Operating Officer (Public Works) cc: Jamal Batta, Floodplain Manager	1222 First Avenue, MS 413; San Diego, CA 92101
City of San Diego	Steve Celniker, Senior Traffic Engineer	401 B Street, Suite 800; San Diego, CA 92101
City of San Diego	Elizabeth Maaland, City Clerk	202 C Street, 2nd Floor; San Diego, CA 92101
City of San Diego	Sherri S. Lightner, Council President Pro Tem (District 1)	202 C Street, MS #10A; San Diego, CA 92101
County of San Diego	Helen Robbins, Chief Administrative Officer	1600 Pacific Highway, Room 209, MS A-6; San Diego, CA 92101
County of San Diego	Sarah Aghassi, General Manager/Deputy Chief Administrative Officer (Land Use and Environmental Group)	1600 Pacific Highway, Room 212, MS A-6; San Diego, CA 92101

Agency	Contact Name	Contact Address
County of San Diego	Mark Wardlaw, Director (Planning and Development Services)	5510 Overland Avenue, MS 0650; San Diego, CA 92123
County of San Diego	Brian Albright, Director (Parks and Recreation)	5500 Overland Avenue, Suite 410, MS 029; San Diego, CA 92123
County of San Diego	Richard E. Crompton, Director (Public Works)	5510 Overland Avenue, Suite 410, MS 0332; San Diego, CA 92123
County of San Diego	Elizabeth A. Pozzebon, Acting Director (Environmental Health)	5500 Overland Avenue, Suite 170, MS 0560; San Diego, CA 92123
County of San Diego	Dave Roberts, Supervisor, County of San Diego (District 3)	1600 Pacific Highway, Room 335; San Diego, CA 92101
County of San Diego	Ron Roberts, Supervisor, County of San Diego (District 4)	1600 Pacific Highway, Room 335; San Diego, CA 92101
San Diego County Clerk	Ernest J. Dronenburg, County Clerk	1600 Pacific Highway, Suite 110, MS A-4; San Diego, CA 92101
San Diego County Regional Airport Authority	Thella F. Bowens, President/CEO cc: Marianne Phelps (Environmental Affairs)	P.O. Box 82776; San Diego, CA 92138-2776
San Diego County Water Authority	Maureen Stapleton, General Manager	4677 Overland Avenue; San Diego, CA 92123
San Diego Fire-Rescue Department	Javier Mainar, Fire Chief	1010 Second Avenue, Suite 400; San Diego, CA 92101
San Diego Regional Chamber of Commerce	Jerry Sanders, President & CEO	402 West Broadway, Suite 1000; San Diego, CA 92101
San Diego Unified Port District	Eileen Maher, Assistant Director (Environmental Services)	P.O. Box 120488; San Diego, CA 92112
San Diego Unified School District	Cindy Marten, Superintendent	4100 Normal Street, Room 2219; San Diego, CA 92103
Native American Tribes		
Barona Band of Mission Indians	Clifford LaChappa, Chairman	1095 Barona Road; Lakeside, CA 92040
Campo Kumeyaay Nation	Ralph Goff, Chairman	36190 Church Road; Campo, CA 91906
Ewiiaapaayp Band of Kumeyaay Indians	Robert Pinto Sr., Chairman	4054 Willows Road; Alpine, CA 91901
Iipay Nation of Santa Ysabel	Clint Linton, Director of Cultural Resources	P.O. Box 507; Santa Ysabel, CA 92070
Inaja-Cosmit Band of Indians	Rebecca M. Osuna, Chairwoman	2005 South Escondido Boulevard; Escondido, CA 92025
Jamul Indian Village, A Kumeyaay Nation	Raymond Hunter Sr., Chairman	P.O. Box 612; Jamul, CA 91935
La Jolla Band of Luiseno Indians	LaVonne Peck, Tribal Chair	22000 Highway 76; Pauma Valley, CA 92061
La Posta Band of Mission Indians	Gwendolyn Parada, Chairperson	8 1/2 Crestwood Road; Boulevard, CA 91905
Los Coyotes Band of Mission Indians	Shane Chapparosa, Spokesperson	P.O. Box 189; Warner Springs, CA 92086

Agency	Contact Name	Contact Address
Manzanita Band of the Kumeyaay Nation	Leroy Elliott, Chairman	P.O. Box 1302; Boulevard, CA 91905
Mesa Grande Band of Mission Indians	Mark Romero, Chairman	P.O. Box 270; Santa Ysabel, CA 92070
Pala Band of Mission Indians	Robert Smith, Chairman	PMB 50, 35008 Pala Temecula Road; Pala, CA 92059
Pauma Band of Mission Indians	Randall Majel, Chairman	P.O. Box 369; Pauma Valley, CA 92061
Rincon Band of Luiseno Indians	Bo Mazzetti, Chairman	1 West Tribal Road; Valley Center, CA 92082
San Pasqual Band of Mission Indians	Allen E. Lawson, Chairman	P.O. Box 365; Valley Center, CA 92082
Santa Ysabel Band of Diegueno Indians	Virgil Perez, Chairman	P.O. Box 130; Santa Ysabel, CA 92070
Sycuan Band of the Kumeyaay Nation	Daniel J. Tucker, Chairman	1 Kwaaypaay Court; El Cajon, CA 92019
Viejas Band of Kumeyaay Indians	Anthony R. Pico, Chairman	P.O. Box 908; Alpine, CA 91903-0908

Community Planning Groups, Town Councils, and Home Owners Associations (HOAs)

Group, Council, or HOA	Contact Name	Contact Address
Cambridge Park Apartments	Manager	3394 Daley Center Drive; San Diego, CA 92123
Carmel Valley Community Planning Board	Frisco White, Chair	5335 Caminito Exquisito; San Diego, CA 92130
Downtown Community Planning Council	Laura Garrett, Chair	1585 Kettner Boulevard; San Diego, CA 92101
Clairemont Community Planning Group	Jeff Barfield, Chair	9755 Clairemont Mesa Boulevard, Suite 100; San Diego, CA 92124-1324
Clairemont Mesa Town Council	Ryan Trabuco, President	P.O. Box 17793; San Diego, CA 92177-7793
Colony La Paz Condominium Association	Audrey Kane, Association Manager	P.O. Box 90928; San Diego, CA 92169
Community Planners Committee (CPC)	Joe LaCava, Chairman	5274 La Jolla Boulevard; La Jolla, CA 92027
Costa Verde Apartments - North & South	Mark Warren, Property Manager	8720 Costa Verde Boulevard; San Diego, CA 92122
Downtown Residents Group	Gary Smith, Chairman	P.O. Box 124715; San Diego, CA 92112
East Village Association	David Hasson, President	1041 Market Street, #200; San Diego, CA 92101
Gaslamp Quarter Association	Jimmy Parker	614 Fifth Avenue, Suite E; San Diego, CA 92101
La Jolla Colony HOA, Barcelona HOA, and Las Palmas HOA	Sean DeFreitas, Manager, A. McKibbin & Co. Community Association Management	7529 Draper Avenue, Suite D; La Jolla, CA 92037

