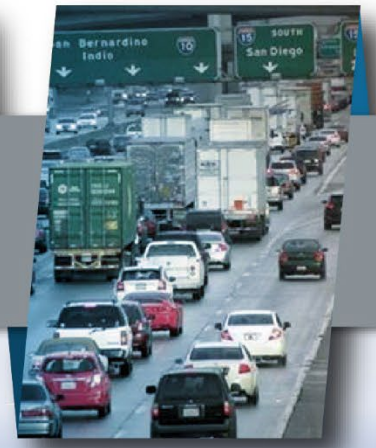
October 1, 2020

Revised October 26, 2026

Inland Empire Comprehensive Multimodal Corridor Plan











Caltrans
CALIFORNIA DEPARTMENT OF TRANSPORTATION

sbcta
San Bernardino County Transportation Authority

SCAG
INNOVATING FOR A BETTER TOMORROW

RCTC
RIVERSIDE COUNTY TRANSPORTATION COMMISSION

Table of Contents

Executive Summary **ES-1**
Multimodal Corridor Planning Guidelines ES-3
Goals, Objectives and Performance Metrics ES-5
Sub-corridor Focus ES-7
Sub-corridor Problems and Strategic Approach ES-7
Strategic Approach for Victorville to San Bernardino Sub-Corridor ES-8
Problems to Be Addressed ES-8
Strategies ES-8
Strategic Approach for San Bernardino to Riverside Sub-Corridor ES-9
Problems to Be Addressed ES-9
Strategies ES-10
Strategic Approach for Cajon Pass to Eastvale Sub-Corridor ES-11
Problems to Be Addressed ES-11
Strategies ES-11
Strategic Approach for Riverside to Temecula Sub-Corridor ES-12
Problems to Be Addressed ES-12
Strategies ES-12
Strategic Approach for Beaumont to Temecula Sub-corridor ES-14
Problems to Be Addressed ES-14
Strategies ES-14
Strategic Approach for Apple Valley to LA County Line Sub-corridor ES-15
Problems to Be Addressed ES-15
Strategies ES-15
Strategic Approach for Banning to Rialto Sub-Corridor ES-16
Problems to Be Addressed ES-16
Strategies ES-17
Strategic Approach for Riverside/Rialto to LA County Line Sub-Corridor ES-18
Problems to be Addressed ES-18
Strategies ES-18
Strategic Approach for Riverside to Orange County Line Sub-Corridor ES-19
Problems to Be Addressed ES-19
Strategies ES-19
Strategic Approach for Hemet to Corona Sub-Corridor ES-20
Problems to Be Addressed ES-20

Strategies ES-20
Recommended Project List ES-22
COVID-19 Considerations ES-22
Next Steps ES-22

1.0 Introduction/Overview 1
1.1 Solutions for Congestion Corridors Guidelines 1
1.2 Area Covered by the Inland Empire CMCP 2
1.2.1 Land Use 6
1.2.2 Disadvantaged Communities, Communities of Concern, and CalEnviroScreen Scores 6
1.2.3 Home to Work Mode Share 7
1.2.4 Transit 8
1.2.5 Vehicle Miles Traveled on Freeway Versus Non-Freeway Facilities 10
1.2.6 Trip Origin-Destination and Length Characteristics 10
1.2.7 Vehicle Miles Traveled (VMT) Per Service Population 11
1.2.8 Future Growth Projections 12

2.0 Inland Empire's Strategic Approach to the CMCP: Transportation Planning Sustainability, Land Use Integration, and Project Evaluation 2-1
2.1 Multimodal Planning, Community, and Environmental Initiatives 2-1
2.2 Multimodal Transportation Programs 2-4
2.3 Inland Empire CMCP Goals, Objectives and Performance Metrics 2-7
2.4 Consideration of Induced Demand 2-9

3.0 Corridor Characteristics 3-1
3.1 Socioeconomic and Land Use Assessment 3-3
3.1.1 Socioeconomic Characteristics 3-3
3.1.2 Land Use 3-11
3.2 Corridor Trip Characteristics 3-19
3.2.1 Trip Characteristics 3-20
3.2.2 Journey-to-Work 3-23
3.2.3 Rideshare 3-27
3.3 Safety 3-27
3.3.1 Freeway Safety Assessment 3-28
3.3.2 Arterial Safety Assessment 3-33
3.3.3 High Frequency Collision Locations 3-38
3.4 Active Transportation 3-41
3.4.1 Active Transportation 3-41
3.5 Transit 3-43

3.5.1 Metrolink 3-43
3.5.2 Bus Transit Service 3-45
3.5.3 High Quality Transit Area 3-48
3.6 Freeway and Arterial Assessment 3-50
3.6.1 Freeway Assessment 3-50
3.6.2 Arterial Assessment 3-57
3.7 Freight Network 3-65
3.7.1 Ground 3-65
3.7.2 Air Cargo 3-65
3.7.3 Rail 3-65
3.8 Future Growth and Projected Changes 3-68
3.8.1 Future Growth 3-68
3.8.2 High Quality Transit Area 3-68

4.0 Stakeholder Outreach 4-1
4.1 RCTC Reboot My Commute Campaign Summary 4-2
4.2 San Bernardino County CMCP Survey 4-5
4.3 Comparison of Riverside and San Bernardino County Outreach Responses 4-11

5.0 Sub-Corridor Definitions and Strategic Approaches 5-1
5.1 Sub-Corridor Analysis Summary 5-1
5.2 Victorville to San Bernardino 5-2
5.2.1 Sub-Corridor Definition 5-2
5.2.2 Strategic Approach for Victorville to San Bernardino Sub-Corridor 5-16
5.3 San Bernardino to Riverside Sub-Corridor 5-17
5.3.1 Sub-Corridor Definition 5-17
5.3.2 Strategic Approach for San Bernardino to Riverside Sub-Corridor 5-30
5.4 Cajon Pass to Eastvale Sub-Corridor 5-31
5.4.1 Sub-Corridor Definition 5-31
5.4.2 Strategic Approach for Cajon Pass to Eastvale Sub-Corridor 5-44
5.5 Riverside to Temecula Sub-Corridor 5-45
5.5.1 Sub-Corridor Definition 5-45
5.5.2 Strategic Approach for Riverside to Temecula Sub-Corridor 5-58
5.6 Beaumont to Temecula Sub-Corridor 5-59
5.6.1 Sub-Corridor Definition 5-59
5.6.2 Strategic Approach for Beaumont to Temecula Sub-corridor: 5-73
5.7 Apple Valley to Los Angeles County Line Sub-Corridor 5-74
5.7.1 Sub-Corridor Definition 5-74

5.7.2 Strategic Approach for Apple Valley to LA County Line Sub-corridor:**Error! Bookmark not defined.**

5.8 Banning to Rialto Sub-Corridor 5-86

5.8.1 Sub-Corridor Definition 5-86

5.8.2 Strategic Approach for Banning to Rialto Sub-Corridor 5-100

5.9 Riverside/Rialto to Los Angeles County Line Sub-Corridor 5-101

5.9.1 Sub-Corridor Definition 5-101

5.9.2 Strategic Approach for Riverside/Rialto to LA County Line Sub-Corridor 5-115

5.10 Riverside to Orange County Line Sub-Corridor 5-116

5.10.1 Sub-Corridor Definition 5-116

5.10.2 Strategic Approach for Riverside to Orange County Line Sub-Corridor 5-129

5.11 Hemet to Corona Sub-Corridor 5-130

5.11.1 Sub-Corridor Definition 5-130

5.11.2 Strategic Approach for Hemet to Corona Sub-Corridor 5-143

6.0 Multimodal Transportation Projects 6-1

7.0 Implementation and Funding Plan 7-1

7.1 Federal Funding Sources 7-1

7.2 State Funding Sources 7-4

7.3 Local Funding Sources 7-6

List of Appendices

Appendix A – Inland Empire Projects and Performance Assessment

List of Tables

Table ES.1 | IE CMCP Sub-corridors ES-1
Table 1.1 | Land Use and Socioeconomic Characteristics of the Sub-Corridors 1-7
Table 1.2 | Transportation Characteristics of the Sub-Corridors 1-9
Table 1.3 | Projected Growth by Sub-Corridor 1-12
Table 2.1 | Areawide Multimodal Programs (not specific to a sub-corridor) 2-6
Table 3.1 | SCAG Designated Communities of Concern in Study Area 3-9
Table 3.2 | Land Use Type by Share of Study Area 3-13
Table 3.3 | 2016 Daily Trips by Type 3-20
Table 3.4 | Regional Statistical Area by Cities 3-22
Table 3.5 | County-to-County Commuting Flows 3-24
Table 3.6 | Journey-to-Work Model Share by RSA (ACS) 3-25
Table 3.7 | Journey-to-Work Travel Time Distribution 3-26
Table 3.8 | Metrolink Daily Ridership (2018–19) 3-43
Table 3.9 | Study Area Managed Lane Network—Existing in April 2017 3-50
Table 3.10 | Top Bottlenecks in the Study Area (2018) 3-51
Table 3.11 | Arterial Level of Service 3-63
Table 5.1 | Internal and External Trips *Victorville to San Bernardino Sub-Corridor* 5-8
Table 5.2 | Vehicle Miles of Travel by Facility Type *Victorville to San Bernardino Sub-Corridor* 5-12
Table 5.3 | Internal and External Trips *San Bernardino to Riverside Sub-Corridor* 5-22
Table 5.4 | Vehicle Miles of Travel by Facility Type *San Bernardino to Riverside Sub-Corridor* 5-26
Table 5.5 | Internal and External Trips *Cajon Pass to Eastvale Sub-Corridor* 5-35
Table 5.6 | Vehicle Miles of Travel by Facility Type *Cajon Pass to Eastvale Sub-Corridor* 5-39
Table 5.7 | Internal and External Trips *Riverside to Temecula Sub-Corridor* 5-49
Table 5.8 | Vehicle Miles of Travel by Facility Type *Riverside to Temecula Sub-Corridor* 5-53
Table 5.9 | Internal and External Trips *Beaumont to Temecula Sub-Corridor* 5-64
Table 5.10 | VMT by Facility Type *Beaumont to Temecula Sub-Corridor* 5-68
Table 5.11 | Internal and External Trips *Apple Valley to Los Angeles County Line Sub-Corridor* 5-78
Table 5.12 | VMT by Facility Type *Apple Valley to Los Angeles County Line Sub-Corridor* 5-82
Table 5.13 | Internal and External Trips *Banning to Rialto Sub-Corridor* 5-91
Table 5.14 | Vehicle Miles of Travel by Facility Type *Banning to Rialto Sub-Corridor* 5-95
Table 5.15 | Internal and External Trips *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-106
Table 5.16 | Vehicle Miles of Travel by Facility Type *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-110
Table 5.17 | Internal and External Trips *Riverside to Orange County Line Sub-Corridor* 5-120

Table 5.18 | Vehicle Miles of Travel by Facility Type *Riverside to Orange County Line Sub-Corridor* 5-124
Table 5.19 | Internal and External Trips *Helmet to Corona Sub-Corridor* 5-134
Table 5.20 | Vehicle Miles of Travel by Facility Type *Helmet to Corona Sub-Corridor* 5-138
Table 6.1 | Recommended Projects By Sub-Corridor 6-2
Table 7.1 | Relevant Federal Funding Sources 7-2
Table 7.2 | Relevant State Funding Sources 7-5

List of Figures

Figure ES.1 | IE CMCP North-South Oriented Sub-Corridors ES-2
Figure ES.2 | IE CMCP East-West Oriented Sub-Corridors ES-2
Figure 1.1 | North-South Oriented Sub-Corridors 1-3
Figure 1.2 | East-West Oriented Sub-Corridors 1-4
Figure 3.1 | Overall Study Area 3-2
Figure 3.2 | Household Income Below Poverty Levels 3-4
Figure 3.3 | Labor Force Age Distribution 3-5
Figure 3.4 | Senior Population Density 3-7
Figure 3.5 | Youth Population Density 3-8
Figure 3.6 | CalEnviroScreen and SCAG Communities of Concern 3-10
Figure 3.7 | Study Area Land Use 3-12
Figure 3.8 | Employment Density 3-15
Figure 3.9 | Population Density 3-17
Figure 3.10 | Population-Employment Ratio 3-19
Figure 3.11 | Existing Daily Auto Trips in and to/from Study Area 3-21
Figure 3.12 | Trip Patterns by Regional Statistical Area 3-23
Figure 3.13 | Study Area Journey-to-Work Mode Share for Study Area 3-25
Figure 3.14 | Journey-to-Work Travel Time Distribution by RSA 3-26
Figure 3.15 | Freeway Collisions per Million VMT, 2018 3-28
Figure 3.16 | Study Area Freeway Collisions by Severity, 2016–2018 3-29
Figure 3.17 | Study Area Freeway Collisions Involving Bicycles by Severity, 2016–2018 3-30
Figure 3.18 | Study Area Freeway Collisions Involving Pedestrians by Severity, 2016–2018 3-31
Figure 3.19 | Study Area Freeway Collisions Involving Trucks by Severity, 2016–2018 3-32
Figure 3.20 | Primary Collision Factors for Freeway Collisions in the Study Area 3-33
Figure 3.21 | Arterial Collisions by Severity, 2016–2018 3-34
Figure 3.22 | Arterial Collisions Involving Bicyclists by Severity, 2016–2018 3-35
Figure 3.23 | Arterial Collisions Involving Pedestrians by Severity, 2012–2016 3-36
Figure 3.24 | Arterial Collisions Involving Trucks by Severity, Total 2016–2018 3-37
Figure 3.25 | Primary Collision Factors for Arterial Collisions 3-38
Figure 3.26 | Location of Bicycle and Pedestrian Collisions, 2016–2018 3-39
Figure 3.27 | Location of Truck Collisions, 2016–2018 3-40
Figure 3.28 | Bicycle Facilities in the Study Area 3-42
Figure 3.29 | Metrolink Service in Study Area 3-44
Figure 3.30 | Bus Routes 3-46

Figure 3.31 | Bus Transit Ridership 3-47
Figure 3.32 | Existing High-Quality Transit Areas (HQTA) 3-49
Figure 3.33 | Number of Existing Freeway Mainline Lanes 3-52
Figure 3.34 | Existing Managed Lane Network 3-53
Figure 3.35 | PM Peak Hour Traffic Volumes 3-54
Figure 3.36 | PM Peak Hour Volume/Capacity Ratio 3-55
Figure 3.37 | Top Bottlenecks 3-56
Figure 3.38 | WRCOG Transportation Uniform Mitigation Fee (TUMF) Regional System of Highways and Arterials (RSHA) 3-58
Figure 3.39 | SBCTA Nexus of Highways and Arterials 3-59
Figure 3.40 | Arterial AM Peak Hour Level of Service 3-61
Figure 3.41 | Arterial PM Peak Hour Level of Service 3-62
Figure 3.42 | Existing Daily Arterial VMT per Service Population (Residents + Employees) 3-64
Figure 3.43 | Truck Network and Warehouse 3-66
Figure 3.44 | Freight Rail Network 3-67
Figure 3.45 | Future High-Quality Transit Areas (HQTA) 3-69
Figure 5.1 | Sub-Corridor Study Area *Victorville to San Bernardino Sub-Corridor* 5-4
Figure 5.2 | Land Use Types *Victorville to San Bernardino Sub-Corridor* 5-6
Figure 5.3 | Land Use Map *Victorville to San Bernardino Sub-Corridor* 5-7
Figure 5.4 | Journey to Work Mode Share *Victorville to San Bernardino Sub-Corridor* 5-9
Figure 5.5 | Existing AM Peak Hour Freeway Conditions *Victorville to San Bernardino Sub-Corridor* 5-10
Figure 5.6 | Existing PM Peak hour Freeway Congestion *Victorville to San Bernardino Sub-Corridor* 5-11
Figure 5.7 | Collisions *Victorville to San Bernardino Sub-Corridor* 5-13
Figure 5.8 | Future 2040 Traffic Conditions—AM *Victorville to San Bernardino Sub-Corridor* 5-14
Figure 5.9 | Future 2040 Traffic Conditions—PM *Victorville to San Bernardino Sub-Corridor* 5-15
Figure 5.10 | Sub-Corridor Study Area *San Bernardino to Riverside Sub-Corridor* 5-19
Figure 5.11 | Land Use Types *San Bernardino to Riverside Sub-Corridor* 5-20
Figure 5.12 | Land Use Map *San Bernardino to Riverside Sub-Corridor* 5-21
Figure 5.13 | Journey to Work Mode Share *San Bernardino to Riverside Sub-Corridor* 5-23
Figure 5.14 | Existing AM Peak Hour Freeway Conditions *San Bernardino to Riverside Sub-Corridor* 5-24
Figure 5.15 | Existing PM Peak Hour Freeway Congestion *San Bernardino to Riverside Sub-Corridor* 5-25
Figure 5.16 | Collisions *San Bernardino to Riverside Sub-Corridor* 5-27
Figure 5.17 | Future 2040 Traffic Conditions—AM *San Bernardino to Riverside Sub-Corridor* 5-28
Figure 5.18 | Future 2040 Traffic Conditions—PM *San Bernardino to Riverside Sub-Corridor* 5-29
Figure 5.19 | Sub-corridor Study Area *Cajon Pass to Eastvale Sub-Corridor* 5-32
Figure 5.20 | Land Use Types *Cajon Pass to Eastvale Sub-Corridor* 5-33
Figure 5.21 | Land Use Map *Cajon Pass to Eastvale Sub-Corridor* 5-34

Figure 5.22 | Journey to Work Mode Share *Cajon Pass to Eastvale Sub-Corridor* 5-36
Figure 5.23 | Existing AM Peak Hour Freeway Conditions *Cajon Pass to Eastvale Sub-Corridor* 5-37
Figure 5.24 | Existing PM Peak hour Freeway Congestion *Cajon Pass to Eastvale Sub-Corridor* 5-38
Figure 5.25 | Collisions *Cajon Pass to Eastvale Sub-Corridor* 5-41
Figure 5.26 | Future 2040 Traffic Conditions—AM *Cajon Pass to Eastvale Sub-Corridor* 5-42
Figure 5.27 | Future 2040 Traffic Conditions—PM *Cajon Pass to Eastvale Sub-Corridor* 5-43
Figure 5.28 | Sub-Corridor Study Area *Riverside to Temecula Sub-Corridor* 5-46
Figure 5.29 | Land Use Types *Riverside to Temecula Sub-Corridor* 5-47
Figure 5.30 | Land Use Map *Riverside to Temecula Sub-Corridor* 5-48
Figure 5.31 | Journey to Work Mode Share *Riverside to Temecula Sub-Corridor* 5-50
Figure 5.32 | Existing AM Peak Hour Freeway Conditions *Riverside to Temecula Sub-Corridor* 5-51
Figure 5.33 | Existing PM Peak Hour Freeway Congestion *Riverside to Temecula Sub-Corridor* 5-52
Figure 5.34 | Collisions *Riverside to Temecula Sub-Corridor* 5-55
Figure 5.35 | Future 2040 Traffic Conditions—AM *Riverside to Temecula Sub-Corridor* 5-56
Figure 5.36 | Future 2040 Traffic Conditions—PM *Riverside to Temecula Sub-Corridor* 5-57
Figure 5.37 | Sub-Corridor Study Area *Beaumont to Temecula Sub-Corridor* 5-61
Figure 5.38 | Land Use Types *Beaumont to Temecula Sub-Corridor* 5-62
Figure 5.39 | Land Use Map *Beaumont to Temecula Sub-Corridor* 5-63
Figure 5.40 | Journey to Work Mode Share *Beaumont to Temecula Sub-Corridor* 5-65
Figure 5.41 | Existing AM Peak Hour Freeway Conditions *Beaumont to Temecula Sub-Corridor* 5-66
Figure 5.42 | Existing PM Peak hour Freeway Congestion *Beaumont to Temecula Sub-Corridor* 5-67
Figure 5.43 | Collisions *Beaumont to Temecula Sub-Corridor* 5-70
Figure 5.44 | Future 2040 Traffic Conditions—AM *Beaumont to Temecula Sub-Corridor* 5-71
Figure 5.45 | Future 2040 Traffic Conditions—PM *Beaumont to Temecula Sub-Corridor* 5-72
Figure 5.46 | Sub-Corridor Study Area *Apple Valley to Los Angeles County Line Sub-Corridor* 5-75
Figure 5.47 | Land Use Types in Sub-Corridor *Apple Valley to Los Angeles County Line Sub-Corridor* 5-76
Figure 5.48 | Land Use Map *Apple Valley to Los Angeles County Line Sub-Corridor* 5-77
Figure 5.49 | Journey to Work Mode Share *Apple Valley to Los Angeles County Line Sub-Corridor* 5-79
Figure 5.50 | Existing AM Peak Hour Freeway Conditions *Apple Valley to Los Angeles County Line Sub-Corridor* 5-80
Figure 5.51 | Existing PM Peak Hour Freeway Congestion *Apple Valley to Los Angeles County Line Sub-Corridor* 5-81
Figure 5.52 | Collisions *Apple Valley to Los Angeles County Line Sub-Corridor* 5-83
Figure 5.53 | Future 2040 Traffic Conditions—AM *Apple Valley to Los Angeles County Line Sub-Corridor* 5-84
Figure 5.54 | Future 2040 Traffic Conditions—PM *Apple Valley to Los Angeles County Line Sub-Corridor* 5-85
Figure 5.55 | Sub-Corridor Study Area *Banning to Rialto Sub-Corridor* 5-88
Figure 5.56 | Land Use Types *Banning to Rialto Sub-Corridor* 5-89
Figure 5.57 | Land Use Map *Banning to Rialto Sub-Corridor* 5-90

Figure 5.58 | Journey to Work Mode Share *Banning to Rialto Sub-Corridor* 5-92
Figure 5.59 | Existing AM Peak Hour Freeway Conditions *Banning to Rialto Sub-Corridor* 5-93
Figure 5.60 | Existing PM Peak Hour Freeway Congestion *Banning to Rialto Sub-Corridor* 5-94
Figure 5.61 | Collisions *Banning to Rialto Sub-Corridor* 5-96
Figure 5.62 | Future 2040 Traffic Conditions—AM *Banning to Rialto Sub-Corridor* 5-98
Figure 5.63 | Future 2040 Traffic Conditions—PM *Banning to Rialto Sub-Corridor* 5-99
Figure 5.64 | Sub-Corridor Study Area *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-103
Figure 5.65 | Land Use Types in Sub-Corridor *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-104
Figure 5.66 | Land Use Map *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-105
Figure 5.67 | Journey to Work Mode Share *Riverside/Rialto to Los Angeles County Line Sub-Corridor* .. 5-107
Figure 5.68 | Existing AM Peak Hour Freeway Conditions *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-108
Figure 5.69 | Existing PM Peak Hour Freeway Congestion *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-109
Figure 5.70 | Collisions *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-111
Figure 5.71 | Future 2040 Traffic Conditions—AM *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-113
Figure 5.72 | Future 2040 Traffic Conditions—PM *Riverside/Rialto to Los Angeles County Line Sub-Corridor* 5-114
Figure 5.73 | Sub-Corridor Study Area *Riverside to Orange County Line Sub-Corridor* 5-117
Figure 5.74 | Land Use Types *Riverside to Orange County Line Sub-Corridor* 5-118
Figure 5.75 | Land Use Map *Riverside to Orange County Line Sub-Corridor* 5-119
Figure 5.76 | Journey to Work Mode Share *Riverside to Orange County Line Sub-Corridor* 5-121
Figure 5.77 | Existing AM Peak Hour Freeway Conditions *Riverside to Orange County Line Sub-Corridor* 5-122
Figure 5.78 | Existing PM Peak Hour Freeway Congestion *Riverside to Orange County Line Sub-Corridor* 5-123
Figure 5.79 | Collisions *Riverside to Orange County Line Sub-Corridor* 5-126
Figure 5.80 | Future 2040 Traffic Conditions—AM *Riverside to Orange County Line Sub-Corridor* 5-127
Figure 5.81 | Future 2040 Traffic Conditions—PM *Riverside to Orange County Line Sub-Corridor* 5-128
Figure 5.82 | Sub-Corridor Study Area *Helmet to Corona Sub-Corridor* 5-131
Figure 5.83 | Land Use Types in Sub-Corridor *Helmet to Corona Sub-Corridor* 5-132
Figure 5.84 | Land Use Map *Helmet to Corona Sub-Corridor* 5-133
Figure 5.85 | Journey to Work Mode Share *Helmet to Corona Sub-Corridor* 5-135
Figure 5.86 | Existing AM Peak Hour Freeway Conditions *Helmet to Corona Sub-Corridor* 5-136
Figure 5.87 | Existing PM Peak Hour Freeway Congestion *Helmet to Corona Sub-Corridor* 5-137
Figure 5.88 | Collisions *Helmet to Corona Sub-Corridor* 5-139
Figure 5.89 | Future 2040 Traffic Conditions—AM *Helmet to Corona Sub-Corridor* 5-140
Figure 5.90 | Future 2040 Traffic Conditions—PM *Helmet to Corona Sub-Corridor* 5-141

Executive Summary

The Southern California Association of Governments (SCAG) was awarded a Caltrans grant in the "Strategic Partnerships/Transit" category to examine the multi-modal corridors of the Inland Empire as part of a Comprehensive Multimodal Corridor Plan (CMCP). The strategic partners with SCAG included Caltrans District 8, the Riverside County Transportation Commission (RCTC), the San Bernardino County Transportation Authority (SBCTA), and the Western Riverside Council of Governments (WRCOG).

The Inland Empire Comprehensive Multimodal Corridor Plan (IE CMCP) has multiple uses that will benefit local, regional, and state agencies as they deal with the balancing of infrastructure, livability, economic, and sustainability needs as they relate to the transportation system. The IE CMCP covers the urbanized portion of both Riverside and San Bernardino Counties, excluding the Coachella Valley. The original concept for the IE CMCP was to have two corridors, a north/south and an east/west corridor. However, as the study progressed, it was decided to create focused smaller "sub-corridors" to facilitate more detailed assessment of corridor conditions and to focus the recommended improvements and strategies. Five sub-corridors were identified for north/south travel and five for east/west travel, as listed in Table ES.1 and illustrated by Figures ES.1 and ES.2.

Table ES.1 | IE CMCP Sub-corridors

- North/South Sub-corridors:
  1. Victorville to San Bernardino
  2. San Bernardino to Riverside
  3. Cajon Pass to Eastvale
  4. Riverside to Temecula
  5. Beaumont to Temecula
- East/West Sub-corridors:
  1. Apple Valley to LA County Line
  2. Banning to Rialto
  3. Riverside/Rialto to LA County Line
  4. Riverside to Orange County Line
  5. Hemet to Corona

Figure ES.1 | IE CMCP North-South Oriented Sub-Corridors

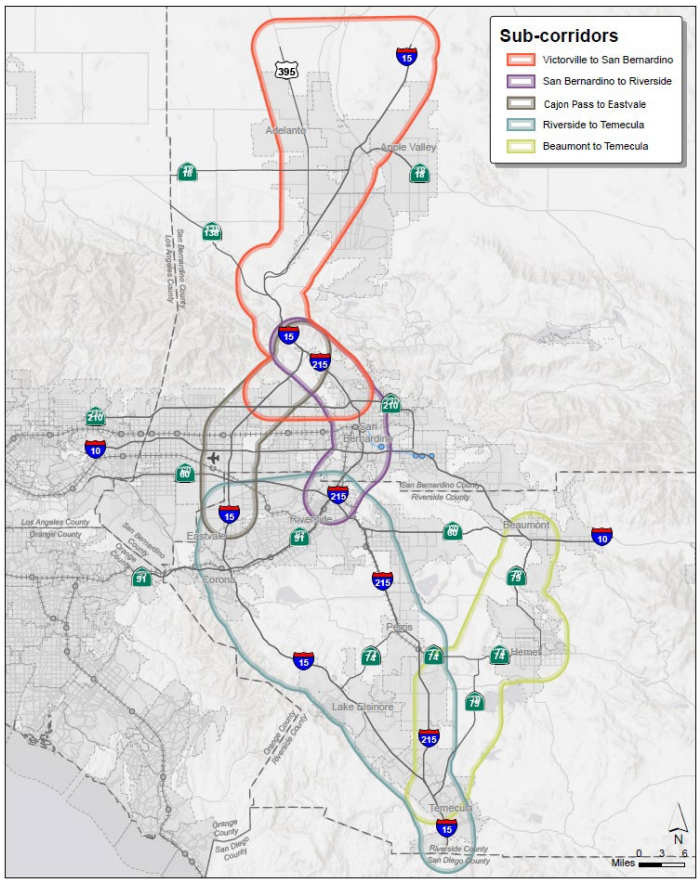
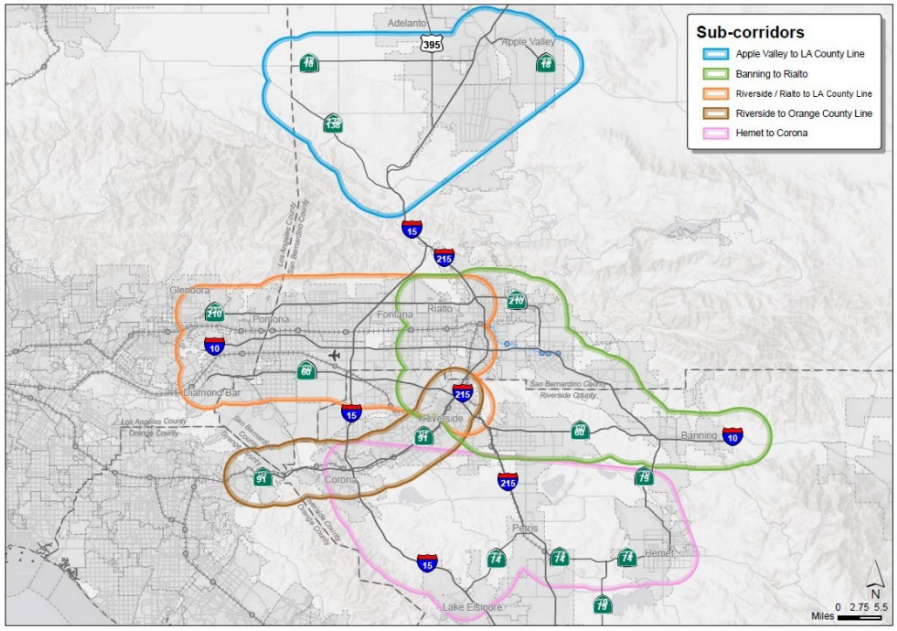


Figure ES.2 | IE CMCP East-West Oriented Sub-Corridors



A strategic approach to the development of the IE CMCP has been crafted for each sub-corridor. There also are some overarching strategic initiatives and programs which are countywide or Inland Empire-wide in nature that relate to the overall Study Area and related sub-corridors. Planning and decision-making within the sub-corridors would be influenced and/or enhanced through these larger-area strategies.

There are programs underway at the Inland Empire level or at the County level that are very much a part of the multimodal transportation strategy but do not fall neatly into the individual sub-corridors. As the sub-corridor strategies are presented in this document, it is important to remember that these programs serve as overlays to the lists of strategies or projects listed at the sub-corridor level. **So if a certain sub-corridor does not seem as multimodal as others, it is important to remember that these program-level activities are still at work to reduce GHGs and VMT, as well as to improve system safety, efficiency, and operations.** Many of these involve partnerships across state, regional, and local agencies.

The Inland Empire transportation programs are generally categorized as follows:

- **Active Transportation (AT).** While some AT activities are project-specific, others are programmatic, such as Safe Routes to School or local/regional funding programs, like the Transportation Development Act (TDA) that funds local active transportation projects through a competitive call for projects every odd numbered year.
- **Intelligent Transportation System/Incident Management (ITS/IM).** Examples include signal coordination and freeway service patrols.
- **Rail.** Regional improvements and funding programs are in place that benefit upgrades in the Metrolink commuter rail system and new passenger rail initiatives are underway.
- **Safety.** Caltrans sponsors ongoing transportation funding initiatives to maintain and provide safety upgrades to local and state highways.
- **Transit (other than rail).** Each transit agency has its own investment plan for improving the customer experience and customer/driver safety.
- **Transportation Demand Management (TDM).** A wide array of TDM strategies is promoted through IE Commuter, from ridesharing to vanpooling to alternative work schedules.
- **Zero Emission Vehicles and Alternative Fuel Programs (ZEV/AF).** There are numerous statewide and regional programs for funding and incentivizing more rapid turnover of auto and truck fleets to benefit air quality and GHG reduction. Both Riverside and San Bernardino County transit agencies are pursuing funding to address the state's zero-emission bus objectives.

Multimodal Corridor Planning Guidelines

The California Transportation Commission (CTC) developed and published their CMCP guidelines and Caltrans developed their Corridor Planning Guidebook. These corridor planning guides provide the framework for assessing

transportation improvement projects as part of the Road Repair and Accountability Act of 2017, or Senate Bill (SB) 1. SB 1 requires that funding shall be available for projects that make specific performance improvements and are part of a comprehensive corridor plan designed to reduce congestion in highly traveled corridors by providing more transportation choices for residents, commuters, and visitors to the area of the corridor while preserving the character of the local community and creating opportunities for neighborhood enhancement projects. The Inland Empire CMCP closely follows both the CTC and Caltrans corridor planning guides, and Caltrans was a partner agency in the development of the IE CMCP.

Key tasks completed as part of the IE CMCP:

- Developed IE CMCP goals, objectives, and performance measures.
- Defined the study area by organizing it into 10 key sub-corridors based upon technical and policy considerations, including input from key stakeholders.
- Conducted regular meetings with a core Project Development Team (PDT) of partner agencies including SCAG, Caltrans, RCTC, SBCTA, and WRCOG.
- Developed and implemented a stakeholder engagement strategy which included leveraging recent stakeholder outreach in Riverside County with a new online survey instrument that was implemented for San Bernardino County. Multiple meetings were also held with local agency transportation and planning staff through each county's Technical Advisory Committee structure.
- Conducted detailed data collection and analysis as part of current conditions and future baseline conditions assessment including socioeconomic data, travel demand and travel patterns, safety analysis, congestion analysis, and transit demand analysis.
- Identified planned investments and recommended projects as part of the CMCP to address known deficiencies, pivoting off of state, regional, and local plans and programs.
- Developed an evaluation framework to assess the current conditions and future baseline conditions, and to evaluate the potential improvements.
- Conducted qualitative assessment of the sub-corridor improvement projects based on project type and measured against metrics such as VMT reduction, accessibility, person delay, air quality, safety, reliability, mode shift, person throughput, and congestion.
- Determined the funding need and available transportation financing resources to support corridor investments.

Goals, Objectives and Performance Metrics

As discussed, the CTC and Caltrans guiding documents contain recommended corridor planning goals, objectives, performance metrics, and evaluation criteria for assessing transportation improvement projects at the corridor level. In addition, many other state, regional, and local transportation plans include transportation system improvement goals, objectives, and performance metrics, such as the Caltrans Smart Mobility Framework, the California Transportation Plan 2050 (CTP2050), the Climate Action Plan for Transportation Infrastructure (CAPTI), the SCAG Regional Transportation Plan/Sustainble Communities Strategy (RTP/SCS), the San Bernardino County Countywide Plan, Transportation and Mobility Element, and the Riverside County Long Range Transportation Study.

The CTC Solutions for Congested Corridors Program (SCCP) guidelines also state that "the primary objective of the Congested Corridors Program is to fund projects designed to reduce congestion in highly traveled and highly congested corridors through performance improvements that balance transportation improvements, community impacts, and that provide environmental benefits."

Based on the CTC and Caltrans guidance, objectives of the comprehensive multimodal corridor planning process may include but are not necessarily limited to:

- Define multimodal transportation deficiencies and opportunities for optimizing system operations.
- Identify the types of projects necessary to reduce congestion, improve mobility, and optimize multimodal system operations along highly traveled corridors.
- Identify funding needs.
- Further state and Federal ambient air standards and greenhouse gas emissions reduction standards pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5, commencing with Section 38550, of the Health and Safety Code) and Senate Bill 375 (Chapter 728, Statutes of 2008).
- Preserve the character of local communities and create opportunities for neighborhood enhancement.
- Identify projects that achieve a balanced set of transportation, environmental, and community access improvements.

A key element of the CMCP is to reduce congestion in highly traveled and highly congested corridors through performance improvements. To measure projects or groups of projects which result in performance improvements in the study area and sub-corridors, a set of transportation performance metrics is applied. Some of these metrics can be assessed using quantitative data such as transportation model output, while others are qualitatively evaluated based on project type, project location, and other factors. This is consistent with the CTC guidelines which state "in recognition that data availability and modeling capabilities vary by agency based on available resources, the Commission expects agencies to address plan and project performance qualitatively and

quantitatively to the degree reasonable given technical and financial resources available during the planning process. As part of the comprehensive multimodal corridor planning process, a plan-level corridor performance assessment must be conducted and documented to clearly outline system performance and trends." The evaluations provided in this plan clearly document the conditions, including congestion levels, in the overall study area and the 10 sub-corridors.

Per the CTC and Caltrans CMCP guidelines, it is critical to create multimodal corridor plans that closely match the local and regional goals and objectives for transportation planning. With that in mind, a summary of the goals and objectives of Riverside County and San Bernardino County from the latest transportation plans include:

Riverside County:[1]

- Provide a first class transportation system that supports a vibrant, dynamic, and livable county.
- Implement a multimodal system that will promote sustainability, access, safety, economic opportunities, public health, environmental stewardship, and balanced job/housing ratio.
- Utilize best available technology.
- Provide reliable and efficient mobility for people, goods, and services.
- Preserve values of Riverside County's communities.

San Bernardino County:[2]

- Consolidate and integrate countywide transportation and land use planning to provide consistent input to the RTP/SCS.
- Improve safety and mobility for all modes of travel.
- Deliver transportation projects and services to promote economic competitiveness, affordable housing, environmental quality, and overall sustainability.
- Promote stewardship of public resources through cost effective delivery, maintenance, and operations of projects.
- Promote the planning and funding of sustainable transportation systems via collaboration with local, regional, state, federal, and private stakeholders.

[1] Riverside County Long Range Transportation Study, December 2019.

[2] San Bernardino County Countywide Plan, Transportation and Mobility Element, May 2019.

Sub-corridor Focus

The results of the IE CMCP as summarized in this report include a detailed assessment of the corridor conditions, a list of recommended projects and programs to improve corridor conditions in each of the 10 sub-corridors, and a framework for evaluating the potential improvements. To understand the transportation issues facing the corridors and to inform the recommendations of the study, the IE CMCP includes detailed assessments of both current and projected transportation future conditions. This includes an analysis of all modes (roadway, transit, active transportation, and freight) as well as cross-cutting themes such as safety. The Corridor Characteristics assessment presents an assessment of land use, demographics, and multimodal transportation conditions in the corridors and provides a baseline assessment upon which future projected conditions will be compared.

Sub-corridor Problems and Strategic Approach

In developing the strategic approach for each sub-corridor, the classes of strategies considered are highly multimodal in nature, and they also consider the types of "customers" that will be served: 1) passenger travel and freight; 2) trips by purpose: for work, school, business, shopping, recreation, social interaction; and 3) specific activity centers: airports, downtowns, hospitals, educational institutions, commercial clusters, mixed-use clusters, and transit hubs.

The transportation modes reflect an emphasis on public transportation, non-motorized travel, shared-ride (carpool/vanpool), and virtual travel (i.e., work-at-home, web-based business, teleconferencing, etc.); a highway network focused on effective management and operations (e.g., through HOV/managed lanes, traveler information, and signal coordination); as well as accommodation of freight and logistics through strategic access improvements.

There is a large pool of existing and emerging multimodal options to draw from and build on in the Inland Empire: **commuter rail (Metrolink IEOC, 91/Perris Valley, Riverside, and San Bernardino lines), light rail (with the Gold Line extension to Pomona by 2025), regional "hybrid rail" initially using Tier 4 Diesel Multiple Unit (DMU) self-powered trainsets (migrating to zero-emission trainsets in the near term), and the Brightline West high-speed train from the San Bernardino Valley, through the Victor Valley to Las Vegas)**. Efficient and frequent **local bus, express bus, and BRT** options also exist and are being expanded with the forthcoming **West Valley Connector BRT**. Omnitrans is now providing an important shuttle **connection to Ontario International Airport** from the Rancho Cucamonga Metrolink station, and **first/last mile connections** are being advanced linking transit and key destinations. **Regional bike networks** are creating a backbone that provides the regional connectivity needed to service those who can take these modes for daily commutes. **Land use and housing** are intertwined with the regional transportation network in a way that, because of much higher costs in coastal counties, has historically produced longer commutes and travel times for inland residents. The challenge before us now is to encourage better balance in jobs and housing regionally for the sake of livability, cost, and VMT/GHG reduction, and to continue pursuing the Inland Empire's proactive sustainability initiatives on local climate action plans (CAPs) for GHG reduction, habitat conservation plans, climate adaptation plans, low-income

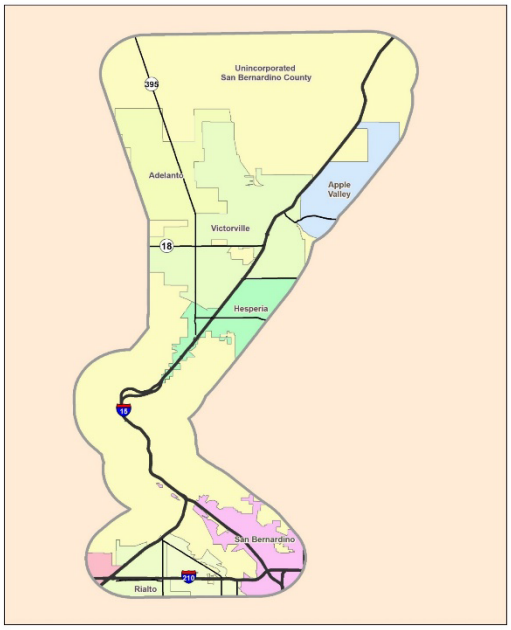
housing initiatives, and transportation-efficient land use planning implemented through local General Plans and Specific Plans.

The discussion of problems and recommended strategies for each of the 10 sub-corridors follows. The intent of these one-page summaries is to highlight the key issues and challenges in each sub-corridor and to articulate the key strategies, projects, and programs that are being emphasized in the near term for each. These strategies are anchored in the data developed through the analysis documented later in this CMCP.

Strategic Approach for Victorville to San Bernardino Sub-Corridor

Problems to Be Addressed

- Substantial "down-the-hill" commuting from the Victor Valley to San Bernardino, Riverside, and LA, with residents motivated to endure the commutes as a result of more affordable housing in the High Desert.
- I-15 is a nationally significant freight corridor, but travel through the Cajon Pass is congested and unreliable.
- High number of serious traffic accidents and incidents on State Routes: I-15 in Cajon Pass, U.S.-395, and SR-138.
- Significant weekend congestion, not just weekday.
- Lack of adequate alternate routes when the regionally significant corridor shuts down as a result of incidents.



Victorville to San Bernardino Sub-Corridor

Strategies

1. Enhance the ease and reliability of freight and passenger travel in the Cajon Pass and High Desert through the addition of High-Occupancy Toll (HOT) lanes on I-15, consistent with the SCAG Regional Express Lane Network in the RTP/SCS, with toll discounts/exemptions for transit, vanpools, and 3+ carpools.
2. Conduct operational studies on I-15 in the Cajon Pass geared toward improving safety and reducing the frequency and severity of traffic incidents. Also conduct operational studies on alternate routes to I-15 for use in the event of extended I-15 closures.
3. Develop the I-15 Northbound Truck Climbing Lane Extension Project from Kenwood to SR-138. Place particular emphasis on truck parking in this corridor (public and private) for the purposes of safety, convenience, and compliance with federal work rules.

4. Pursue multimodal solutions. Continue growth of vanpool and carpool formation from the High Desert to employment centers in the Valley and greater LA Basin and monitor express bus operation from Victorville to San Bernardino for evidence of expansion opportunity. Continue to develop the extension of Brightline West down the Cajon Pass to Rancho Cucamonga to provide an additional privately funded solution to peak hour and weekend congestion.
5. Through economic development and other strategies, increase employment opportunities in the High Desert for High Desert residents to reduce jobs-to-housing imbalance and reduce long commutes from the High Desert to San Bernardino / Los Angeles / Riverside.
6. Complete Mojave Riverwalk, the principal north/south Class I trail in the High Desert.
7. Consider developing a comprehensive signal synchronization network for the High Desert and prioritize arterial corridors for early implementation.
8. Complete the widening of 2-lane segments on SR-138 west of I-15 for safety purposes.
9. Complete U.S. 395 Freight Mobility and Safety Project between Adelanto and I-15 for safety and operational purposes and as a significant north/south freight and recreational route connecting to the Central Valley via SR-58 and to the eastern Sierra Mountains.
10. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for San Bernardino to Riverside Sub-Corridor

Problems to Be Addressed

- Large off-campus university student and employee populations at California State University San Bernardino (CSUSB) and UC Riverside (UCR) that make daily commutes to and from schools, creating congestion at entry points to those institutions.
- Specific bottleneck locations: (northbound I-215 at 2nd/5th Streets, southbound I-215 at SR-60 junction, northbound I-215 at merge with SR-60 on-ramps).
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.
- Antiquated interchange designs.



San Bernardino to Riverside Sub-Corridor

- Large concentration of bike and pedestrian collisions in the Riverside and San Bernardino urban centers.

- Generally difficult environment for walking and cycling.
- Truck congestion and air quality challenges in San Bernardino and Riverside with convergence of rail lines and intermodal freight facilities.

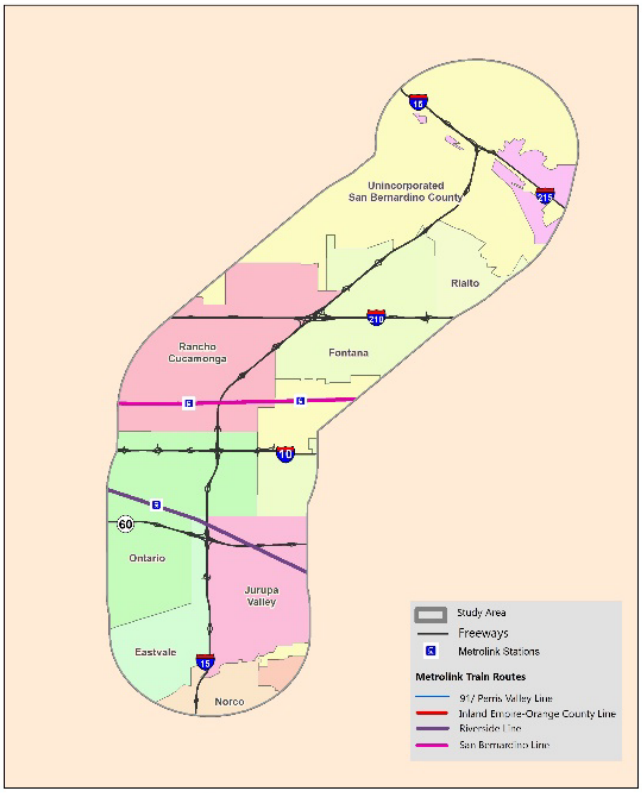
Strategies

1. Build on existing multimodal strategy to enhance rail, transit, and shared-ride access to and from CSUSB and UCR.
2. Coordinate express transit/rail service between San Bernardino and Riverside County cities.
3. Focus on north/south arterial operations and safety improvements for parallel facilities such as Riverside Avenue, Mt. Vernon Avenue, and Reche Canyon Road.
4. Complete Divergent Diamond Interchange (DDI) at the I-215/University Avenue interchange in San Bernardino to accommodate continued CSUSB growth.
5. Make strategic operational improvements to and/or reconstruct interchanges on I-215 between SR-60 and Orange Show Road to address bottlenecks.
6. Implement managed-lane system on SR-91 in downtown Riverside.
7. Build on substantial existing transit assets (e.g., move forward with SCORE program on multiple Metrolink lines—increasing frequency and improving service).
8. Implement first/last mile transit connections (particularly from major destinations in downtown Riverside and San Bernardino to Metrolink stations).
9. Work with South Coast Air Quality Management District (SCAQMD) and California Air Resources Board (CARB) to provide incentives for accelerating turnover of the truck fleets to zero-emission.
10. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Cajon Pass to Eastvale Sub-Corridor

Problems to Be Addressed

- I-10/I-15 interchange is 10th on American Transportation Research Institute (ATRI)'s national list of the top 100 most critical truck bottlenecks.
- Nationally significant freight corridor, with heavy congestion on I-15 between SR-60 and SR-210.
- Southern end of the corridor houses some of the largest and most intense logistics activities in the Nation, with attendant local traffic and environmental impacts.
- Lack of north/south transit service and need for improved transit service to Ontario International Airport.



Cajon Pass to Eastvale Sub-Corridor

- Large population and housing growth with multiple master planned communities.

Strategies

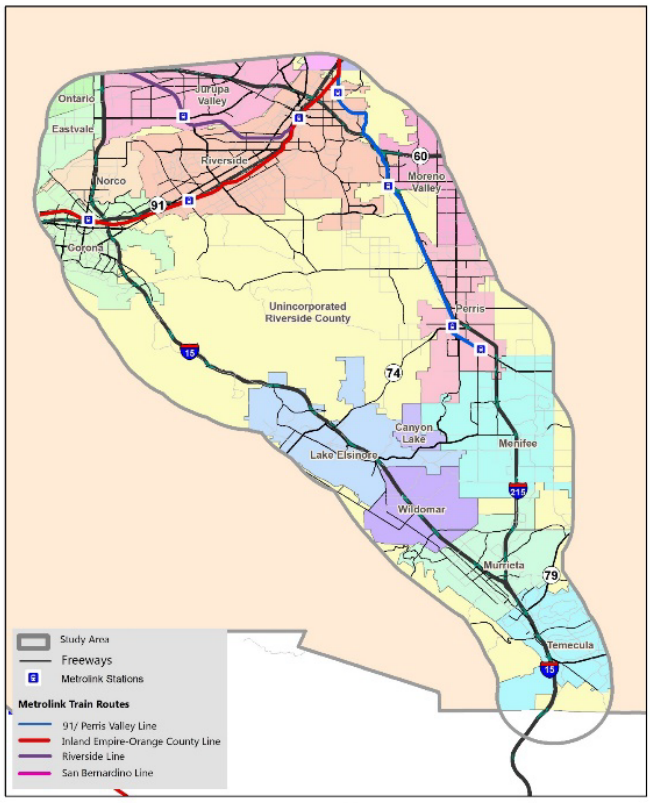
1. Implement managed-lane system on I-15, with toll discounts or exemptions for transit, vanpools, and 3+ carpools.
2. Complete the West Valley Connector BRT, Phase 1. The north/south portion parallels I-15 from Victoria Gardens to Rancho Cucamonga Metrolink Station, through Ontario employment centers, to Ontario International Airport (ONT).
3. Construct the Ontario International Airport Connector (ONT Connector) with new zero-emission, on-demand service connecting Rancho Cucamonga Station on the San Bernardino Line to ONT.
4. Pursue the extension of Brightline West down the Cajon Pass to Rancho Cucamonga to provide an additional privately and publicly funded solution to peak hour and weekend congestion.
5. Coordinate operational strategies for managed lanes between Riverside and San Bernardino counties.
6. Grow vanpool and carpool formation from the High Desert to employment centers in the Valley, Riverside County, and greater LA Basin.

7. Implement "Healthy Communities and Healthy Economies Toolkit for Goods Movement" (given continued warehouse/distribution facility development).
8. Work with SCAQMD and CARB to provide incentives for accelerating turnover of truck fleets.
9. Implement San Sevaine Class I Trail System, running north/south along I-15.
10. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Riverside to Temecula Sub-Corridor

Problems to Be Addressed

- Significant and growing congestion in both directions at the I-215/SR-60 junction in Riverside.
- Significant and growing congestion at the I-15/I-215 merge/diverge in Temecula and on I-15 northbound and southbound in Corona.
- Congestion at critical interchanges on I-15 and I-215 (e.g., Newport Road, Bundy Canyon Road, SR-74, etc.).
- Lack of parallel facilities to I-15 and I-215 throughout the corridor (due largely to topography).
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.



Riverside to Temecula Sub-Corridor

- Large amount of housing development concentrated along the corridor; exacerbating the job-housing imbalance.

Strategies

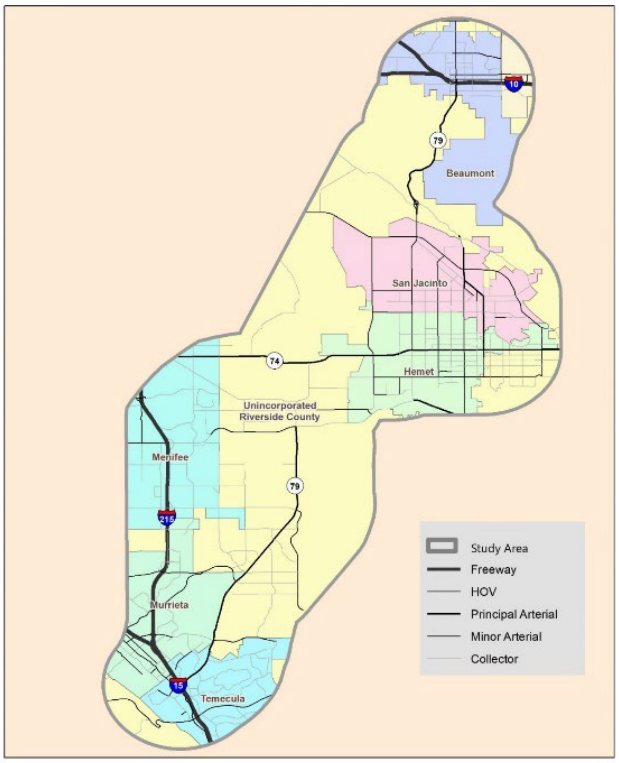
1. Extend the managed-lane system on I-15 southerly from El Cerrito Road in Corona to SR-74 (Central Avenue) in Lake Elsinore, with toll discounts for transit, vanpools, and 3+ carpools.
2. Continue commuter bus operations on I-15 and I-215 to Metrolink stations and continue express bus service utilizing managed lanes.

3. Make strategic operational improvements to and/or reconstruct interchanges on I-15 and I-215, such as SR-74 (Central Avenue), Franklin Street, and French Valley Parkway.
4. Improve the north/south arterial network along I-15 and I-215, where possible, to better accommodate local short-distance trips that are now occurring on the freeway system, such as Temescal Canyon Road.
5. Enhance marketing and incentives for ridership on the Perris Valley line to Riverside.
6. Construct a new commuter rail station along the Perris Valley line in Mead Valley to grow ridership by increasing access to commuter rail service.
7. Grow vanpool and carpool formation from southwest Riverside County to employment centers in Riverside, Corona, and San Bernardino County.
8. Deploy new technologies to proactively manage traffic and improve roadway conditions.
9. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements to existing 91/Perris Valley Metrolink stations.
10. Work with SCAQMD and CARB to provide incentives for accelerating turnover of truck fleets.
11. Invest in grade separation projects to improve goods movement efficiency and passenger rail movement.
12. Provide an additional east west regional arterial extending east from the City of Perris that will run parallel to SR-74, serving as an alternative route to better connect the cities within the region and improve safety.
13. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Beaumont to Temecula Sub-corridor

Problems to Be Addressed

- Overall lack of north/south mobility, particularly in the Hemet/San Jacinto Area. Local traffic gets mixed with regional traffic.
- Major bottlenecks at the I-10/SR-79 interchange and the northbound I-15/SR-79 interchange.
- Lack of north/south transit service.
- Major tourism destinations result in travel at all times and on all days.



Beaumont to Temecula Sub-Corridor

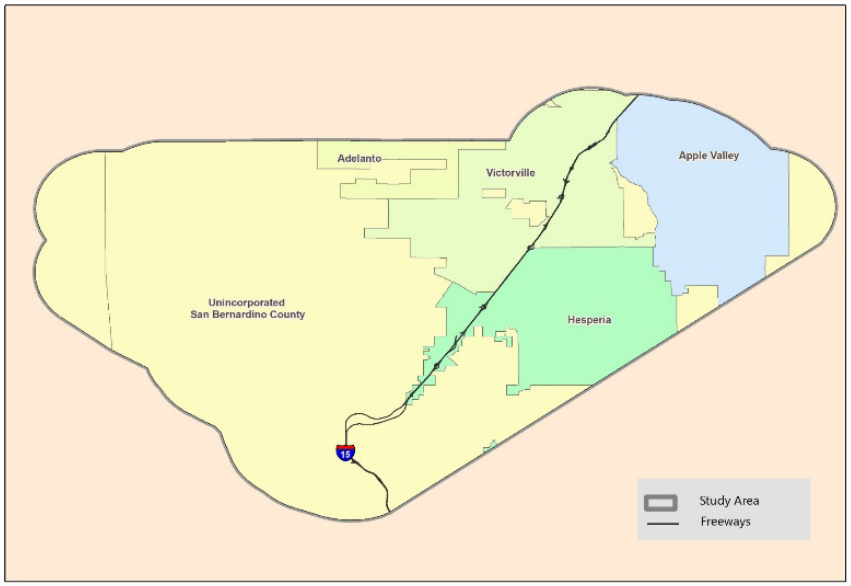
Strategies

1. Deliver the SR-79 realignment project.
2. Make operational improvements on existing north/south arterials from San Jacinto to Temecula.
3. Grow vanpool and carpool formation to reduce vehicle flows connecting Beaumont, San Jacinto, Hemet, and Temecula.
4. Examine ways to improve north/south transit connectivity.
5. Deploy new technologies to proactively manage traffic and improve roadway conditions.
6. Make strategic operational improvements to and/or reconstruct interchanges on the I-10/Highland Springs, I-215/Keller Road, and Garbani Road interchanges.
7. Investment in grade separation projects to improve goods movement efficiency.
8. Work with Tribal governments to facilitate employee commute options and explore funding opportunities for regional improvements.
9. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements and station improvements at existing Metrolink stations. Additionally, support rapid bus services between Hemet to San Jacinto and Perris to Moreno Valley/Riverside.
10. Explore policies and methods to increase work at home to decrease commute trips.

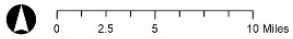
Strategic Approach for Apple Valley to LA County Line Sub-corridor

Problems to Be Addressed

- Lack of east/west connectivity between the High Desert and Antelope Valley.
- Lack of east/west connectivity within the High Desert, constrained by limited crossings of the Mojave River and the BNSF Railway rights-of-way.
- Congestion at arterial junctions with I-15 interchanges.



Apple Valley to LA County Line Sub-Corridor



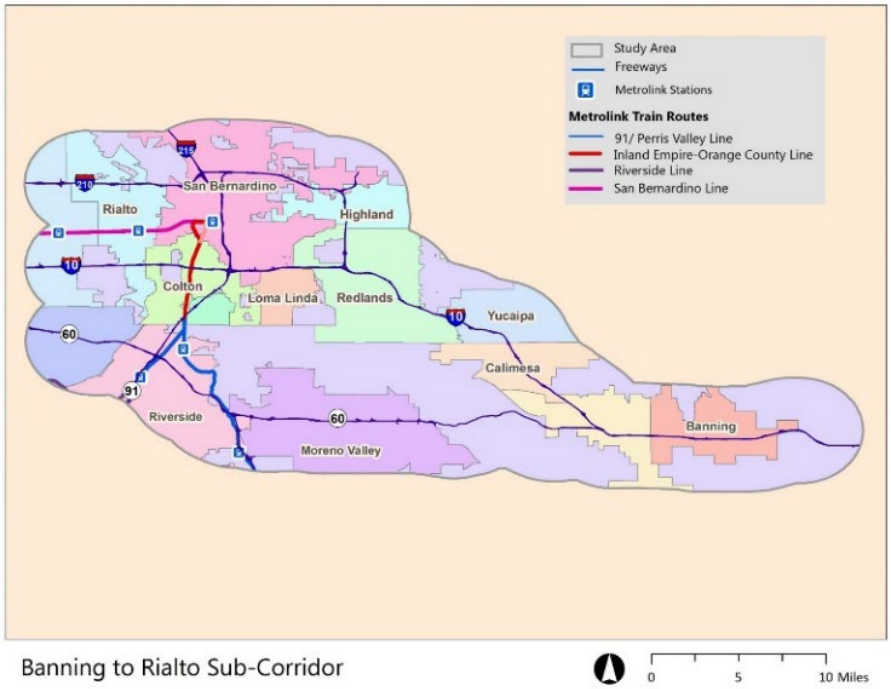
Strategies

1. Enhance east/west access by completing improvements in the Greentree Corridor, linking Apple Valley, Victorville, and I-15.
2. Work with Brightline West and the State to facilitate future High Speed Rail connection to the Antelope Valley Metrolink line.
3. Conduct necessary studies to improve the operations and safety of SR-18 from U.S.-395 to SR-138 and potentially program its widening.
4. Look for opportunities to fund the High Desert Corridor but recognize SR-18 widening as a partial solution to improve east/west mobility between the Antelope Valley and High Desert.
5. Fund and implement strategic I-15 interchange improvements as identified in the Measure I Strategic Plan.
6. Fund and implement other improvements identified in the Victor Valley portion of the SBCTA 10-Year Delivery Plan.
7. Continue growth of vanpool and carpool formation from the High Desert to employment centers in the San Bernardino Valley and Antelope Valley.
8. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Banning to Rialto Sub-Corridor

Problems to Be Addressed

- Several significant bottlenecks on I-10: eastbound and westbound merge/diverge with I-215, eastbound merge with SR-210, eastbound upgrade in Yucaipa, and I-10/SR-60 junction.



- Significant and growing congestion in both directions at the I-215/SR-60 junction in Riverside and I-10/SR-60 junction in Beaumont due to population and housing increases.
- Multiple congested interchanges: I-10/SR-79 interchange in Beaumont and interchanges on I-10 at Mountain View Avenue, California Street, Alabama Street, and University Avenue.
- Ongoing congestion on SR-210 in Upland, Rancho Cucamonga, and San Bernardino.
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.
- Metrolink San Bernardino line and Riverside line are well-used, but capacity limitations limit substantial additional growth.
- Cities with Metrolink stations would like to take advantage of those locations for transit-oriented development (TOD), but parcel assembly/development costs are high and train frequencies are not always conducive to the mid-day and bi-directional mobility needed to support TOD type uses.
- There is a certain section of the I-10 between the City of Banning and Cabazon where there is no viable east/west route. Due to the lack of an an alternative route, when this stretch of the freeway closes due to accidents or public safety incidents, it causes multi-hour freeway shutdowns.
- This portion of the I-10 plays a critical role in southern California's goods movement network as it connects the San Pedro Bay Ports to the markets of inland desert communities and to state of Arizona.

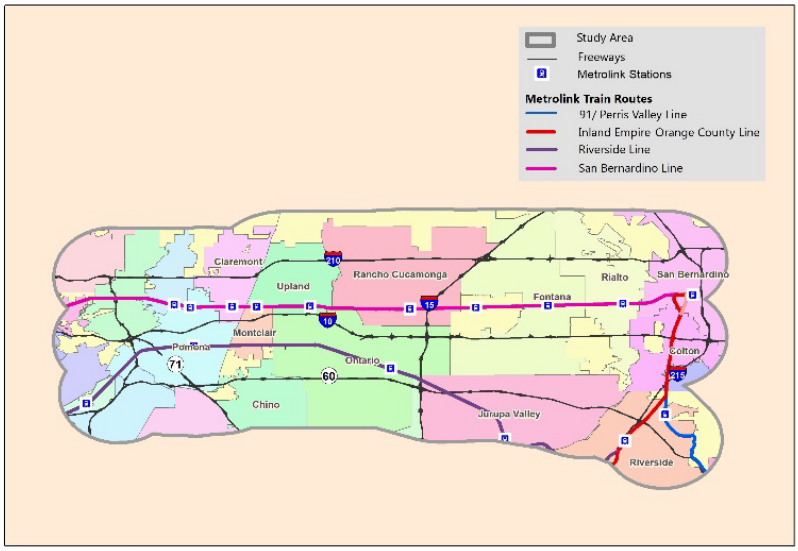
Strategies

1. Incorporate zero-emission multiple unit trainset into Redlands Passenger Rail (Arrow) Project from University of Redlands to downtown San Bernardino and look at other potential applications of that technology.
2. Implement managed lane systems on SR-60 from downtown Riverside to Moreno Valley and on I-10 from Redlands westerly.
3. Make strategic operational improvements to and/or reconstruct interchanges on SR-60/Potrero Blvd, SR-60/Gilman Springs Road, and I-10 interchanges at SR-79, County Line Road, University Avenue, Alabama Street, and California Street.
4. Implement I-10 Eastbound Truck Climbing Lane in Yuciapa, addressing one of the most serious freight bottlenecks in the Inland Empire.
5. Invest in grade separation projects to improve goods movement efficiency and passenger rail movement.
6. Accelerate truck fleet turnover for air quality improvement.
7. Implement “Healthy Communities and Healthy Economies Toolkit for Goods Movement” (given continued warehouse/distribution development).
8. Extend Sun Lakes Boulevard from Highland Home Road to Westward Avenue and Sunset Avenue.
9. Construct parallel route to I-10 in Cabazon to facilitate emergency response and a freeway alternative for local tribal residents and for use when emergencies paralyze I-10.
10. Build on substantial transit assets. Invest in Metrolink rail expansion for the IE/OC, San Bernardino, and Riverside lines as described in the SCRRA SCORE Program; construct accessibility improvements and station improvements to existing Metrolink stations.
11. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Riverside/Rialto to LA County Line Sub-Corridor

Problems to be Addressed

- I-10 and SR-60 are nationally significant freight corridors, with heavy congestion on I-10 between the LA County Line and Sierra Interchange and throughout SR-60.
- I-10/I-15 interchange is 10th on ATRI's national list of the top 100 truck bottlenecks.
- Metrolink stations represent some of the Inland Empire's best opportunities for TOD, but need to increase train frequency over time and make it easier for jurisdictions/developers to build on infill sites (limited capabilities since loss of redevelopment funding).



Riverside/Rialto to LA County Line Sub-Corridor

- Lack of good transit connection to Ontario International Airport.
- Major housing and population increases, especially in parts of the corridor south of SR-60 and north of SR-210.

Strategies

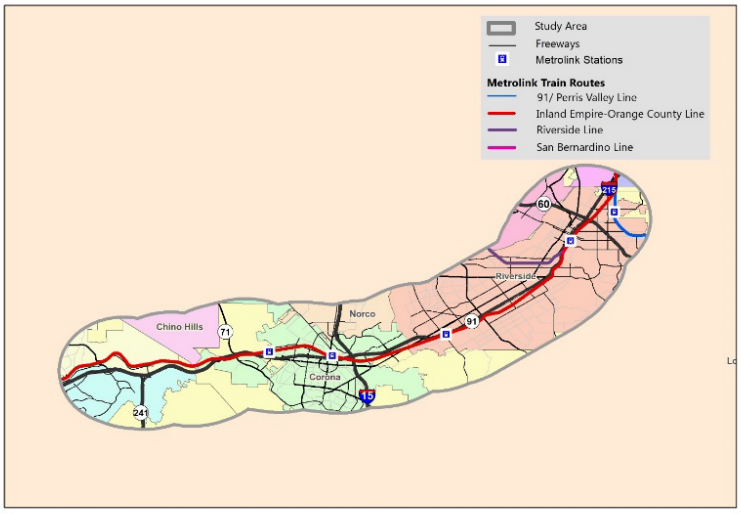
1. Build on substantial existing transit assets (e.g., move forward with SCORE program on the multiple Metrolink lines—increasing frequency and improving service on Riverside, San Bernardino, 91/Perris, and IE/OC lines).
2. Build West Valley Connector BRT connecting Pomona, Montclair, Ontario, and Rancho Cucamonga, with significant destinations in each jurisdiction, including Ontario International Airport.
3. Construct the Ontario International Airport Connector (ONT Connector) with new zero-emission, on-demand service connecting Rancho Cucamonga Station on the San Bernardino Line to ONT.
4. Implement first/last mile transit connections (particularly from major destinations to Metrolink stations).
5. Enhance freight access at freeway interchanges to improve first/last mile efficiency (e.g., Rubidoux Blvd., Etiwanda Ave., Riverside Ave., California St., etc.).
6. Implement managed lane system on I-10 from LA County line to Ford Street.

7. Accelerate truck fleet turnover for air quality improvement.
8. Implement "Healthy Communities and Healthy Economies Toolkit for Goods Movement" (given continued warehouse/distribution development).
9. Encourage TOD and affordable housing at transit stations.
10. Implement "next-generation" shared-ride and virtual travel systems.
11. Build out regional active transportation network.
12. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Riverside to Orange County Line Sub-Corridor

Problems to Be Addressed

- SR-91 connects Riverside County to Orange and San Bernardino counties and results in one of the most congested freeways in Southern California. SR-91 is a nationally significant freight corridor that connects the Ports of Los Angeles and Long Beach to the vast array of warehousing and distribution centers in the Inland Empire. However, with heavy congestion along the corridor, goods movement is significantly impacted.



Riverside to Orange County Line Sub-Corridor

- Lack of adequate alternate routes into Orange County: largely due to topography. SR-91 is the only route into Orange County from Riverside County and San Bernardino County. SR-60/57 is the highest capacity alternative, but is also highly congested. SR-74 provides a low-capacity highway alternative which is available to south Orange County.
- Job-housing imbalance: Riverside County provides more affordable housing options compared to Orange County and Los Angeles County, but less job opportunities.

Strategies

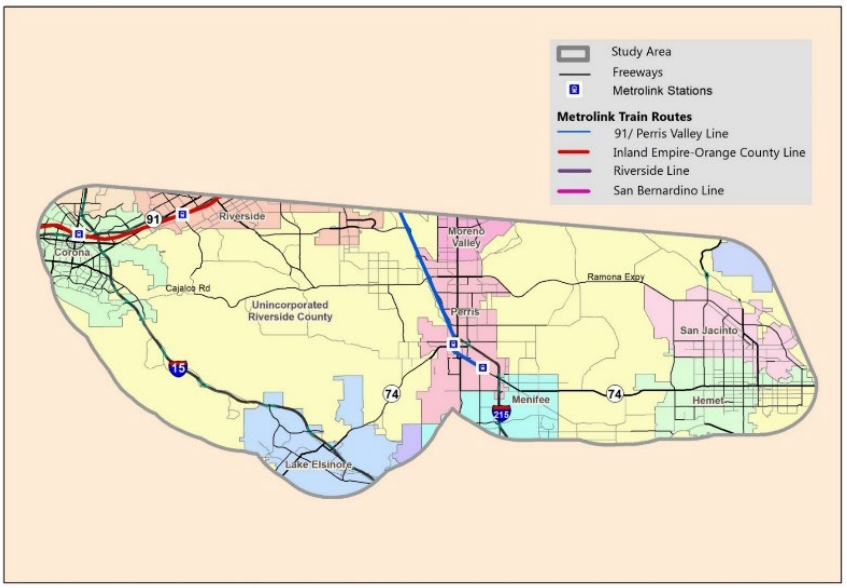
1. Complete Santa Ana River trail.
2. Complete the SR-71/91 connector and SR-241/91 connector to facilitate commute and goods movement from Orange County to Riverside and San Bernardino counties.

3. Construct the eastbound corridor operations projects on SR-91 between SR-241 and Green River Road, a remaining project component of the ultimate SR-91 corridor improvement project.
4. Build on substantial transit assets. Invest in Metrolink rail expansion for the IE/OC line and construct accessibility improvements and station improvements to existing Metrolink stations.
5. Implement first/last mile transit connections (particularly from major destinations to Metrolink stations).
6. Continue multimodal investment into the managed lane system on SR-91; continue collaborating with OCTA on 91 Express Lanes.
7. Continue express bus service utilizing managed lanes for time and cost savings on shared rides.
8. Explore policies and methods to increase work at home to decrease commute trips.

Strategic Approach for Hemet to Corona Sub-Corridor

Problems to Be Addressed

- Lack of good east/west routes. No adequate east/west routes to connect communities.
- Need to preserve environmentally sensitive areas and habitats.
- SR-74 is an east-west principal arterial that transects the cities of Perris and Hemet. It functions as the cities' main street with a large concentration of local businesses and retailers but lacks adequate driveway access control, safe sidewalks and bike lanes, and traffic signals.
- High number of traffic incidents on east/west roadways.



Hemet to Corona Sub-Corridor

Strategies

1. Complete regional Salt Creek Trail.

2. Complete Mid County Parkway to provide an additional regional east/west corridor, minimize use of local roads, and shift traffic away from SR-74.
3. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements and station improvements at existing Metrolink stations.
4. Construct a new commuter rail station along the Perris Valley line in Mead Valley to grow ridership by increasing access to commuter rail service.
5. Implement first/last mile transit connections, particularly from major destinations to Metrolink stations.
6. Complete SR-79 realignment; improve access to SR-74.
7. Extend I-15 Express Lanes to SR-74 with new express lanes to improve trip reliability for commuters and transit riders and provide additional incentives for carpool and vanpoolers.
8. Complete Cajalco Road Corridor and Ethanac Expressway to provide additional regional east/west corridors, minimize cut-through traffic on local roads, and shift traffic away from SR-91.
9. Explore policies and methods to increase work at home to decrease commute trips.

Recommended Project List

A total of 386 highway, arterial, transit, and goods movement projects were reviewed, plus an additional 936 bikeway projects, for possible inclusion in the IE CMCP. These projects were identified through review of existing plans and studies from Caltrans, SCAG, SBCTA, RCTC, WRCOG, and corridor cities. The project lists were compiled and shared with the Project Development Team to ensure projects were consistent with current local priorities and plans. The projects were then evaluated based on the evaluation framework and the goals and objectives of the IE CMCP developed by the Project Development Team and input from stakeholders early in the process. Projects included in the IE CMCP (Appendix A) were qualitatively evaluated based on project type and how they would fulfill the objectives of the study and address the identified deficiencies in the transportation system based on key performance metrics, such as: decreasing VMT, reducing person delay, shifting mode share from single occupant auto, improving safety, increasing person throughput, improving accessibility, and improving air quality.

COVID-19 Considerations

The development of the IE CMCP began well before COVID-19 began to affect transportation and mobility in the Inland Empire, but the final report is published while the impacts of the pandemic continue to evolve. The Project Development Team discussed this issue and determined that it was not feasible to change the analysis or findings of the report, but it is important to acknowledge that many elements of the Inland Empire transportation system have changed, including changed automobile travel, decreased transit ridership, increased local truck movements for deliveries, decreased use of ride-booking services, worsened safety, and other affects.

The long term changes to the transportation system are unknown, including when or if the level of auto travel or transit demand will return to pre-COVID conditions. The potential longer term effects could change the forecasted transportation system conditions and result in different priorities in the future for improvement projects. However, it is still too soon to determine what long term effects will occur, if any. Thus, this report is submitted based on our understanding of pre-COVID travel demand patterns with the understanding that future updates may need to account for changes to roadway travel demand, transit ridership, work at home, and other factors.

Next Steps

The IE CMCP identified opportunities to improve the mobility and sustainability of the five north/south and five east/west corridors. It established a framework and process for evaluating the current conditions and potential improvements to the corridor from a multimodal perspective. Local agencies and Caltrans can leverage this report, in collaboration with surrounding jurisdictions, to help identify and acquire funding for projects that will benefit the mobility for a wide variety of corridor users. The final report and supporting research results can also be used by the jurisdictions in the sub-region to support future transportation plans and to guide implementation of mobility improvements that are both multi-jurisdictional as well as multimodal. Finally, more detailed and focused analysis of the recommended projects in the 10 sub-corridors can be conducted as part of the project development process

and environmental review including technical studies and analysis that were not feasible for such a large study area. The resulting information would be used in future SB 1 SCCP applications as well as for other planning purposes.

1.0 Introduction/Overview

The Inland Empire Comprehensive Multimodal Corridor Plan (IE CMCP) has multiple uses that will benefit local, regional, and state agencies as they deal with the balancing of infrastructure, livability, economic, and sustainability needs. The CMCP also is specifically created to address the intent of California SB 1 Solutions for Congested Corridors Program (SCCP) by:

- Promoting the integration of transportation, land use, environmental, economic, and other sustainability projects and initiatives.
- Identifying a set of principles for better integrating transportation, development, and environmental decisions.
- Identifying projects for potential funding that are consistent with the SCCP guidelines.
- Incorporating principles, goals, policies, and objectives of the key stakeholder agencies, including the Southern California Association of Governments (SCAG), San Bernardino County Transportation Authority (SBCTA), Riverside County Transportation Commission (RCTC), Western Riverside Council of Governments (WRCOG), and Caltrans.

The development of the IE CMCP closely incorporates recent planning efforts in the Inland Empire. Riverside and San Bernardino County transportation and planning agencies have been engaged in multimodal transportation, land use, and sustainability projects and programs over many years, ranging in geographic level from countywide to local, from subareas to linear corridors. This activity has accelerated with the statewide emphasis on greenhouse gas reduction with the passage of the Global Warming Solutions Act in AB 32 and subsequent legislation such as SB 375, SB 743, SB 32, as well as several Executive Orders. The IE CMCP captures these initiatives to leverage all of the progress that already has been made in both counties. One of the purposes of the Comprehensive Multimodal Corridor Plans is to synthesize all of these prior and ongoing efforts and to build on these initiatives.

1.1 Solutions for Congestion Corridors Guidelines

The Road Repair and Accountability Act of 2017, or Senate Bill (SB) 1 (Beall, Statutes of 2017) created the SCCP and continuously appropriates two hundred and fifty million dollars ($250,000,000) annually to be allocated by the California Transportation Commission (CTC) to projects designed to achieve a balanced set of transportation, environmental, and community access improvements within highly congested travel corridors throughout the state.

The CTC has established guidelines which describe the policy, standards, criteria and procedures for the development, adoption, and management of the SCCP. The guidelines were developed in consultation with the California Air Resources Board, Department of Housing and Community Development, California Department of Transportation (Caltrans), Regional Transportation Planning Agencies, advocacy groups, and other transportation stakeholders.

The primary objective of the SCCP is to fund projects designed to reduce congestion in highly traveled and highly congested corridors through performance improvements that balance transportation and community impacts, and that provide environmental benefits. Ultimately, all projects nominated for the SCCP must be included in a multimodal corridor plan. All multimodal corridor plans are to be prepared in accordance with the Comprehensive Multimodal Corridor Plan (Corridor Plan) Guidelines adopted by the CTC. As such, the IE CMCP follows the CTC guidelines.

1.2 Area Covered by the Inland Empire CMCP

The IE CMCP was originally structured as two very large corridors: North/South, from Victorville to Temecula, and East/West, from the Banning/Beaumont area to the LA and Orange County lines. This approach was logical because so much travel in the Inland Empire is interconnected. In the east/west direction, for example, one could find reasons to use any one of the four major east/west freeways (I-10, SR-60, SR-91, or SR-210) to travel to Los Angeles, and many people and logistics firms make those tradeoffs by looking at real-time traffic and routing information.

But it was recognized during the study process that within these corridors there also was a great deal of diversity, so much so that it would have been challenging to define the problems and analyze solutions in an effective, multimodal way. The terrain varies, the land uses vary, the congestion levels vary, the community needs vary, the existing multimodal network varies, and the strategies/solutions vary.

It was therefore determined that the problems and strategies could be more clearly identified by breaking down the two major corridors into 10 sub-corridors. The study team then engaged in a collaborative process for determining logical geographic sub-corridors, and defined five sub-corridors for each of the two major corridors. The sub-corridors are defined as areas between cities or geographically definable points (like county lines) and include the following:

- North/South Sub-corridors:
  1. Victorville to San Bernardino
  2. San Bernardino to Riverside
  3. Cajon Pass to Eastvale
  4. Riverside to Temecula
  5. Beaumont to Temecula
- East/West Sub-corridors:
  1. Apple Valley to LA County Line
  2. Banning to Rialto
  3. Riverside/Rialto to LA County Line
  4. Riverside to Orange County Line
  5. Hemet to Corona

Figure 1.1 illustrates the north-south oriented sub-corridors and Figure 1.2 illustrates the east-west oriented sub-corridors.

Figure 1.1 | North-South Oriented Sub-Corridors

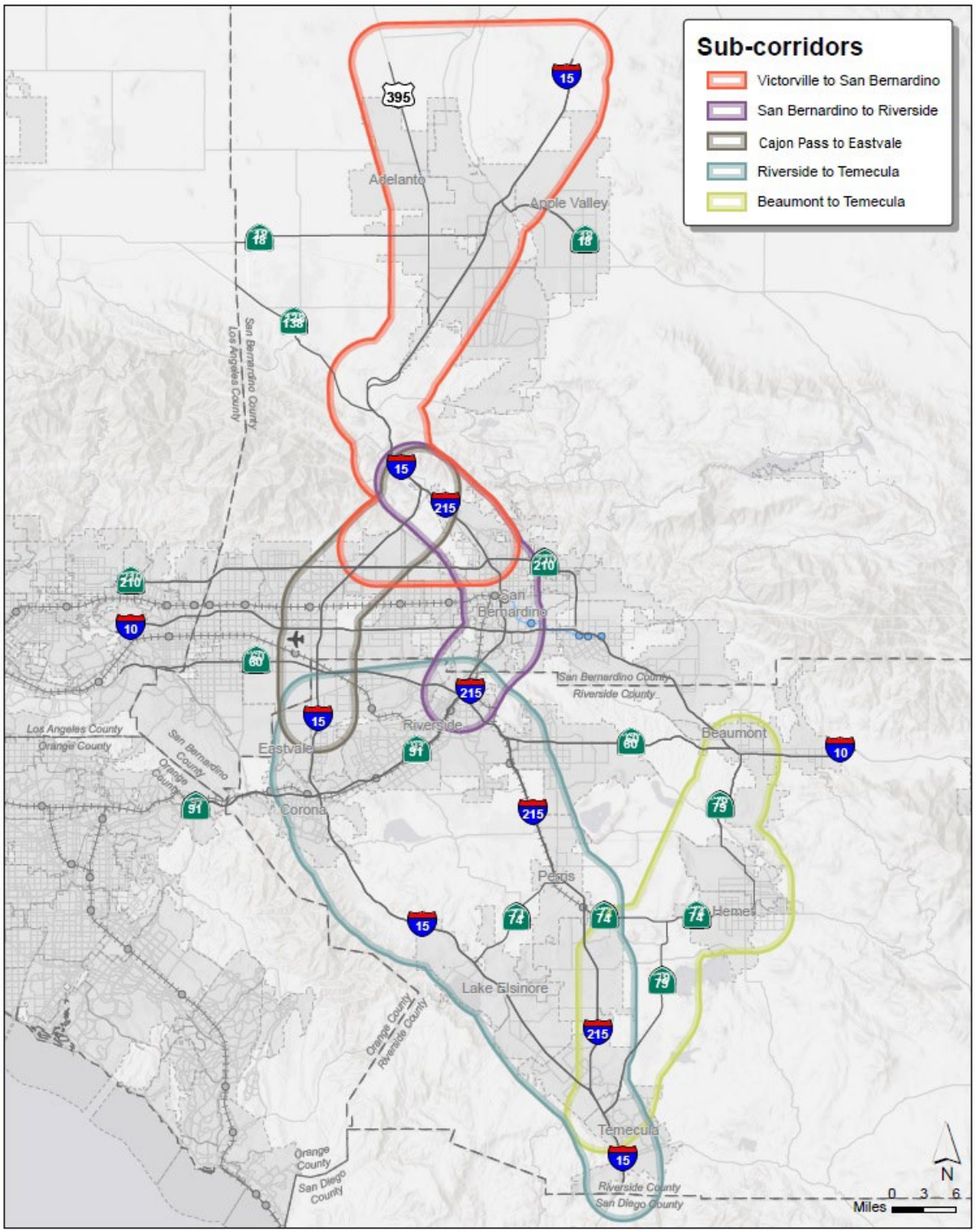
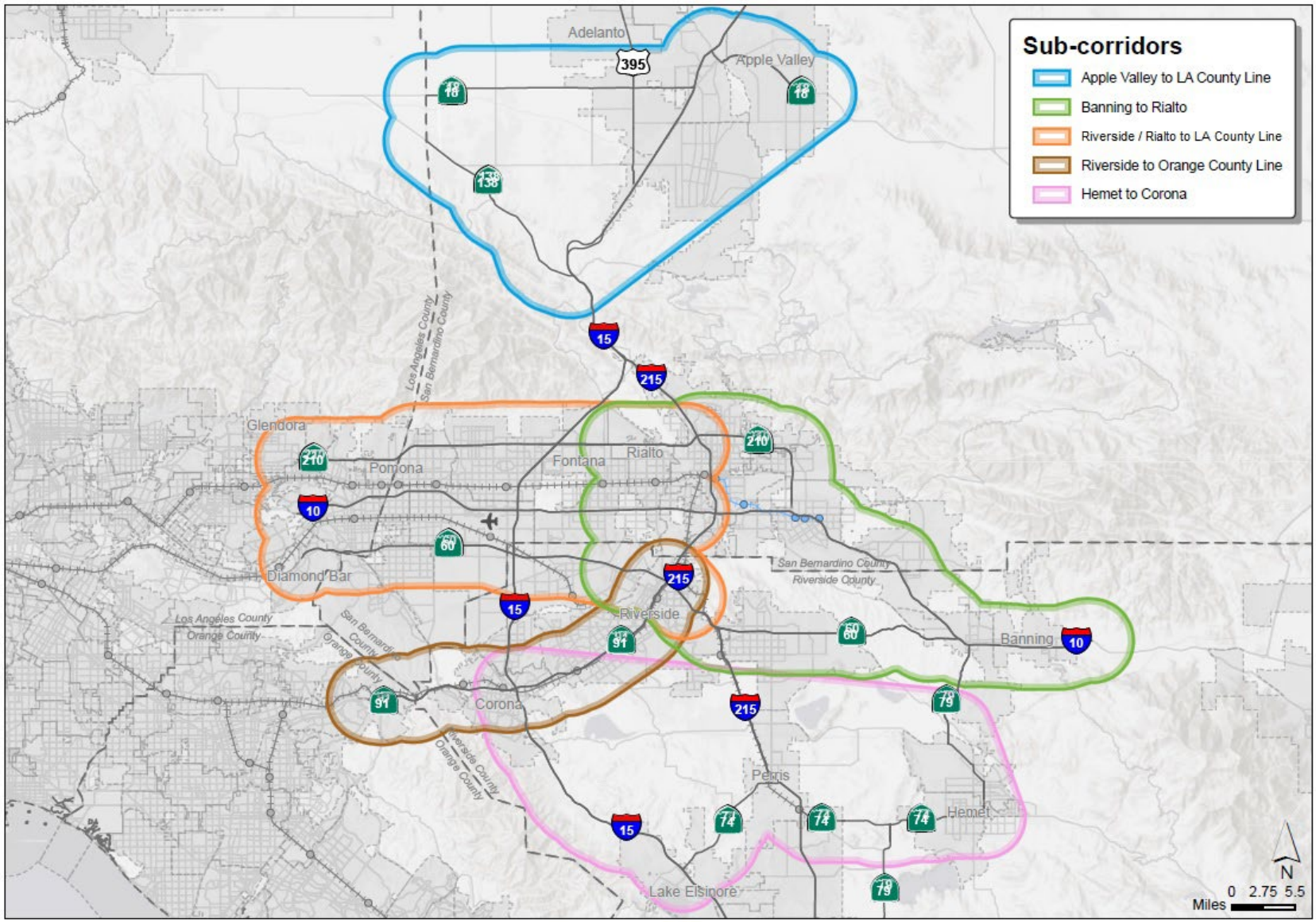


Figure 1.2 | East-West Oriented Sub-Corridors



A description of each sub-corridor has been prepared which includes data and analysis within each sub-corridor, including the following types of descriptive information:

- Which jurisdictions are included entirely or partially within the sub-corridors.
- Key transportation facilities, including freeways, major arterials, major transit routes, and active transportation in each sub-corridor.
- Key socioeconomic characteristics, including:
  - Land use patterns.
  - CalEnviroScreen scores.
  - SCAG Communities of Concern.
- Travel patterns:
  - Total trips generated and internal versus external trips in the sub-corridor and IE CMCP area.
  - Average trip length.
  - Journey to work mode share.
- Congestion, Delay, and Vehicle Miles Traveled (VMT), including:
  - Recurrent freeway congestion locations.
  - Daily VMT by facility type (freeway general purpose lanes, freeway HOV lanes, major arterial roadways).
- Transit usage.
- Safety data, including crash concentrations on the freeways, bicycle and pedestrian crash concentrations, and truck crash concentrations.
- Future growth in population, employment, travel demand, and VMT.

Each sub-corridor synopsis also includes a description of the strategic approach to addressing the transportation challenges in that sub-corridor, based on the identified problems, issues, and opportunities. Finally, a list of proposed transportation projects also is included for each sub-corridor.

Tables 1.1, 1.2, and 1.3 provide comparisons of the key characteristics of each sub-corridor, including socioeconomic data, transportation characteristics, and projected growth. A summary and comparison of the sub-corridors is provided in this Section. These comparisons help to identify the key characteristics of each sub-corridor and the key transportation issues in each area. This helps in the subsequent identification of the best projects and improvements to recommend in each corridor.

1.2.1 Land Use

The top three land uses in each sub-corridor are noted in Table 1.1 along with the percentage of the sub-corridor that consists of that land use. The land use type that appears as the most common type is rural residential, which accounts for up to 40 percent of the land uses in two corridors.[3] The other two most common land use types are open space and single family residential, followed by agriculture. Most of the sub-corridors have some type of residential use as their predominant land use type while two have more open space than any other type of use.

1.2.2 Disadvantaged Communities, Communities of Concern, and CalEnviroScreen Scores

Disadvantaged communities indicators relate to the need for transportation services, among other needs. Areas with lower income and other related disadvantages, such as higher pollution burdens, often have lower auto ownership and less access to transportation to get residents to places of employment, shopping, doctors' offices, and other destinations. The CalEnviroScreen is a tool that helps identify California communities that are most affected by many sources of pollution, especially those vulnerable to pollution effects.

CalEnviroScreen uses environmental, health, and socioeconomic information to produce scores for every census tract in the state. The scores are mapped so that different communities can be compared. An area with a high score is one that experiences a much higher pollution burden than areas with low scores. CalEnviroScreen ranks communities based on data that are available from state and Federal Government sources. CalEnviroScreen scores range up to 100, with higher scores indicating more impacted communities. For the IE CMCP, any areas with scores in the 75 to 100 range are reported.