Group, Council, or HOA	Contact Name	Contact Address
La Jolla Community Planning Association	Joe LaCava, Chair	P.O. Box 889; La Jolla, CA 92038
La Jolla International Garden Apartments		3417 Lebon Drive; San Diego, CA 92122
La Jolla Shores Association	Audrey Keane, Chair	P.O. Box 64; La Jolla, CA 92038
La Jolla Town Council	Cindy Greatrex	1150 Silverado Street; La Jolla, CA 92038
La Jolla Village Community Council	Janay Kruger, Chair	4660 La Jolla Village Drive, Suite 1080; San Diego, CA 92122
La Scala Luxury Villas		3845 Nobel Drive; San Diego, CA 92122
Linda Vista Community Collaborative	Adriana Gallardo	2202 Comstock Street; San Diego, CA 92111
Linda Vista Planning Group	Drew Corley, Chair	P.O. Box 710174; San Diego, CA 92171
Little Italy Association	Marco LiMandri, Chief Executive Administrator	2210 Columbia Street; San Diego, CA 92101
Little Italy Residents Association	Annie Eichman	1572 Columbia Street; San Diego, CA 92101
Midway/Pacific Highway Community Planning Group	Melanie Nickel, Chair	3446 Hancock Street, #C; San Diego, CA 92110
Mission Beach Precise Planning Board	Debbie Watkins, Chair	713 Isthmus Court; San Diego, CA 92109
Mission Beach Town Council	Scott Morrison, President	P.O. Box 9842; San Diego, CA 92169
Mission Valley Planning Group	Dottie Surdi, Chair	9215 Piantino Way; San Diego, CA 92108
Morena Business Association	Nevin Kleege, President	1244 Knoxville Street; San Diego, CA 92110
Morena Business Association	Kimberly Weber	1244 Knoxville Street; San Diego, CA 92110
Ocean Beach Planning Board	Peter Ruscitti, Chair	P.O. Box 7090; San Diego, CA 92167
Old Town Community Planning Committee	Thurston Coe, Chair	2836 Juan Street; San Diego, CA 92110
One VA	Stephen Arends	1370 Don Carlos Court; Chula Vista, CA 91910
Pacific Beach Planning Group	Brian Curry, Chair	1351 Chalcedony Street; San Diego, CA 92109
Pacific Beach Town Council	Alan Harris, President	1706 Garnet Avenue; San Diego, CA 92109
Peninsula Community Planning Board	Julia Quinn, Chair	P.O. Box 7994; San Diego, CA 92167
Playmor Terrace West HOA	Geoff Laundy, President	7529 Draper Avenue, Suite D; La Jolla, CA 92037
Regency Villas Senior Complex	Niles Johanson	6083 Via Regla; San Diego, CA 92122
Torrey Hills Community Planning Board	Kathryn Burton, Chair	4106 Via Mar de Delfinas; San Diego, CA 92130
Torrey Pines Community Planning Group	Dennis Ridz, Chair	14151 Boquita Drive; Del Mar, CA 92014
University City Community Association	Barry Bernstein, President	3268 Governor Drive, Box 121; San Diego, CA 92122
University Community Planning Group	Janay Kruger, Chair	4660 La Jolla Village Drive, Ste. 1080; San Diego, CA 92122
Uptown Planners	Leo Wilson, Chair	536 Maple Street, #202; San Diego, CA 92103

Group, Council, or HOA	Contact Name	Contact Address
Venetian Condos HOA	Pamela Walker, Manager	9610 Waples Street; San Diego, CA 92121
Village Apartments on the Square	Anjanette Soban, Manager	8683 Via Mallorca; San Diego, CA 92037
Windemere HOA	Ed Roth, Manager	2665 Caminito Merion; La Jolla, CA 92037

Environmental Organizations

Organization	Contact Name	Contact Address
Association of Environmental Professionals	Julie Wang, President	P.O. Box 82604; San Diego, CA 92138
California Coastal Coalition	Steve Aceti, Executive Director	1133 2nd Street; Encinitas, CA 92024
California Native Plant Society c/o San Diego Natural History Museum		1788 El Prado; San Diego, CA 92101
DeLano & DeLano on behalf of Friends of Rose Canyon	Everett L DeLano III	220 W. Grand Avenue; Escondido, CA 92025
Endangered Habitats League	Michael Beck, San Diego Director	560 La Cresta Boulevard; Crest, CA 92021
Environmental Health Coalition	Diane Takvorian, Executive Director	401 Mile of Cars Way, Suite 310; National City, CA 91950
Friends of Rose Canyon	Deborah Knight, Executive Director	P.O. Box 221051; San Diego, CA 92192
Friends of Rose Canyon	Deborah Knight, Executive Director	6804 Fisk Avenue; San Diego, CA 92122
Friends of Rose Creek	Karin Zirk	4629 Cass Street #188; San Diego, CA 92109
Friends of Tecolote Canyon	Shirley Miller, President	5643 Tamres Drive; San Diego, CA 92111
Friends of the River Mouth Chapter of the San Diego River Park Foundation	Lindsay Goodwin	1010 Santa Clara Place; San Diego, CA 92109
Industrial Environmental Association	Jack Monger	1330 Orange Avenue; Coronado, CA 92118
Marian Bear Natural Park Recreation Council	Deron Bear, Chairman	c/o North Clairemont Recreation Center; 4421 Bannock Avenue; San Diego, CA 92117
Rose Creek Watershed Alliance	Ann Van Leer	4079 Governor Drive, #330; San Diego, CA 92122
San Diego Audubon Society	Chris Redfern, Executive Director	4010 Morena Boulevard, #100; San Diego, CA 92117
San Diego Canyonlands	Eric Bowlby, Executive Director	3552 Bancroft Street; San Diego, CA 92104
San Diego Coastkeeper	Megan Baehrens, Executive Director	2825 Dewey Road, Suite 200; San Diego, CA 92106
San Diego Earth Times	Carolyn Chase	2511 Loring Street; San Diego, CA 92109
San Diego River Park Foundation	Rob Hutsel, Executive Director	P.O. Box 80126; San Diego, CA 92138
San Diego River Conservancy	Kevin McKernan, Executive Officer	1350 Front Street, Suite 3024; San Diego, CA 92101
San Diego Sierra Club	Dave Grubb, Chair	8304 Clairemont Mesa Boulevard #101; San Diego, CA 92111
Southwest Wetlands Interpretive Association	Debi Carey, Administrative Director	P.O. Box 575; Imperial Beach, CA 91933
Surfrider Foundation, San Diego Chapter	Roger Kube, Chair	9883 Pacific Heights Boulevard, Suite D; San Diego, CA 92121
Tecolote Canyon Citizens Advisory Council	Don Steele	5550 Balboa Arms Drive, #35; San Diego, CA 92117

Businesses, Business Groups, Community Services

Business	Contact Name	Contact Address
AIA-San Diego Urban Design Committee	Paul Schroeder, Chair	2265 India Street; San Diego, CA 92101-1725
Alexandria Real Estate Equities	Jason Moorhead	4660 La Jolla Village Drive, Suite 725; San Diego, CA 92122
All Saints Lutheran Church	Karen Whistler	6355 Radcliffe Drive; San Diego, CA 92122
Amylin Pharmaceuticals	John Grohs, Esq. CSP	9360 Towne Centre Drive, #714; San Diego, CA 92121
Armstrong Nursery	Ian Hydoski, VP, Operations cc: Monte Wright cc: Stephanie Butkus cc: Gary Jones cc: Eric Asakawa, South and Bay Area Regional Manager cc: Will Bollard	2200 E. Route 66, #200; Glendora, CA 91740-4673
BB&T John Burnham Insurance Services	Iris Gladney	750 B Street, Suite 2400; San Diego, CA 92101
Biocom	Jimmy Jackson, VP of Public Policy	4510 Executive Drive, Plaza 7; San Diego, CA 92122
BriceHouse Starboard LLC	G. Bradford Saunders	P.O. Box 6738; San Diego, CA 92166
Building Owners & Managers Association	Audrey Doherty	P.O. Box 121166; San Diego, CA 92112
Congregation Adat Yeshurun	David Kupferberg, President	8625 La Jolla Scenic Drive N.; La Jolla, CA 92037
Costco	Sherri Eyler	4605 Morena Boulevard; San Diego, CA 92117
Discover Pacific Beach	George Ondovchack, President	1503 Garnet Avenue; San Diego, CA 92109
Downtown San Diego Partnership	Janelle Riella, VP, Public Policy & Communications	401 B Street, Suite 100; San Diego, CA 92101
Doyle Park & Recreation Center	Lou Ellen Robbins	3203-1 Caminito Eastbluff; La Jolla, CA 92037
Evans Hotels	David Cherashore	998 West Mission Bay Drive; San Diego, CA 92109
Genesee Executive Plaza	Katie Davis, Property Manager	9339 Genesee Avenue, Suite 130; San Diego, CA 92121
Golden Triangle Chamber of Commerce	George Schmall, President	6235 Lusk Boulevard; San Diego, CA 92121
Greater Clairemont Mesa Chamber of Commerce	Janet Miller, President	4203 Genesee Avenue #103-122; San Diego, CA 92117
Kennebec Properties LLC		P.O. Box 847; Bonita, CA 91908
La Jolla Eastgate Building LP		1589 Calle Delicada; La Jolla, CA 92037