The sub-corridors with the highest CalEnviroScreen scores include San Bernardino to Riverside with 64 percent of the area experiencing a score of 75 to 100, Riverside to the LA County line, with 46 percent and Cajon Pass to Eastvale with 44 percent. All of the remaining areas are under 40 percent, with the Beaumont to Temecula having the lowest percentage of area with a high score, at only 7 percent.

In terms of low income communities, as shown in Table 1.1, the corridors with the most area considered low income are the Victorville to San Bernardino and San Bernardino to Riverside corridors, at nearly 50 percent of the area

[3] Rural Residential units include ranches, farmsteads, single mobile homes, and residences located in rural setting. Rural residential density varies from one (1) unit per acre to one (1) unit per 10 acre.

with low income.[4] The areas with the lowest percentage of low income areas include Cajon Pass to Eastvale, Riverside to Orange County Line, Beaumont to Temecula and Riverside to Temecula, each with under 27 percent low income area.

Another measure of need is the SCAG Communities of Concern. Communities of Concern are Census Designated Places that fall in the upper third for their concentration of minority population households in poverty. This designation is significant in severity due to the degree of poverty. The sub-corridor that has the most area included in the Communities of Concern is the San Bernardino to Riverside corridor, with 44 percent of the area designated as a Community of Concern. Other sub-corridors have much lower percentage of their area considered Communites of Concern, mostly below 15 percent.

Table 1.1 | Land Use and Socioeconomic Characteristics of the Sub-Corridors

Sub-Corridor	Predominant Land Uses (top three land use by %) 1st	2nd	3rd	% of CalEnviro Disadvantage Communities	Low Income Communities	SCAG Communities of Concern
Victorville to San Bernardino	OS (38%)	RR (23%)	SFR (13%)	31%	47%	13%
San Bernardino to Riverside	OS (26%)	SFR (24%)	Fac (10%)	64%	47%	44%
Cajon Pass to Eastvale	SP (30%)	OS (24%)	Ind (11%)	44%	13%	3%
Riverside to Temecula	RR (32%)	SFR (17%)	SP (13%)	36%	27%	10%
Beaumont to Temecula	RR (23%)	AGR (22%)	SP (17%)	7%	26%	0%
Apple Valley to LA County Line	RR (40%)	SFR (19%)	OS (19%)	13%	41%	3%
Banning to Rialto	SFR (24%)	AGR (24%)	RR (9%)	32%	38%	14%
Riverside/Rialto to LA County Line	SFR (26%)	SP (20%)	Ind (11%)	46%	31%	14%
Riverside to Orange County Line	SFR (26%)	AGR (17%)	RR (11%)	35%	21%	2%
Hemet to Corona	RR (34%)	AGR (17%)	SP (13%)	39%	34%	12%

Source: SCAG 2012 Land Use; CalEPA CalEnviroScreen 3.0; SCAG 2016 RTP.
Note: OS—Open Space; RR—Rural Residential, SFR—Single Family Residential; Fac—Facilities; SP—Specific Plan; Ind—Industrial; AGR—Agriculture.

1.2.3 Home to Work Mode Share

Table 1.2 displays how people travel to work, including whether they drive alone, carpool, or use transit. The method of travel from home to work does not vary considerably among the ten sub-corridors. All of the 10 sub-corridors have between 75 to 80 percent of residents who drive themselves to work in a single occupant vehicle (SOV). Two

[4] "Low-income communities" are census tracts with median household incomes at or below 80 percent of the statewide median income or with median household incomes at or below the threshold designated as low-income by Department of Housing and Community Development's State Income Limits adopted pursuant to Section 50093.

of the 10 sub-corridors are at 80 percent SOV, including Cajon Pass to Eastvale and Apple Valley to LA County line. Similarly, the rate of carpooling is relatively consistent and ranges from 12 to 14 percent of all home to work trips in each sub-corridor. Finally, the transit percentage throughout the entire area is very low at only 1 or 2 percent in each sub-corridor.

1.2.4 Transit

Table 1.2 also displays whether the sub-corridors include High Quality Transit. High Quality Transit service is defined as bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. Four of the 10 sub-corridors have high-quality transit service, including Victorville to San Bernardino, San Bernardino to Riverside, Banning to Rialto and Riverside/Rialto to LA County Line. The remaining six sub-corridor areas have transit service but do not qualify as High Quality Transit.

Table 1.2 | Transportation Characteristics of the Sub-Corridors

Sub-Corridor	Home-Work Trips			High Quality Transit		Percent of VMT on Freeways Total (HOV)	Percent of VHT on Freeways Total (HOV)	Percent Trips Internal to CMCP	Avg. Trip Length External to CMCP	VMT per Service Population
	SOV (%)	Carpool (%)	Transit (%)	Corridor	Stop					
Victorville to San Bernardino	78%	14%	1%	Yes	No	70% (1%)	63% (1%)	86%	35.4	29.7
San Bernardino to Riverside	75%	14%	2%	Yes	Yes	61% (3%)	60% (3%)	92%	43.7	29.4
Cajon Pass to Eastvale	80%	12%	2%	No	Yes	70% (2%)	61% (1%)	85%	32.5	34.2
Riverside to Temecula	77%	14%	1%	No	Yes	60% (2%)	50% (2%)	88%	41.5	27.1
Beaumont to Temecula	77%	13%	1%	No	No	41% (0%)	30% (0%)	90%	41.8	26.9
Apple Valley to LA County Line	80%	12%	1%	No	No	49% (0%)	45% (0%)	86%	44.4	26.8
Banning to Rialto	78%	13%	2%	Yes	Yes	64% (2%)	42% (1%)	91%	44.8	25.6
Riverside/Rialto to LA County Line	78%	12%	2%	Yes	Yes	65% (5%)	56% (4%)	79%	27.0	26.6
Riverside to Orange County Line	76%	13%	2%	No	Yes	70% (3%)	68% (2%)	80%	27.6	30.6
Hemet to Corona	77%	14%	1%	No	Yes	53% (1%)	45% (1%)	88%	40.0	30.8

Source: SCAG Model 2016; ACS 2017, 5-year estimates.

1.2.5 Vehicle Miles Traveled on Freeway Versus Non-Freeway Facilities

The percent of trips made on freeways in each sub-corridor is an indicator of the demand for freeway travel versus other modes (arterial, transit, or active transportation). The percent of VMT on the freeway system versus other modes is shown in Table 1.2 and it ranges from a low of 41 percent in the Beaumont to Temecula sub-corridor up to 70 percent in three other sub-corridors (Victorville to San Bernardino, Cajon Pass to Eastvale, and Riverside to Orange County line). In the areas with the higher freeway VMT, opportunities to reduce VMT and shift some VMT to other modes would be desirable.

1.2.6 Trip Origin-Destination and Length Characteristics

The percentage of internal vs. external trips, defined below, as well as average length of trips made by residents and employees of each sub-corridor, contributes to vehicle miles traveled and consequently vehicle hours of travel (VHT) or time spent on the road. These statistics, which are shown in two separate columns in Table 1.2, reveal certain characteristics about travel patterns, mix of land uses, and strategic location of the sub-corridor and is generally independent of transportation facilities supply and choice of mode.

- **Percent Trips Internal to IE CMCP.** These numbers describe what percentage of trips originating or destined to the particular sub-corridor are entirely to and from points within the Inland Empire CMCP study Area. The larger the percentage, generally the more “self-sufficient” the sub-corridor is and the people have to travel shorter distances for employment and services. The percentages vary in a relatively narrow range from a high of 92 percent to a low of 79 percent. As seen, the three sub-corridors with the highest percentage of internal trips are San Bernardino to Riverside (92 percent), Banning to Rialto (91 percent), and Beaumont to Temecula (90 percent). These higher percentages also are consistent with the fact that these three sub-corridors are generally on the eastern end of the IE CMCP Study Area with less travel to outside the IE CMCP. On the opposite end, the three sub-corridors with the lowest percentage of internal trips are Riverside to Los Angeles County line (79 percent), Riverside to Orange County line (80 percent) and Cajon Pass to Eastvale (85 percent). Consistent with the previous trend, but in the opposite direction, these three sub-corridors are all generally on the west side of the IE CMCP Study Area and have a higher interaction of trips to and from Los Angeles and Orange Counties. Furthermore, it also is intuitive that the two east/west corridors connecting Riverside to Los Angeles and Orange counties have the lowest percentage of “trip retention” and is an indication of the traditional heavy traffic demand on highways and transit corridors connecting these counties and emphasizes the need for mobility improvements.

- **Average Trip Length External to IE CMCP.** These average trip lengths in miles describe the distances that people travel between each sub-corridor and points outside the overall IE CMCP Study Area. The longer the average trip length, the more VMT and vehicle hours of delay and indicates the demand for people to travel outside the IE CMCP for work or services. The range of these average external trip lengths is quite wide, varying from a low of 27 miles to a high of almost 45 miles. Since the majority of external trips are to/from points west of the IE CMCP, intuitively, the two lowest average external trip lengths are to/from Riverside to

Los Angeles County Line (27 miles) and Riverside to Orange County Line (27.6 miles) sub-corridors, both of which are close to the western boundary of the IE CMCP Study Area. The next lowest average external trip lengths belong to Cajon Pass to Eastvale (32.5 miles) and Victorville to San Bernardino (35.4 miles) sub-corridors, again both on the western side of the IE CMCP. Conversely, the longest average external trip lengths are for Banning to Rialto (44.8 miles), Apple Valley to Los Angeles County Line (44.4 miles), and San Bernardino to Riverside (43.7 miles). Again, intuitively, these are the farthest sub-corridors from the western boundaries of the IE CMCP area, indicating longer average travel distances from the external areas. These numbers provide a generalized picture of average trip lengths that have to be served for people in various sub-corridors, when traveling to/from external points. This emphasizes the need for types of mobility improvements.

- **VMT and VHT on Freeways**. All sub-corridors have a larger share of VMT on freeways than VHT on freeways. This suggests that traffic using freeways has less delay in comparison to the arterials. VMT on freeways within sub-corridors varies from 70% to 41% and VHT on freeways varies from 68% to 30%. Beaumont to Temecula sub-corridor has only 41% of VMT on the freeway and 30% of VHT on the freeway.

1.2.7 Vehicle Miles Traveled (VMT) Per Service Population

VMT per service population measures total VMT in the sub-corridor against the service population, which consists of the total number of residents plus workers in the area, and is shown in Table 1.2. The VMT per service population ranges from a low of 25.6 vehicle miles traveled in the Banning to Rialto sub-corridor to a high of 34.2 in the Cajon Pass to Eastvale sub-corridor. Low VMT per service population happens in sub-corridors with either low travel markets or those with high service populations, or both. The two lowest VMT/service populations (Banning to Rialto and Riverside to Los Angeles County line) have high service populations due to their relative urbanization and better balance in jobs and housing creating low levels of VMT. Additionally, these two sub-corridors have metrolink lines connecting them to Los Angeles and Orange County, However, the third lowest (Apple Valley to Los Angeles County line) has a low level of travel market due to fewer transportation facilities. High VMT per service population happens in sub-corridors with either high travel markets or those with low service populations or both. The highest VMT numbers belong to the Cajon Pass to Eastvale sub-corridor with a high travel market along I-15 and a relatively low service population due to it being a small sub-corridor. The same is true for the next-highest, Riverside to Orange County line, which has high travel market along SR-91 and a relatively low service population due to the small sub-corridor. However, the Hemet to Corona sub-corridor, which is the third highest, has both a large area with high travel markets along I-215 and SR-91 but a low service population due to its generally low population and employment density. The significance of these analyses is that it provides better understanding of the travel characteristics and needs in each sub-corridor as future mobility investments are prioritized.

1.2.8 Future Growth Projections

Potential future growth has been assessed using the SCAG regional model data to project growth in population, employment, total trips, and average speed, as shown on Table 1.3. The forecast reduction in speed is shown as a metric to assess future growth in congestion levels.

Table 1.3 | Projected Growth by Sub-Corridor

	Expected Growth to 2040 (%)**			
Sub-Corridor	Pop.	Emp.	Trips	Speed
Victorville to San Bernardino	43%	40%	34%	-29%
San Bernardino to Riverside	16%	37%	24%	-19%
Cajon Pass to Eastvale	17%	33%	22%	-16%
Riverside to Temecula	22%	49%	28%	-19%
Beaumont to Temecula	33%	42%	34%	-13%
Apple Valley to LA County Line	50%	33%	39%	-28%
Banning to Rialto	22%	39%	23%	-16%
Riverside/Rialto to LA County Line	19%	31%	20%	-10%
Riverside to Orange County Line	13%	51%	27%	-15%
Hemet to Corona	34%	52%	31%	-21%

Source: SCAG Model 2016.

- **Population.** The overall population growth for the entire Inland Empire Study Area is projected to be 16 percent by 2040, which represents an increase of 647,000 residents. Within the sub-corridors, the increase in population ranges from a low of 13 percent (Riverside to Orange County line) to 50 percent (Apple Valley to LA County line).
- **Employment.** The overall employment growth for the entire Inland Empire Study Area is projected to be 35 percent by 2040, which represents an increase of 452,000 jobs. Within the sub-corridors, the increase in employment ranges from a low of 31 percent (Riverside/Rialto to LA County Line) to 52 percent (Hemet to Corona).
- **Trips.** The overall trip growth for the entire Inland Empire Study Area is projected to be 33 percent by 2040, which represents an increase of 3 million daily trips. The growth in the sub corridors ranges from a low of 20 percent (Riverside to Los Angeles line) to a high of 39 percent (Apple Valley to LA County line).
- **Speed.** The change in speed measures average daily speeds on the freeways within each sub-corridor. The changes range from speed reduction of 10 percent in the Riverside/Rialto to LA County Line sub-corridor to a reduction in speed of 29 percent in the Victorville to San Bernardino sub-corridor. Most of the sub-corridors experience speed reductions of 20 percent or lower.

The following five sub-corridors fall in the top five in growth in at least two and up to four of the growth measures:

- **Victorville to San Bernardino.** This sub-corridor has the highest projected growth in VHT, the second highest growth in population and trip making, and the fifth highest growth in employment
- **Riverside to Temecula.** This sub-corridor has the fourth highest projected growth in employment, the fifth highest growth in trips, and the fourth highest growth in VHT.
- **Beaumont to Temecula.** This sub-corridor has the second highest projected growth in trips and the fourth highest growth in population and employment.
- **Appley Valley to LA County line.** This sub-corridor has the highest projected growth in both population and trips and the second highest growth in VHT.
- **Hemet to Corona.** This sub-corridor has the highest projected growth in employment, third highest projected growth in VHT and the third highest growth in population.

2.0 Inland Empire's Strategic Approach to the CMCP: Transportation Planning Sustainability, Land Use Integration, and Project Evaluation

As noted in Chapter 1, a strategic approach to the develoment of the IE CMCP has been crafted for each sub-corridor. There also are some overarching strategic initiatives and programs which are countywide or Inland Empire-wide in nature, that relate to the overall Study Area and related sub-corridors. Planning and decision-making within the sub-corridors would be influenced and/or enhanced through these larger-area strategies. A brief description of these areawide initiatives and programs is provided below, prior to addressing the sub-corridor-specific strategic approaches.

Initiatives focus primarily on planning efforts, especially in the environmental arena, that will lead to implementation by countywide or regional agencies. Programs refer to ongoing areawide investments in operational activities (i.e., are not corridor-specific) that are part of the multimodal implementation process. For example, Riverside and San Bernardino counties have a robust rideshare program called IE Commuter. In effect, this program promotes trip-reduction in every sub-corridor. And rather than repeat all of these programs in the lists of multimodal strategies and projects in every sub-corridor, a table has been provided to highlight each program and its geographic extent. The initiatives are presented first, followed by the programs.

2.1 Multimodal Planning, Community, and Environmental Initiatives

1. Inland Empire Initiatives:

    a. *Climate Adaptation Partnership between San Bernardino Council of Governments (SBCOG) and Western Riverside Council of Governments (WRCOG) "Resilient IE"* —This plan has been prepared to address the potential effects of climate change in Riverside and San Bernardino counties and identify ways to work together to address the challenges. A completed climate adaptation report has been prepared and can be found here: https://wrcog.us/285/Resilient-IE.. Resilient IE was developed in collaboration with the San Bernardino County Transportation Authority (SBCTA) with funding from Caltrans. Resilient IE works to support regional and local efforts to prepare for and mitigate risks associated with climate adaptation on the region's transportation infrastructure with five primary project components:

        i. A newly established regional climate collaborative, the Inland Southern California Climate Collaborative (ISC3)

        ii. Subregional vulnerability assessments and adaptation strategies;

        iii. City-level, climate-related transportation hazards and evacuation maps;

        iv. A regionally-tailored climate resilient transportation infrastructure guidebook; and

        v. A regional climate adaptation and resiliency element template.

b. *Healthy Communities and Healthy Economies: A Toolkit for Goods Movement (2009)*—This effort was completed jointly by RCTC, SBCTA, and LA Metro to provide practical tools for minimizing and mitigating the impacts of goods movement activities on local communities while also recognizing the economic benefits that the logistics industry brings.

c. *Inland Empire Next Generation Shared Ride and Virtual Travel Study*—This effort will be an Inland Empire-wide look at ways to increase use of Transportation Demand Management (TDM) strategies such as shared-ride systems and virtual travel opportunities like work-at-home and digital business. The Coronavirus has forced the entire country to quickly adapt to virtual travel wherever possible and the study would examine how to capture some of these opportunities long-term.

d. *Managed Lanes Study* led by Caltrans District 8 in partnership with RCTC and SBCTA. The purpose of this ongoing study is to assess viability of conversion, addition, and implementation of managed lanes (High Occupancy Vehicle, High Occupancy Toll, and Toll lanes) within San Bernardino and Riverside Counties for the next 20 years. Currently, Caltrans District 8 has planned 56-lane miles of managed lane systems in the region and the study will identify the potential for additional managed lanes. The study will complement other long-range regional studies and plans. As part of this effort, Caltrans is coordinating with local and regional transportation agencies to gather input on identifying and evaluating potential corridors to implement managed lanes. The study is expected to be completed in late 2021.

e. *Caltrans District-level Active Transportation Plan*—This is an upcoming effort and will identify many strategies and improvements needed for advancing non-motorized travel in the Inland Empire. Every district will develop a plan under the HQ contract in place. This plan will complement existing county-level and local-level plans.

2. San Bernardino County Initiatives:

a. *Countywide Greenhouse Gas (GHG) Reduction Plan*—The Countywide GHG Plan and Environmental Impact Report (EIR) were prepared in 2014 to address 2020 GHG reduction goals. Individual jurisdictions have prepared their own Climate Adaptation Plans (CAPs) based on the countywide plan and EIR. The Countywide GHG Reduction Plan is now being updated to address 2030 goals.

b. *Countywide Zero Emission Bus Initiative (2020)*—Infrastructure and funding needs are being identified for the five transit operators in the County in response to the California Air Resources Board Innovative Clean Transit (ICT) regulation.

c. *Countywide SB 743 VMT Implementation Study (2020)*—Lead agencies throughout California have been transitioning from use of level of service (LOS) analysis for California Environmental Quality Act (CEQA) documents to the use of vehicle miles traveled (VMT). This countywide effort is providing guidance to local jurisdictions for adoption and implementation of their local processes governing VMT analysis.

d. *Zero-Emission Vehicle Readiness and Implementation Plan (2019)*—This was a countywide effort to identify, prioritize, and implement electric vehicle charging stations to facilitate the attainment of the State's vehicle electrification goals in San Bernardino County.

e. *Healthy Communities Best Practices Toolkit*—The San Bernardino County Department of Public Health created a strategic plan for the implementation of Healthy Communities policies. The toolkit, a collaboration between SBCOG and the County, will contain sample policies, resolutions, processes, organizational structure, and lessons learned from agencies that have implemented health-related policies.

f. *Habitat Conservation*—San Bernardino County and SBCOG are collaborating on an effort to create a Regional Conservation Investment Strategy (RCIS) through the process established by the California Department of Fish and Wildlife under AB 2087. A first draft plan was submitted to CDFW in late 2018 and will be developed further in conjunction with resource agencies and a range of stakeholder groups. Habitat connectivity is an important consideration.

3. Western Riverside County Initiatives:

a. *Western Riverside County Climate Action Plan (CAP)*—The subregional CAP was prepared in 2014 to address 2020 and 2035 GHG reduction goals. The subregional CAP is now being updated to address 2030 and 2045 goals.

b. *WRCOG SB 743 VMT Implementation Study*—Lead agencies throughout California have been transitioning from use of LOS analysis for CEQA documents to the use of VMT. This Western Riverside County effort is providing guidance to local jurisdictions for adoption and implementation of their local processes governing VMT analysis.

c. *Sustainability Framework for Western Riverside County*—The framework is a blueprint that serves as a beginning point to establish, implement, and refine a subregional sustainability plan. It provides an integrated approach to sustainability which consists of six core components: economic development; education; health; transportation; water, wastewater, and energy; and the environment.

d. *Multiple Species Habitat Conservation Plan (MSHCP—in place since 2002)*—A comprehensive, multi-jurisdictional conservation plan focusing on maintaining biological and ecological diversity within the urbanizing region. The MSHCP captures approximately 1.26 million acres covering multiple species and multiple habitats within a diverse landscape, from urban centers to undeveloped foothills and montane forests, and many bioregions like the Santa Ana Mountains, Riverside Lowlands, San Jacinto Foothills, and San Bernardino Mountains.

e. *Park and Ride Strategy and Toolkit*—In partnership with San Diego Association of Governments (SANDAG), RCTC completed the Park and Ride Strategy and Toolkit in 2019. It identifies strategies and

tools to help improve the planning, operation, and management of site-specific lots and the regional network as a whole.

4. County or City-level Initiatives:

   a. *Riverside County's Good Neighbor Policy*—The Policy provides a framework for how logistics centers or warehouses greater than 250,000 square feet are designed, constructed, and operated to lessen impacts on surrounding communities and the environment. One such requirement is establishing a 300-foot minimum buffer between truck bays and loading docks and surrounding homes.

   b. *San Bernardino Countywide Vision*—The Countywide Vision Statement, approved in 2011 by SBCTA/SBCOG, its member cities, and the County of San Bernardino, was a bold step toward a sustainable future, setting the County on a sustainable course for nine distinct sectors or elements. The Vision states that: "We envision a sustainable system of high-quality education, community health, public safety, housing, retail, recreation, arts and culture, and infrastructure, in which development complements our natural resources and environment."

   c. Inclusion of transportation-efficient land use policies and other sustainability policies in local general plans and specific plans corridor-wide. See SCAG Local Profiles at https://www.scag.ca.gov/DataAndTools/Pages/LocalProfiles.aspx for additional information on characteristics of each Inland Empire jurisdiction.

2.2 Multimodal Transportation Programs

As indicated earlier, there are programs underway at the Inland Empire level or at the County level that are very much a part of the multimodal transportation strategy but do not fall neatly into the individual sub-corridors. As the sub-corridor strategies are presented, it is important to remember that these programs serve as overlays to the lists of strategies or projects listed at the sub-corridor level. **So if a certain sub-corridor does not seem as multimodal as others, it is important to remember that these program-level activities are still at work to reduce GHGs and VMT as well as to improve system safety, efficiency, and operations.** Many of these involve partnerships across state, regional, and local agencies.

The programs are generally categorized as follows:

- **Active Transportation (AT).** While some AT activities are project-specific, others are programmatic, such as Safe Routes to School or local/regional funding programs, like the Transportation Development Act (TDA) that funds local active transportation projects through a competitive call for projects every odd numbered years.
- **Intelligent Transportation System/Incident Management (ITS/IM).** Examples include signal coordination and freeway service patrols.
- **Rail.** Regional improvements and funding programs are in place that benefit upgrades in the Metrolink commuter rail system.

- **Safety.** Caltrans sponsors ongoing transportation funding initiatives to maintain and provide safety upgrades to local and state highways.
- **Transit (other than rail).** Each transit agency has its own investment plan for improving the customer experience and customer/driver safety.
- **Transportation Demand Management (TDM).** A wide array of TDM strategies is promoted through IE Commuter, from ridesharing to vanpooling to alternative work schedules.
- **Zero Emission Vehicles and Alternative Fuel Programs (ZEV/AF).** There are numerous statewide and regional programs for funding and incentivizing more rapid turnover of auto and truck fleets to benefit air quality and GHG reduction.

A listing of relevant areawide programs is provided in Table 2.1.

Table 2.1 | Areawide Multimodal Programs (not specific to a sub-corridor)

Program Type	Project Title/Description	Partners	Status	Source
AT	Safe Routes to School/for Seniors—Education, Encouragement, Enforcement	RCTC, SBCTA and cities/counties	Ongoing	RCTC Traffic Relief Plan, WRCOG Active Transportation Plan, and SBCo Non-Motorized/AT Plan
AT	Transportation Development Act Article 3 Funding (bike/ped infrastructure, transit operations)	RCTC, SBCTA, cities/counties, transit agencies	Ongoing	TDA
ITS/IM	Freeway Traffic Management System/TMC	Caltrans	Ongoing	Caltrans Planning for Operations
ITS/IM	Interchange and arterial signal coordination and local TMCs	Caltrans Local Jurisdiction TMC	Ongoing	Caltrans Planning for Operations
ITS/IM	Freeway Service Patrols	RCTC, SBCTA, Caltrans, CHP	Ongoing	RCTC/SBCTA FSP Programs
Rail	Ongoing maintenance and schedule upgrades	SCRRA, RCTC, SBCTA	Ongoing	SCRRA SRTP
Rail	Southern California Optimized Rail Expansion (SCORE) Program	SCRRA, SCAQMD, RCTC, SBCTA	Ongoing	SCORE
Rail	Acquisition of clean locomotives	SCRRA, SCAQMD, RCTC, SBCTA	Ongoing	TRP
Safety	State Highway Operation and Protection Program (SHOPP)	Caltrans	Ongoing	SHOPP
Safety	Highway Safety Improvement Program (HSIP)—Competitive program for local safety projects	Cities/counties	Ongoing	HSIP Guidelines
Transit	Ongoing route and schedule upgrades	RTA, Omnitrans, VVTA, and other transit agencies	Ongoing	SRTPs
Transit	Expansion of express and regional bus network with improved frequencies	RTA	Ongoing	SRTPs, RCTC Traffic Relief Plan
Transit	Transit agency responses to CARB Innovative Clean Transit (ICT) rule	RTA, Omnitrans, VVTA, and other transit agencies, and CTCs	Ongoing	Transit Agencies/ SRTPs
Transit	Fare equipment and ITS technology upgrades to improve operations	RTA, Omnitrans, other transit agencies, and CTCs	Ongoing	SRTPs
TDM	Design and construction of Park and Ride Facilities	Caltrans, RCTC, SBCTA, Cities	Ongoing	TRP/CTP
TDM	IE Commuter Rideshare Program and Telework Initiative	RCTC, SBCTA	Ongoing	TRP/CTP
TDM	Vanclub—Riverside County Vanpool Program	RCTC	Ongoing	TRP/CTP
TDM	Loop and VVTA Vanpool Programs	SBCTA, VVTA	Ongoing	TRP/CTP
VE/AF	CARB funding programs (e.g., AQIP)	CARB	Ongoing	
VE/AF	Electric vehicle and charging infrastructure rebates/incentives	State, Utility Cos.	Ongoing	

2.3 Inland Empire CMCP Goals, Objectives and Performance Metrics

The CTC Comprehensive Multimodal Corridor Plan Guidelines (2018), the CTC Solutions for Congestion Corridor Program (SCCP) Guidelines (2020), and the Caltrans Corridor Planning Process Guide (2020) are all guiding documents which contain corridor planning goals, objectives, performance metrics and evaluation criteria for assessing transportation improvement projects at the corridor level. In addition, many other state, regional and local transportation plans include transportation system improvement goals, objectives and performance metrics, such as the Caltrans Smart Mobility Framework, the Regional Transportation Plan, the San Bernardino County Countywide Plan, Transportation and Mobility Element, and the Riverside County Draft Long Range Transportation Plan.

The CTC Solutions for Congested Corridors Program guidelines also state that “the primary objective of the Congested Corridors Program is to fund projects designed to reduce congestion in highly traveled and highly congested corridors through performance improvements that balance transportation improvements, community impacts, and that provide environmental benefits.”

Based on the CTC and Caltrans guidance, objectives of the comprehensive multimodal corridor planning process may include but are not necessarily limited to:

- Define multimodal transportation deficiencies and opportunities for optimizing system operations.
- Identify the types of projects necessary to reduce congestion, improve mobility, and optimize multimodal system operations along highly traveled corridors.
- Identify funding needs.
- Further state and Federal ambient air standards and greenhouse gas emissions reduction standards pursuant to the California Global Warming Solutions Act of 2006 (Division 25.5, commencing with Section 38550, of the Health and Safety Code) and Senate Bill 375 (Chapter 728, Statutes of 2008).
- Preserve the character of local communities and create opportunities for neighborhood enhancement.
- Identify projects that achieve a balanced set of transportation, environmental, and community access improvements.

As noted, a key element of the CMCP is to reduce congestion in highly traveled and highly congested corridors through performance improvements. To measure projects or groups of projects which result in performance improvements in the study area and sub-corridors, a set of transportation performance metrics is applied. Some of these are metrics can be assessed using quantitative data such as transportation model output, while others are qualitatively evaluated based on project type, project location and other factors. This is consistent with the CTC guidelines which state “in recognition that data availability and modeling capabilities vary by agency based on available resources, the Commission expects agencies to address plan and project performance qualitatively and

quantitatively to the degree reasonable given technical and financial resources available during the planning process. As part of the comprehensive multimodal corridor planning process, a plan-level corridor performance assessment must be conducted and documented to clearly outline system performance and trends." The evaluations provided in this plan clearly document the conditions, including congestion levels, in the overall study area and sub-corridors.

Per the CTC and Caltrans corridor guidelines, it is critical to create the multimodal corridor plan that closely match the local and regional goals and objectives for transportation planning. With that in mind, a summary of the goals an objectives of Riverside County and San Bernardino County from the latest transportation plans include:

Riverside County:[5]

- Provide a first class transportation system and supports a vibrant, dynamic and livable county;
- A multimodal system that will promote sustainability, access, safety, economic opportunities, public health, environmental stewardship and balanced job/housing ratio;
- Utilize best available technology;
- Provide reliable and efficient mobility for people goods and services; and
- Preserve values of Riversides County's communities.

San Bernardino County:[6]

- Consolidate and integrate countywide transportation and land use planning to provide consistent input to the RTP/SCS.
- Improve safety and mobility for all modes of travel.
- Deliver transportation projects and services to promote economic competitiveness, affordable housing, environmental quality and overall sustainability.
- Promote stewardship of public resources through cost effective delivery, maintenance and operations of projects.
- Promote the planning and funding of sustainable transportation systems via collaboration with local, regional, state, Federal and private stakeholders.

[5] Draft Riverside County Long Range Transportation Plan, July 2019.

[6] San Bernardino County Countywide Plan, Transportation and Mobility Element, May 2019.

Based on a combination of state, regional and local plans, goals and objectives, the following key performance measures were discussed and chosen by the Inland Empire CMCP Project Management Team to assess the sub-corridor improvements:

- VMT Reduction
- Person Delay Reduction
- Safety Improvement
- Mode Shift
- Person Throughput
- Improve Accessibility
- Reduce GHG and Improve Air Quality
- Improve System Reliability
- Project Deliverability
- Congestion Relief

These performance metrics are used to assess the potential transportation system improvements in each sub-corridor. The intent is not to rank the improvements or measure them against each other, but rather to inform the CMCP and SCCP process regarding how the projects address the overall goals and objectives related to state, regional and local plans. It is also recognized that the county-level plans and Caltrans plans have carefully developed short range, ten year and long range improvement plans with sets of projects that have been reviewed by residents, system users and elected officials. Those plans are used as a backbone for the sub-corridor recommendations, with additional analysis related specifically to the CMCP.

2.4 Consideration of Induced Demand

In 2013, the State of California passed legislation via Senate Bill 743 to change the way agencies analyze transportation improvements and development projects. It charted a path for converting transportation analysis required in the California Environmental Quality Act (CEQA) from a process based in “Level of Service” analysis to a process based on reducing vehicle miles travelled or VMT. Caltrans has been leading the way on implementation of SB 743 and has posted a number of implementing documents on their SB 743/VMT web page at: SB 743 Implementation Resources | Caltrans. The remainder of this section is a general description of the statewide VMT reduction strategy that is now being applied locally as projects are developed, using language extracted from one of the Caltrans VMT implementation fact sheets. The fact sheet states that:

“The goal is more communities where we can travel shorter distances during our daily routines, spending less time behind the wheel. The main strategies include:

- *Streamline development projects that address the affordable housing crisis and deliver walkable, livable neighborhoods.*
- *Promote building in locations where there are alternatives to driving alone, in cities and towns of all sizes.*
- *Support walking, bicycling and transit use.*
- *Move more people with fewer cars, so we’re not stuck in traffic.*

- *Implementing SB 743 will complement other State strategies, such as shifting to zero-emission vehicles, when driving is the right choice"*

Information on induced demand and VMT impacts will be provided as part of the CEQA process on Inland Empire transportation projects going forward as appropriate and consistent with state law and related program guidelines. Caltrans implementation documents will serve as a guide for this analysis, and the process may vary depending on the circumstances and land use context associated with each project. Results will be provided within each CEQA document and/or funding application as appropriate.

3.0 Corridor Characteristics

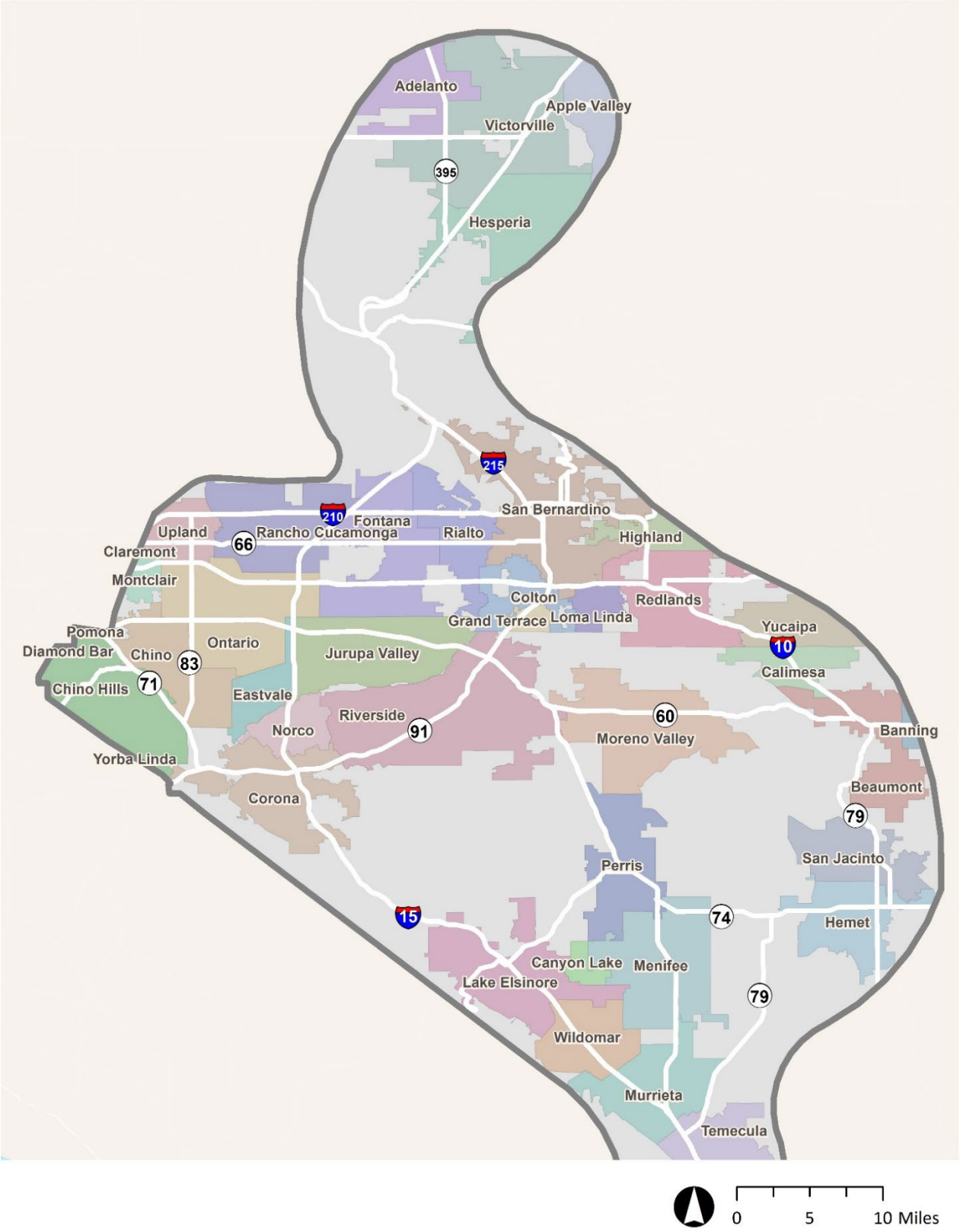
This section provides a baseline assessment of existing travel characteristics and transportation conditions in the overall IE CMCP Study Area. The analysis includes key information needed to understand the flows of people and goods in the Study Area and the mobility deficiencies within the corridors. Transportation choices are a primary theme, but community characteristics and sustainability are major themes of the IE CMCP analysis as well. Information in this section includes commute and non-commute trip characteristics, transportation facility and operational characteristics (all modes), corridor demographics, existing and forecast flows of people and goods, safety, congestion levels, and bottlenecks.

The Corridor Characteristics assessment presents an assessment of land use, demographics, and multimodal transportation conditions in the corridors and provides a baseline assessment upon which future projected conditions will be compared. The section includes the following key sub-sections describing the Study Area:

- Socioeconomic and Land Use
- Corridor Trip Characteristics
- Safety
- Active Transportation
- Freeway and Arterials
- Transit
- Freight Network
- Future Growth and Projected Changes

Figure 3.1 illustrates the overall Study Area, which includes substantial portions of the urbanized Inland Empire of the Southern California region (excluding the Coachella Valley area), which is defined generally as the western portions of the counties of Riverside and San Bernardino. As mentioned elsewhere in this report, the Study Area is further disaggregated into 10 sub-corridors for strategic planning, assessments, and project recommendations. However, this section of the report describes conditions throughout the overall Study Area, and the 10 sub-corridors are discussed in detail in Chapter 5.

Figure 3.1 | Overall Study Area



3.1 Socioeconomic and Land Use Assessment

This section presents an assessment of the socioeconomic and land use characteristics of the Study Area, to help understand transportation conditions and choices. This assessment examines characteristics about the population living and working in the corridors, including population density, employment density, income, and other characteristics that influence travel behavior. The assessment is based on SCAG's 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) data and data from the U.S. Census Bureau's American Community Survey (ACS) 2015 5-year estimates.

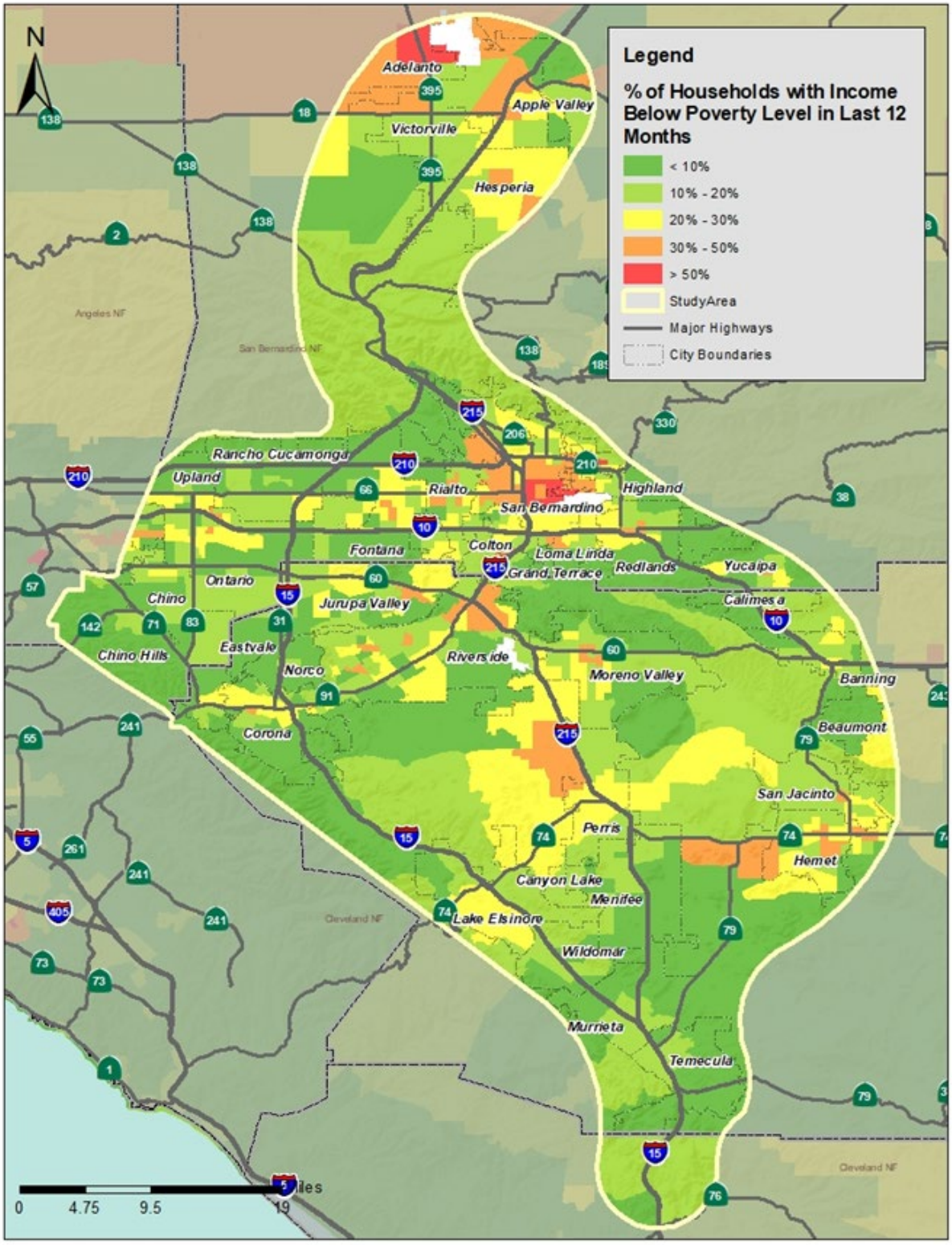
3.1.1 Socioeconomic Characteristics

Income and Poverty Levels

Household income is a key measurement of the Study Area's residents' financial well-being, and the region's standard of living. In addition to salary or wage increases, household income grows when additional household members join the rank of workers—which often aligns with times of economic prosperity, just as it typically shrinks when household members retire or remove themselves from the workforce. Income also is directly related to travel choices. Those who can afford to own a car often choose to not ride transit. Recent studies indicate that rising incomes, combined with lower interest rates and longer terms for new and used cars, have made auto ownership more affordable in recent years. This has resulted in reduced transit ridership in the SCAG region as well as throughout the country. The Study Area's highest-income households are generally concentrated in communities on the western portion of the Study Area such as neighborhoods in the cities of Corona, Chino, Chino Hills, Eastvale, Upland, Rancho Cucamonga, and Fontana. Figure 3.2 illustrates the locations within the Study Area with income levels below poverty level, by percentile. The residents in these areas would be expected to be more transit dependent than the rest of the Study Area.

The Study Area has low- and moderate-income households that are dispersed in various areas. As housing costs are rising in other parts of the Southern California region, many low- and middle-income households are relocating to the Study Area. Areas with relatively lower income and higher poverty rates include neighborhoods in portions of San Bernardino, Riverside, Hemet, Moreno Valley, Adelanto, and others. Related to transportation corridors, some of the lowest income areas are located at the junction of the SR-91/I-215/SR-60, along the I-215 and SR-210, SR-74, as well as to the far northern end of the Study Area near the communities of Apple Valley, Victorville, and Adelanto.

Figure 3.2 | Household Income Below Poverty Levels

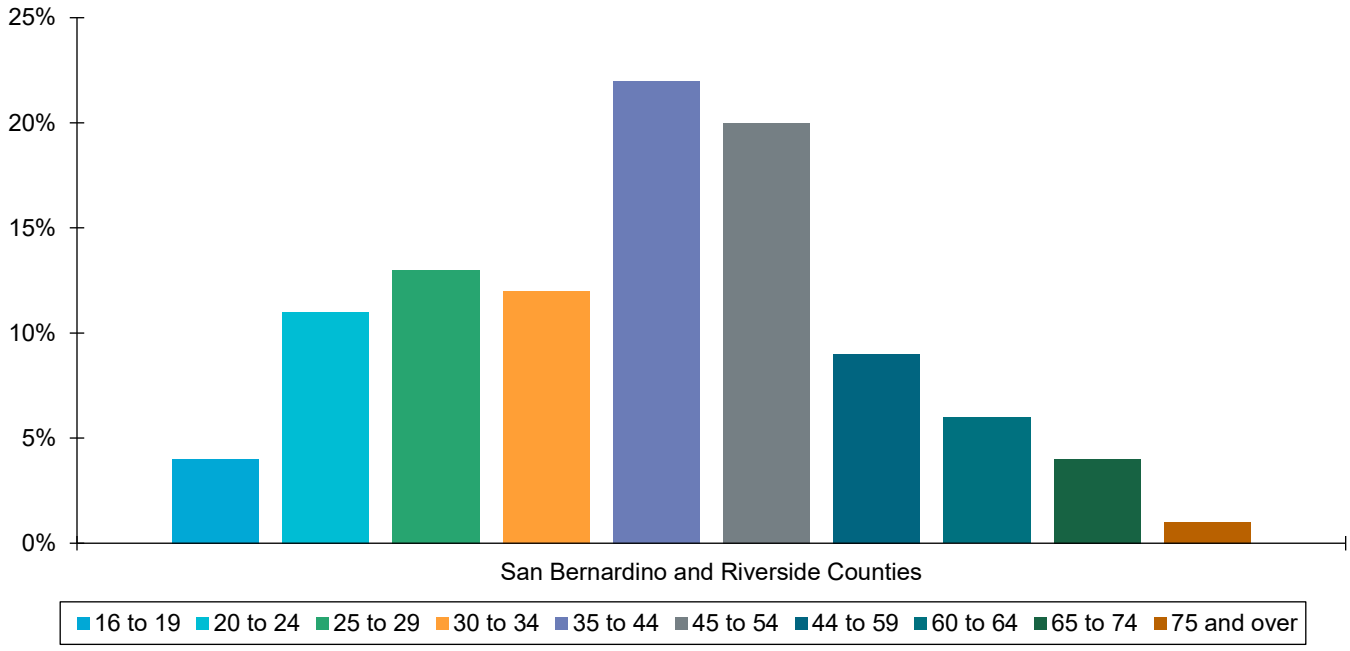


Source: ACS 2018, 5-year estimates.

Labor Force Population

Around 2.1 million people make up the labor force of San Bernardino and Riverside counties. The average age of the labor force is around 40.5 years old. Detailed distribution of labor force by age is shown in Figure 3.3. Breaking the workforce down by race and ethnicicty, approximatly 52 percent—the majority—of the labor force is Hispanic or Latino. The second largest racial group is non-Hispanic white. Other significant population groups are Black (7 percent) and Asian (7 percent).

Figure 3.3 | Labor Force Age Distribution



Source: ACS 2018, 1-year estimates.

Senior and Youth Population Density

Neighborhoods with high senior and youth populations require different transportation solutions compared to the general population. The senior population typically faces greater challenges for getting around due to their fixed income, age, and disabilities. The population under the driving age also has more limited access to mobility due to cost, limited access to vehicles, and restrictions to obtaining a driver's license. The driving age in California is 16. Enhancements to transit and active transportation may be some of the appropriate solutions that help seniors and youths get around independently to meet everyday needs.

Senior Population

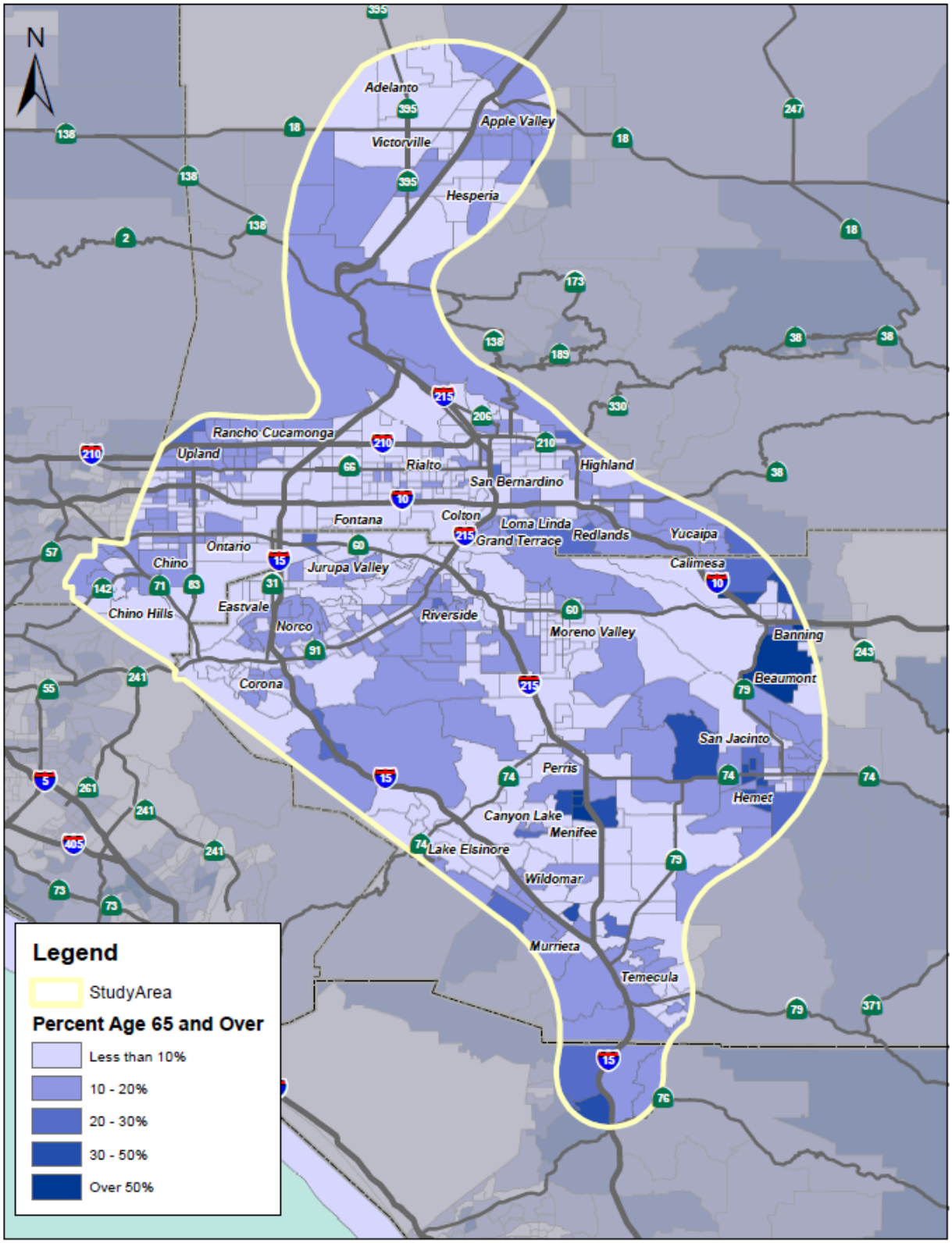
Around 421,000 residents in the Study Area are age 65 and older, representing nearly 11 percent of the population. Figure 3.4 illustrates the population density of the senior population. The neighborhoods with the highest share of senior population are in the eastern edge of the Study Area in Banning/Beaumont and the southern section of the

Study Area in Menifee/Temecula. The Inland Empire, particularly in the eastern and southern portion of the Study Area, is an attractive location for seniors to live in Southern California where housing is more affordable. The highest concentration of seniors can be found in retirement communities in Beaumont and Menifee where there is a 55+ age minimum for residents.

Youth Population

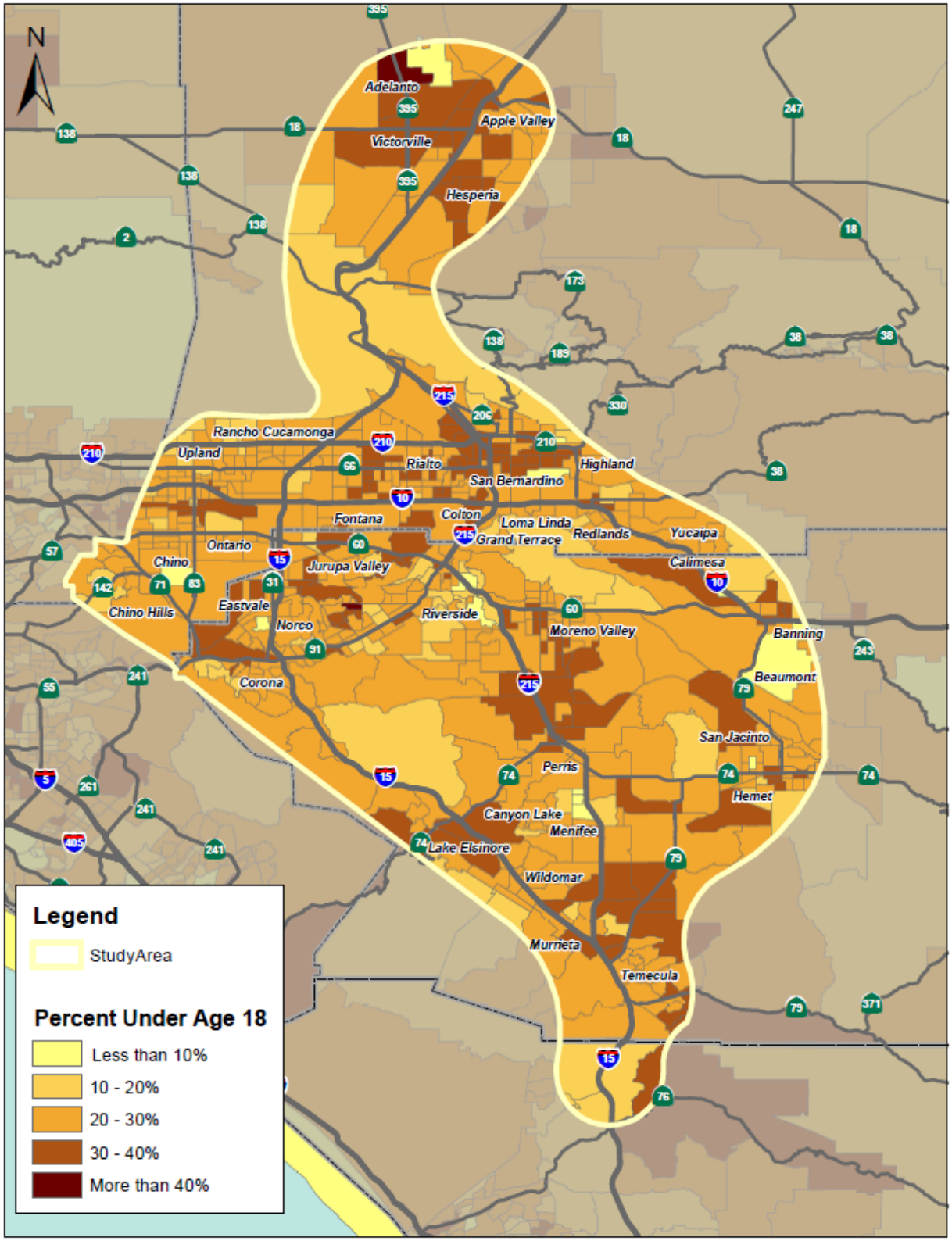
Around 1,044,800 residents in the Study Area are under the age of 18, representing nearly 27 percent of the population. Figure 3.5 illustrates the population density of the youth population. The neighborhoods with the highest shares of population under 18 can be found throughout the Study Area. At the northern edge of the Study Area, some neighborhoods in Adelanto, Victorville, and Hesperia have neighborhoods with one in three residents under 18. Along the I-10/SR-210 corridor, the cities of Rialto and San Bernardino have significant populations under 18. North of SR-91, neighborhoods in Jurupa Valley have high shares of youth residents. In the southern portion of the Study Area, neighborhoods in Murrieta, Lake Elsinore, and Perris have a large share of population under age 18.

Figure 3.4 | Senior Population Density



Source: 2017 5-year ACS.

Figure 3.5 | Youth Population Density



Source: 2017 5-year ACS.

Environmental Justice Measures

Communities of Concern

SCAG maintains a list of "Communities of Concern" (COC), which are Census Designated Places (CDP) that represent the top 33 percent of minority and low-income residents. SCAG tracks changes to the composition of these areas as part of their Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS) updates. Out of the 80 COCs in the six-county SCAG region, portions of nine COCs are within the Study Area (see Table 3.1).

Table 3.1 | SCAG Designated Communities of Concern in Study Area

Community of Concern	
Mead Valley	Adelanto
Perris	Bloomington
Muscoy	Colton
Montclair	San Bernardino
Rialto	

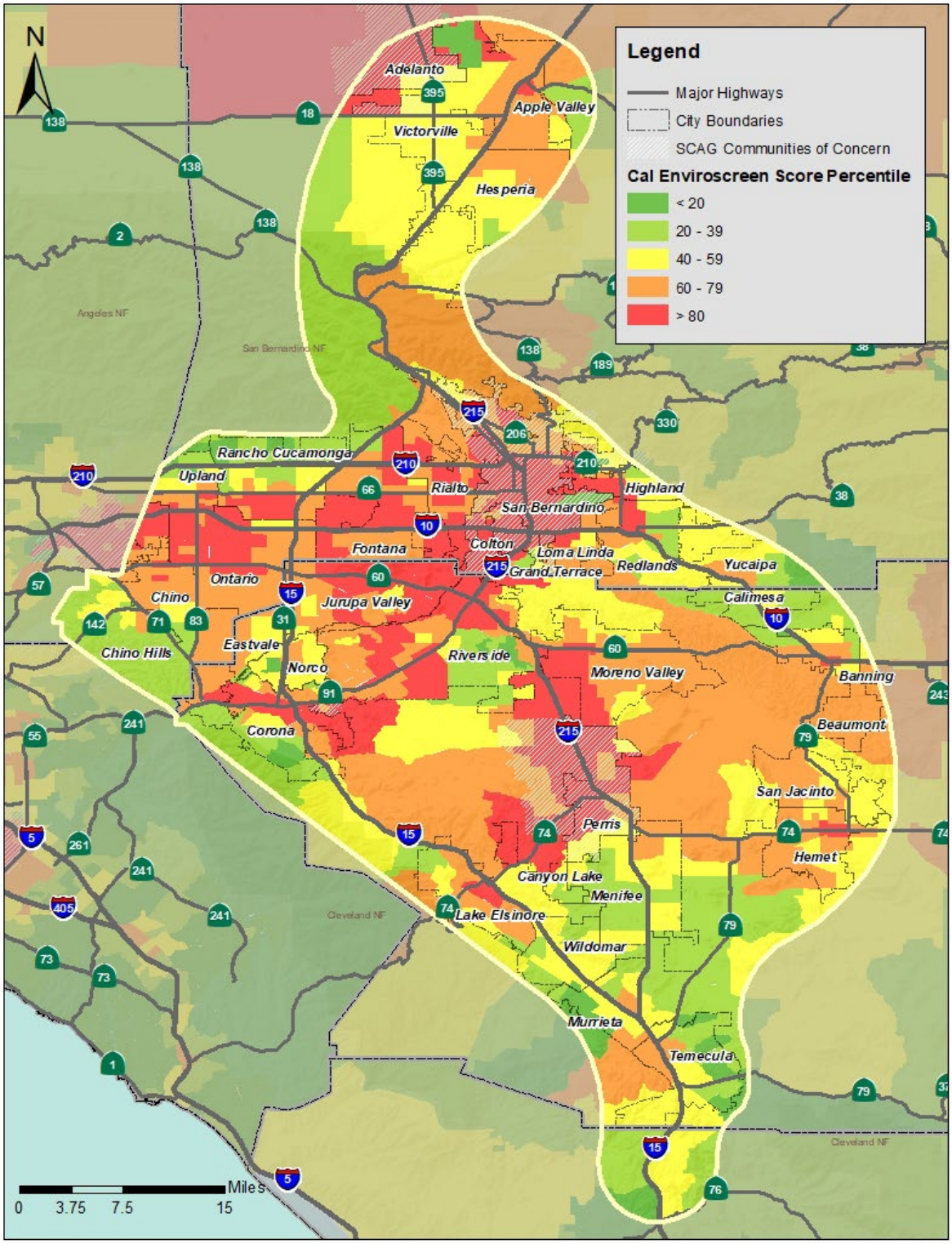
Source: SCAG 2016.

CalEnviroScreen

The California Environmental Protection Agency (CalEPA) and the Office of Environmental Health Hazard Assessment (OEHHA) developed CalEnviroScreen to compare the relative pollution burden for communities across the state. Based on 20 pollution and socioeconomic indicators, the tool ranks each census tract based on the population's vulnerability to environmental pollution. Various statewide funding programs, including the Cap and Trade and Active Transportation Programs, use the CalEnviroScreen definition of "disadvantaged community." This definition includes the Census Tracts with the top 25 percent most disadvantaged scores in the state. Most of these Disadvantaged Communities are represented by the orange and red colored census tracts illustrated in Figure 3.6.

The Study Area's combination of pollution burden and population characteristics give it high CalEnviroScreen scores in some areas, meaning there are many pollution-burdened and vulnerable communities throughout the Study Area. In general, many census tracts in the Study Area are more likely to have a high CalEnviroScreen score compared to the Southern California region as a whole, and the Study Area has comparatively higher concentrations of air pollutants (ozone + particulate matter) and higher poverty rates than the region as a whole. Communities of concern are located along the I-10 corridor, Jurupa Valley, Riverside, Moreno Valley, Perris, Corona, Temescal Valley, and San Jacinto Valley. There are generally no Disadvantaged Communities in the areas south of SR-74 and south of the communities of Lake Elsinore, Perris, and Hemet. This is likely attributed to higher household incomes and lower poverty rates for census tracts in the southern portion of the Study Area which is more proximate to San Diego County.

Figure 3.6 | CalEnviroScreen and SCAG Communities of Concern

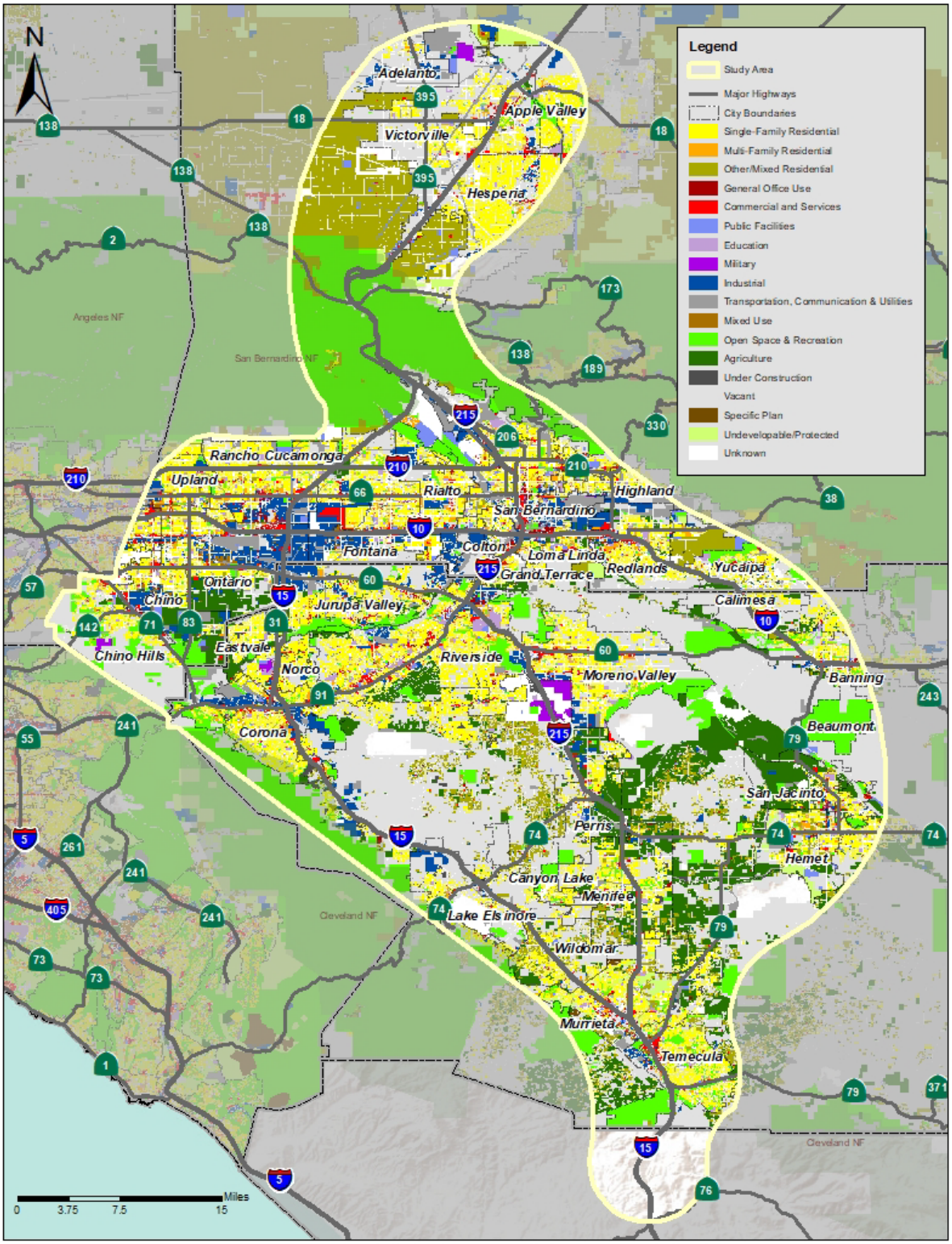


Source: CalEPA CalEnviroScreen 3.0; SCAG 2016 RTP.

3.1.2 Land Use

The Study Area covers over 1.2 million acres of land in the Inland Empire. Development in the Study Area is spread over two dozen jurisdictions and unincorporated areas. In the region's early history, development began as vacant land was converted to agricultural use. Farming plays a less prominent role in the Study Area today, but large swaths of undeveloped, vacant, open space/recreation, and agriculture lands still exist between urbanized areas as presented in Figure 3.7 and Table 3.2. These types of land represent over half (53 percent) of the Study Area. Agriculture land is primarily located in the Temecula Valley, Menifee Valley, Perris Valley, and San Jacinto Valley in the southern portion of the Study Area, as well as in Chino and southern Ontario in the western portion of the Study Area.

Figure 3.7 | Study Area Land Use



Source: SCAG 2012 Land Use.

Table 3.2 | Land Use Type by Share of Study Area

Land Use Type	Acreage	Percent of Study Area
Vacant	367,000	30.3%
Single-Family Residential	208,573	17.2%
Open Space/Recreation	175,702	14.5%
Agriculture	93,439	7.7%
Other/Mixed Residential	86,558	7.1%
Unknown	66,448	5.5%
Industrial	49,630	4.1%
Transportation, Communication, and Utilities	44,411	3.7%
Commercial	22,436	1.9%
Water	17,860	1.5%
Facilities	16,155	1.3%
Education	15,546	1.3%
Multifamily Residential	15,467	1.3%
Undevelopable or Protected Land	9,977	0.8%
Military	8,110	0.7%
Under Construction	6,233	0.5%
Office	5,052	0.4%
Mixed Commercial/Industrial	2,395	0.2%
Specific Plan	418	0.0%
Mixed Residential/Commercial	176	0.0%
Grand Total	**1,211,587**	**100.0%**

Source: SCAG 2012 Land Use.

The region also has a long history of industrial and commercial land use. During World War II, military installations—such as March Air Reserve Base, which is still active today—brought manufacturing and steel production to the region. While the manufacturing industry has declined in the Inland Empire, it has been superseded by a booming logistics industry which is characterized by enormous warehouse and distribution facilities. So much so that Amazon Air currently operates six flights a day out of the March Air Base, in addition to Ontario International Airport. Warehouse and distribution centers have large footprints and require big parcels of land with access to transportation facilities. Abundant and more affordable land adjacent to a strong regional transportation system has made the Inland Empire a particularly attractive location for companies to position their distribution facilities.

Today, industrial and commercial land use represents 6 percent of the land in the Study Area. The greatest concentration of industrial and commercial land use is along the I-10 and I-15 corridors stretching from Ontario to San Bernardino. This land is proximate to trucking corridors that transport goods from the ports of Los Angeles and Long Beach to the rest of the country and Ontario International and San Bernardino International airports, both of which are major cargo hubs. The southern edge of Moreno Valley and northern edge of Perris along the I-215 has another concentration of industrial land use for warehousing. The cities of Corona (along the SR-91), Murrieta (near I-15), and Temecula (near I-15) also have industrial and commercial centers.

Of the remaining land in the Study Area, the vast majority is single-family residential land use representing 17 percent of the Study Area. Rising home and land prices in neighboring coastal zones have brought housing booms

to the region. Developers have converted large vacant or agriculture lands into new single-family residential subdivisions attracting homeowners seeking more affordable housing. Concentrations of single-family subdivisions can be found from the Victor Valley area in the most northern edge of the Study Area, through the SR-210/Foothill Boulevard (SR-66) corridor between Upland and Highland, in Chino and Chino Hills at the western edge of the Study Area, Jurupa Valley, along SR-91 corridor, Moreno Valley, Redlands, and Murrieta/Temecula in the south portions of the Study Area.

The Temecula Valley area in the southern most region of the Study Area is an international resort destination with nearly 3 million visitors each year.[7] Major destinations in Temecula Valley include Wine Country, the Historic Old Town Temecula, and Pechanga Resort & Casino.

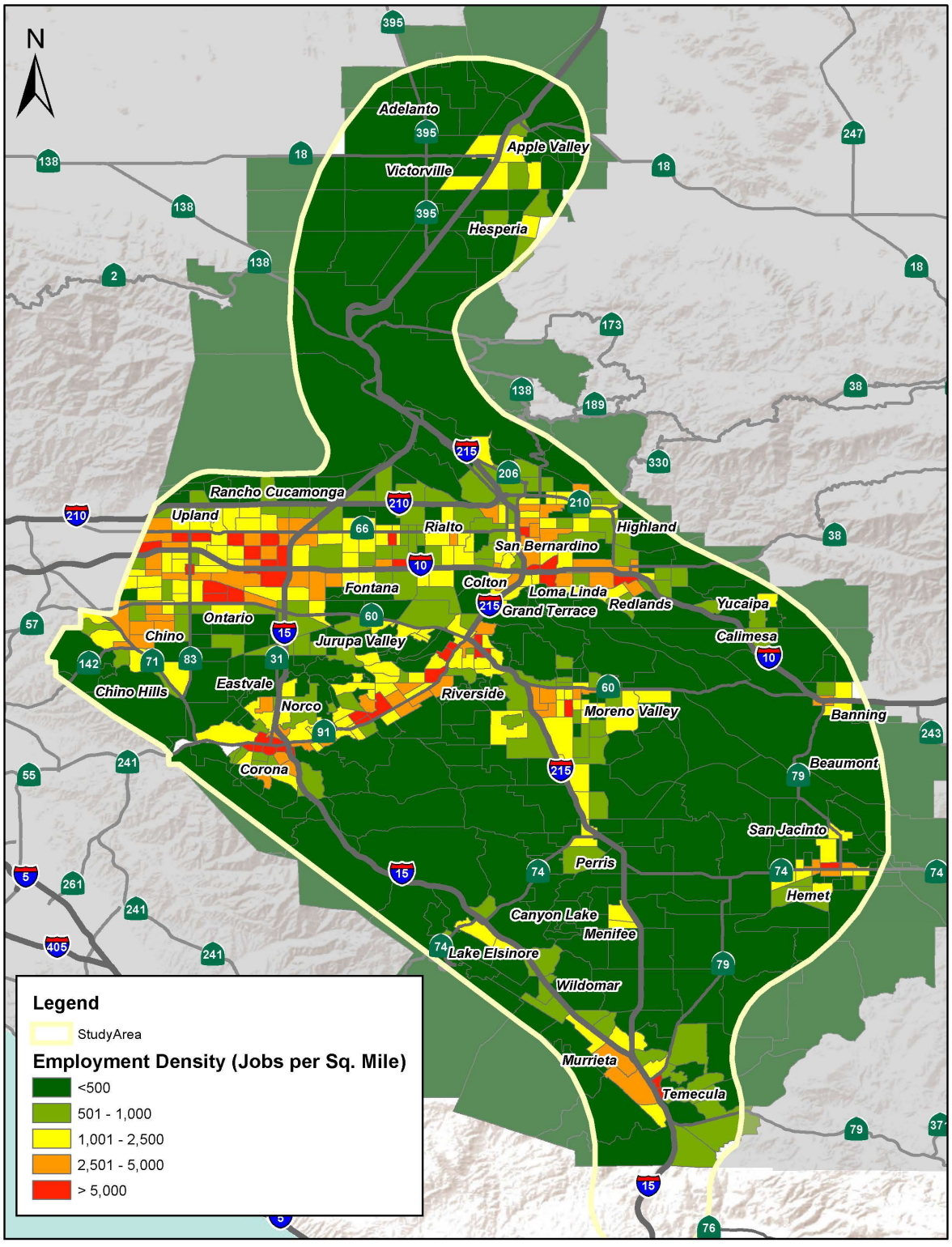
Employment Density

1.2 million workers are employed in the Study Area, representing over 80 percent of the total jobs in San Bernardino and Riverside counties. The industries with the most jobs include: health care and social assistance, retail trade, accommodations, food services, educational services, and transportation and warehousing. Since the end of the Great Recession, the Inland Empire has had one of the fastest growing economies of large metro areas in the country, with job growth in San Bernardino and Riverside counties outpacing the growth statewide. Job growth in the Study Area has been fueled by new transportation and warehousing, construction, health care, accommodation, and food services jobs. Between 2010 and 2019, transportation and warehousing industry added 74,600 jobs (115% growth), construction industry added 43,000 jobs (73% growth), health care and social assistance indutry added 79,900 jobs (55% growth), and accommdation/food service industry added 47,100 jobs (45% growth) in Sanbernardino and Riverside counties.

Existing jobs are dispersed throughout the urbanized areas of the Study Area and, unlike most metropolitan areas, there are no typical dense urban job core areas, as only a handful of census tracts have employment density of greater than 5,000 jobs per square mile as shown in Figure 3.8. The areas with relatively dense concentrations of jobs can be found in the cities of Riverside, San Bernardino, and Ontario, primarily along the I-10, SR-60 and SR-91 corridors.

[7] https://www.visittemeculavalley.com/about/.

Figure 3.8 | Employment Density

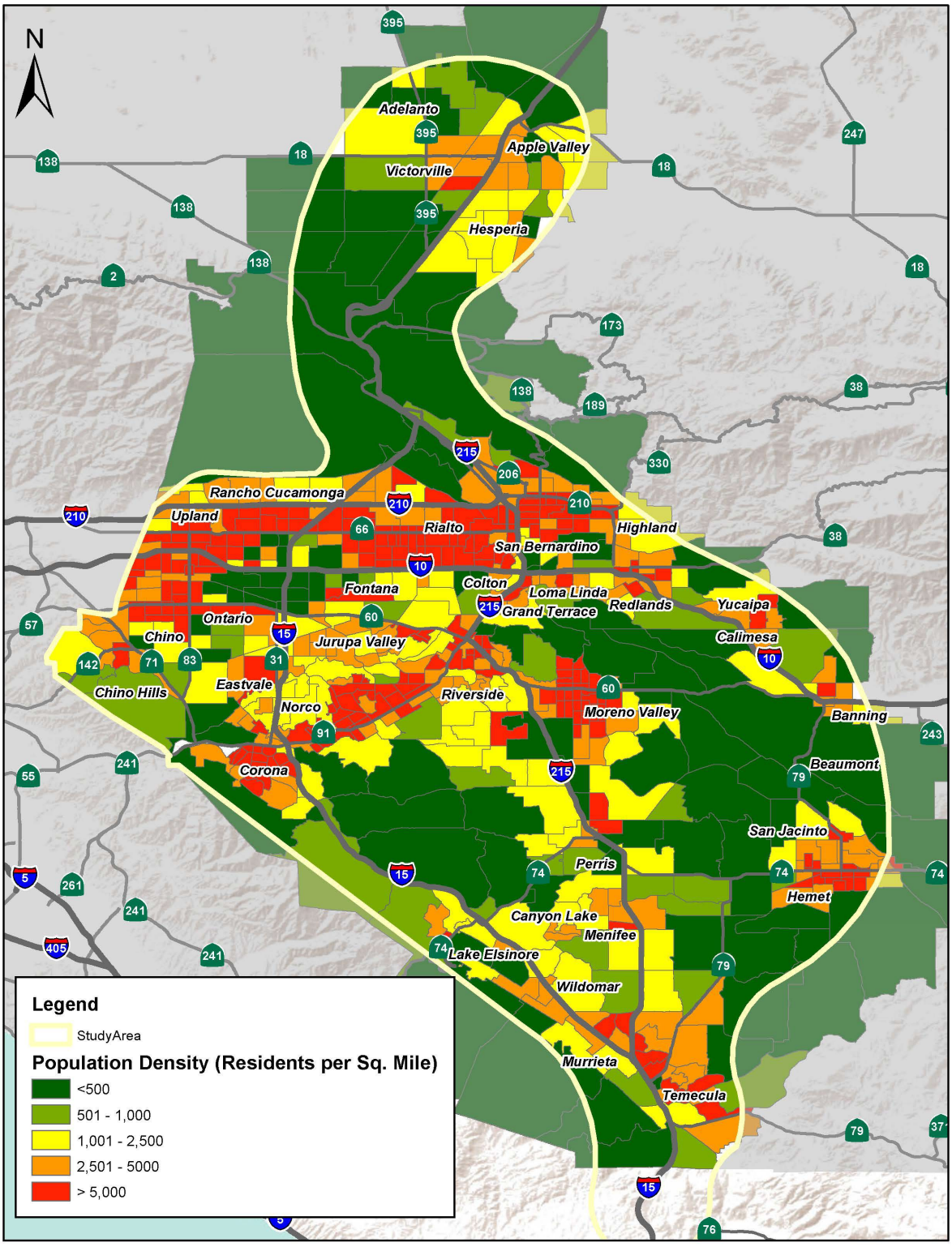


Source: SCAG 2016 RTP/SCS.

Population Density

The areas with the greatest population density generally fall along the SR-210/I-10 and SR-91 corridors in a number of cities, with population density greater than 5,000 persons per square mile, as shown in Figure 3.9. Some additional concentrations of higher population density also occur in the southern area along I-15 in Murrieta and Temecula, as well as in the Hemet/San Jacinto areas. Note that areas of higher population density also generally correlate with areas of higher employment density, with the exception of the southern portion of the Study Area which has higher population density but fewer jobs.

Figure 3.9 | Population Density

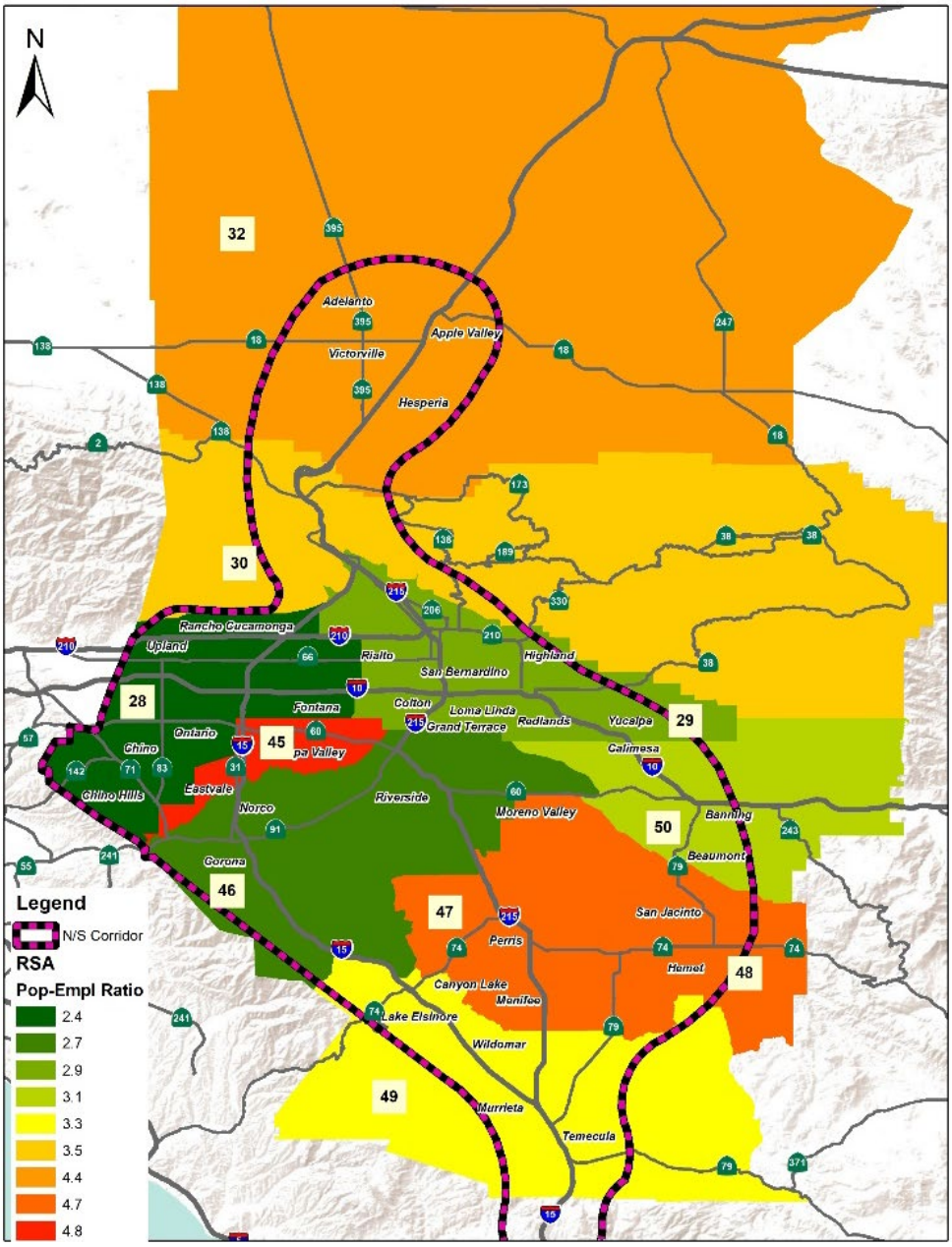


Source: SCAG 2016 RTP/SCS.

Population to Employment Ratio

Recent job growth in the region has helped move the needle in reducing the population to employment ratio imbalance in the Study Area. Overall, there are 3.1 persons per job in the Study Area which is high compared to the SCAG region's 2.3 persons per job. The population to employment ratios are lowest along the I-10 corridor and SR-91 corridors, ranging from 2.4 to 3.1 person per job as shown in Figure 3.10. The Jurupa Valley, SR-74 corridor, and Victor Valley areas have the highest population to employment ratios where there are fewer jobs. This means many residents in these areas must commute long distances to other areas inside or outside the Study Area for work.

Figure 3.10 | Population-Employment Ratio



Source: SCAG 2016 RTP/SCS.

3.2 Corridor Trip Characteristics

This section identifies trip origins and destinations and other trip characteristics in the Study Area to convey an understanding of the nature of travel activities that may be directly addressed by complementarily transportation improvements. The analysis of the origins and destinations of travelers is primarily based on SCAG's regional travel demand model data, as well as American Community Survey census data.

3.2.1 Trip Characteristics

There are over nine million daily auto trips made by residents and employees in the Study Area. These trips represent most of the travel in the Study Area as it is heavily auto-centric with 92 percent of commute activities occurring by car. Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. As illustrated in Table 3.3, about eight out of 10 of those trips are internal-internal trips, meaning they start and end within the Study Area. Internal-internal trips include commute travel for workers who live and work in the Study Area, as well as local trips for daily activities such as grocery shopping, school drop-off/ pick-up, and leisure which are often proximate to home.

The remaining trips travel to or originate from outside of the Study Area (internal-external or external-internal trips). Around one million trips are made between the Study Area and Los Angeles County every day, representing around six percent of all trips. Around 400,000 daily trips are made between the Study Area and Orange County as well as 150,000 daily trips between the Study Area and San Diego County.

Table 3.3 | 2016 Daily Trips by Type

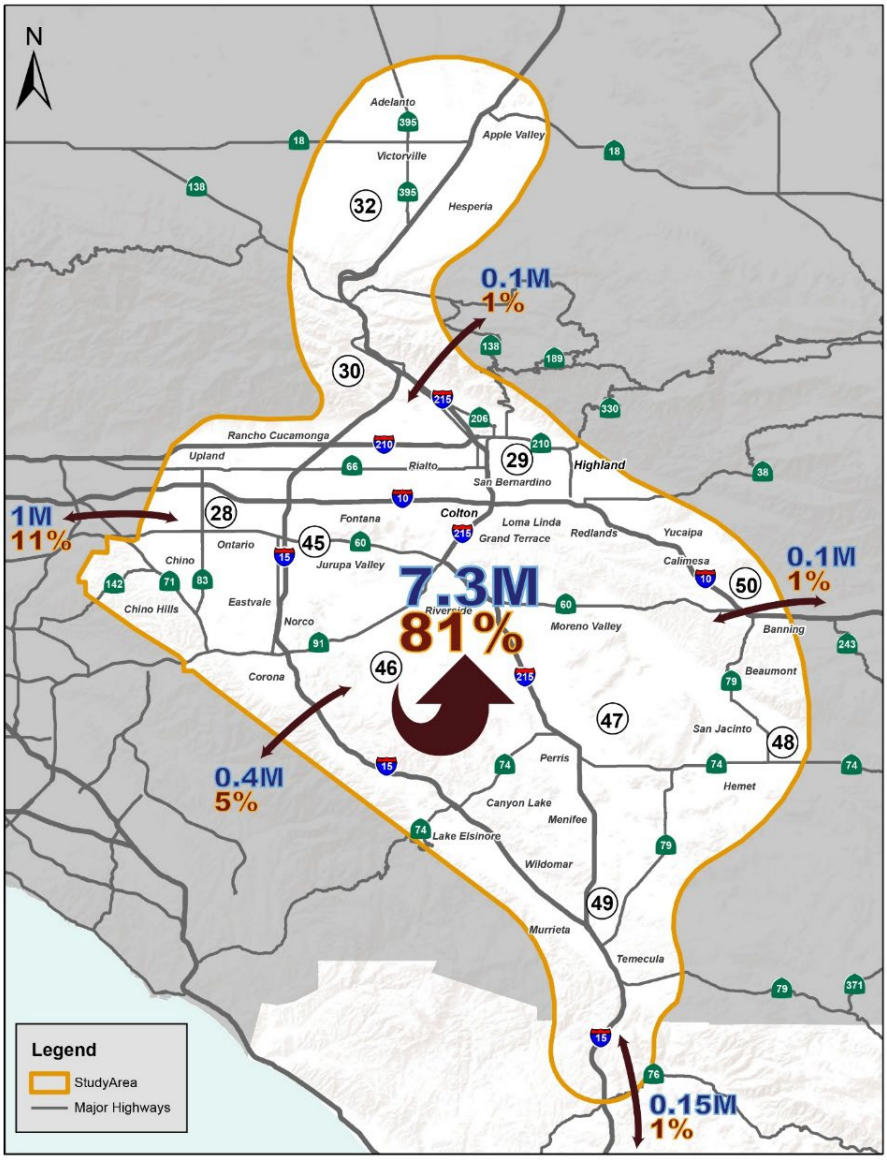
Trip Type	Number of Trips	Percentage
Internal—Internal Trips	7,299,000	81%
Internal—External and External—Internal Trips	1,713,000	19%
Study Area—Los Angeles County Trips	997,000	11%
Study Area—San Bernardino County Trips	55,000	1%
Study Area—Orange County Trips	448,000	5%
Study Area—Riverside/Imperial County Trips	84,000	1%
Study Area—San Diego Trips	129,000	1%
Total Trips	**9,012,000**	**100%**

Source: SCAG Model 2016.

Figure 3.11 shows both internal and external trips. As shown, the following trip patterns are observed for the external trips (19 percent of all trips):

- Eleven percent of the trips or about 1 million daily trips (equaling almost two thirds of the external trips) are to/from the Los Angeles County area to the west.
- Five Percent of the trips or about 400,000 daily trips (equaling about a quarter of the external trips) are to/from Orange County to the southwest.
- Approximately 1 percent of the trips are to/from areas to the south, east and north.

Figure 3.11 | Existing Daily Auto Trips in and to/from Study Area



Source: SCAG Model, 2016.

The study area is divided into areas called Regional Statstical Areas (RSAs) as defined by SCAG. RSAs are based on census blocks and provide a common ground for transportation analysis. Table 3.4 lists the RSA by Study Area cities. The daily distribution of trips at the level of the RSA is illustrated in Figure 3.12. As shown, for trips within the Study Area, many of the internal-external trips originate from places in the Study Area along the I-10 and SR-91 corridors. In those corridors, there is approximately a 50-50 split for trips that stay within their RSA and those that go elsewhere. In the Victor Valley, Temecula Valley/Lake Elsinore, and Hemet RSAs, more trips stay within their RSA. Conversely, in the Jurupa Valley, Perris/Moreno Valley, and Banning RSAs, more trips leave than stay within

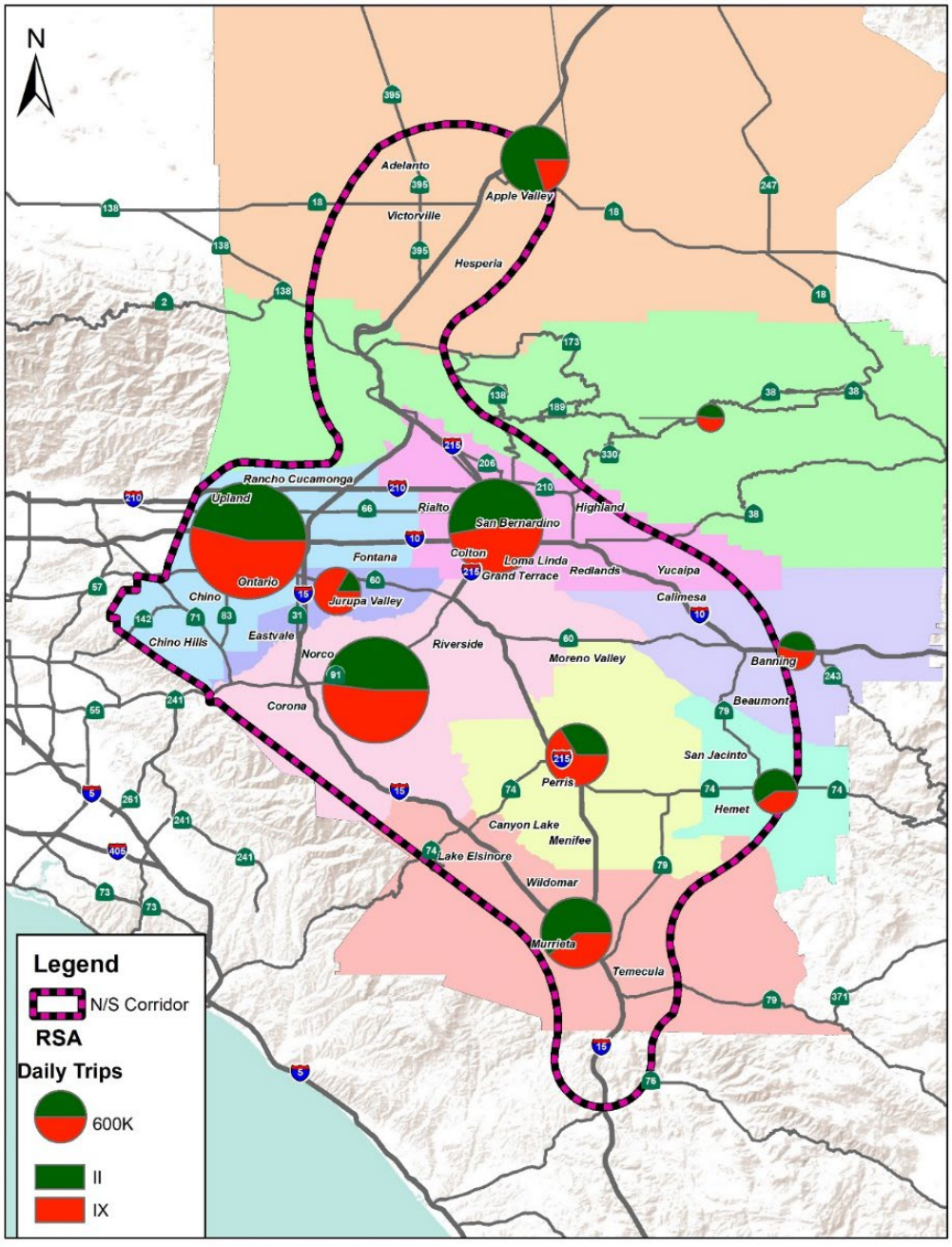
their RSA. Areas which have a higher share of trips that leave the RSA likely have residents that must commute longer distances for work.

Table 3.4 | Regional Statistical Area by Cities

RSA	City
28	Chino
28	Chino Hills
28	Fontana
28	Montclair
28	Ontario
28	Rancho Cucamonga
28	Upland
29	Colton
29	Grand Terrace
29	Highland
29	Loma Linda
29	Redlands
29	Rialto
29	San Bernardino
29	Yucaipa
45	Eastvale
45	Jurupa Valley
46	Corona
46	Norco
46	Riverside
47	Canyon Lake
47	Menifee
47	Moreno Valley
47	Perris
48	Hemet
48	San Jacinto
49	Lake Elsinore
49	Murrieta
49	Temecula
49	Wildomar
50	Banning
50	Beaumont
50	Calimesa

The largest RSA-to-RSA flow of trips is between the Ontario and San Bernardino areas. The second largest RSA-to-RSA flows are between the Ontario and Riverside/Corona areas and the San Bernardino and Riverside/Corona areas. There are also a sizable number of trips from Perris/Moreno Valley to the Murrieta/Temecula areas and the Riverside/Corona areas.

Figure 3.12 | Trip Patterns by Regional Statistical Area



Source: SCAG Model, 2016.

3.2.2 Journey-to-Work

Table 3.5 shows the county-to-county commuting flows and indicate that a fair number of residents in the Study Area work in neighboring counties. 17 percent of workers living in San Bernardino County and 6 percent of workers living in Riverside County commute to jobs in Los Angeles County. Eight percent of workers who live in Riverside

County commute to Orange County and four percent of workers who live in San Bernardino County commute to Orange County. Five percent of workers who live in Riverside County and 0.3 percent of workers who live in San Bernardino County commute to jobs in San Diego. Housing costs in the coastal counties continue to rise and many workers in adjacent counties either choose or are forced to live in the Study Area where housing is more affordable.

Table 3.5 | County-to-County Commuting Flows

County of Residence	Place of Employment	Percentage of Workers
Riverside County	Riverside County	69%
	San Bernardino County	11%
	Orange County	8%
	Los Angeles County	6%
	San Diego County	5%
	Other	1%
San Bernardino County	San Bernardino County	70%
	Los Angeles County	16%
	Riverside County	8%
	Orange County	4%
	San Diego County	0.3%
	Other	1%

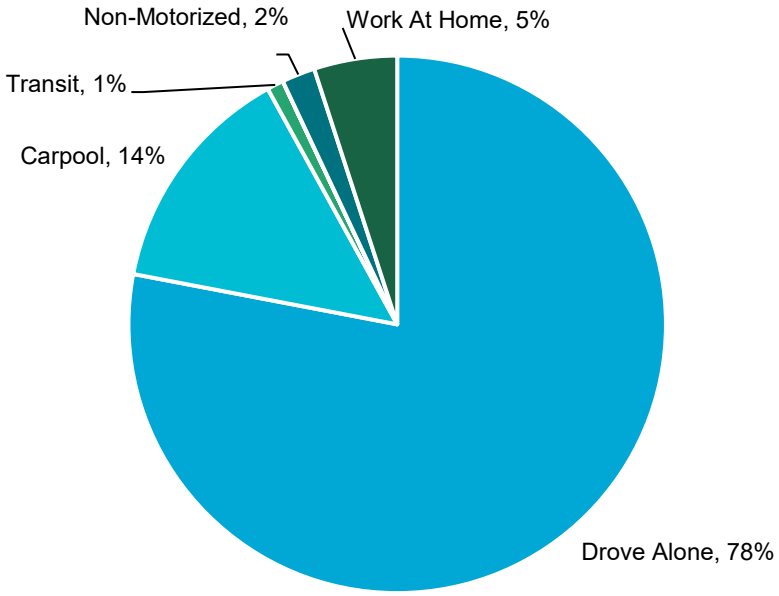
Source: ACS 2012-2016 via CTPP (Census Transportation Planning Products) County to County Flows.
Note: This data includes all Riverside County (including outside of the Study Area).

Journey to work mode share is shown in Figure 3.13. Overall, 92 percent of commute trips in the Study Area are completed by car. High auto use is often found in suburban and rural areas with lower-density land use patterns such as the Inland Empire. Transit accounts for just one percent of commutes, while 5 percent of residents work at home.

Notably, when examining the group that commutes by car, there is a sizeable portion of commuters that carpool. In the Study Area, 78 percent of workers drive alone and 14 percent carpool. The share of commuters that carpool is higher in the Study Area as compared to California as a whole (14 percent in the Study Area compared to 10 percent in California). Carpooling is particularly popular in Hemet/Perris/Moreno Valley areas where 16-17 percent of residents in the Study Area carpool to work.

Work at home is the third most popular option in the Study Area after drive alone and carpool as presented in Table 3.6. Five percent of workers in the Study Area work at home. It is particularly popular in the Murrieta/Temecula area where six percent of workers work from home.

Figure 3.13 | Study Area Journey-to-Work Mode Share for Study Area



Source: ACS 2017, 5-year estimates.

Table 3.6 | Journey-to-Work Model Share by RSA (ACS)

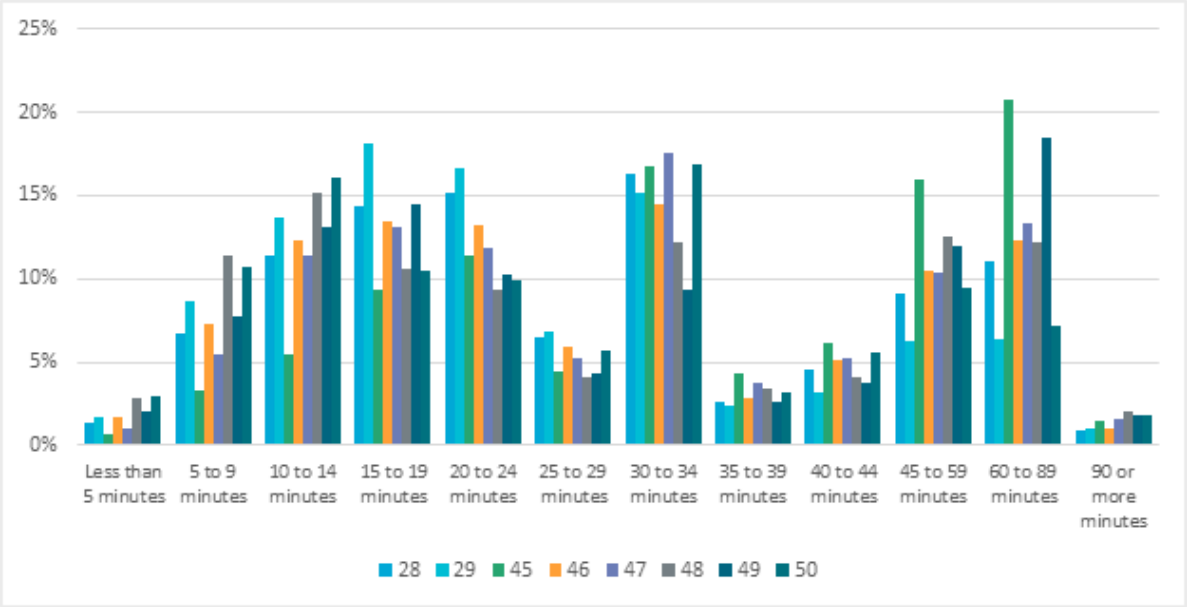
RSA	Drive Alone	Carpool	Transit	Non-Motorized	Work at Home
28—Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland	79%	13%	2%	1%	5%
29—Colton, Grand Terrace, Highland, Loma Linda, Redlands, Rialto, San Bernardino, Yucipa	78%	14%	2%	2%	4%
45—Eastvale, Jurupa Valley	77%	14%	2%	0%	6%
46—Corona, Norco, Riverside	76%	15%	2%	3%	5%
47—Canyon Lake, Menifee, Moreno Valley, Perris	78%	16%	1%	1%	4%
48—Hemet, San Jacinto	75%	17%	1%	3%	4%
49—Lake Elsinore, Murrieta, Temecula, Wildomar	78%	14%	0%	1%	6%
50—Banning, Beaumont, Calimesa	80%	11%	1%	2%	4%
All	78%	14%	1%	2%	5%

Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 95 percent of workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions is reflected in the commute times for the Study Area as presented in Figure 3.14 and Table 3.7. Nine percent of workers in the Study Area commute less than 10 minutes while nearly half (46 percent) of all workers' commute are between 10 to 30 minutes.. Thirty-two percent have a 30 to 60 minute commute and 13 percent commute over one hour.

Commuting time varies based on place of residence, place of employment, and mode of travel. Typically, in metro areas, commute time distribution skews toward shorter commutes. In the Study Area, however, only RSA 29 (Colton, Grand Terrace, Highland, Loma Linda, Redlands, Rialto, San Bernardino, Yucaipa) for the San Bernardino area has commute time distribution that is skewed toward shorter commutes. The other RSAs have commute times which skew toward long commutes (over 30 minutes). When it comes to long commutes, RSA 45 (Jurupa Valley) stands out for having particularly long commutes with the plurality of commuters traveling over 30 minutes to work and about 25 percent commuting over one hour. Jurupa Valley is primarily a bedroom community with many residents having to travel outside of the RSA for work. In addition to long distances, congestion on highways in the Study Area also lengthens door-to-door commute times.

Figure 3.14 | Journey-to-Work Travel Time Distribution by RSA



Source: ACS 2017, 5-year estimates.

Table 3.7 | Journey-to-Work Travel Time Distribution

RSA	<10 mins	10 to 30 mins	30-60 mins	>60 mins
28—Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, Upland	8%	47%	33%	12%
29—Colton, Grand Terrace, Highland, Loma Linda, Redlands, Rialto, San Bernardino, Yucipa	10%	55%	27%	7%
45—Eastvale, Jurupa Valley	4%	31%	43%	22%
46—Corona, Norco, Riverside	9%	45%	33%	13%
47—Canyon Lake, Menifee, Moreno Valley, Perris	6%	42%	37%	15%
48—Hemet, San Jacinto	14%	39%	32%	14%
49—Lake Elsinore, Murrieta, Temecula, Wildomar	10%	42%	28%	20%
50—Banning, Beaumont, Calimesa	14%	42%	35%	9%
Average	9%	46%	32%	13%

Source: ACS 2017, 5-year estimates.

3.2.3 Rideshare

Rideshare programs provide the flexibility to improve the overall commuting experience and provide a broad range of benefits by helping to match commuters with similar origins and destinations. These programs encourage commuters to carpool, vanpool, use public transit, cycle, or walk to work by working directly with large and small employers to provide support to commuters that are candidates for using alternative forms of transportation.

RCTC and SBCTA provide rideshare program assistance in the Study Area through the IE Commuter program. The IE Commuter Program assists San Bernardino and Riverside County employers of all sizes with their rideshare programs. IE Commuter also assists employers with development and maintenance of rideshare programs by providing information and support services free of charge to San Bernardino and Riverside County employers.

Based on SCAG model data shown in the prior section, the share of work trips made by carpools is 14 percent. However, the ability to effectively carpool is reduced due to the degradation in speeds and operating conditions throughout much of the freeway system both in general purpose lanes and HOV lanes. An HOV lane is considered degraded if the average traffic speed during the morning or evening weekday peak commute hour is less than 45 miles per hour for more than 10 percent of the time over a consecutive 180-day period.

Based on the “2017 California High-Occupancy Vehicle Lane Degradation Report,” HOV lane degradation in Caltrans District 8 increased from 93 lane-miles to 110 lane-miles between the first and second halves of 2016, respectively. Significant portions of SR-210, I-10, and SR-91 HOV lanes are considered degraded. Only I-215 HOV lanes between SR-60 and SR-210, and SR-91 HOV lanes between I-15 and I-215 are operating well. In reviewing the degradation trend from 2010 to 2016, several locations experienced notable changes in degradation. Most notably, eastbound SR-210 in San Bernardino County (from postmile 0.000 to postmile 4.933) experienced an increase in degradation from slightly degraded to extremely degraded between 2012 and 2013. The changes may be attributable to changes in traffic patterns and increased traffic demand from Los Angeles and the Inland Empire, as well as higher automobile usage overall.

3.3 Safety

This section presents a generalized assessment of transportation system safety for the Study Area. This assessment examines recent trends in collisions involving vehicles, bicycles, pedestrians, and trucks; highlights key statistics; identifies areas of high collision frequency; and highlights areas for improvement throughout the corridor.

This assessment utilizes data from the Statewide Integrated Traffic Records System (SWITRS), obtained from Transportation Injury Mapping System (TIMS), and the Caltrans Performance Measurement System (PeMS).

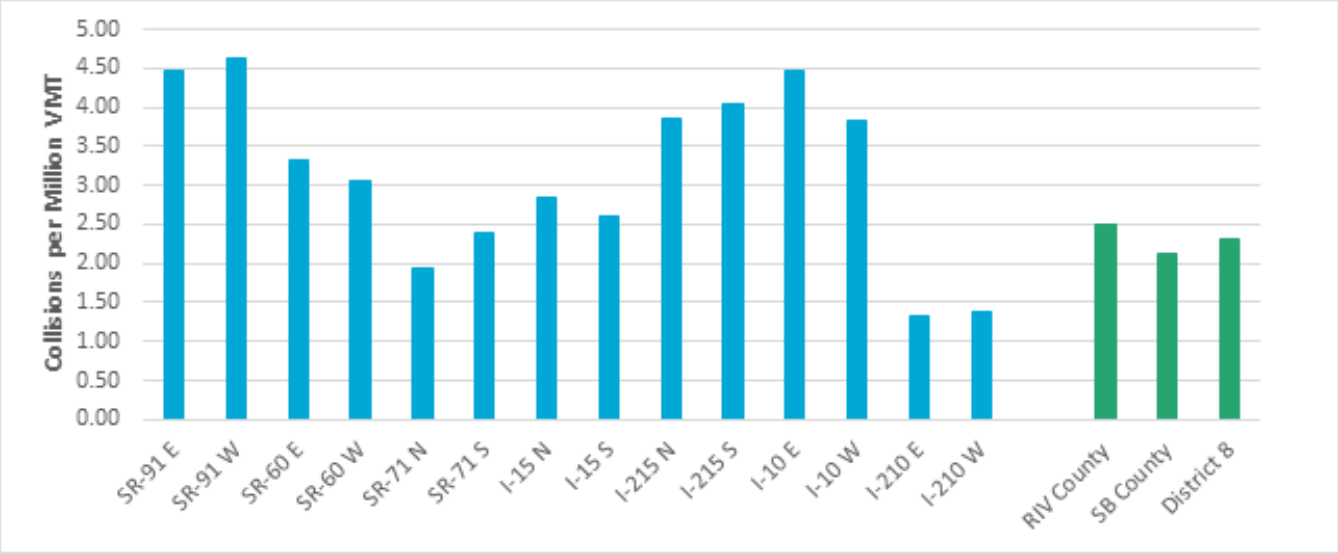
3.3.1 Freeway Safety Assessment

Collision Rates on Freeways and Ramps

Figure 3.15 compares Study Area freeway collision rates to those of other freeways, the Riverside County average, San Bernardino County average, and the Caltrans District 8 average. Data is taken from January 1, 2018 to December 31, 2018 from PeMS. The PeMS system receives incident information from the Traffic Accident and Surveillance Analysis System (TASAS) (i.e., number of collisions and types of collisions) and California Highway Patrol (i.e., incident data from its computer-aided dispatch system).

The average for Riverside County freeway collisions is 2.5 collisions per million VMT, while the average for San Bernardino County is 2.14 collisions per million VMT. Freeways in Caltrans District 8 (Riverside and San Bernardino counties combined) have an average of 2.32 collisions per million VMT. As shown, the highest collision rates by facility occur on SR-91 eastbound, SR-91 westbound, I-215 southbound, and I-10 eastbound, which all have collision rates greater than 4.0 per million VMT.

Figure 3.15 | Freeway Collisions per Million VMT, 2018



Source: Caltrans PeMS.

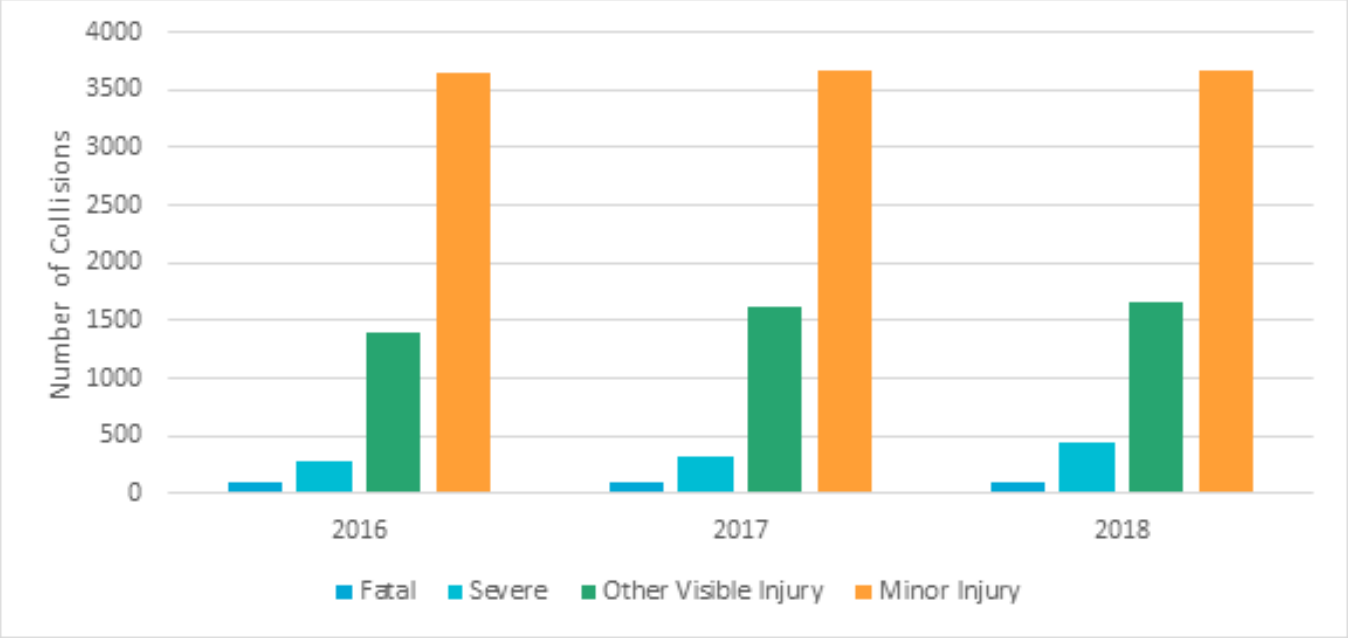
Collision Breakdown by Severity and Mode

Freeway Collisions Involving All Modes

Figure 3.16 shows freeway collisions by severity type: Fatal, Severe, Other Visible Injury, and Minor Injury. In the three-year period between January 1, 2016 and December 31, 2018, there were 17,048 collisions along the Study Area freeway mainline or ramps that resulted in injury. Of these collisions, approximately 2 percent (309 fatal collisions) resulted in fatalities, 6 percent in severe injuries, 27 percent in other visible injuries, and 65 percent in

minor injuries. While fatal collisions remained relatively consistent from year to year, the number of severe injuries has steadily increased. By 2018, severe injury collisions had risen over 50 percent compared to 2016.

Figure 3.16 | Study Area Freeway Collisions by Severity, 2016–2018

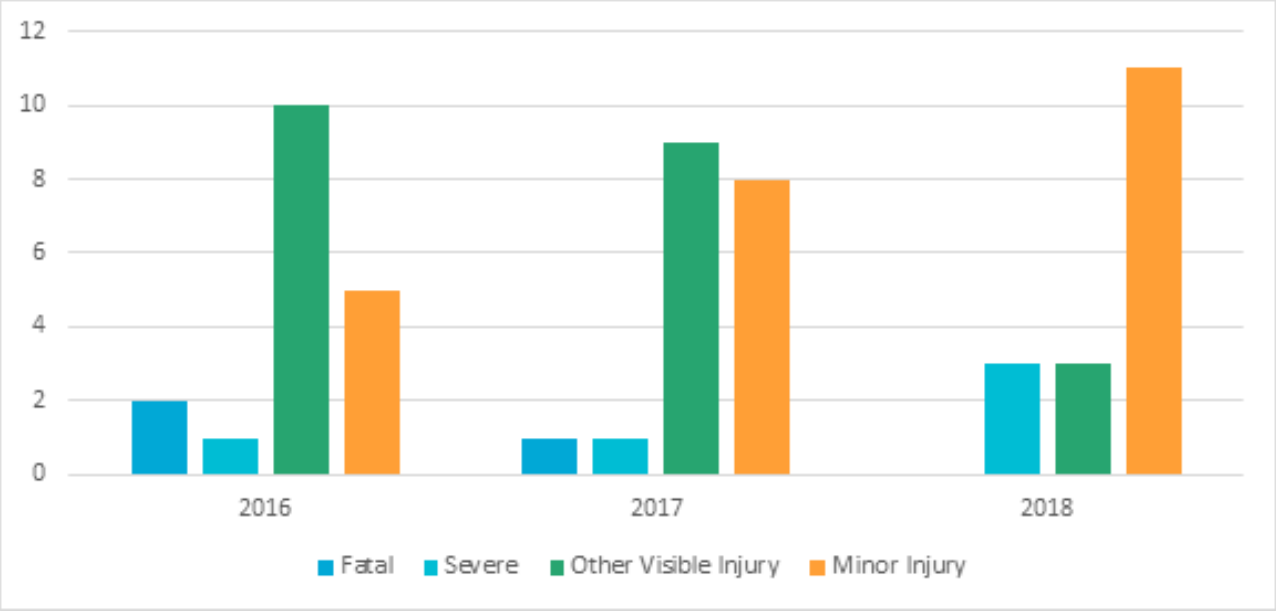


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Bicyclists

Figure 3.17 shows the severity type of freeway collisions involving bicycles. In the three-year period between 2016 and 2018, there were 54 reported collisions along the Study Area freeway mainline or ramps involving bicyclists that resulted in injury. Of these collisions, three resulted in fatalities, five in severe injuries, 22 in other visible injuries, and 27 in minor injuries. Collisions involving bicyclists make up 0.3 percent of all collisions along the Study Area freeways, and 1 percent of fatal collisions along the Study Area freeways.

Figure 3.17 | Study Area Freeway Collisions Involving Bicycles by Severity, 2016–2018

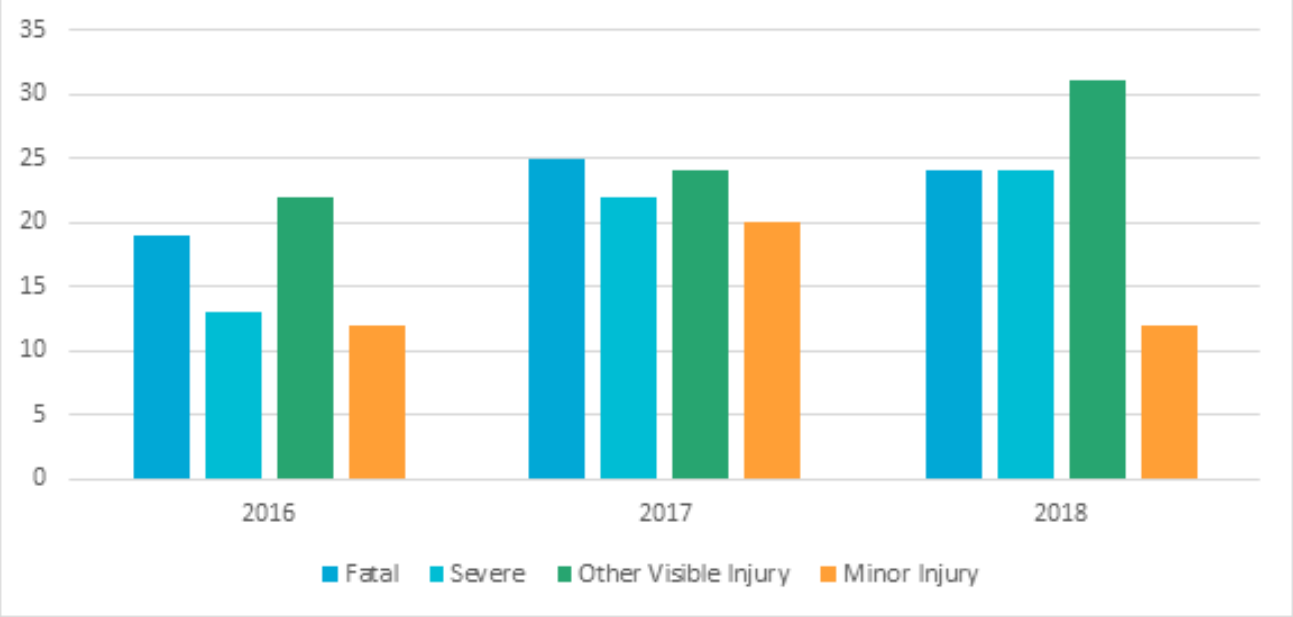


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Pedestrians

Figure 3.18 shows the severity type of freeway collisions involving pedestrians. In the three-year period between 2016 and 2018, there were 248 collisions along the Study Area freeway mainline or ramps involving pedestrians that resulted in injury. Of the injury collisions, approximately 27 percent resulted in fatalities, 24 percent in severe injuries, 31 percent in other visible injuries, and 18 percent in minor injuries. Over the three-year period there were 68 fatal collisions. Fatal collisions involving pedestrians have been on the rise since 2016 and, not surprisingly, represent a disproportionally large percentage of injury collisions. Collisions involving bicyclists make up 1.5 percent of all collisions along the Study Area freeways, and 22 percent of fatal collisions along the Study Area freeways.

Figure 3.18 | Study Area Freeway Collisions Involving Pedestrians by Severity, 2016–2018

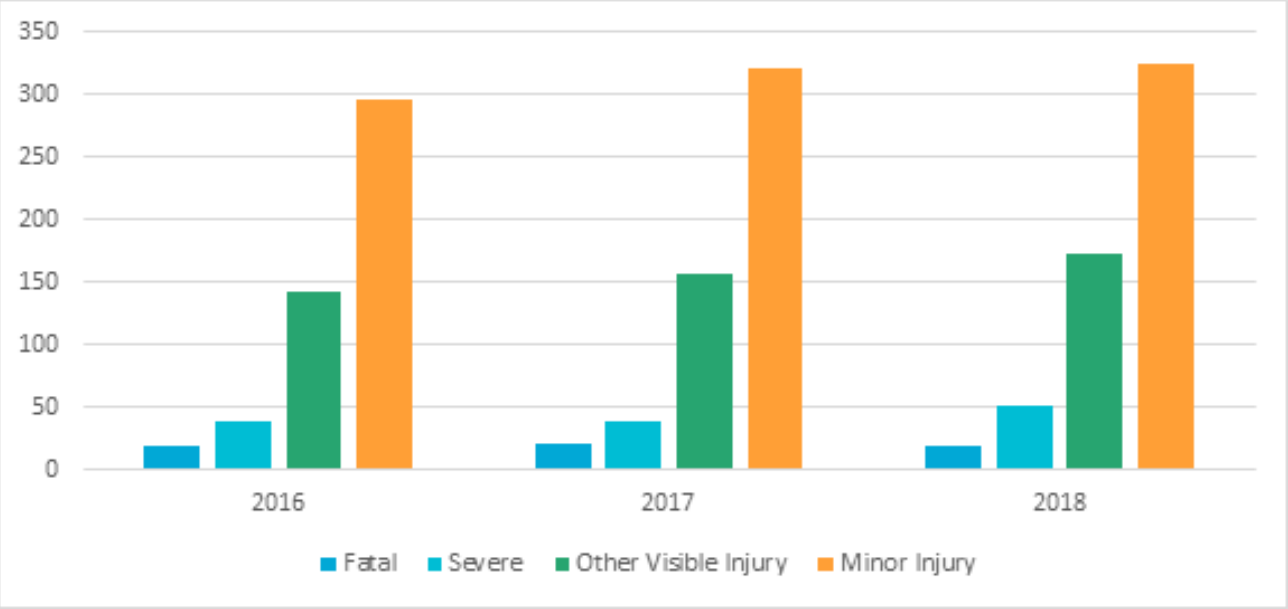


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Trucks

Figure 3.19 shows the severity type of freeway collisions involving trucks. In the three-year period between 2016 and 2018, there were 1,599 collisions along the Study Area freeway mainline or ramps involving trucks that resulted in injury. Of the injury collisions, approximately 4 percent resulted in fatalities, 8 percent in severe injuries, 29 percent in other visible injuries, and 59 percent in minor injuries. Over the three-year period there were 60 fatal collisions. Collisions involving trucks make up 9.4 percent of all collisions along the Study Area freeways, and 19 percent of fatal collisions along the Study Area freeways.

Figure 3.19 | Study Area Freeway Collisions Involving Trucks by Severity, 2016–2018

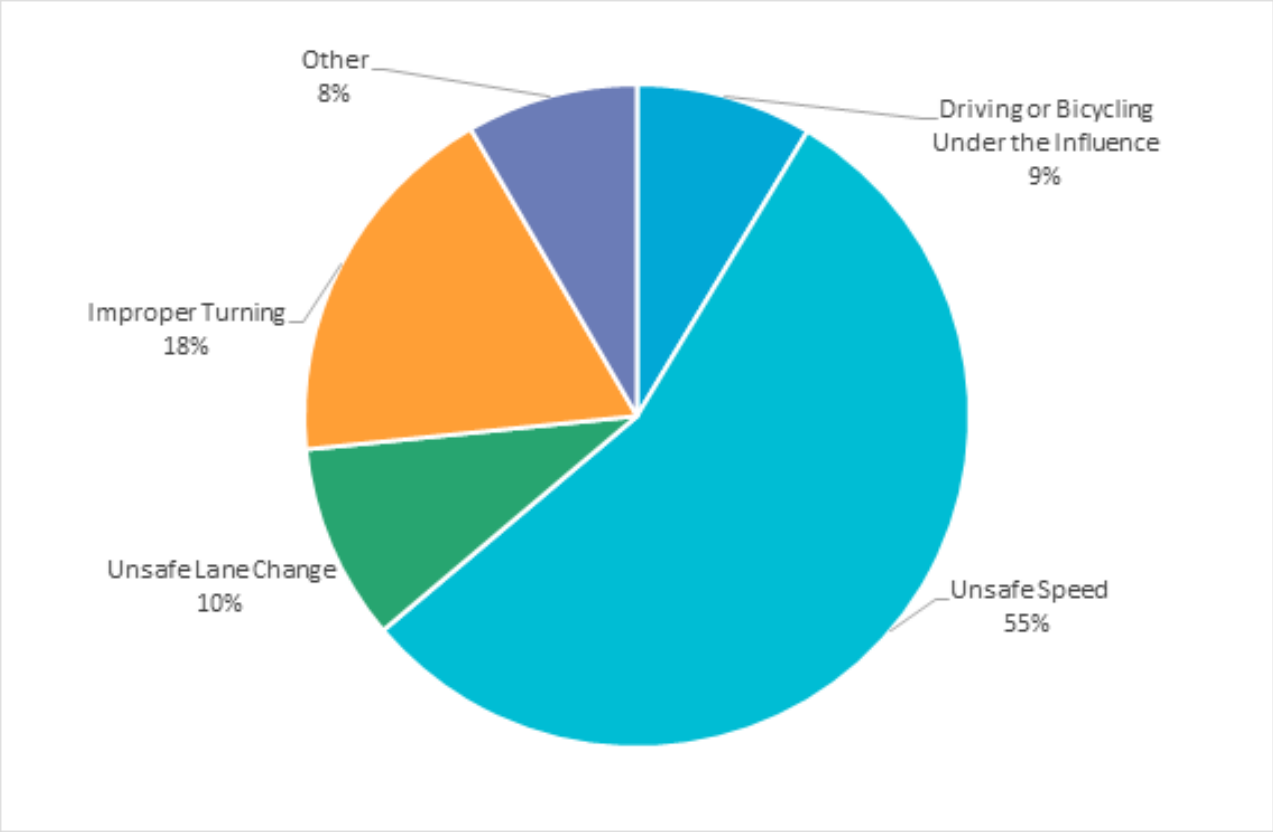


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Factors Influencing Safety on Study Area Freeways

The TIMS database categorizes each injury collision by its Primary Collision Factor (PCF). It should be noted that the PCF is a subjective determination and there are often multiple factors that may lead to a collision. Based on these designations, the most common factors causing injury collisions along the Study Area freeways mainline or ramps are Unsafe Speed (55 percent), Improper Turning (18 percent), Unsafe Lane Change (10 percent), and Driving or Bicycling under the influence (9 percent). Figure 3.20 displays the freeway collision factors.

Figure 3.20 | Primary Collision Factors for Freeway Collisions in the Study Area



Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

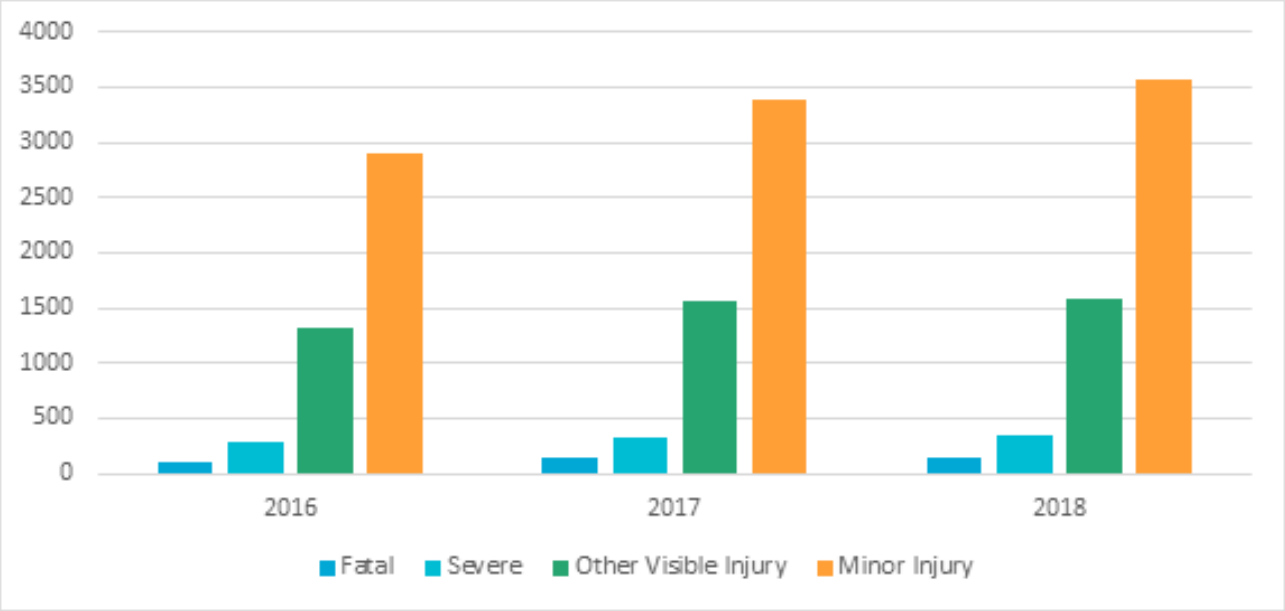
3.3.2 Arterial Safety Assessment

Collision Breakdown by Severity and Mode on Arterial Roadways

Collisions Involving All Modes

Figure 3.21 shows the severity type of arterial collisions involving all modes. In the three-year period between 2016 and 2018, there were 15,684 collisions on arterials in the Study Area which resulted in injury. Of these collisions, approximately 2 percent resulted in fatalities, 6 percent in severe injuries, 28 percent in other visible injuries, and 63 percent in minor injuries. Over the three-year period there were 386 fatal collisions that resulted in deaths. Overall, total injury collisions increased each year between 2016 and 2018, with other visible injuries and minor injuries showing a steady upward trend.

Figure 3.21 | Arterial Collisions by Severity, 2016–2018

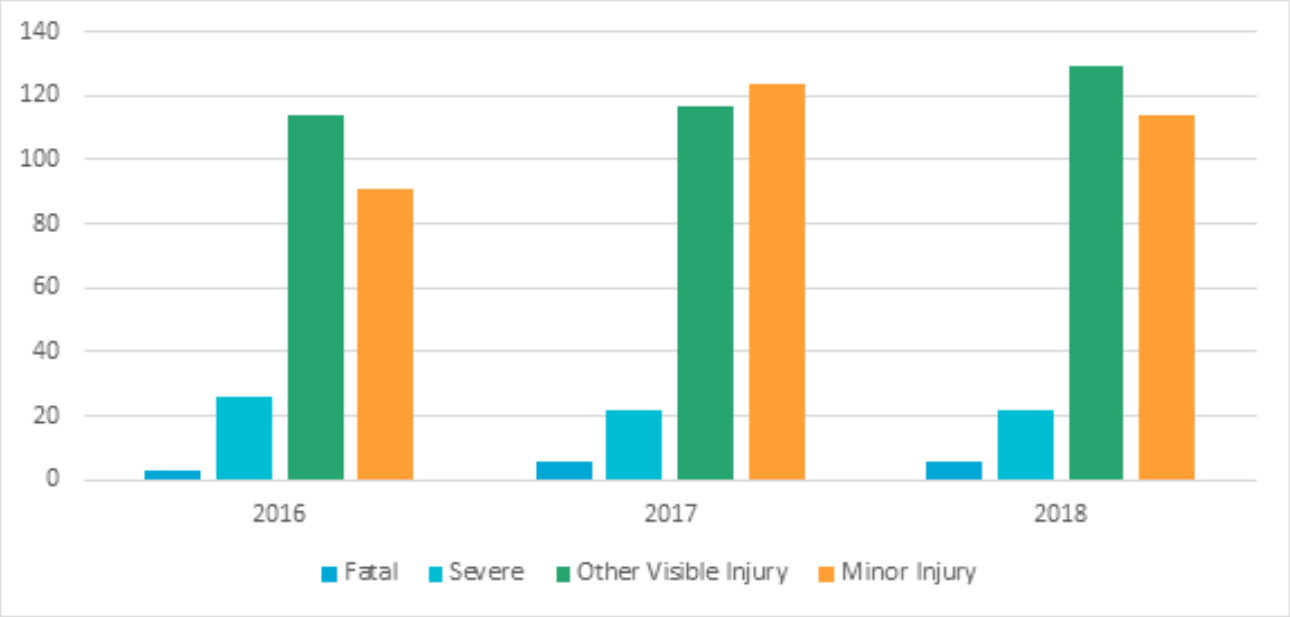


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Bicyclists

Figure 3.22 shows the severity type of arterial collisions involving bicyclists. In the three-year period between 2016 and 2018 on arterials in the Study Area, there were 774 collisions involving bicyclists that resulted in injury. Of the injury collisions, approximately 2 percent resulted in fatalities, 9 percent in severe injuries, 47 percent in other visible injuries, and 43 percent in minor injuries. Collisions involving bicyclists make up 4.9 percent of all collisions along the Study Area arterials, and 4 percent of fatal collisions along the Study Area arterials. Over the three-year period, the number of collisions involving bicyclists increased steadily.

Figure 3.22 | Arterial Collisions Involving Bicyclists by Severity, 2016–2018

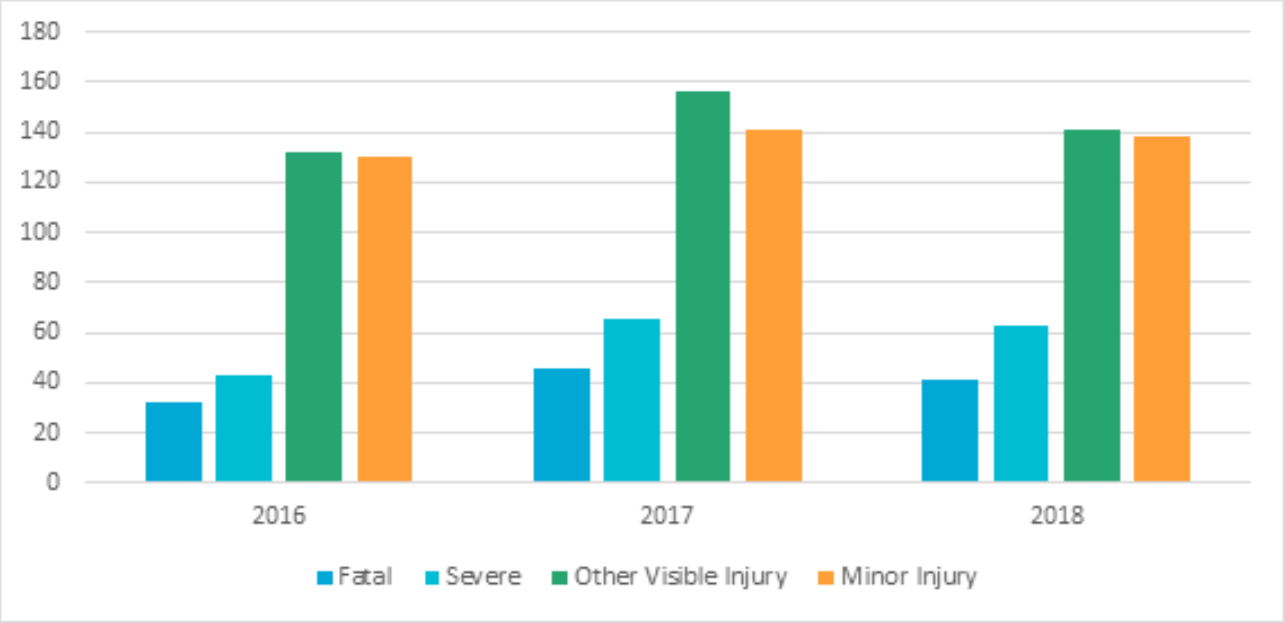


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Pedestrians

Figure 3.23 shows the severity type of arterial collisions involving pedestrians. In the three-year period between 2016 and 2018, there were 1,128 collisions involving pedestrians that resulted in injury. Of the injury collisions, around 11 percent resulted in fatalities, 15 percent in severe injuries, 38 percent in other visible injuries, and 36 percent in minor injuries. Collisions involving pedestrians make up 7.2 percent of all collisions along the Study Area arterials and 31 percent of fatal collisions.

Figure 3.23 | Arterial Collisions Involving Pedestrians by Severity, 2012–2016

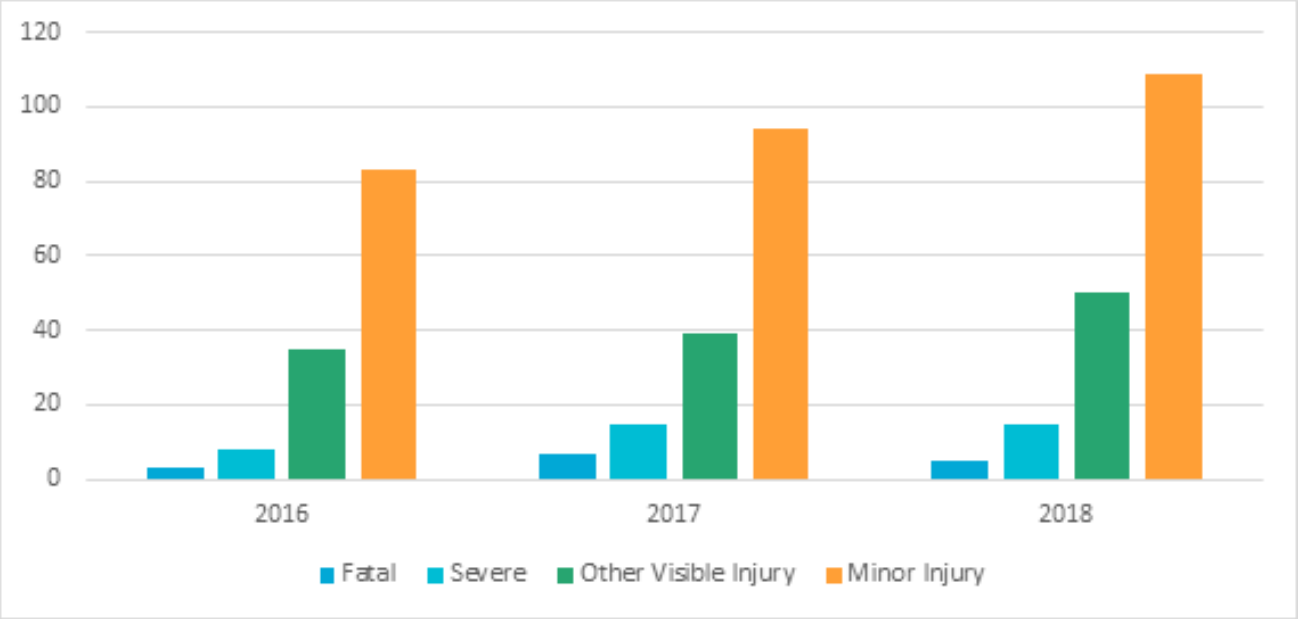


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Collisions Involving Trucks

Figure 3.24 shows the severity type of arterial collisions involving trucks. In the three-year period between 2016 and 2018, there were 463 collisions involving trucks that resulted in injury. Of the injury collisions, around 3 percent resulted in fatalities, 8 percent in severe injuries, 27 percent in other visible injuries, and 62 percent in minor injuries. Collisions involving trucks make up 3 percent of all collisions along the Study Area arterials and 4 percent of fatal collisions.

Figure 3.24 | Arterial Collisions Involving Trucks by Severity, Total 2016–2018

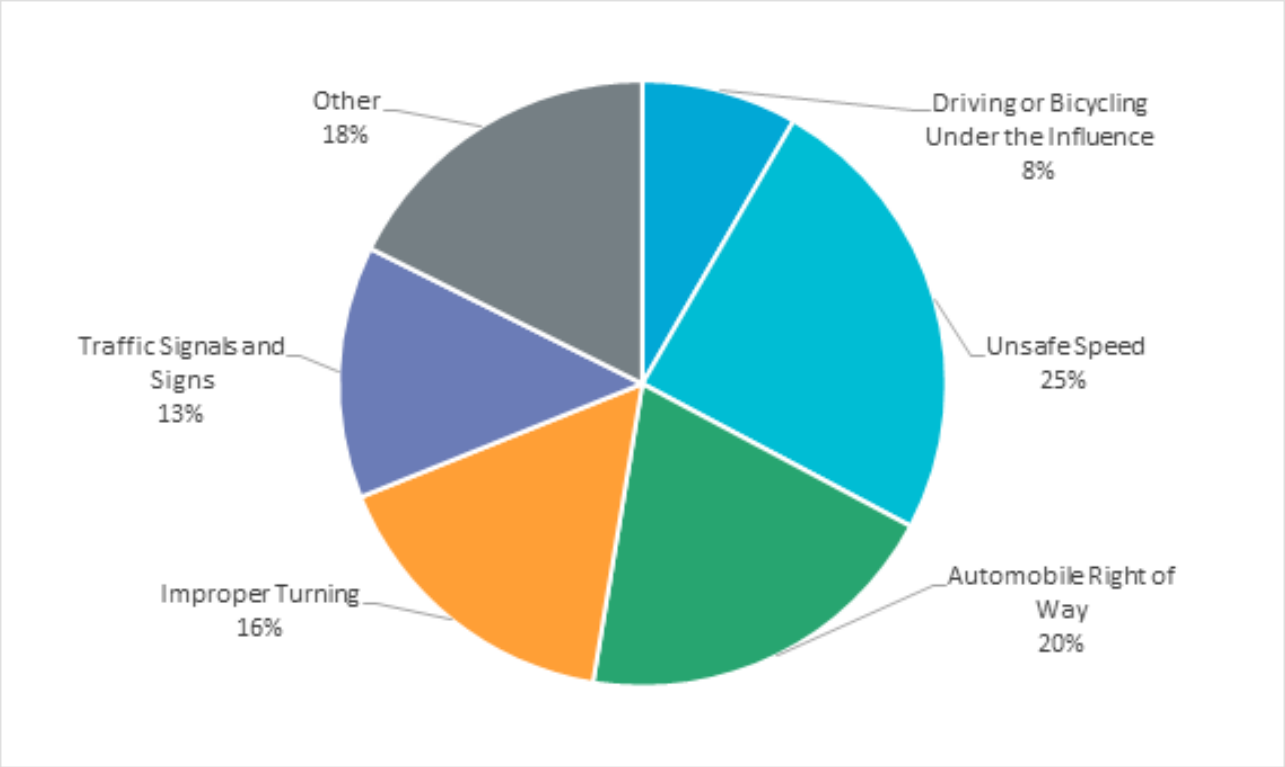


Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Factors Influencing Safety on Study Area Arterials

The TIMS database categorizes each injury collision by its PCF. It should be noted that the PCF is a subjective determination and there are often multiple factors that may lead to a collision. Based on these designations, the most common factors causing injury collisions along the Study Area arterials are Unsafe Speed (25 percent), Automobile Right-of-Way (20 percent), Improper Turning (16 percent), Traffic Signals and Signs (13 percent), and Driving or Bicycling under the influence (8 percent). Figure 3.25 displays the arterial collision factors.

Figure 3.25 | Primary Collision Factors for Arterial Collisions



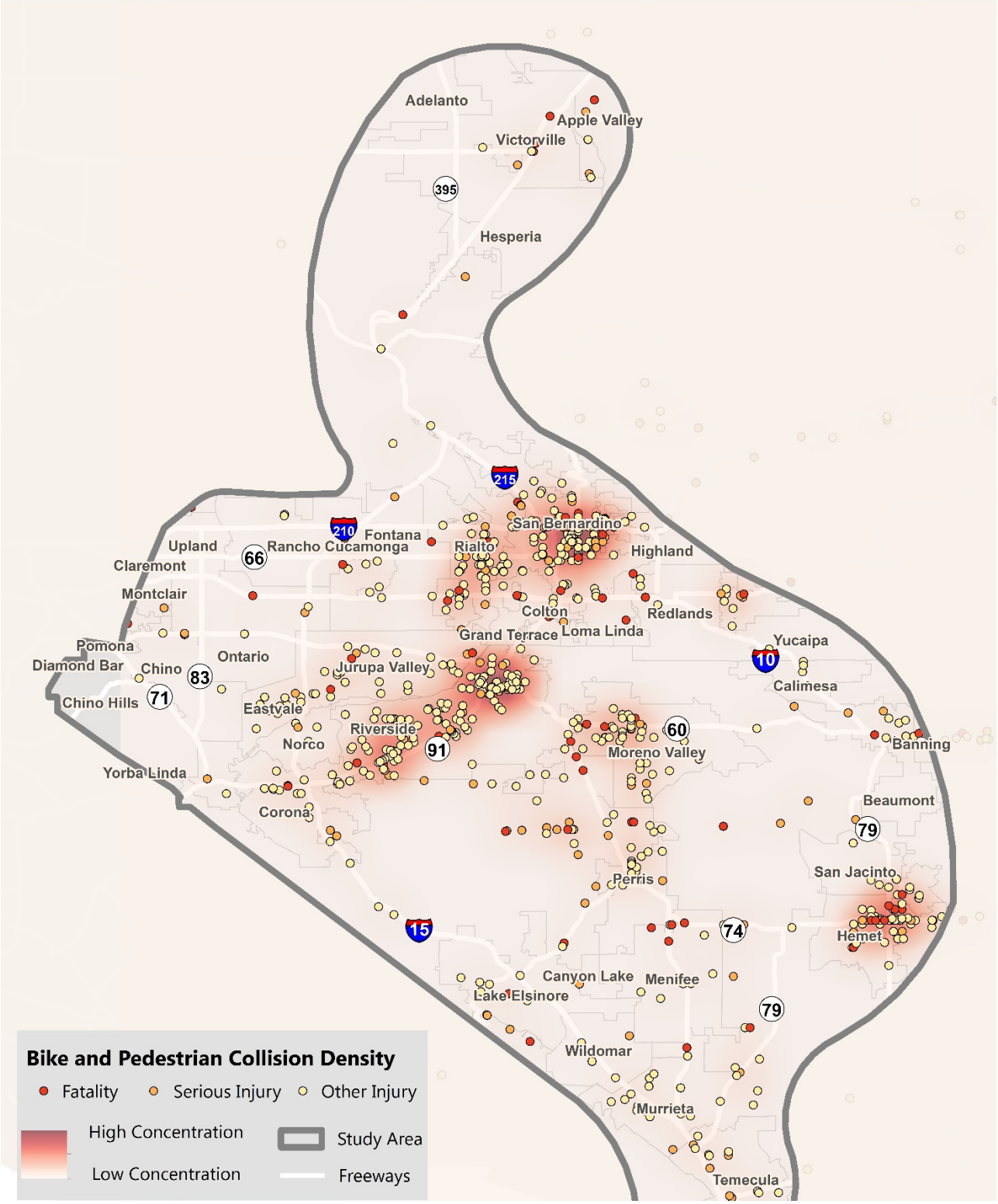
Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

3.3.3 High Frequency Collision Locations

Collisions involving bicyclists and pedestrians are spread throughout the Study Area, however, the highest density of collisions in the Study Area generally occur in certain neighborhoods of cities of Riverside, Colton, Rialto, San Bernardino, Moreno Valley, Hemet, and San Jacinto (See Figure 3.26).

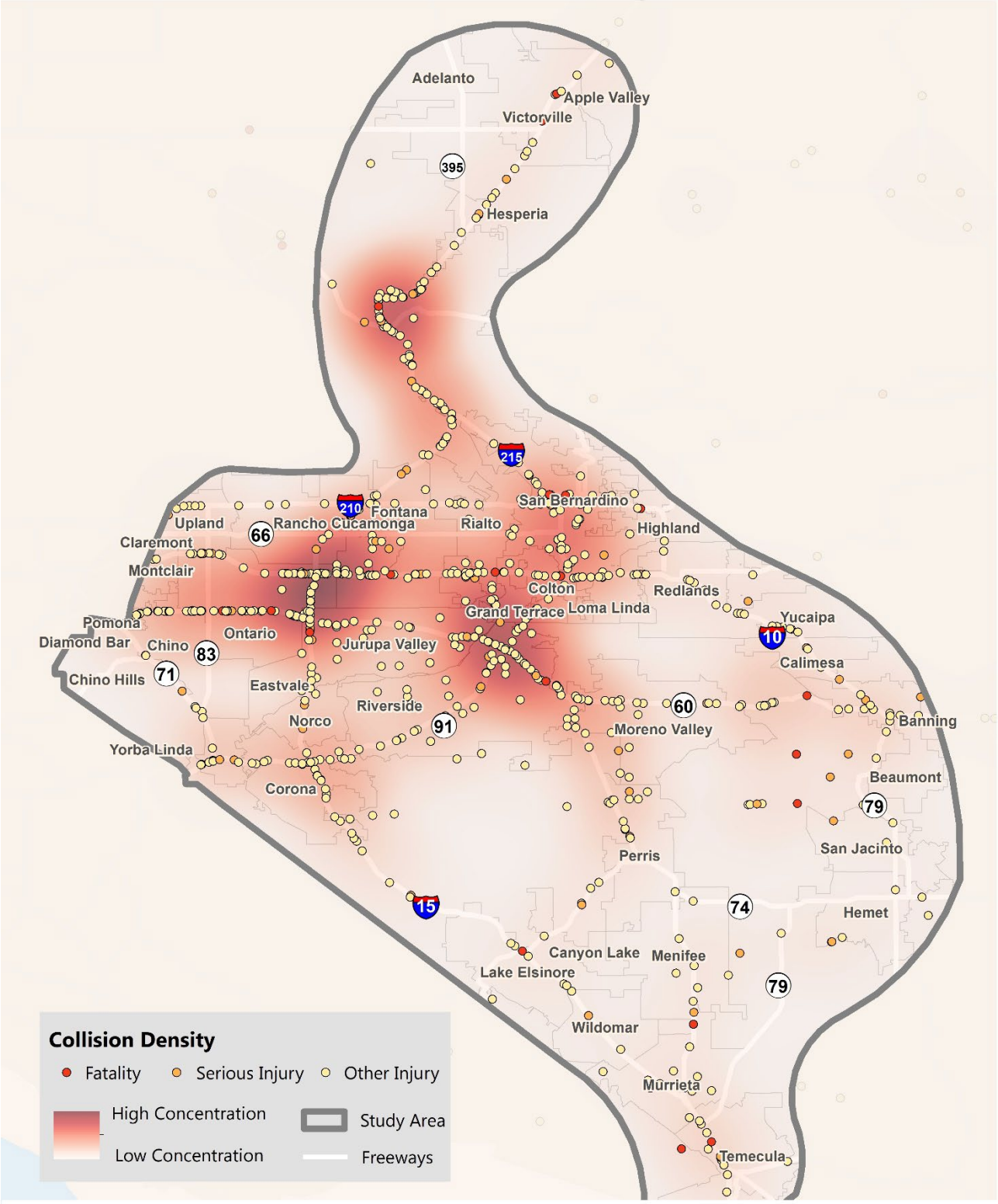
The highest concentration of truck collisions occurs along SR-60 and I-10 near I-15 and I-215 freeway interchanges (See Figure 3.27). Other high concentration areas for truck collisions are I-15 near Cajon Pass and I-215 near City of San Bernardino. (see Figure 3.27)

Figure 3.26 | Location of Bicycle and Pedestrian Collisions, 2016–2018



Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

Figure 3.27 | Location of Truck Collisions, 2016–2018



Source: Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2019.

3.4 Active Transportation

3.4.1 Active Transportation

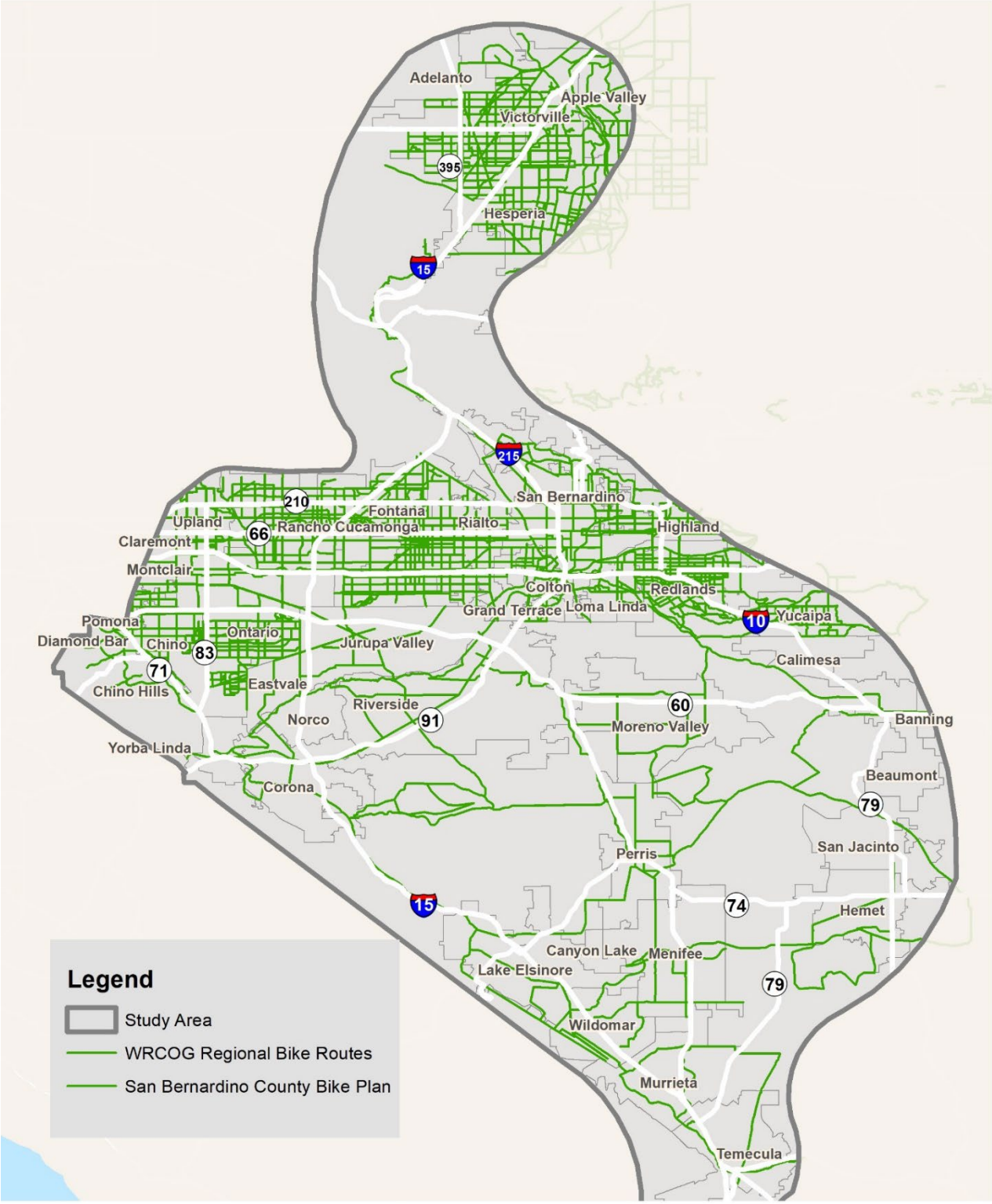
Active transportation generally refers to bicycle and pedestrian transportation but also can include other wheeled devices such as scooters, wheelchairs, and skateboards. Active transportation is an important mode of transportation for short trips as well as connecting to other modes, most notably transit, providing first-mile/last-mile connections. Additionally, bicycle and pedestrian accommodation is often central to complete streets discussions due to the vulnerability of those modes. This section outlines the availability of bicycle and pedestrian facilities and data on active transportation trips in the Study Area.

Bicycle and Pedestrian Facilities

Figure 3.28 illustrates the bicycle routes in the Study Area. In San Bernardino County, the bike plan is part of the County's active transportation network. As of 2011, there were 468 miles of bicycle lanes and trails with an additional 1,282 future miles planned in the overall program (2013 SBCTA Active Transportation Vision Update).

In Riverside County, most jurisdictions have established bikeway and/or trails plans. Due to the rural nature of parts of the County, there are many multi-use trails in addition to an assortment of Class I, Class II, and Class III bike lanes. WRCOG's Western Riverside Active Transportation Plan is a "network of 24 distinct regional routes spanning more than 440 miles" (WRCOG Active Transportation Plan, 2018). The plan includes 24 Class I/II/III regional routes that connect local jurisdictions and provide access to transit stations/centers.

Figure 3.28 | Bicycle Facilities in the Study Area



Source: 2013 SBCTA Active Transportation Vision Update; WRCOG Active Transportation Plan, 2018.

3.5 Transit

The transit assessment examines the public transportation network in the Study Area, including Metrolink commuter trains and regional bus systems. This assessment includes an evaluation of the ridership, and coverage of public transportation in the Study Area.

3.5.1 Metrolink

The Southern California Regional Rail Authority operates the region's commuter rail service, Metrolink, which serves the counties of Los Angeles, Orange, San Bernardino, Riverside, and Ventura. There are 17 Metrolink stations in the Study Area: Corona-North Main, Corona-West, Fontana, Jurupa Valley-Pedley, Montclair, Moreno Valley/March Field, Ontario-East, Perris-South, Perris-Downtown, Rancho Cucamonga, Rialto, Riverside-Downtown, Riverside-Hunter Park/UCR, Riverside-La Sierra, San Bernardino, San Bernardino Downtown, and Upland.

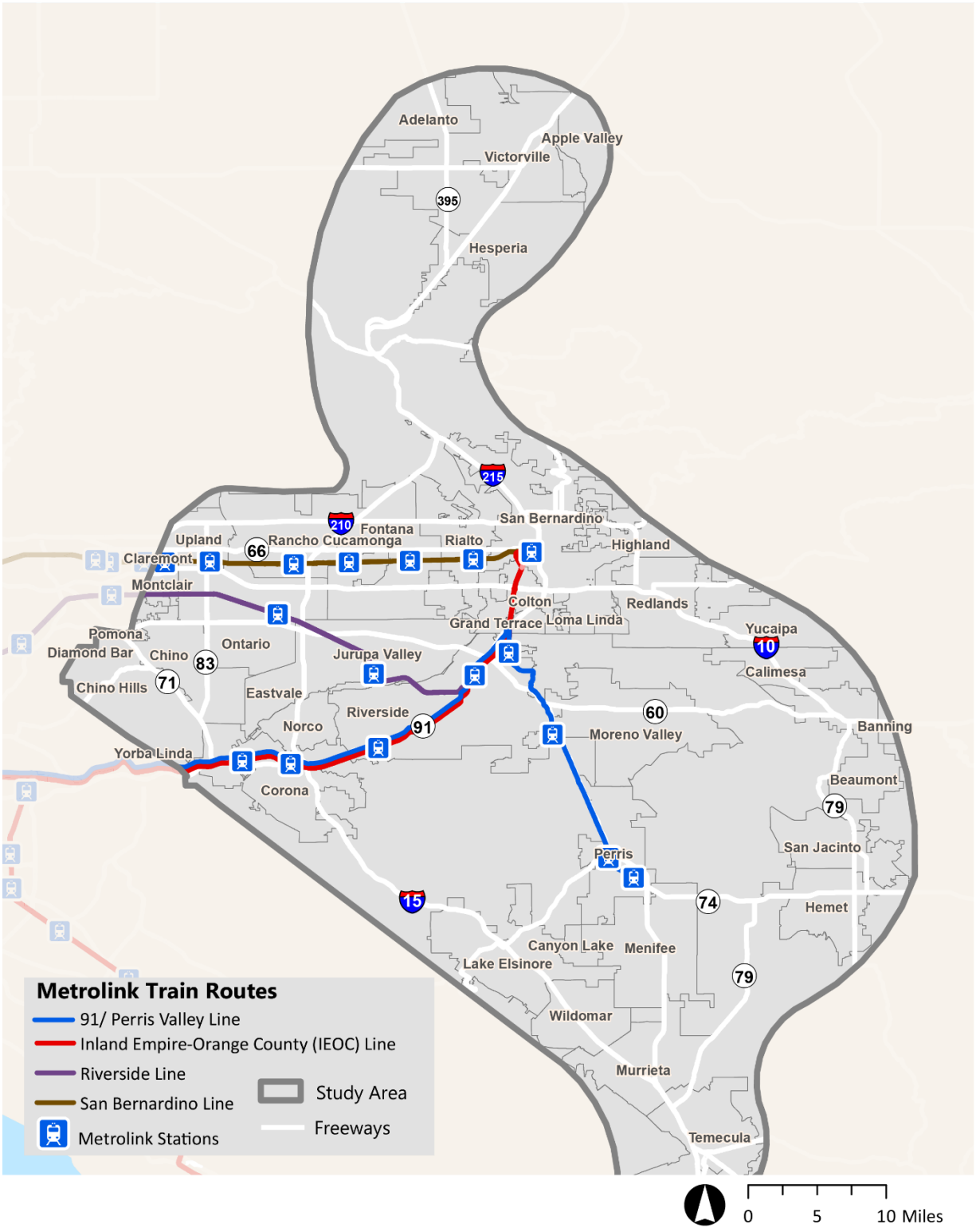
The Study Area is served with four Metrolink lines: Inland Empire-—Orange County, Riverside, San Bernardino, and 91/Perris Valley. The San Bernardino line, serving San Bernardino to LA Union Station, has the highest daily riders of any line in the Metrolink system as shown in Table 3.8. Figure 3.29 illustrates the Metrolink Lines and stations in the Study Area.

Table 3.8 | Metrolink Daily Ridership (2018–19)

Line	Weekday	Saturday	Sunday	Stations
Antelope Valley Line	5,729	2,282	1,818	12
Inland Empire—Orange County Line	4,501	542	373	15
Orange County Line	8,699	2,331	1,794	15
Riverside Line	4,251	n/a	n/a	7
San Bernardino Line	9,736	3,794	2,332	14
Ventura County Line	3,639	n/a	n/a	12
91/Perris Valley Line	2,934	799	548	13

Source: Metrolink Q3 '18-19 Fact Sheet.

Figure 3.29 | Metrolink Service in Study Area



Source: Metrolink

3.5.2 Bus Transit Service

Riverside Transit Agency (RTA) and Omnitrans are the regional bus transit providers in the Study Area

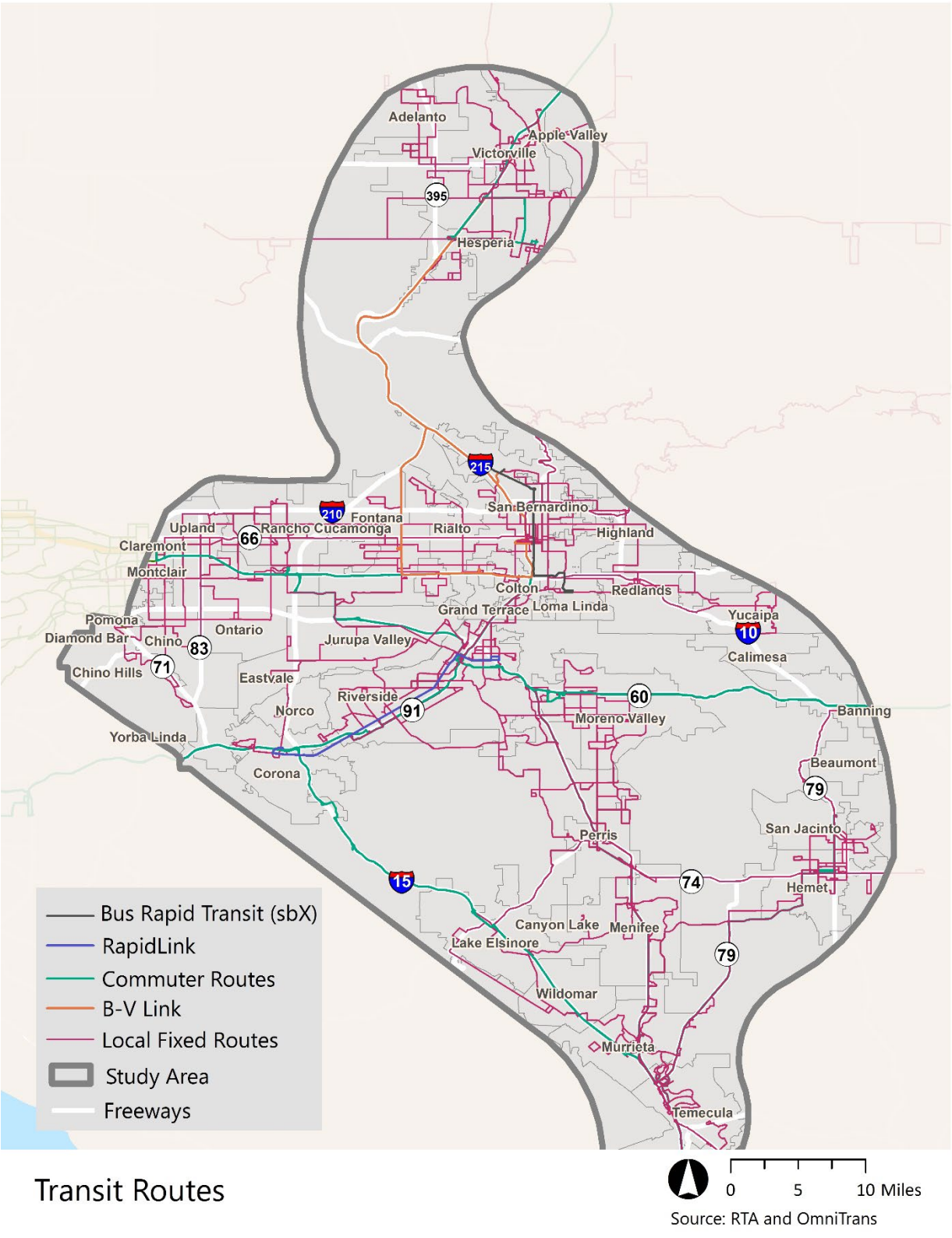
Figure 3.30 shows their transit routes in the Study Area. RTA serves western Riverside County and provides regional connections to Orange, San Bernardino, and San Diego counties. RTA operates 39 fixed-route local services, eight Commuter Link express routes, and on-demand Dial-a-Ride service throughout its 2,500 square mile service area. In fiscal year 2019, RTA had ridership of 8.7 million, with average weekday boardings of 28,900 and average weekend boardings of 12,200.

Omnitrans serves San Bernardino valley with a service area of 480 square miles, covering 15 cities and portions of the unincorporated areas of San Bernardino County. Omnitrans operates 30 local and express bus routes, as well as sbX bus rapid transit service, OmniGo hometown shuttle service, and Access, a paratransit service for the disabled. In fiscal year 2018-2019, Omnitrans had ridership of 11.1 million from fixed routes.

Figure 3.31 shows the bus transit stops in the Study Area. This figure also shows the high ridership bus stops, with more than 300 daily boardings/alightings. Some of the high ridership bus stops are as follows:

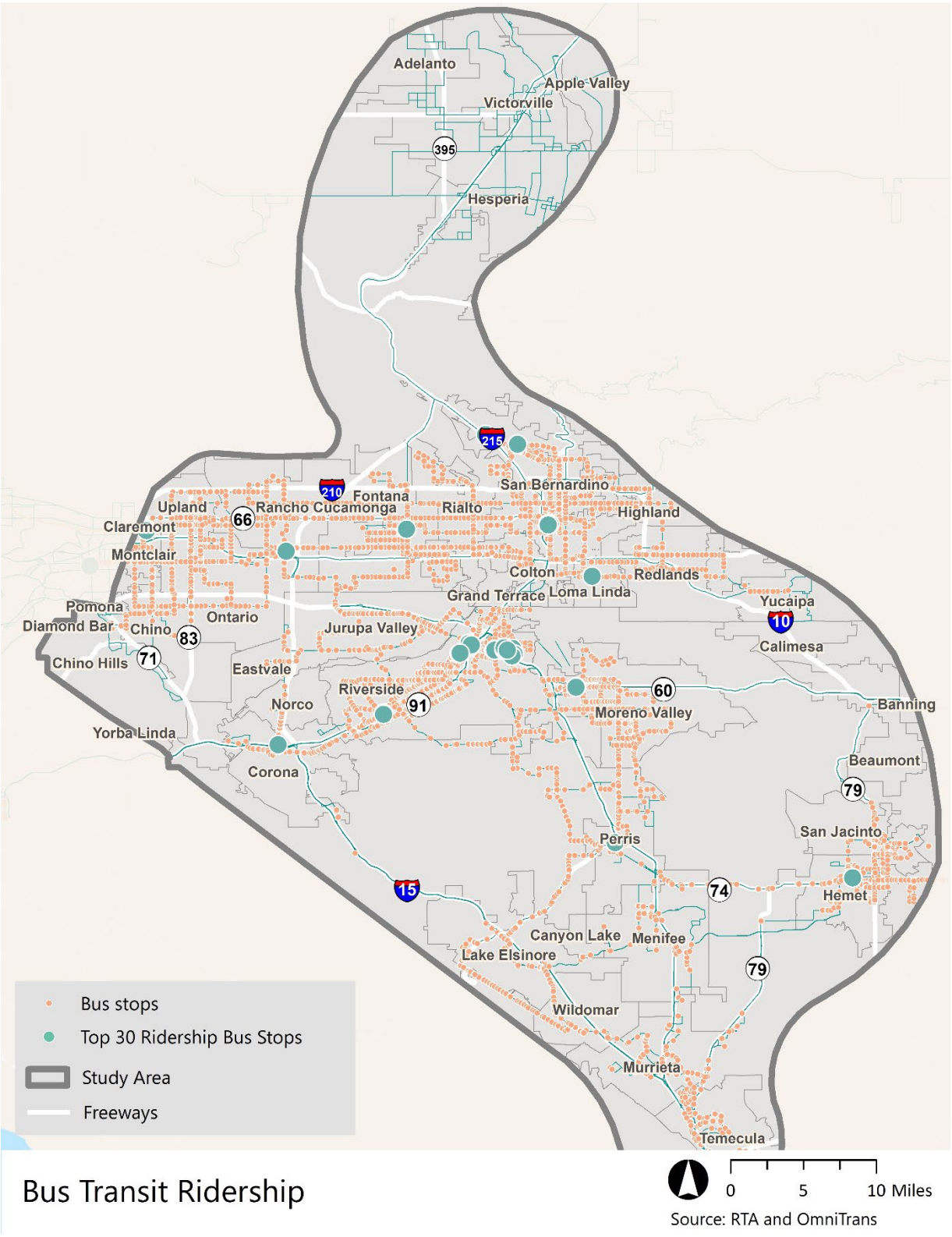
- San Bernardino Transit Center
- Canyon Crest at Bannockburn Village
- Moreno Valley Mall
- Perris Transit Center
- Galleria @ Tyler
- University Market
- Corona Transit Center

Figure 3.30 | Bus Routes



Source: RTA and Omnitrans.

Figure 3.31 | Bus Transit Ridership



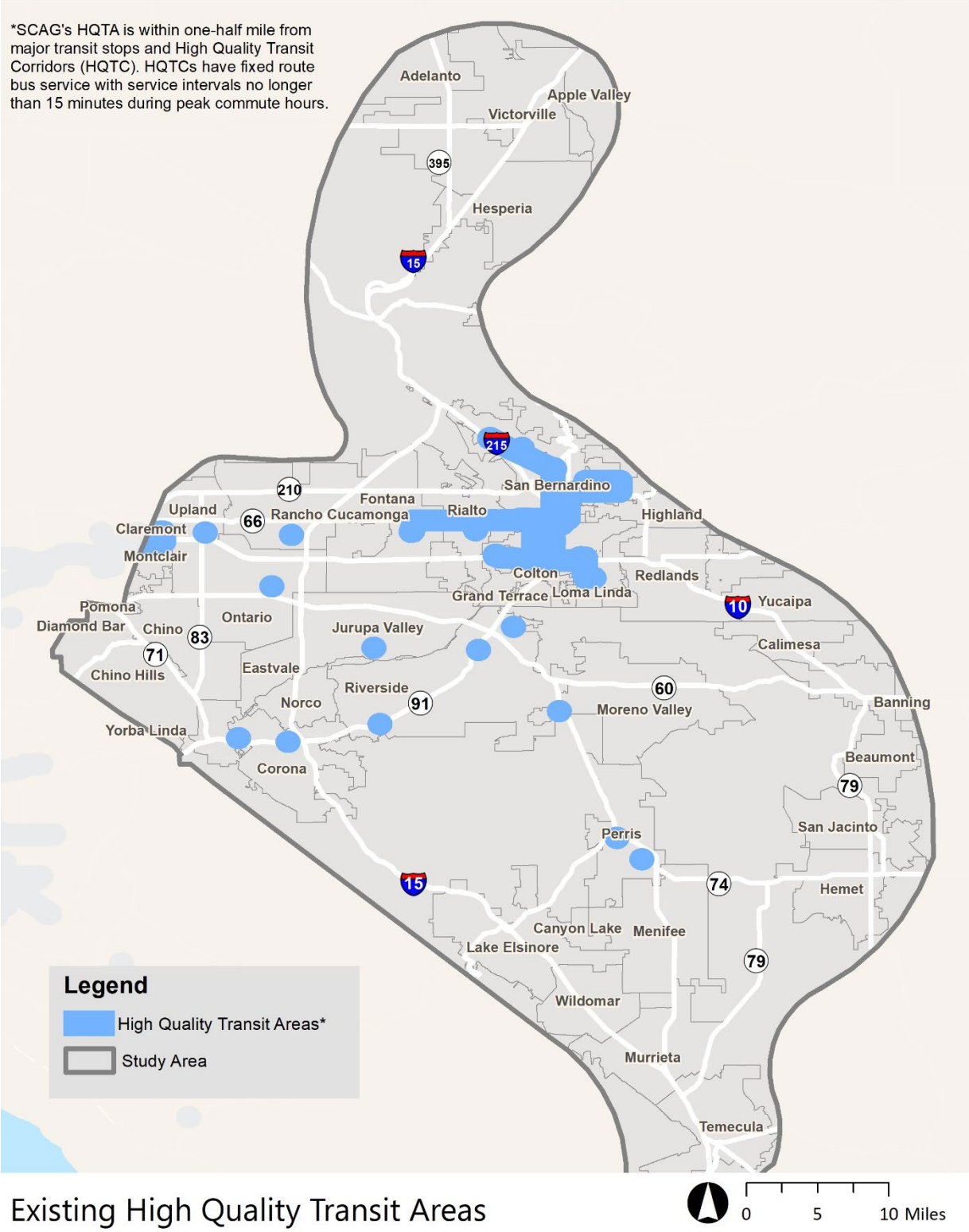
Source: RTA and Omnitrans.

3.5.3 High Quality Transit Area

SCAG defines High Quality Transit Areas (HQTA) as an area within one-half mile from major transit stops and high-quality transit corridors. A major transit stop is defined as a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. A high-quality transit corridor is a corridor with fixed-route bus service with service intervals no longer than 15 minutes during peak commute hours.

Figure 3.32 shows the HQTA in the Study Area. The Study Area has both major transit stops and high-quality transit corridors. The cities of San Bernardino, Fontana, Rialto, Colton, and Loma Linda have high quality transit corridors. Major transit stops are generally located at Metrolink stations.

Figure 3.32 | Existing High-Quality Transit Areas (HQTA)



Source: SCAG.

3.6 Freeway and Arterial Assessment

3.6.1 Freeway Assessment

Figures 6.1 to 6.5 display key characteristics of the freeway system, including number of lanes on the freeway system, PM peak hour traffic volumes, PM peak hour volume to capacity ratios, the managed lane network, and the truck network.

Key findings for the freeway network include:

- Nearly all the freeway system provides 3 to 4 lanes in each direction, with a few higher-volume areas consisting of more than four lanes (particularly along I-10 and SR-91) in each direction and some limited areas with two lanes per direction (SR-60 and portions of I-215 and SR-71).
- Managed lanes, including High Occupancy Vehicle (HOV) lanes and Express lanes cover approximately 211 lane miles, with 178 HOV lane miles and 33 Express lane miles as shown in Table 3.8. Figure 3.34 shows the managed lanes network in the Study Area.

Table 3.9 | Study Area Managed Lane Network—Existing in April 2017

Route	Counties Served	Total Managed Lane Miles	HOV Lane Miles	Express Lane Miles
I-10	San Bernardino	17	17	0
I-15	Riverside, San Bernardino	0	0	0
SR-60	Riverside, San Bernardino	59	59	0
SR-71	San Bernardino	14	14	0
SR-91	Riverside	45	12	33
SR-210	San Bernardino	43	43	0
I-215	Riverside, San Bernardino	33	33	0
Total		**211**	**211**	**33**

Source: District System Management Plan, District 8, June 2017.

- The HOV system covers portions of SR-91, SR-60, SR-71, I-10, and SR-210.
- Much of the freeway system, including the entire Interstate freeway system and portions of the State Highway System is designated as the National Highway Freight Network and several local jurisdictions have designated truck networks, which serve trucks and goods movement.
- During the PM peak hour, the freeways with the highest vehicle throughput (over 6,000 vehicles per hour) include the following: SR-91 between the Orange County line and I-15, I-10 between the Los Angeles County line and I-210, and portions of I-210 and I-215.
- Freeways that carry between 4,000 to 6,000 vehicle throughput during the PM peak hour include much of I-15, SR-60 west of I-215, and SR-91 east of I-15. Relatively lower volume throughput facilities include SR-60 east of I-215, SR-71, portions of I-215, and I-10 on the eastern limits of the Study Area. Figure 3.35 shows the PM peak hour volume in 2018.

- Volume to Capacity (V/C) ratio is one indication of the operating conditions along a freeway or arterial facility. Higher V/C ratios mean that a facility is operating closer to its maximum possible throughput. Very high V/C can sometimes indicate a facility that experiences poor operating conditions, slower speeds, more congestion, and more delay to travelers. In the Study Area, the freeways with the highest V/C ratios generally match the facilities with the highest throughput, and they include SR-91 from the Orange County line to I-15, SR-60 from the Los Angeles County line to I-15, I-10 from the Los Angeles County line to I-15, I-210 through the western edge of the Study Area, I-15 south of SR-91 and SR-60 between SR-91 and I-215. In general, SR-91 and I-215 exhibit the most lengthy and continuous segments with over-capacity conditions. Figure 3.36 illustrates the V/C ratio during PM peak hour.
- In the Study Area, the delay contributed by the top 10 bottlenecks in 2018 was 6,449 vehicle hours. The biggest bottleneck occurs during the peak morning commute on SR-91 westbound near Green River Road, just east of Orange County line. Table 3.10 and Figure 3.37 show the top bottlenecks in 2018 during AM and PM peak period in the Study Area.

Table 3.10 | Top Bottlenecks in the Study Area (2018)

Rank	Freeway Segment	Time Period	# Days Active	Average Extend (miles)	Average Delay (Vehicle-hrs)	Average Duration (hrs)
1	SR-91 WB at Green River Road	AM	260	4.21	2,490	3.6
2	I-15 SB at Cajalco Road	PM	233	3.22	680	2.4
3	SR-71 SB north of SR-91 IC	AM	227	3.13	590	3.3
4	I-15 NB at 4th Street on-ramp	PM	310	1.25	540	3.7
5	I-10 EB east of Cherry Avenue	PM	261	2.33	470	3.1
6	SR-91 WB at Lincoln Avenue	AM	193	0.99	390	2.7
7	I-15 NB south of Cajalco Road	AM	122	2.74	340	2.8
8	I-210 EB at Milliken Avenue on-ramp	PM	203	4.02	340	1.5
9	I-15-SB north of SR-60 IC	PM	131	2.34	310	2.0
10	SR-60 WB west of Main Street	AM	220	3.25	300	2.2

Source: Caltrans PeMS, 2018.

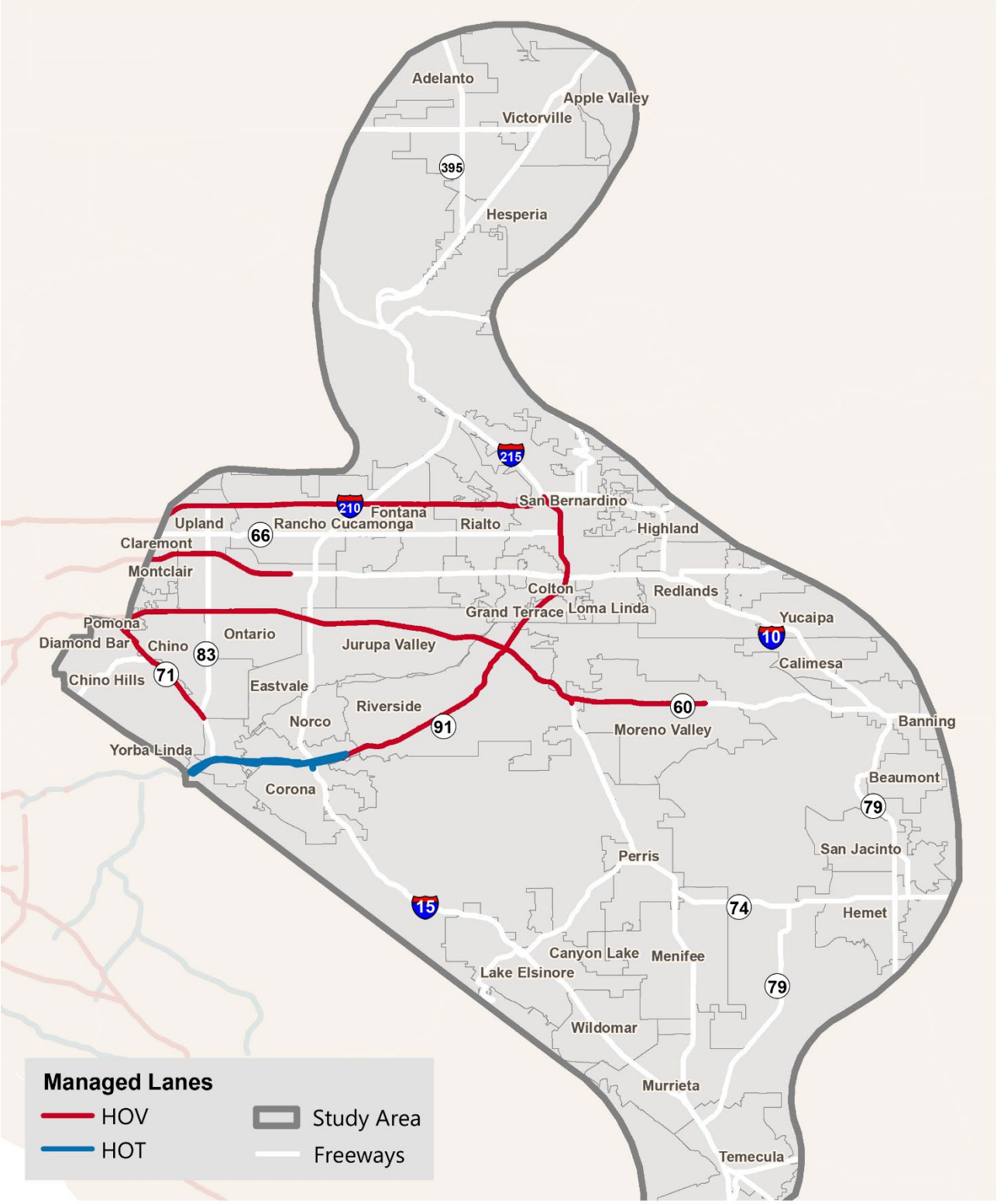
Generally, the freeway segments through the western end of the Study Area are more congested and carry higher volumes than those to the east, correlating with the areas of higher population and employment density, as well as reflecting the abundance of trip connections between the Study Area and points in Los Angeles and Orange counties to the west.