Business	Contact Name	Contact Address
La Jolla Golden Triangle Rotary Club	Linda Stouffer, President cc: Cynthia Villis	P.O. Box 13023; La Jolla, CA 92038
La Jolla Village Merchants Association	Phil Coller	1162 Prospect Street; La Jolla, CA 92037
La Jolla Village Professional Center	Pele Wylde, Vice President	8950 Villa La Jolla Drive; La Jolla, CA 92037
La Jolla Village Square - CBRE	Damon Bradshaw	8657 Villa La Jolla Drive; La Jolla, CA 92037
Lawrence Family Jewish Community Center	Larry Katz, President cc: Michael Cohen, Executive Director cc: Julie Potiker, Past President cc: Nate Stein cc: David Wax, Past President	4126 Executive Drive; La Jolla, CA 92037
Little Italy Association of San Diego	Marco LiMandri, Executive Director	2210 Columbia Street; San Diego, CA 92101
Mission Bay Montessori Academy	Nan Madden, Principal	2640 Soderblum Avenue; San Diego, CA 92122
Morena Business Association	Nevin Kleege, President	1244 Knoxville Street; San Diego, CA 92110
NAIOP	Karen Burges, Executive Director	2658 Del Mar Heights Road #559; Del Mar, CA 92014
Old Town Chamber of Commerce	Richard Stegner	2415 San Diego Avenue; San Diego, CA 92110
Qualcomm	Monique Rodriguez	5775 Morehouse Drive; San Diego, CA 92121
Regency Centers	Stephen W. Hargrave, Senior Property Manager	420 Stevens Avenue, Suite 320; Solana Beach, CA 92075
Regents Square La Jolla LLC		550 Newport Center Drive; Newport Beach, CA 92660
Rubens George J & Yvonne M Family Trust		1305 Chalcedony Street; San Diego, CA 92109
Samuel Blick on behalf of La Jolla Village Square		P.O. Box 9477; Rancho Santa Fe, CA 92067
San Diego BID Council	Tiffany Bromfield, CEO	P.O. Box 70169; San Diego, CA 92167
San Diego California LDS Temple	Kevin Moesser, Temple Recorder	7474 Charmant Drive; San Diego, CA 92122-5000
San Diego Coastal Chamber of Commerce	Nancy Wasko, President/CEO	2002 Jimmy Durante Boulevard, Suite 136; Del Mar, CA 92014
San Diego Convention Center Corp.	Carol Wallace, President/CEO	111 W. Harbor Drive; San Diego, CA 92101
San Diego County Taxpayers Association	Felipe Monroig, President & CEO	707 Broadway, Suite 905; San Diego, CA 92101
San Diego Land Lawyers on behalf of Scripps Health	Robin Madaffer	1620 Fifth Avenue, Suite 400; San Diego, CA 92101
San Diego Mesa College	Ian Kay, Co-Chair (Architecture)	7250 Mesa College Drive, Mailbox Z-208; San Diego, CA 92111

Business	Contact Name	Contact Address
San Diego Mesa College	Genevieve Esguerra, Outreach Coordinator	7250 Mesa College Drive, Room I4-101; San Diego, CA 92111
San Diego Padres	Sarah Farnsworth, Senior Vice President of Public Affairs	100 Park Boulevard; San Diego, CA 92101
San Diego Regional Center	Paul Mansell	4355 Ruffin Road, Suite 114; San Diego, CA 92123
San Diego Regional Chamber of Commerce	Carmen Sandoval, Public Policy	402 West Broadway, Suite 1000; San Diego, CA 92101
San Diego Regional EDC	Lauree Sahba, Chief Operating Officer	530 B Street, 7th Floor; San Diego, CA 92101
San Diego Tourism Authority	Joe Terzi	750 B Street, Suite 1500; San Diego, CA 92101
Scripps Health	Michael Bardin, Sr. Director of Public & Gov't Affairs cc: Jennifer Barker cc: Annette Blatt cc: Suzie Bustamante	4275 Campus Point Court; San Diego, CA 92121
Scripps Health	Bruce Rainey	10130 Sorrento Valley Road, Suite C, SV100; San Diego, CA 92121
Shute, Mihaly, and Weinberger, LLP	Deborah Miller	396 Hayes Street; San Francisco, CA 94102-4421
Skye Pharmaceuticals/Pacira Pharmaceuticals	David Stack, CEO	10450 Science Center Drive; San Diego, CA 92121
Standley Middle School	Godwin Hega, Principal	6298 Radcliffe Drive; San Diego, CA 92122-3330
Temple Corp of the Church of Jesus Christ of Latter-Day Saints		50 E. North Temple #2225; Salt Lake City, UT 84150
The Irvine Company	John Boslet	550 Newport Center Drive; Newport Beach, CA 92660
The Irvine Company	Thomas Sullivan	750 B Street, Suite 1200; San Diego, CA 92101
The Irvine Company	Kristopher Kopensky	4225 Executive Square, Suite 400; La Jolla, CA 92307
Torrey Pines Christian Church	Jim Brandt, Business Manager	8320 La Jolla Scenic Drive N.; La Jolla, CA 92037
Torrey Pines Elementary School	Jim Solo, Principal	8350 Cliffridge Avenue; La Jolla, CA 92037
Toys R Us	David Picot	One Geoffrey Way; Wayne, NJ 7470
TRU 2005 RE I LLC—Harbor Investment Co. LLC		One Geoffrey Way; Wayne, NJ 07470
UC Connection	Marcia Munn	6255 Radcliffe Drive; San Diego, CA 92122
UC Golden	Daniel Arovas	3202 Lahitte Court; San Diego, CA 92122
UCSD Graduate Student Association		9500 Gilman Drive, #0064; La Jolla, CA 92093
UCSD Thornton Hospital	Debbie Wayne, Interim Director	9300 Campus Point Drive; La Jolla, CA 92037

Business	Contact Name	Contact Address
UCSD, Government & Community Relations	Anu Delouri, Principal Community Planner	9500 Gilman Drive, MC 0074; La Jolla, CA 92093
UCSD, Student Human Relations	Gary Anderson, Manager	9500 Gilman Drive, MC 0352; La Jolla, CA 92093
UCSD, Transportation Services	Curt Lutz	9500 Gilman Drive ; La Jolla, CA 92093-0011
University City High School	Ernie Smith, Principal	6949 Genesee Avenue; San Diego, CA 92122-2455
University Lutheran Church	Brian Hooper, Pastor	9595 La Jolla Shores Drive; La Jolla, CA 92037
University of San Diego	Tom Cleary, Senior Director	Maher 264, 5998 Alcala Park; San Diego, CA 92110-2492
VA San Diego Healthcare System	Cynthia Butler cc: John Norwood	3350 La Jolla Village Drive; San Diego, CA 92161
Westfield Corp.	John Alderson	225 Broadway, Suite 1700; San Diego, CA 92101
Westfield UTC	John Alderson, Vice President—Development cc: Jerry Engen, Supervisor—Development cc: David Reitz, Vice President–Design	225 Broadway, Suite 1700; San Diego, CA 92101

Accessibility Advocates

Organization	Contact Name	Contact Address
Access to Independence of San Diego	Louis Frick, Executive Director	8885 Rio San Diego Drive, Suite 131; San Diego, CA 92108
Braille Institute	Jay Comstock, San Diego Regional Director	4555 Executive Drive; San Diego, CA 92121
Mayor's Committee on Disability	Susan Madison	1200 Third Avenue, Suite 1300, MS 56C; San Diego, CA 92101
SANDAG Social Services Transportation Advisory Council	Erick Asero, Chair	6952 Del Cerro Boulevard; San Diego, CA 92120

Minority Organizations

Organization	Contact Name	Contact Address
Asian Business Association	Wendy Urushima-Conn, President & CEO	7675 Dagget Street, Suite 340; San Diego, CA 92111
Bayside Community Center	Jorge Riquleme, Executive Director	2202 Comstock Street ; San Diego, CA 92171
Chicano Federation	Raymond Uzeta, President & CEO cc: Michelle Soltero, Chair	3180 University, Suite 317; San Diego, CA 92104
Filipino-American Chamber of Commerce of San Diego County	Willie Racelis, President	415 Laurel Street, PMB 218; San Diego, CA 92101
MAAC Project	Antonio Pizano, President & CEO	1385 Third Avenue; San Diego, CA 91911
San Diego County Hispanic Chamber of Commerce	Albert Clark, Chairman	P.O. Box 131548; San Diego, CA 92170
San Diego Organizing Project (SDOP)	Kevin Malone, Executive Director	4305 University Avenue, Suite 530; San Diego, CA 92105
San Diego Urban League	Ray King, President & CEO	720 Gateway Center Drive; San Diego, CA 92102
San Diego Workforce Partnership	Peter Callstrom, President & CEO	3910 University Avenue, Suite 400; San Diego, CA 92105

Transportation Advocates

Organization	Contact Name	Contact Address
Bike San Diego	Samantha Ollinger, Executive Director cc: Kelly Cummings	sam@bikesd.org
COMPACT	Bill Ferguson, Chairman	6253 Via Regla; San Diego, CA 92122
La Jolla Traffic & Transportation Board	Todd Lesser	P.O. Box 889; La Jolla, CA 92038
Circulate San Diego	Jim Stone, Executive Director	1111 6th Avenue, Suite 402; San Diego, CA 92101
Circulate San Diego	Elyse Lowe, Deputy Executive Director	1111 6th Avenue, Suite 402; San Diego, CA 92101
San Diego County Bicycle Coalition	Andy Hanshaw, Executive Director	P.O. Box 34544; San Diego, CA 92163
Transit Alliance for a Better North County (TABNC)	Ted Owen, President	810 Mission Avenue ; San Diego, CA 92054

Housing Advocates

Organization	Contact Name	Contact Address
BIA	Borre Winckel, Executive Officer	9201 Spectrum Center Boulevard, Suite 110; San Diego, CA 92123
San Diego Housing Federation	Tom Scott, Executive Director	110 West C Street; San Diego, CA 92101
San Diego Organizing Project	Kevin Malone, Executive Director	4305 University Avenue, Suite 530; San Diego, CA 92105
Urban Land Institute	Mary Lydon, Executive Director	1249 F Street; San Diego , CA 92101

Community Interest Groups

Group	Contact Name	Contact Address
Adams Broadwell Joseph & Cardozo on behalf of San Diego County Building and Construction Trades Council	Robyn C. Purchia	601 Gateway Boulevard, Suite 1000; South San Francisco, CA 94080
Hecht Solberg on behalf of Bay Park Community	Neil S. Hyytinen	600 West Broadway, 8th Floor; San Diego, CA 92101
Kosa'aay (Cosoy)	Geoffrey Mogilner	2737 San Diego Avenue; San Diego, CA 92110
Laborers International Union of North America, Local Union 89	Bobby Pineda, President	4161 Home Avenue; San Diego, CA 92105
La Jolla Colony Board of Directors Management	Sean DeFreitas	7529 Draper Avenue, Suite D; La Jolla, CA 92037
Live Well San Diego—North Central Leadership Team	Andy Hamilton	5055 Ruffin Road; San Diego, CA 92123
Lozeau Drury on behalf of Laborers International Union of North America, Local Union 89	Richard T. Drury	410 12th St # 250, Oakland, CA 94607
Moderate Majority	Brian Kim	info@moderatemajorityusa.org
San Diego County Building and Construction Trades Council	Joe Powell, President	3737 Camino del Rio South, Suite 202; San Diego, CA 92108
United Veterans Council of San Diego County	Jack Harkins	2115 Park Boulevard; San Diego, CA 92101
University City Community Association	Barry Bernstein	3268 Governor Drive, Box 121; San Diego, CA 92122

Project Working Group

Contact Name	Contact Address
Ron Roberts, Supervisor, County of San Diego	1600 Pacific Highway, Room 335; San Diego, CA 92101
Dan Allen, La Jolla Resident	1714 Kearsarge Road; La Jolla, CA 92037
Bob Emery, Retired MTS Board Member and Poway City Council Member	14360 Mountain Road; Poway, CA 92064
John Alderson, Westfield LLC	225 Broadway, Suite 1700; San Diego, CA 92101
Ian Foster, Clairemont Resident	3514 Baker Street; San Diego, CA 92117
Brian Gregory, UCSD Assistant Vice Chancellor	9500 Gilman Drive, MS0057; La Jolla, CA 92093-0057
Debra Gutzmer, CBRE, Inc.	14122 Powers Road; Poway, CA 92064
Joe LaCava, La Jolla Community Planning Group	5274 La Jolla Boulevard; La Jolla, CA 92027
Mark Marcus, La Jolla Country Day School	9490 Genesee Avenue; La Jolla, CA 92037
Evan McLaughlin, La Jolla Resident	3737 Camino Del Rio South, Suite 403; San Diego, CA 92108
Jeff Barfield, Clairemont Community Planning Group	9755 Clairemont Mesa Boulevard, Suite 100; San Diego, CA 92124
Barbara Obrzut, La Jolla Resident	6840 Draper Avenue; La Jolla, CA 92037
David Potter, Clairemont Resident	4975 Milton Street; San Diego, CA 92110
Anette Blatt, Scripps Health	4275 Campus Point Court, San Diego CA 92121
Ann Van Leer, Land Conservation Brokerage, Inc.	P.O. Box 3799, Rancho Santa Fe, CA 92067
Janay Kruger, University Community Planning Group	4660 La Jolla Village Drive, Suite 1080; San Diego, CA 92122
Rob Hutsel, San Diego River Park Foundation	P.O. Box 80126; San Diego, CA 92138
Chanelle Hawken, San Diego Regional Chamber of Commerce	402 W. Broadway, Suite 1000; San Diego, CA 92101