Figure 3.33 | Number of Existing Freeway Mainline Lanes



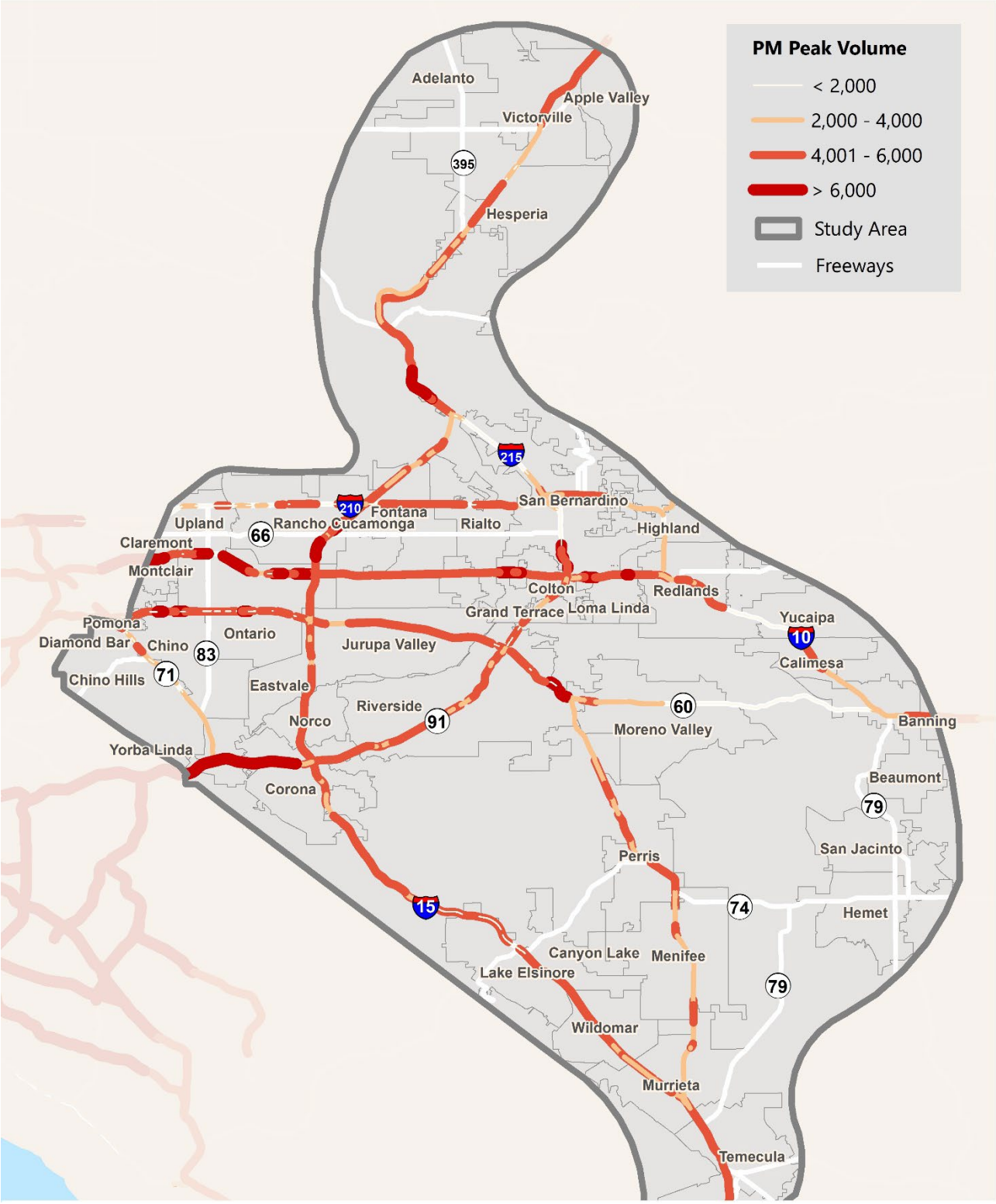
Source: SCAG Model, 2016.

Figure 3.34 | Existing Managed Lane Network



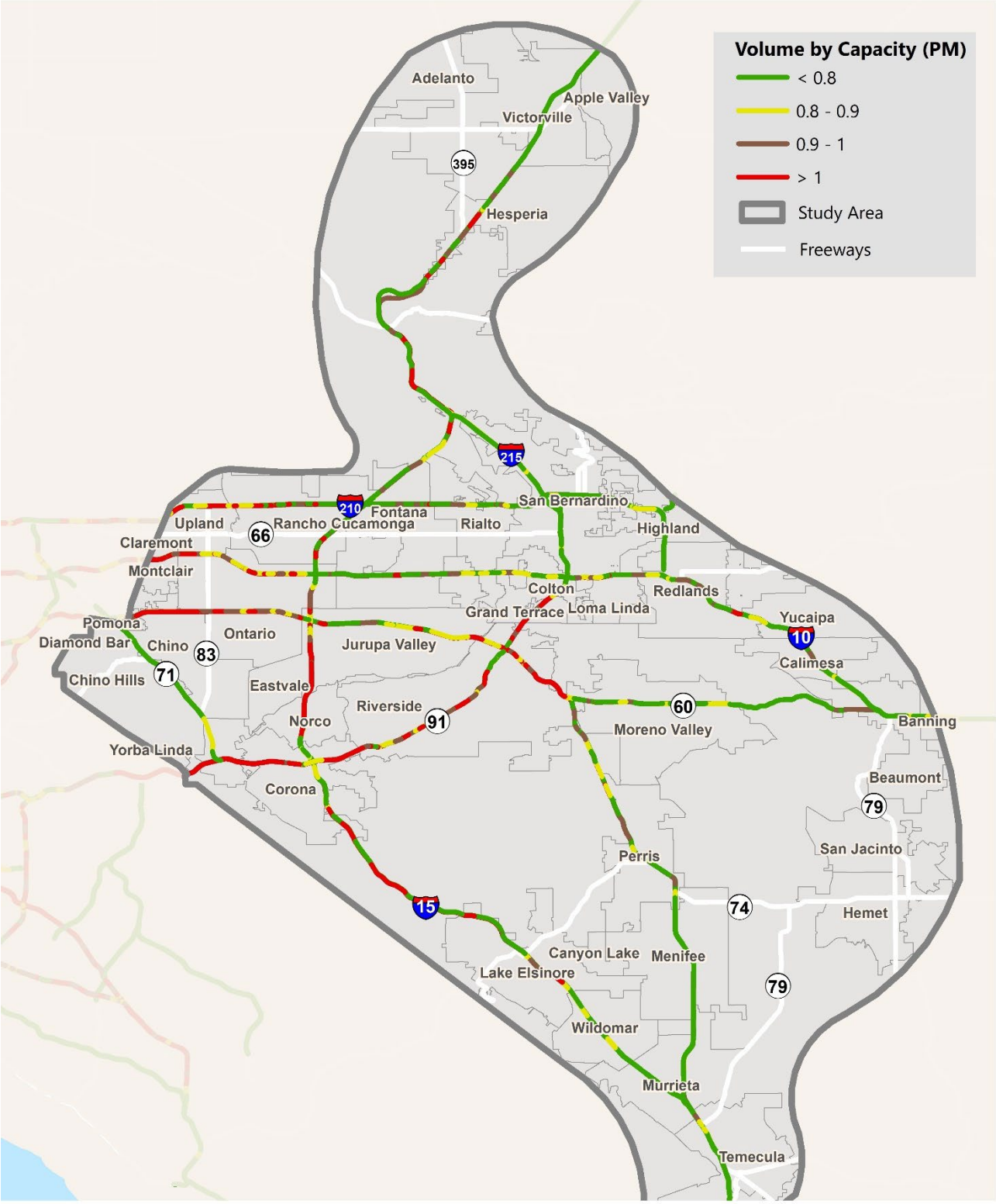
Source: SCAG Model, 2016.

Figure 3.35 | PM Peak Hour Traffic Volumes



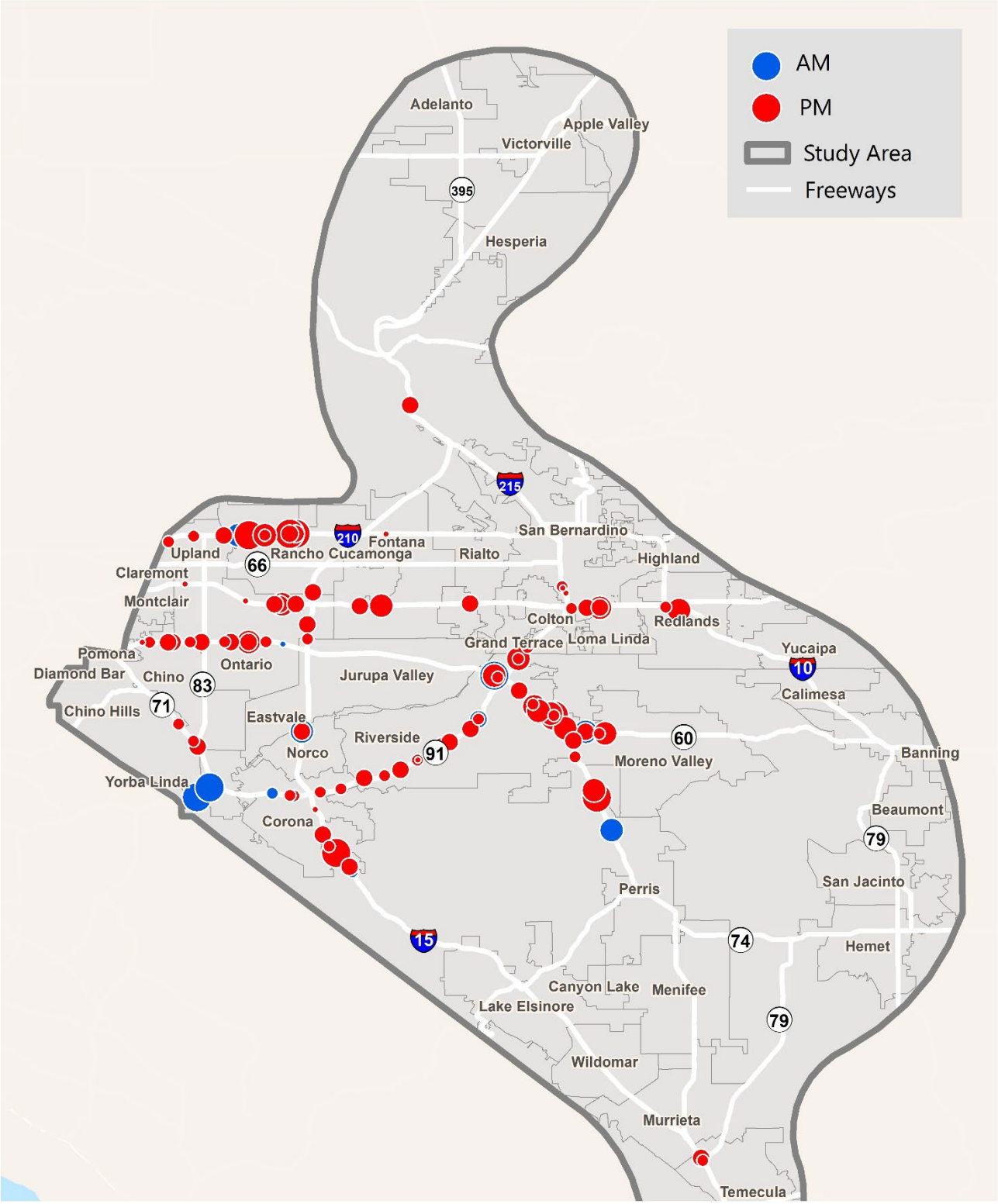
Source: Caltrans PeMS, 2018.

Figure 3.36 | PM Peak Hour Volume/Capacity Ratio



Source: SCAG Model, 2016.

Figure 3.37 | Top Bottlenecks



Source: Caltrans PeMS, 2018.

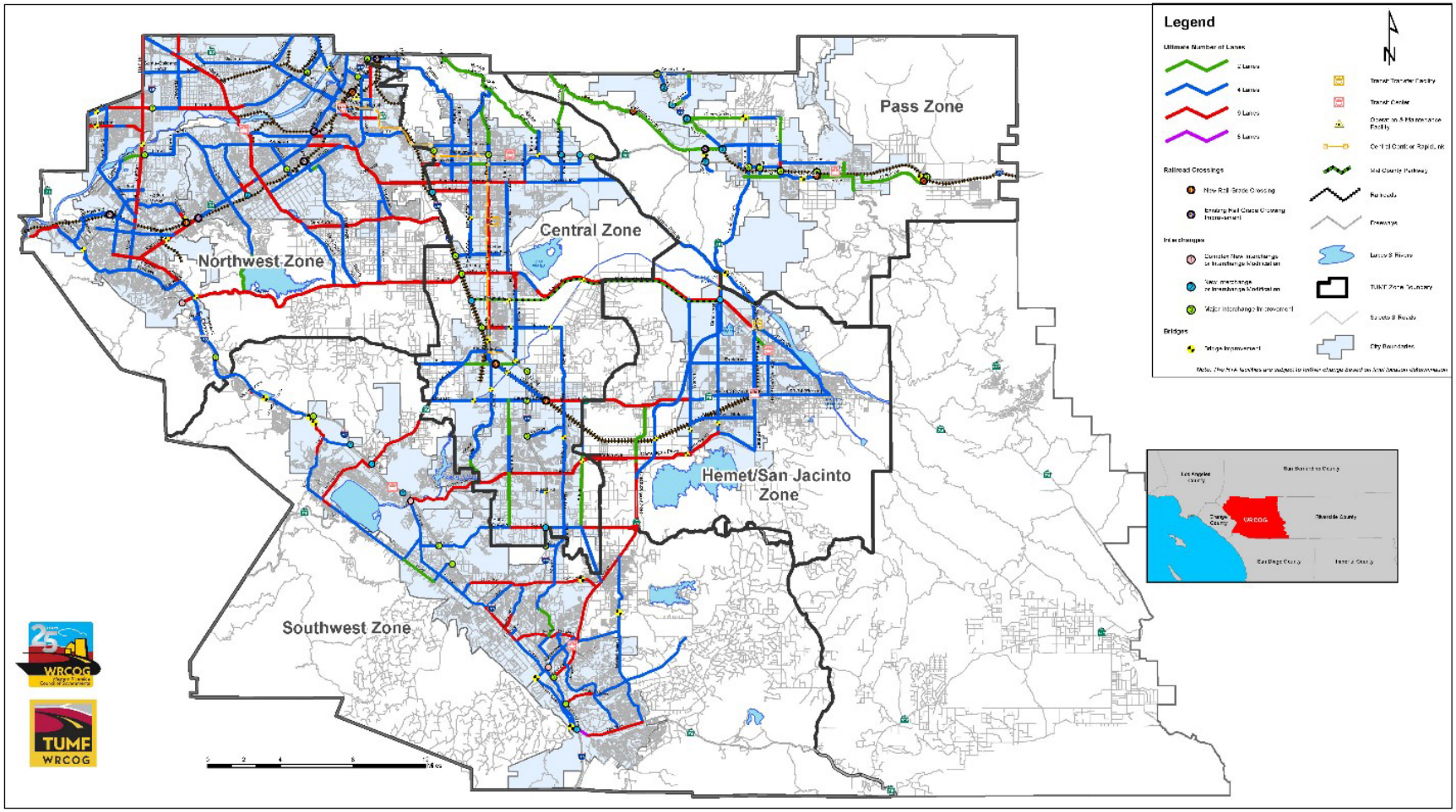
3.6.2 Arterial Assessment

WRCOG, which represents 18 incorporated cities and portions of unincorporated Riverside County, in collaboration with other regional agencies, has developed and administers the Western Riverside County Transportation Uniform Mitigation Fee (TUMF) program. The TUMF is a funding program for “critical transportation infrastructure to accommodate the traffic created by new population growth and commercial development throughout western Riverside County” (2018 TUMF Program Annual Report, WRCOG). The TUMF program collects fees from new residential and non-residential projects and funds improvements on the Regional System of Highways and Arterials (RSHA).

The RSHA, as illustrated in Figure 3.38, is the set of roads, bridges, interchanges, and railroad grade separations that the member agenciesin Western Riverside County have identified as being impacted by further development. As of 2018, the TUMF program has collected $780 million and has been used to fund 98 projects on the RSHA. There are 58 TUMF-funded projects in the pipeline.

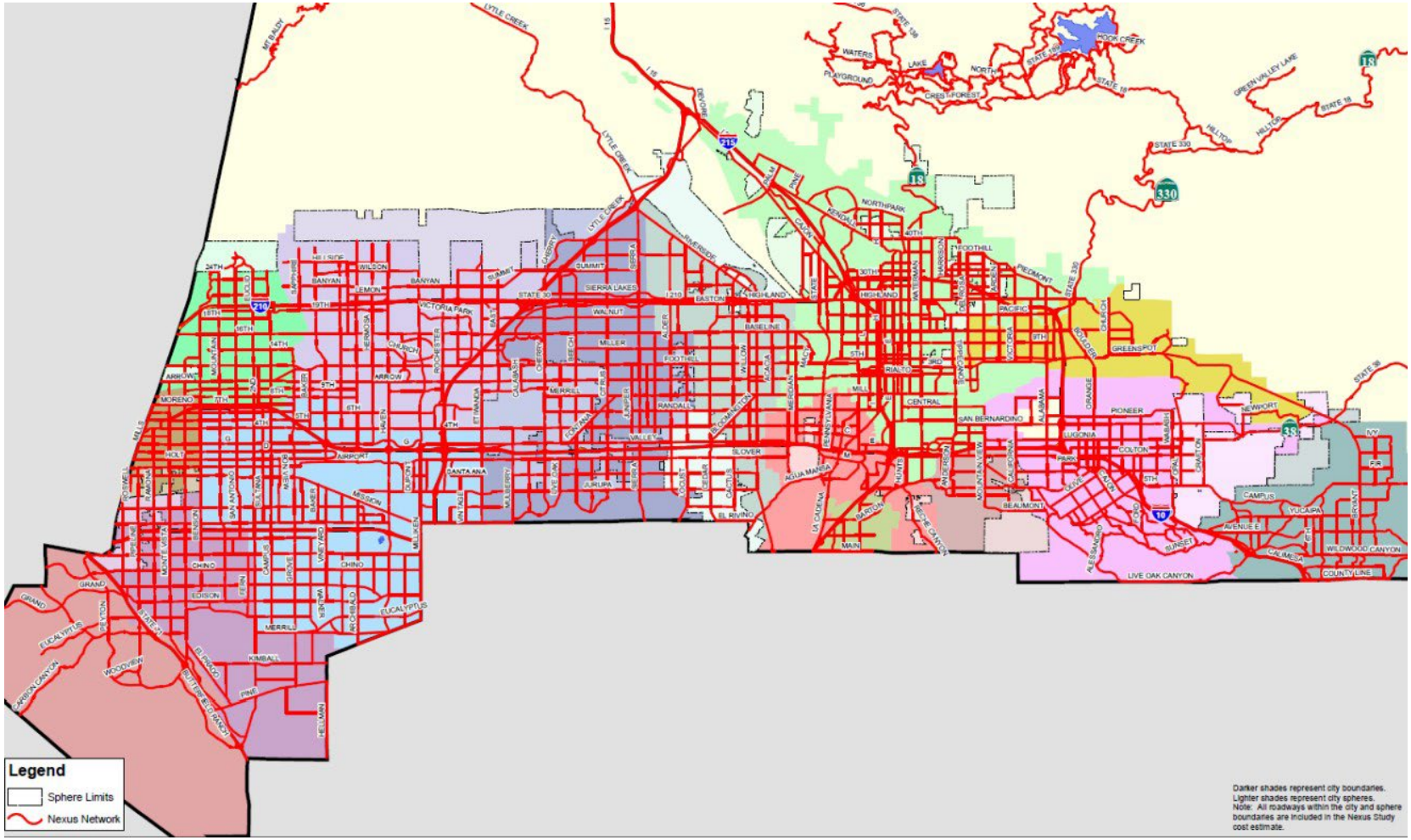
SBCTA, which represents the entirety of San Bernardino County, has developed and administers the Measure I Nexus Study to identify “fair share contributions from new development for regional transportation improvements (freeway interchanges, railroad grade separations, and regional arterial highways)” (2018 SBCTA Development Mitigation Nexus Study Appendix G, SBCTA). The Nexus Study identifies a Nexus Study Network as illustrated in Figure 3.39. The Nexus Study network are the arterial roadways that satisfy a set of criteria which involve “functional classification, propensity to carry inter-jurisdictional traffic, connection to freeway system, etc.” Improvement projects in the Nexus Study Network are qualified to receive funds from the Nexus Study, Measure I, 2010-2040 Valley Freeway Interchanges, and Valley Major Streets.

Figure 3.38 | WRCOG Transportation Uniform Mitigation Fee (TUMF) Regional System of Highways and Arterials (RSHA)



Source: WRCOG TUMF.

Figure 3.39 | SBCTA Nexus of Highways and Arterials

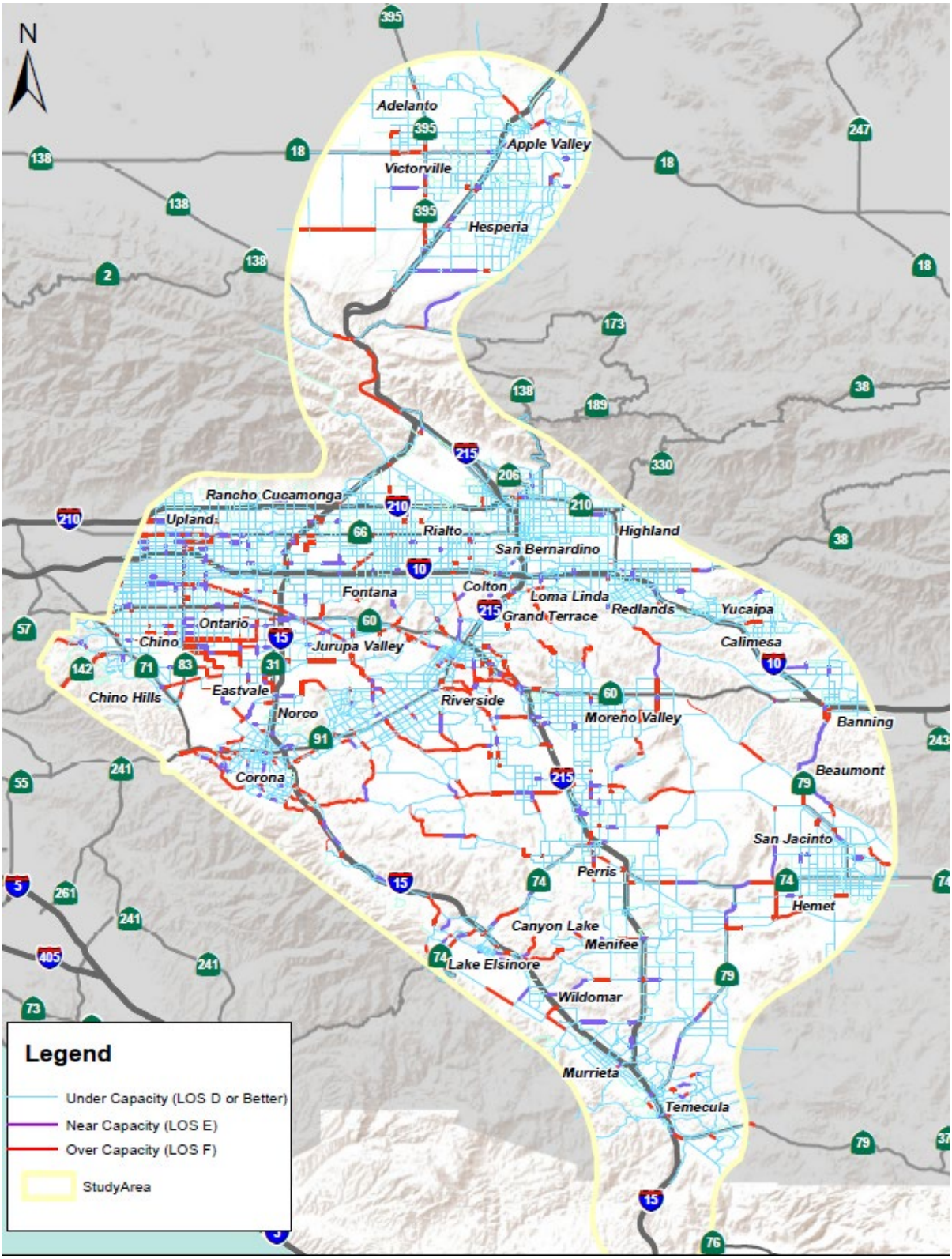


Source: 2018 SBCTA Development Mitigation Nexus Study.

Level of Service Analysis

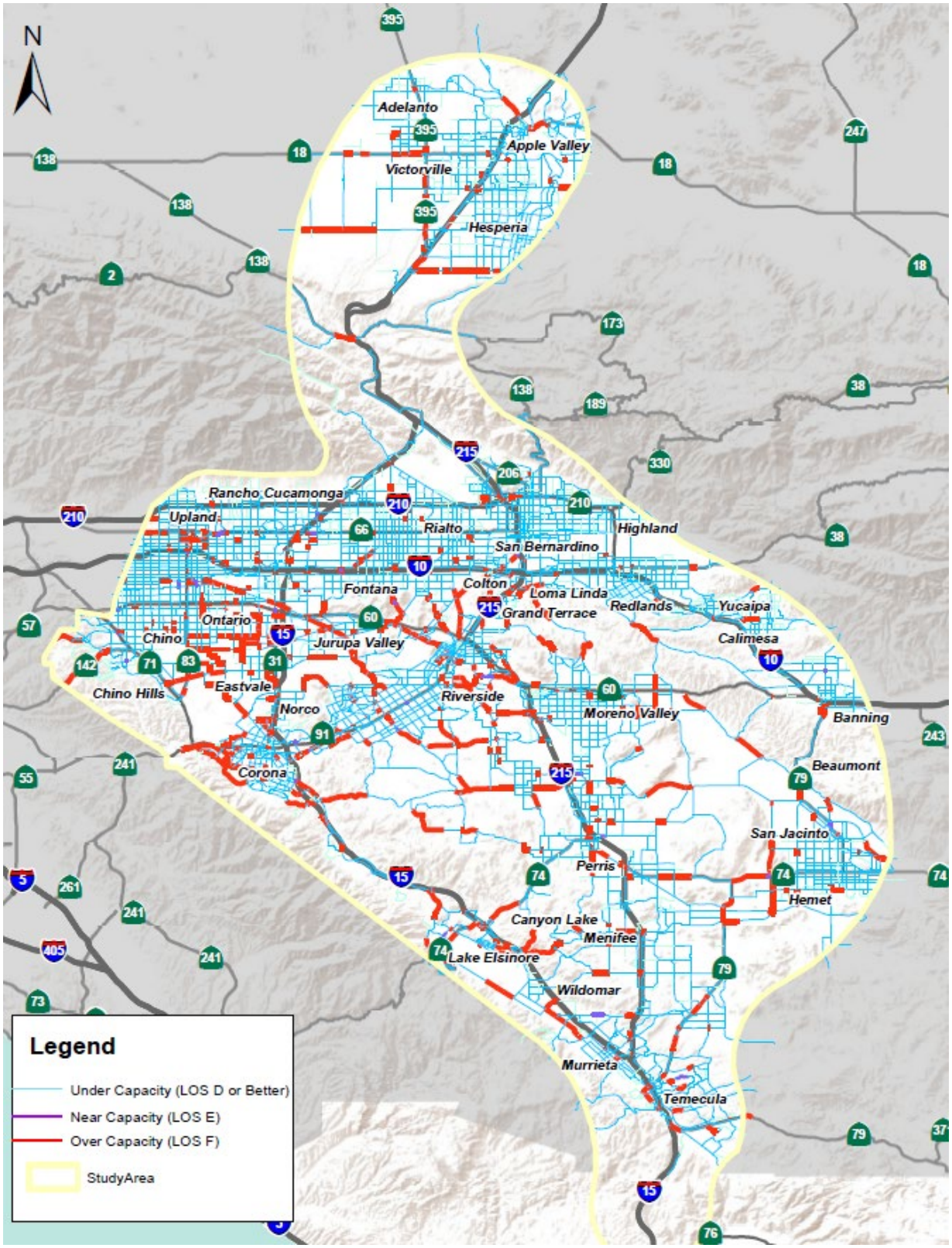
Figure 3.40 and Figure 3.41 illustrate the levels of service on the arterial system for the AM and PM peak hours, respectively, based on the SCAG model. That data shows that the plurality of arterials is operating below capacity (LOS A to LOS D), but there is congestion on arterials throughout the Study Area during AM and PM peak hours in various locations. During the AM Peak Hour, 90 percent of arterials are under capacity, 4 percent are near capacity (LOS E), and 7 percent are over capacity (LOS F). Congestion is slightly worse during the evening peak. During the PM Peak Hour, 88 percent of arterials are under capacity, 4 percent are near capacity, and 8 percent are over capacity. Many of the arterials which are near or over capacity are adjacent to Study Area freeways, parallel the freeways, and act as alternative routes or connect to major freeway interchanges and move traffic to and from the freeway system. Arterials which are at the western side of the Study Area, closer to Los Angeles County and Orange County, are more likely to be over capacity, similar to the patterns shown for the freeway system. Table 3.11 shows the levels of service on the arterial system as well as arterial lane miles under, near, and over capacity on the system.

Figure 3.40 | Arterial AM Peak Hour Level of Service



Source: SCAG Model, 2016.

Figure 3.41 | Arterial PM Peak Hour Level of Service



Source: SCAG Model, 2016.

Table 3.11 | Arterial Level of Service

Table Header	AM Peak Hour (Lane Miles)		PM Peak Hour (Lane Miles)	
< 10 % or more under capacity	5,070	90%	4,970	88%
Near Capacity	220	4%	230	4%
Over Capacity	370	7%	460	8%
Total	5,660	100%	5,660	100%

Source: SCAG Model, 2016.

Vehicle-Miles-Traveled (VMT)

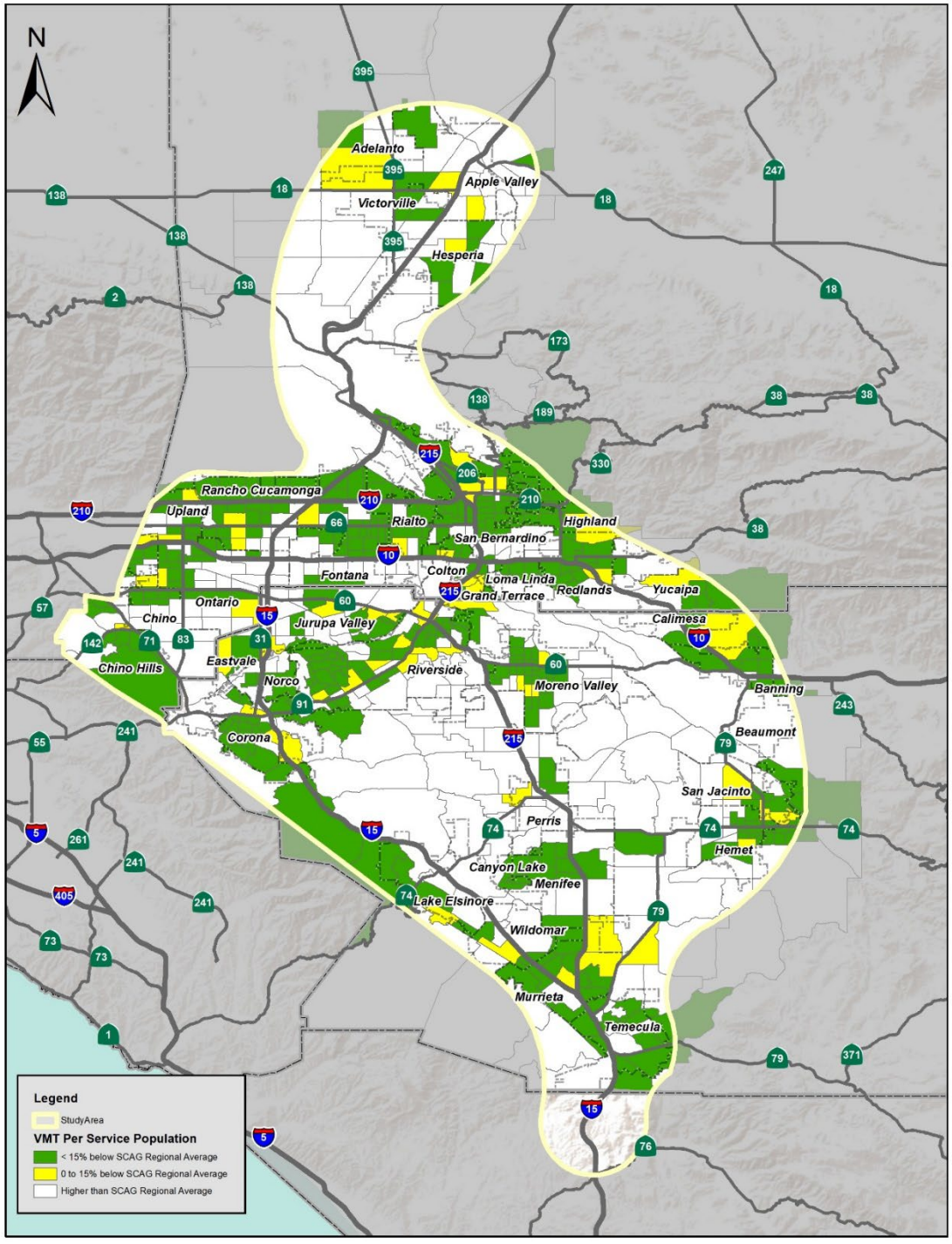
Federal Highway Administration Highway Statistics Series data for 2017 shows that VMT per capita in the Riverside-San Bernardino, CA urbanized area (UZA) which includes areas outside of the Study Area is 24.8 daily VMT per capita. This is slightly higher than the Los Angeles-Long Beach-Anaheim UZA (23.1 daily VMT per capita) and on par with the San Diego UZA (24.7 daily VMT per capita). Within the Study Area, areas with higher than SCAG regional average VMT per service population (residents + employees) are generally in predominantly residential areas such as Jurupa Valley or in industrial/commercial areas such as those south of the I-10 freeway where there is a high concentration of warehousing.

Figure 3.42 illustrates the Existing Daily Arterial VMT per Service Population (Residents + Employees). The graphic displays traffic analysis zones with VMT per service population as follows:

- Higher than the SCAG regional average VMT.
- Zero to 15% below the SCAG regional average VMT.
- Greater than 15% below the SCAG regional average VMT.

The areas with higher than the SCAG regional average VMT are the area's most in need of measures which reduce VMT. As shown, the areas with the highest VMT are predominantly the central, eastern, and northern portions of the Study Area.

Figure 3.42 | Existing Daily Arterial VMT per Service Population (Residents + Employees)



Source: SCAG Model, 2016.

3.7 Freight Network

Goods movement plays an important role in both the circulation network and the economy of a region. Due to the location of the Study Area between the Los Angeles metropolitan area and destinations in the remainder of the country, the Study Area serves as an important path for goods movement via airports, railways, and roadways. Goods movement in the Study Area is accommodated by an extensive rail network and set of designated truck routes.

This section outlines the freight network, including ground, air, and rail in the Study Area.

3.7.1 Ground

Close to 40 percent of the Nation's goods travel through the Inland Empire and . are stored in warehouses.[8] Within the Study Area, there are six primary goods movement routes, which are integral to the distribution of goods to the rest of the state and Nation. The primary goods movement routes are Surface Transportation Assistance Act (STAA) routes and considered the priority freight corridors. The six Primary Goods Movement Routes are I-10, I-15, SR-60, SR-91, SR-210, and I-215. Figure 3.43 shows Study Area truck network and warehouse locations.

Intermodal freight facilities, major freight generators, and warehouse distribution centers are significant contributors to goods movement in the Study Area. Warehousing and logistics facilities are major employment and trip generators, with many facilities located along the State Highway System. Many logistics companies, as well as retail and online vendors, have warehouses in the Inland Empire region. Among the largest facilities throughout the Study Area, Amazon has multiple distribution and fulfillment centers in various cities and uses the March Air Reserve Base, Ontario International Airport, and the San Bernardino International Airport for goods movement.

3.7.2 Air Cargo

The Ontario International Airport currently handles an average of 454,800 tons of air cargo a year, making it the second largest air cargo operation in the state after Los Angeles International and the fifth largest air cargo port in the United States.[9]

3.7.3 Rail

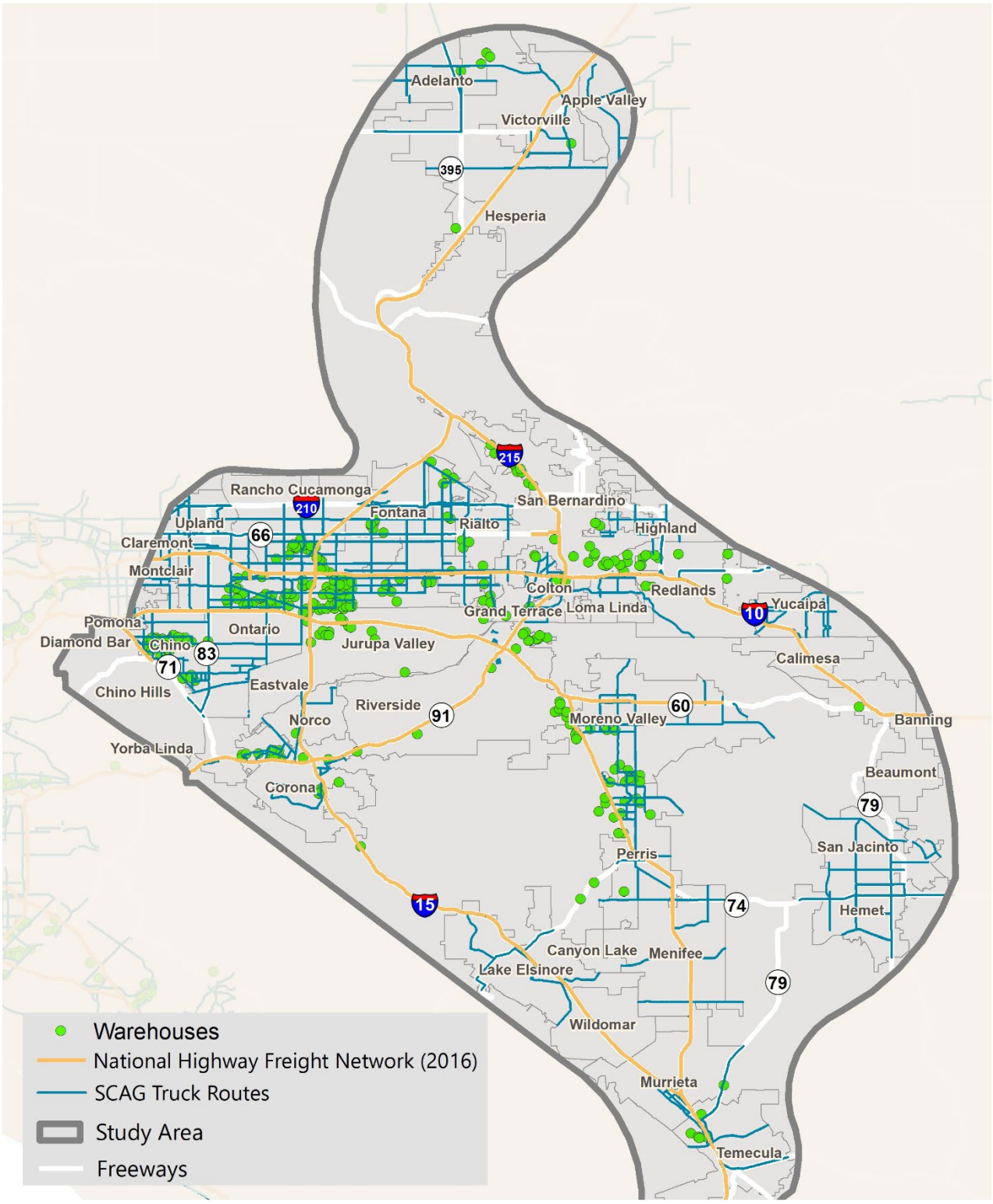
Rail network terminals in Southern California are mainly located at the Los Angeles and Long Beach ports, with intermodal terminals, freight, and rail maintenance yards located throughout the SCAG region. There are several rail yards owned by both BNSF Railway (BNSF) and Union Pacific Railroad (UP) located primarily in southwestern San Bernardino and western Riverside counties that handle rail-to-truck transfers, vehicle, and cargo shipments. Figure 3.44 shows the freight rail network in the Study Area.

---

[8] Riverside County Long Range Transportation Study, RCTC, December 2019.

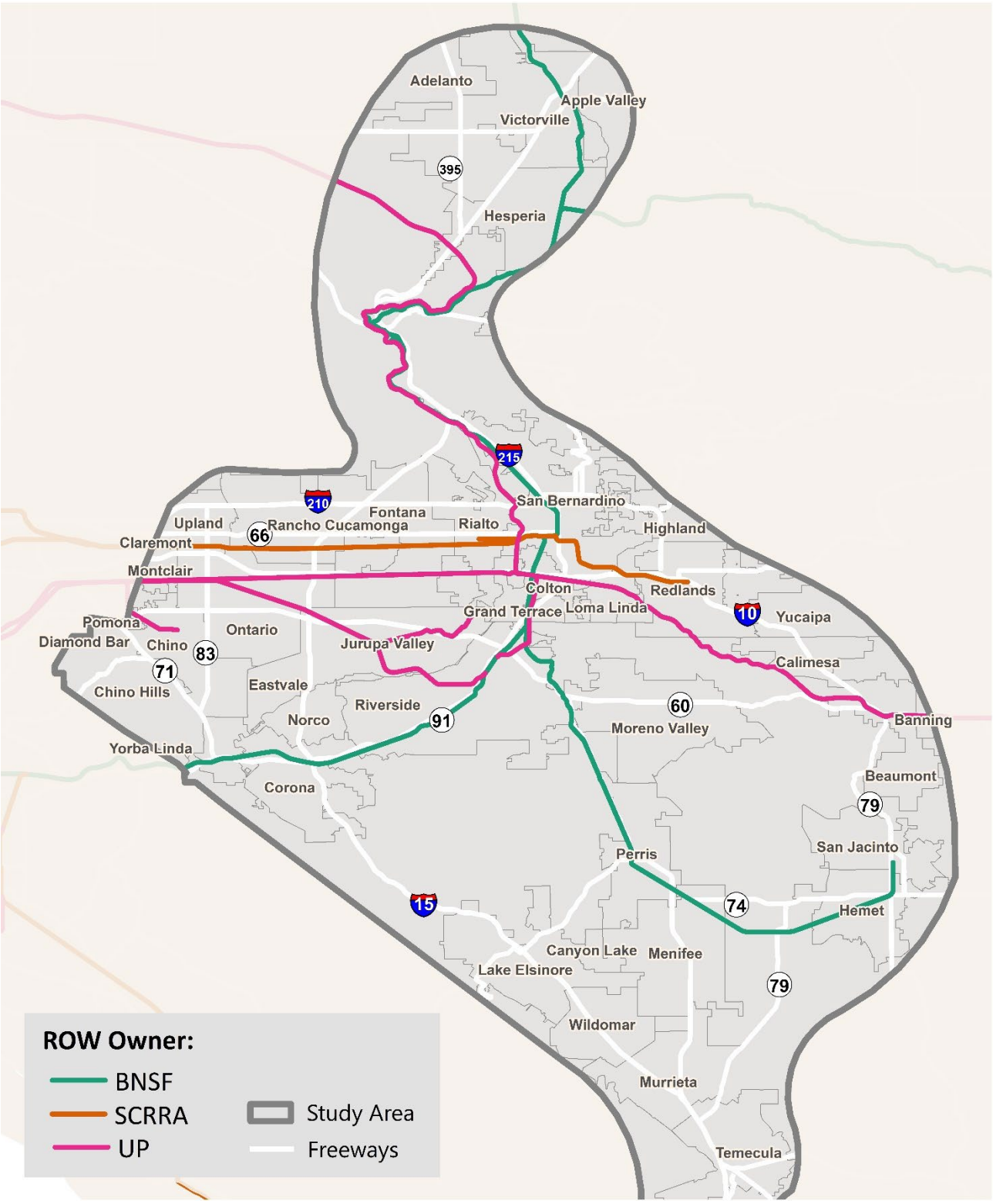
[9] District System Management Plan, Caltrans District 8, June 2017.

Figure 3.43 | Truck Network and Warehouse



Source: SCAG

Figure 3.44 | Freight Rail Network



Source: Caltrans (2013).

3.8 Future Growth and Projected Changes

This section presents the future growth in the Study Area and the projected changes in terms of socioeconomics, trips, and VMT. Future growth projections are calculated from SCAG's 2016 RTP/SCS. The 2016 RTP/SCS has detailed and disaggregated data for the base year (2016) and a horizon year (2040). Data assessed includes growth in population and employment, as well as growth in number of total trips and VMT.

3.8.1 Future Growth

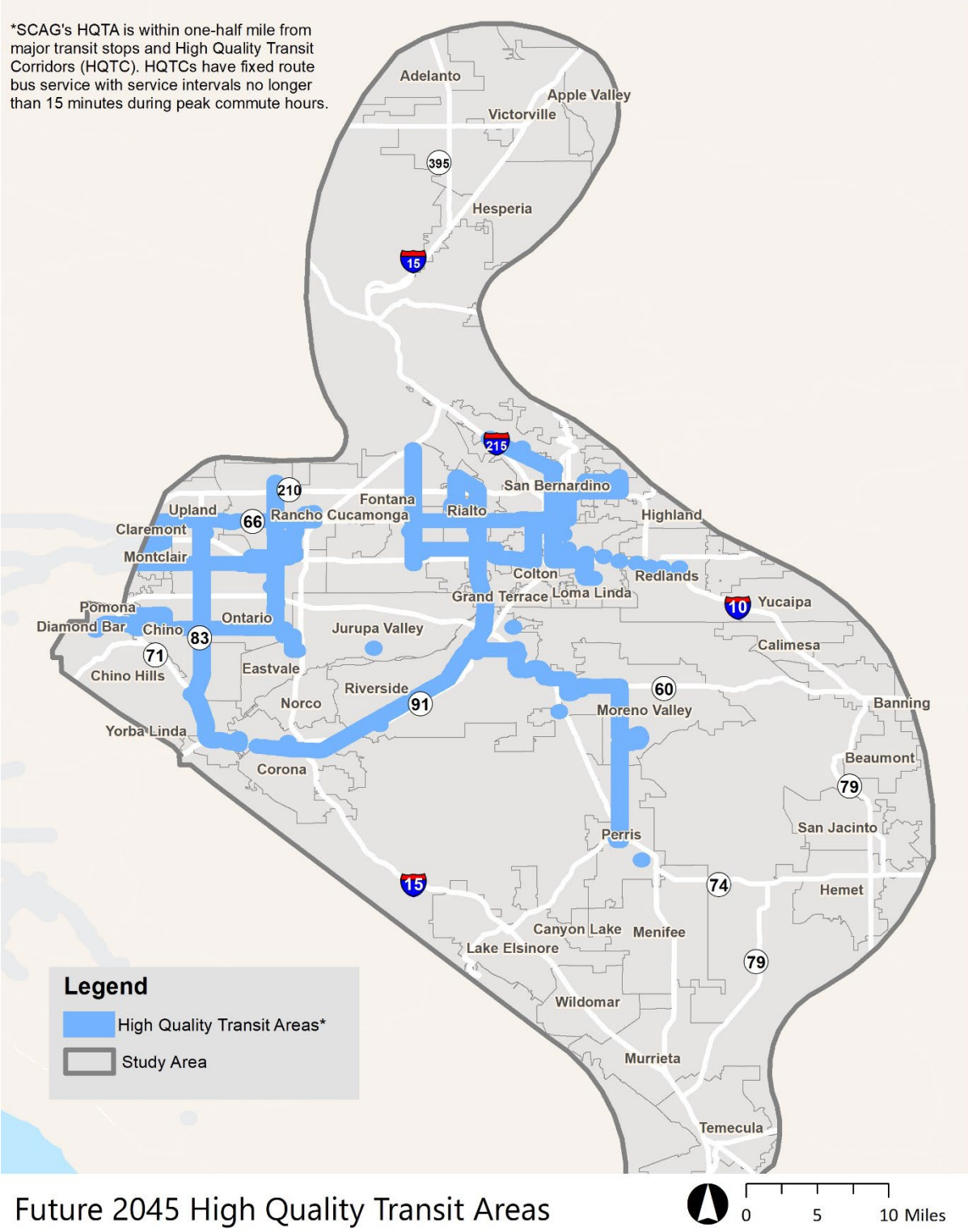
Potential future growth has been assessed using the SCAG regional model data, including projected growth in population, employment, total trips, and VMT.

- **Population:** The overall population growth for the entire Inland Empire Study Area is projected to be 16 percent by 2040, which represents an increase of 647,000 residents. Within the sub-corridors, the increase in population ranges from a low of 13 percent (Riverside/Rialto to LA County Line) to 50 percent (Apple Valley to LA County line).
- **Employment:** The overall employment growth for the entire Inland Empire Study Area is projected to be 35 percent by 2040, which represents an increase of 452,000 jobs. Within the sub-corridors, the increase in employment ranges from a low of 31 percent (Riverside/Rialto to LA County Line) to 42 percent (Beaumont to Temecula).
- **Trips:** the overall trip growth for the entire Inland Empire Study Area is projected to be 33 percent by 2040, which represents an increase of 3 million daily trips. The growth in the sub corridors ranges from a low of 22 percent (Cajon Pass to Eastvale) to a high of 39 percent (Apple Valley to LA County line).
- **Vehicle Miles Traveled:** The overall VMT growth for the entire Inland Empire Study Area is projected to be 17 percent by 2040, which represents an increase in VMT of 17.9 millions. The growth in VMT in the sub-corridors ranges from a low of 10 percent (Riverside/Rialto to LA County Line) to 34 percent (Beaumont to Temecula).

3.8.2 High Quality Transit Area

Figure 3.45 shows the future HQTA in the Study Area. There are several new corridors identified as HQTC in 2045 including Perris Boulevard, Magnolia Avenue, and Main Street in Riverside County, and Euclid Avenue, Holt Boulevard, Foothill Boulevard and Riverside Avenue in San Bernardino County.

Figure 3.45 | Future High-Quality Transit Areas (HQTA)



Source: SCAG.

4.0 Stakeholder Outreach

This chapter provides a summary of outreach efforts conducted for the IE CMCP project, including the Project Management Team (Team) meetings with key stakeholder agencies, other meetings with agencies, separate public surveys conducted in Riverside and San Bernardino counties and attendance at technical meetings conducted in each county. The Team is at the core of the stakeholder outreach and it includes the following key agencies:

- Caltrans, both District 8 and Headquarters representatives
- San Bernardino County Transportation Authority (SBCTA)
- Riverside County Transportation Commission (RCTC)
- Western Riverside Council of Governments (WRCOG)
- Southern California Association of Governments (SCAG)

Project Management Team meetings were an important component of the stakeholder outreach process as they included all of the key agencies involved in transportation planning in the study area. held regularly throughout the IE CMCP development effort. At those meetings, key project tasks were discussed, including, but not limited to, the following:

- Overall project purpose, goals, and objectives;
- Unique goals and objectives of each stakeholder agency;
- Define the basic structure of CMCPs;
- CMCP Study Area and ten sub-corridor areas;
- Corridor characteristics, including travel patterns, socioeconomic data, and facility condition and characteristics;
- Project evaluation framework and performance measures;
- Key project lists for each county;
- Integration of multimodal project needs;
- Outline of CMCP report; and
- Project schedule and progress.

In addition to the Team meetings described above, the Team sought feedback from representatives from the cities and counties and transit operators in the Study Area through the following advisory committees:

July 8, 2019

- SBCTA Transportation Technical Advisory Committee Meeting

August 8, 2019

- Western Riverside Council of Governments (WRCOG)—Planning Directors Committee

August 8, 2019

- Western Riverside Council of Governments (WRCOG)—Public Works Directors Committee

October 8, 2019

- San Bernardino County Transportation Authority (SBCTA)—Public and Specialized Transportation Advisory and Coordinating Council (PASTACC)

April 1, 2020

- Caltrans Headquarters and District briefing

May 4, 2020

- SBCTA Transportation Technical Advisory Committee Meeting

May 18, 2020

- RCTC Technical Advisory Committee Meeting

At these meetings, the Team provided an overview of the IE CMCP and requested comments. Most comments were related to specific projects to ensure that they were included. These comments were then incorporated into the project list.

Another key part of the stakeholder outreach effort was to obtain opinions and information from residents, workers, and commuters that use the transportation system. Separate public outreach efforts for the two counties were conducted, as described in the following sections. The public comments have been used to help assess the current conditions assessment as well as during the process of developing the recommended improvement projects. In general, the public concerns and comments about existing transportation problems and future solutions correlate with the results of the analysis in the CMCP and the recommended projects address many of the congested locations to the extent feasible given funding, environemental and other constraints.

4.1 RCTC Reboot My Commute Campaign Summary

In Riverside County, public feedback was received through RCTC's Reboot My Commute Campaign (#RebootMyCommute). #RebootMyCommute enabled residents, workers, and commuters to provide open-ended

ideas and feedback on how to create a better transportation system in Riverside County. The program offered opportunities for the public to tell their stories and to recommend how and where RCTC's limited transportation dollars should be spent. Using the theme, “We are Listening,” #RebootMyCommute acknowledged the public’s desire to address issues such as traffic congestion, late trains, potholed streets, and how long it takes for improvements to happen. RCTC accepted comments from March 6 to June 3, 2019, a 90-day period.

For Riverside County, public feeback on transportion issues and solutions was recently received through the County’s #RebootMyCommute campaign. The County’s #RebootMyCommute outreach effort included opportunity for residents and users of the transportatoin system to provide their opinions on transportatoin issues, challenges and solutions. As that effort was recently completed, it was used as a key compnent of the public comment and input for the CMCP for Riverside County. Multiple channels were available for residents and commuters to learn about #RebootMyCommute and share feedback, as follows:

1. RebootMyCommute.org website: the site had 19,556 unique visitors; nearly half of comments received were submitted via the site.
2. Social media advertising with videos.
3. Tele-townhall meetings on March 19 and 20 attracted 7,539 participants.
4. Community booths at six community events publicized the effort.
5. News media: ten news stories featured the #RebootMyCommute program; advertisements were placed with several news outlets.
6. The Point (RCTC’s monthly newsletter) promoted the effort.
7. Helpline: a toll-free number was provided for residents who wished to express their views by telephone.
8. Presentations were made to several agencies and City Councils.
9. Text messaging was offered to subscribers of The Point.
10. Brochures and postcards: More than 5,500 brochures in English and Spanish were distributed.

RCTC received comments from 948 individuals via the website, social media, and other sources. Since some commenters addressed more than one topic, a total of 1,150 comments were tallied. Following is a summary of comments received, as organized by RCTC staff under seven topics.

1. **Active Transportation—53 Comments Received:** Most of these comments focused on the need to complete the Santa Ana River Trail between Riverside County and Orange County and improvements to CV Link, the transportation route and recreational pathway in the Coachella Valley. A number of comments noted the need for more bike lanes, walkable communities, sidewalk improvements, ADA signs for pedestrians, and motorized scooters.

2. **Economy and Jobs—81 Comments Received:** Many comments noted the need to bring higher-paying jobs to Riverside County to reduce the need to commute to other counties, to offer incentives to businesses or employees who work from home, to provide more incentives for ridesharing, and to allow tax breaks for employers who hire local. A number of people were concerned about the high volume of residential and commercial development in Riverside County and the impact to traffic. Several individuals voiced concerns about any possible new taxes and suggested that gas tax revenue should fund only freeway and roadway improvements.

3. **Highways and Traffic—383 Comments Received:** The Commission received wide-ranging comments about increasing traffic congestion on highways throughout Riverside County. Frequently mentioned were the need to improve the State Route 91 corridor, including the area between Green River Road and SR-241, the 71/91 interchange, 91 Express Lanes access, and the need for an alternate route between Riverside County and Orange County. A large number of residents voiced the need to widen and improve I-15 between Riverside County and San Diego County, particularly near the 15/215 split. The number of comments increased greatly following an "I-15 Traffic Crisis" video posted on Facebook by the City of Temecula in mid-May. Other residents mentioned the need for traffic congestion relief along I-10 through the San Gorgonio Pass. Residents also expressed concerns about increasing congestion along I-215 in Perris and Moreno Valley. Some motorists suggested removing express lanes, expanding carpool lanes, using reversible lanes, building double-decked highways, and limiting travel times for big-rig vehicles.

4. **Streets and Local Issues—207 Comments Received:** Many comments in the category focused on the need to fix potholes, repave roads, improve timing and coordination of traffic signals, add left-turn phases to traffic signals, and add left-turn lanes. Other comments addressed the need for more sidewalks, the effectiveness of roundabouts, the need to install more stop signs, and the need for red-light cameras for traffic enforcement. A number of comments noted specific streets that require repair, widening, and extension.

5. **Public Transportation and Specialized Services—318 Comments Received:** Comments centered on the need for more rail and bus options throughout Riverside County, although some comments noted that public transit is ineffective in Southern California. Many comments supported establishing daily train service to and from the Coachella Valley. A number of residents requested the Metrolink or a light rail service for southwestern Riverside County and into San Diego County, to the San Gorgonio Pass, and to the Hemet-San Jacinto area. Others asked for greater train frequency, free weekend rides for families, discounted train tickets, weekend service on the 91/Perris Valley Line (PVL), and extending the 91/PVL to San Bernardino. Residents asked for more bus options between the Coachella Valley and Riverside, greater bus frequency, 24-hour bus systems, more station amenities, improved bus stop safety, bus-only lanes, more compressed natural gas buses, and greater assistance for veterans, seniors, and riders with disabilities. Riders also voiced the need for better on-time performance for trains and buses and additional ridesharing/vanpooling incentives.

6. **Safety—38 Comments Received:** Comments noted the need for more police presence on roadways with larger fines for texting and driving, more stop signs, diagonal parking spaces, buses to enhance safety during

the Coachella festivals, Park & Ride lot security, and the removal of homeless individuals from bus shelters. Other comments noted the need for improvements to the I-15/Railroad Canyon Road/Diamond Drive interchange, Alessandro Boulevard, and Columbia Avenue, and the need to reopen Pigeon Pass Road, San Timoteo Canyon Road, and the connector between Watkins Drive and Poarch Road. Residents also questioned the effectiveness of a planned raised median on Florida Avenue in Hemet.

7. **Express Lanes—70 Comments Received:** A significant number of comments suggested removing the 91 Express Lanes or stopping construction of new express lanes. Some suggested replacing the express lanes with general-purpose lanes, carpool lanes, or a light rail system. Others noted the high cost of using the express lanes, accused RCTC of profiteering, questioned various design features of the 91 Express Lanes, expressed concerns about using taxpayer funds to pay for express lanes, and advocated for an additional lane on westbound 91 between Green River Road and SR-241. Additional comments noted the need to extend the 15 Express Lanes past Lake Elsinore, the lack of access to the 91 Express Lanes from mid-city Corona, improving the 71/91 Interchange, and adding highways below ground.

The campaign successfully collected more public feedback from the general public than ever before. The volume and variety of feedback received was significant, as well as the overall constructive nature of the comments. Moreover, the extensive outreach channels improved RCTC's rapport and standing with its stakeholders and provided a platform for name recognition. Overall, the outreach effort revealed that the public has a good understanding of where transportation investment is needed and is willing to recommend potential solutions.

4.2 San Bernardino County CMCP Survey

In San Bernardino County, a new public survey was designed and conducted specifically for the IE CMCP project. The survey was conducted using Survey Monkey software, and it was advertised to people on SANBAG's contact list through email with a link to the survey included in the email, and further circulated via links on various city and community websites as well as through Facebook and other social media. SBCTA advertised the survey using its email database comprised of members of the public who have signed up at various times to be informed of SBCTA activities. Because the survey was conducted on a public website, there were a few non-residents of San Bernardino County who participated and provided responses.

The survey for this effort was completed in fall 2019. Questions and responses included in the survey are provided below. A total of 337 responses to all questions were received as part of the San Bernardino County IE CMCP survey.

Question 1: Please identify the community where you live.

The respondents lived in the following areas:

- 18 different San Bernardino County cities.
- 12 different San Bernardino County unincorporated communities.

Question 2: Freeway Congestion

- Critical Problem: 36%
- Definite Problem: 36%
- Moderate Problem: 19%
- Slight Problem: 7%
- No Problem: 2%

Question 3: Surface Street Congestion

- Critical Problem: 12%
- Definite Problem: 29%
- Moderate Problem: 36%
- Slight Problem: 16%
- No Problem: 7%

Question 4: Lack of Bus/Train Service

- Critical Problem: 40%
- Definite Problem: 14%
- Moderate Problem: 15%
- Slight Problem: 14%
- No Problem: 17%

Question 5: Lack of Bike Lanes

- Critical Problem: 27%
- Definite Problem: 13%
- Moderate Problem: 17%
- Slight Problem: 17%
- No Problem: 26%

Question 6: Inadequate Sidewalks

- Critical Problem: 25%
- Definite Problem: 16%
- Moderate Problem: 16%
- Slight Problem: 17%
- No Problem: 16%

Question 7: Rate Improvements (% who rated the improvements extremely important)

- Freeway Lanes: 48%
- Transit: 45%
- Freeway Interchanges/Ramps: 39%
- Sidewalks: 35%
- Bike Routes: 29%
- Surface Street Lanes: 21%

Question 8: Most significant transportation problem in San Bernardino County?

- Traffic Congestion—125
- Lack of bus/train service—70
- Other (including truck traffic, road conditions, emissions, construction, more carpools)—60
- No Answer—10
- Enforcement—5
- People who work too far from where they live—5

Question 9: Most significant transportation problem in your community?

- Traffic Congestion—104
- Lack of bus/train service—73
- Other (including truck traffic, road conditions, emissions, construction, more carpools)—67
- No Answer—25
- Enforcement—10

Question 10: What specific improvements would you like to see?

- Freeway Lanes—51
- Increased Transit /Mass Transit—45
- Light Rail/Metrol Link—37
- Road Conditions—27
- Bicycle Lanes—17
- Pothole Repair—16
- Express Lanes—15
- Transit Service Times—13
- Sidewalks—13
- Surface Street Lanes—13
- Van Pools/Commuter Buses—5
- Better Signal Timing/Synchronization—5
- Better/Cleaner Buses—3
- Toll Roads—3
- Traffic Enforcement—3
- Bus System Safety—2
- More Ramps—2
- Crosswalks—2
- Flying Cars—1
- Pick-up Passenger Lane Parking—1
- Traffic Calming—1
- Second Story Freeway—1
- Sound Walls—1

Question 11: Do you have anything else to suggest?

- Similar answers to previous questions.
- Other various responses.

The following transportation issues were identified by the respondents.

Priority Transportation Issues

- Reducing highway traffic congestion.
- Maintaining local roads and filling potholes.
- Expanding Metrolink and Amtrak rail services.
- Expanding local bus services.

High Priority Types of Transportation Improvements

- Widen congested highways and roadways.
- Increase transit lines and frequency.
- Fix potholes, resurface roads, and road maintenance.
- More light rail and Metrolink options.
- Adding bike lanes and bike paths.

Key Needs and Desires

- More freeway and roadway lanes.
- Improved accessibility to public transit, including extended hours of service, more routes and improved frequency, better/easier connections, and improved access to schedules and availability information.
- Safer sidewalks, Americans with Disabilities Act (ADA) accessible curb ramps, and first and last mile access, including access for seniors.
- Ensure better connectivity between rural and urban area.

Active Transportation

- Add bike lanes.
- Create more walkable communities.
- Improve sidewalks and ADA signs for pedestrians.

Economy and Jobs

- Reduce the need to commute, bring higher-paying jobs to the county.
- Provide more incentives for ridesharing.
- Allow tax breaks for employers who hire local.
- Concerns about the high volume of residential and commercial development and the impact to traffic.

Express Lanes

- Add new express lanes.
- Replace express lanes with general-purpose lanes, carpool lanes, or a light rail system.

Highways and Traffic

- Widen and improve freeways.
- Additional suggestions included:
  - Remove express lanes.
  - Expand carpool lanes.
  - Build double-decked highways.
  - Limit travel times for big-rig vehicles.

Safety

- More police presence.
- Larger fines for texting and driving.
- More signals.
- Park and Ride lot security.
- Remove homeless individuals from bus shelters.

Streets and Local Issues

- Fix potholes.
- Repave, widen, and extend roads.
- Improve timing and coordination of traffic signals.

- Add left-turn lanes and left-turn phases to traffic signals.
- More sidewalks.
- Install more stop signs.
- More enforcement.

Public Transportation

- More rail and bus options.
- Establish daily train service to and from the Coachella Valley.
- Provide more Metrolink or light rail service.
- Greater train frequency.
- Build the Gold Line to Montclair.
- Greater bus frequency.
- Improved bus stop safety.
- Bus-only lanes.
- Better on-time performance for trains and buses.
- Additional ridesharing/vanpooling incentives.
- Regional highway/local streets network connectivity, maintenance, and operations.
- Transit and paratransit system and service providers' connectivity, maintenance, and operations.

In general, the respondents indicated a heavy focus on traffic congestion and better transit service as key issues, along with a number of other responses that point to the need for a multimodal transportation network.

4.3 Comparison of Riverside and San Bernardino County Outreach Responses

Although they were two separate efforts to solicit outreach from the residents and system users in each county, the questions asked were closely correlated and the public responses also reflected similar and shared visions of both exisiting transportation system problems as well as recommended solutions.

Under Highways, common themes of the responses in both counties included frustration with significant congestion. In terms of improvements, in both counties there were suggestions to widen and improve freeways, expand carpool lanes, double deck freeways, limit times for large trucks and limit express lane expansion were mentioned. While all of these may not all be feaasible due to funding constraints, environmental impacts or other reasons, all have

been noted as resposnes from the public. For streets and local issues, common themes included fixing potholes, improving signal timing and coordination and adding left turn lanes at key locations. For public transportation, comment themes included adding more bus and rail services, greater bus frequency in key areas, adding rail service to the Coachella Valley, adding bus-only lanes and improving bus stop safety. For active transportation (bike and pedestrian), common themes included adding bike lanes/routes, improving walkable communities and improving ADA signs for pedestrians. For the economy and jobs, common themes included bringing higher paying jobs to both counties to reduce the need for commuting and providing more incentives for employers to encourage employee ridesharing.

5.0 Sub-Corridor Definitions and Strategic Approaches

5.1 Sub-Corridor Analysis Summary

The purpose of this section is to present a review of the characteristics, future growth potential, problems, opportunities, strategic issues, and approaches that may apply to each of the ten identified sub-corridors in the IE CMCP. Each sub-corridor may have features in common with other sub-corridors, as well as features that are unique to that sub-corridor. The intent is to capture the themes or strategies that define "where each sub-corridor is headed," in terms of how we should invest in its multimodal improvement and be responsive to its environmental and community characteristics. For each corridor discussion, there is an introduction to each corridor and a brief bullet list of "Problems to be Addressed," followed by a listing of strategies that may be appropriate to guide the overall development of the sub-corridor. This is followed by a more detailed review of the demographic and land use characteristics of each sub-corridor, various attributes of the transportation system, and forecasts of what the sub-corridor may look like in the future. At the end of each sub-corridor discussion, a listing is presented of proposed multimodal improvements, with an emphasis on the near-term (generally the next 10 years), and with some longer-term projects identified, as well.

In developing the strategic approach for each sub-corridor, the classes of strategies considered are highly multimodal in nature, and they also consider the types of "customers" that will be served: 1) passenger travel and freight; 2) trips by purpose: for work, school, business, shopping, recreation, social interaction; and 3) specific activity centers: airports, downtowns, hospitals, educational institutions, commercial clusters, mixed-use clusters, and transit hubs.

Overlaying the strategies are the statewide and regional goals to: reduce VMT, criteria pollutants, and GHG emissions; improve mobility and accessibility; enhance the quality of life in our local communities; and protect habitat and aquatic resources. This requires integrated, multi-pronged approaches that consider all modes of transportation and complementary strategies for land use, environment, and protection of community character.

Strategies may be implemented through individual projects or coordinated groups of complementary improvements. Where projects are coordinated, their relationship should be described in terms of how they address shared corridor needs and support multimodal travel, while retaining clearly defined project scopes and implementation responsibilities.

The transportation modes reflect an emphasis on public transportation, non-motorized travel, shared-ride (carpool/vanpool), and virtual travel (i.e., work-at-home, web-based business, teleconferencing, etc.); a highway network focused on effective management and operations (e.g., through HOV/managed lanes, traveler information, coordinated adaptive ramp metering, and signal coordination); as well as accommodation of freight and logistics through strategic access improvements.

There is a large pool of existing and emerging multimodal options to draw from and build on in the Inland Empire: **commuter rail (Metrolink IEOC, 91/Perris Valley, Riverside, and San Bernardino lines), light rail (with the Gold Line extension to Pomona by 2025), regional Diesel Multiple Unit (DMU) rail (with self-powered zero-emission trainsets), and high speed rail (California High-Speed Rail Phase 2, Brightline West from Apple Valley to Las Vegas)**. Efficient and frequent **local bus, express bus, and BRT** options also exist and are being expanded with the forthcoming **West Valley Connector BRT**. Lyft is now providing an important **connection to Ontario International Airport** from the Riverside and San Bernardino Metrolink lines, and **first/last mile connections** are being advanced linking transit and key destinations. **Regional bike networks** are creating a backbone that provides the regional connectivity needed to service those who can take these modes for daily commutes. **Land use and housing** are intertwined with the regional transportation network in a way that, because of much higher costs in coastal counties, has historically produced longer commutes and travel times for inland residents. The challenge before us now is to encourage better balance in jobs and housing regionally for the sake of livability, cost, and VMT/GHG reduction.

5.2 Victorville to San Bernardino

The Victorville to San Bernardino sub-corridor is one of five north/south oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.1 illustrates the boundaries of the sub-corridor Study Area.

5.2.1 Sub-Corridor Definition

This important north/south sub-corridor is entirely within San Bernardino County and is a key connection between the County's High Desert, Mountain, and Valley subregions, passing through the Cajon Pass. This sub-corridor also is an important link connecting points north and east in the U.S., including Las Vegas, to other parts of Southern California. The corridor addresses flows of people and freight within and through portions of unincorporated San Bernardino County and the cities of Adelanto, Apple Valley, Victorville, Hesperia, San Bernardino, Rialto, and Fontana. This sub-corridor includes parts of RSAs 32, 30, 28, and 29, all within San Bernardino County. The sub-corridor is generally 40 miles in length north to south and between 5 to 20 miles wide east to west.

Key Transportation Facilities

Key north/south oriented transportation facilities within the sub-corridor include:

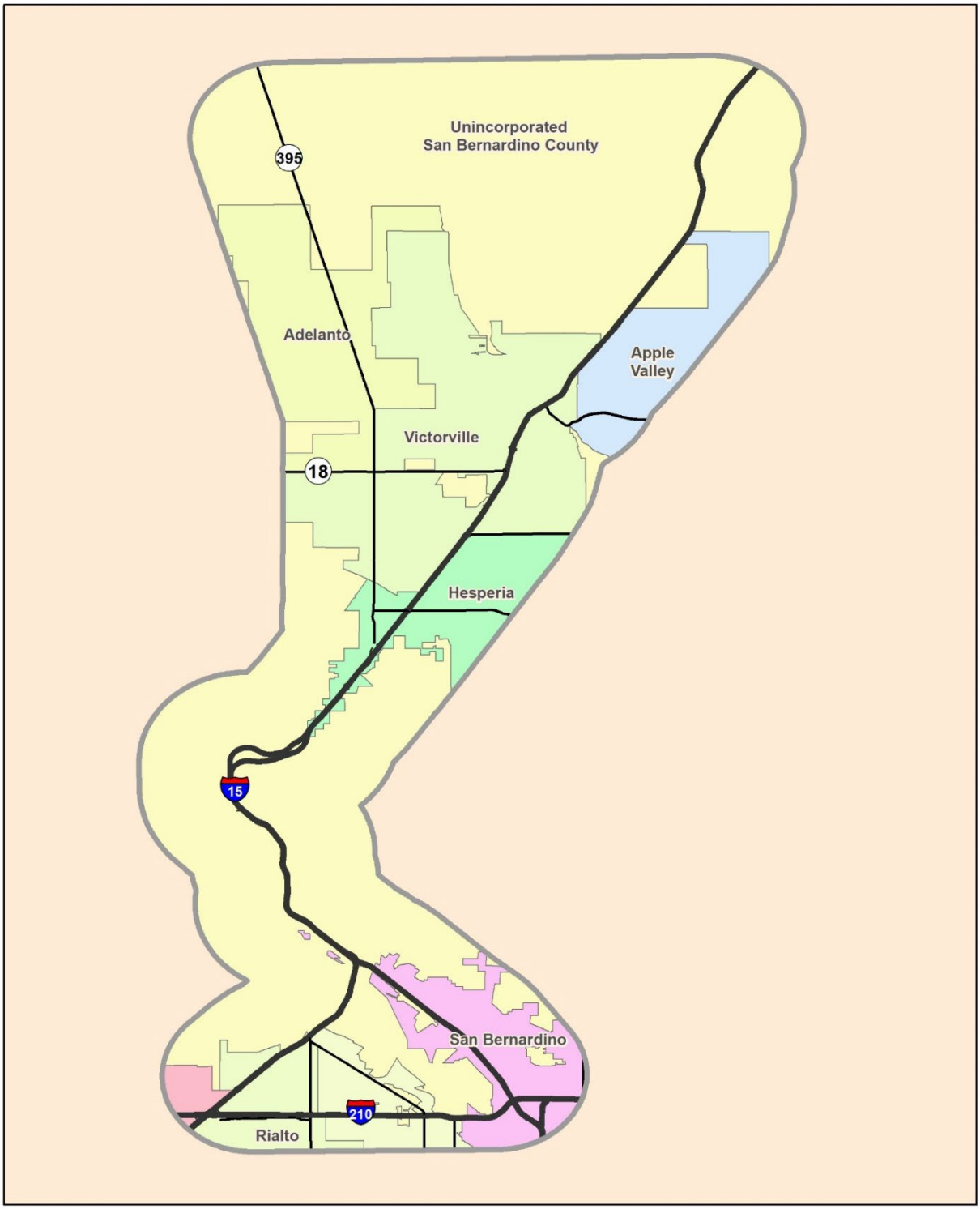
Freeways: I-15, SR-395, SR-138, I-215, and SR-259.

Arterials: Key north/south arterial facilities that run through significant portions of the sub-corridor include: Citrus Avenue, Sierra Avenue, Ayala Drive, Riverside Avenue, Pepper Avenue, State Street, Medical Center Drive, Mt. Vernon Avenue, Escondido Avenue, Cottonwood Avenue, Amethyst Road, Arrowhead Drive, Hesperia Road, El Evado Road, Amargosa Road, Adelanto Road, and Bellflower Street.

Freight: I-15 is a major goods movement corridor. Union Pacific Railroad and BNSF pass through the sub-corridor, carrying significant volumes of freight between Southern California and the U.S. There are many warehousing and distribution facilities in the sub-corridor in the cities of San Bernardino, Rialto, and Victorville.

Transit: There are only a limited number of bus routes in this sub-corridor, which are operated by Victor Valley Transit Authority and Omnitrans. There is no north/south SCRRA (Metrolink) service in this sub-corridor.

Figure 5.1 | Sub-Corridor Study Area
Victorville to San Bernardino Sub-Corridor



Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities.

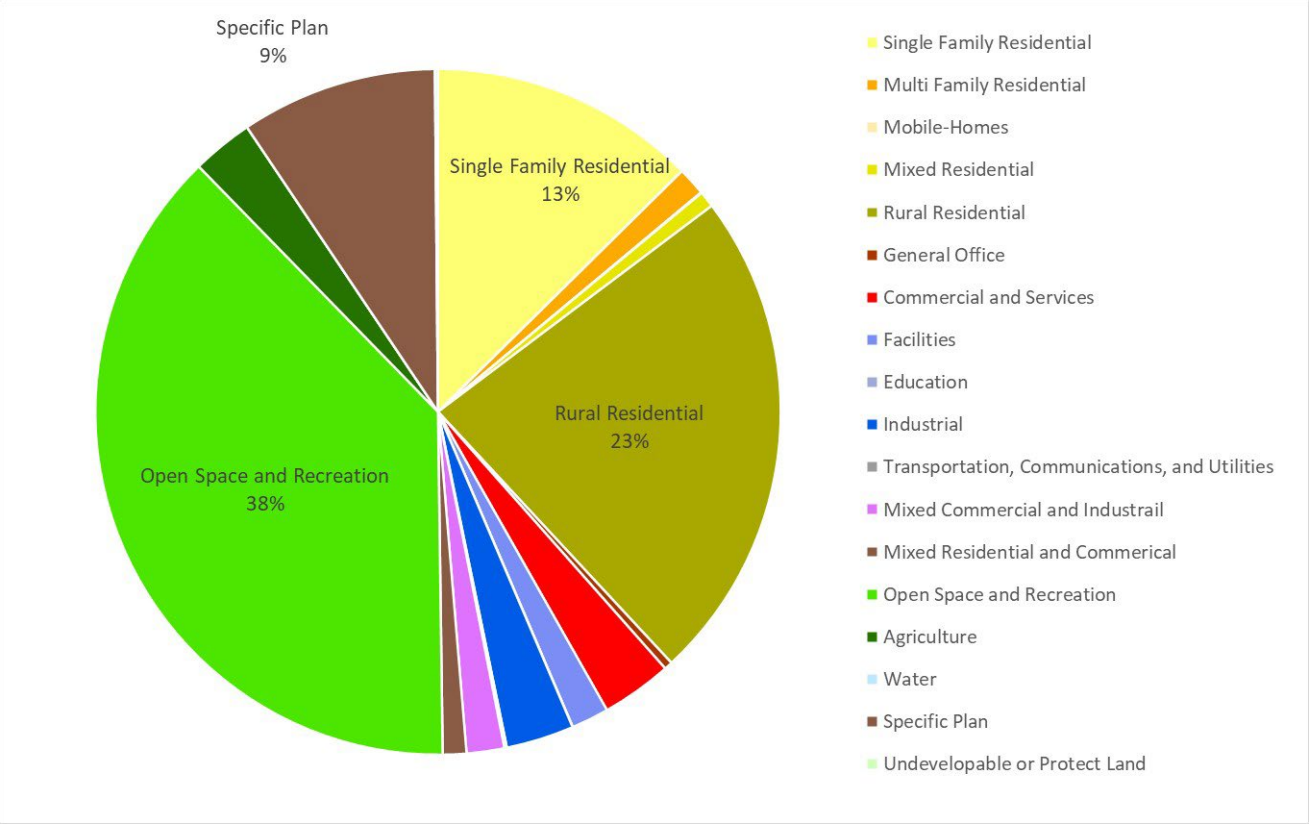
Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.2 illustrates the land use types and Figure 5.3 shows the land use patterns in the sub-corridor. As illustrated in these figures, the subarea includes large portions of National Forest, open space, and recreational land, at 38 percent of the total land area. Other predominant land uses in the sub-corridor are residential, including single family residential at 13 percent of the area and rural residential at 23 percent. In terms of employment-generating land uses, the area has 3 percent industrial, 3 percent commercial and services, and over 2 percent mixed-use designated zones.

The CalEnviroScreen scores for this sub-corridor include higher scores in the southern (Valley) portion of the sub-corridor in San Bernardino, Rialto, and Fontana and the northern (High Desert) portion in Adelanto, Victorville, and Hesperia. Most portions of Apple Valley have lower scores. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG “Communities of Concern” also occur in the community of Muscoy and cities of San Bernardino and Adelanto in the sub-corridor.

Figure 5.2 | Land Use Types

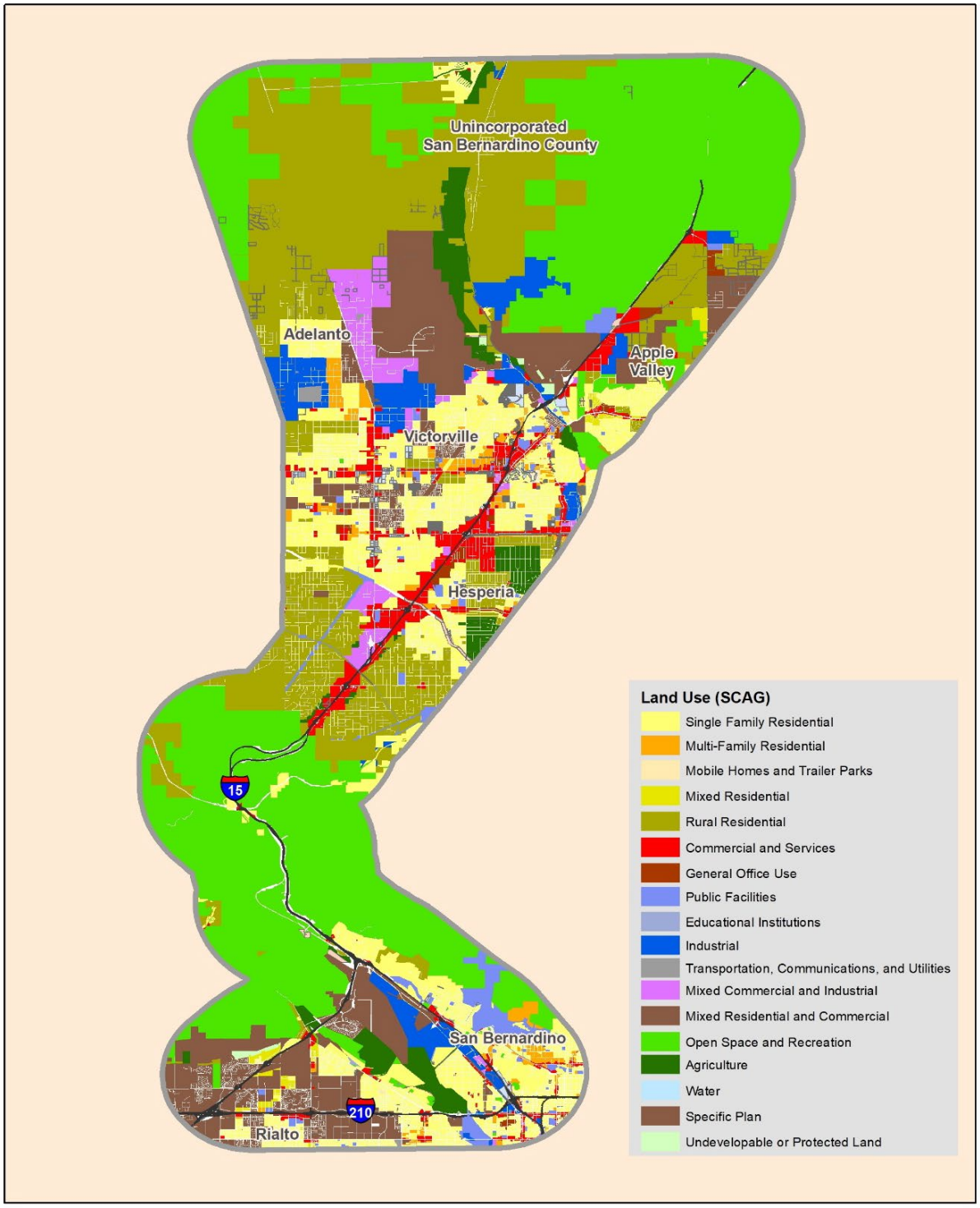
Victorville to San Bernardino Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.3 | Land Use Map

Victorville to San Bernardino Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively low in much of the sub-corridor, especially in the Cajon Pass and in unincorporated parts of the High Desert. Employment density is highest in the Valley cities, south of the Cajon Pass and on parcels directly adjacent to I-15, SR-395, and SR-18 in the High Desert. There is little employment density outside of these areas. Population is spread across single-family residential and rural residential lands that is primarily in the cities of San Bernardino, Victorville, Hesperia, and Apple Valley, and Unincorporated San Bernardino County. Given the predominance of residential land uses, the the sub-corridor has a population-to-employment statistical ratio of 4.6, which is relatively high compared to some of the other areas of the overall IE CMCP Study Area, indicating a need for residents to commute longer distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.1 displays the magnitude and average sizes of trips within and external to the subarea. There are nearly 1.3 million daily auto trips made by residents and employees in the sub-corridor. As illustrated in Table 5.1, 39 percent of those trips are internal-internal trips, meaning they start and end within the sub-corridor. These sub-corridor internal trips include commute travel for workers who live and work in the sub-corridor as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. Around half of the trips have one end in the sub-corridor and the other end either inside or outside the IE CMCP area and 14 percent are to or from outside the IE CMCP area. The average trip lengths for trips with one end in the Study Area and the other either inside or outside of IE CMCP area are 2.6 and 7.4 times the length of the internal-internal trips, respectively.

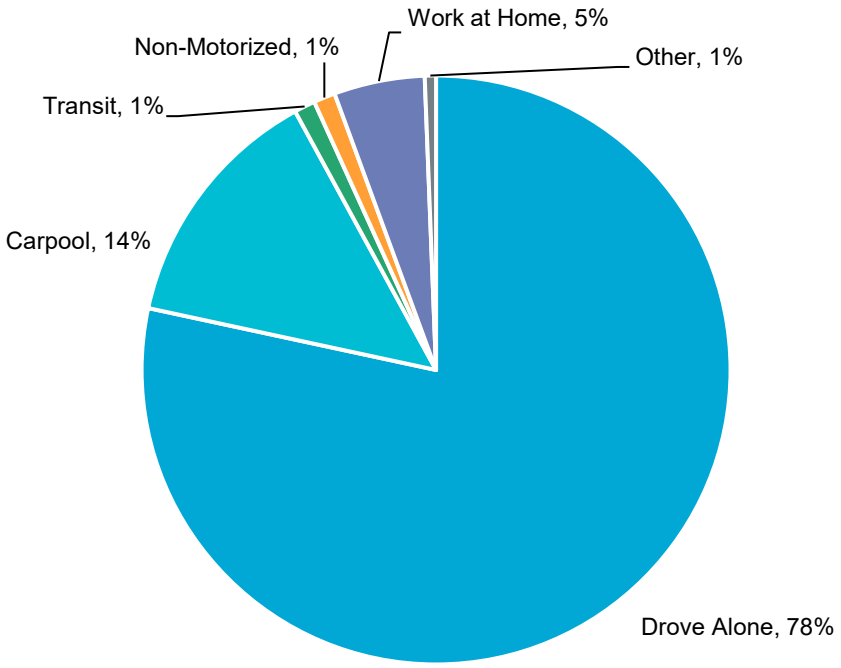
Table 5.1 | Internal and External Trips
Victorville to San Bernardino Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/ from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	501,000	593,000	182,000
	39%	46%	14%
Average Trip Length (Miles)	4.8	12.6	35.4

Source: SCAG Model 2016

Commute trips were examined to better understand the peak period travel patterns. Figure 5.4 illustrates the journey to work mode share for the sub-corridor. Overall, 92 percent of commute trips in the sub-corridor are made by automobile. Notably, when examining the group that commutes by car, 14 percent of workers carpooled. The share of carpoolers is higher in this sub-corridor compared to California as a whole (10 percent). This is reflective of the relatively longer commute trips from the sub-corridor either to other job locations in San Bernardino or Southern California and lack of Metrolink services in this sub-corridor. Transit accounts for just one percent of commute trips, while five percent of residents work at home. Non-motorized trips account for just one percent of commute trips.