Libraries

Name	Address
Balboa Branch Library	4255 Mt. Abernathy Avenue; San Diego , CA 92117
City of San Diego Central Library	330 Park Boulevard; San Diego , CA 92101
Clairemont Branch Library	2920 Burgener Boulevard; San Diego, CA 92110-1027
Kensington-Normal Heights Branch Library	4121 Adams Avenue; San Diego, CA 92116-2507
La Jolla/Riford Branch Library	7555 Draper Avenue; La Jolla, CA 92037-4802
Linda Vista Branch Library	2160 Ulric Street; San Diego, CA 92111-6628
Mesa College Library	7250 Mesa College Drive, San Diego, CA 92111-4998
Mission Hills Branch Library	925 W. Washington Street; San Diego, CA 92103-1806
Mission Valley Branch Library	2123 Fenton Parkway; San Diego, CA 92108-4739
North Clairemont Branch Library	4616 Clairemont Drive; San Diego, CA 92117-2701
North Park Branch Library	3795 31st Street; San Diego, CA 92104-3720
North University Community Branch Library	8820 Judicial Drive; San Diego, CA 92122-4684
Ocean Beach Branch Library	4801Santa Monica Avenue; San Diego , CA 92107
Pacific Beach/Taylor Branch Library	4275 Cass Street; San Diego, CA 92109-4005
Point Loma/Hervey Branch Library	3701 Voltaire Street; San Diego , CA 92139
San Diego County Public Law Library	1105 Front Street; San Diego, CA 92101-3904
Serra Mesa-Kearny Mesa Branch Library	3440 Sandrock Road; San Diego, CA 92123-2198
UCSD Geisel Library	9600 John Jay Hopkins Drive; La Jolla, CA 92093
University Community Branch Library	4155 Governor Drive; San Diego, CA 92122-2501
University Heights Branch Library	4193 Park Boulevard; San Diego, CA 92103-2510
University of San Diego Copley Library	5998 Alcala Park; San Diego, CA 92110

Affected Property Owners and/or Property Representatives

Contact Name	Contact Address
8650 Villa La Jolla Inc.	8657 Villa La Jolla Drive, #123; La Jolla, CA 92037
Adams Family Trust	22992 Black Bear Trail; Conifer, CO 80433
Albertsons LLC—Regency Centers LP	P.O. Box 790830; San Antonio, TX 78279
Alecta Real Estate USA LLC	4 Embarcadero Center, Suite 2500; San Francisco, CA 94111
Alain H. Huang and Hua Li Ming Revocable Trust	287 Livorna Heights Road; Alamo, CA 94507
Allen D. Chang	9871 Genesee Avenue; San Diego, CA 92121
Amber Hewette Revocable Living Trust	1711 W. Walnut Street; Carbondale, IL 62901
Angel Family Trust and Jordan Angel Revocable Trust	298 Via La Paz; Greenbrae, CA 94904
Associated Microbreweries Inc.	5985 Santa Fe Street; San Diego, CA 92109
Barbara A. Lorentz	4028 Mahaila Avenue #B; San Diego, CA 92122
Barbara Roberts	9839 Genesee Avenue; San Diego, CA 92121
Barmatz Family Trust	9781 Genesee Avenue; San Diego, CA 92121
Bartell Hotels	4875 N. Harbor Drive; San Diego , CA 92106
Bluewater Provisioning LLC	4455 Murphy Canyon Road, #200; San Diego, CA 92123
Brazell Charles & Margaret Family Trust	4170 Morena Boulevard #E; San Diego, CA 92117
Bridget L. Scanlan	9837 Genesee Avenue; San Diego, CA 92121
Changyi Zhu and Baohong Yang	1038 Jacqueline Way; San Jose, CA 95129
Christos D. Svolopolous and Sheri Crampton	5105 Renaissance Avenue #A; San Diego, CA 92122
Colony La Paz Condominium Association	P.O. Box 90928; San Diego, CA 92169
Costa Verde Hotel LLC	8895 Towne Centre Drive, #105-2; San Diego, CA 92122
Edward C. Alexander and Edwina C. Alexander Trust	3381 Lone Jack Road; Encinitas, CA 92024
Elmer D. Lucas Jr. and Tina M. Lucas	3346 Knollridge Drive; El Dorado Hills, CA 95762
Epsilon Iota Chapter of Delta Gamma House Corporation	3250 Riverside Drive; Upper Arlington, Ohio 43221
Eugene T. Lombardi and Sandra S. Lombardi	9803 Genesee Avenue; San Diego, CA 92121
Gateway Center LCC	4607 Mission Gorge Place; San Diego, CA 92190
Guosheng Fu and Yafen Lu	4808 Tula Court; San Diego, CA 92122
Genesee Executive Plaza LLC	575 Market Street; San Francisco, CA 94105
Geza Nagy and Ginny M. Nagy	9831 Genesee Avenue; San Diego, CA 92121

Contact Name	Contact Address
Good Samaritan Episcopal Church	4321 Eastgate Mall; San Diego, CA 92121
Harbor Investment Co. LLC	P.O. Box 876; La Mesa, CA 91944
Harker G. Wesley Family Trust	9255 N. Magnolia Avenue #206; Santee, CA 92071
Hashem-Nahid Family Trust and Berkus Yassaman Catayoun	1666 Michael Lane; Pacific Palisades, CA 90272
Irvine Company	550 Newport Center Drive; Newport Beach, CA 92660
Jennifer Whelan	9775 Genesee Avenue; San Diego, CA 92121
Jerry R. Gallenson	P.O. Box 87079; San Diego, CA 92138
John P. Nguyen	9825 Genesee Avenue; San Diego, CA 92121
Julie Atencio	2834 Meadow Glen Way W.; Escondido, CA 92026
Julia Plant	9793 Genesee Avenue; San Diego, CA 92121
Kerchner Family Trust and Matthew Kerchner	4152 Summit Ridge Court; Westlake Village, CA 91362
La Jolla Business Center LLC	315 4th Avenue; San Diego, CA 92101
La Jolla Canyon Gardens LLC	8895 Towne Centre Drive, #105-2; San Diego, CA 92122
La Jolla Country Day School	9409Regents Road; La Jolla, CA 92037
Lanza Morena LLC	3978 Sorrento Valley Boulevard, #100; San Diego, CA 92121
Lin Family Trust	5250 Soledad Mountain Road; San Diego, CA 92109
Malone Edward C & Barbara J Family Trust	581 San Antonio Avenue; San Diego, CA 92106
Marc H. Tayman and Susan D. Comer	2635 Camino Del Rio South #312; San Diego, CA 92108
Maria I. McComb Trust	3939 Walnut Avenue, #220; Carmichael, CA 95608
McHugh Family Trust	9771 Genesee Avenue; San Diego, CA 92121
Michael R. Jauregui and Kathleen J. Anderson Family	8045 E. Del Cristal Drive; Scottsdale, AZ 85258
Morena Investors	5360 Eastgate Mall #G; San Diego, CA 92121
Navarra Morena Properties LLC	16960 Mesamint Street; San Diego, CA 92127
Nemeth-Eagle Trust	3060 6th Avenue, #2; San Diego, CA 92103
P S Rose Canyon LLC	701 Western Avenue #200; Glendale, CA 91201
Paul Ciesko and William S. Maginnis III	14 Woodland Avenue; Hawthorne, NJ 07506
Peter Iverson and Nancy W. Iverson Revocable Living Trust	1328 Bulrush Court; Carlsbad, CA 92011
Ranindra A. Athale and Chanda R. Athale; Satish Samant and Jyoti Samant	5311 Dunleigh Drive; Burke, VA 22015
Ravindra P. Mistry and Nayna R. Mistry	3531 Skyline Drive; Hayward, CA 94542
Regency Centers LP	420 Stevens Avenue Suite 320; Solana Beach, CA 92075

Contact Name	Contact Address
Regents of the University of California	1111 Franklin Street, 12th Floor; Oakland, CA 94607
Rudie & Rudie LLC	4537 Mt. Henry Place; San Diego, CA 92117
Rusian Polinovsky and Olga Polinovsky; Diana Tishkovakaya	1414 Bay Street; Santa Monica, CA 90405
S. A. Marina LLC	7029 Martano Place; Rancho Cucamonga, CA 91701
Sadler Company LLC	3021 Kona Way; San Diego, CA 92106
San Diego Data Processing Corp.	5975 Santa Fe Street; San Diego, CA 92109
San Diego Gas & Electric	8326 Century Park Court; San Diego, CA 92123
San Diego Humane Society & SPCA	5500 Gaines Street; San Diego, CA 92110
Scripps Health	10140 Campus Point Drive, #AX265; San Diego, CA 92121
Simon Huang and Betty Yang Huang	4785 W. 4th Avenue; Vancouver, Canada V6T1C3
UTC Properties LLC	550 Newport Center Drive; Newport Beach, CA 92660
UTC Venture LLC	P.O. Box 130940; Carlsbad, CA 92013
Vallegjos Family Trust	794 Saugerties Avenue; San Diego, CA 92154
Victor Chan and Lonio Chan	2129 Scudder Street; St. Paul, MN 55108
Warren H. Lu and Jane Lu	9791 Genesee Avenue; San Diego, CA 92121
William Hoffenberg and Carol C. Hoffenberg	1050 17th Street, #24FL; Denver, CO 80265
With Memorial Trust	6666 Caminito Sinnecock; La Jolla, CA 92037
Ying Wang	1290 Upas Street; San Diego, CA 92103
Ying Wang	P.O. Box 3452; San Diego, CA 92163
Evelyn Heidelberg on behalf of Alecta Real Estate USA LLC	525 B Street, Suite 2200; San Diego, CA 92101
James R. Dawe on behalf of Bartell Hotels	750 B Street, Suite 2100; San Diego, CA 92101
Richard Schulman on behalf of Costa Verde Hotel LLC	600 West Broadway, Suite 800; San Diego, CA 92101
Jeffrey Chine on behalf of Regency Centers	501 West Broadway, 15th Floor; San Diego, CA, 92101
Dan Zentmeyer on behalf of TRU 2005 REI LLC	3400 Carlisle Street, Suite 400; Dallas, TX, 75204
Neal Maguire on behalf of UTC Venture LLC	2801 Townsgate Road, Suite 215; Westlake Village, CA 91361

Individuals

Contact Name	Contact Address
Name Not Provided	bmagda@aol.com
Name Not Provided	4042906824@mypixmessages.com
Theresa Acerro	P.O. Box 8697; Chula Vista, CA 91912
J. Deryl Adderson	6106 Regents Road; San Diego, CA 92122
A. Aguilar	4311 Moraga Avenue; San Diego, CA 92117
Marilyn Ames	4414 Field Street; San Diego, CA 92117
Sam Ames	4414 Field Street; San Diego, CA 92117
Jason Anderson-Brustkern and Traci Anderson-Brustkern	3936 Caminito Silvela; San Diego, CA 92122
Melodee Arnold	3184 Carnegie Court; San Diego, CA 92122
Daniel Arovas	3202 Lahitte Court; San Diego, CA 92122
Eric Asakawa	4186 Conner Court; San Diego, CA 92117
George Ashby	3693 Paul Jones Avenue; San Diego, CA 92117
David Atz	datz1@san.rr.com
Eduardo Azucena	7120 Shoreline Drive #2308; San Diego, CA 92122
Ronald Bacon	4670 Leathers Street; San Diego, CA 92117
Ed Baize	3911 Caminito Cassis; San Diego, CA 92122
Erin Bala	erinbala@gmail.com
Ian J. Ball	2980 Clairemont Drive, #35; San Diego, CA 92117-6728
John Bassler	3068 Award Row; San Diego, CA 92122
N Lee Bausch and Judith Bausch	3044 Fried Avenue; San Diego, CA 92122
Rilla Baxter and Alan Baxter	baxart@san.rr.com
Meagan Beale	3276 Willard Street; San Diego, CA 92122
Daniel Beeman	3897 Caminito Aguilar, Suite D; San Diego, CA 92111
Al Bennett	5728 Honors Drive; San Diego, CA 92122
Beth	P.O. Box 178194; San Diego, CA 92117
Butch Biendara	4041 Mt. Everest Boulevard; San Diego, CA 92111
Paul Bordieri	1827 Goldfield Street; San Diego, CA 92110

Contact Name	Contact Address
Mark Boydszon	1601 Kettner Boulevard #29; San Diego, CA 92101
Amanda Rose Brandon	4477 Onondaga Avenue; San Diego, CA 92117
Marquis Bret	28634 Meadow Glen Way W; Escondido, CA 92026
Walter Brewer	catcar38@verizon.net
David Brezic	3962 Nobel Drive, Unit 301; San Diego, CA 92122
Karen Brown	3221 Brandywine Street; San Diego, CA 92117
Steve Brown	4737 Mt. Almagosa Drive; San Diego, CA 92111
Alice Buck	8839 Via Andar, San Diego, CA 92122
Peter Burch	2667 Angell Avenue; San Diego, CA 92122
Nicole Burgess	2233 Soto Street; San Diego, CA 92107
Cindy Burrascano	11195 Kelowna #83; San Diego, CA 92126
Robert Byrnes	4018 Nobel Drive #305; San Diego, CA 92122
JD Calandro	3772 Balboa Terrace A; San Diego, CA 92117
Linda Caldwell	8668-4 Villa La Jolla Drive; La Jolla, CA 92037
Tan Cao	tan.n.cao@gmail.com
Stephen Carlin and Christine Carlin	7144 Caminito Pantoja; San Diego, CA 92122
Cesar	P.O. Box 12904; San Diego, CA 92112
Gary Chapman	4145 Caminito Cassis; San Diego, CA 92122
Shirley Chernowsky	3131 Wayne Lane; San Diego, CA 92117
Jon Christensen	2327 Cowley Way; San Diego, CA 92110
BD Christian	5425 Lodi Street; San Diego, CA 92117
Joan Christiansen	3803 Camino Lindo; San Diego, CA 92122
Kyley Christy on behalf of Gary Kent Team	kyley78@gmail.com
Christine Clark	1810 Denver Street; San Diego, CA 92110
Jay A. Clark	jayadair@yahoo.com
Ross Clark	3552 Cowley Way; San Diego, CA 92117
Karen Coleman	5568 Renaissance Avenue #2; San Diego, CA 92122
Linda Colley	3589 Syracuse Avenue; San Diego, CA 92122
David Conart	4052 Albatross Street; San Diego, CA 92103

Contact Name	Contact Address
James Conklin and Sylvia Conklin	3630 Ethan Allen Avenue; San Diego, CA 92117
R. Cooke	raycooke@pacbell.net
Sylvia Corbin	3268 Bunker Hill Street; San Diego, CA 92117
Gary Cottrell	9500 Gilman Drive # 0404; La Jolla, CA 92093
Lily Cowen	4025 Caminito Davila; San Diego, CA 92122
John Coxe	3596 Paul Jones Avenue; San Diego, CA 92117
Carol Crafts	13030 Birch Lane; Poway, CA 92064
Bill Crane	3051 Pennant Way; San Diego, CA 92122
Ken Crocker and Kim Crocker	3919 Caminito Cassis; San Diego, CA 92122
Bruce Cromer	4327 Santa Cruz Avenue; San Diego, CA 92107
Mark Croshier and Rose Croshier	3675 Ethan Allen Avenue; San Diego, CA 92117
Ken Daniszewski	2543 Congress Street, Apt 102; San Diego, CA 92110
Paul-Michael Decker	6549 Mission Gorge Road, #205; San Diego, CA 92120
Simone DeLira	simone.delira@everbank.com
Christina Deroche	4020 Porte La Paz #101; San Diego, CA 92122
Dale Dickerson	daledickerson756@yahoo.com
Doris Dickinson	3956 Nobel Drive; San Diego, CA 92122
Gine Dobey	2764-88 Ariane Drive; San Diego, CA 92117
Dennis Doyle	3155 Galloway Drive; San Diego, CA 92122
Pat Drummy	pdrummy50@gmail.com
Marilyn Duffey	8638 Villa La Jolla Drive, #6; La Jolla, CA 92037
Pat Dube	patdube@ymail.com
Sara Duke	tikapoozie@yahoo.com
Marilyn Dupree	8092 Camino Tranquilo; San Diego, CA 92122
Jon Eisen	3275 Welmer Place; San Diego, CA 92122
Elizabeth Elman	4052 Albatross Street; San Diego, CA 92103
Linda Emery	3741 Paul Jones Avenue; San Diego, CA 92117
Phillip N. Enright	drpenright@me.com
Alexandra Epstein	617 3rd Avenue #18; Chula Vista, CA 91910
David Erving	5688 Lord Cecil Street; San Diego, CA 92122