Figure 5.4 | Journey to Work Mode Share
Victorville to San Bernardino Sub-Corridor



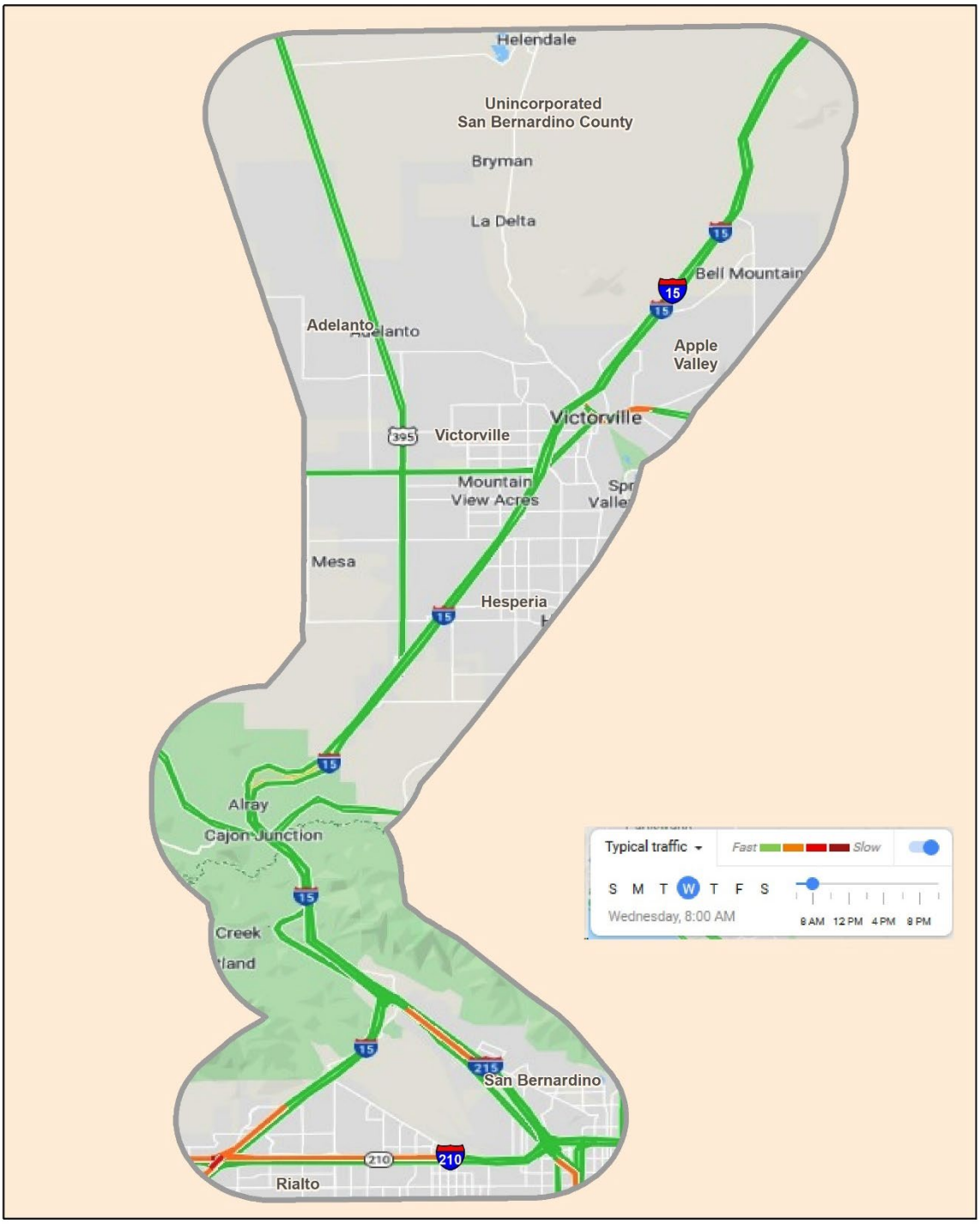
Source: ACS 2017, 5-year estimates

Except for individuals who work at home, nearly 95 percent of the workers in the sub-corridor must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions is reflected in the commute times for the sub-corridor. Nearly 54 percent of all workers commute less than 30 minutes to work. 28 percent commute 30 to 60 minutes, 18 percent commute over one hour.

Congestion, Delay, and Vehicle Miles Traveled: Figure 5.5 and Figure 5.6 illustrate the AM and PM peak hour conditions, respectively, on the freeway system from Google traffic data. The most significant recurring congestion and delay on the freeway system occurs on the I-15/SR-210 junction, I-15 in the Cajon Pass, and SR-395 between I-15 and SR-18. At the I-15/SR-210 area during the AM peak, westbound SR-210 and southbound I-15 are congested and during the PM peak, eastbound SR-210 is heavily congested. I-15 in the Cajon Pass is congested during the PM peak in both directions. SR-395 is congested during the PM peak. Other small segments that are congested are around the SR-210/I-215 interchange and the I-15/SR-18 interchange.

Figure 5.5 | Existing AM Peak Hour Freeway Conditions

Victorville to San Bernardino Sub-Corridor

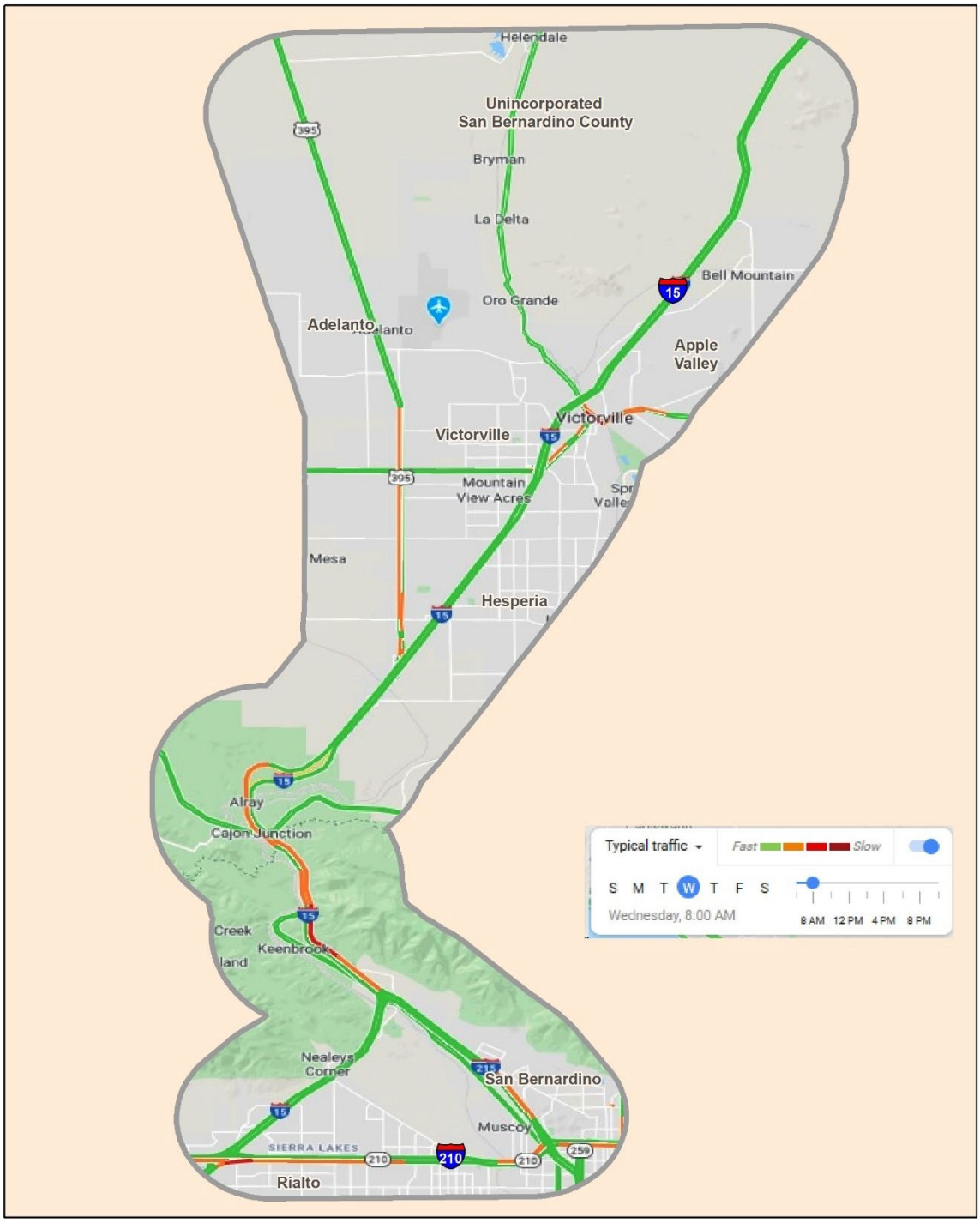


Victorville to San Bernardino Sub-Corridor

0 2.5 5 10 Miles

Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.6 | Existing PM Peak hour Freeway Congestion
Victorville to San Bernardino Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the sub-corridor, are mainly carried on freeways and major arterial roadways. Table 5.2 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 30 percent of the daily VMT. Daily VHT is nearly split 60/40 between freeways and arterial network. Average speeds on arterials are nearly as a fast as speeds on freeways. As compared to the other sub-corridors, this area has relatively more VMT per service population and it ranks fourth out of the ten sub-corridors for highest VMT per service population.

Table 5.2 | Vehicle Miles of Travel by Facility Type
Victorville to San Bernardino Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	10,424,000	69%	189,000	62%
HOV	79,000	1%	1,000	0%
Arterials	4,505,000	30%	113,000	37%
Total	15,008,000	100%	303 000	100%

Source: SCAG Model 2016.

Transit Usage: In this sub-corridor 1 percent of commute trips use transit. This sub-corridor does not have high quality transit corridors or stops.

Safety: Figure 5.7 illustrates the report crashes by type for 2018. In terms of safety, the collision rates for I-15 are higher than the County average and Caltrans District 8 averages. There is a relatively high concentration of bicycle and pedestrian collisions in the southern portion of the sub-corridor in San Bernardino and Rialto, possibly reflecting higher rates of walking and bicycling in the Valley area. Truck collisions occur throughout the Study Area but mostly along I-15 with the largest concentrations along portions between I-215 and the Cajon Pass.

Future Conditions

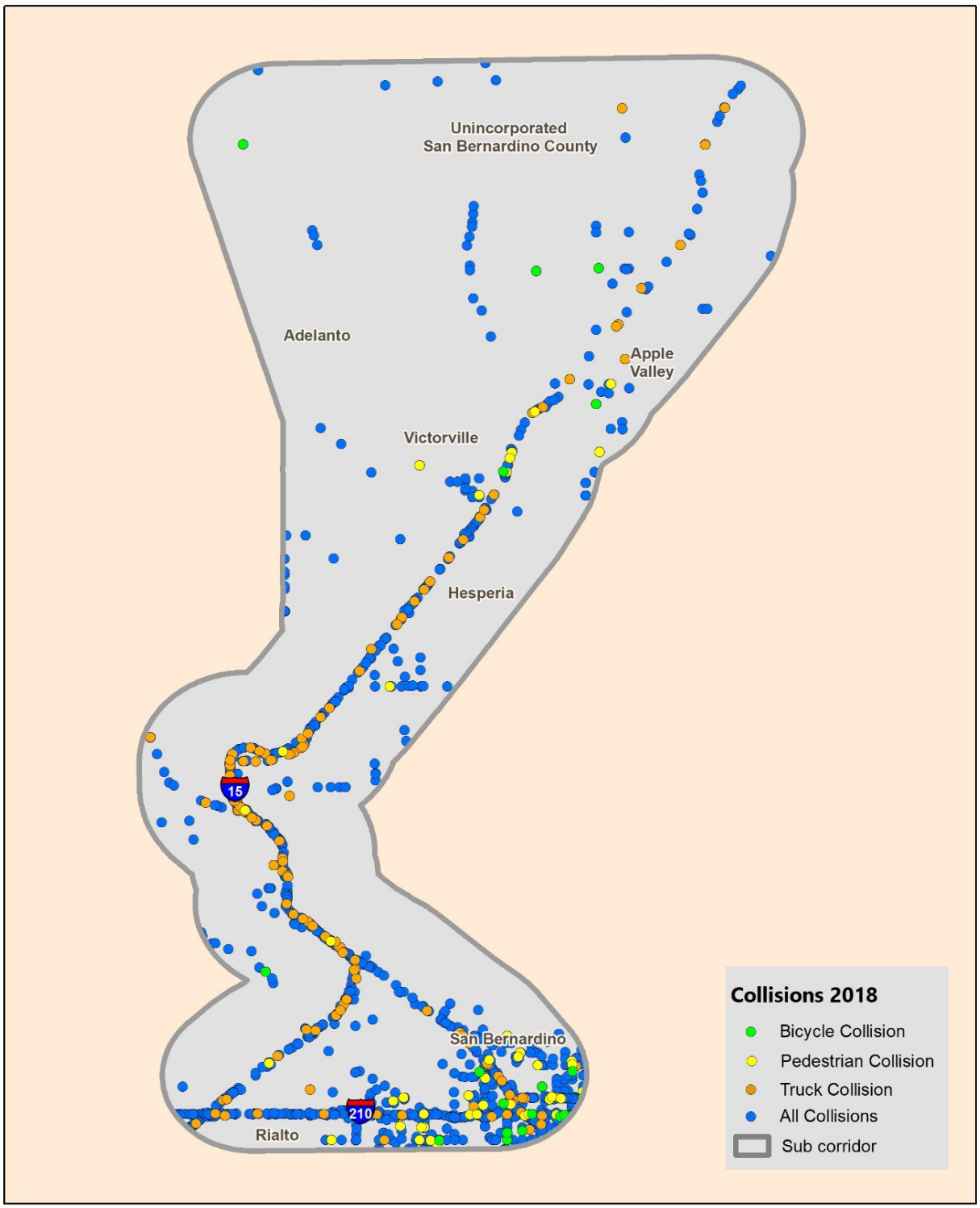
The sub-corridor is expected to experience the following growth rates by 2040 according to SCAG projections:

- Population—43 percent increase.
- Employment—40 percent increase.

Commensurate with these projected relatively high rates of growth for the area's demographics, total trip making in the sub-corridor is expected to increase by 436,000 daily trips, representing a 34 percent increase. VMT are expected to increase by 18 percent and VHT are projected to increase by 65 percent. The disproportionate increase in VHT over VMT indicate increasing delay and congestion in the future due to the projected relatively high growth rates for this sub-corridor.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.8 and Figure 5.9 illustrate the AM and PM peak hour conditions, respectively, on the freeway system based on SCAG 2040 model.

Figure 5.7 | Collisions
Victorville to San Bernardino Sub-Corridor



Victorville to San Bernardino
Sub-Corridor

0 2.5 5 10 Miles

Figure 5.8 | Future 2040 Traffic Conditions—AM
Victorville to San Bernardino Sub-Corridor

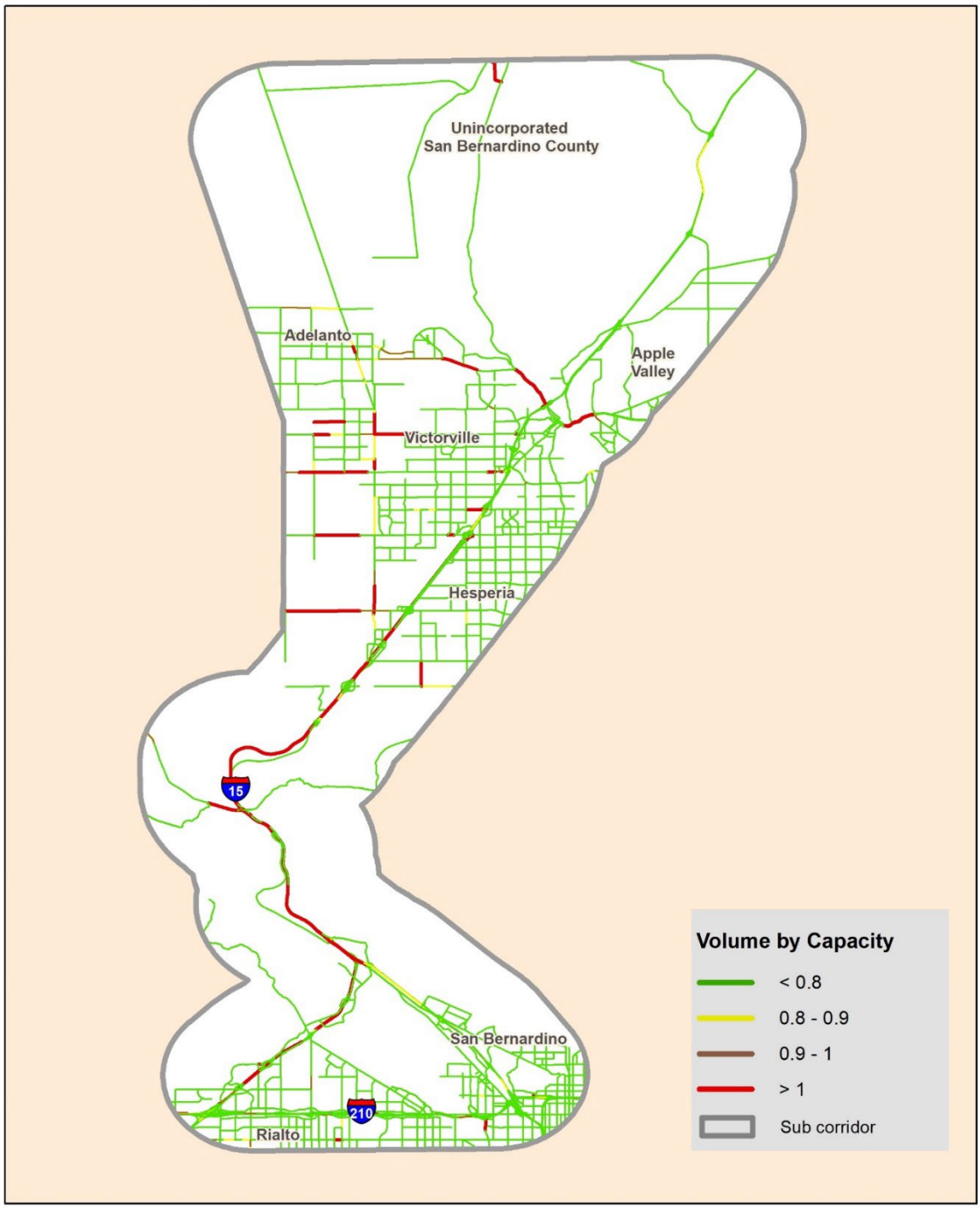
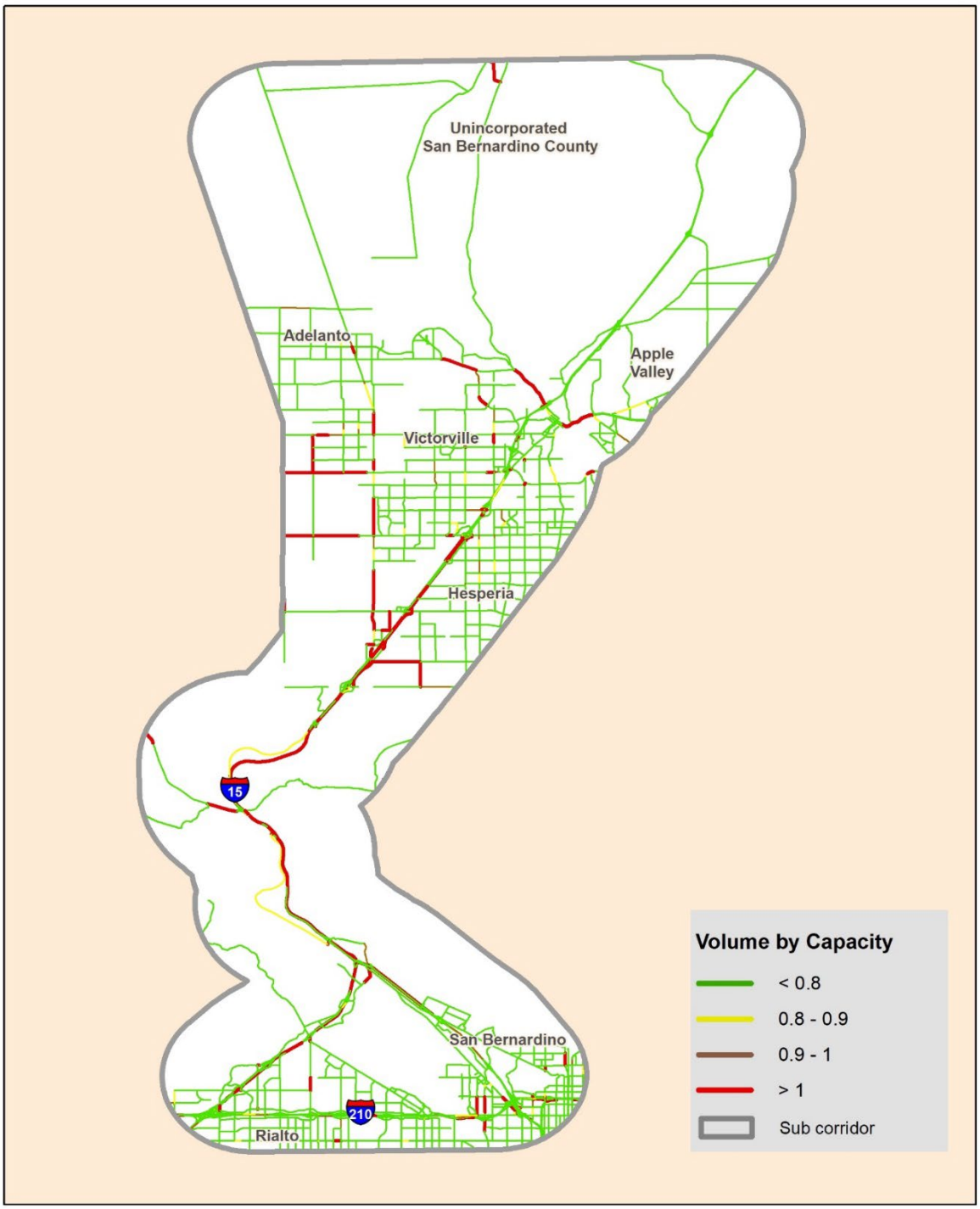


Figure 5.9 | Future 2040 Traffic Conditions—PM
Victorville to San Bernardino Sub-Corridor



Victorville to San Bernardino
Sub-Corridor

0 2.5 5 10 Miles

5.2.2 Strategic Approach for Victorville to San Bernardino Sub-Corridor

Strategic Approach for Victorville to San Bernardino Sub-Corridor

Problems to Be Addressed

- Substantial “down-the-hill” commuting from the Victor Valley to San Bernardino, Riverside, and LA, with residents motivated to endure the commutes as a result of more affordable housing in the High Desert.
- I-15 is a nationally significant freight corridor, but travel through the Cajon Pass is congested and unreliable.
- High number of serious traffic accidents and incidents on State Routes: I-15 in Cajon Pass, U.S.-395, and SR-138.
- Significant weekend congestion, not just weekday.
- Lack of adequate alternate routes when the regionally significant corridor shuts down as a result of incidents.

Strategies

1. Enhance the ease and reliability of freight and passenger travel in the Cajon Pass and High Desert through the addition of HOT lanes on I-15, consistent with the SCAG Regional Express Lane Network in the RTP/SCS, with toll discounts/exemptions for transit, vanpools, and 3+ carpools.
2. Conduct operational studies on I-15 in the Cajon Pass geared toward improving safety and reducing the frequency and severity of traffic incidents. Also conduct operational studies on alternate routes to I-15 for use in the event of extended I-15 closures.
3. Develop the I-15 Northbound Truck Climbing Lane Extension Project from Kenwood to SR-138. Place particular emphasis on truck parking in this corridor (public and private) for the purposes of safety, convenience, and compliance with federal work rules.
4. Pursue multimodal solutions. Continue growth of vanpool and carpool formation from the High Desert to employment centers in the Valley and greater LA Basin and monitor express bus operation from Victorville to San Bernardino for evidence of expansion opportunity. Pursue the extension of Brightline West down the Cajon Pass to Rancho Cucamonga to provide an additional privately funded solution to peak hour and weekend congestion.
5. Through economic development and other strategies, increase employment opportunities in the High Desert for High Desert residents to reduce jobs-to-housing imbalance and reduce long commutes from the High Desert to San Bernardino / Los Angeles / Riverside.
6. Complete Mojave Riverwalk, the principal north/south Class I trail in the High Desert.
7. Consider developing a comprehensive signal synchronization network for the High Desert and prioritize arterial corridors for early implementation.

8. Complete the widening of 2-lane segments on SR-138 west of I-15 for safety purposes.
9. Complete widening of U.S. 395 Freight Mobility and Safety Project between Adelanto and I-15 for safety and operational purposes and as a significant north/south freight and recreational route connecting to the Central Valley via SR-58 and to the eastern Sierra Mountains.
10. Explore policies and methods to increase work at home to decrease commute trips.

5.3 San Bernardino to Riverside Sub-Corridor

The San Bernardino to Riverside sub-corridor is one of five north/south oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.10 illustrates the boundaries of the sub-corridor Study Area.

5.3.1 Sub-Corridor Definition

This sub-corridor is primarily centered on I-215 and SR-91, serving as a key north/south link (on the eastern side of the urbanized valley), between San Bernardino and Riverside counties connecting their respective urban centers. This sub-corridor addresses north/south flows of people and freight within and through portions of the cities of San Bernardino, Colton, Loma Linda, Grand Terrace, Jurupa Valley, Riverside, and portions of unincorporated San Bernardino and Riverside counties. This sub-corridor encompasses parts of RSAs 46, 45, 29, and 30. The sub-corridor is approximately 25 miles in length north to south and six miles wide east to west.

Key Transportation Facilities

Key north/south-oriented transportation facilities within the sub-corridor include:

Freeways: I-215 is the primary north/south freeway facility, with its extension/connection to SR-91 in the south and I-15 in the north.

Arterials: Key north/south arterial facilities that run through significant portions of the Study Area include: Pepper Avenue, La Cadena Drive, Main Street, Chicago Avenue, Iowa Avenue, Mt. Vernon Avenue, Reche Canyon Road, E Street, Waterman Avenue, Tippecanoe Avenue, Route 66, and Kendal Drive.

Freight: I-215 is a major goods movement corridor. UP Railroad, BNSF and SCRRA pass through the sub-corridor. There are major warehousing facilities in the sub-corridor along I-215 in the cities of Riverside, Colton, and San Bernardino.

Transit: This sub-corridor includes portions of Metrolink's Inland Empire/Orange County line and San Bernardino line. The San Bernardino line terminates in Downtown San Bernardino within this sub-corridor. The Redlands extension will provide additional service to the east from Downtown San Bernardino. The OmniTrans sbX Green Line, a bus rapid transit route, runs primarily within the area serving major north/south movements. This key BRT facility is the first service with exclusive bus lanes in the Inland Empire. The RTA Commuterlink route 200 and Omnitrans connect Riverside and San Bernardino.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities.

Figure 5.10 | Sub-Corridor Study Area

San Bernardino to Riverside Sub-Corridor



San Bernardino to Riverside Sub-Corridor

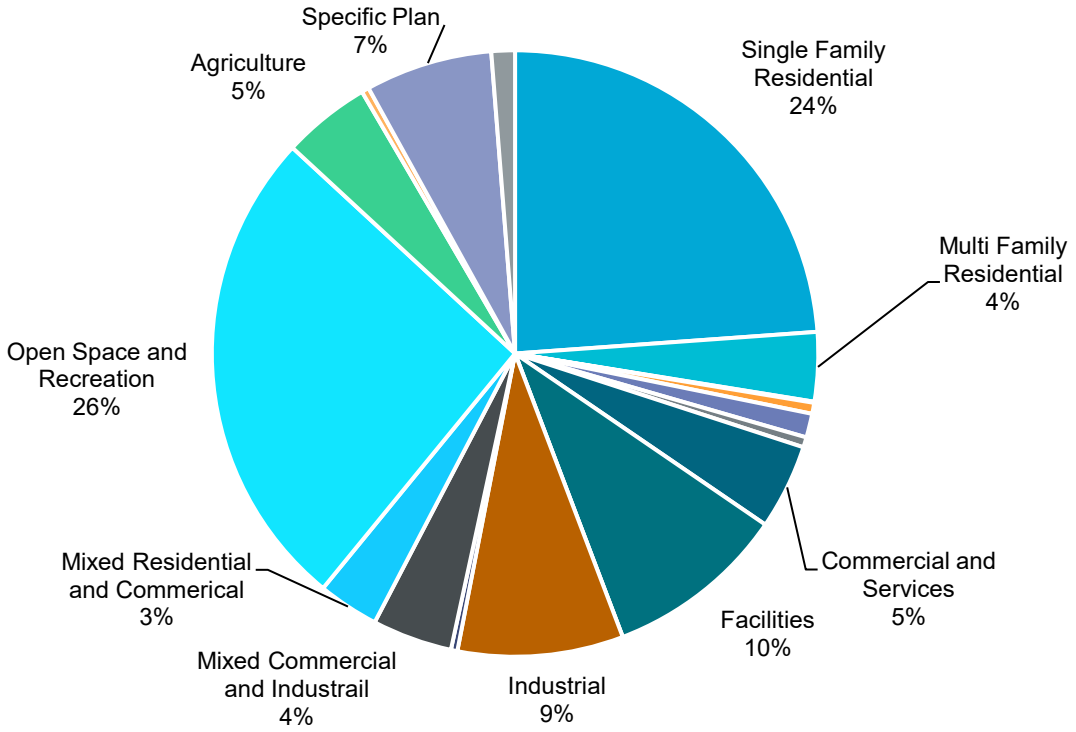
0 2.5 5 10 Miles

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.11 illustrates the land use type in the sub-corridor and Figure 5.12 shows the land use patterns. As illustrated in these figures, this sub-corridor includes a wide variety of land uses depending on location, with significant amounts of open space at the northern end, while urban land uses are most prevalent in the middle and southern portions. Predominant land uses in the sub-corridor include open space and recreation at 26 percent, single family residential at 24 percent, facilities at 10 percent, and industrial at 9 percent. In terms of employment-generating land uses, the Study Area has 9 percent industrial, 5 percent commercial and services, and some mixed-use designated zones. This sub-corridor includes important Government centers for both San Bernardino and Riverside counties, including county halls of administrations, courts, transportation agencies, State agencies, and world-class higher education institutions UC-Riverside and CSU–San Bernardino.

The CalEnviroScreen scores for this sub-corridor are high in the central portion of the area in downtown San Bernardino and Colton areas with some areas of higher scores also located in Riverside and Jurupa Valley. The farthest north, south, and eastern portions of the corridor have much lower CalEnviroScreen scores indicating better overall economic and environmental conditions in those areas. A significant portion of the sub-corridor area is designated as a SCAG "Community of Concern," including portions of San Bernardino, Colton, Grand Terrace, and Riverside.

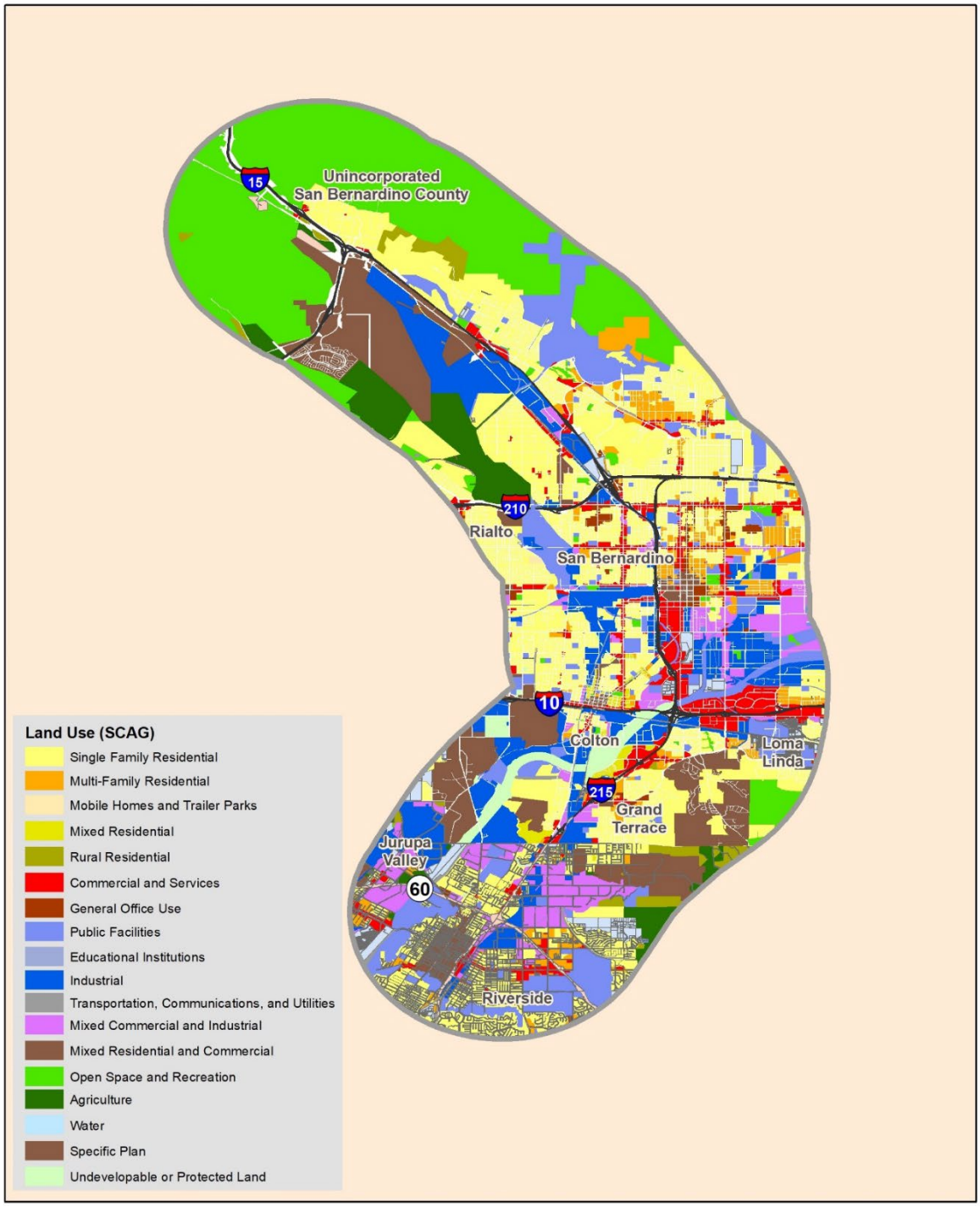
Figure 5.11 | Land Use Types
San Bernardino to Riverside Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.12 | Land Use Map

San Bernardino to Riverside Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively high in the middle and southern portion of this subarea which include downtown San Bernardino and Riverside, respectively, while density is much lower in the northern portion of the Study Area. Overall employment density for the sub-corridor is 2.48 employees per acre. Population density follows a similar pattern to employment density, with relatively high densities throughout much of the middle portion of the sub-corridor. Overall population density for the sub-corridor is 5.71 residents per acre. Given the higher employment opportunities, the sub-corridor has a population-to-employment statistical ratio of 2.3, which is relatively low compared to some of the other areas of the overall IE CMCP Study Area, indicating a relatively better balance of jobs and population.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.3 displays the magnitude and average length of trips within and external to the subarea. There are nearly 1.5 million daily auto trips made by residents and employees in the corridor Study Area. As illustrated, in the table below, just over a third of the trips stay within the sub-corridor and well over half of the trips are to and from outside of the sub-corridor but within the overall Inland Empire Study Area. Less than 10 percent of the trips go outside of the Inland Empire Study Area, emphasizing the attractiveness and importance of this sub-corridor's travel destinations in serving trip origins within the Inland Empire in general. The average trip lengths for trips with one end in the study and the other either inside or outside of IE CMCP area are more than three times and 10 times the length of the internal-internal trips, respectively. The relatively shorter length (12.8 miles) of the large volume of sub-corridor to IE CMCP trips is again an indication of a good jobs/housing balance within the sub-corridor.

Table 5.3 | Internal and External Trips
San Bernardino to Riverside Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	535,000	837,000	121,000
	35%	57%	8%
Average Trip Length (Miles)	3.9	12.8	43.7

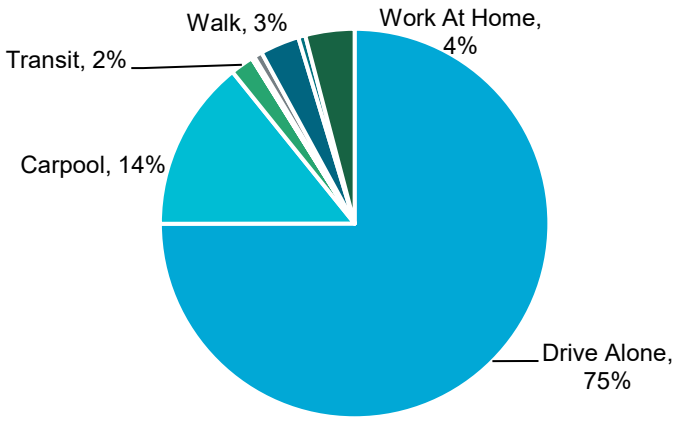
Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.13 illustrates the journey to work mode share for the sub-corridor. Overall, 89 percent of commute trips in the Study Area are made by automobile. Transit accounts for just two percent of commute trips, while four percent of residents work at home. Notably, when examining the group that commutes by car, 14 percent carpooled. The share of commuters who carpool is higher in the sub-corridor compared to California as a whole (10 percent). Non-motorized trips account for four percent of commute trips.

Except for individuals who work at home, nearly 96 percent of the workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected

in the commute times for the Study Area. Over 60 percent of all workers commute less than 30 minutes to work, while 25 percent commute 30 to 60 minutes, 11 percent commute over one hour. Again, these figures reflect a better jobs/housing balance in this sub-corridor, which result in relatively shorter commute times compared to others.

Figure 5.13 | Journey to Work Mode Share
San Bernardino to Riverside Sub-Corridor



Source: ACS 2017, 5-year estimates.

Congestion, Delay, and VMT: Figure 5.14 and Figure 5.15 illustrate the AM and PM peak hour conditions, respectiveley, on the freeway system for 2018 from Google traffic data. In general, the most consistent congestion patterns occur on the I-215 segment between I-10 and SR-60 in both peak periods. More specifically, the traffic data indicate that during the AM peak, there is congestion on I-215 on the entire segment from I-10 to SR-60. The level of congestion is approximately the same in both directions in this area. There also is congestion on I-215 southbound south of SR-210 as well as I-215 southbound south of the I-15/I-215 interchange. During the PM peak, the southbound direction of the segment between I-10 and SR-60 is significantly congested and a portion of the same segment is congested in the northbound direction. Also the segment of I-215 north of I-10 up to 5th Street in San Bernardino is congested. There also is congestion along I-215 north of SR-210 in the northbound direction during the PM peak as well as north of the I-15/I-215 interchange, again in the northbound direction.

Daily VMT, including local trips and through traffic in the Study Area are mainly carried on freeways and major arterial roadways. Table 5.4 shows the VMT in the sub-corridor by facility type. As shown, the freeway system carries 71 percent and the arterial network carries 29 percent of the daily VMT. The significantly higher share of freeway VMT is a reflection of the importance of the freeways in mobility and county-to-county connectivity in this sub-corridor. The proportion of VHT is somewhat different than VMT, with freeways (including HOV lanes) carrying 60 percent of the VHT and arterial network carrying 40 percent of the VHT, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively more VMT per service population and it ranks number five highest VMT out of the ten sub-corridors.

Figure 5.14 | Existing AM Peak Hour Freeway Conditions
San Bernardino to Riverside Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.15 | Existing PM Peak Hour Freeway Congestion
San Bernardino to Riverside Sub-Corridor



San Bernardino to Riverside Sub-Corridor

0 2.25 4.5 9 Miles

Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Table 5.4 | Vehicle Miles of Travel by Facility Type
San Bernardino to Riverside Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	8,053,242	68%	151,538	57%
HOV	397,166	3%	6,737	3%
Arterials	3,451,905	29%	104,039	40%
Total	11,902,313	100%	262,314	100%

Source: SCAG Model 2016.

Transit Usage: This sub-corridor has several high-quality transit services, including the Metrolink Commuter Rail as well as other transit services, including bus rapid transit (BRT) sbX between CSU-San Bernardino and Loma Linda University and Medical Center. This sub-corridor also includes portions of the Inland Empire-Orange County Metrolink stations providing north/south service.

Safety: Figure 5.16 illustrates the reported crashes by type for 2018. In terms of safety, I-215 experiences some of the highest collision rates for the IE CMCP Study Area's freeways. There is a relatively high concentration of bicycle and pedestrian collisions in the southern portion of the sub-corridor in and around University of California at Riverside (UCR) and in the central portion near the city of San Bernardino. This possibly reflects relatively higher rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along freeways with the largest concentration along I-215 between SR-60 and SR-210.

Future Conditions

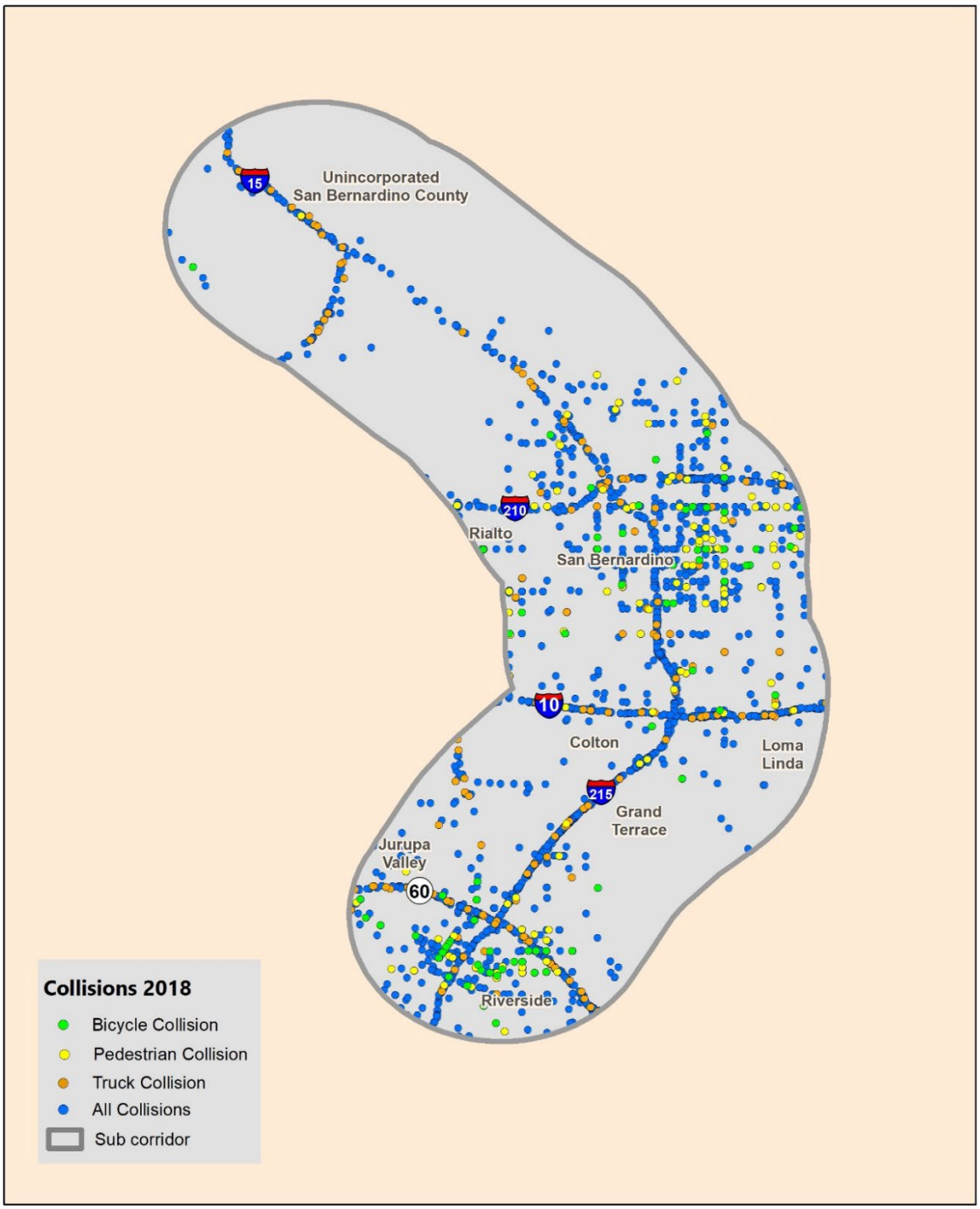
The sub-corridor is expected to experience the following growth rates by 2040:

- Population—16 percent increase.
- Employment—37 percent increase.

This subcorridor will experience the lowest level of population increase compared to the other nine sub-corridors, likely reflecting the built out nature of much of the Study Area. However, the higher rate of employment to population growth suggests a further improvement to future jobs/housing ratios. Total trip making in the sub-corridor is projected to increase by 362,000 daily trips, representing a 24 percent increase. VMT is expected to increase by 22 percent and VHT is projected to increase by 51 percent. The disproportionate increase in VHT over VMT suggest increasing delay and congestion in the future due to the projected growth rates and increased congestion.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.17 and Figure 5.18 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

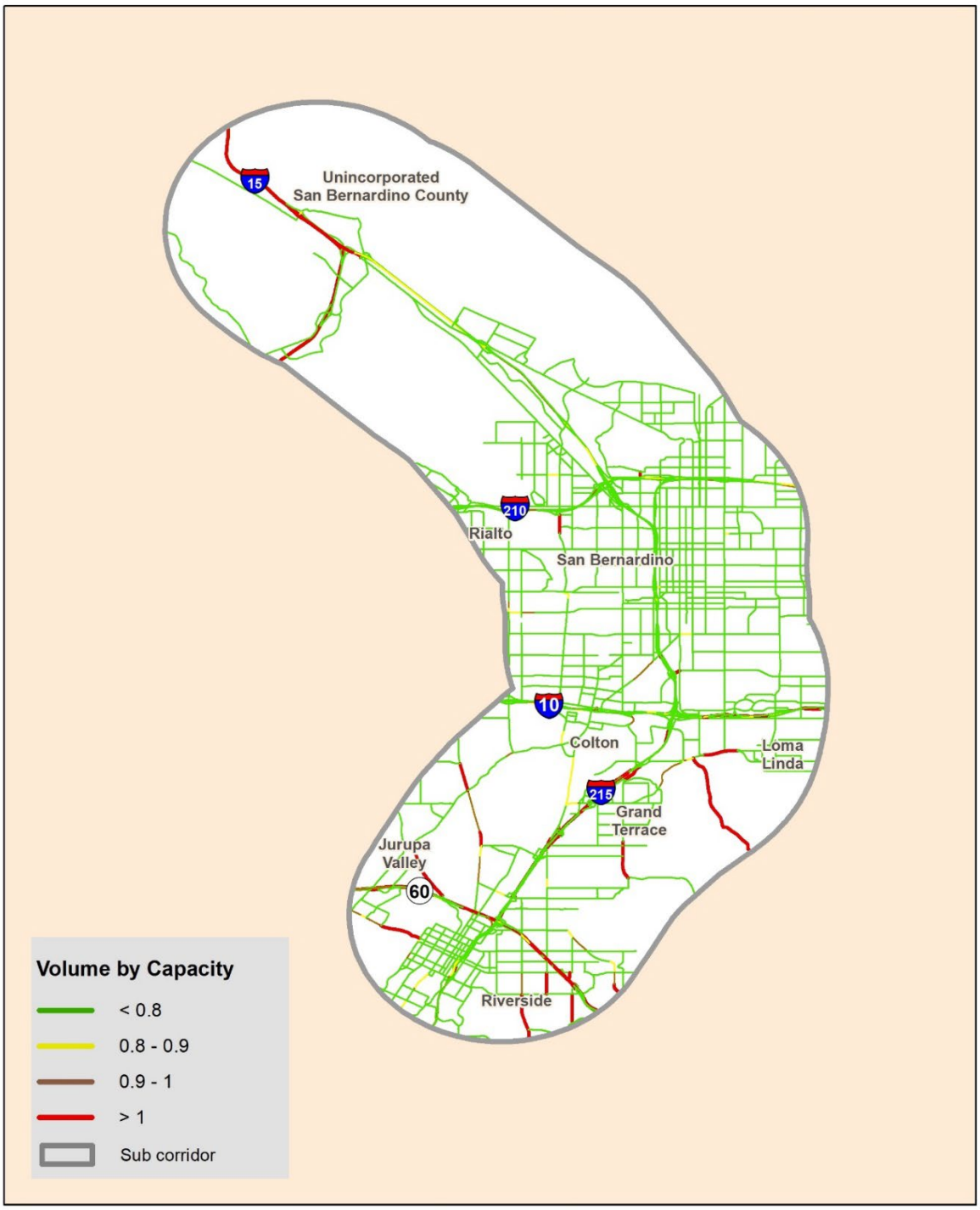
Figure 5.16 | Collisions
San Bernardino to Riverside Sub-Corridor



San Bernardino to Riverside Sub-Corridor

0 2.5 5 10 Miles

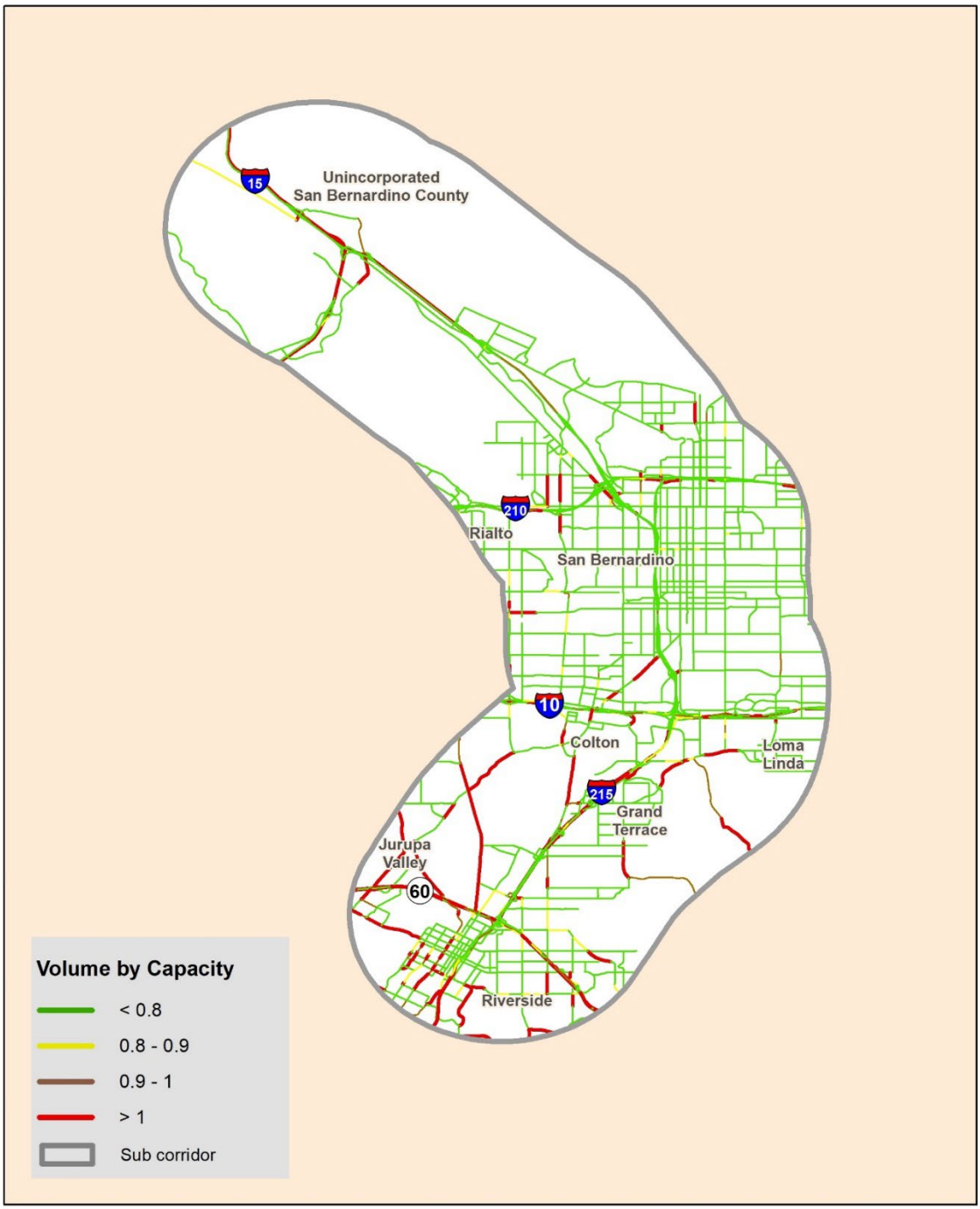
Figure 5.17 | Future 2040 Traffic Conditions—AM
San Bernardino to Riverside Sub-Corridor



San Bernardino to Riverside Sub-Corridor

0 2.5 5 10 Miles

Figure 5.18 | Future 2040 Traffic Conditions—PM
San Bernardino to Riverside Sub-Corridor



San Bernardino to Riverside Sub-Corridor

0 2.5 5 10 Miles

5.3.2 Strategic Approach for San Bernardino to Riverside Sub-Corridor

Strategic Approach for San Bernardino to Riverside Sub-Corridor

Problems to Be Addressed

- Large off-campus university student and employee populations at CSUSB and UCR that make daily commutes to and from schools, creating congestion at entry points to those institutions.
- Specific bottleneck locations: (northbound I-215 at 2nd/5th Streets, southbound I-215 at SR-60 junction, northbound I-215 at merge with SR-60 on-ramps).
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.
- Antiquated interchange designs.
- Large concentration of bike and pedestrian collisions in the Riverside and San Bernardino urban centers.
- Generally difficult environment for walking and cycling.
- Truck congestion and air quality challenges in San Bernardino and Riverside with convergence of rail lines and intermodal freight facilities.

Strategies

1. Build on existing multimodal strategy to enhance rail, transit, and shared-ride access to and from CSUSB and UCR.
2. Coordinate express transit/rail service between San Bernardino and Riverside County cities.
3. Focus on north/south arterial operations and safety improvements for parallel facilities such as Riverside Avenue, Mt. Vernon Avenue, and Reche Canyon Road.
4. Complete DDI at the I-215/University Avenue interchange to accommodate continued CSUSB growth.
5. Make strategic operational improvements to and/or reconstruct interchanges on I-215 between SR-60 and Orange Show Road to address bottlenecks.
6. Implement managed-lane system on SR-91 in downtown Riverside.
7. Build on substantial existing transit assets (e.g., move forward with SCORE program on multiple Metrolink lines—increasing frequency and improving service).
8. Implement first/last mile transit connections (particularly from major destinations in downtown Riverside and San Bernardino to Metrolink stations).

9. Work with SCAQMD and CARB to provide incentives for accelerating turnover of the truck fleets to zero-emission.

10. Explore policies and methods to increase work at home to decrease commute trips.

5.4 Cajon Pass to Eastvale Sub-Corridor

The Cajon Pass to Eastvale sub-corridor is one of five north/south oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.19 illustrates the boundaries of the sub-corridor Study Area.

5.4.1 Sub-Corridor Definition

This sub-corridor is primarily centered on I-15, serving as a key north/south link (on the western side of the urbanized valley), between San Bernardino and Riverside counties. This sub-corridor addresses north/south flows of people and freight within and through portions of the cities of San Bernardino, Rialto, Fontana, Rancho Cucamonga, Ontario, Eastvale, Jurupa Valley, and Norco, and portions of county unincorporated areas. This sub-corridor encompasses portions of both Riverside and San Bernardino counties and includes parts of RSAs 28, 45, 29, and 30. The sub-corridor is approximately 26 miles in length north to south and six miles wide east to west.

Key Transportation Facilities

Key north/south oriented transportation facilities within the sub-corridor include:

Freeways: I-15 is the primary north/south freeway facility.

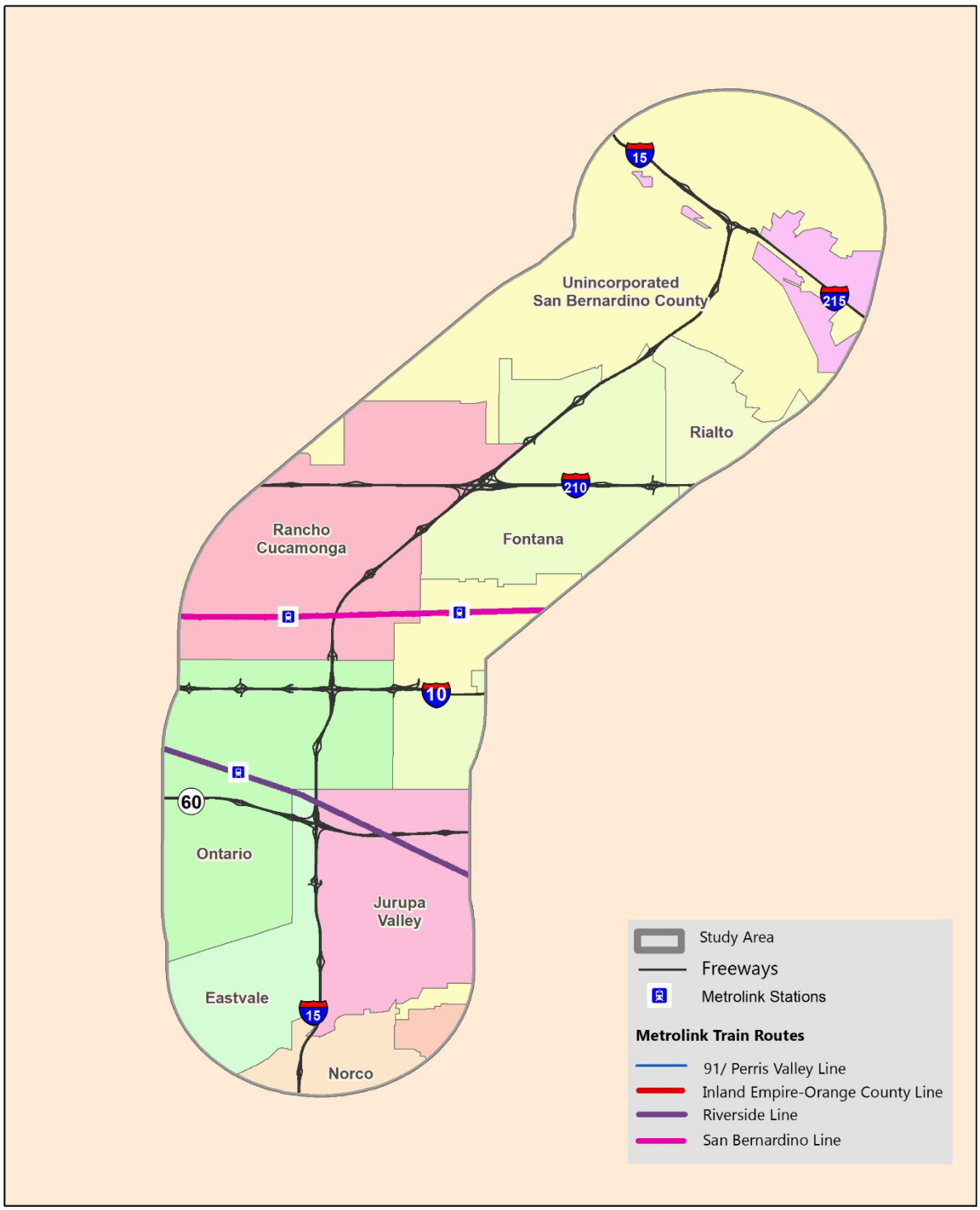
Arterials: Key north/south arterial facilities that run through significant portions of the Study Area include Glen Hellen Parkway, Sierra Avenue, Etiwanda Avenue, Hamner Avenue and Milliken Avenue.

Freight: I-15 is a major goods movement corridor. UP Railroad, BNSF, and SCRRA pass through the sub-corridor. Some of the most significant warehousing facilities in the Inland Empire are in this sub-corridor along I-15 in the cities of Ontario, Rancho Cucamonga, Fontana, and Eastvale.

Transit: There is no transit connectivity along I-15 in this sub-corridor.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities.

Figure 5.19 | Sub-corridor Study Area
Cajon Pass to Eastvale Sub-Corridor



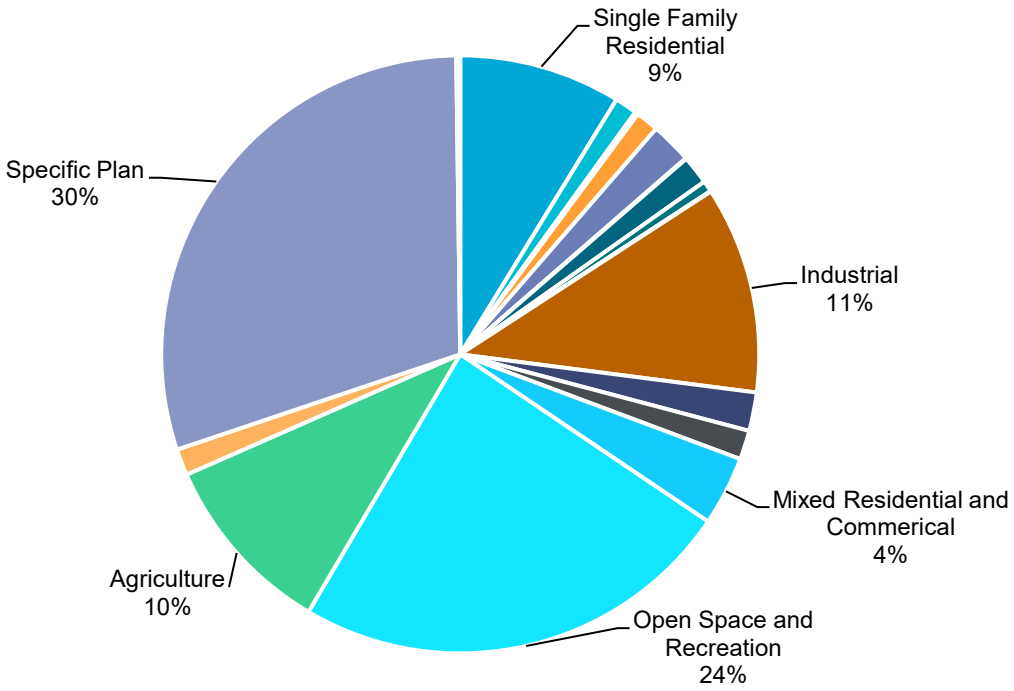
Cajon Pass to Eastvale
Sub-Corridor

0 2.5 5 10 Miles

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.20 illustrates the land use types in the sub-corridor and Figure 5.21 shows the land use patterns. As illustrated in these figures, this sub-corridor includes a wide variety of land uses depending on location, with significant amounts of open space at the northern end, while urban land uses are most prevalent in the middle and southern portions. A significant distinguishing characteristic of this sub-corridor is the predominance of specific plans (mostly in Fontana, Rancho Cucamonga, and Ontario) at 30 percent of the total land area. Other predominant land uses include open space at 24 percent, industrial at 11 percent, agriculture at 10 percent, and relatively lower single family residential at 9 percent. The CalEnviroScreen scores are high in the central portion of the sub-corridor, including parts of Rialto and Ontario. Overall CalEnviroScreen scores for this sub-corridor are among the highest of the ten sub-corridors.

Figure 5.20 | Land Use Types
Cajon Pass to Eastvale Sub-Corridor

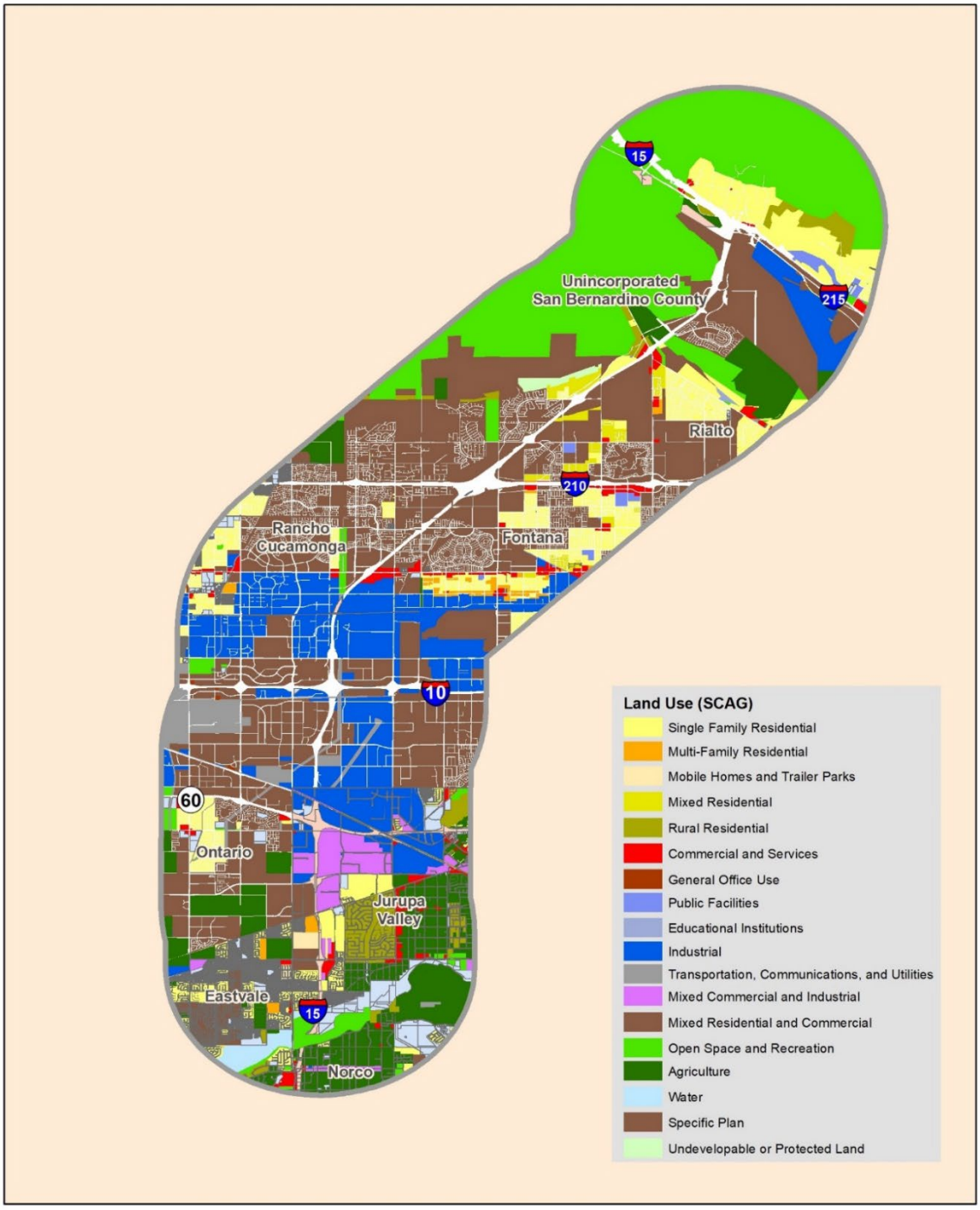


Source: SCAG 2012 Land Use

Employment density is relatively low in the northern and southern portion of the sub-corridor and moderate to high employment density in portions between SR-210 and SR-60. The population/employment ratio is mixed with high ratios in the northern and southern portion and a low ratio in middle of the sub-corridor between SR-210 and SR-60. Overall, the sub-corridor has a relatively lower population-to-employment statistical ratio of 1.8 compared to some of the other areas of the overall IE CMCP sStudy Area, indicating a need for residents to commute shorter distances to work.

Figure 5.21 | Land Use Map

Cajon Pass to Eastvale Sub-Corridor



Source: SCAG 2012 Land Use

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.5 displays the magnitude and average length of trips within and external to the subarea. There are over 1.3 million daily auto trips made by residents and employees in the Study Area. As illustrated in the table below, just over a quarter of those trips are internal-internal trips, meaning they start and end within the sub-corridor Study Area. These sub-corridor internal trips include commute travel for workers who live and work in the Study Area, as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. The remaining trips are evenly split between having one end in the Study Area and the other end either inside or outside the IE CMCP area. Approximately 60 percent of the trips have one end in the sub-corridor and other end in the IE CMCP Study Area. The remaining trips end outside the IE CMCPStudy Area. With 85 percent of the trips within the IE CMCP area, this reflects the attractiveness and importance of this sub-corridor's travel destinations in serving trip origins within the Inland Empire in general.

The average trip lengths for trips with one end in the Study Area and the other either inside or outside of IE CMCP area are three times and eight times the length of the internal-internal trips, respectively. The relatively shorter length (almost 12 miles) of the large volume of sub-corridor to IE CMCP trips is again an indication of a good jobs/housing balance within the sub-corridor.

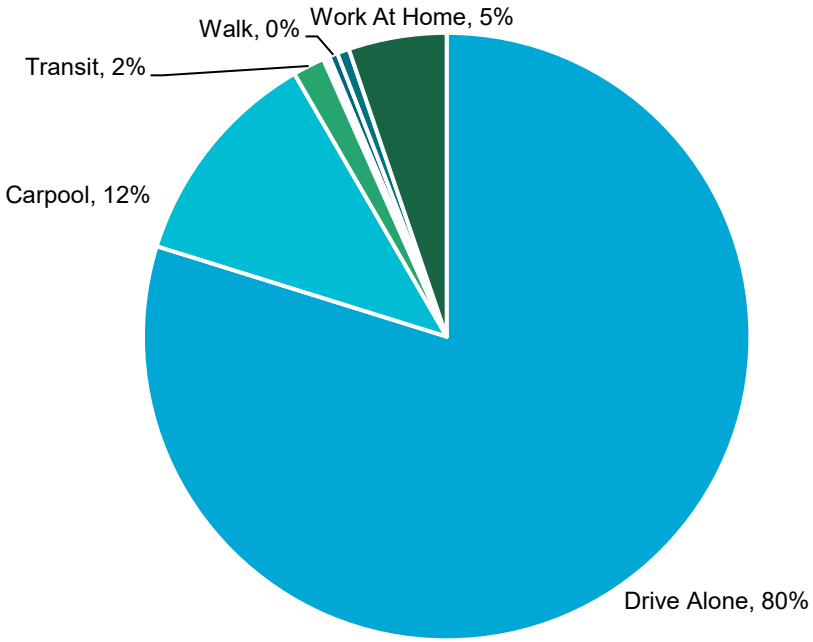
Table 5.5 | Internal and External Trips
Cajon Pass to Eastvale Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	361,000	787,000	203,000
	27%	58%	15%
Average Trip Length (Miles)	4.1	11.9	32.5

Source: SCAG Model 2016

Commute trips were examined to better understand the peak period travel patterns. Figure 5.22 illustrates the journey to work mode share for the sub-corridor. Overall, 92 percent of commute trips in the Study Area are made by automobile. Transit accounts for just two percent of commute trips, while five percent of residents work at home. Notably, when examining the group that commutes by car, 12 percent carpooled. The share of commuters who carpool is higher in the sub-corridor compared to California as a whole (10 percent). Non-motorized trips account for less than one percent of commute trips.

Figure 5.22 | Journey to Work Mode Share
Cajon Pass to Eastvale Sub-Corridor

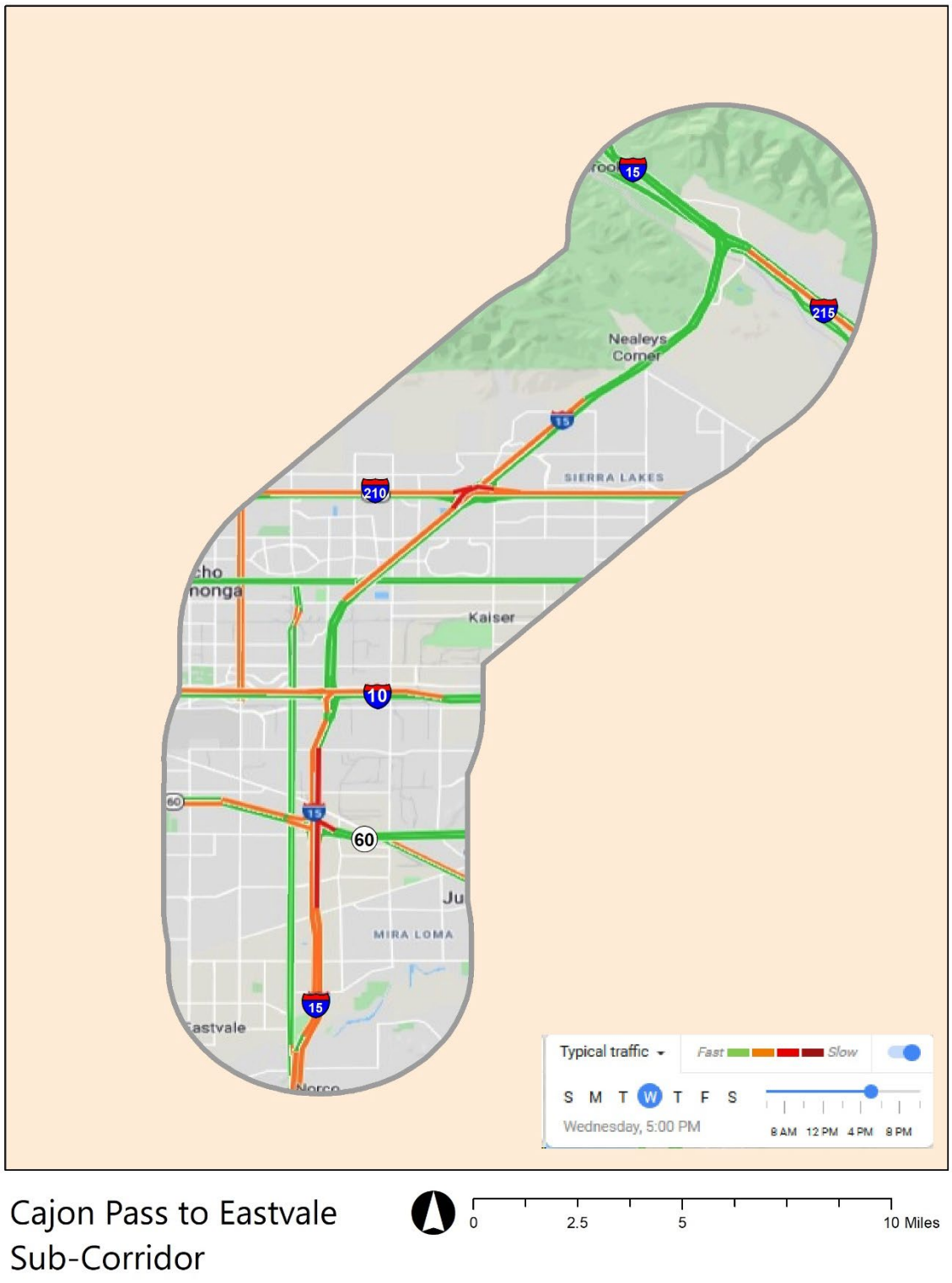


Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 95 percent of the workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the Study Area. Nearly half of all workers commute less than 30 minutes to work, 31 percent commute 30 to 60 minutes, and 19 percent commute over one hour. These are a reflection of relatively high availability of jobs to serve the population in this sub-corridor.

Congestion, Delay, and VMT: Figure 5.23 and Figure 5.24 show the snapshot of Google traffic conditions during a typical Wednesday AM and PM peak hour, respectively. In general, the most consistent congestion patterns occur on the I-15 segment from I-10 to the southern end of the sub-corridor in both peak periods. More specifically, the traffic data indicate that during the AM peak hour there is significant congestion on I-15 in both directions south of I-10 to the southern edge of the sub-corridor and it is the heaviest in the northbound direction during the morning period. On I-15, both north and south of I-10, there is significant congestion in the northbound direction during the AM peak hour. There also is congestion at the I-10/SR-210 interchange. The PM peak hour experiences similar patterns along I-15 but the congestion extends further north of I-10 and again extends all the way to the southern boundary of the sub-corridor.

Figure 5.23 | Existing AM Peak Hour Freeway Conditions
Cajon Pass to Eastvale Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.24 | Existing PM Peak hour Freeway Congestion
Cajon Pass to Eastvale Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the Study Area are mainly carried on freeways and major arterial roadways. Table 5.6 shows the VMT in the sub-corridor by facility type. As shown, the freeways carry 70 percent of the daily VMT and the arterials 30 percent. The significantly higher share of freeway VMT is a reflection of the importance of the freeways in mobility and county-to-county connectivity in this sub-corridor. However, daily VHT is about 60/40 between freeways (including HOV lanes) and arterial network, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has the highest VMT per service population and it ranks number one out of the ten sub-corridors.

Table 5.6 | Vehicle Miles of Travel by Facility Type
Cajon Pass to Eastvale Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	9,089,517	68%	172,414	60%
HOV	245,953	2%	3,935	1%
Arterials	3,984,639	30%	487,000	39%
Total	**13,320,109**	**100%**	**663,349**	**100%**

Source: SCAG Model 2016.

Transit Usage: This sub-corridor also has some high-quality transit stops at Metrolink stations in Rancho Cucamonga and Ontario. In this sub-corridor, only 2 percent of commute trips use transit.

Safety: Figure 5.25 illustrates the reported crashes by type for 2018. In terms of safety, I-15 has higher collision rates than the County average and Caltrans District 8 averages. Bicycle and pedestrian collisions are sparsely spread across the sub-corridor, possibly reflecting lower rates of bicycling and walking in these areas. Truck collisions occur throughout the Study Area but mostly along freeways with the largest concentrations along portions of I-15 between SR-210 and SR-60.

Future Conditions

The sub-corridor is expected to experience the following growth rates by 2040:

- Population—17 percent increase.
- Employment—33 percent increase.

These are among the lowest levels of projected increase in population of all ten sub-corridors, likely reflecting the built out nature of much of the Study Area. However, the higher rate of employment to population growth suggests a further improvement to future jobs/housing ratios. Total trip making in the sub-corridor is projected to increase by 293,000 daily trips, representing a 22 percent increase. VMT is projected to increase by 17 percent and VHT is projected to increase by 39 percent. The disproportionate increase in VHT over VMT indicate increasing delay and congestion in the future due to the relatively high growth rates that are projected.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.26 and Figure 5.27 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

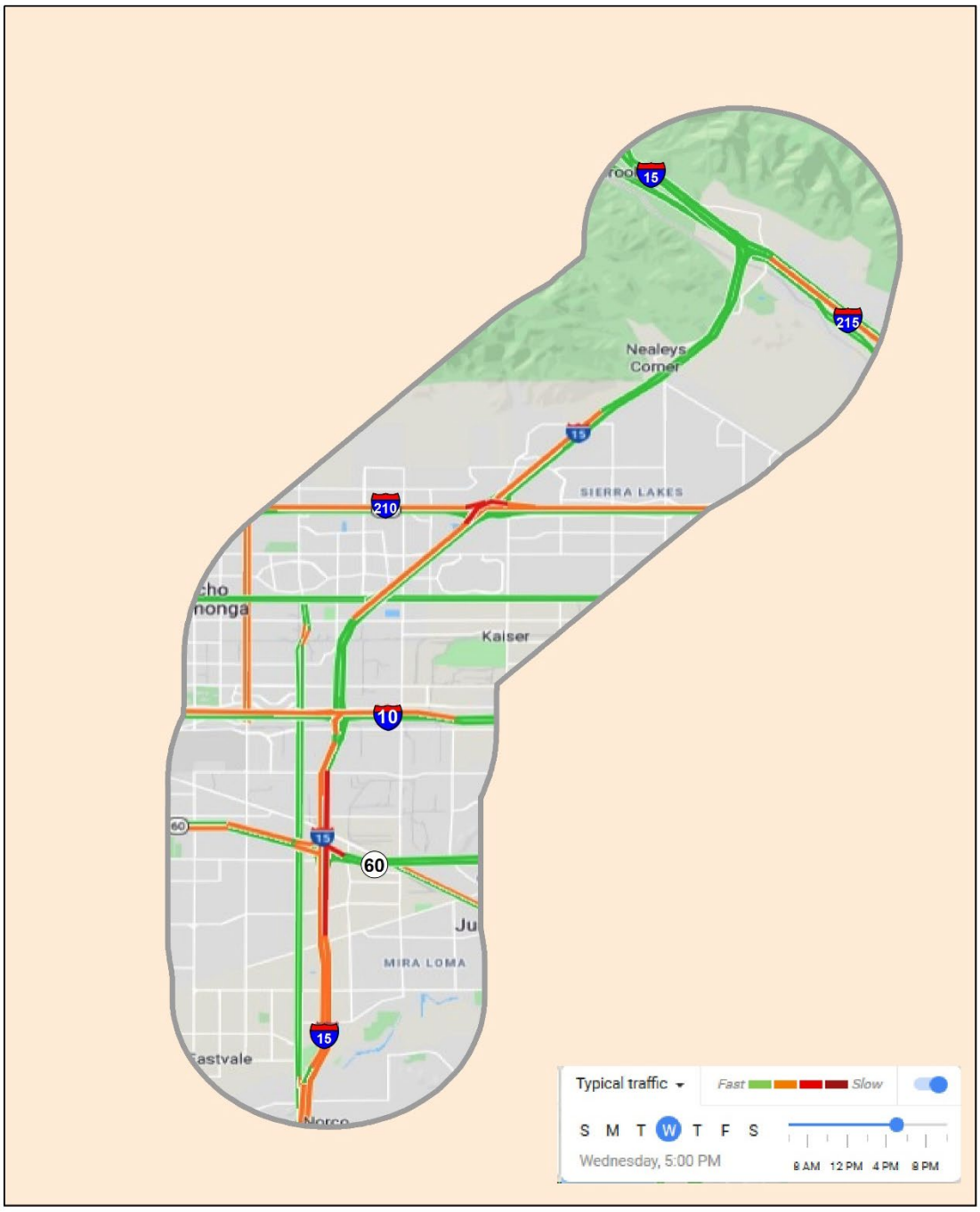
Figure 5.25 | Collisions
Cajon Pass to Eastvale Sub-Corridor



Cajon Pass to Eastvale Sub-Corridor

0 2.5 5 10 Miles

Figure 5.26 | Future 2040 Traffic Conditions—AM
Cajon Pass to Eastvale Sub-Corridor



Cajon Pass to Eastvale
Sub-Corridor

0 2.5 5 10 Miles

Figure 5.27 | Future 2040 Traffic Conditions—PM
Cajon Pass to Eastvale Sub-Corridor



Cajon Pass to Eastvale
Sub-Corridor

0 2.5 5 10 Miles

5.4.2 Strategic Approach for Cajon Pass to Eastvale Sub-Corridor

Strategic Approach for Cajon Pass to Eastvale Sub-Corridor

Problems to Be Addressed

- I-10/I-15 interchange is 10th on American Transportation Research Institute (ATRI)'s national list of the top 100 most critical truck bottlenecks.
- Nationally significant freight corridor, with heavy congestion on I-15 between SR-60 and SR-210.
- Southern end of the corridor houses some of the largest and most intense logistics activities in the Nation, with attendant local traffic and environmental impacts.
- Lack of north/south transit service and need for improved transit service to Ontario International Airport.
- Large population and housing growth with a large number of master planned communities.

Strategies

1. Implement managed-lane system on I-15, with toll discounts or exemptions for transit, vanpools, and 3+ carpools.
2. Complete the West Valley Connector BRT, Phase 1. The north/south portion parallels I-15 from Victoria Gardens to Rancho Cucamonga Metrolink Station, through Ontario employment centers, to ONT.
3. Construct the ONT Connector with new zero-emission, on-demand service connecting Rancho Cucamonga Station on the San Bernardino Line to ONT.
4. Pursue the extension of Brightline West down the Cajon Pass to Rancho Cucamonga to provide an additional privately and publicly funded solution to peak hour and weekend congestion.
5. Coordinate operational strategies for managed lanes between Riverside and San Bernardino counties.
6. Grow vanpool and carpool formation from the High Desert to employment centers in the Valley, Riverside County, and greater LA Basin.
7. Implement "Healthy Communities and Healthy Economies Toolkit for Goods Movement" (given continued warehouse/distribution facility development).
8. Work with SCAQMD and CARB to provide incentives for accelerating turnover of truck fleets.
9. Implement San Sevaine Class I Trail System, running north/south along I-15.
10. Explore policies and methods to increase work at home to decrease commute trips.

5.5 Riverside to Temecula Sub-Corridor

The Riverside to Temecula sub-corridor is one of five north/south oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.28 illustrates the boundaries of the sub-corridor Study Area.

5.5.1 Sub-Corridor Definition

This sub-corridor is located entirely within Riverside County, covering a significant portion of the Western Riverside County subregion. This is an important intercounty corridor traversing through Riverside County and linking San Bernardino County to San Diego County via I-15 and I-215 and other connecting routes. This sub-corridor addresses north/south flows of people and freight within and through portions of unincorporated Riverside County and the cities of Eastvale, Jurupa Valley, Norco, Riverside, Corona, Moreno Valley, Perris, Menifee, Canyon Lake, Lake Elsinore, Wildomar, Murrieta, and Temecula. This sub-corridor includes parts of RSAs 29, 45, 46, 47, and 49. It is generally 45 miles in length north to south and 20 miles wide east to west at the northern edge of the sub-corridor narrowing to about five miles wide east to west at the southern edge of the sub-corridor, as I-15 and I-215 merge.

Key Transportation Facilities

Key north/south oriented transportation facilities and connections within the sub-corridor include:

Freeways: I-15, I-215, SR-91, and SR-79.

Arterials: Key arterial facilities that run through significant portions of the sub-corridor include: Ynez Road, Margarita Road/Redhawk Parkway, Meadows Parkway, Whitewood Road/Menifee Road, California Oaks Road, Clinton Keith Road, Grand Avenue, Temescal Canyon Road/Ontario Avenue, Foothill Parkway, Hamner Avenue/Main Street, La Sierra Avenue, Van Buren Boulevard, Sycamore Canyon Boulevard, Central Avenue/Alessandro Boulevard, Perris Boulevard and SR-74 (Central Avenue).

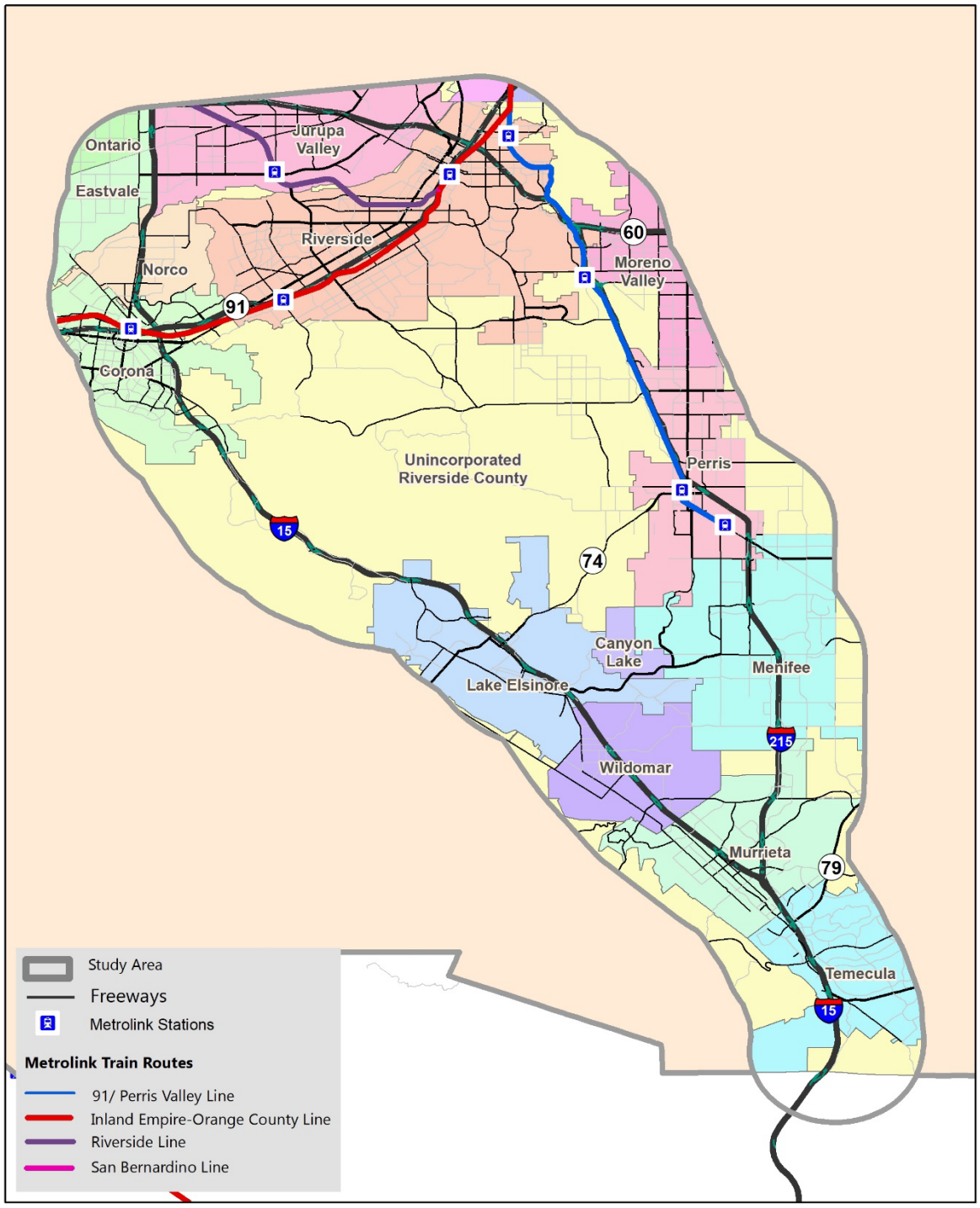
Freight: I-15 and I-215, SR-91are major goods movement corridors. UP Railroad, BNSF Railway, and SCRRA pass through the sub-corridor. There are many warehousing and distribution centers in the sub-corridor in the cities of Corona, Jurupa Valley, Riverside, Moreno Valley, Perris, and Temecula.

Transit: This sub-corridor includes portions of Metrolink route 91/Perris Valley line, which runs through a portion of the area and it transitions from an east/west route to a north/south route. There are several bus routes in this sub-corridor operated by RTA, including commuter link service 205/206 connecting Temecula, Murrieta, Lake Elisnore and Corona.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities. In addition, there are several proposed Regional Routes. These routes would cross multiple jurisdictions and consist of different types of facilities and classes.