Contact Name	Contact Address
Joe Falletta	3749 Paul Jones Avenue; San Diego, CA 92117
Tiffany Farnsworth	tiffany.farnsworth@gmail.com
Meryl Faulkner	5915 Desert View Drive; La Jolla, CA 92037
G. Ferrero	4080 Hancock #3416; San Diego, CA 92110
Greg Finely	2400 Historic Decatur Road, Suite 107; San Diego, CA 92106
Jeff Flowers	6244 Ferris Square; San Diego, CA 92121
Tom Ford	3767 Vista De La Bahia; San Diego, CA 92117
Stewart Forster	sforster@sbcglobal.net
Melissa Foster	4365 Executive Drive, Suite 1600; San Diego, CA 92122
Lynn Fralic	1282 Peach Avenue; El Cajon, CA 92021
Josephine P. Frodente	3636 Ethan Allen Avenue; San Diego, CA 92117
Jim Fry	4046 Caminito Terviso; San Diego, CA 92122
Victor Gallego	3927 Caminito Silvela; San Diego, CA 92122
Kristina Garcia	1536 Beroy Street; San Diego, CA 92110
Arleen Garcia-Herbst	3248 Geddes Drive; San Diego, CA 92117
Michael Gerber	6151 Dorothy Drive; San Diego, CA 92115
Linda Gibson	lgibson2227@gmail.com
Allen Giffen and Connie Giffen	5434 Bothe Avenue; San Diego, CA 92122
Sarah Gille	9551 Poole Street; La Jolla, CA 92037
Marysue Glynn	marysu@me.com
Bill Godwin-Austen	billga@cox.net
Peggy Goings	1446 Lieta Street; San Diego, CA 92110
Ken Goodwill	8875 Costa Verde Boulevard, #1704; San Diego, CA 92122
David Gottfredson and Lois Gottfredson	5953 Scripps Street; San Diego, CA
Joan Green	2725 Tokalon Street; San Diego, CA 92110
Karlyn Griggs	karlyn.griggs@btinternet.com
William Griswold	2769 Schenley Terrace; San Diego, CA 92122
Brent Grizzle	P.O. Box 9530; San Diego, CA 92067
Walter Groth	1363 Frankfort Street; San Diego, CA 92110

Contact Name	Contact Address
Nancy Groves	2955 Renault Place; San Diego, CA 92122
Lynn Guidoboni	5446 Renaissance Avenue; San Diego, CA 92122
Michele Hagstrom and Rick Hagstrom	2642 Lange Avenue; San Diego, CA 92122
Lucia KB Hall	2885 Havasupai Avenue; San Diego, CA 92117
Miranda K. Hall	3767 Southview Drive, #222; San Diego, CA 92117
Sheryl Harris	2897 Ariane Drive; San Diego, CA 92117
Beth Hartman	3280 Mt. Tami Drive; San Diego, CA 92111
Keith Hartz	khartz90@hotmail.com
Brian Hassler	2912 Fried Avenue; San Diego, CA 92122
Jan Hawkins	3233 Wellesly Avenue; San Diego, CA 92122
Charlotte Healy	3631 Ethan Allen Avenue; San Diego, CA 92117
Charles Heisman	72 17th Street Apt. #411-Box #58; San Diego, CA 92101
Larry Hemmerly and Lynne Hemmerly	3702 Brandywine Street; San Diego, CA 92117
Janis Heppell	janishere@sbcglobal.net
Jacqueline Higgins	3609 Moultrie Avenue; San Diego, CA 92117
Steven Higgins	5421 Via Aguario; San Diego, CA 92111
Elizabeth Hill	6216 Agee Street #121; San Diego, CA 92122
F. Hill	fhill777@netscape.net
Donald Hoffhine	6361 Caminito Luisito; San Diego, CA 92111
Gary Hoffman	ghoffman@ucsd.edu
Louise Hofheimer	3069 Renault Street; San Diego, CA 92122
Larry Hogue	3590 Stetson Avenue; San Diego, CA 92122
Sonja Honeyman	8216 Caminito Modena; La Jolla, CA 92037
Judith Hood	3416 Tony Drive; San Diego, CA 92122
Peter Hopf	5111-D Renaissance Avenue; San Diego, CA 92122
Kelly Houston	4121 Calgary Avenue; San Diego, CA 92122
Tim Hull	tim@timhull.org
Doug Hovland	969 Buenos Avenue; San Diego, CA 92110
David Hurst	9501 Genesee Avenue, #615; San Diego, CA 92121-2015
Pamela Hutton	8870 Villa La Jolla Drive, #311; La Jolla, CA 92073

Contact Name	Contact Address
Andrea Ito	5864 Carnegie Street; San Diego, CA 92122
Lisa Iturzaeta	lisaiturzaeta@yahoo.com
Mark Iturzaeta	3648 Paul Jones Avenue; San Diego, CA 92117
Paul Jamason	4619 Biona Drive; San Diego, CA 92116
Cindy Jenson-Elliott	2615 Luna Avenue; San Diego, CA 92117
Eamon Johnston	722 Venice Court; San Diego, CA 92109
Scott Jones	plantproco@att.net
Robert Kanters	1855 Morena Boulevard; San Diego, CA 92110
Susan Kearney	3612 Paul Jones Avenue; San Diego, CA 92117
Reginald G. Keetley	4013 Caminito Meliado; San Diego, CA 92122
Gary Keller and Ida Keller	5572 Stresemann Street; San Diego, CA 92122
Lenora Kellough	3321 Morena Boulevard; San Diego, CA 92117
David Keenan	chainblaster@gmail.com
Karen Keeven	tom_keeven@yahoo.com
Kelly Kirkland	8629 Via Mallorca, Unit F; La Jolla, CA 92037
Kristin Kistler	3250 Millikin Avenue; San Diego, CA 92122
MaryAnn Klima	5672 Carnegie Street; San Diego, CA 92122
Rob Klima	robklima@gmail.com
Christianne Knopp	3092 C Street; San Diego, CA 92102
Bryan Knowlton	4301 Vallejo Avenue; San Diego, CA 92117
L Kotenko	3466 Millikin Avenue; San Diego, CA 92122
Henry Krous	4215 Caminito Cassis; San Diego, CA 92122
Janay Kruger	4013 Porte de Palmas, #53; San Diego, CA 92122
Peter Krysl	4013 Camino Lindo; San Diego, CA 92122
David Krysl	4013 Camino Lindo; San Diego, CA 92122
Jeff Kucharski	kucharskijeff@hotmail.com
L	Bizstuff8@sbcglobal.net
Joe LaCava	5274 La Jolla Boulevard; La Jolla, CA 92037
Judith Landau	5989 Agee Street; San Diego, CA 92122