Figure 5.28 | Sub-Corridor Study Area

Riverside to Temecula Sub-Corridor



Riverside to Temecula Sub-Corridor

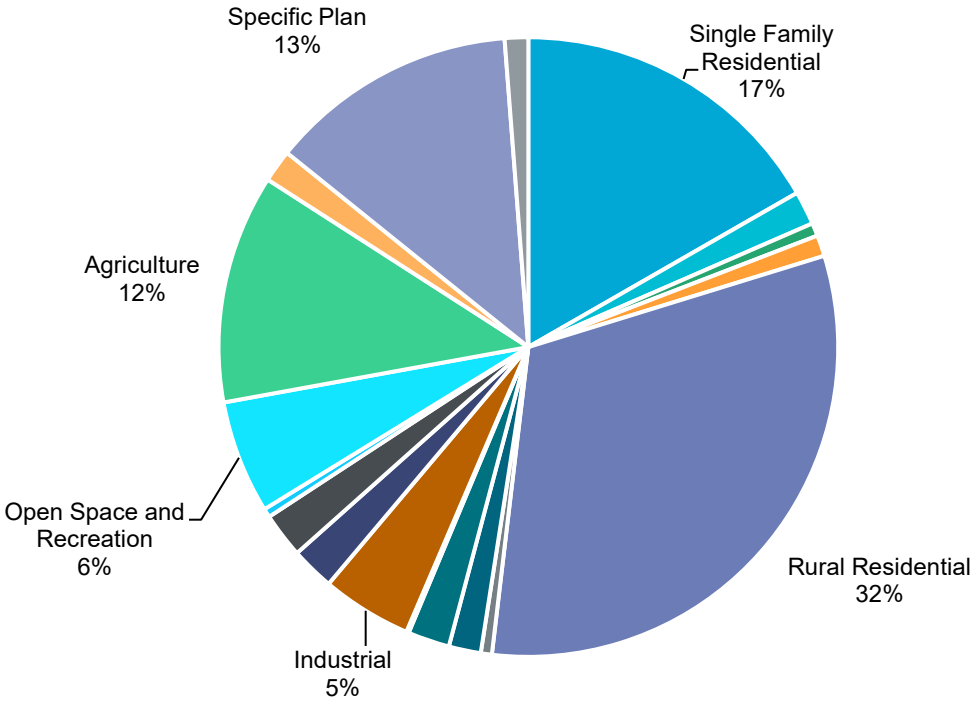
0 3.75 7.5 15 Miles

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.29 illustrates the land use by type in the sub-corridor and Figure 5.30 shows the land use patterns. As illustrated in these figures, the predominant land use in the sub-corridor is residential at 49 percent of the total land area, comprised of single family residential at 17 percent, and rural residential at 32 percent. Other key land uses include agriculture at 12 percent, and open space and recreational at 38 percent. In terms of employment-generating land uses, the area has five percent industrial, two percent commercial and services, and over two percent mixed-use designated zones.

The CalEnviroScreen scores for this sub-corridor include higher scores in the eastern portion of the area in Moreno Valley, Perris, Canyon Lake, northern portion of Menifee, and north-west edge of Lake Elsinore. There also are higher scores along SR-91 in Riverside and Corona. There are moderate scores in western Lake Elsinore, small portions of Murrieta, and western Temecula. The sub-corridor has lower scores outside of those areas. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG "Communities of Concern" also occur in the sub-corridor in the county unincorporated communities of Home Gardens, Mead Valley, and Good Hope and city of Perris.

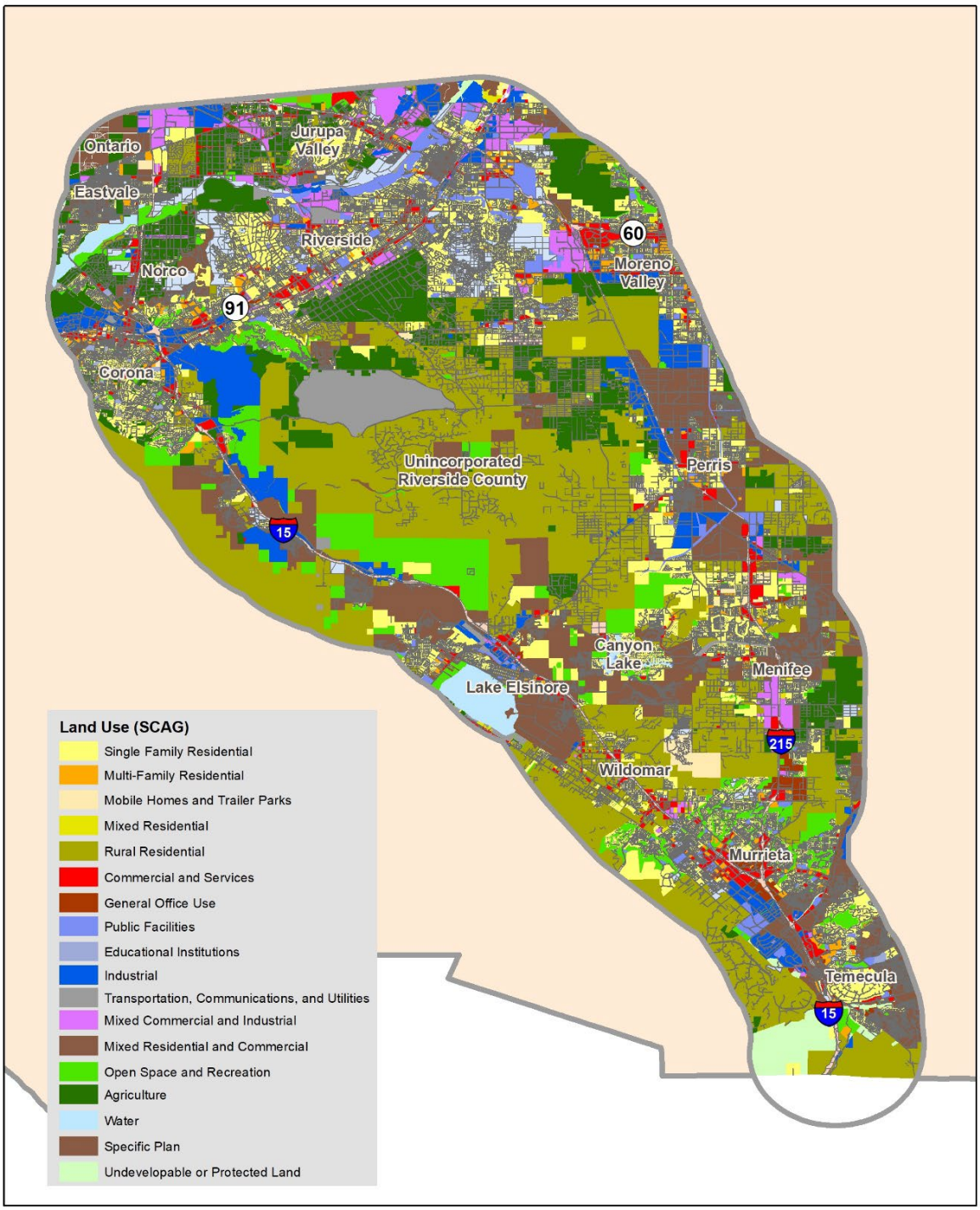
Figure 5.29 | Land Use Types
Riverside to Temecula Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.30 | Land Use Map

Riverside to Temecula Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is concentrated along freeways in the incorporated areas of the sub-corridor. The highest employment density is along SR-91 in the cities of Corona and Riverside. Other pockets of higher density employment are in Moreno Valley, Perris, Menifee, Murrieta, and Temecula. Population is spread across single-family residential and rural residential land. Single-family residential neighborhoods are along SR-91 in the cities of Corona and Riverside; north of the Santa Ana River in the cities of Eastvale and Jurupa Valley; and in the southern portion of the sub-corridor in the cities of Perris, Menifee, Canyon Lake, Murrieta, and Temecula. Given the predominance of residential land uses, the sub-corridor has a population-to-employment statistical ratio of 2.9, which is relatively low compared to some of the other areas of the overall IE CMCP Study Area, indicating a need for fewer residents to commute longer distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.7 displays the magnitude and average length of trips within and external to the sub-corridor area. Due to the large size of the sub-corridor area, there are high volumes of travel, at nearly 3.7 million daily auto trips made by residents and employees. As illustrated in the table below, the majority of these trips, or 60 percent, are internal-internal trips, meaning they start and end within the sub-corridor. These sub-corridor internal trips include commute travel for workers who live and work in the sub-corridor as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. Twenty-eight percent of trips have one end in the sub-corridor and the other end inside the IE CMCP area and 12 percent of trips have one end in the sub-corridor and the other end outside the sub-corridor. The average trip lengths for trips with one end in the Study Area and the other either inside or outside of the IE CMCP area are 2.6 and 6.8 times the length of the internal-internal trips, respectively.

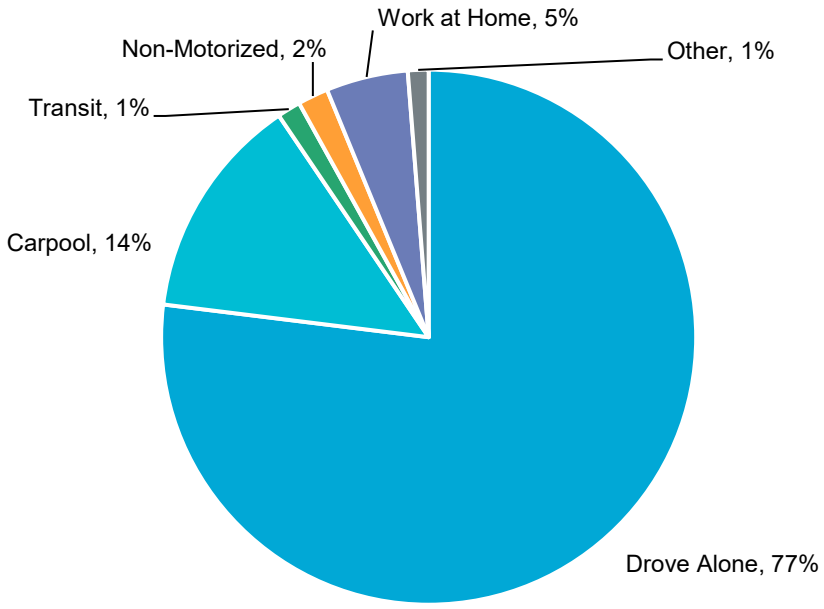
Table 5.7 | Internal and External Trips
Riverside to Temecula Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	2,247,000	1,038,000	447,000
	60%	28%	12%
Average Trip Length (Miles)	6.1	16.1	41.5

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.31 illustrates the journey to work mode share for the sub-corridor. Overall, 91 percent of commute trips in the sub-corridor are made by automobile. Notably, when examining the group that commutes by car, 14 percent of workers carpooled. The share of carpoolers is higher in the sub-corridor compared to California as a whole (10 percent). This is reflective of the relatively longer commute trips from the sub-corridor either to other job locations in San Bernardino and San Diego and general lack of north/south commuter rail services in this sub-corridor. Transit accounts for just one percent of commute trips, while five percent of residents work at home. Non-motorized trips account for just two percent of commute trips.

Figure 5.31 | Journey to Work Mode Share
Riverside to Temecula Sub-Corridor



Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 95 percent of the workers in the sub-corridor must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the sub-corridor. Forty-nine percent of all workers commute less than 30 minutes to work, 30 percent commute 30 to 60 minutes, and 21 percent commute over one hour.

Congestion, Delay, and VMT: Figure 5.32 and Figure 5.33 show the snapshot of Google traffic conditions during a typical Wednesday AM and PM peak hour, respectively. The most significant recurring congestion and delay on the freeway system occurs around the I-15/SR-91 junction, SR-91/I-215/SR-60 junction, and I-215/I-15 south of Menifee. The most congested portions of I-15 are between SR-91 and I-215 during both AM and PM peaks, northbound during the AM peak at Temescal Valley, southbound during the PM peak south of SR-91, and northbound during the PM peak in Temecula. The most congested portions of I-215 are northbound north of I-15 during the PM peak, southbound north of I-15 during the AM peak, and near the SR-60 junction during AM and PM peaks.

Figure 5.32 | Existing AM Peak Hour Freeway Conditions
Riverside to Temecula Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020

Figure 5.33 | Existing PM Peak Hour Freeway Congestion
Riverside to Temecula Sub-Corridor



Riverside to Temecula Sub-Corridor

Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the sub-corridor, are mainly carried on freeways and major arterial roadways. Table 5.8 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 58 percent of the daily VMT. Daily VHT is nearly split 50/50 between freeways (including HOV lanes) and arterial network. Average speeds on the freeway and arterials are similar. As compared to the other sub-corridors, this area has relatively more VMT per service population and ranks seventh out of the ten sub-corridors for most VMT per service population.

Table 5.8 | Vehicle Miles of Travel by Facility Type
Riverside to Temecula Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	19,883,000	58%	388,000	49%
HOV	800,000	2%	15,000	2%
Arterials	13,613,000	40%	396,000	50%
Total	**34,296,000**	**100%**	**799,000**	**101?%**

Source: SCAG Model 2016.

Transit Usage: This sub-corridor has several high-quality transit stops along Metrolink lines at Corona, Riverside, Jurupa Valley, Moreno Valley, and Perris. It also has some of the highest ridership bus stops in the overall IE CMCP Study Area, which are located at Corona Transit Center, Galleria at Tyler, Moreno Valley Mall, University Market (UCR), UCR Campus, and Perris Transit Center. In this sub-corridor, one percent of commute trips use transit.

Safety: Figure 5.34 illustrates the reported crashes by type for 2018. In terms of safety, SR-91 and I-215 experience some of the highest collision rates for the IE CMCP Study Area freeways. The collision rates for I-15 are higher than the County average and Caltrans District 8 averages, but less than the rates for I-215 and SR-91, in general. There is a relatively high concentration of bicycle and pedestrian collisions in the northern portion of the sub-corridor, possibly reflecting higher rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along freeways with the largest concentrations near I-215/SR-91/SR-60 interchange.

Future Conditions

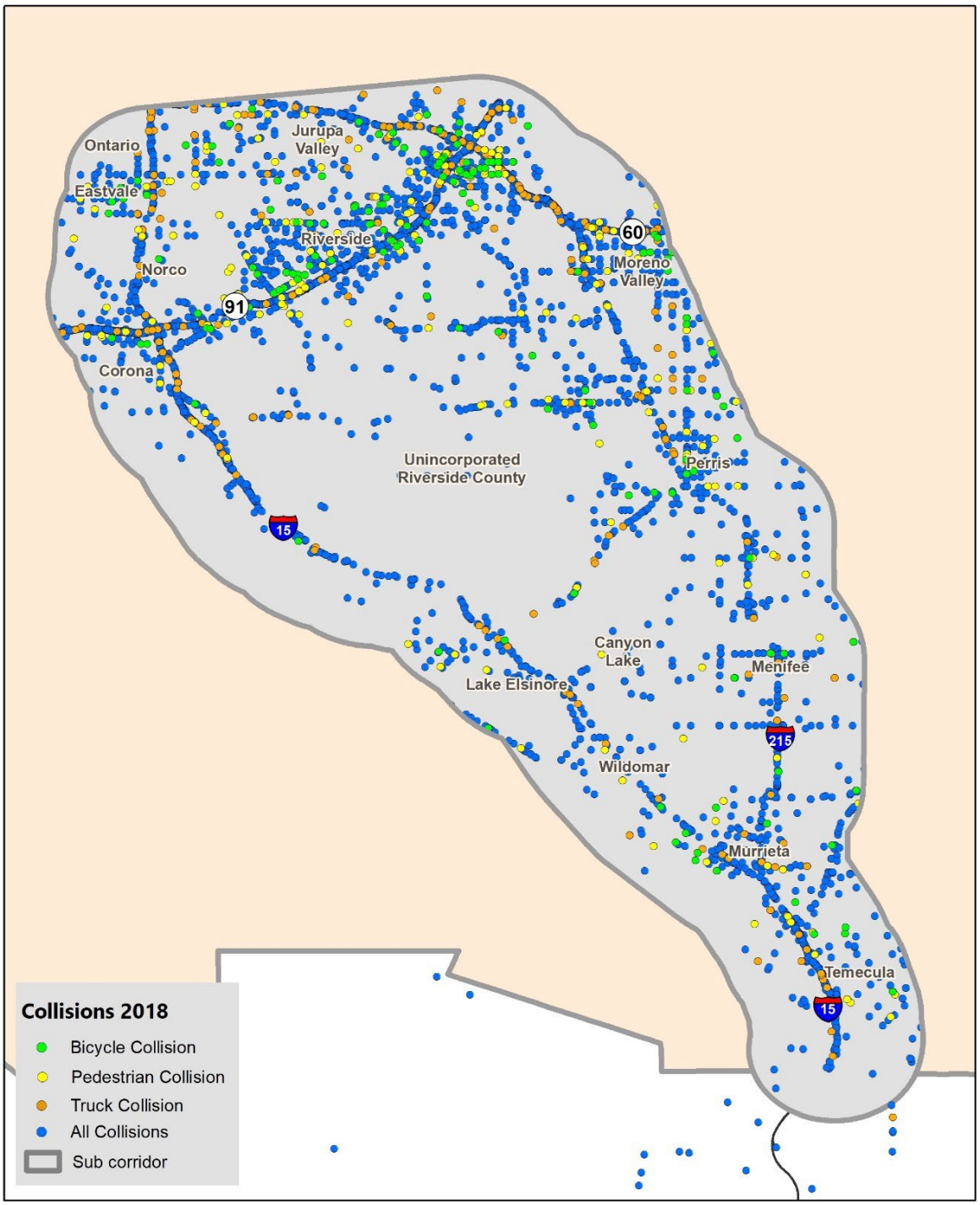
The sub-corridor is expected to experience the following growth rates by 2040:

- Population—22 percent increase.
- Employment—49 percent increase.

As seen, population growth is expected to be lower than employment growth, suggesting better jobs/housing balance and possibly shorter trips in the future. Total trip making in the sub-corridor is projected to increase by 1.0 million daily trips, representing a 28 percent increase. VMT are projected to increase by 25 percent and VHT are projected to increase by 55 percent. The disproportionate increase in VHT over VMT indicate increasing delay and congestion in the future due to the projected relatively high growth rates for this sub-corridor.

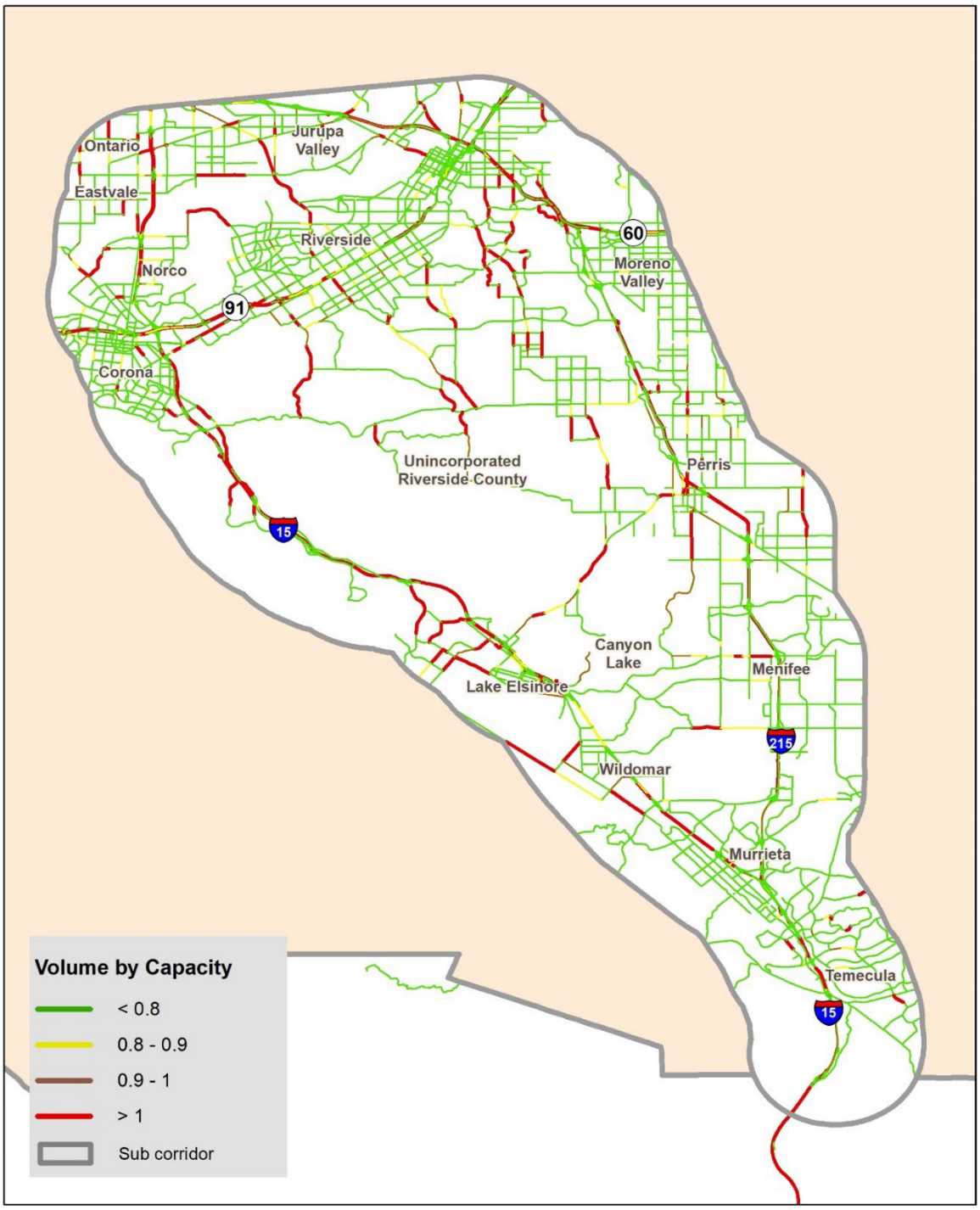
The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.35 and Figure 5.36 illustrate the AM and PM peak hour conditions on the freeway system projected for 2040 from the SCAG model.

Figure 5.34 | Collisions
Riverside to Temecula Sub-Corridor



Riverside to Temecula
Sub-Corridor

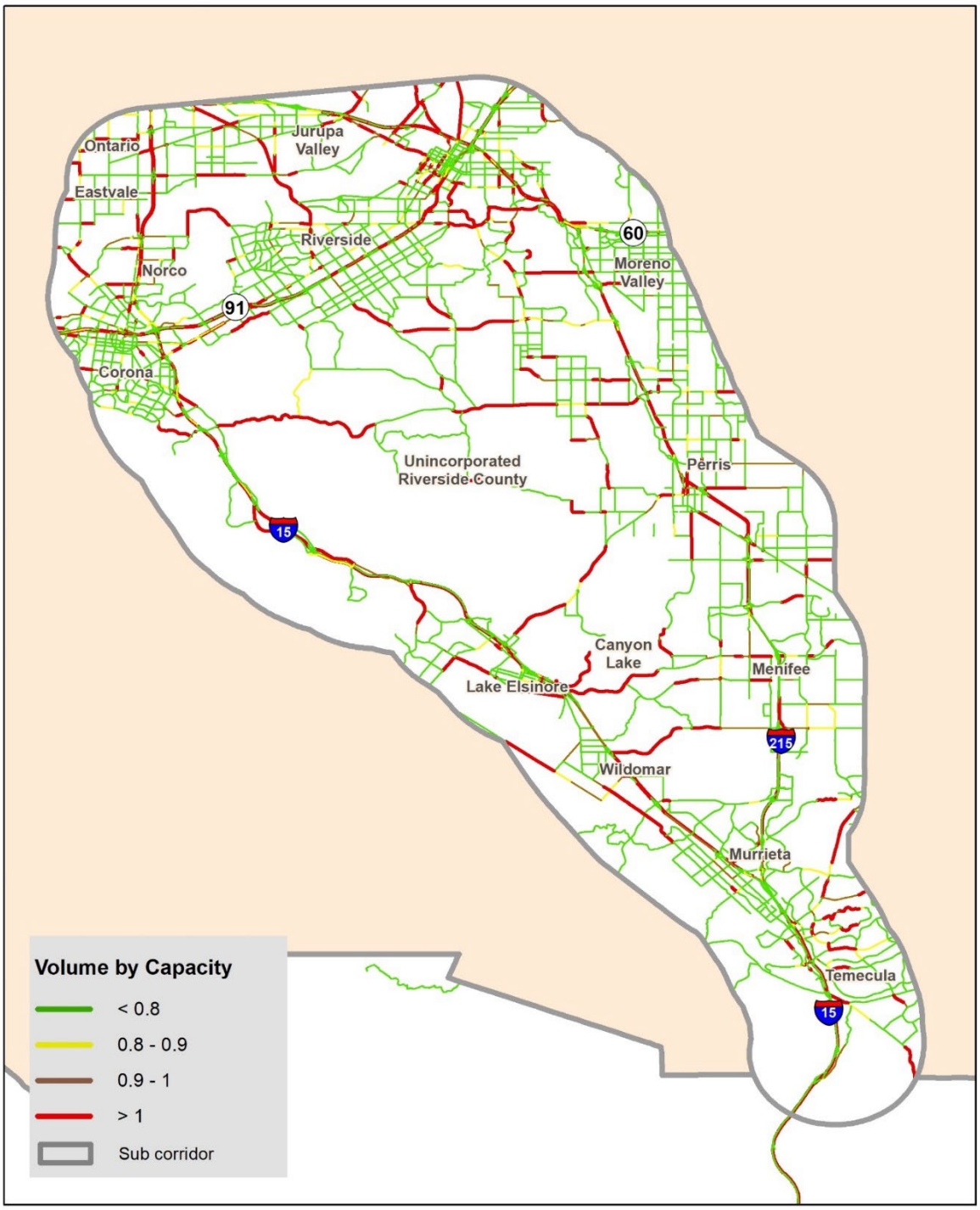
Figure 5.35 | Future 2040 Traffic Conditions—AM
Riverside to Temecula Sub-Corridor



Riverside to Temecula
Sub-Corridor

0 3.75 7.5 15 Miles

Figure 5.36 | Future 2040 Traffic Conditions—PM
Riverside to Temecula Sub-Corridor



5.5.2 Strategic Approach for Riverside to Temecula Sub-Corridor

Strategic Approach for Riverside to Temecula Sub-Corridor

Problems to Be Addressed

- Significant and growing congestion in both directions at the I-215/SR-60 junction in Riverside.
- Significant and growing congestion at the I-15/I-215 merge/diverge in Temecula and on I-15 northbound and southbound in Corona.
- Congestion at critical interchanges on I-15 and I-215 (e.g., Newport Road, Bundy Canyon Road, SR-74, etc.).
- Lack of parallel facilities to I-15 and I-215 throughout the corridor (due largely to topography).
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.
- Large amount of housing development concentrated along the corridor; exacerbating the job-housing imbalance.

Strategies

1. Extend the managed-lane system on I-15 southerly from El Cerrito Road in Corona to SR-74 (Central Avenue) in Lake Elsinore, with toll discounts for transit, vanpools, and 3+ carpools.
2. Continue commuter bus operations on I-15 and I-215 to Metrolink stations and continue express bus service utilizing managed lanes.
3. Make strategic operational improvements to and/or reconstruct interchanges on I-15 and I-215, such as SR-74 (Central Avenue), Franklin Street and French Valley Parkway.
4. Improve the north/south arterial network along I-15 and I-215, where possible, to better accommodate local short-distance trips that are now occurring on the freeway system, such as Temescal Canyon Road.
5. Enhance marketing and incentives for ridership on the Perris Valley line to Riverside.
6. Construct a new commuter rail station along the Perris Valley line in Mead Valley to grow ridership by increasing access to commuter rail service.
7. Grow vanpool and carpool formation from southwest Riverside County to employment centers in Riverside, Corona, and San Bernardino County.
8. Deploy new technologies to proactively manage traffic and improve roadway conditions.
9. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements to existing 91/Perris Valley Metrolink stations.

10. Work with SCAQMD and CARB to provide incentives for accelerating turnover of truck fleets.
11. Invest in grade separation projects to improve goods movement efficiency and passenger rail movement.
12. Provide an additional east west regional arterial extending east from the City of Perris that will run parallel to SR-74, serving as an alternative route to better connect the cities within the region and improve safety.
13. Explore policies and methods to increase work at home to decrease commute trips.

5.6 Beaumont to Temecula Sub-Corridor

The Beaumont to Temecula sub-corridor is one of five north/south oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.37 illustrates the boundaries of the sub-corridor Study Area.

5.6.1 Sub-Corridor Definition

This sub-corridor is located entirely within Riverside County, is generally centered along the conventional SR-79, which provides a vital link in absence of north/south freeways in the area. Although the sub-corridor does not have a freeway that covers its entire length, it includes a portion of I-215 between SR-74 and I-15 that parallels SR-79 in the southern area and I-10. This sub-corridor addresses north/south flows of people and freight within and through portions of the cities of Temecula, Murrieta, Menifee, Hemet, San Jacinto, and Beaumont. This sub-corridor encompasses portions of Riverside County and includes parts of RSAs 49, 47, 48, and 50. The sub-corridor is generally 30-35 miles in length north to south and about 15-20 miles wide east to west in Riverside County.

Key Transportation Facilities

Key north/south oriented transportation facilities within the sub-corridor include:

Freeways / Highways: SR-79, section of I-15 and I-215.

Arterials: Key north/south arterial facilities that run through significant portions of the Study Area include: Sanderson Avenue, Whitewood Road and Warren Road.

Freight: I-215 is a major goods movement corridor. This sub-corridor has some warehouses in the southern portion near Temecula.

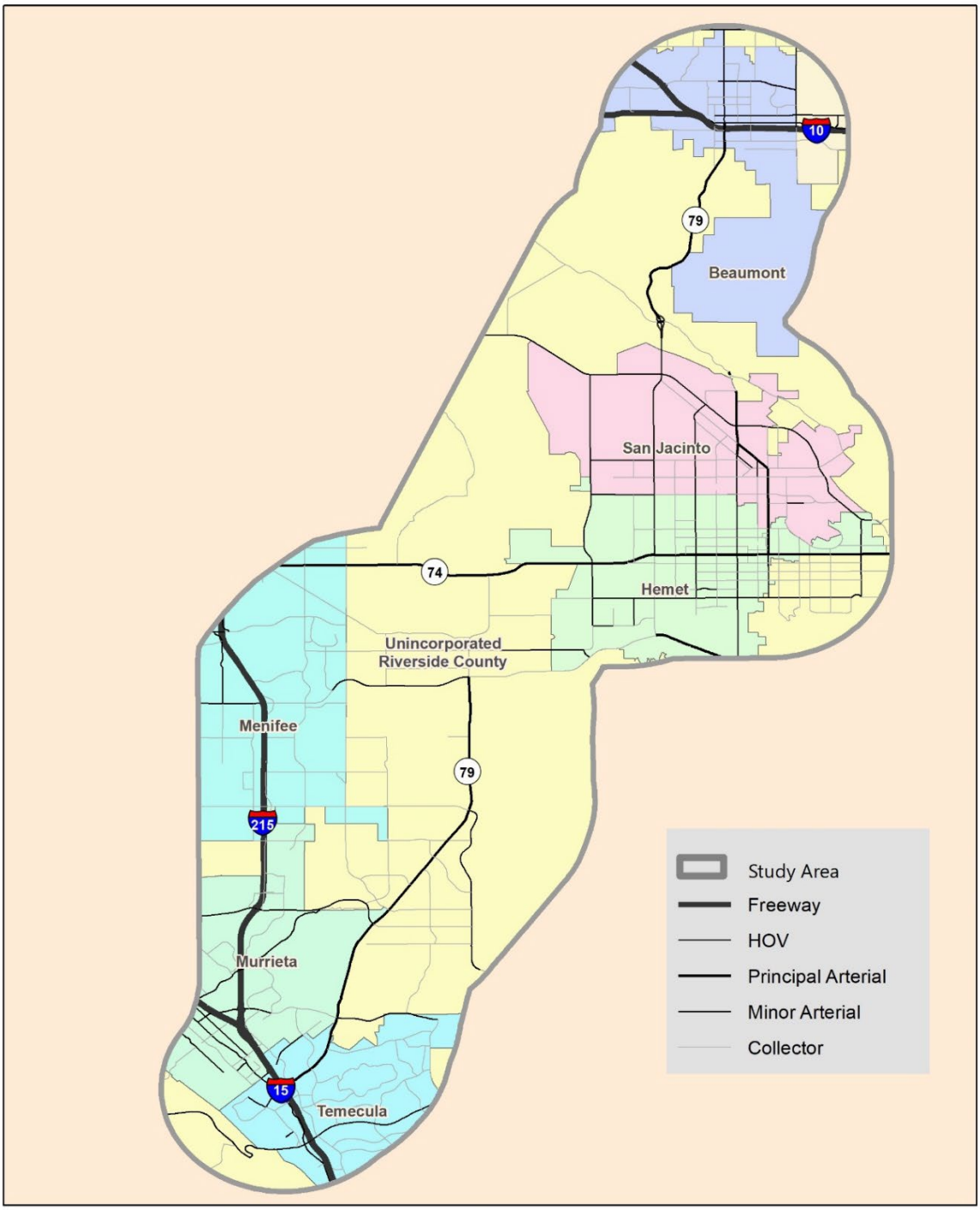
Transit: There are few bus routes in the sub-corridor including RTA commuter link service 217 connecting San Jacinto, Hemet and Temecula. There is no Metrolink service in this sub-corridor.

Active Transportation: There are many municipal bicycle routes within the sub-corridor including Class I, II, III, and IV facilities. In addition, there are several proposed Regional Routes. These routes would cross multiple jurisdictions and consist of different types of facilities and classes.

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.38 illustrates the land use by type in the sub-corridor and Figure 5.39 shows the land use pattern. As illustrated in these figures, due to the generally rural nature of this sub-corridor, the predominant land use in the sub-corridor includes rural residential at 23 percent and agriculture at 22 percent. However, there is a sizeable percentage of specific plan at 17 percent, as well as single family residential at 13 percent. Despite the mostly rural nature, open space and recreational uses are only 6 percent. In terms of employment-generating land uses, the area has seven percent industrial, 2 percent commercial and services, and some mixed-use designated zones.

Figure 5.37 | Sub-Corridor Study Area
Beaumont to Temecula Sub-Corridor

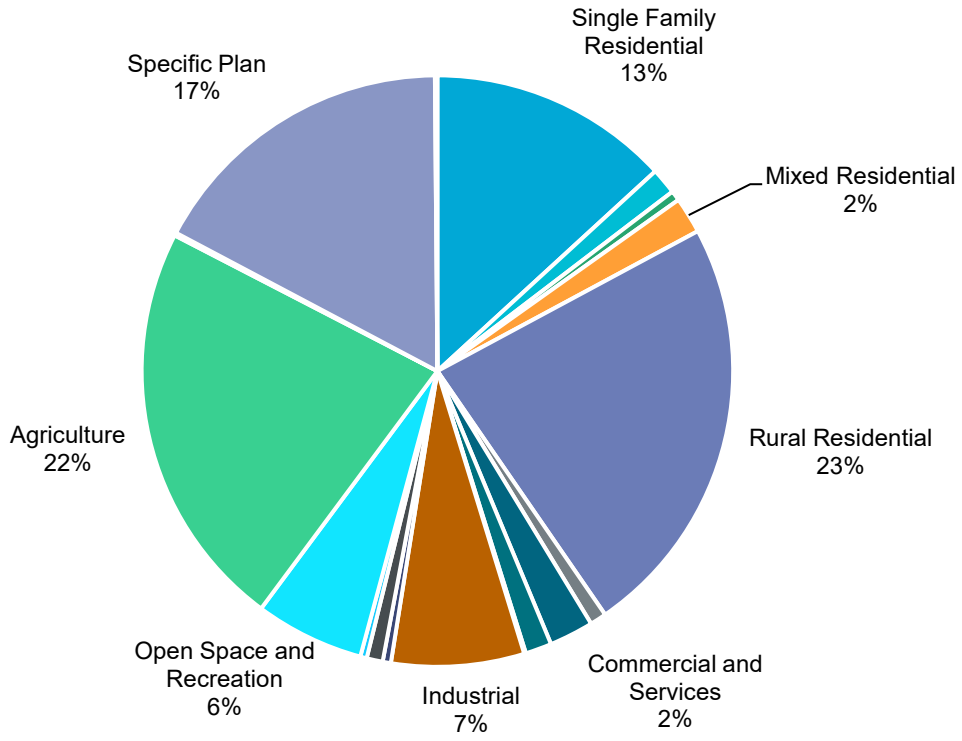


Beaumont to Temecula
Sub-Corridor

The CalEnviroScreen scores for this sub-corridor are generally low, with a moderate score in the San Jacinto area. Low score areas include Temecula, Murrieta, Menifee, and Hemet.

Low scores indicate less exposure indicators, less environmental effects indicators, less sensitive population indicators, less socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. There are no SCAG "Communities of Concern" in this sub-corridor.

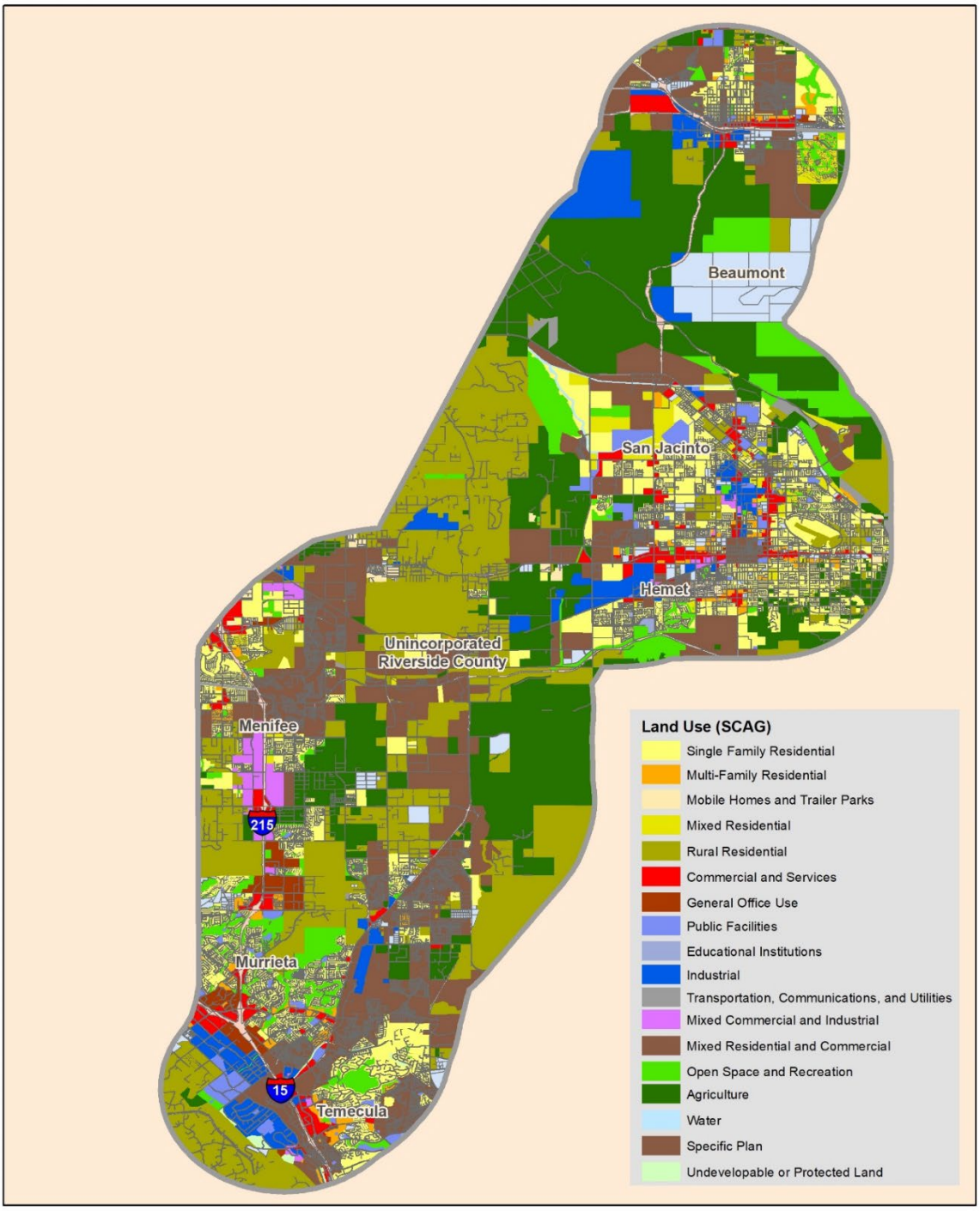
Figure 5.38 | Land Use Types
Beaumont to Temecula Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively low in much of the sub-corridor. Employment density is highest in the southern portion, near Temecula and Murrieta, and in the central portion, near Hemet and San Jacinto. Population density follows a similar pattern to employment density, with relatively lower densities throughout the sub-corridor and higher densities along the southern and central portion of the sub-corridor. The population-to-employment statistical ratio of the sub-corridor is 3.3, which is relatively low compared to some of the other areas of the overall IE CMCP Study Area, reflecting the rural nature and indicating a need for residents to commute longer distances to work.

Figure 5.39 | Land Use Map
Beaumont to Temecula Sub-Corridor



Source: SCAG 2012 Land Use.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.9 displays the magnitude and average length of trips within and external to the subarea. There are over 1.2 million daily auto trips made by residents and employees in the Study Area. As illustrated, in the table below, slightly over half of those trips are internal-internal trips, meaning they start and end within the sub-corridor Study Area. These sub-corridor internal trips include commute travel for workers who live and work in the Study Area as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. Just over one-third of trips are between the sub-corridor and the rest of the IE CMCP area. The remaining low 10 percent of the trips are between the sub-corridor area and outside the IE CMCP area, indicating the relative lower density and remoteness of this area. The average trip lengths for trips with one end in the Study Area and the other either inside or outside the IE CMCP area are, intuitively, more than three times and eight times the length of the internal-internal trips, respectively.

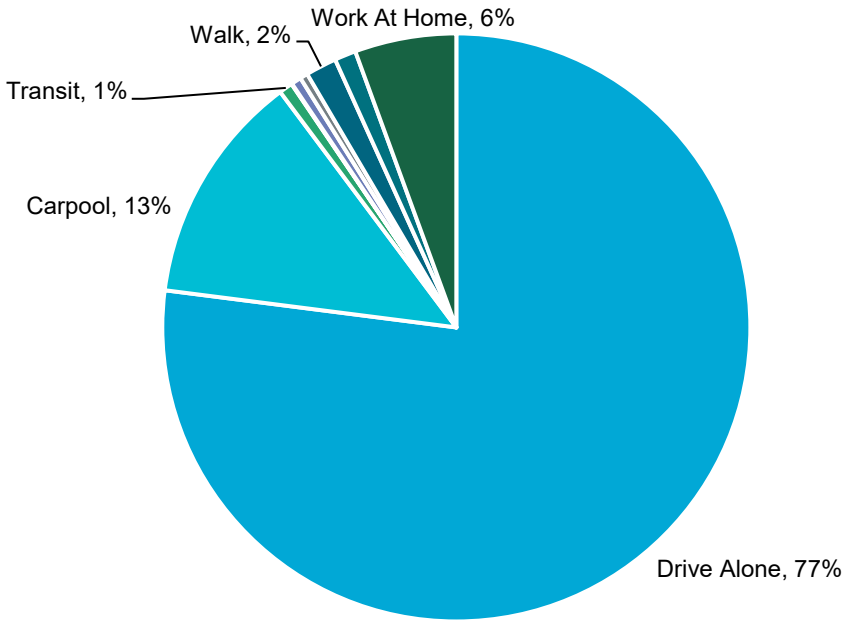
Table 5.9 | Internal and External Trips
Beaumont to Temecula Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	683,000	446,000	120,000
	55%	36%	10%
Average Trip Length (Miles)	4.6	16.5	41.8

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.40 illustrates the journey to work mode share for the sub-corridor. Overall, 90 percent of commute trips in the Study Area are made by automobile. Transit accounts for just one percent of commute trips, while a relatively high six percent of residents work at home, which is likely an indication of the more rural and remote nature of the area. Notably, when examining the group that commutes by car, 13 percent carpool. The share of commuters who carpool is higher in the sub-corridor compared to California as a whole (10 percent). Non-motorized trips account for just two percent of commute trips.

Figure 5.40 | Journey to Work Mode Share
Beaumont to Temecula Sub-Corridor

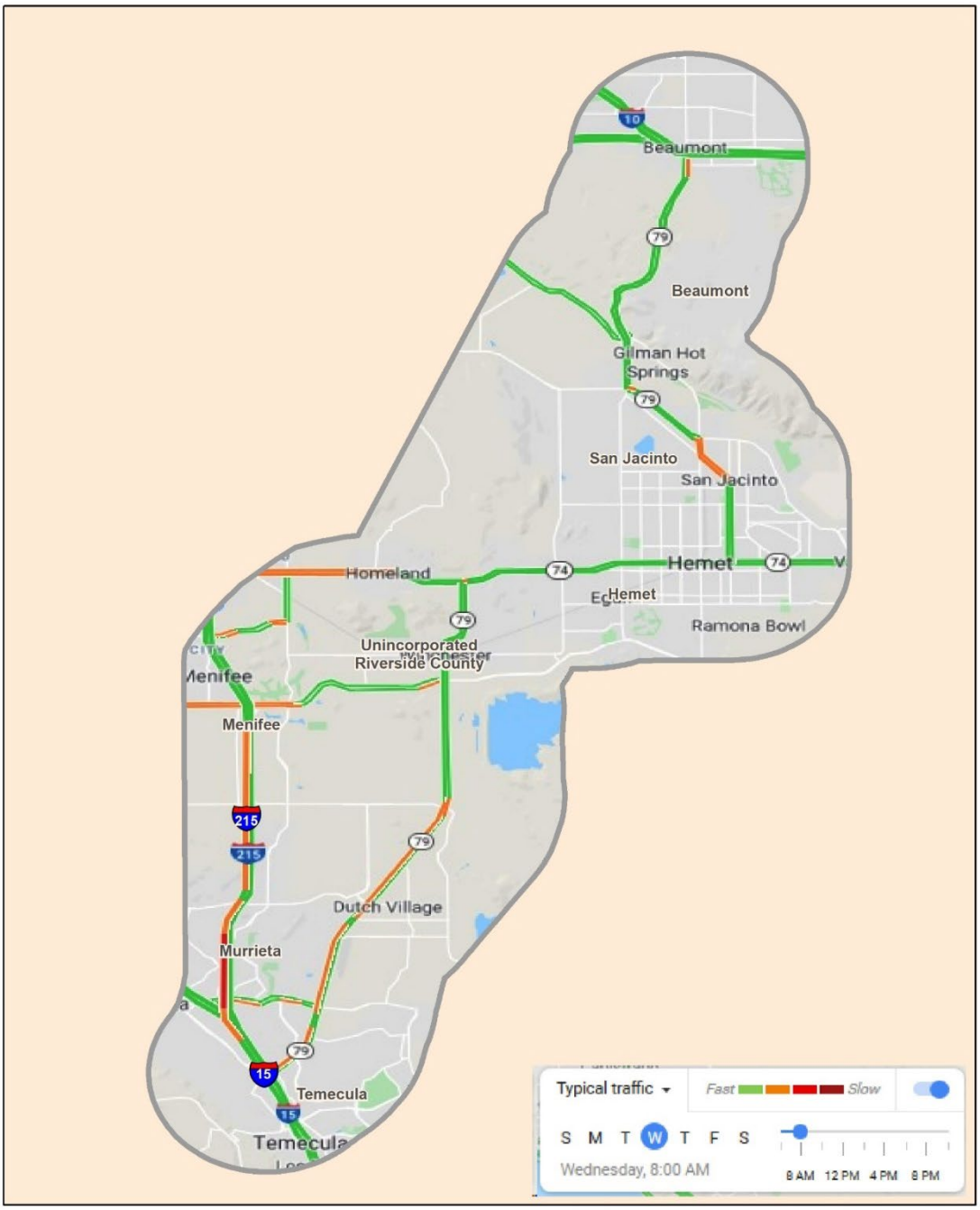


Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 94 percent of the workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the Study Area. Nearly half of all workers commute less than 30 minutes to work, 28 percent commute 30 to 60 minutes, and 24 percent commute over one hour.

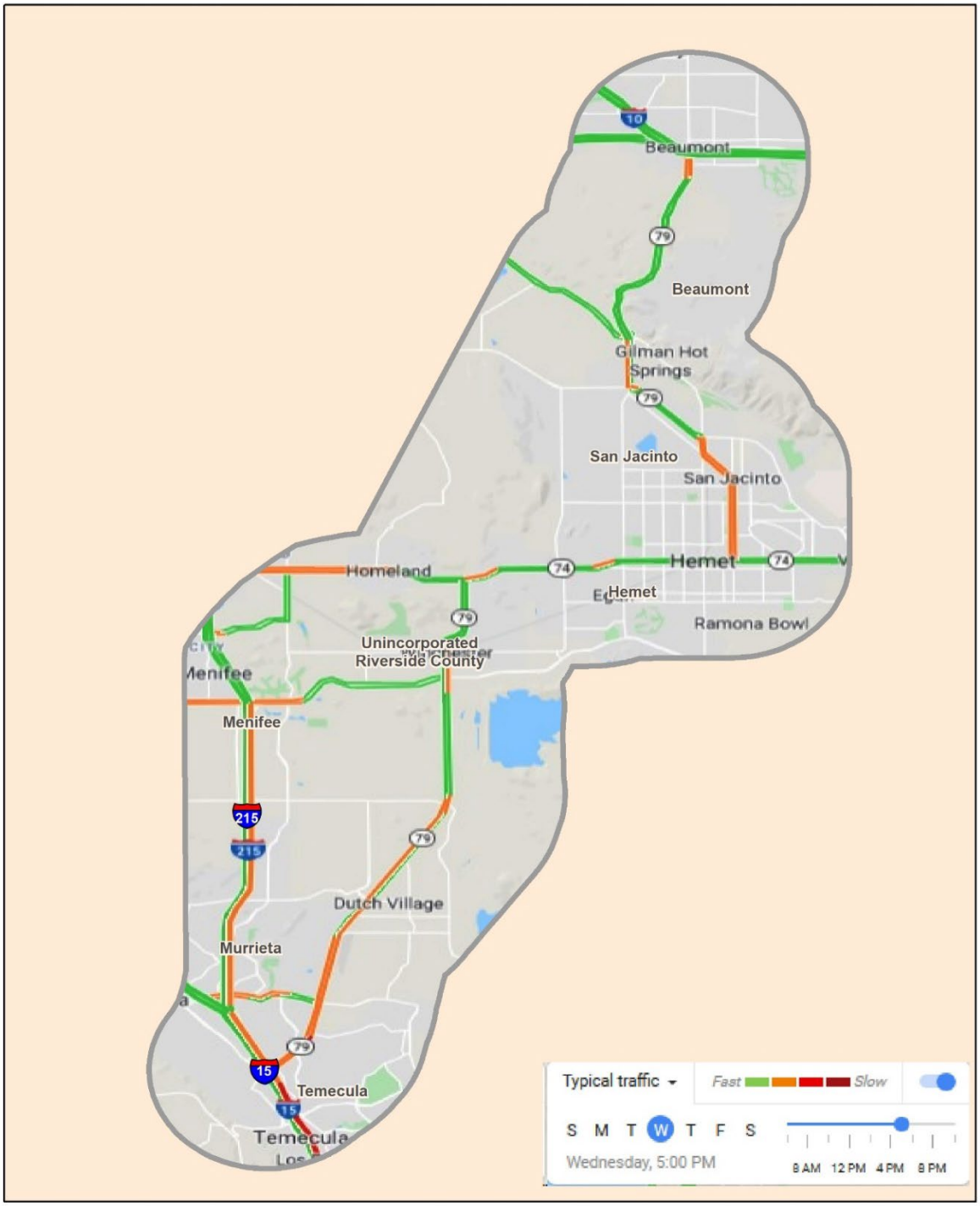
Congestion, Delay, and VMT: The most significant recurring congestion and delay on the freeway system occurs on I-215 in the southern portion of the sub-corridor, between Menifee and I-15. Much of this segment of I-215 is congested with level of service F conditions and high delay during AM peak hour in the southbound direction and during PM peak hour in the northbound direction. The segments of SR-79 between I-215 and Scott Road in the south of the sub-corridor and between SR-74 and Ramona Expressway experience poor operating conditions. Figure 5.41 and Figure 5.42 show a snapshot of Google traffic conditions during a typical Wednesday AM and PM peak hour, respectively.

Figure 5.41 | Existing AM Peak Hour Freeway Conditions
Beaumont to Temecula Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.42 | Existing PM Peak hour Freeway Congestion
Beaumont to Temecula Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the Study Area are mostly carried on major arterial roadways and a relatively smaller portion on the freeways. This is a reflection of the previously mentioned lack of major freeway facilities in the sub-corridor. Table 5.10 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 59 percent of the daily VMT. However, daily VHT is nearly split 30/70 between freeways (including HOV lanes) and arterial network, reflecting lower speeds on the arterials and further underscoring the lack of freeways in the sub-corridor. As compared to the other sub-corridors, this area has relatively less VMT per service population and it ranks seven out of the ten sub-corridors.

Table 5.10 | VMT by Facility Type
Beaumont to Temecula Sub-Corridor

	Vehicle Miles Traveled		Vehicle Hours Traveled	
Freeway	3,509,000	41%	57,263	30%
HOV	-	-	-	-
Arterials	5,095,231	59%	131,740	70%
Total	**8,604,231**	**100%**	**189,003**	**100%**

Source: SCAG Model 2016.

Transit Usage: Due to its mostly rural nature, this sub-corridor has very little transit services. There is limited RTA bus service but no rail service.

Safety: Figure 5.43 illustrates the reported crashes by type for 2018. Collisions involving bicyclists and pedestrians are spread throughout the Study Area, however, some of the highest density of collisions in the Study Area occur in certain neighborhoods of Hemet and San Jacinto.

Future Conditions

The sub-corridor is expected to experience the following growth rates by 2040:

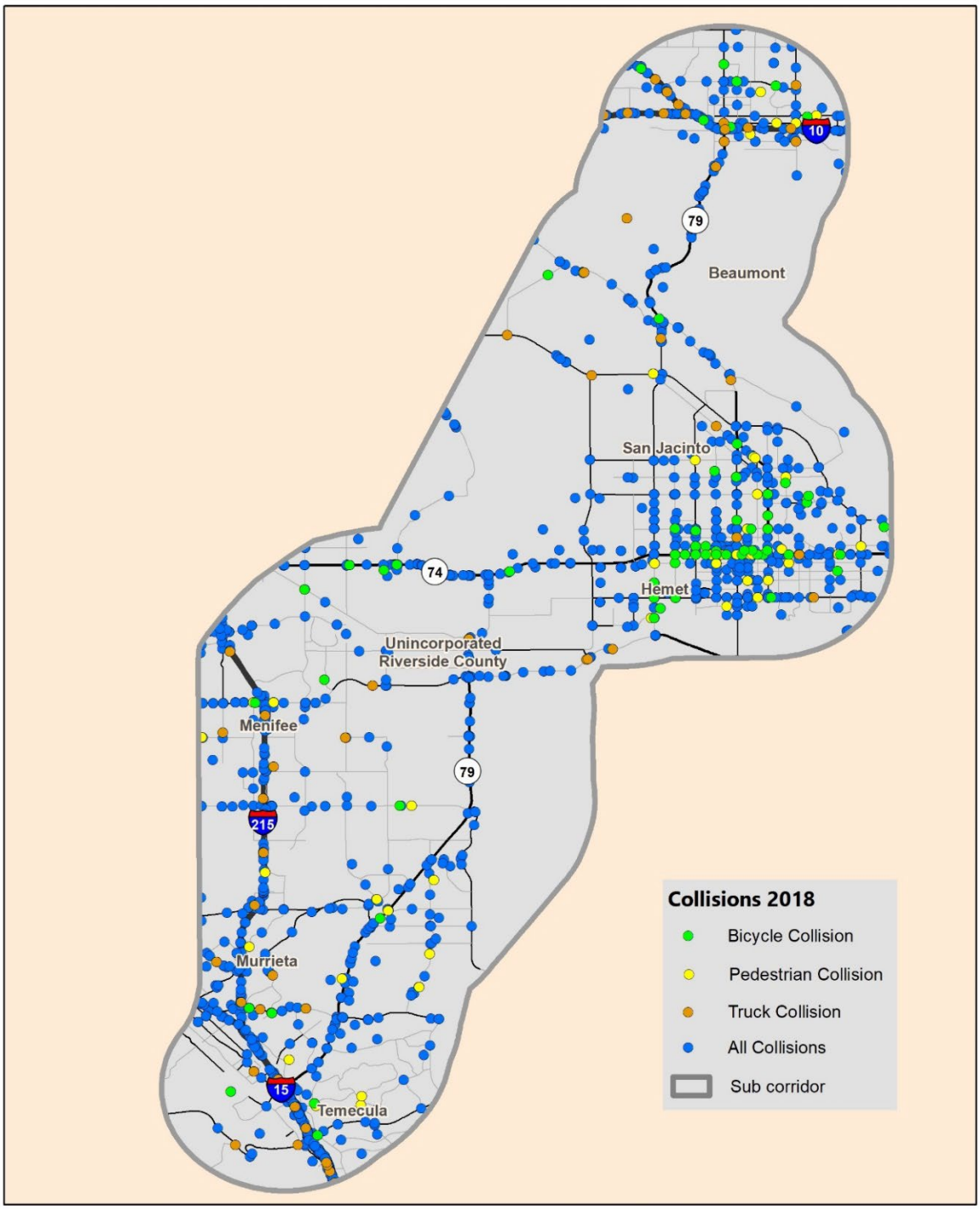
- Population—33 percent increase.
- Employment—42 percent increase.

The relatively comparable rate of employment to population growth suggests that the jobs/housing ratio of this sub-corridor is expected to remain similar to the current conditions, reflecting the mostly rural nature of the sub-corridor.

Total trip making in the sub-corridor is projected to increase by 421,000 daily trips, representing a 34 percent increase, commensurate with the expected increase in population. VMT is projected to increase by 34 percent and VHT is projected to increase by 54 percent. The higher increase in VHT over VMT indicates increasing delay and congestion and likely an increase in congestion on arterials and conventional State routes (SR-79 and SR-74) due to the lack of major freeways through this sub-corridor.

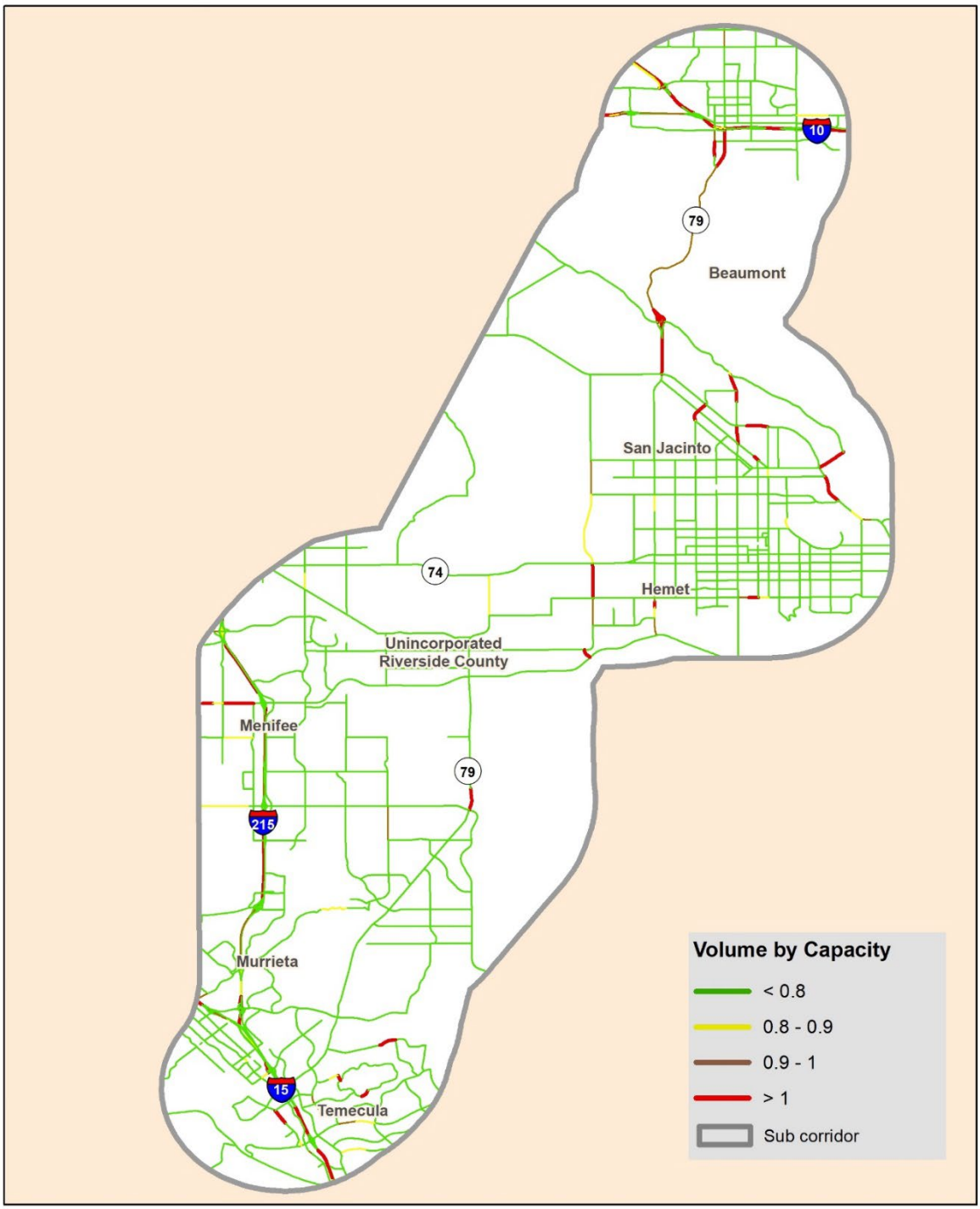
The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.44 and Figure 5.45 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

Figure 5.43 | Collisions
Beaumont to Temecula Sub-Corridor



Beaumont to Temecula
Sub-Corridor

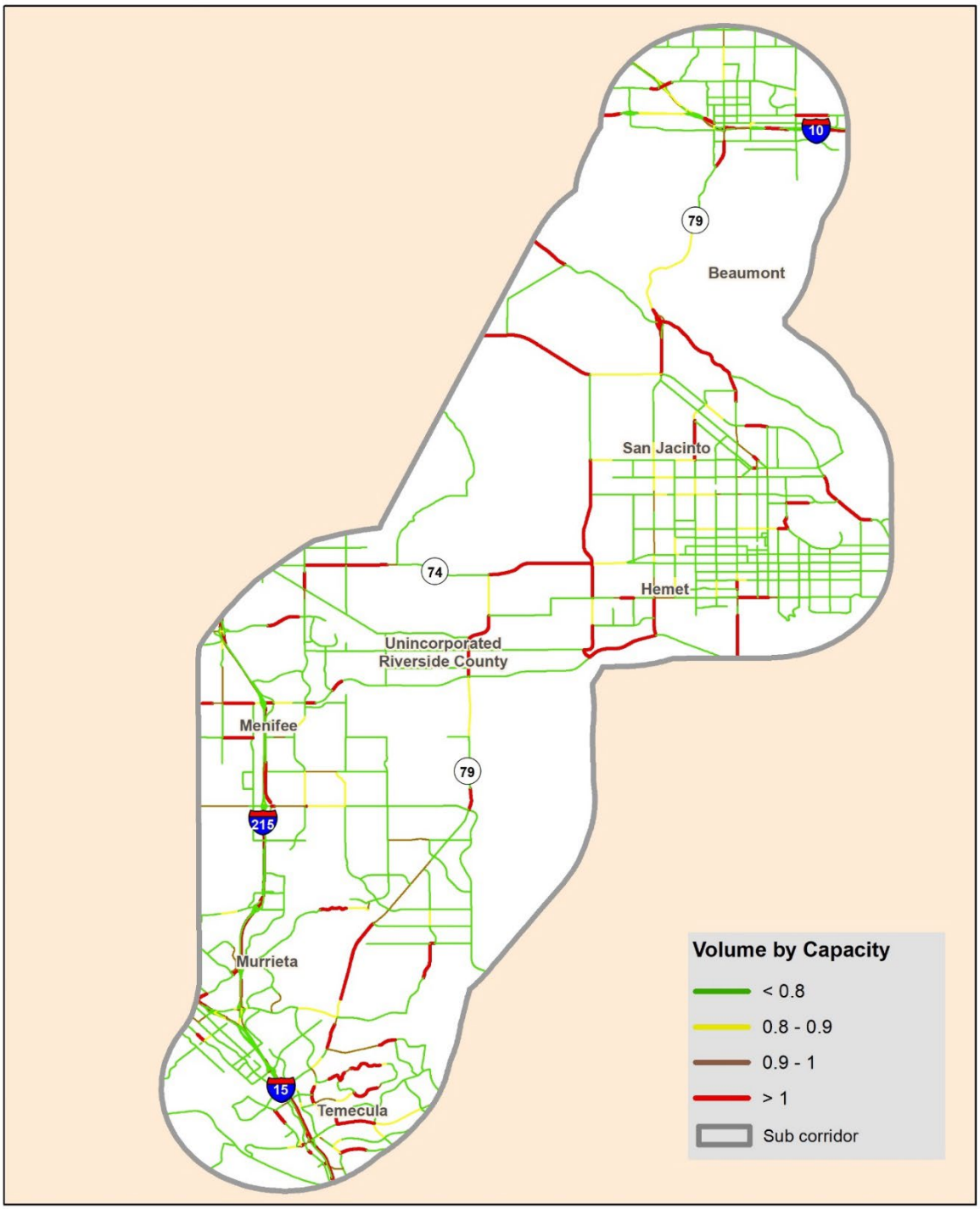
Figure 5.44 | Future 2040 Traffic Conditions—AM
Beaumont to Temecula Sub-Corridor



Beaumont to Temecula
Sub-Corridor

0 2.5 5 10 Miles

Figure 5.45 | Future 2040 Traffic Conditions—PM
Beaumont to Temecula Sub-Corridor



5.6.2 Strategic Approach for Beaumont to Temecula Sub-corridor:

Strategic Approach for Beaumont to Temecula Sub-corridor

Problems to Be Addressed

- Overall lack of north/south mobility, particularly in the Hemet/San Jacinto Area. Local traffic gets mixed with regional traffic.
- Major bottlenecks at the I-10/SR-79 interchange and the northbound I-15/SR-79 interchange.
- Lack of north/south transit service.
- Major tourism destinations result in travel at all times and on all days.

Strategies

1. Deliver the SR-79 realignment project.
2. Make operational improvements on existing north/south arterials from San Jacinto to Temecula.
3. Grow vanpool and carpool formation to reduce vehicle flows connecting Beaumont, San Jacinto, Hemet, and Temecula.
4. Examine ways to improve north/south transit connectivity.
5. Deploy new technologies to proactively manage traffic and improve roadway conditions.
6. Make strategic operational improvements to and/or reconstruct interchanges on the I-10/Highland Springs, I-215/Keller Road, and Garbani Road interchanges.
7. Investment in grade separation projects to improve goods movement efficiency.
8. Work with Tribal governments to facilitate employee commute options and explore funding opportunities for regional improvements.
9. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements and station improvements at existing Metrolink stations. Additionally, support rapid bus services between Hemet to San Jacinto and Perris to Moreno Valley/Riverside.
10. Explore policies and methods to increase work at home to decrease commute trips.

5.7 Apple Valley to Los Angeles County Line Sub-Corridor

The Apple Valley to Los Angeles County Line sub-corridor is one of five east/west oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.46 illustrates the boundaries of the sub-corridor Study Area.

5.7.1 Sub-Corridor Definition

This sub-corridor is located entirely within the High Desert subregion of San Bernardino County, but provides intercounty connection to Los Angeles County. There are no east-west freeways in the sub-corridor; however, the High Desert Corridor (located at the northern edge of the sub-corridor) through its Draft EIR, is considering alternatives for the construction of a high capacity multimodal facility between SR-14 in Los Angeles County and I-15 in San Bernardino County. This sub-corridor addresses east/west flows of people and freight within and through portions of unincorporated San Bernardino County and the cities of Adelanto, Apple Valley, Victorville, and Hesperia. This sub-corridor encompasses portions of San Bernardino County and includes parts of RSAs 32 and 30. The sub-corridor is generally 30 miles wide east to west and 20 miles long north to south.

Key Transportation Facilities

Key east/west oriented transportation facilities within the sub-corridor include:

Freeways: There are no freeways.

Arterials: Key east-west arterial facilities that run through significant portions of the sub-corridor include: Bear Valley Road, Palmdale Road, Main Street, Eucalyptus Street, Ranchero Road, and Mesquite Street.

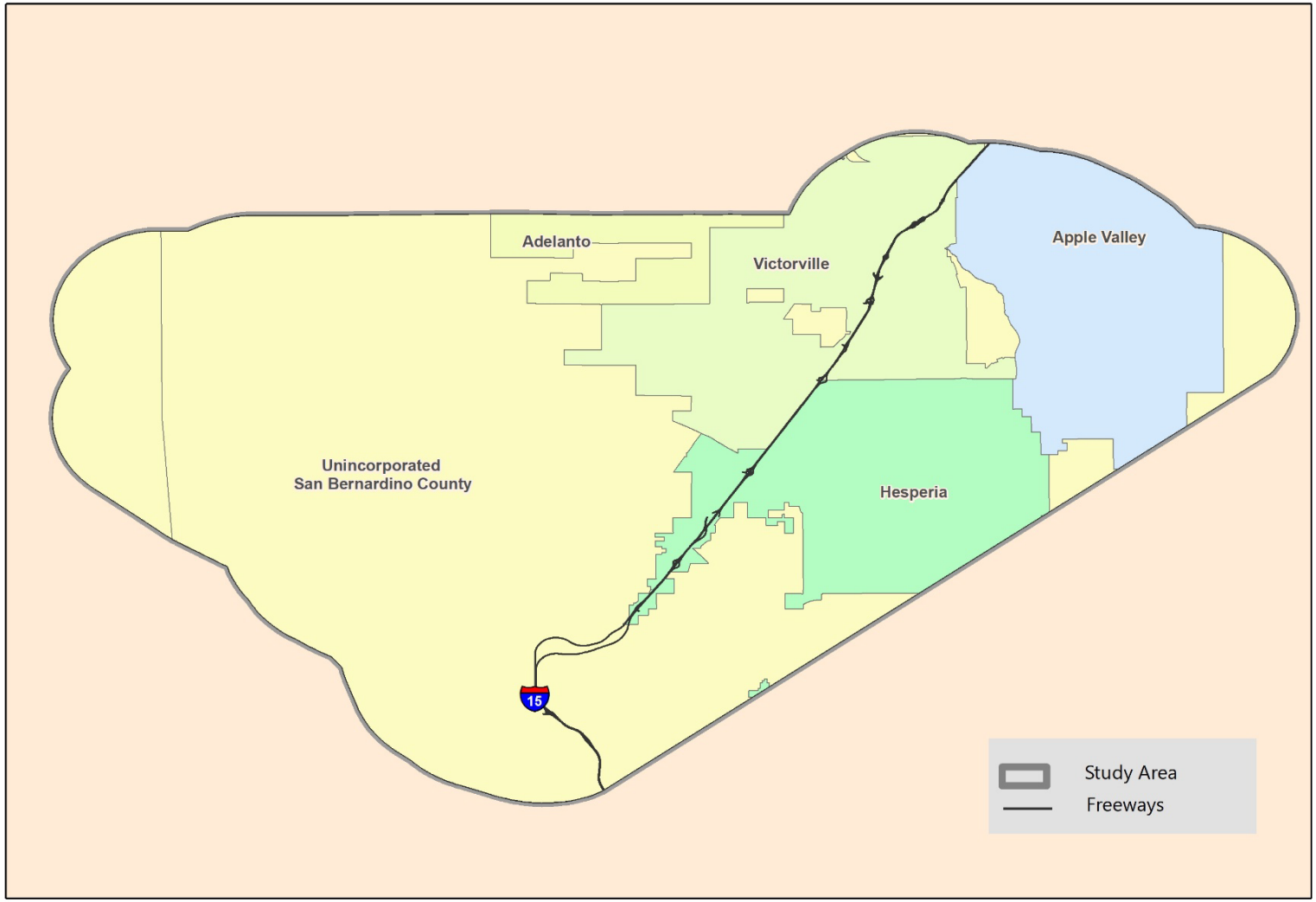
Freight: I-15 is a major goods movement corridor. UP Railroad and BNSF Railway pass through the sub-corridor.

Transit: There are some bus routes in this sub-corridor operated by Victor Valley Transit Authority. There is no Metrolink service in this sub-corridor.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities.

Figure 5.46 | Sub-Corridor Study Area

Apple Valley to Los Angeles County Line Sub-Corridor



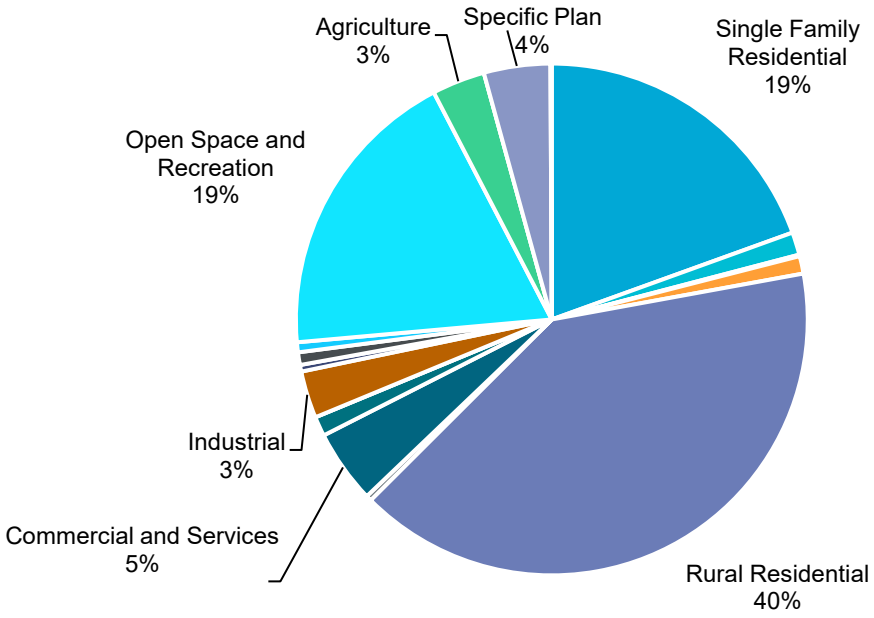
Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.47 illustrates the land use by type in the sub-corridor and Figure 5.48 shows the land use pattern. As illustrated in these figures, the predominant land use in the sub-corridor is residential at 59 percent of the total, comprised of single family residential at 19 percent and rural residential at 40 percent. Other significant land uses include open space and recreational at 19 percent. In terms of employment-generating land uses, the area has three percent industrial, five percent commercial and services, and over three percent agricultural.

The CalEnviroScreen scores for this sub-corridor include high scores in portions of Adelanto, Victorville, and Hesperia. The southern portion of Hesperia, Apple Valley, and most unincorporated areas have lower scores. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG "Communities of Concern" also occur in the city of Adelanto.

Figure 5.47 | Land Use Types in Sub-Corridor

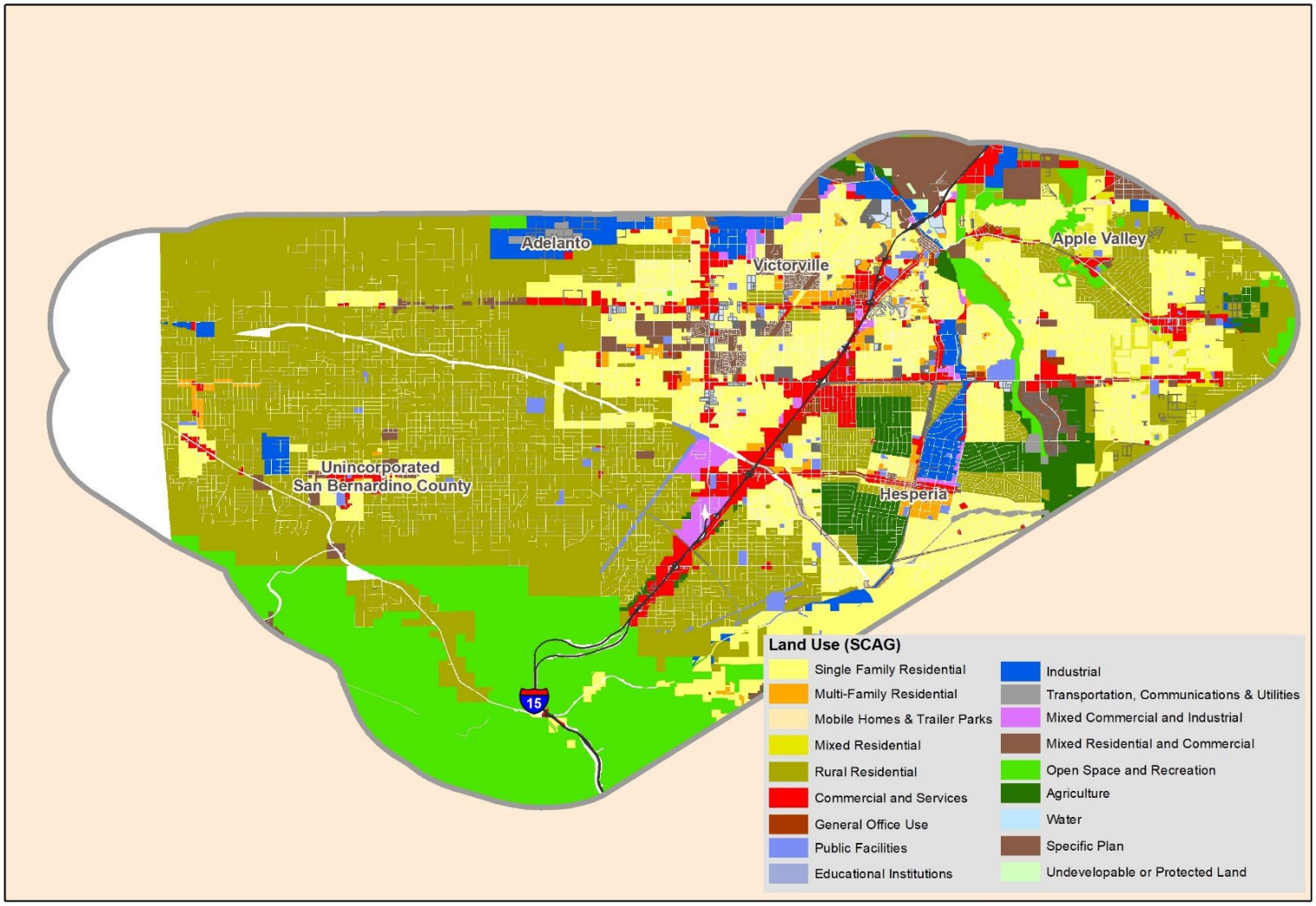
Apple Valley to Los Angeles County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.48 | Land Use Map

Apple Valley to Los Angeles County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively low in much of the sub-corridor especially in the Cajon Pass and in unincorporated parts of the county. Employment density is highest in cities south of the Cajon Pass and on parcels directly adjacent to I-15, U.S.-395, SR-18, Main Street, and Bear Valley Road. There is little employment density outside of these areas. Population is spread across single-family residential and rural residential lands that are primarily in the cities of San Bernardino, Victorville, Hesperia, Adelanto, and Apple Valley, and unincorporated San Bernardino County. Given the predominance of residential land uses,, the population-to-employment statistical ratio of the sub-corridor is 4.8, which is high compared compared to some of the other areas of the overall Inland Empire CMCP Study Area, indicating a need for residents to commute very long distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.11 displays the magnitude and average size of trips within and external to the sub-corridor area. There are nearly 800,000 daily auto trips made by residents and employees in the sub-corridor. As illustrated, in the table below, 75 percent of those trips are internal-internal trips, meaning they start and end within the sub-corridor. These sub-corridor internal trips include commute travel for workers who live and work in the sub-corridor, as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. The relatively high number of internal trip-making is a reflection of the relative remoteness and separation of the sub-corridor area from more urbanized parts of the Inland Empire. Around 12 percent of the trips have one end in the sub-corridor and the other end either inside or outside the IE CMCP area and 14 percent are to or from outside the IE CMCP area. The average trip lengths for trips with one end in the Study Area and the other either inside or outside of IE CMCP area are 6.2 and 8.2 times the length of the internal-internal trips, respectively.

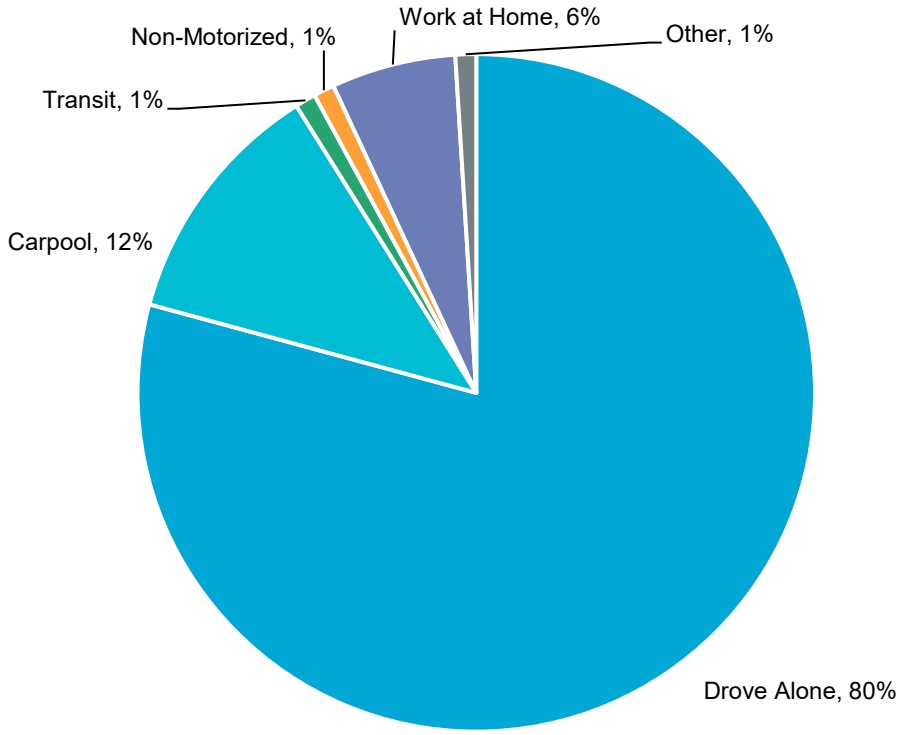
Table 5.11 | Internal and External Trips
Apple Valley to Los Angeles County Line Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	594,000	93,000	108,000
	75%	12%	14%
Average Trip Length (Miles)	5.4	33.5	44.4

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.49 illustrates the journey to work mode share for the sub-corridor. Overall, 92 percent of commute trips in the sub-corridor are made by automobile. Notably, when examining the group that commutes by car, 12 percent of workers carpooled. The share of carpoolers is higher in the sub-corridor compared to California as a whole (10 percent), but less than other areas in the IE CMCP area, perhaps reflective of a lack of HOV facilities. Transit accounts for just one percent of commute trips, while six percent of residents work at home. Non-motorized trips account for just one percent of commute trips.

Figure 5.49 | Journey to Work Mode Share
Apple Valley to Los Angeles County Line Sub-Corridor



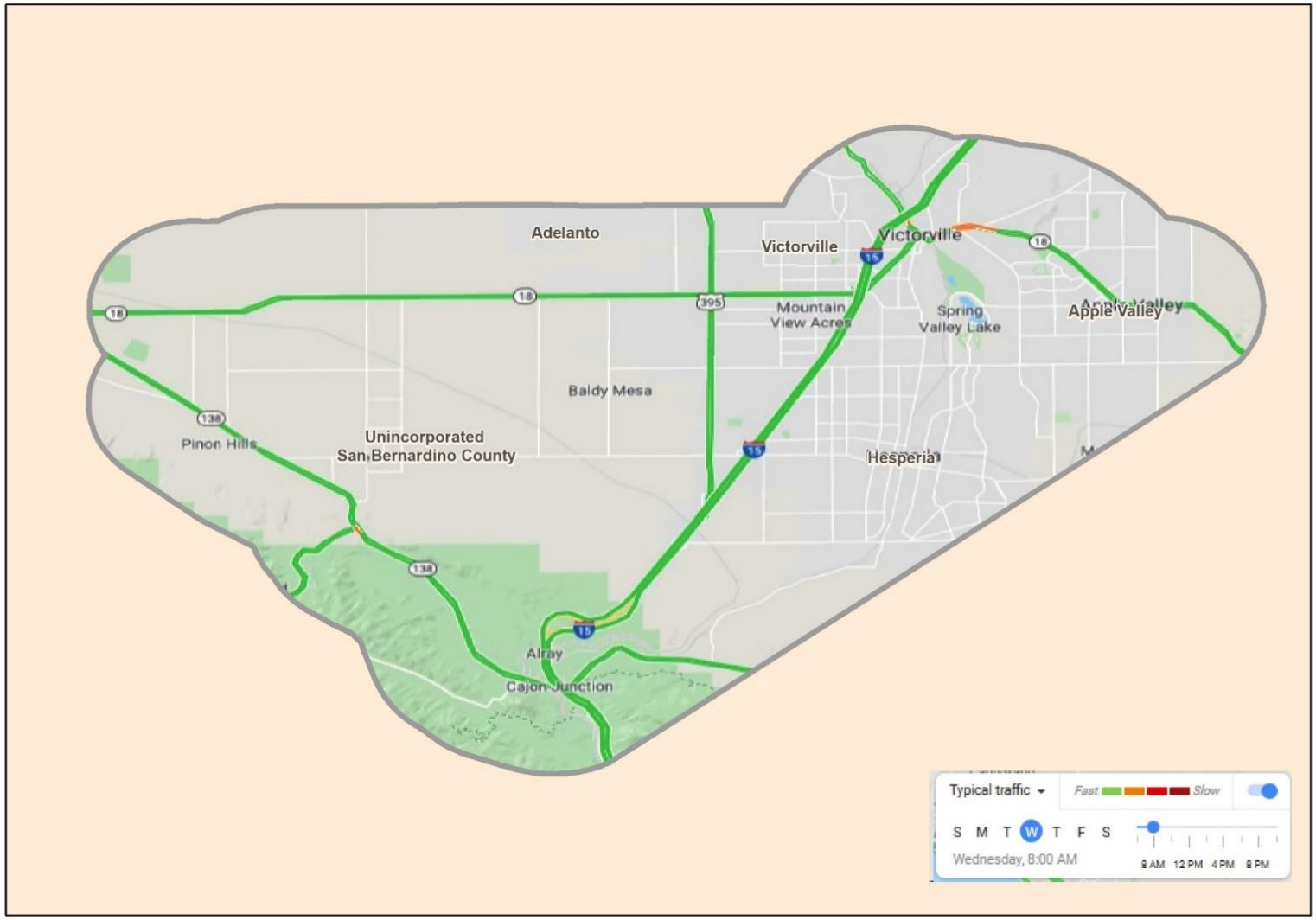
Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 94 percent of the workers in the sub-corridor must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the sub-corridor. Nearly 51 percent of all workers commute less than 30 minutes to work, 27 percent commute 30 to 60 minutes, and 22 percent commute over one hour.

Congestion, Delay, VMT: The most significant recurring congestion and delay on the freeway system occurs on I-15 in the Cajon Pass, U.S.-395 between I-15 and SR-18, and SR-14 east of I-15. I-15 in the Cajon Pass is congested during the PM peak is both directions. U.S.-395 is congested during the PM peak. SR-18 at the I-15/SR-18 interchange is congested during both the AM and PM peaks. Figure 5.50 and Figure 5.51 show a snapshot of Google traffic conditions during a typical Wednesday AM and PM peak hour, respectively.

Figure 5.50 | Existing AM Peak Hour Freeway Conditions

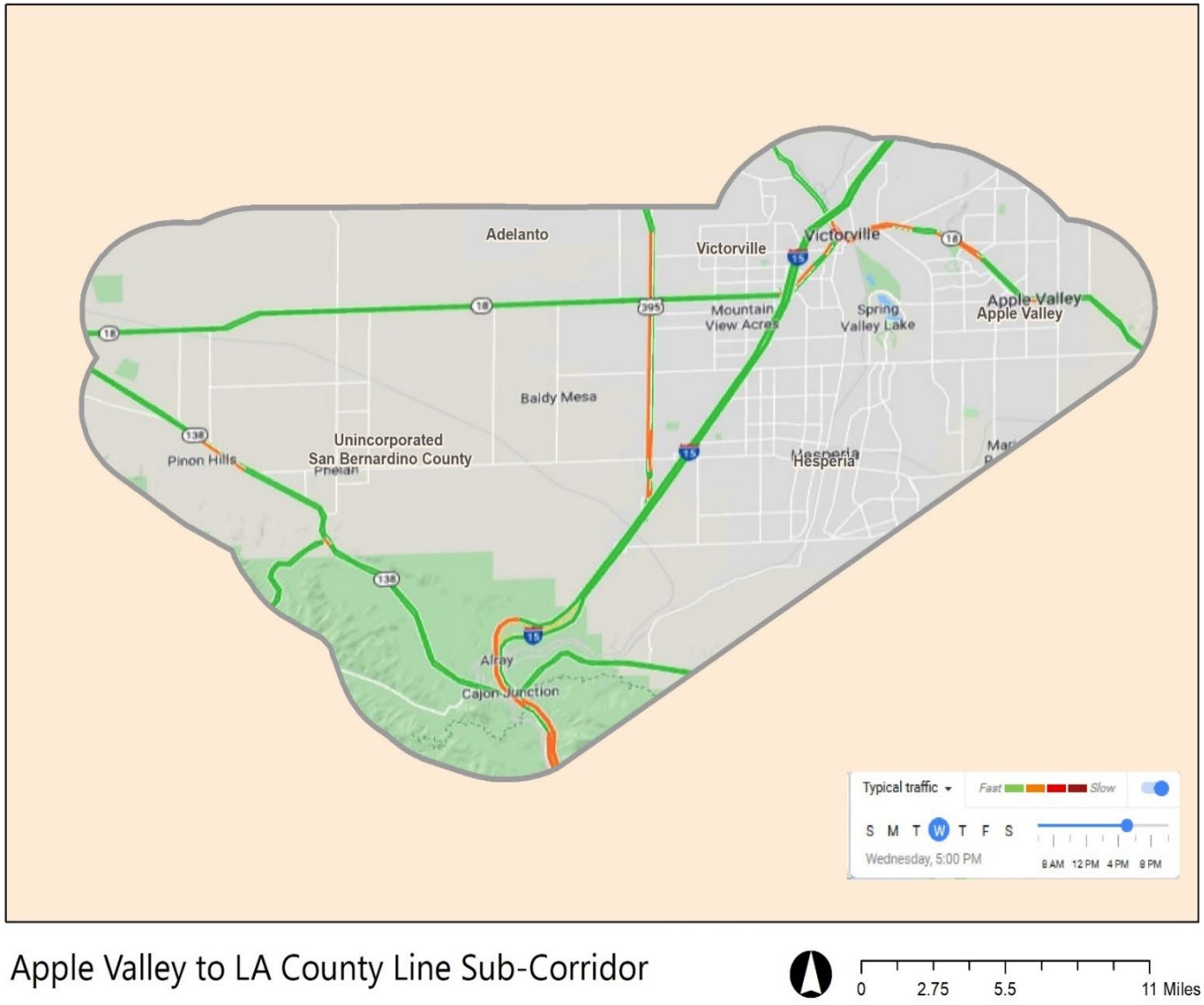
Apple Valley to Los Angeles County Line Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020

Figure 5.51 | Existing PM Peak Hour Freeway Congestion

Apple Valley to Los Angeles County Line Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020

Daily VMT, including local trips and through traffic in the sub-corridor, are mainly carried on freeways and major arterial roadways. Table 5.12 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 51 percent of the daily VMT. Daily VHT is nearly split 45/55 between freeways and the arterial network, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively less VMT per service population compared to other sub-corridors and ranks sixth out of the ten sub-corridors for highest VMT per service population.

Table 5.12 | VMT by Facility Type
Apple Valley to Los Angeles County Line Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	4,363,000	49%	90,000	45%
HOV				
Arterials	4,468,000	51%	109,000	55%
Total	8,831,000	100%	199,000	100%

Source: SCAG Model 2016

Transit Usage: In this sub-corridor, one percent of commute trips use transit. This sub-corridor does not have high quality transit corridor or stops.

Safety: Figure 5.52 illustrates the reported crashes by type for 2018. In terms of safety, the collision rates for I-15 are higher than the County average and Caltrans District 8 averages. Bicycle and pedestrian collisions are sparsely spread out in the sub-corridor, possibly reflecting low rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along I-15.

Future Conditions

The sub-corridor is expected to experience the following growth rates by 2040:

- Population—50 percent increase.
- Employment—33 percent increase.

The higher rate of population to employment growth suggests that the jobs/housing ratio of this sub-corridor is expected to worsen, resulting in longer commute trips in the future.

Commensurate with these projected relatively high rates of growth for the area's demographics, total trip-making in the sub-corridor is projected to increase by 309,000 daily trips, representing a 39 percent increase. VMT is expected to increase by 23 percent and VHT is projected to increase by 72 percent. The disproportionate increase in VHT over VMT indicate increasing delay and congestion in the future due to the projected relatively high growth rates.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.53 and Figure 5.54 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

Figure 5.52 | Collisions

Apple Valley to Los Angeles County Line Sub-Corridor

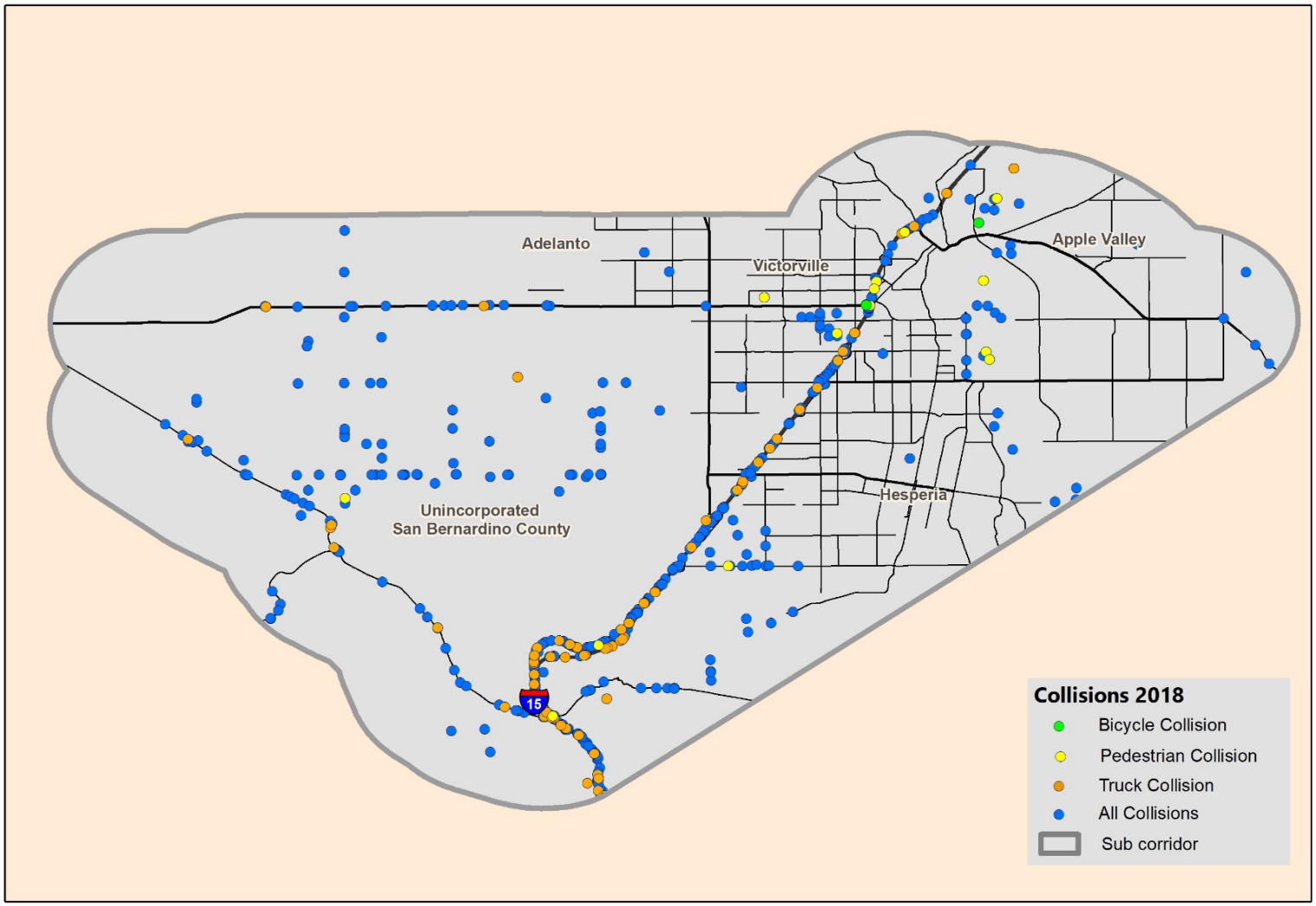
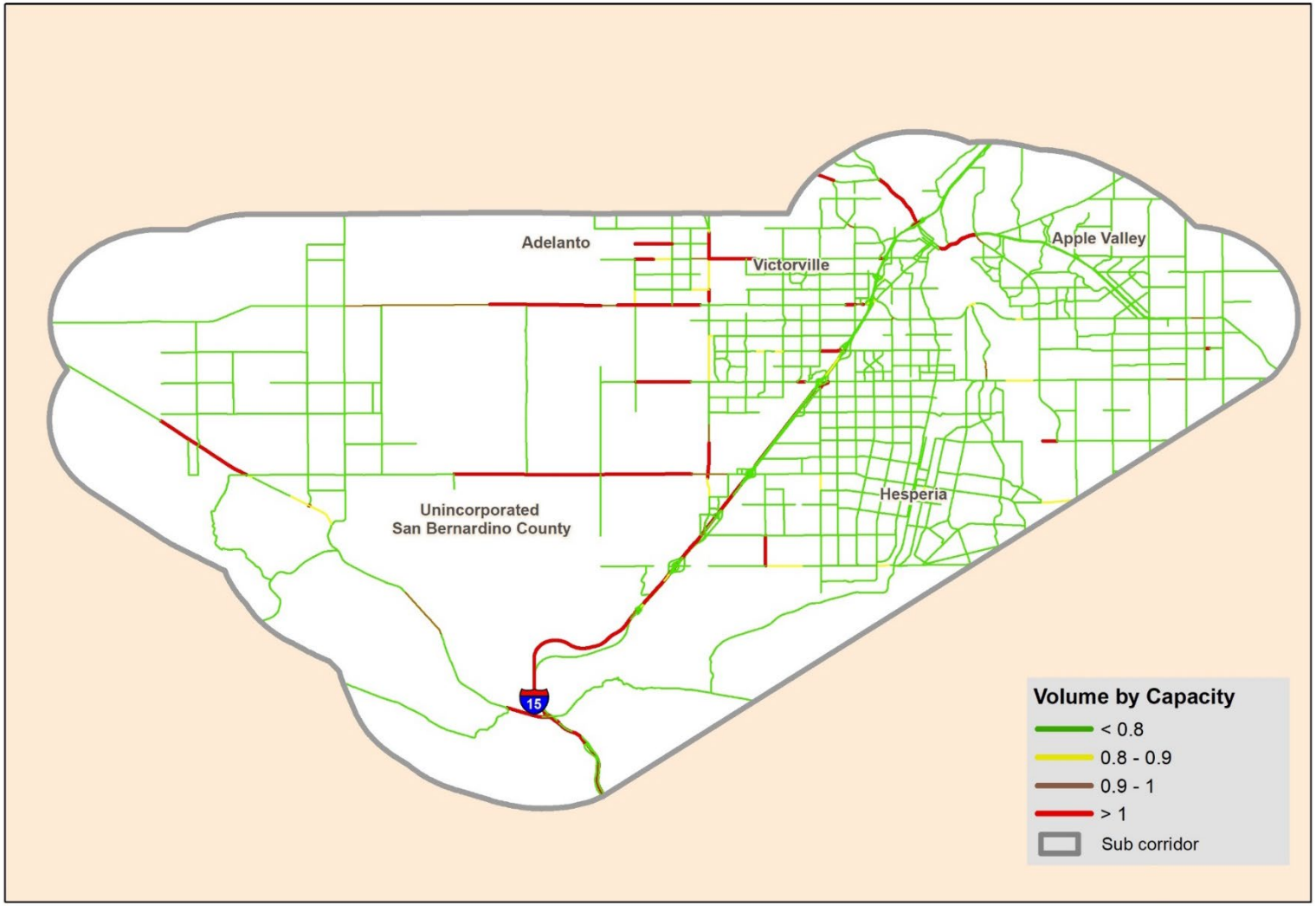


Figure 5.53 | Future 2040 Traffic Conditions—AM
Apple Valley to Los Angeles County Line Sub-Corridor

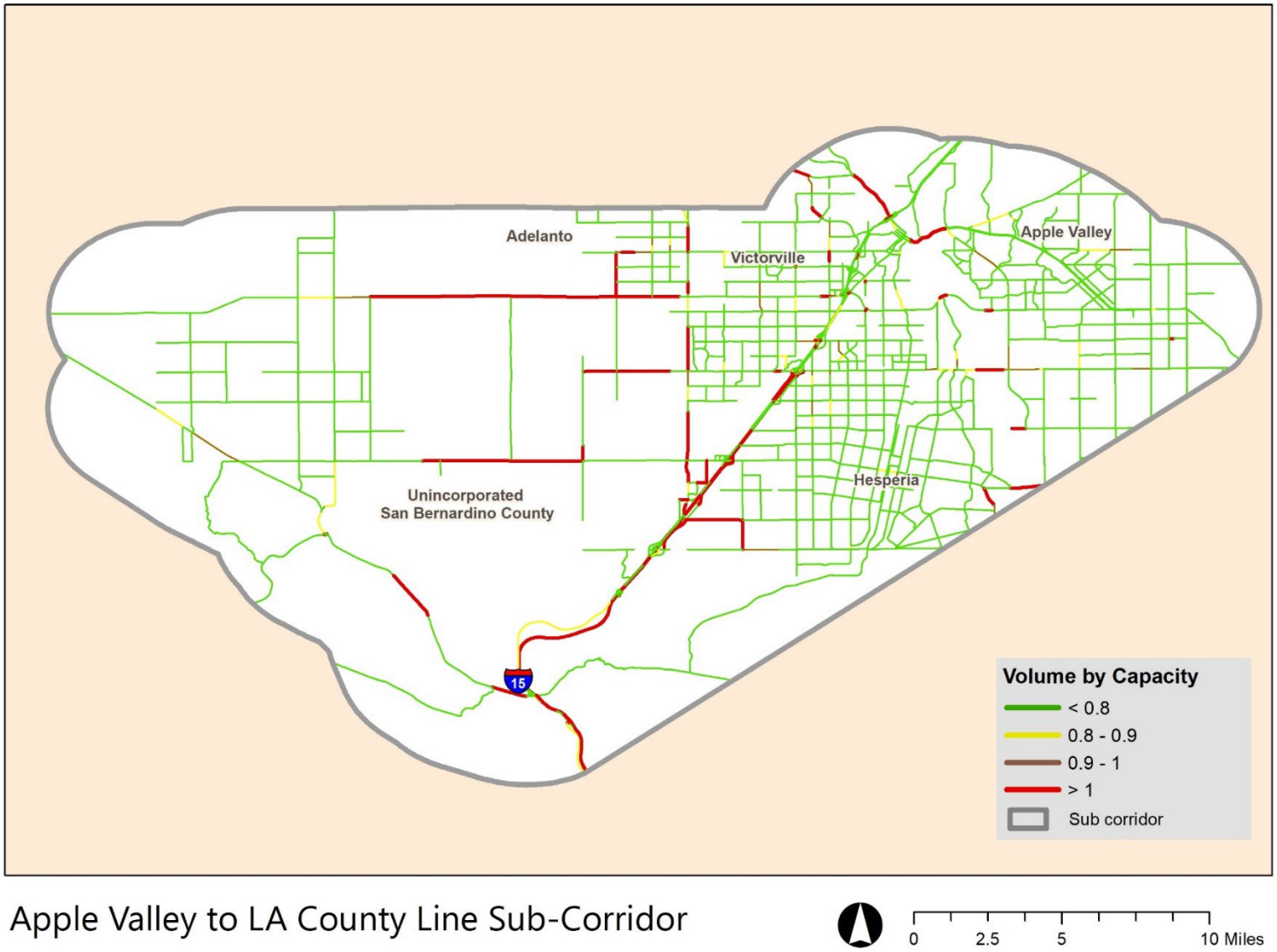


Apple Valley to LA County Line Sub-Corridor

0 2.5 5 10 Miles

Figure 5.54 | Future 2040 Traffic Conditions—PM

Apple Valley to Los Angeles County Line Sub-Corridor



5.7.2 Strategic Approach for Apple Valley to LA County Line Sub-corridor:

Strategic Approach for Apple Valley to LA County Line Sub-corridor

Problems to Be Addressed

- Lack of east/west connectivity between the High Desert and Antelope Valley.
- Lack of east/west connectivity within the High Desert, constrained by limited crossings of the Mojave River and the BNSF Railway rights-of-way.
- Congestion at arterial junctions with I-15 interchanges.

Strategies

1. Enhance east/west access by completing improvements in the Greentree Corridor, linking Apple Valley, Victorville, and I-15.
2. Work with Brightline West and the State to facilitate future High Speed Rail connection to the Antelope Valley Metrolink line.
3. Conduct necessary studies to improve the operations and safety of SR-18 from U.S.-395 to SR-138 and potentially program its widening.
4. Look for opportunities to fund the High Desert Corridor but recognize SR-18 widening as a partial solution to improve east/west mobility between the Antelope Valley and High Desert.
5. Fund and implement strategic I-15 interchange improvements as identified in the Measure I Strategic Plan.
6. Fund and implement other improvements identified in the Victor Valley portion of the SBCTA 10-Year Delivery Plan.
7. Continue growth of vanpool and carpool formation from the High Desert to employment centers in the San Bernardino Valley and Antelope Valley.
8. Explore policies and methods to increase work at home to decrease commute trips.

5.8 Banning to Rialto Sub-Corridor

The Banning to Rialto sub-corridor is one of five east/west oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.55 illustrates the boundaries of the sub-corridor Study Area.

5.8.1 Sub-Corridor Definition

This sub-corridor is located in both San Bernardino and Riverside counties and generally connects the eastern and central parts of the urbanized areas of the Inland Empire, acting essentially as the eastern extension of the

Riverside/Rialto to LA County Line sub-corridor (#6), with a small overlap. It is worth noting that this sub-corridor has three major generally parallel freeway corridors (SR-60, I-10 and SR-210) that frequently serve as effective alternate routes for east/west travel within the Inland Empire and to and from Los Angeles County. This sub-corridor addresses east/west flows of people and freight within and through portions of the cities of Riverside, Fontana, Rialto, San Bernardino, Loma Linda, Colton, Moreno Valley, Jurupa Valley, Rancho Cucamonga, Calimesa, Yucaipa, Banning and Beaumont. The sub-corridor includes parts of RSAs 29, 45, 46, 47 and 50. The sub-corridor is generally 30-40 miles in length east to west and 20 miles wide north to south in San Bernardino County, narrowing to about 5 miles wide in Riverside County.

Key Transportation Facilities

Key east/west-oriented transportation facilities within the sub-corridor include:

Freeways: SR-60, I-10, and SR-210

Arterials: Key east/west arterial facilities that run through significant portions of the Study Area include: Highland Avenue, Foothill Boulevard, Baseline Street, Rialto Avenue, San Bernardino Avenue, Mill Street, Barton Road, Colton Avenue, Redlands Boulevard, Wildwood Canyon Road, Wilson Street, Ramsey Street, 1st Street, Oak Valley Parkway, and San Timoteo Canyon Road.

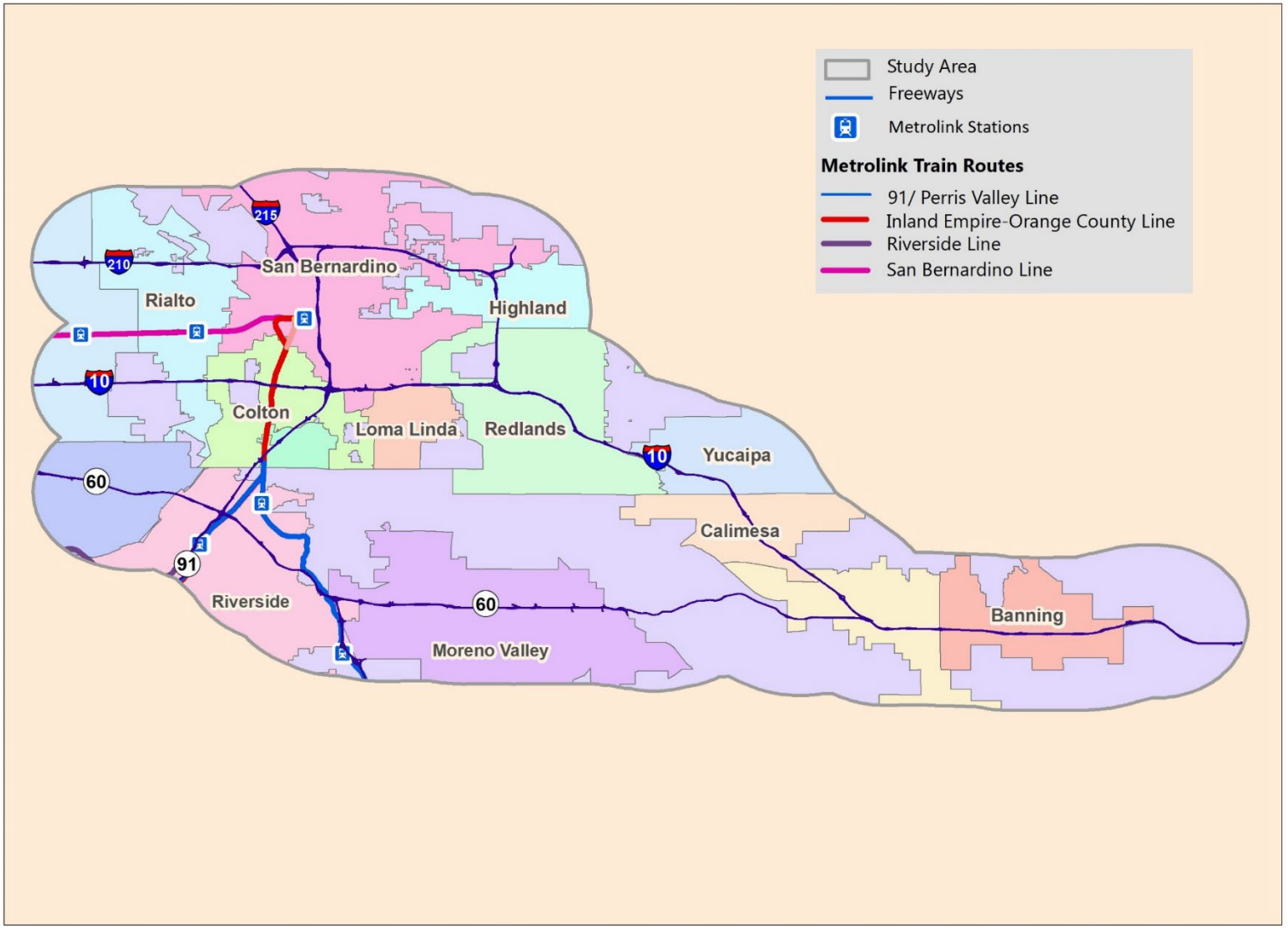
Freight: I-10, SR-60, and SR-210 are major goods movement corridors. UP Railroad, BNSF Railway, and SCRRA pass through the sub-corridor.

Transit: This sub-corridor includes portions of several Metrolink commuter rail routes. The 91/Perris Valley route runs through a portion of the area and transitions from an east/west route to a north/south route. The sbX Green Line, a bus rapid transit route, runs within the area but primarily serves north/south movements. A Sunline transit line has commuter lines connecting Coachela Valley to Beaumont to Riverside San Bernardino.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities. In addition, within the Riverside County portion of the sub-corridor there are several proposed east/west Regional Routes. These routes would cross multiple jurisdictions and consist of different types of facilities and classes.

Figure 5.55 | Sub-Corridor Study Area

Banning to Rialto Sub-Corridor



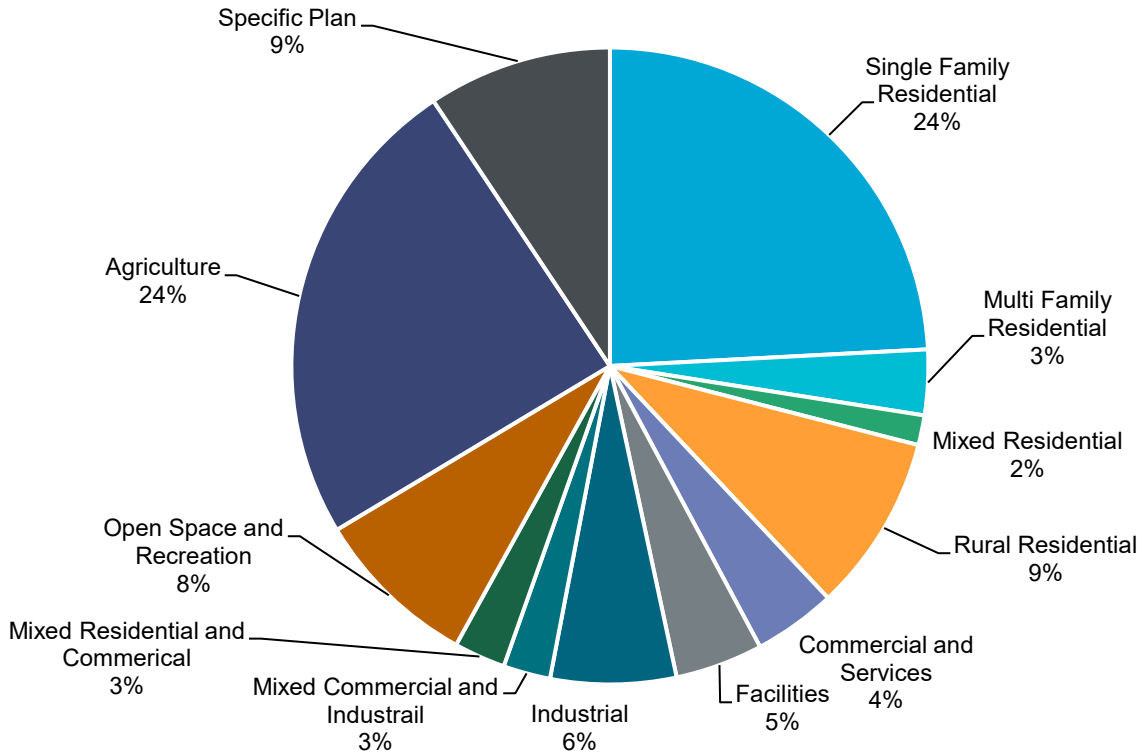
Banning to Rialto Sub-Corridor

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.56 illustrates the land use by type in the sub-corridor and Figure 5.57 shows the land use pattern. As illustrated in these figures, the predominant land use in the sub-corridor is residential at a total of 36 percent, which includes single family residential at 24 percent, multifamily residential at three percent, and rural residential at nine percent of the total. Agriculture is still a major land use at 24 percent, and open space and recreational land uses are at eight percent. The area also has nine percent of the land use designated as Specific Plans. In terms of employment-generating land uses, the area has six percent industrial, four percent commercial and services, and some mixed-use designated zones.

The CalEnviroScreen scores for this sub-corridor include higher scores in the western portion of the area in Colton and San Bernardino, with moderate scores in the Moreno Valley/Grand Terrace, Redlands, and Yucaipa areas and lower scores in the Calimesa area and throughout the western portion of the sub-corridor. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG “Communities of Concern” also occur in the cities of San Bernardino and Colton in the western portion of the Study Area.

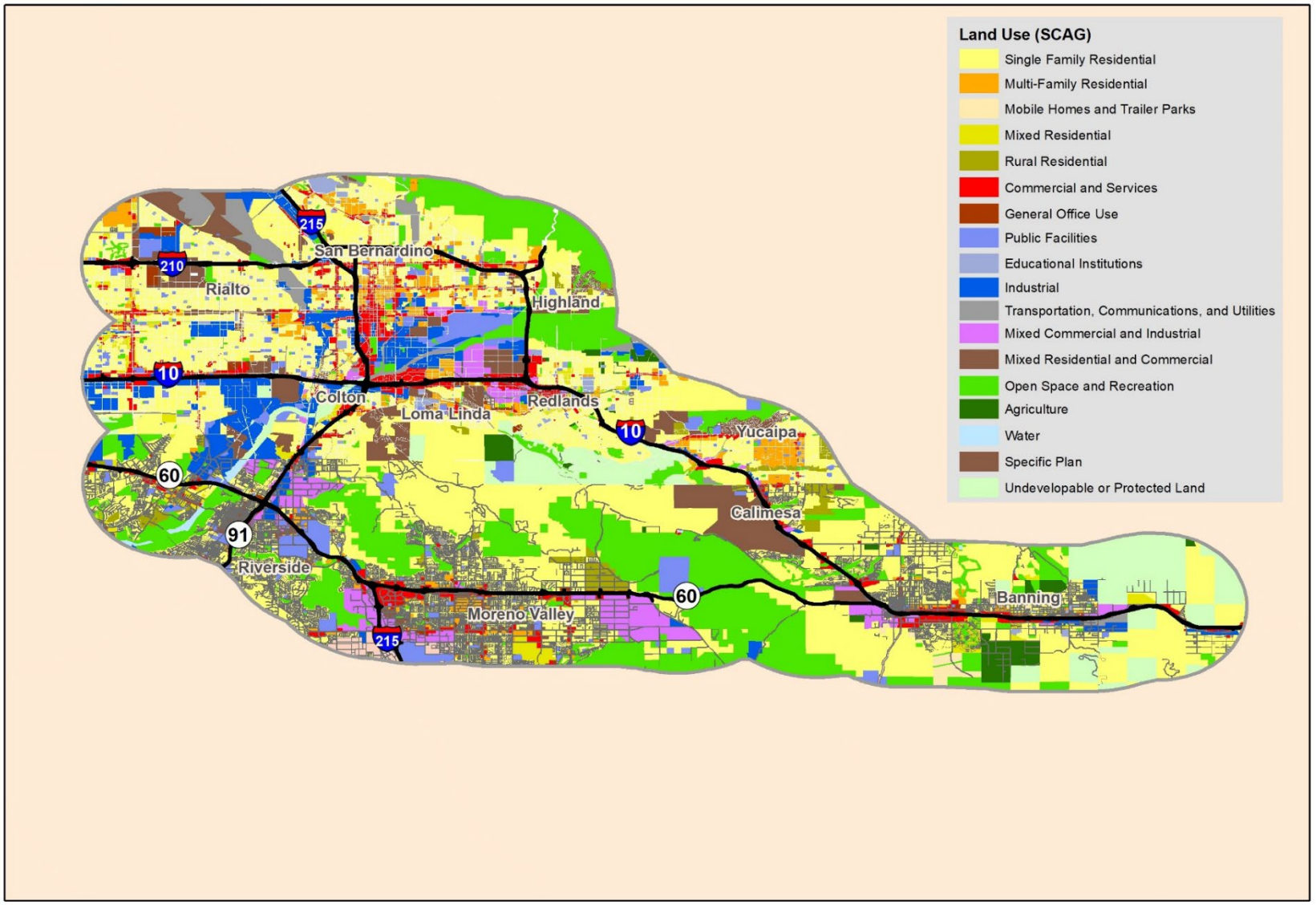
Figure 5.56 | Land Use Types
Banning to Rialto Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.57 | Land Use Map

Banning to Rialto Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively low in much of the Study Area, especially in Moreno Valley and the areas to the east. Generally in the central portion of the sub-corridor, including San Bernardino, Loma Linda, and Redlands, the employment density is the highest. Population density follows a similar pattern to employment density, with relatively lower densities in the southern and eastern portions of the sub-corridor and higher densities along central, more urbanized portions of the sub-corridor. The population-to-employment statistical ratio of the sub-corridor is 3.1, which is relatively high compared to some of the other areas of the overall Inland Empire CMCP Study Area, indicating a need for residents to commute longer distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.13 displays the magnitude and average length of trips within and external to the subarea. There are over 4.3 million daily auto trips made by residents and employees in the Study Area. As illustrated in the table below, slightly over half of those trips are internal-internal trips, meaning they start and end within the sub-corridor Study Area. These sub-corridor internal trips include commute travel for workers who live and work in the Study Area, as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. The remaining trips are evenly split between having one end in the Study Area and the other end either inside or outside the IE CMCP area. This relatively good balance is an indication of the central location of this sub-corridor and its importance in serving both internal and external trips, as well as commute trips, and all trip purposes in the Inland Empire. The average trip lengths for trips with one end in the Study Area and the other either inside or outside of IE CMCP area are, intuitively, more than twice and four times the length of the internal-internal trips, respectively; however, due to the size and location of the sub-corridor, it shows a better balance than most other sub-corridors.

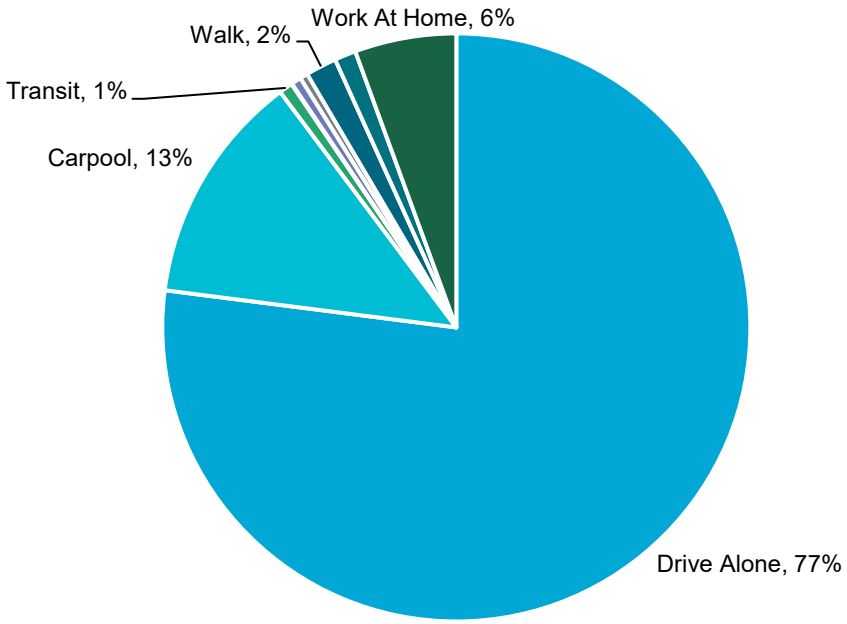
Table 5.13 | Internal and External Trips
Banning to Rialto Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	2,611,000	1,042,000	1,083,000
	55%	22%	23%
Average Trip Length (Miles)	9.0	21.2	37.6

Source: SCAG Model 2016

Commute trips were examined to better understand the peak period travel patterns. Figure 5.58 illustrates the journey to work mode share for the sub-corridor. Overall, 90 percent of commute trips in the Study Area are made by automobile. Transit accounts for just two percent of commute trips, while four percent of residents work at home. Notably, when examining the group that commutes by car, 14 percent carpooled. The share of commuters who carpool is higher in the sub-corridor compared to California as a whole (10 percent). This could be an indicator of the existence of HOV lanes on major portions of all east/west freeways. Non-motorized trips account for just two percent of commute trips.

Figure 5.58 | Journey to Work Mode Share
Banning to Rialto Sub-Corridor



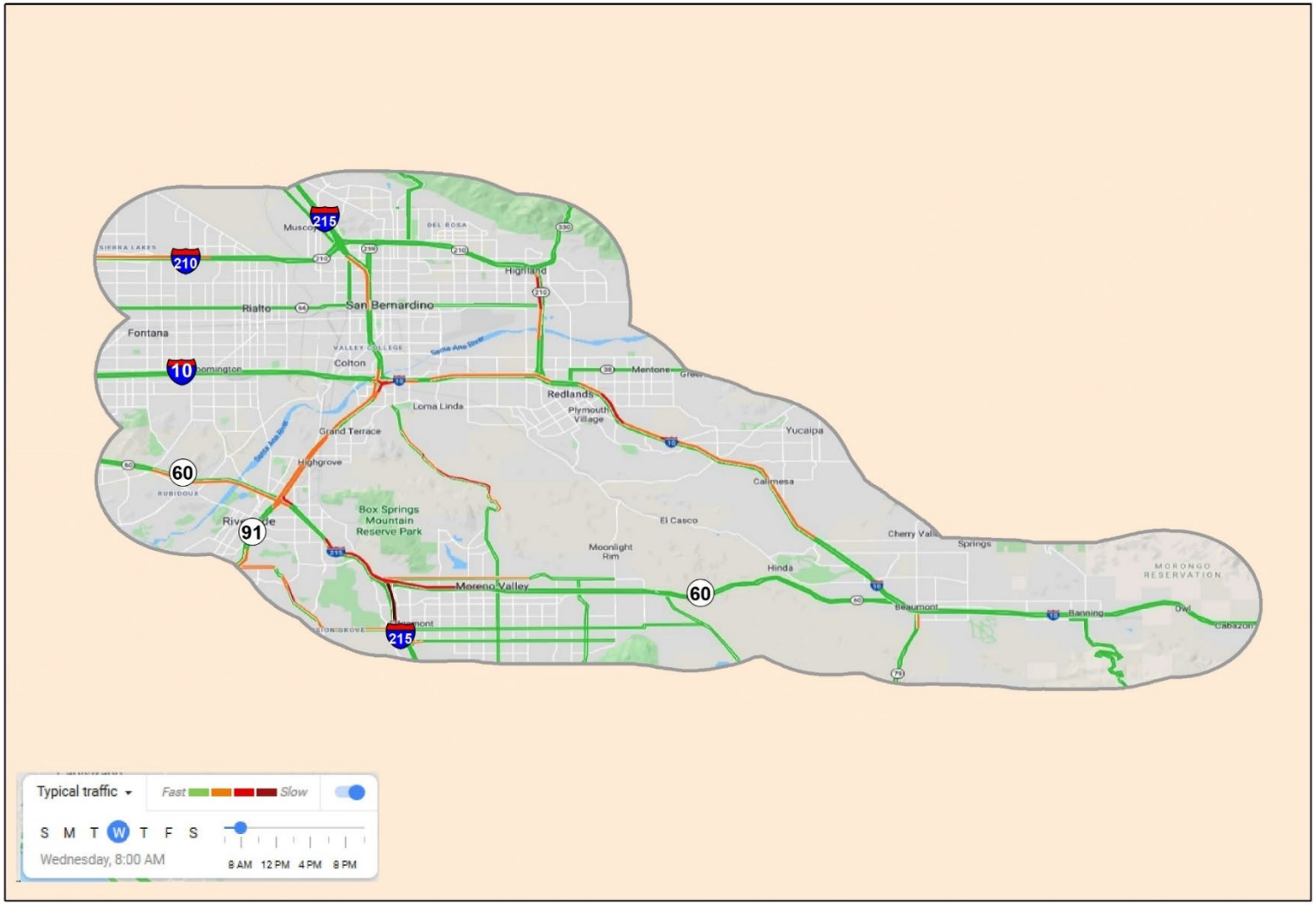
Source: ACS 2017, 5-year estimates.

Except for individuals who work at home, nearly 94 percent of the workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the Study Area. Nearly 60 percent of all workers commute less than 30 minutes to work, 28 percent commute 30 to 60 minutes, and 12 percent commute over one hour. The larger percentage of short trips is an indication of a relatively better balance between jobs and housing in this sub-region.

Congestion, Delay, VMT: The most significant recurring congestion and delay on the freeway system occurs on SR-60 in the western portion of the sub-corridor, from east of I-215 to the SR-60/I-215 junction. Much of this segment of SR-60 is highly congested with level of service F conditions and high delay during both AM and PM peak hours. SR-60 east of the I-215 junction operates well except for the segment approaching the I-10 junction near Banning, which experiences congestion. Along I-10 there are smaller segments of congestion, but much of I-10 within this sub-corridor operates at acceptable levels of service. Most of the east/west arterial system in this sub-corridor operates acceptably with limited segments or intersections experiencing poor operating conditions. Figure 5.59 and Figure 5.60 show the snapshot of Google traffic conditions during typical Wednesday AM and PM peak hour, respectively.

Figure 5.59 | Existing AM Peak Hour Freeway Conditions

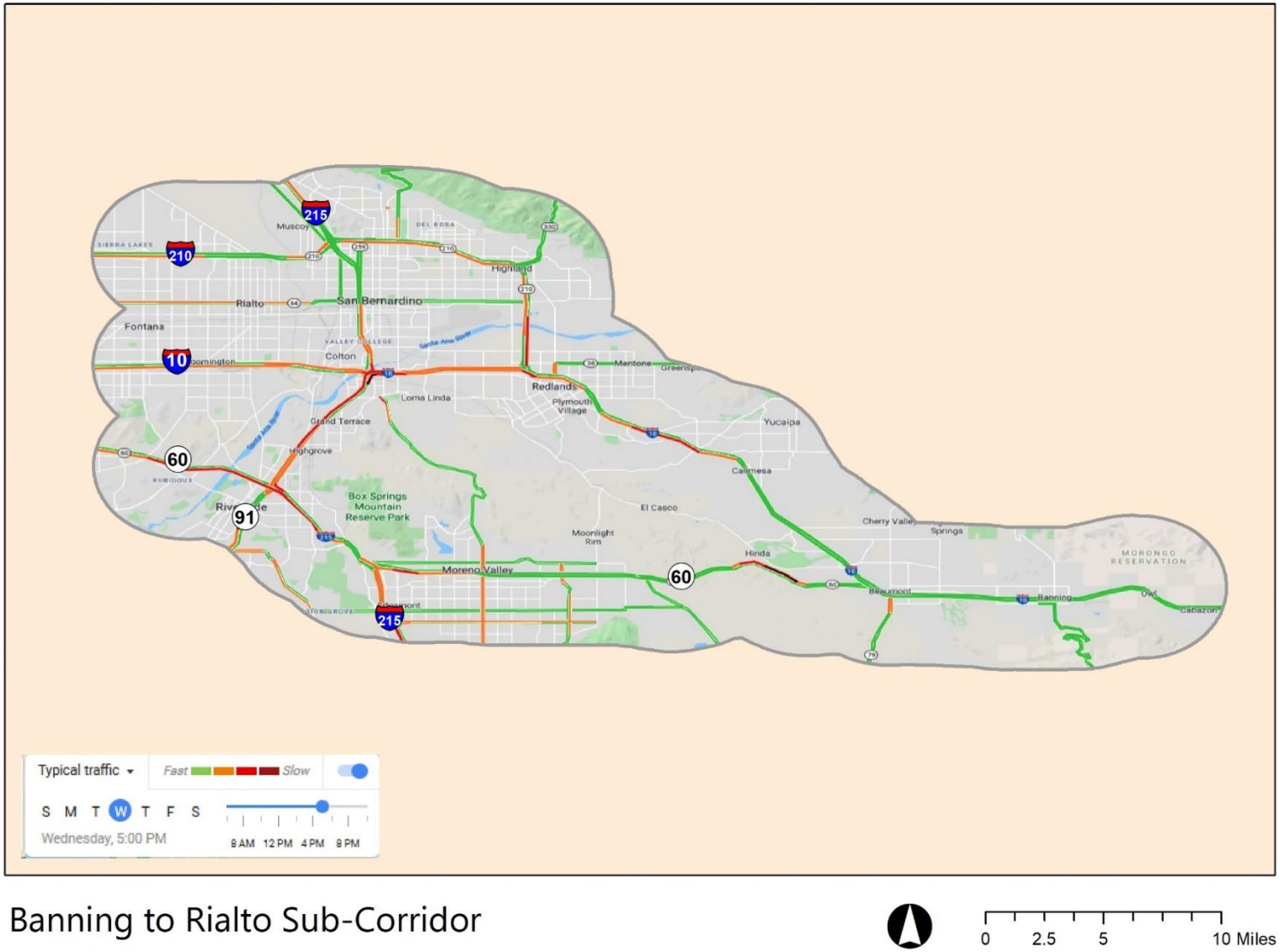
Banning to Rialto Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.60 | Existing PM Peak Hour Freeway Congestion

Banning to Rialto Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the Study Area, are mainly carried on freeways and major arterial roadways. Table 5.14 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 37 percent of the daily VMT. However, daily VHT is nearly split 50/50 between freeways (including HOV lanes) and arterial network, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively less VMT per service population and it ranks ten out of the ten sub-corridors.

Table 5.14 | Vehicle Miles of Travel by Facility Type
Banning to Rialto Sub-Corridor

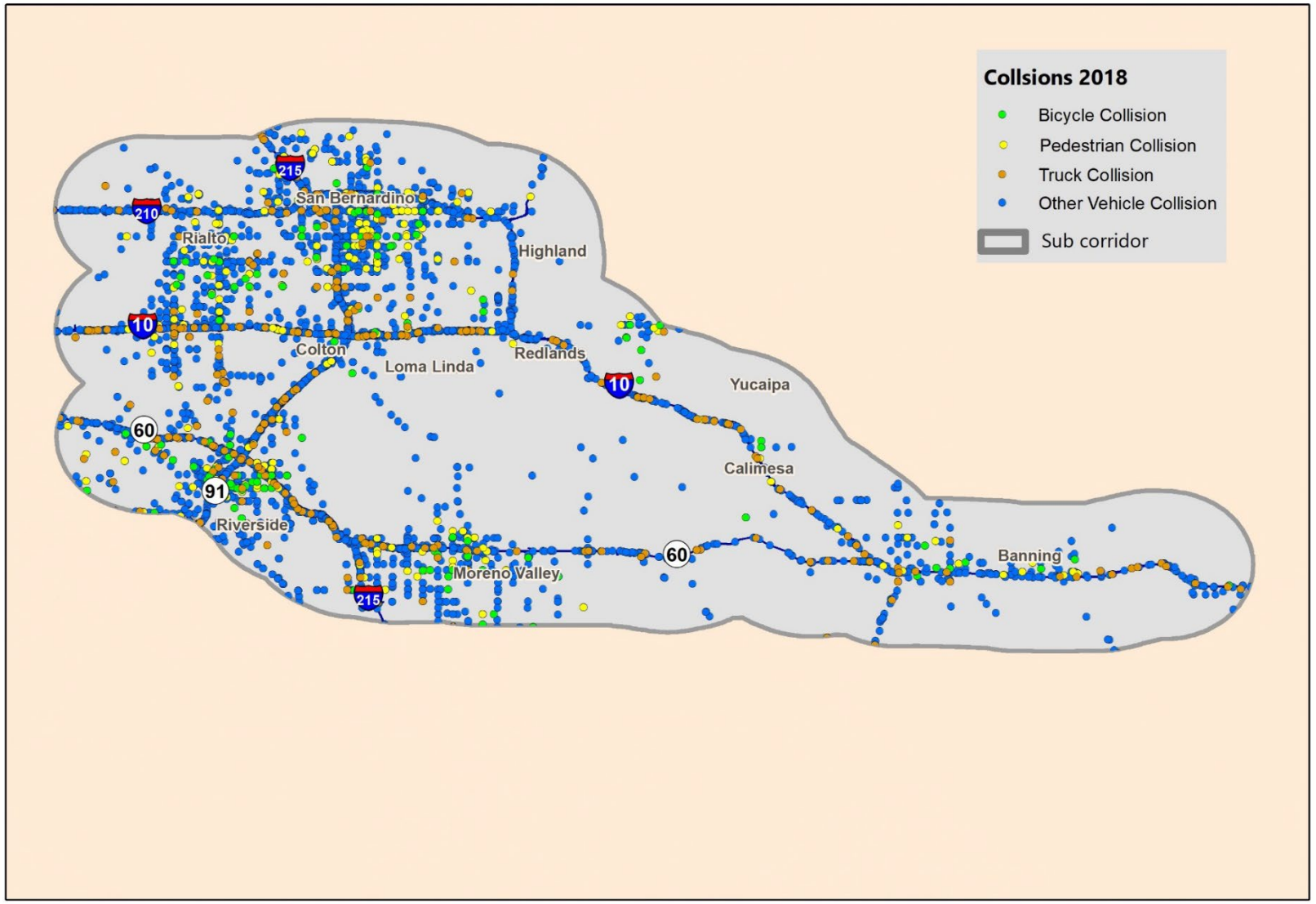
	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	26,511,000	58%	499,000	48%
HOV	2,547,000	6%	46,000	4%
Arterials	16,823,000	37%	487,000	47%
Total	45,881,000	101%	1,032,000	99%

Source: SCAG Model 2016.

Transit Usage: This sub-corridor has some high-quality transit services, including the Metrolink Commuter Rail services, as well as other services in cities of San Bernardino, Fontana, Rialto, Colton, and Loma Linda. High-quality transit services include bus rapid transit (BRT) sbX between CSUSB and Loma Linda University & Medical Center; and Omnitrans bus services in downtown San Bernardino and along Foothill Boulevard. This sub-corridor also has some high-quality transit stops at Metrolink stations in Fontana, Rialto, San Bernardino, San Bernardino downtown, Riverside-Hunter Park/UCR, and Moreno Valley. It also has some of the highest ridership bus stops in the overall IE CMCP Atudy Area, which are located at San Bernardino Transit center, Moreno Valley Mall, and University Market (UCR).

Safety: Figure 5.61 illustrates the reported crashes by type for 2018. In terms of safety, I-10 experiences some of the highest collision rates for the IE CMCP Study Area freeways. Conversely, SR-210 has the lowest collision rate of all the IE CMCP Study Area freeways. The collision rates for SR-60 are higher than the Riverside County average and Caltrans District 8 averages, but fall between the rates for SR-210 and I-10. There is a relatively high concentration of bicycle and pedestrian collisions in the western portion of the sub-corridor in San Bernardino and Rialto, as well as the area around the SR-60/I-215 junction, possibly reflecting higher rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along freeways with the largest concentrations along portions of I-10 and SR-60.

Figure 5.61 | Collisions
Banning to Rialto Sub-Corridor



Collisions 2018

Source: SWITRS, TIMS 2018

Future Conditions

The sub-corridor is expected to experience the following growth rates by 2040:

- Population—22 percent increase.
- Employment—39 percent increase.

The higher rate of employment to population growth suggests that the jobs/housing ratio of this sub-corridor is expected to improve, resulting in possibly shorter commute trips in the future.

Total trip making in the sub-corridor is projected to increase by 730,000 daily trips, representing a 23 percent increase. VMT is projected to increase by 20 percent and VHT is projected to increase by 43 percent. The disproportionate increase in hours of travel over miles of travel indicate increasing delay and congestion in the future due to the relatively high growth rates and the strategic location of this corridor which serves internal traffic and a significant amount of through traffic.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.62 and Figure 5.63 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model. As shown, the SCAG traffic projections indicate that during the AM peak hour, significant portions of I-10 and SR-60 in the eastern portion of the sub-corridor area will become highly congested. Some additional points of congestion will occur along SR-210 as well during the AM peak. During the PM peak, similar patterns are projected to occur with increased congestion on I-10 and SR-60. In addition, segments that are already congested will experience greater delay and longer peak periods.

Figure 5.62 | Future 2040 Traffic Conditions—AM

Banning to Rialto Sub-Corridor

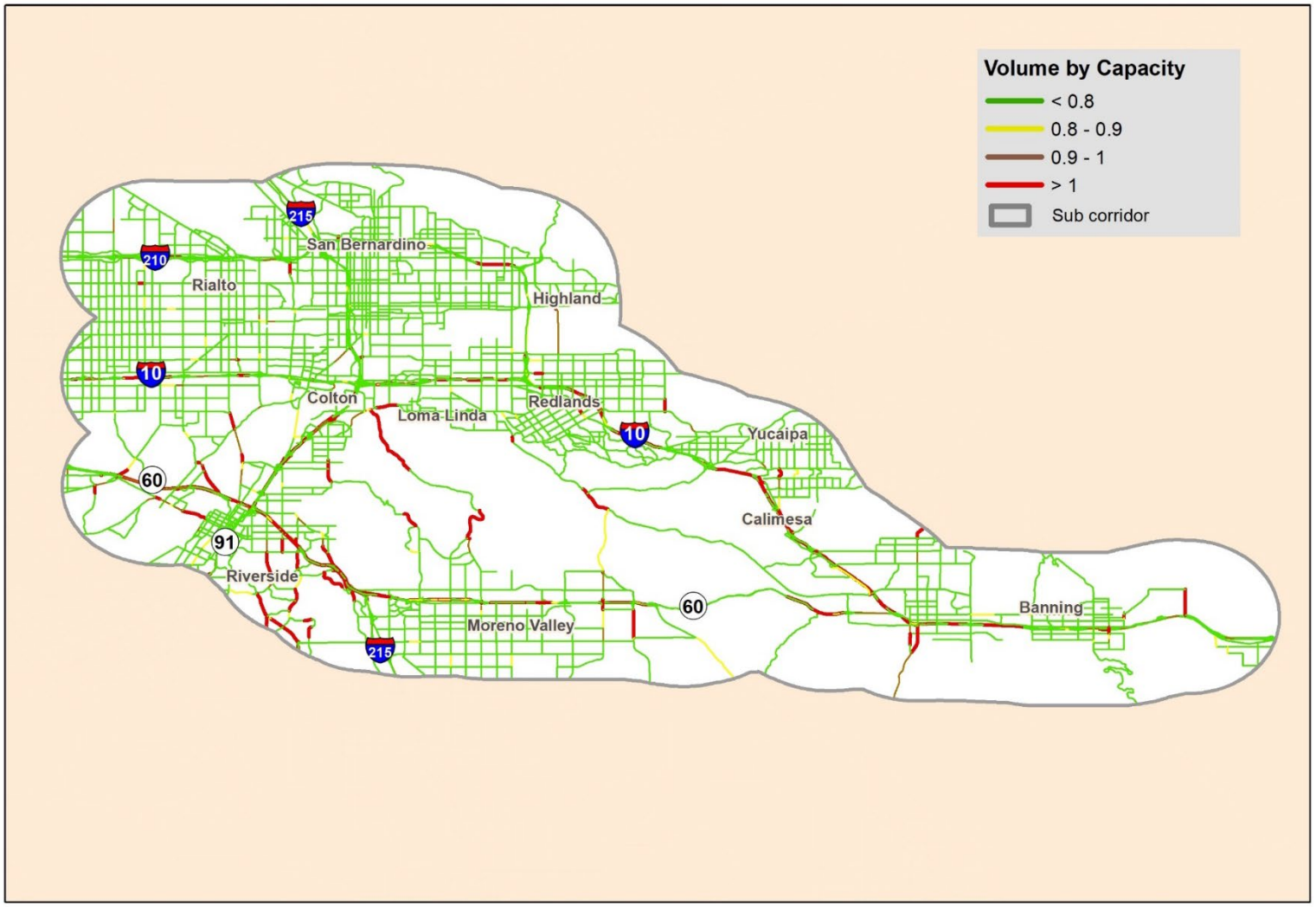
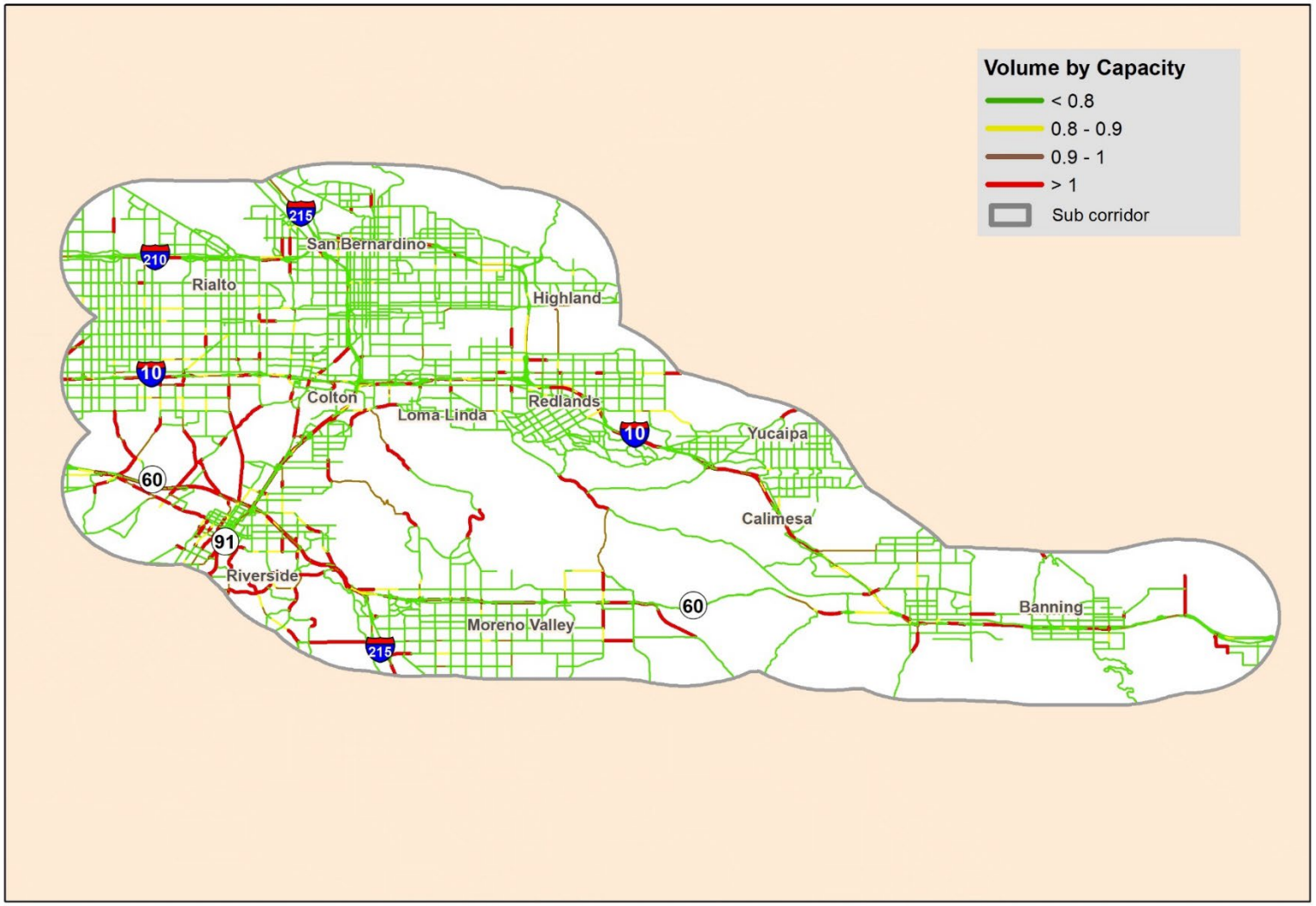


Figure 5.63 | Future 2040 Traffic Conditions—PM
Banning to Rialto Sub-Corridor



5.8.2 Strategic Approach for Banning to Rialto Sub-Corridor

Strategic Approach for Banning to Rialto Sub-Corridor

Problems to Be Addressed

- Several significant bottlenecks on I-10: eastbound and westbound merge/diverge with I-215, eastbound merge with SR-210, eastbound upgrade in Yucaipa, and I-10/SR-60 junction.
- Significant and growing congestion in both directions at the I-215/SR-60 junction in Riverside and I-10/SR-60 junction in Beaumont due to population and housing increases.
- Multiple congested interchanges: I-10/SR-79 interchange in Beaumont and interchanges on I-10 at Mountain View Avenue, California Street, Alabama Street, and University Avenue.
- Ongoing congestion on SR-210 in Upland, Rancho Cucamonga, and San Bernardino.
- Nationally significant freight corridor and large concentration of warehousing and logistics centers.
- Metrolink San Bernardino line and Riverside line are well-used, but capacity limitations limit substantial additional growth.
- Cities with Metrolink stations would like to take advantage of those locations for transit-oriented development (TOD), but parcel assembly/development costs are high and train frequencies are not always conducive to the mid-day and bi-directional mobility needed to support TOD type uses.
- There is a certain section of the I-10 between the City of Banning and Cabazon where there is no viable east/west route. Due to the lack of an an alternative route, when this stretch of the freeway closes due to accidents or public safety incidents, it causes multi-hour freeway shutdowns.
- This portion of the I-10 plays a critical role in southern California's goods movement network as it connects the San Pedro Bay Ports to the markets of inland desert communities and to state of Arizona.

Strategies

1. Incorporate zero-emission multiple unit trainset into Redlands Passenger Rail (Arrow) Project from University of Redlands to downtown San Bernardino and look at other potential applications of that technology.
2. Implement managed lane systems on SR-60 from downtown Riverside to Moreno Valley and on I-10 from Redlands westerly.
3. Make strategic operational improvements to and/or reconstruct interchanges on SR-60/Potrero Blvd, SR-60/Gilman Springs Road, and I-10 interchanges at SR-79, County Line Road, University Avenue, Alabama Street, and California Street.

4. Implement I-10 Eastbound Truck Climbing Lane in Yucaipa, addressing one of the most serious freight bottlenecks in the Inland Empire.
5. Invest in grade separation projects to improve goods movement efficiency and passenger rail movement.
6. Accelerate truck fleet turnover for air quality improvement.
7. Implement "Healthy Communities and Healthy Economies Toolkit for Goods Movement" (given continued warehouse/distribution development).
8. Extend Sun Lakes Boulevard from Highland Home Road to Westward Avenue and Sunset Avenue.
9. Construct parallel route to I-10 in Cabazon to facilitate emergency response and a freeway alternative for local tribal residents and for use when emergencies paralyze I-10.
10. Build on substantial transit assets. Invest in Metrolink rail expansion for the IE/OC, San Bernardino, and Riverside lines as described in the SCRRA SCORE Program; construct accessibility improvements and station improvements to existing Metrolink stations.
11. Explore policies and methods to increase work at home to decrease commute trips.

5.9 Riverside/Rialto to Los Angeles County Line Sub-Corridor

The Riverside/Rialto to Los Angeles County Line sub-corridor is one of five east/west oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.64 illustrates the boundaries of the sub-corridor Study Area.

5.9.1 Sub-Corridor Definition

This sub-corridor is located mostly in San Bernardino County with a small portion in Riverside County and generally connects the western and central parts of the urbanized areas of the Inland Empire, acting essentially as the western extension of the Banning to Rialto sub-corridor (#5), with a small overlap. It is worth noting that this sub-corridor has three major parallel freeway corridors (SR-60, I-10, and SR-210) that frequently serve as effective alternate routes for east/west travel within the Inland Empire and to and from Los Angeles County. This sub-corridor addresses east/west flows of people and freight within and through portions of the cities of Riverside, Fontana, Rialto, San Bernardino, Colton, Jurupa Valley, Rancho Cucamonga, Ontario, Chino, Montclair, and Upland. The sub-corridor encompasses portions of both Riverside and San Bernardino counties and includes parts of RSAs 28, 45, 29 and 46. The sub-corridor is generally 25-30 miles in length east to west and 12 miles wide north to south in both Riverside and San Bernardino counties.

Key Transportation Facilities

Key east/west oriented transportation facilities within the sub-corridor include:

Freeways: SR-60, I-10, and SR-210.

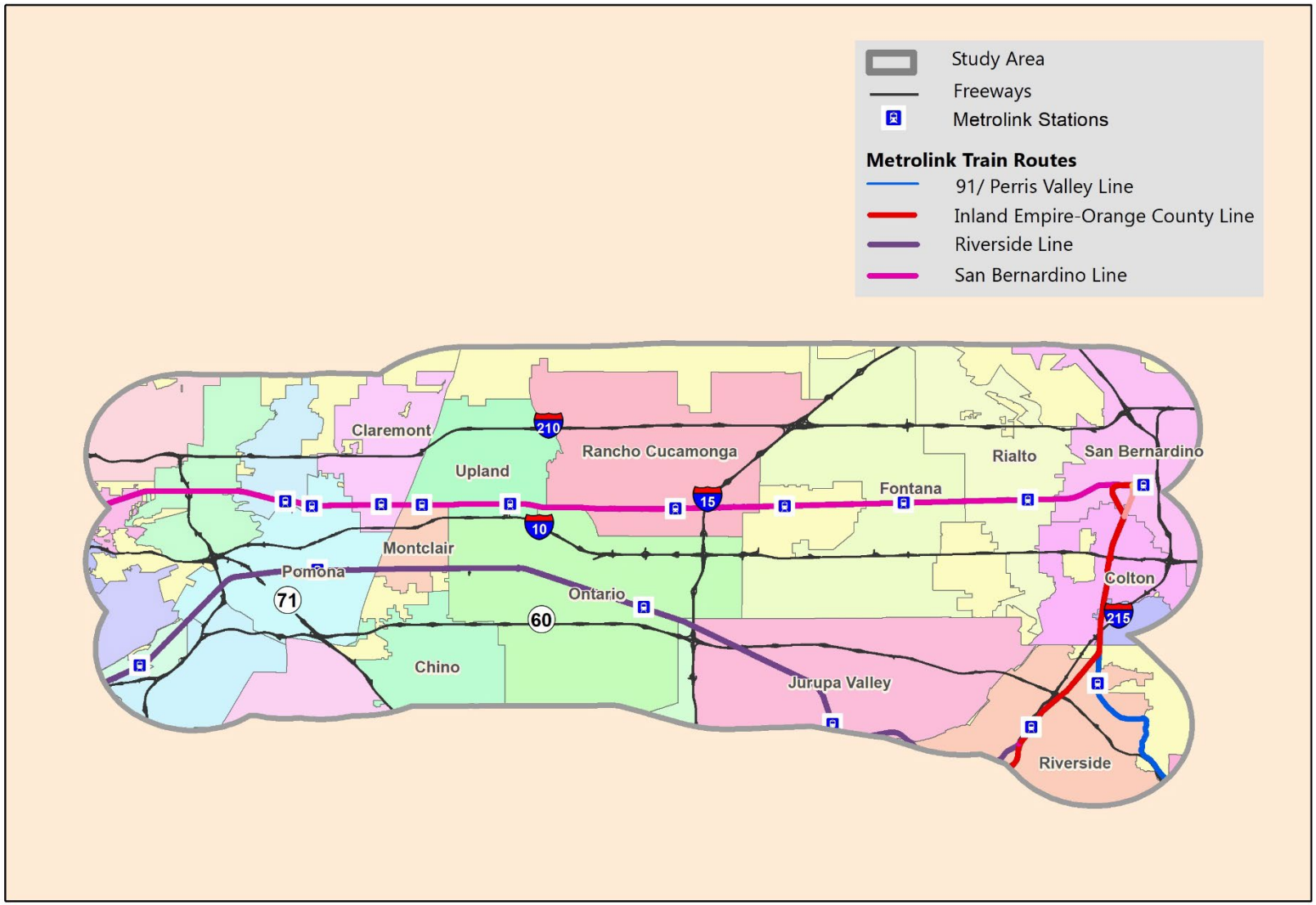
Arterials: Key east/west arterial facilities that run through significant portions of the Study Area include: Foothill Boulevard, Holt Avenue, Mission Boulevard, Riverside Drive, and Baseline Road.

Freight: I-10 and SR-60, are major goods movement corridors. UP Railroad, BNSF Railway, and SCRRA pass through the sub-corridor. There are several warehouses in this sub-corridor, with the majority of them located between SR-60 and I-10.

Transit: This sub-corridor includes portions of several Metrolink commuter rail routes. The 91/Perris Valley route runs through a portion of the area and it transitions from an east/west route to a north/south route. The Inland Empire/Orange County and San Bernardino lines both run within the sub-corridor and terminate in Downtown San Bernardino. The Riverside line is an east/west route with three stops in the sub-corridor. The sbX Green Line, a bus rapid transit route, runs within the area but primarily serves north/south movements.

Active Transportation: There are many municipal bicycle routes within the sub-corridor including Class I, II, III, and IV facilities. In addition, within the Riverside County portion of the sub-corridor there are several proposed east/west Regional Routes. These routes would cross multiple jurisdictions and consist of different types of facilities and classes.

Figure 5.64 | Sub-Corridor Study Area
Riverside/Rialto to Los Angeles County Line Sub-Corridor

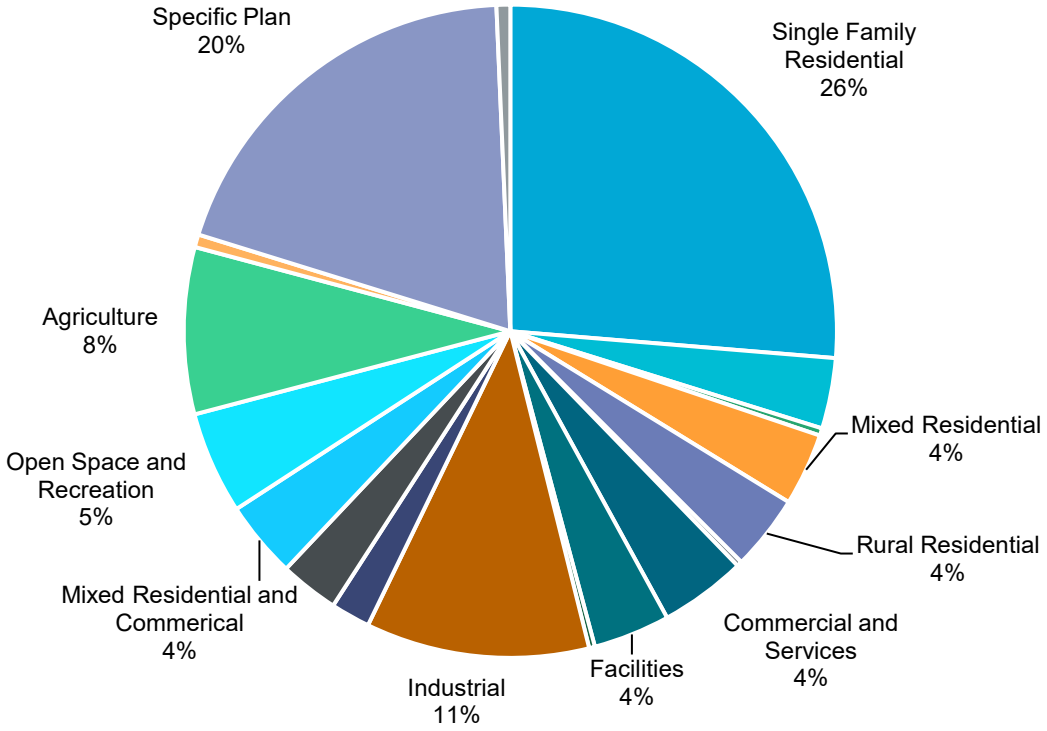


Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.65 illustrates the land use by type in the sub-corridor and Figure 5.66 shows the land use pattern. As illustrated in these figures, the predominant land use in the sub-corridor is residential at a total of over 37 percent, including single family residential at the highest 26 percent of the area. Specific plans at 20 percent still have a major share of the land uses, and agriculture at eight percent is a noticeable part of the land use development patterns in this sub-corridor. In terms of employment generating land uses, the area has 11 percent industrial, four percent commercial and services, and some mixed-use designated zones. The subarea has a relatively low percentage of open space at only five percent of the total. This is generally due to this sub-corridor being in the most urbanized area of the Inland Empire.

The CalEnviroScreen scores for this sub-corridor are generally high, with a low score in the Rancho Cucamonga-area. Moderate-to-high score areas include neighborhoods of Ontario, Fontana, Colton, and San Bernardino. Low scores indicate less exposure indicators, less environmental effects indicators, less sensitive population indicators, less socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG “Communities of Concern” also occur in the cities of San Bernardino and Colton in the eastern portion of the Study Area.

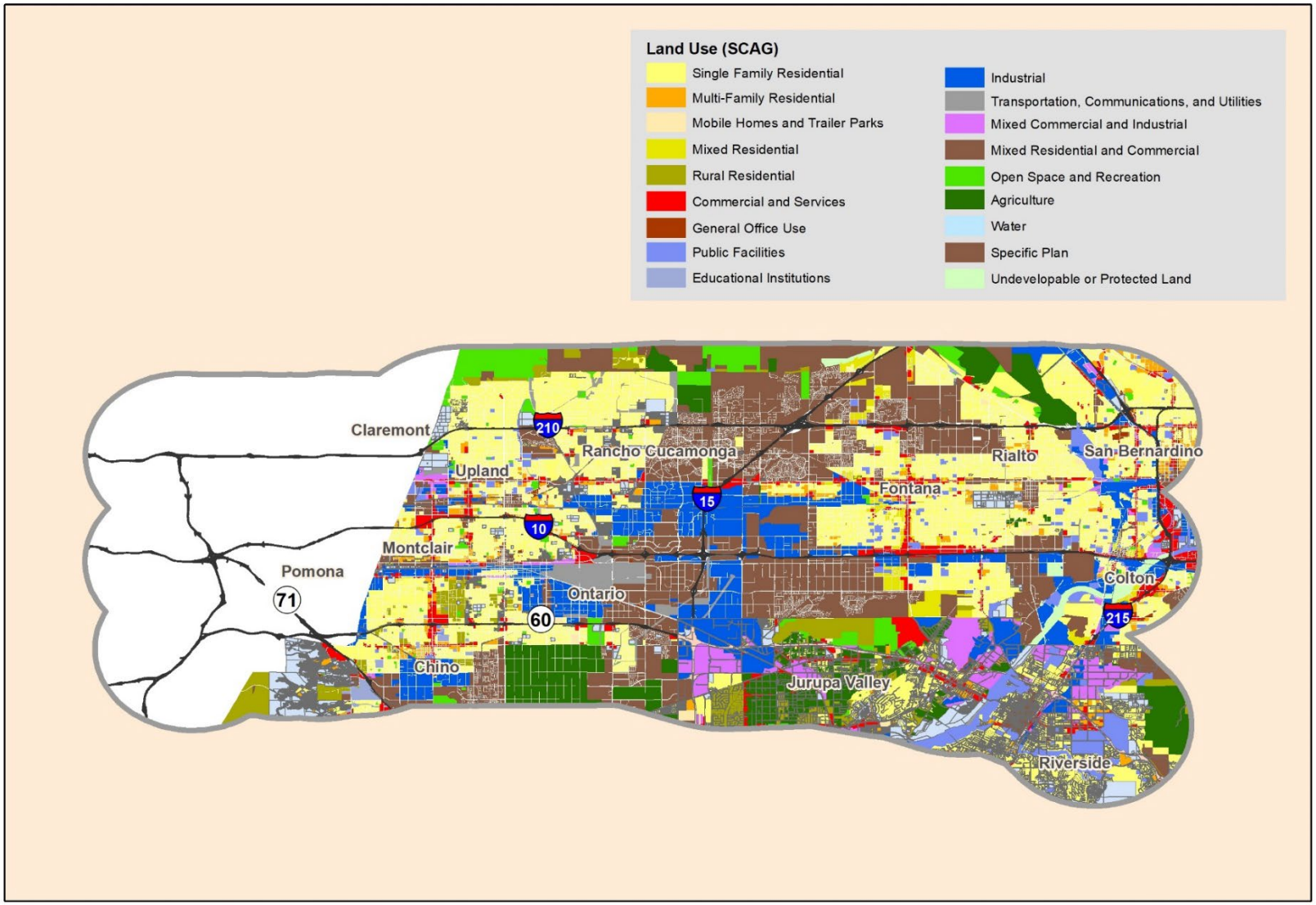
Figure 5.65 | Land Use Types in Sub-Corridor
Riverside/Rialto to Los Angeles County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.66 | Land Use Map

Riverside/Rialto to Los Angeles County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Employment density is relatively high in this sub-corridor compared to the IE CMCP Study Area due to its higher urbanization. In general, north of SR-60 has high employment density especially in Ontario, Rancho Cucamonga, Fontana, San Bernardino, and Riverside. Population density follows a similar pattern to employment density, with relatively lower densities south of SR-60 in the sub-corridor and higher densities along the northern portion of the sub-corridor. The population/employment ratio is mixed with a high ratio south of SR-60 in Jurupa Valley area and low ratio in the rest of the sub-corridor. Overall, this sub-corridor has low population-to-employment statistical ratio of 2.5 compared to some of the other areas of the overall Inland Empire CMCP Study Area, indicating a need for residents to commute shorter distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.15 displays the magnitude and average length of trips within and external to the subarea. Daily auto trips are relatively high with over 5.1 million daily auto trips made by residents and employees in the Study Area. As illustrated in the table below, over half of those trips are internal-internal trips, meaning they start and end within the sub-corridor Study Area. These sub-corridor internal trips include commute travel for workers who live and work in the Study Area, as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. The remaining trips are evenly split between having one end in the Study Area and the other end either inside or outside the IE CMCP area. This relatively good balance is an indication of the central location of this sub-corridor, its higher level of urbanization, and its importance in serving both internal and external trips, as well as commute trips, and all trip purposes in the Inland Empire. The average trip lengths for trips with one end in the Study and the other either inside or outside of IE CMCP area are, intuitively, more than twice and four times the length of the internal-internal trips, respectively; however, due to the size and location of the sub-corridor, it shows a better balance than most other sub-corridors.

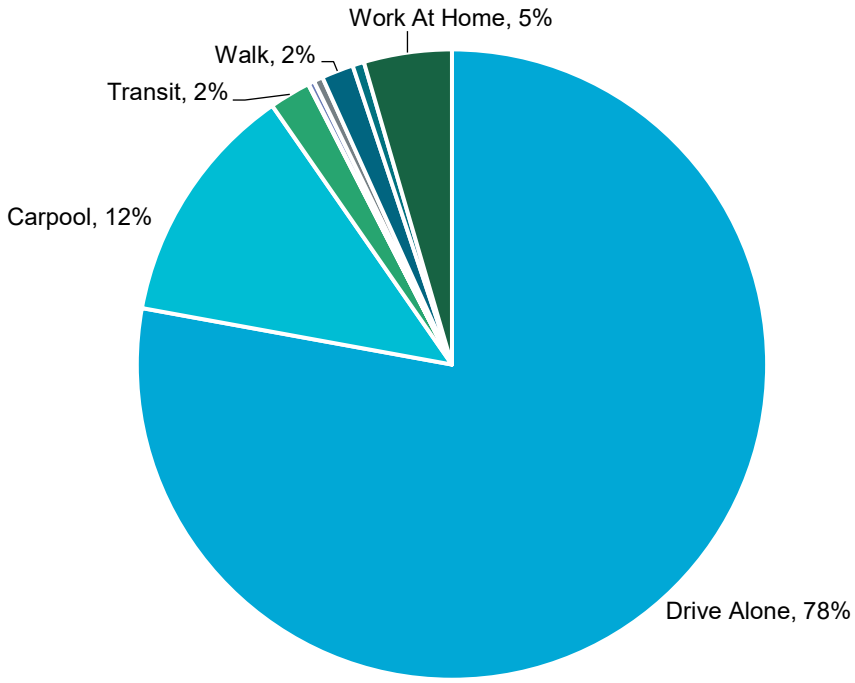
Table 5.15 | Internal and External Trips
Riverside/Rialto to Los Angeles County Line Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	2,896,000	1,168,000	1,104,000
	56%	23%	21%
Average Trip Length (Miles)	5.9	15.9	27.0

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.67 illustrates the journey to work mode share for the sub-corridor. Overall, 90 percent of commute trips in the Study Area are made by automobile. Transit accounts for just two percent of commute trips, while five percent of residents work at home. Notably, when examining the group that commutes by car, 12 percent carpooled. The share of commuters who carpool is higher in the sub-corridor compared to California as a whole (10 percent). This could be an indicator of the existence of HOV lanes on all east/west freeways in this sub-corridor. Non-motorized trips account for just two percent of commute trips.

Figure 5.67 | Journey to Work Mode Share
Riverside/Rialto to Los Angeles County Line Sub-Corridor



Source: ACS 2017, 5-year estimates.

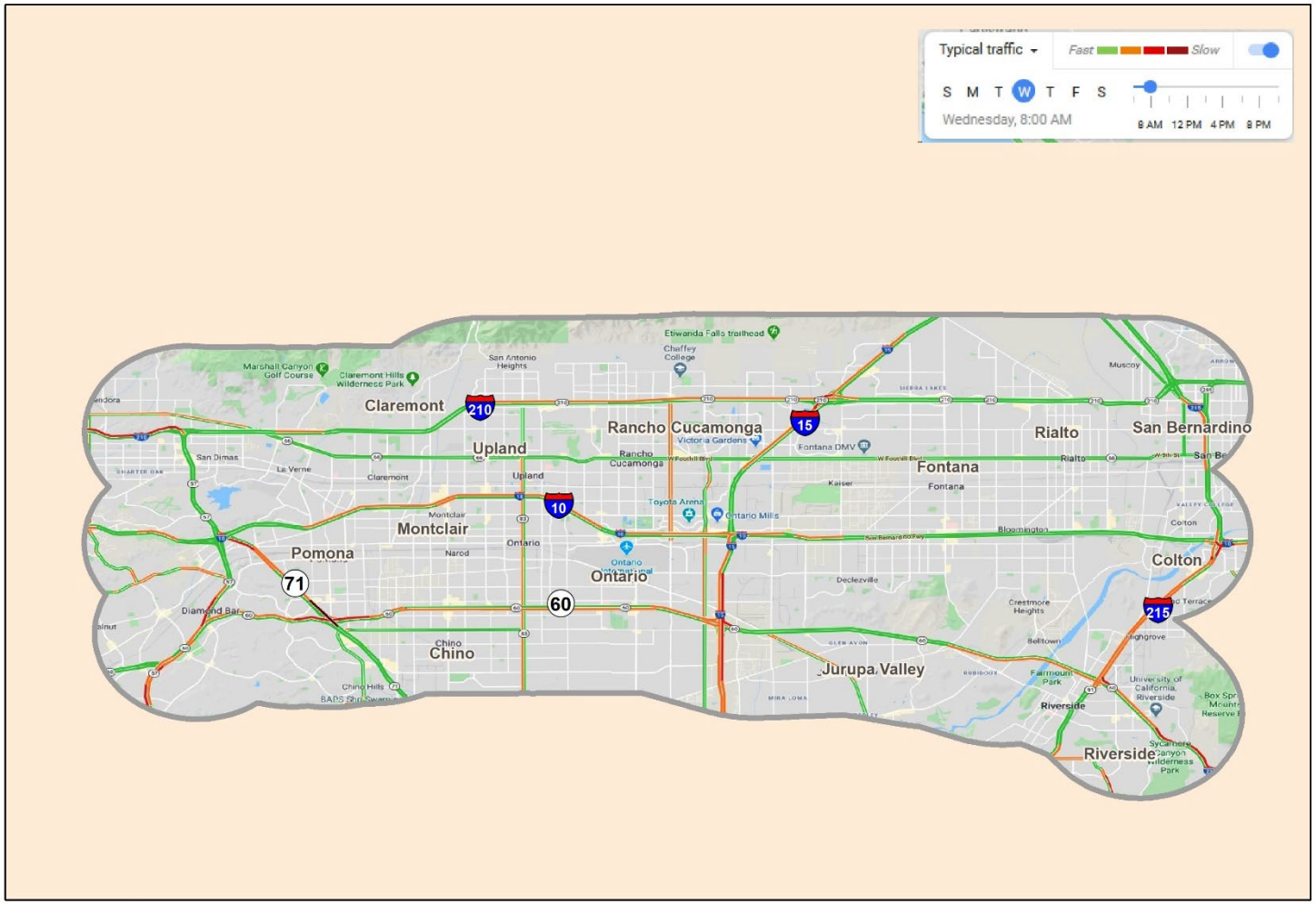
Except for individuals who work at home, nearly 95 percent of the workers in the Study Area must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the Study Area. About 55 percent of all workers commute less than 30 minutes to work. 29 percent commute 30 to 60 minutes, 15 percent commute over one hour.

Congestion, Delay, VMT: The most significant recurring congestion and delay on the freeway system occurs on SR-60, I-10, and SR-210 in the eastern portion of the sub-corridor, east of I-15. Figure 5.68 and Figure 5.69 show the snapshot of Google traffic conditions during typical Wednesday AM and PM peak hour, respectively.

This subarea has the majority of top bottlenecks of the entire IE CMCP Study Area. The majority of the top bottlenecks in the sub-corridor occur along the SR-60, I-10, and SR-210 in the western portion of the sub-corridor, east of I-15 and on SR-60/I-215 in the eastern portion of the sub-corridor.

Figure 5.68 | Existing AM Peak Hour Freeway Conditions

Riverside/Rialto to Los Angeles County Line Sub-Corridor



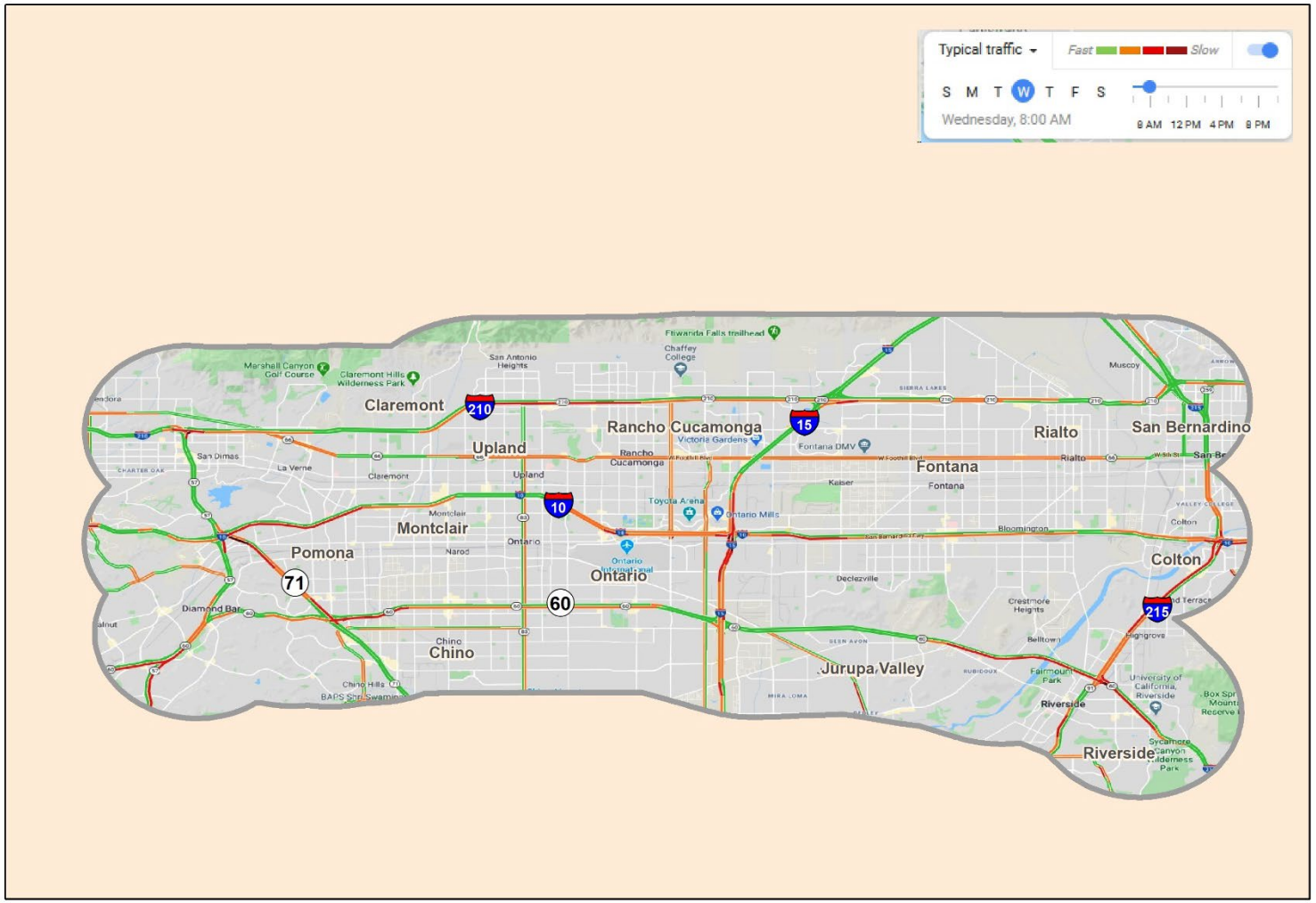
Riverside / Rialto to LA County Line Sub-Corridor

0 2.25 4.5 9 Miles

Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.69 | Existing PM Peak Hour Freeway Congestion

Riverside/Rialto to Los Angeles County Line Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the Study Area are mainly carried on freeways and major arterial roadways. Table 5.16 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 35 percent of the daily VMT. However, daily VHT is nearly split 55/45 between freeways (including HOV lanes) and the arterial network, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively less VMT per service population and it ranks nine out of the ten sub-corridors.

Table 5.16 | Vehicle Miles of Travel by Facility Type
Riverside/Rialto to Los Angeles County Line Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	28,605,615	60%	580,301	52%
HOV	2,560,121	5%	46,553	4%
Arterials	16,988,325	35%	495,679	44%
Total	**48,154,061**	**100%**	**1,122,533**	**100%**

Source: SCAG Model 2016.

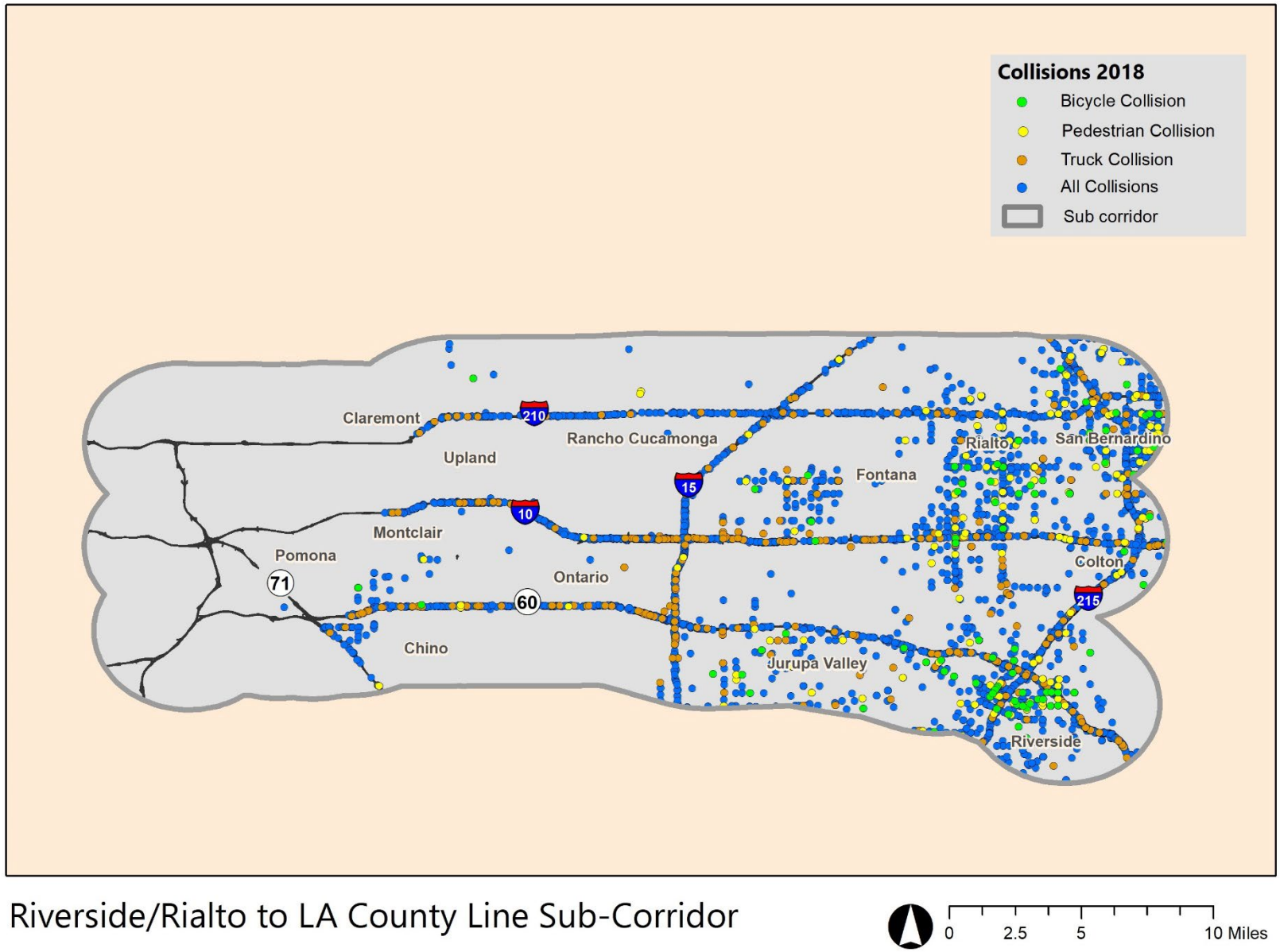
Transit Usage: This sub-corridor has some high-quality transit services including Metrolink Commuter Rail services as well as other services in the cities of San Bernardino, Fontana, Rialto, Colton, and Loma Linda. High-quality transit services include bus rapid transit (BRT) sbX between CSUSB and Loma Linda University & Medical Center; and Omnitrans bus services in downtown San Bernardino and along Foothill Boulevard. This sub-corridor also has some high-quality transit stops at Metrolink stations in Fontana, Rialto, San Bernardino, San Bernardino downtown, Riverside-Hunter Park/UCR, and Moreno Valley. It also has some of the highest ridership bus stops in the overall IE CMCP Study Area, which are located at San Bernardino Transit center, UCR campus, and University Market (UCR).