Contact Name	Contact Address
Don Lander	4049 Caminito Terviso; San Diego, CA 92122
George Lattimer	1589 Calle Delicada; La Jolla, CA 92037
Keith Lazerson	5908 Eton Court; San Diego, CA 92122
Kathy Leavenworth and Michael Leavenworth	7942 Playmor Terrace; San Diego, CA 92122
David Lebowitz	8430 Via Mallorca, #214; La Jolla, CA 92037
Corrine LeCates	2292 Dunhaven Street; San Diego, CA 92110
Helen Leung	6657 Richard Street; San Diego, CA 92115
Jonathan Lin	jonathan_h_lin@hotmail.com
Sandy Lippe	2549 Angell Avenue; San Diego, CA 92122
Wallace Lockwood	1804 Garnet Avenue, #131; San Diego, CA 92109
Steven Lombardi	4516 Niagara Avenue; San Diego, CA 92107
Inge Lopez	2160 Burgener Boulevard; San Diego, CA 92110
Rebecca Loveless	1927 Monroe Avenue; San Diego, CA 92116
Jeff Low	10457 Pine Grove Street; Spring Valley, CA 91978
Barbara Malone	barbaramalonesd@gmail.com
Elaine Malz	6575 Manana Place; San Diego, CA 92037
Markov Manalo	manalo_mm@yahoo.com
Sarah Mathy	smathy@gmail.com
Dana May	6195 Radcliffe Drive; San Diego, CA 92122
Jason McGehee	jmcgehee@ecscontrols.com
Craig McIlwain	mcilwaincraig@yahoo.com
Mary McIlwain	6662 Avenida Manana; La Jolla, CA 92037
Virginia McIlwain	virginia_mcilwain@yahoo.com
Nancy McLaughlin	8370 F Via Sonoma; La Jolla , CA 92037
Jeanne McNitt	jmcnitt@san.rr.com
June Mertz	3165 Driscoll Drive; San Diego, CA 92117
Rodney W. Mills	4024 32nd Street, #22; San Diego, CA 92104
Sharon Muczynski	muczynski.sharon@gmail.com
Jack Naliboff	1500 State Street, Suite 280; San Diego, CA 92101
Bruce Naschak	3935 Caminito Amparo; San Diego, CA 92122

Contact Name	Contact Address
Ash Nasser	8813 Villa La Jolla Drive, Suite 2003; La Jolla, CA 92037
Sharon Nelson	snelson1112@yahoo.com
Peter Newman	6017 Dirac Street; San Diego, CA 92122
Melanie Nickel	550 Gage Drive; San Diego, CA 92106
Christopher Nielsen	4225 Caminito Cassis; San Diego, CA 92122
Teresa Norris	13025 Via Del Toro; Poway, CA 92064
Carol Pallazola	mercypals@aol.com
George Papen	6636 Red Deer Street; San Diego, CA 92122
Robin Parchia	tgulesserian@adamsbroadwell.com
Cynthia Parnell	2750 Wheatstone Street; San Diego, CA 92111
Lynn Parrish	sdple@yahoo.com
Hal Pashler	3521 Stetson Avenue; San Diego, CA 92122
Shila Patel	shilapatel1@gmail.com
Nancy Patula	tmcavoy5401@gmail.com
Billy Paul	2747 Fairfield Street; San Diego, CA 92110
Nadine Pedusseau	3211 Innuit Avenue; San Diego, CA 92117
Nisa Pho	n.pho.moon@gmail.com
Carole Pietras	6917 Lipmann Street; San Diego, CA 92122
Michael Pique	4690 Monongahela Street; San Diego, CA 92117
Diane Pitzel	4378 Cleveland Avenue; San Diego, CA 92103
John Quesenberry	6627 Edmonton Avenue; San Diego, CA 92122
Valarie Ramey	3225 Millikin Avenue; San Diego, CA 92122
Elizabeth Reers	zabeth92037@yahoo.com
Tom Reid and Carol Reid	2319 Frankfort Street; San Diego, CA 92110
Bob Riffenburgh	3069 Award Row; San Diego, CA 92122
Patricia Robertson	4559 Jutland Drive; San Diego, CA 92117
Sharon Russakoff	6558 Edmonton Avenue; San Diego, CA 92122
Mary Russell	3383 Wellesly Ave, San Diego, CA 92112
Russell Rustin and Lisa Rustin	3426 Mt. Laurence Drive; San Diego, CA 92117

Contact Name	Contact Address
Gavin Sammarco	gavin.sammarco@gmail.com
Ellen Sauder	3010 Cowley Way, #204; San Diego, CA 92117
Kristine Schindler	409 N. Granados Avenue; Solana Beach, CA 92075
David Schlafman and Helen Schlafman	5534 Honors Drive; San Diego, CA 92122
Margaret Schmidt	2122 Tokalon Street; San Diego, CA 92110
Judy Schulman	4055-148 Porte La Paz; San Diego, CA 92122
Matt Schwartz	3427 Mt Laurence Drive; San Diego, CA 92117
Carol Schwenke	4628 Del Monte Avenue; San Diego, CA 92107
Ken Sinclair	749 Selma Place; San Diego, CA 92114
Laurie Smith	9500 Gilman Drive #0116 Room 5135; La Jolla, CA 92093
Jan Sopher	3206 Brandywine Street; San Diego, CA 92217
Lea Spagarino	lspagarino@gmail.com
Joseph Steinbach	3547 Luna Avenue; San Diego, CA 92117
Esther Barath cc: Phel Steinmetz	8460-44 Via Sonoma; La Jolla, CA 92037
Leah Stender	1145 19th Street; San Diego, CA 92102
Kay Stewart	2171 India Street, Suite A; San Diego, CA 92101
Dave Strom	8268 Gilman Drive #16; La Jolla, CA 92037
Michael Sullivan	msullivan@salk.edu
Kim Sykes	8690 Balboa Avenue, Suite 100; San Diego, CA 92123-1502
Kort Syverson	3250 Brandywine Street; San Diego, CA 92117
Randy Tagg	8321 Lemon Avenue; La Mesa, CA 91941
Stephen Thomason	stephen.thomason@cox.net
Sharon Taylor	3944 Caminito Silvela; San Diego, CA 92122
Troy Terwilliger and Jeannie Terwilliger	3551 Paul Jones Avenue; San Diego, CA 92117
Timothy Treadwell	8690 Balboa Avenue, Suite 100; San Diego, CA 92123-1502
Cory Triglia	corytrig@yahoo.com
Sam Tsimikas	7191 Whipple Avenue; San Diego, CA 92122
Tim Vasquez	5983 Gaines Street; San Diego, CA 92110
Dave Voss	7743 Lucia Ct; Carlsbad, CA 92009

Contact Name	Contact Address
Robert Wade	3418 Front Street; San Diego, CA 92103
Joanne Wainscott	joaniehere@aol.com
Larry Wasserman	4536 Nido Lane; San Diego, CA 92117
Elizabeth Watson	8666 Cliffridge Avenue; La Jolla, CA 92037
Eric G. Watters and Rabon Cooke Watters	ewatters1@hotmail.com
Kristina Weinman	2477 Presidio Drive; San Diego, CA 92103
Ann Wellhouse	ann.wellhouse@gmail.com
William Whalen	2555 Curie Place; San Diego, CA 92122
Andy Wiese	5842 Stresemann Street; San Diego, CA 92122
Amber Will	4065 Porte La Paz; San Diego, CA 92122
Leo Wilson	536 Maple Street, #202; San Diego, CA 92103
Patricia A. Wilson	4185 Porte de Palmas #165; San Diego, CA 92122
Andrew Wise	5842 Stresemann Street; San Diego, CA 92122
Walter Wiszowaty	W.J. Bradley Mortgage Capital, 16885 W. Bernardo Dr. #290, San Diego, CA 92127
John Wolfe	2232 Via Tiempo; Cardiff, CA 92007-1216
Kathleen Wood Geckeler	3977 Camino Lindo; San Diego, CA 92122
Peter Worcester and Donna Worcester	4624 Robbins Street; San Diego, CA 92122
Pamela Wu	3975 Caminito Cassis; San Diego, CA 92122
Susan Yates	Susan.Yates@sharp.com
Ken Young	4331 Miami Court; San Diego, CA 92117
Vahid Zakeri	5744 Mott Street; San Diego, CA 92122
Dennis Zerwekh	2667 Havasupai Avenue; San Diego, CA 92117
Carole Ziegler	cactus12carole@gmail.com
Barbara Zirino	4261 Karensue Avenue; San Diego, CA 92122
Karin Zirk	2686 Hornblend Street; San Diego, CA 92109