Safety: Figure 5.70 illustrates the reported crashes by type for 2018. Collisions involving bicyclists and pedestrians are spread throughout the Study Area, however, some of the highest density of collisions in the Study Area occur in certain neighborhoods of Hemet and San Jacinto.

In terms of safety, I-10 experiences some of the highest collision rates for the IE CMCP Study Area freeways. Conversely, SR-210 has the lowest collision rate of all the IE CMCP Study Area freeways. The collision rates for SR-60 are higher than the county average and Caltrans District 8 averages, but fall between the rates for SR-210 and I-10. There is a relatively high concentration of bicycle and pedestrian collisions in the eastern portion of the sub-corridor in San Bernardino and Rialto, as well as the area around the SR-60/I-215 junction, possibly reflecting higher rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along freeways with the largest concentrations along portions of I-10 and SR-60 near I-15 and I-215.

Figure 5.70 | Collisions

Riverside/Rialto to Los Angeles County Line Sub-Corridor



Future Conditions

The sub-corridor is expected to experience the following growth by 2040:

- Population—19 percent increase.
- Employment—31 percent increase.

The higher rate of employment to population growth suggests that the jobs/housing ratio of this sub-corridor is expected to improve, resulting in possibly shorter commute trips in the future.

Total trip making in the sub-corridor is projected to increase by one million daily trips, representing a 20 percent increase. VMT is projected to increase by 10 percent and VHT is projected to increase by 22 percent. The disproportionate increase in hours of travel over miles of travel indicate increasing delay and congestion in the future due to the relatively high growth rates. Also, the strategic location of this corridor which serves internal as well as a significant amount of through traffic and connections to Los Angeles County.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.71 and Figure 5.72 illustrate the AM and PM peak hour conditions on the freeway system projected for 2040 from the SCAG model.

Figure 5.71 | Future 2040 Traffic Conditions—AM
Riverside/Rialto to Los Angeles County Line Sub-Corridor

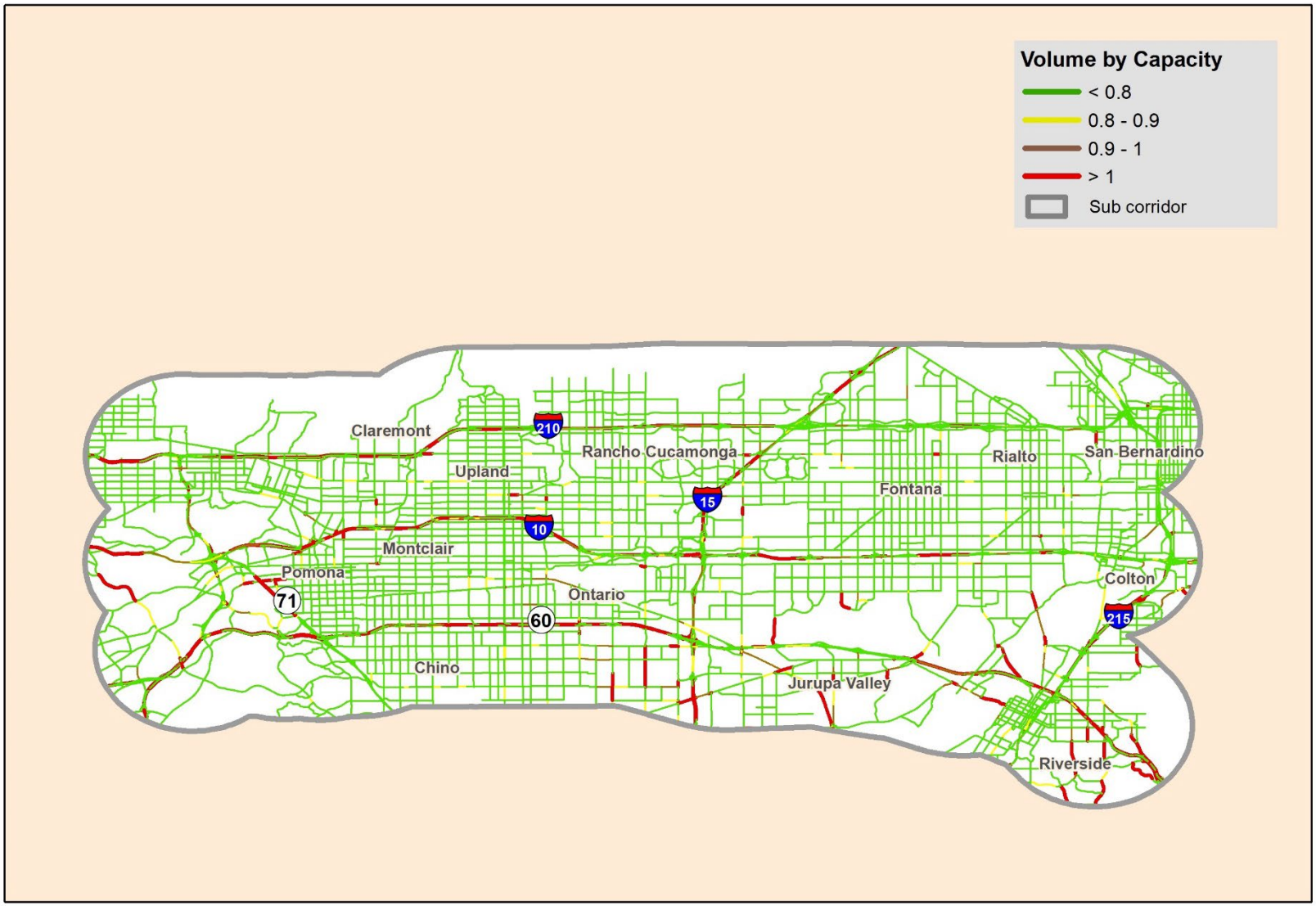
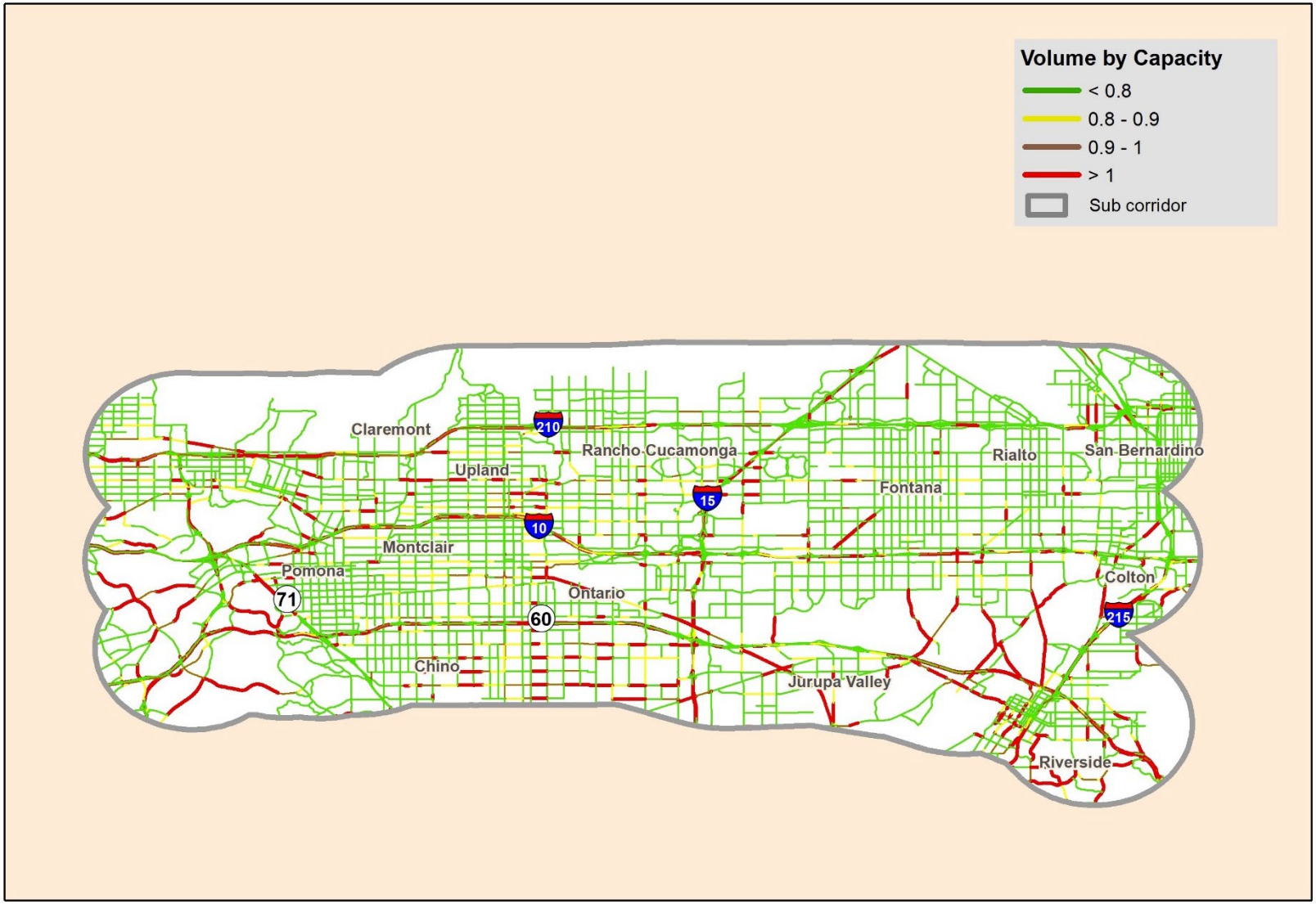


Figure 5.72 | Future 2040 Traffic Conditions—PM
Riverside/Rialto to Los Angeles County Line Sub-Corridor



5.9.2 *Strategic Approach for Riverside/Rialto to LA County Line Sub-Corridor*

Strategic Approach for Riverside/Rialto to LA County Line Sub-Corridor

Problems to be Addressed

- I-10 and SR-60 are nationally significant freight corridors, with heavy congestion on I-10 between the LA County Line and Sierra Interchange and throughout SR-60.
- I-10/I-15 interchange is 10th on ATRI's national list of the top 100 truck bottlenecks.
- Metrolink stations represent some of the Inland Empire's best opportunities for TOD, but need to increase train frequency over time and make it easier for jurisdictions/developers to build on infill sites (limited capabilities since loss of redevelopment funding).
- Lack of good transit connection to Ontario International Airport.
- Major housing and population increases, especially in parts of the corridor south of SR-60 and north of SR-210.

Strategies

1. Build on substantial existing transit assets (e.g., move forward with SCORE program on the multiple Metrolink lines—increasing frequency and improving service on Riverside, San Bernardino, 91/Perris, and IE/OC lines).
2. Build West Valley Connector BRT connecting Pomona, Montclair, Ontario, and Rancho Cucamonga, with significant destinations in each jurisdiction, including Ontario International Airport.
3. Construct the ONT Connector with new zero-emission, on-demand service connecting Rancho Cucamonga Station on the San Bernardino Line to ONT.
4. Implement first/last mile transit connections (particularly from major destinations to Metrolink stations).
5. Enhance freight access at freeway interchanges to improve first/last mile efficiency (e.g., Rubidoux Blvd., Etiwanda Ave., Riverside Ave., California St., etc.).
6. Implement managed lane system on I10 from LA County line to Ford Street.
7. Accelerate truck fleet turnover for air quality improvement.
8. Implement "Healthy Communities and Healthy Economies Toolkit for Goods Movement" (given continued warehouse/distribution development).
9. Encourage TOD and affordable housing at transit stations.
10. Implement "next-generation" shared-ride and virtual travel systems.
11. Build out regional active transportation network.

12. Explore policies and methods to increase work at home to decrease commute trips.

5.10 Riverside to Orange County Line Sub-Corridor

The Riverside to Orange County Line sub-corridor is one of five east/west oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.73 illustrates the boundaries of the sub-corridor Study Area.

5.10.1 Sub-Corridor Definition

This very important east/west sub-corridor is almost entirely within Riverside County but provides the primary and critical inter-county connections between Riverside/San Bernardino counties and Orange County. This sub-corridor has historically been one of the most highly traveled and congested corridors in Southern California and subject of many studies and improvements. The sub-corridor addresses flows of people and freight within and through portions of unincorporated Riverside County and the cities of Chino Hills, Corona, Norco, Riverside, Eastvale, and Jurupa Valley. Across the Orange County line, it also immediately serves the cities of Anaheim Hills and Yorba Linda. This sub-corridor encompasses portions of San Bernardino and Riverside counties and includes parts of RSAs 45, 46, and 29. The sub-corridor is generally 30 miles in length east to west and 7 miles north to south.

Key Transportation Facilities

Key east/west oriented transportation facilities within the sub-corridor include:

Freeways: SR-91 and SR-60. SR-91 has a major multilane express lane facility in the freeway median interoperable with other FasTrak facilities in the state.

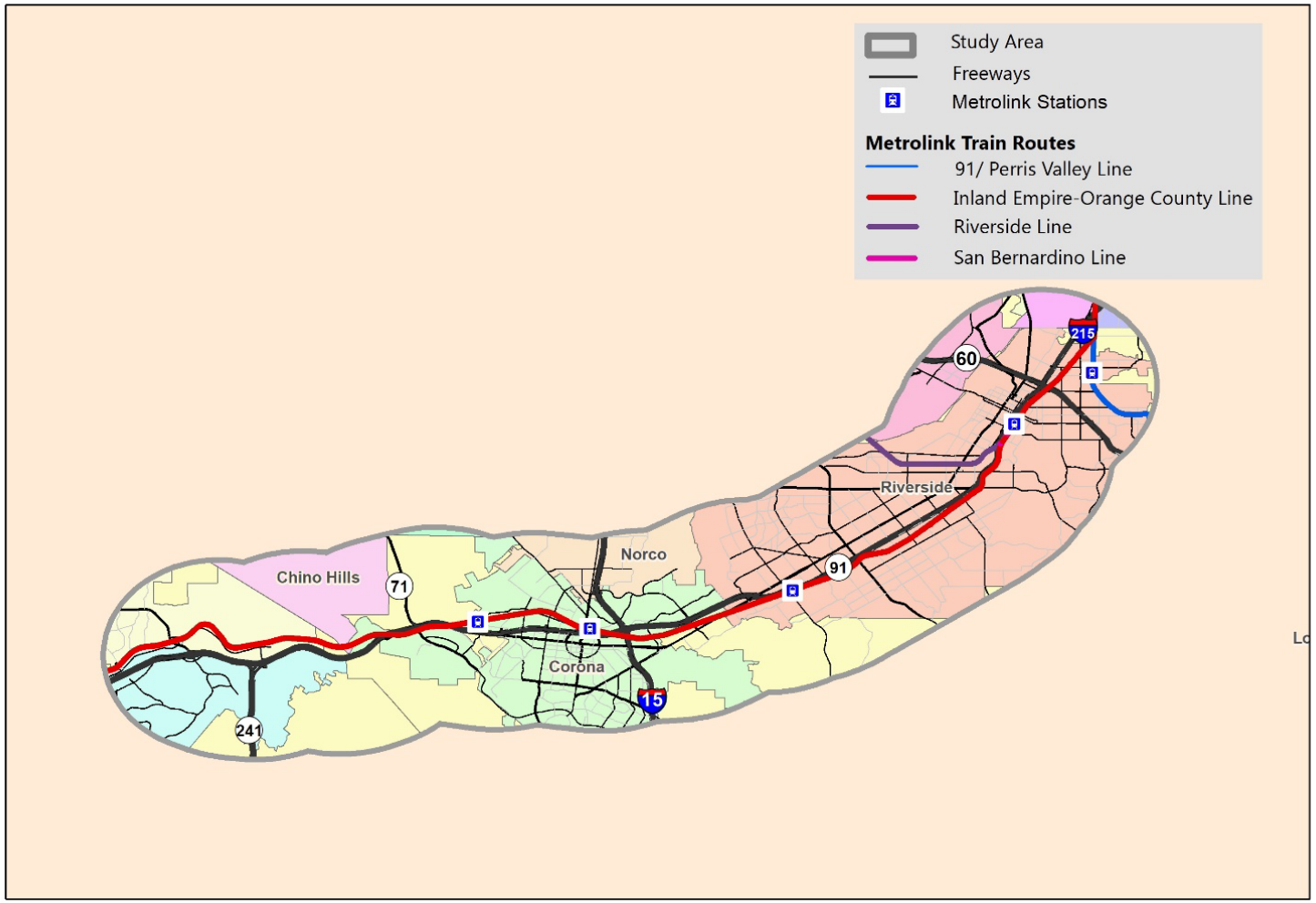
Arterials: Key east/west arterial facilities that run through significant portions of the sub-corridor include: 6th Street/Magnolia Avenue, Ontario Avenue, Foothill Parkway, Victoria Avenue, Indiana Avenue, Arlington Avenue, Jurupa Avenue, Central Avenue, and Hidden Valley Parkway.

Freight: SR-91 is a major goods movement corridor. BNSF Railway and Union Pacific Railroad pass through the sub-corridor. There are numerous warehousing facilities in the sub-corridor near interchanges of SR-91/I-15 and SR-91/SR-60/I-215.

Transit: This sub-corridor includes portions of several Metrolink commuter rail routes. The 91/Perris Valley and Inland Empire/Orange County line route runs through this corridor with multiple stops in Corona and Riverside. There are several bus routes in this sub-corridor operated by RTA, including the Commuter Route Express 200.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities. In addition, there are several proposed Regional Routes, including east/west route SR-91 corridor via Magnolia Avenue. These routes cross multiple jurisdictions and consist of different types of facilities and classes.

Figure 5.73 | Sub-Corridor Study Area
Riverside to Orange County Line Sub-Corridor



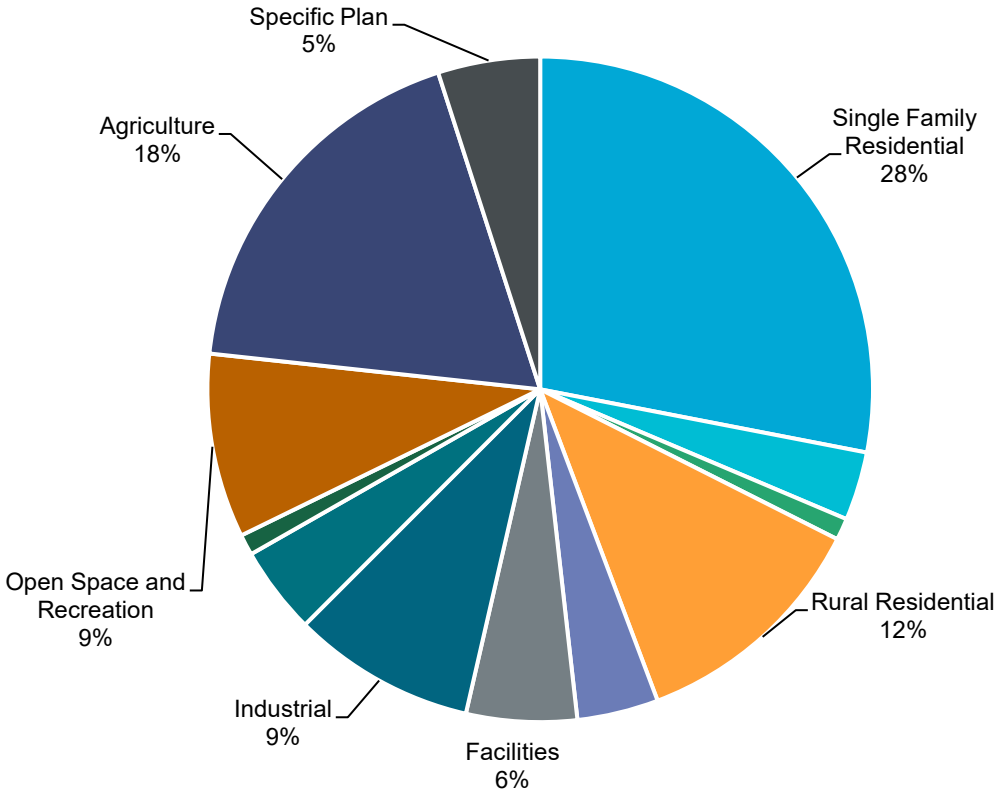
Existing Characteristics of the Sub-Corridor

Socioeconomic and land use: Figure 5.74 illustrates the land use patterns in the sub-corridor and Figure 5.75 shows the land use by type. As illustrated in these figures, the predominant land use type in the sub-corridor is residential, including single family residential at 28 percent of the area and rural residential at 12 percent. Other key land uses include agriculture at 18 percent and open space and recreational at nine percent. In terms of employment-generating land uses, the area has nine percent industrial, four percent commercial and services, and over four percent mixed-use designated zones.

The CalEnviroScreen scores for this sub-corridor are high throughout the sub-corridor. Areas with higher scores include areas near the SR-91/I-15 interchange in Corona and near the SR-91/SR-60 interchange in Riverside. Areas with low scores are in Chino Hills, Norco, and portions of Riverside where there is open space. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG "Communities of Concern" also occur in the community of Home Gardens near the city of Corona in the sub-corridor.

Figure 5.74 | Land Use Types

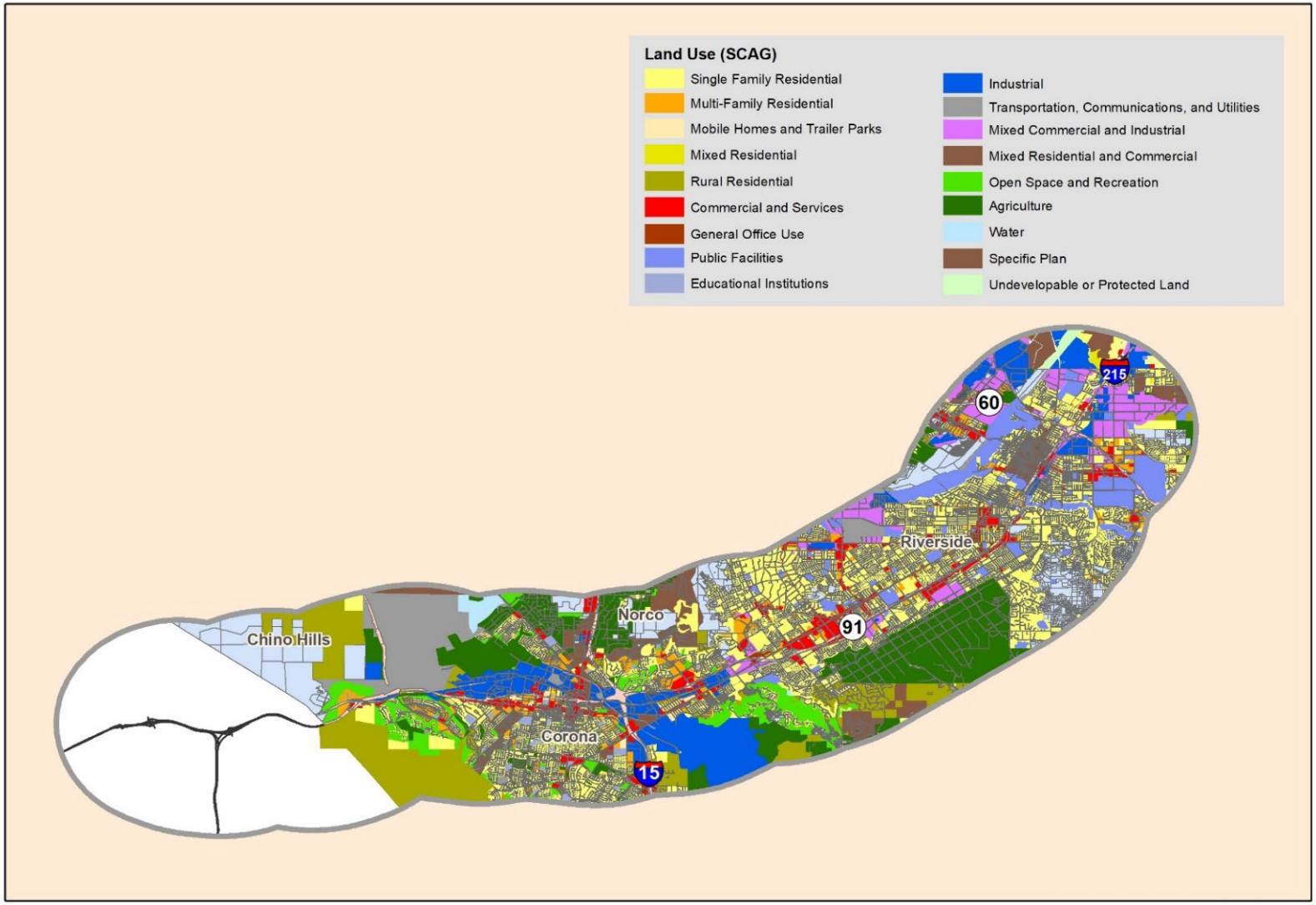
Riverside to Orange County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.75 | Land Use Map

Riverside to Orange County Line Sub-Corridor



Source: SCAG 2012 Land Use.

Employment and population is dense in the sub-corridor compared to the IE CMCP Study Area as a whole. Higher employment densities are primarily adjacent to the SR-91 and I-15 corridors in the cities of Corona and Riverside. Population is concentrated in single-family residential neighborhoods in the cities of Corona and Riverside. Given the predominance of residential land uses, the population-to-employment statistical ratio of the sub-corridor is 2.4, which is is relatively low compared to some of the other areas of the overall Inland Empire CMCP Study Area, indicating a need for residents to commute longer distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.17 displays the magnitude and average length of trips within and external to the subarea. There are nearly 1.9 million daily auto trips made by residents and employees in the sub-corridor. As illustrated in the table below, 39 percent of those trips are internal-internal trips, meaning they start and end within the sub-corridor. These sub-corridor internal trips include commute travel for workers who live and work in the sub-corridor, as well as local trips for daily activities such as shopping, school, recreation and other, which are often proximate to home. Forty-one percent of trips have one end in the sub-corridor and the other end inside the IE CMCP area and 20 percent of trips have one end in the sub-corridor and the other end outside the IE CMCP area. The average trip lengths for trips with one end in the study and the other either inside or outside of IE CMCP area are 3.8 and 7.1 times the length of the internal-internal trips, respectively.

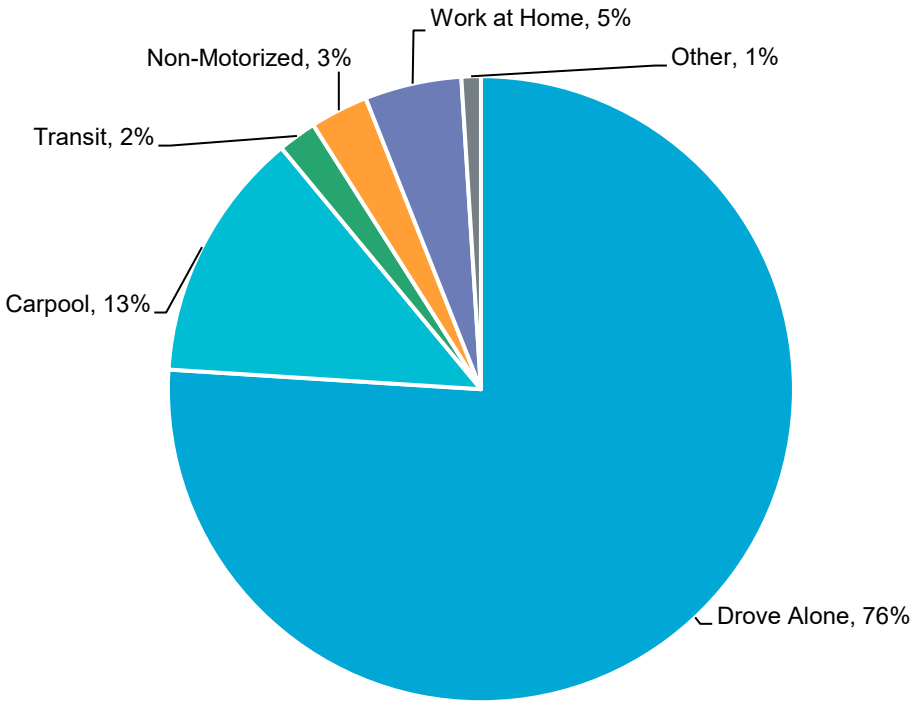
Table 5.17 | Internal and External Trips
Riverside to Orange County Line Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	757,000	784,000	377,000
	39%	41%	20%
Average Trip Length (Miles)	3.9	14.7	27.6

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.76 illustrates the journey to work mode share for the sub-corridor. Overall, 89 percent of commute trips in the sub-corridor are made by automobile. Notably, when examining the group that commutes by car, 13 percent of workers carpooled. The share of carpoolers is higher in the sub-corridor compared to California as a whole (10 percent). This is reflective of the relatively longer commute trips using the sub-corridor to other job locations in Orange County and the existence of express lanes. Transit accounts for two percent of commute trips, which could be reflective of the existence of two Metrolink lines. Five percent of residents work at home and non-motorized trips account for just three percent of commute trips.

Figure 5.76 | Journey to Work Mode Share
Riverside to Orange County Line Sub-Corridor

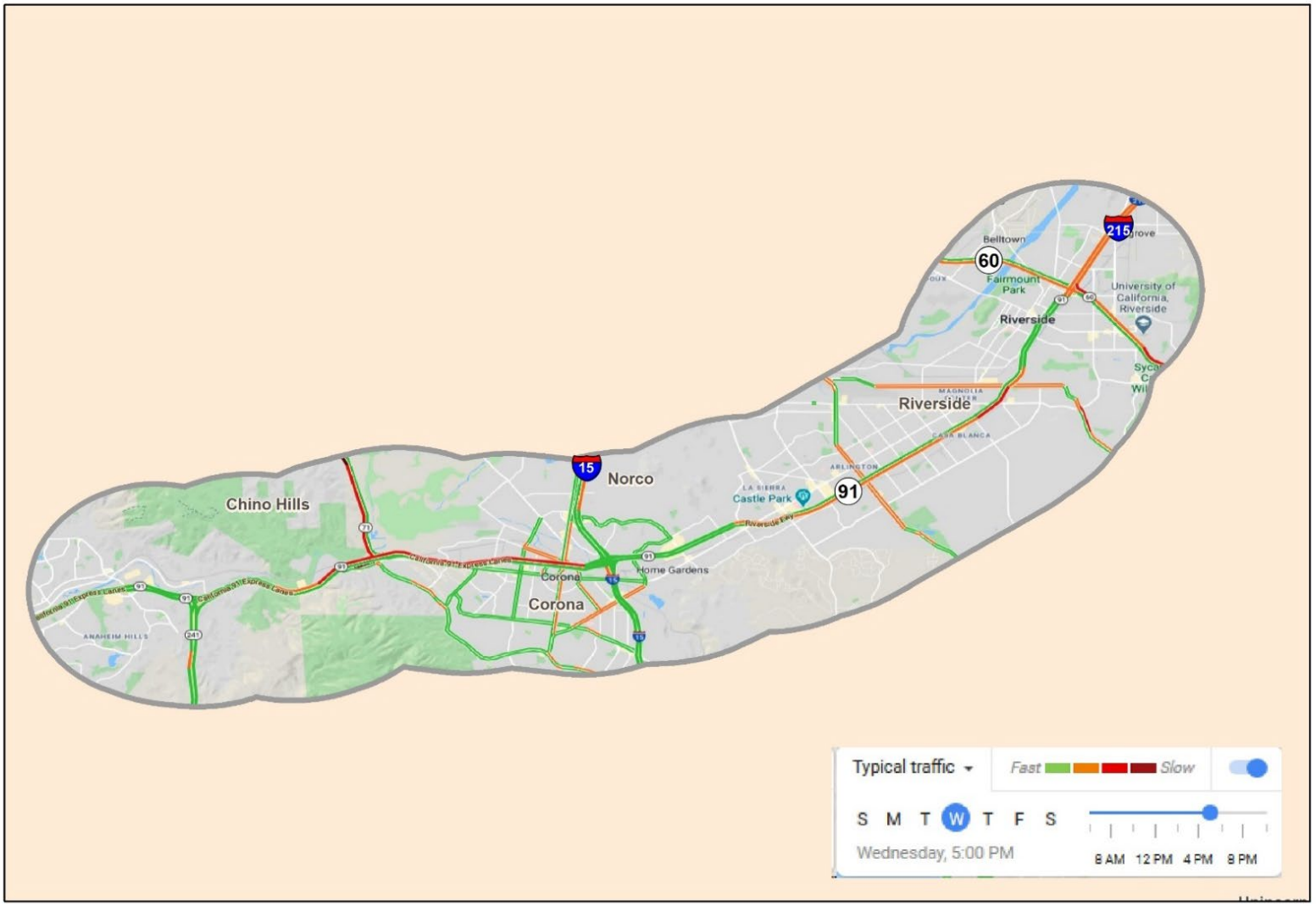


Source: ACS 2017, 5-year estimates

Except for individuals who work at home, nearly 95 percent of the workers in the sub-corridor must find a way to travel to their jobs each workday. The generally lower (compared to other sub-corridors) drive alone percentage is likely due to the robust express lane and Metrolink services in this sub-corridor. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the sub-corridor. Nearly 51 percent of all workers commute less than 30 minutes to work, 32 percent commute 30 to 60 minutes, and 17 percent commute over one hour.

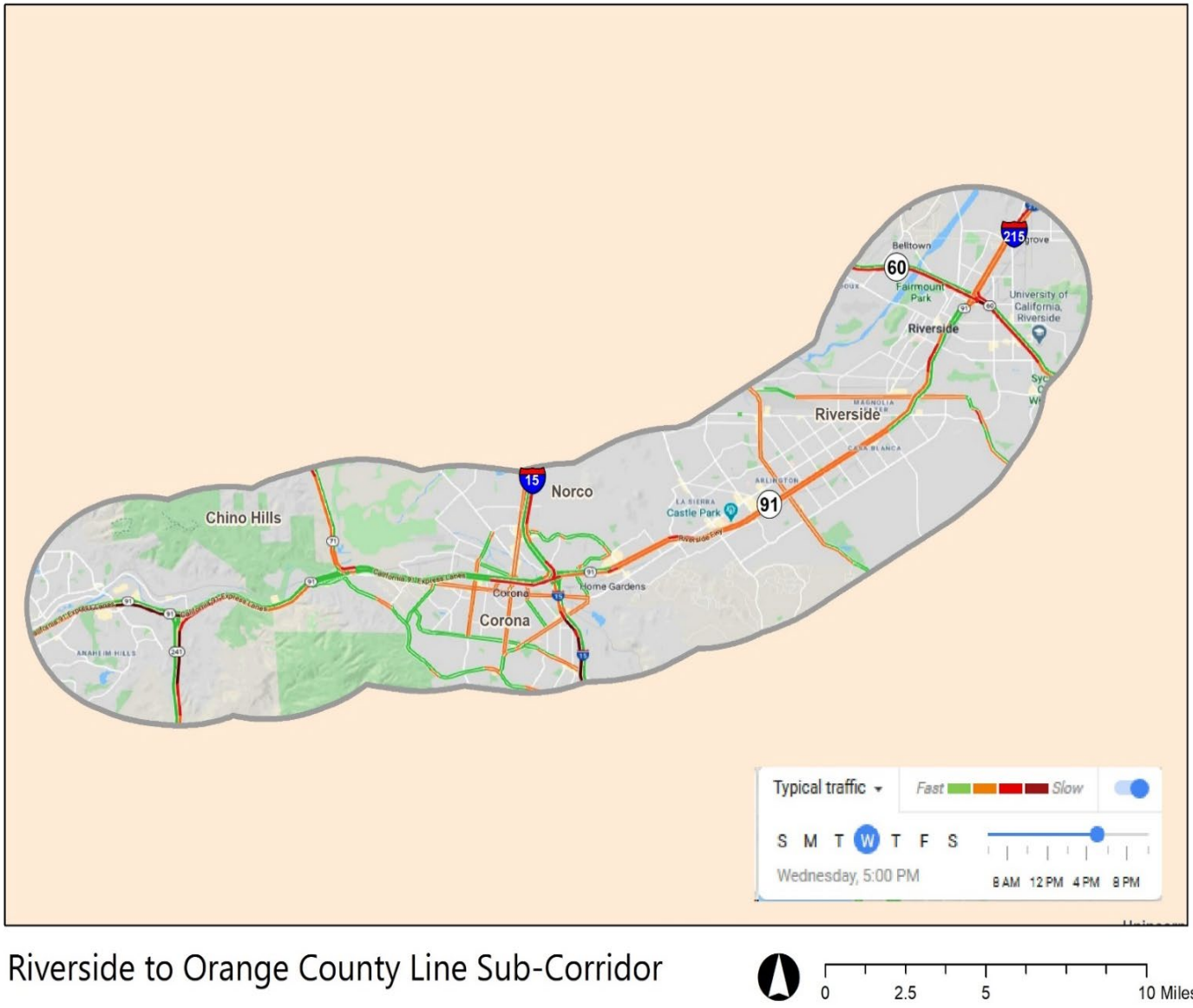
Congestion, Delay, VMT: As stated before, this is one of the highest traveled and congested regional corridors in Southern California. Nearly all freeways in the sub-corridor experience reoccurring congestion during the AM and PM peak periods. Figure 5.77 and Figure 5.78 illustrate the AM and PM peak hour conditions on the freeway system for 2018 from Google traffic data, respectively. During the AM peak, high levels of congestion occurs on southbound SR-71, westbound SR-91 from I-15 to 241, eastbound SR-91 in Riverside, I-215, eastbound SR-60 before I-215 interchange, and westbound SR-60 before I-215 interchange. During the PM peak, congestion occurs on eastbound SR-60 before SR-71, southbound SR-71, NB 241, southbound I-15 after SR-91 interchange, northbound I-15 after SR-91 interchange, SR-91 between Corona and Riverside, I-215, and eastbound SR-60.

Figure 5.77 | Existing AM Peak Hour Freeway Conditions
Riverside to Orange County Line Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.78 | Existing PM Peak Hour Freeway Congestion
Riverside to Orange County Line Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the sub-corridor, are mainly carried on freeways and major arterial roadways. Table 5.18 shows the VMT in the sub-corridor by facility type. As shown, the freeway carries 67 percent of the daily VMT. Daily VHT is split almost 70/30 between freeways (including HOV and express lanes) and arterial network, reflecting lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively more VMT per service population and it ranks third out of the ten sub-corridors for highest VMT per service population.

Table 5.18 | Vehicle Miles of Travel by Facility Type
Riverside to Orange County Line Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	11,441,000	67%	315,000	66%
HOV/Express lanes	560,000	3%	10,000	2%
Arterials	5,081,000	30%	152,000	32%
Total	**17,083,000**	**100%**	**478,000**	**100%**

Source: SCAG Model 2016.

Transit Usage: With two Metrolink lines and connecting bus services, this sub-corridor is relatively well served in the Inland Empire. This sub-corridor has some high-quality transit stops at Metrolink stations in Corona and Riverside. It also has some of the highest ridership bus stops in the overall IE CMCP Study Area, which are located at Corona Transit Center, Galleria at Tyler, University Market (UCR), and UCR campus. In this sub-corridor two percent of commute trips use transit.

Safety: Figure 5.79 illustrates the reported crashes by type for 2018. In terms of safety, the collision rates for I-15 are higher than the County average and Caltrans District 8 averages. Bicycle and pedestrian collisions are sparsely spread in the sub-corridor, possibly reflecting low rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along I-15.

Future Conditions

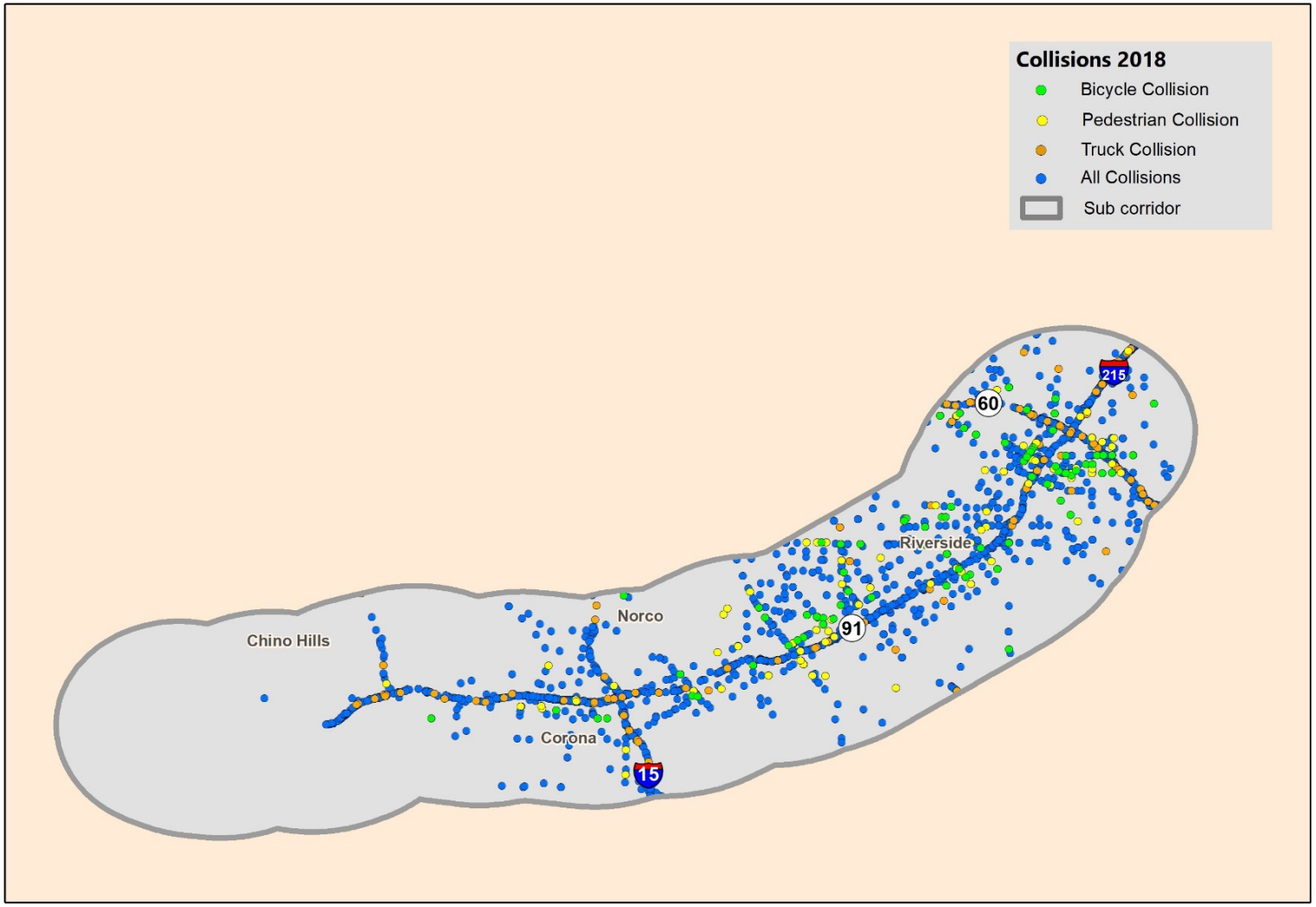
The sub-corridor is expected to experience the following growth rates by 2040:

- Population—13 percent increase.
- Employment—51 percent increase.

It is notable that employment growth is expected to be far greater than population growth, potentially suggesting better jobs/housing balance and shorter average commuter trip lengths in the future. Total trip making in the sub-corridor is projected to increase by 522,000 daily trips, representing a 27 percent increase. VMT is projected to increase by 15 percent and VHT is expected to increase by 36 percent. The disproportionate increase in hours of travel over miles of travel indicate increasing delay and congestion in the future due to the projected relatively high growth rates for this sub-corridor.

The congestion levels are expected to increase on the freeway and arterial systems by 2040. Figure 5.80 and Figure 5.81 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

Figure 5.79 | Collisions
Riverside to Orange County Line Sub-Corridor



Riverside to Orange County Line Sub-Corridor

0 2.5 5 10 Miles

Figure 5.80 | Future 2040 Traffic Conditions—AM
Riverside to Orange County Line Sub-Corridor

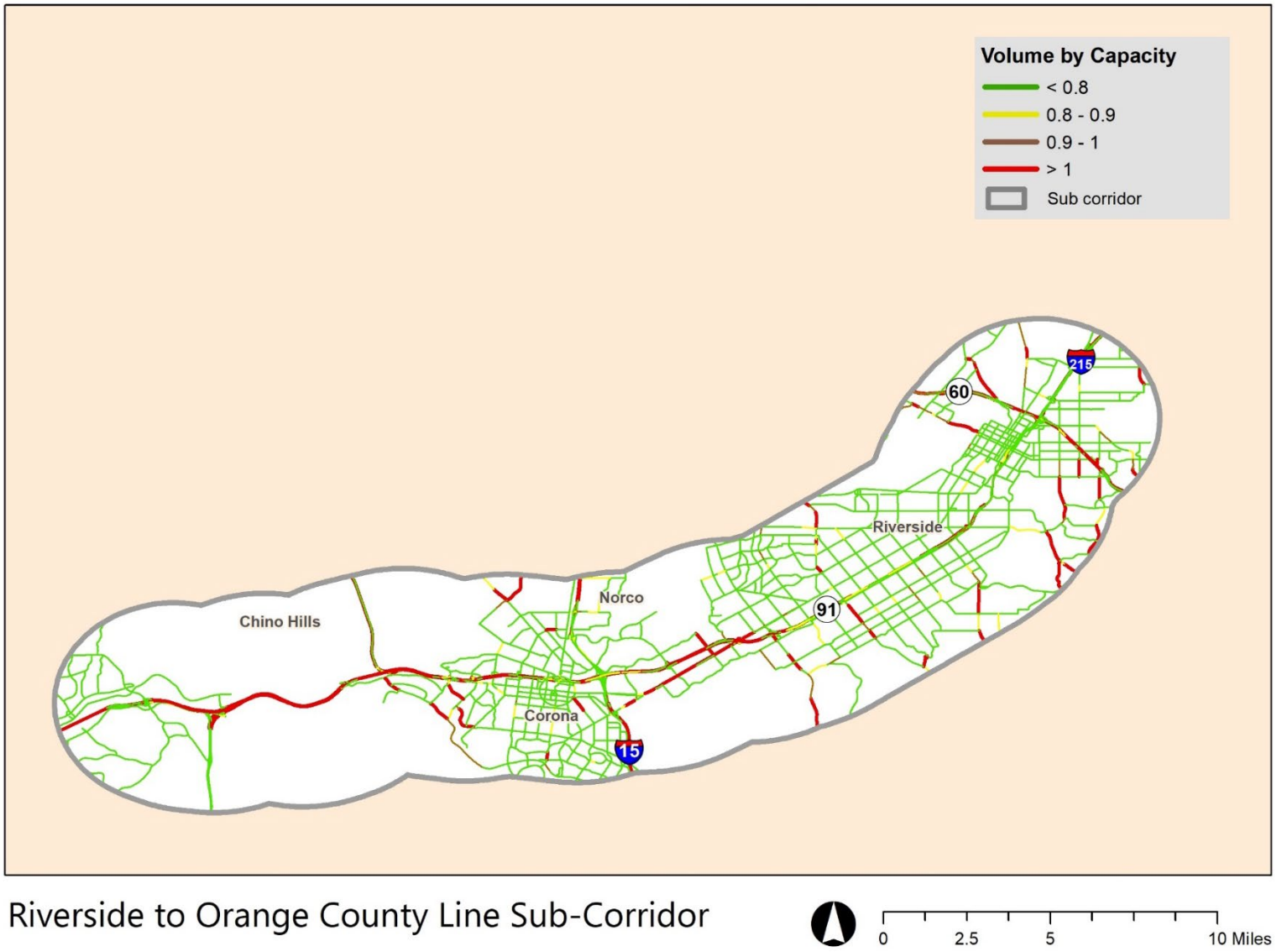
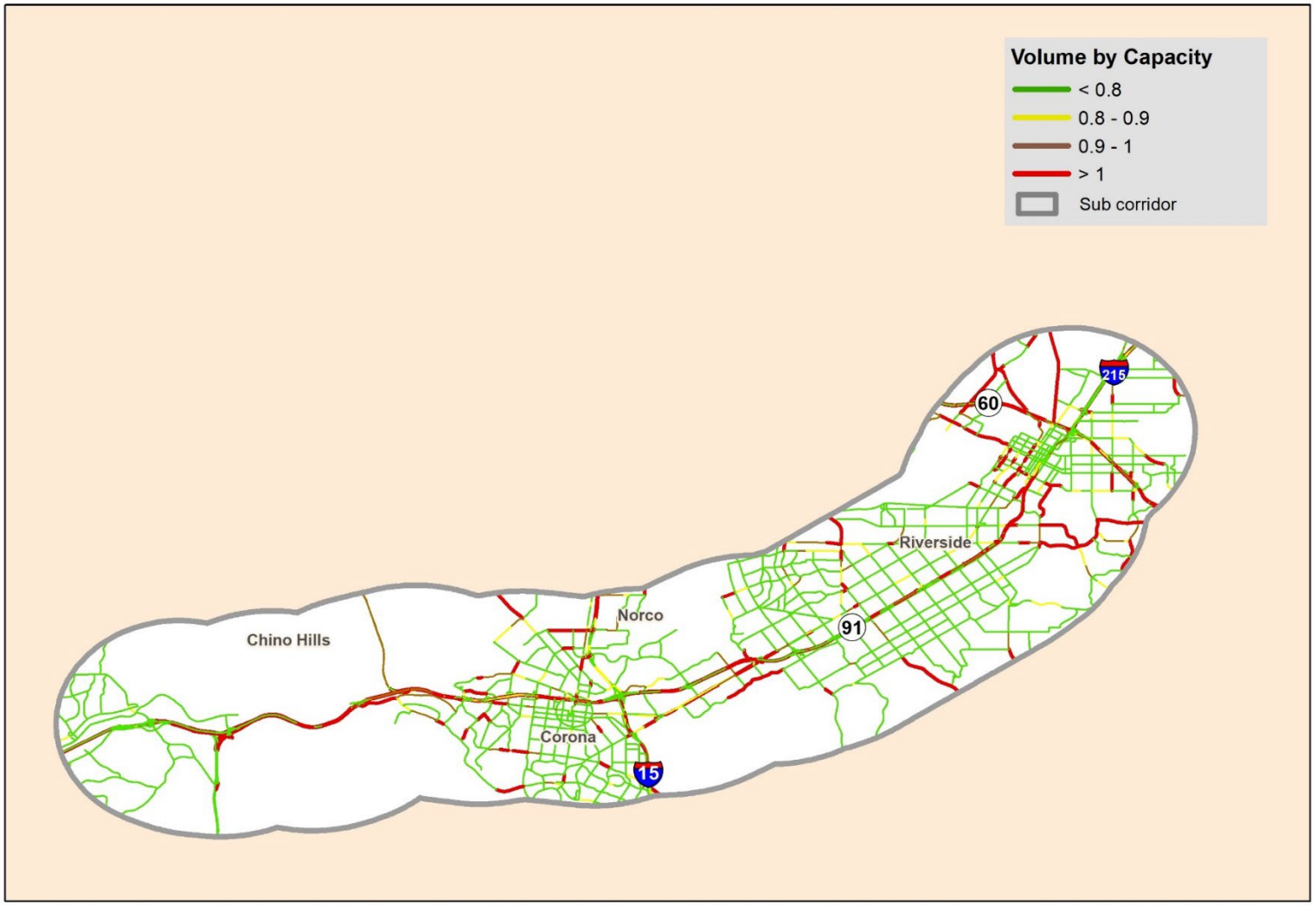


Figure 5.81 | Future 2040 Traffic Conditions—PM
Riverside to Orange County Line Sub-Corridor



5.10.2 Strategic Approach for Riverside to Orange County Line Sub-Corridor

Strategic Approach for Riverside to Orange County Line Sub-Corridor

Problems to Be Addressed

- SR-91 connects Riverside County to Orange and San Bernardino counties and results in one of the most congested freeways in Southern California. SR-91 is a nationally significant freight corridor that connects the Ports of Los Angeles and Long Beach to the vast array of warehousing and distribution centers in the Inland Empire. However, with heavy congestion along the corridor, goods movement is significantly impacted.
- Lack of adequate alternate routes into Orange County: largely due to topography. SR-91 is the only route into Orange County from Riverside County and San Bernardino County. SR-60/57 is the highest capacity alternative, but is also highly congested. SR-74 provides a low-capacity highway alternative which is available to south Orange County.
- Job-housing imbalance: Riverside County provides more affordable housing options compared to Orange County and Los Angeles County, but less job opportunities.

Strategies

1. Complete Santa Ana River trail.
2. Complete the SR-71/91 connector and SR-241/91 connector to facilitate commute and goods movement from Orange County to Riverside and San Bernardino counties.
3. Construct the eastbound corridor operations project on SR-91 between SR-241 and Green River Road, a remaining project component of the ultimate SR-91 corridor improvement project.
4. Build on substantial transit assets. Invest in Metrolink rail expansion for the IE/OC line and construct accessibility improvements and station improvements to existing Metrolink stations.
5. Implement first/last mile transit connections (particularly from major destinations to Metrolink stations).
6. Continue multimodal investment into the managed lane system on SR-91; continue collaborating with OCTA on 91 Express Lanes.
7. Continue express bus service utilizing managed lanes for time and cost savings on shared rides.
8. Explore policies and methods to increase work at home to decrease commute trips.

5.11 Hemet to Corona Sub-Corridor

The Hemet to Corona sub-corridor is one of five east/west oriented sub-corridors within the Inland Empire Comprehensive Multimodal Corridor Plan. Figure 5.82 illustrates the boundaries of the sub-corridor Study Area.

5.11.1 Sub-Corridor Definition

This east/west sub-corridor is entirely within Riverside County and currently does not have a major freeway facility traversing its entire length; however, due to its orientation and abundance of housing on the east and jobs on the west, there are major east/west flows of traffic on the key arterial system such as Ramona Expressway, Cajalco Road, El Sobrante Road, and others. In addition, future new and improved facilities such as the Mid County Parkway and improvements on Cajalco Road are planned in this sub-corridor. This sub-corridor addresses east/west flows of people and freight within and through portions of unincorporated Riverside County and the cities of Corona, Norco, Riverside, Lake Elsinore, Moreno Valley, Perris, Menifee, San Jacinto, Hemet, and Beaumont. This sub-corridor includes parts of RSAs 46, 47, 50, 48, and 49 all within Riverside County. The sub-corridor is generally 45 miles in length east to west and about 15 miles wide north to south.

Key Transportation Facilities

Key transportation facilities within the sub-corridor include:

Freeways: SR-74 and SR-91.

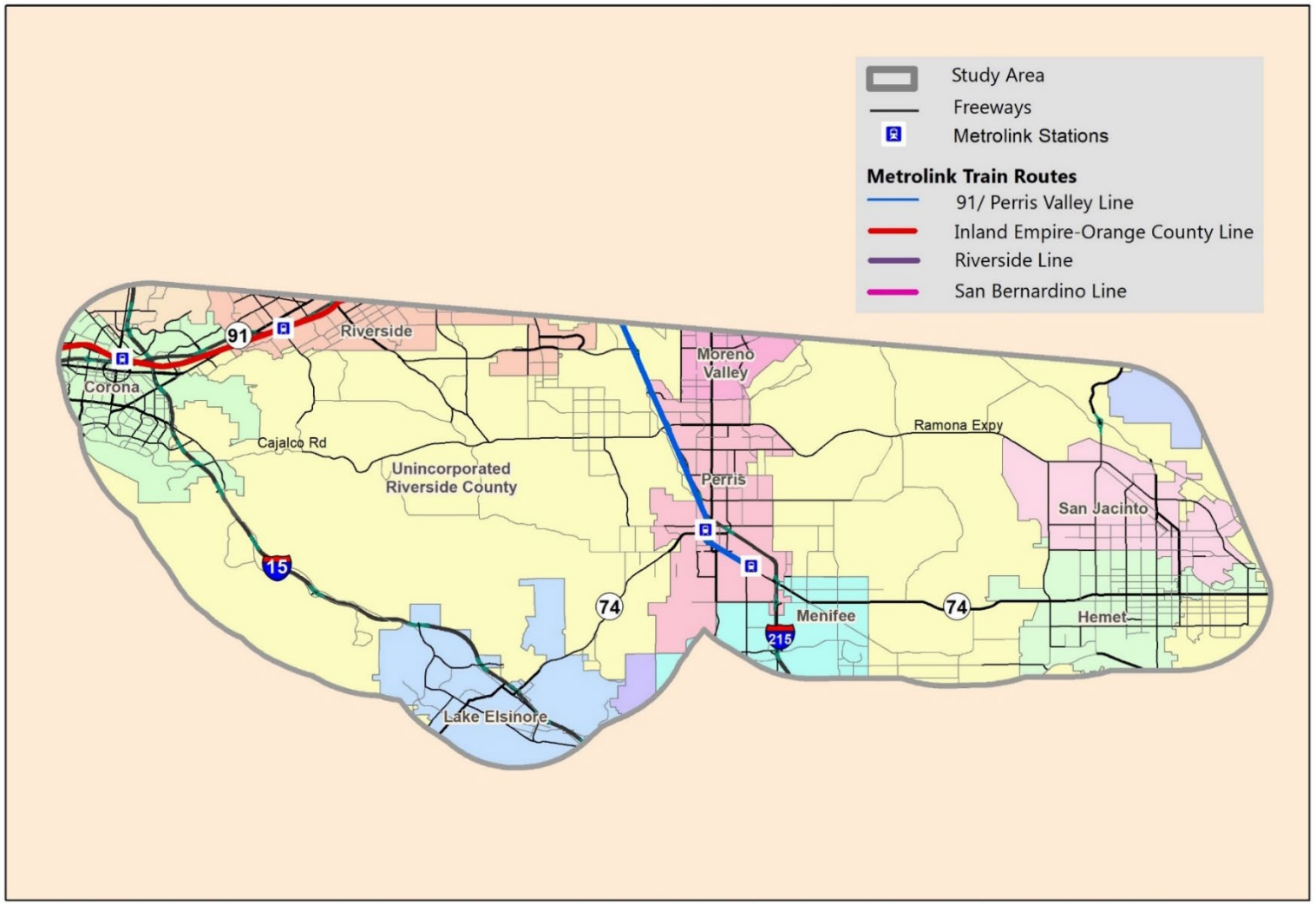
Arterials: Key east/west arterial facilities that run through significant portions of the sub-corridor include: Foothill Parkway, Ontario Avenue, Sixth Street, Magnolia Avenue, Cajalco Road, Indiana Avenue, Victoria Avenue, Van Buren Boulevard, El Sobrante Road, Domenigoni Parkway, Simpson Road, Nuevo Road, Ramona Expressway, Esplanade Avenue, and Stenson Avenue.

Freight: SR-91 is a major goods movement corridor. BNSF Railway passes through the sub-corridor.

Transit: Metrolink commuter rail routes passes through this sub-corridor connecting passengers to Los Angeles and Orange County. The 91/Perris Valley route runs through a portion of the area as it transitions from an east/west route to a north/south route in Riverside with three stops in Moreno Valley and Perris, terminating in South Perris. The Inland Empire/Orange County line runs within the sub-corridor with stops in Corona and Riverside. There are several bus routes operated by RTA in the sub-corridor.

Active Transportation: There are many municipal bicycle routes within the sub-corridor, including Class I, II, III, and IV facilities. In addition, within the Riverside County portion of the sub-corridor there are several proposed east/west regional routes. These routes would cross multiple jurisdictions and consist of different types of facilities and classes.

Figure 5.82 | Sub-Corridor Study Area
Helmet to Corona Sub-Corridor



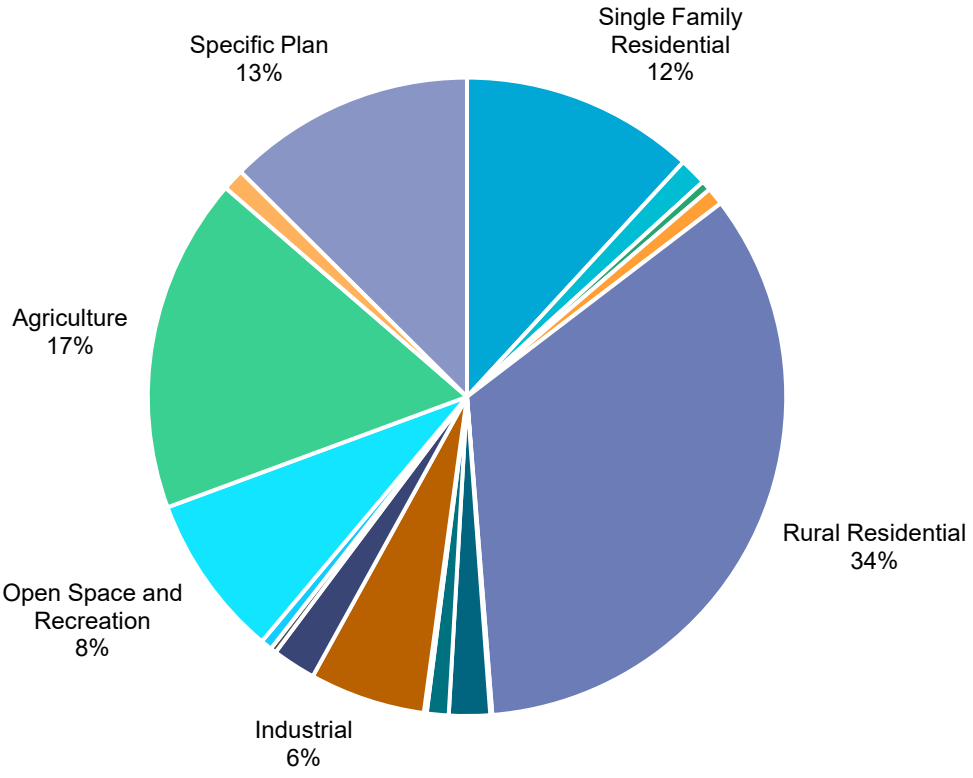
Hemet to Corona Sub-Corridor

Existing Characteristics of the Sub-Corridor

Socioeconomic and Land Use: Figure 5.83 illustrates the land use patterns in the sub-corridor and Figure 5.84 shows the land use by type. As shown, the predominant land use in the sub-corridor is rural residential, at 34 percent of the entire area, single family residential at 12 percent, agriculture at 17 percent, and open space and recreational at eight percent. In terms of employment-generating land uses, the area has six percent industrial and two percent commercial and services. March Air Reserve Base, a major employment area, is in the central part of this sub-corridor and there are very large warehousing and distribution centers located in the general vicinity. The area includes Lake Mathews and Lake Perris (Reservoir), two large bodies of water that are major water recreation areas and large portions of open space with habitats for sensitive species.

The CalEnviroScreen scores for this sub-corridor are high throughout most of the area. Areas with higher scores are in Corona, Moreno Valley, Perris, and north/east portions of Lake Elsinore. Areas with low scores are around Sun City. Higher scores indicate greater exposure indicators, greater environmental effects indicators, higher sensitive population indicators, higher socioeconomic factor indicators, or a combination of these. Areas with a high score generally experience a much higher pollution burden than areas with lower scores. SCAG "Communities of Concern" also occur in the communities of Home Gardens, Mead Valley, Perris, and Good Hope in the sub-corridor.

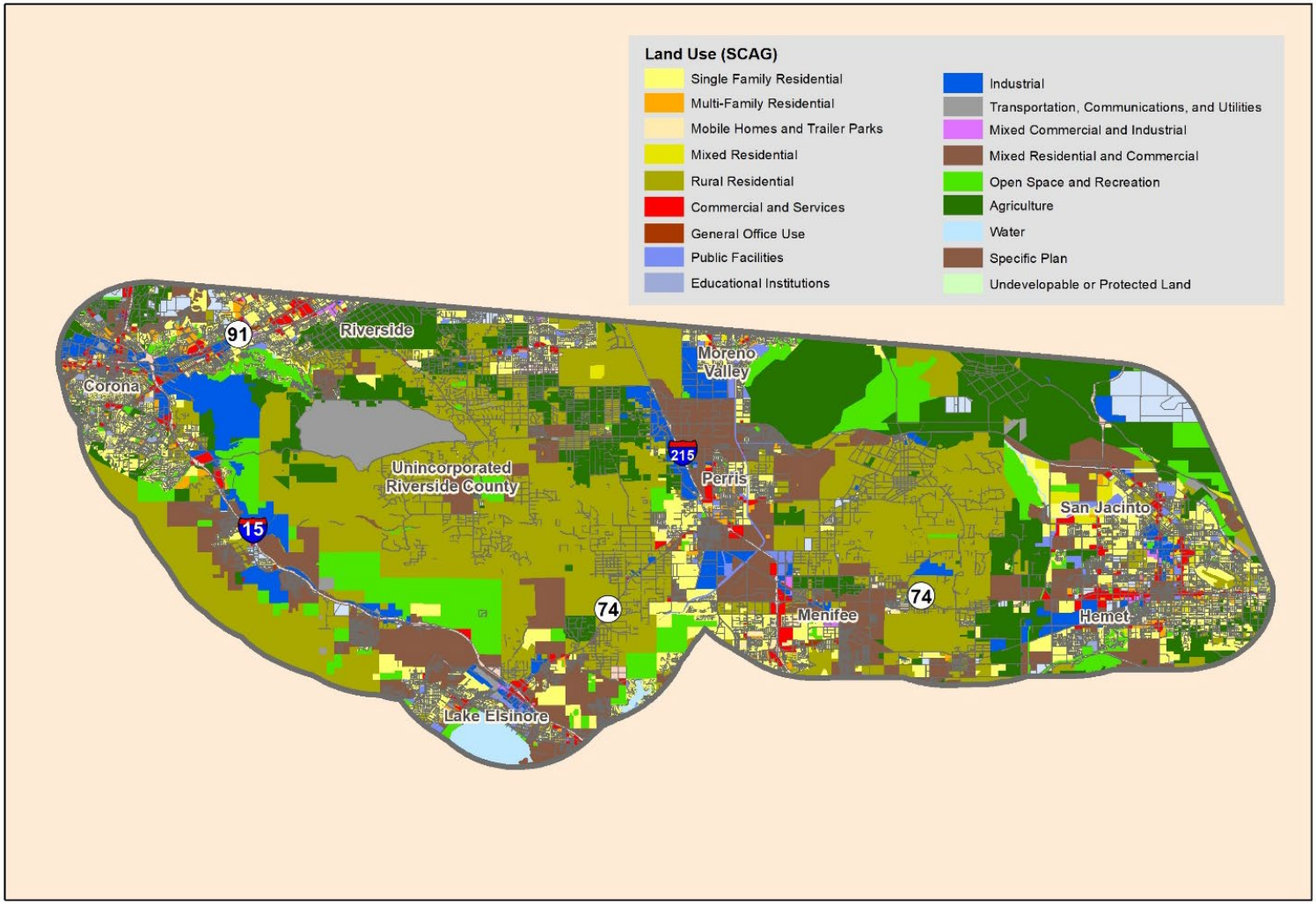
Figure 5.83 | Land Use Types in Sub-Corridor
Helmet to Corona Sub-Corridor



Source: SCAG 2012 Land Use.

Figure 5.84 | Land Use Map

Helmet to Corona Sub-Corridor



Hemet to Corona Sub-Corridor

0 2.5 5 10 Miles

Source: SCAG 2012 Land Use.

Employment density is relatively low in much of the sub-corridor, especially in unincorporated areas. Employment density is highest in Corona and Riverside at SR-91. There also are minor employment concentrations in Moreno Valley, Perris, Menifee, and Hemet. Population concentrations are in single-family residential land that is primarily in Corona and Riverside. Population also is concentrated in single-family neighborhoods in Perris, Menifee, San Jacinto, and Hemet. Given the predominance of residential land uses, the population-to-employment statistical ratio of the sub-corridor is 3.6, which is relatively high compared to some of the other areas of the overall Inland Empire CMCP Study Area, indicating a need for residents to commute longer distances to work.

Travel Patterns: Daily auto trips were examined to gain insight into the daily activity patterns of travelers in the region. Table 5.19 displays the magnitude and average sizes of trips within and external to the subarea. There are nearly 2.15 million daily auto trips made by residents and employees in the sub-corridor. As illustrated in the table below, 45 percent of those trips are internal-internal trips, meaning they start and end within the sub-corridor. These sub-corridor internal trips include commute travel for workers who live and work in the sub-corridor, as well as local trips for daily activities such as shopping, school, recreation, and other, which are often proximate to home. Forty-two percent of trips have one end in the sub-corridor and the other end inside the IE CMCP area and 12 percent of trips have one end in the sub-corridor and the other end outside the sub-corridor. The average trip lengths for trips with one end in the Study Area and the other either inside or outside of IE CMCP area are 2.9 and 7.9 times the length of the internal-internal trips, respectively.

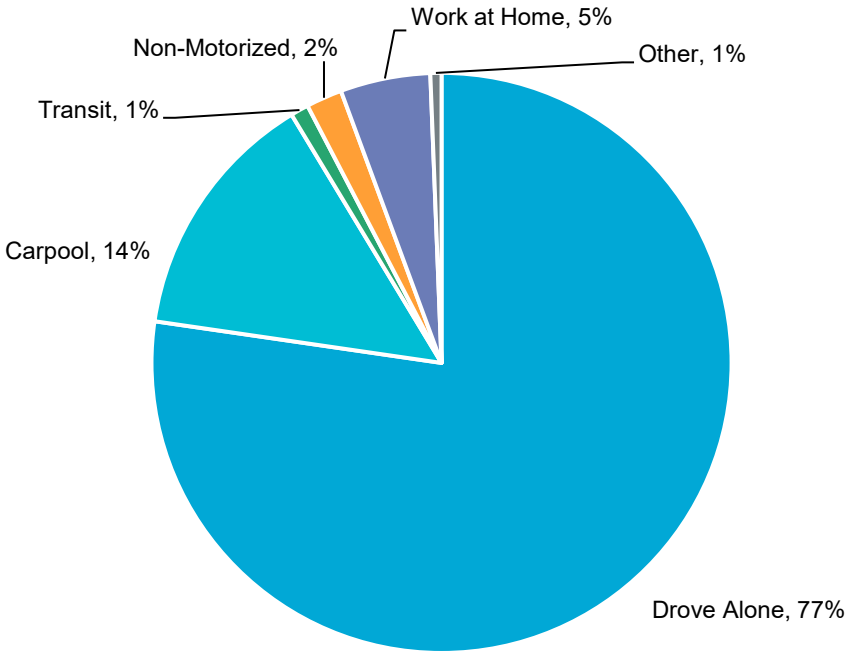
Table 5.19 | Internal and External Trips
Helmet to Corona Sub-Corridor

	Sub-corridor Internal Trips	Sub-corridor Trips to/from CMCP Study Area	Sub-corridor Trips to/from Rest of Region
Daily Auto Trips	976,000	911,000	263,000
	45%	42%	12%
Average Trip Length (Miles)	5.0	14.8	40.0

Source: SCAG Model 2016.

Commute trips were examined to better understand the peak period travel patterns. Figure 5.85 illustrates the journey to work mode share for the sub-corridor. Overall, 91 percent of commute trips in the sub-corridor are made by automobile. Notably, when examining the group that commutes by car, 14 percent of workers carpooled. The share of carpoolers is higher in the sub-corridor compared to California as a whole (10 percent). This is reflective of the relatively longer commute trips from the sub-corridor either to other job locations in Riverside County or Southern California and low levels of transit use, despite the presence of Metrolink services in this sub-corridor. Transit accounts for just one percent of commute trips, while five percent of residents work at home. Non-motorized trips account for just two percent of commute trips.

Figure 5.85 | Journey to Work Mode Share
Helmet to Corona Sub-Corridor



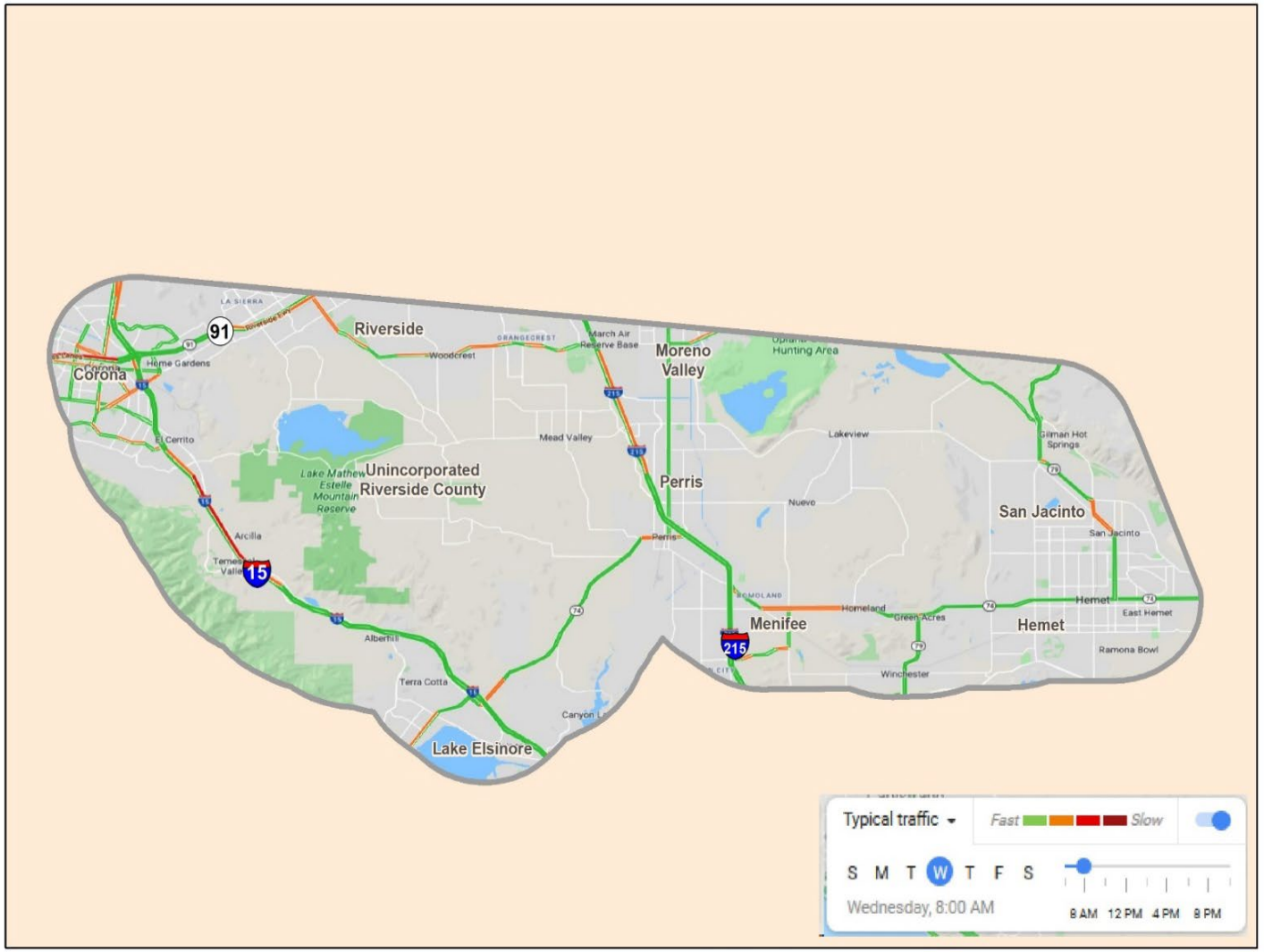
Source: ACS 2015, 5-year estimates.

Except for individuals who work at home, nearly 95 percent of the workers in the sub-corridor must find a way to travel to their jobs each workday. Their choice of transportation mode, departure time, trip origin, and destination all play key roles in determining door-to-door travel time. The collective result of these daily decisions are reflected in the commute times for the sub-corridor. Nearly 44 percent of all workers commute less than 30 minutes to work, 33 percent commute 30 to 60 minutes, and 23 percent commute over one hour, which is a reflection of a lack of major employment centers in the area.

Congestion, Delay, VMT: Figure 5.86 and Figure 5.87 show a snapshot of Google map traffic conditions during typical Wednesday AM and PM peak hour, respectively. As shown, the traffic data indicates that there is congestion on SR-74 between SR-79 and I-215 during both AM and PM peak hours.

Figure 5.86 | Existing AM Peak Hour Freeway Conditions

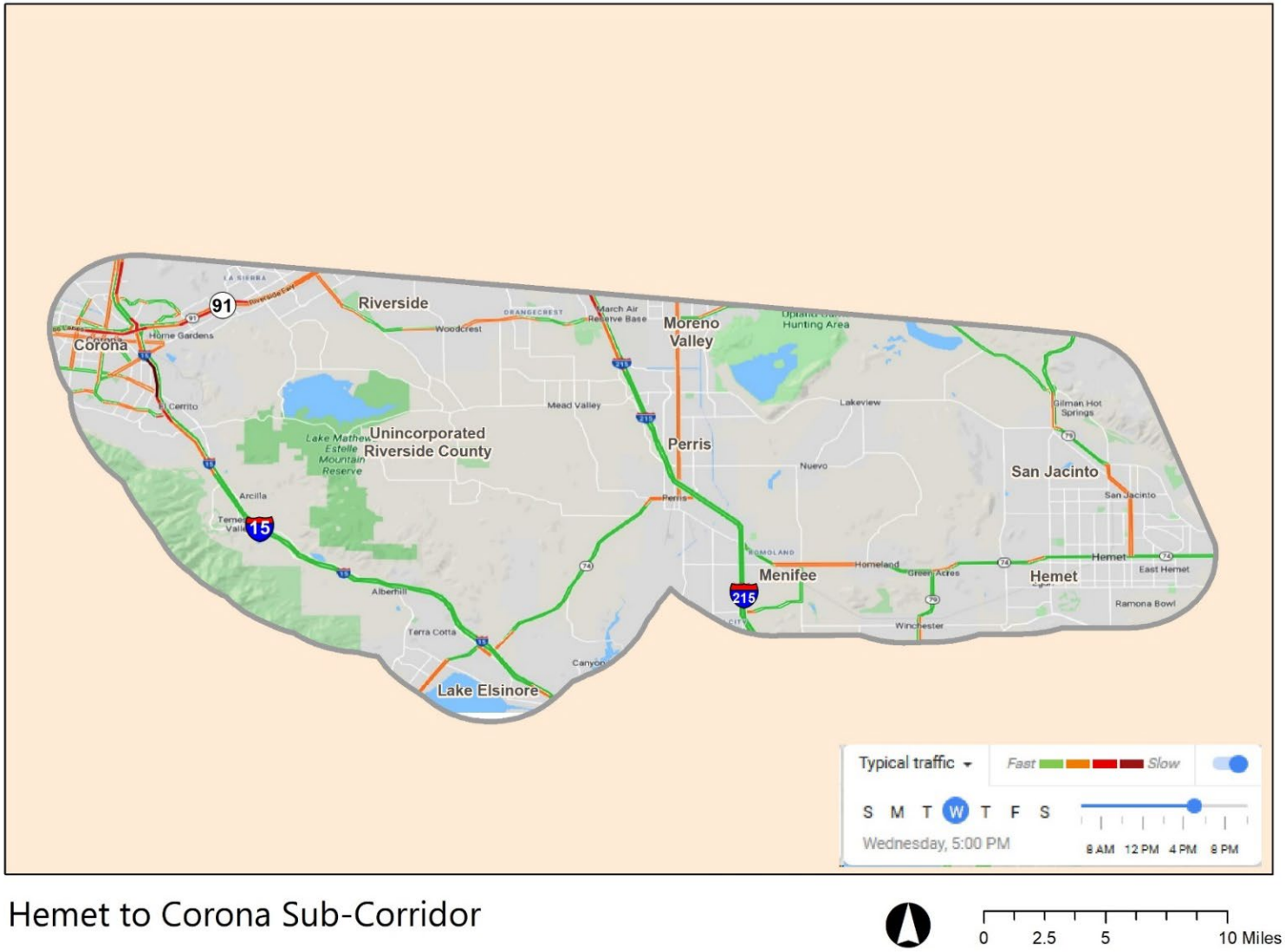
Helmet to Corona Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Figure 5.87 | Existing PM Peak Hour Freeway Congestion

Helmet to Corona Sub-Corridor



Source: Google Maps (Typical Wednesday Traffic)—accessed on March 6, 2020.

Daily VMT, including local trips and through traffic in the sub-corridor, are mainly carried on freeways and major arterial roadways. Table 5.20 shows the VMT in the sub-corridor by facility type. As shown, the arterial network carries 47 percent of the daily VMT. Daily VHT is nearly split 45/55 between freeways (including HOV lanes) and arterial network, reflecting slightly lower speeds on the arterials. As compared to the other sub-corridors, this area has relatively more VMT per service population and it ranks two out of the ten sub-corridors for highest VMT per service population.

Table 5.20 | Vehicle Miles of Travel by Facility Type
Helmet to Corona Sub-Corridor

	Vehicle Miles of Travel		Vehicle Hours of Travel	
Freeway	8,657,000	52%	170,000	44%
HOV	168,000	1%	3,000	1%
Arterials	7,981,000	47%	216,000	55%
Total	16,806,000	100%	389,000	100%

Source: SCAG Model 2016.

Transit Usage: This sub-corridor also has some high-quality transit stops at Metrolink stations in Corona, Riverside, and Perris. It also has some of the highest ridership bus stops in the overall IE CMCP Study Area, which are located at Corona Transit Center, Perris Transit Center, and Galleria at Tyler. Despite these transit facilities, in this sub-corridor only one percent of commute trips use transit.

Safety: Figure 5.88 illustrates the reported crashes by type for 2018. In terms of safety, SR-91 experiences the highest collision rates for the IE CMCP Study Area freeways. There is a relatively high concentration of bicycle and pedestrian collisions in this sub-corridor compared to other sub-corridors. High concentrations are along SR-91 between La Sierra Avenue and I-215/SR-60 interchange, possibly reflecting higher rates of walking and bicycling in these areas. Truck collisions occur throughout the Study Area but mostly along SR-91 with the largest concentrations near I-215/SR-91/SR-60 interchange.

Future Conditions

The sub-corridor is expected to experience the following growth rates by 2040:

- Population—34 percent increase.
- Employment—52 percent increase.

Commensurate with these projected relatively high rates of growth for the area's demographics, total trip making in the sub-corridor is expected to increase by 676,000 daily trips, representing a 31 percent increase. VMT is expected to increase by 25 percent and VHT is projected to increase by 58 percent. The disproportionate increase in hours of travel over miles of travel indicate increasing delay and congestion in the future due to the projected relatively high growth rates for this sub-corridor. Figure 5.89 and Figure 5.90 illustrate the AM and PM peak hour conditions, respectively, on the freeway system projected for 2040 from the SCAG model.

Figure 5.88 | Collisions
Helmet to Corona Sub-Corridor

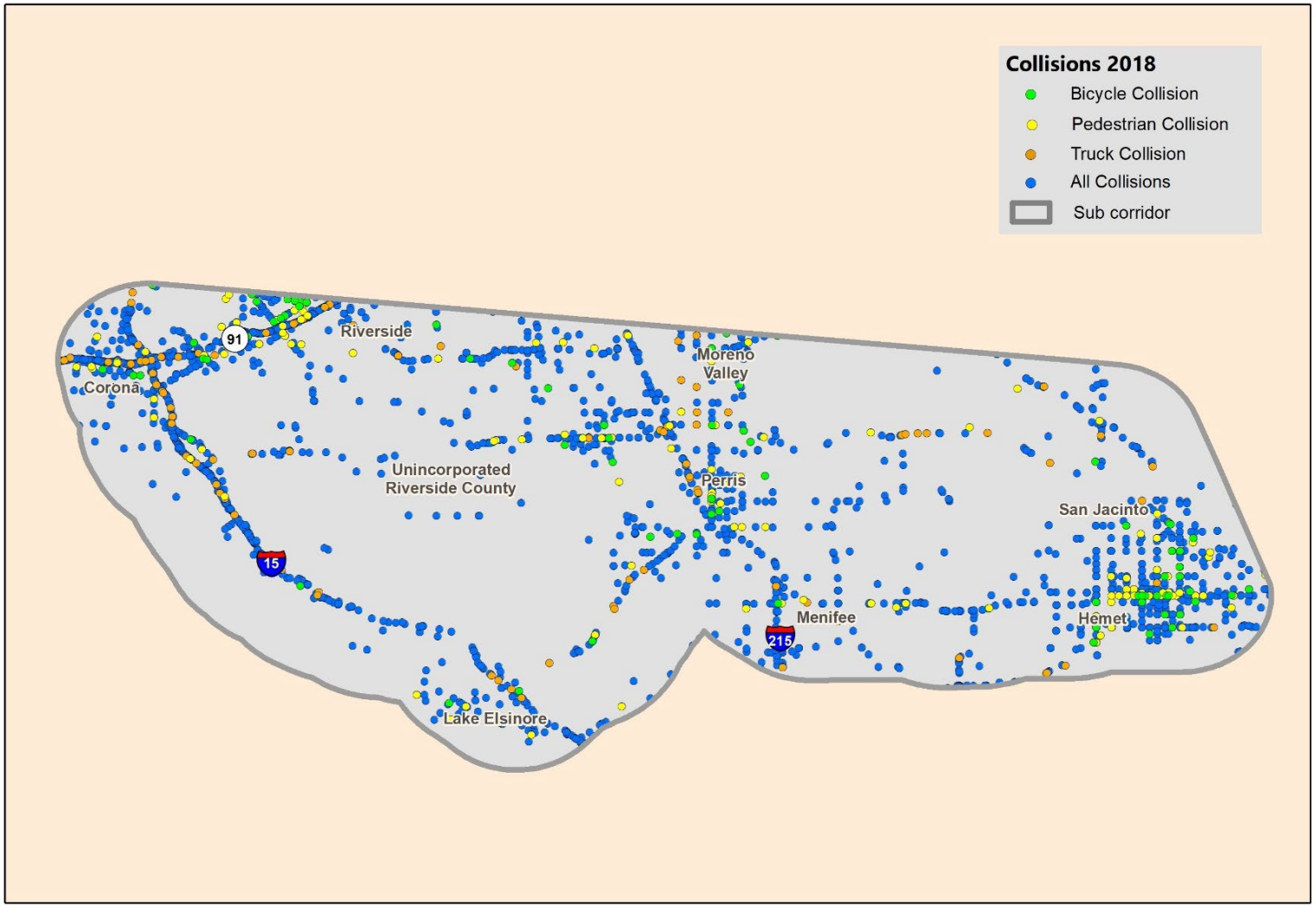
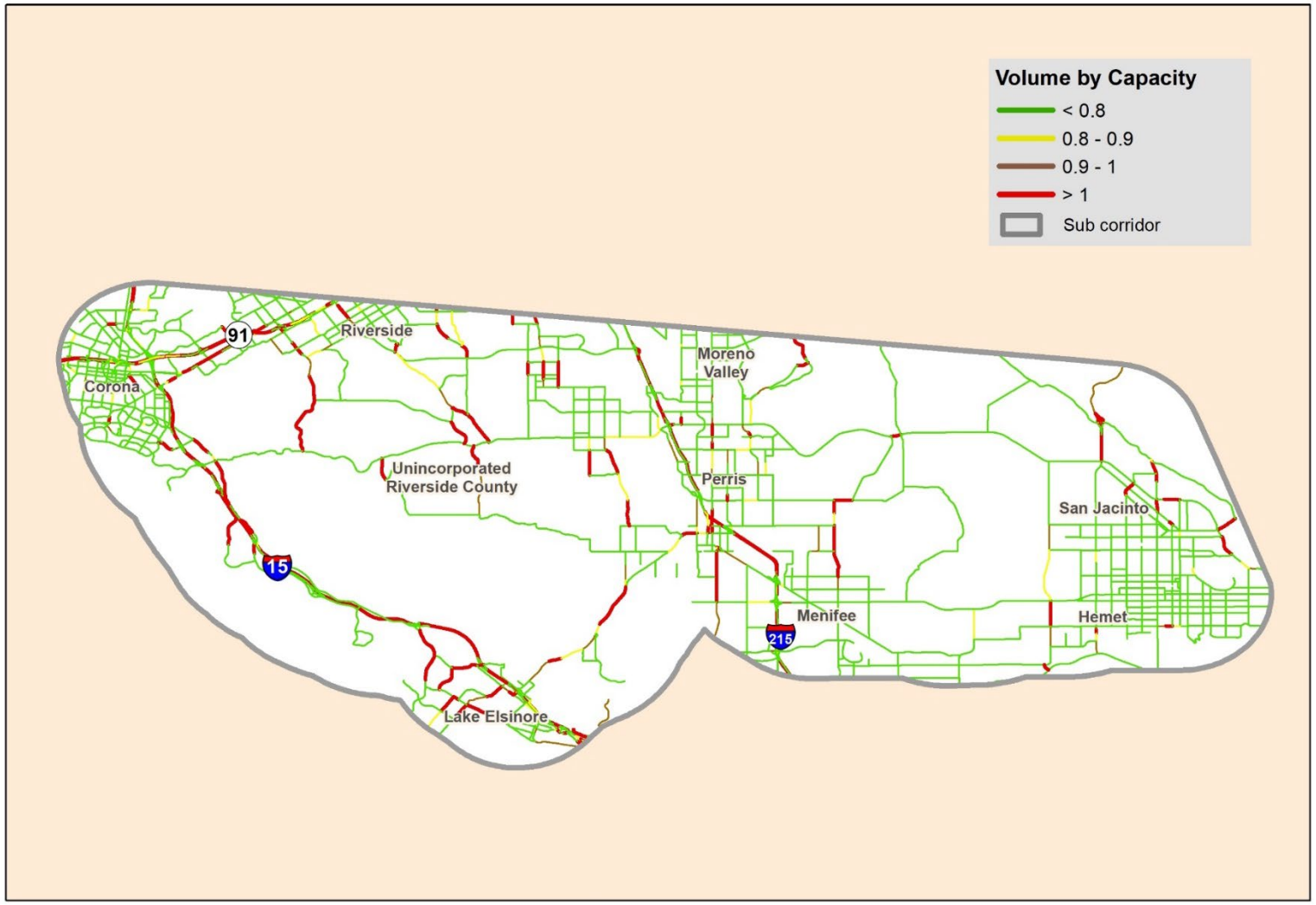


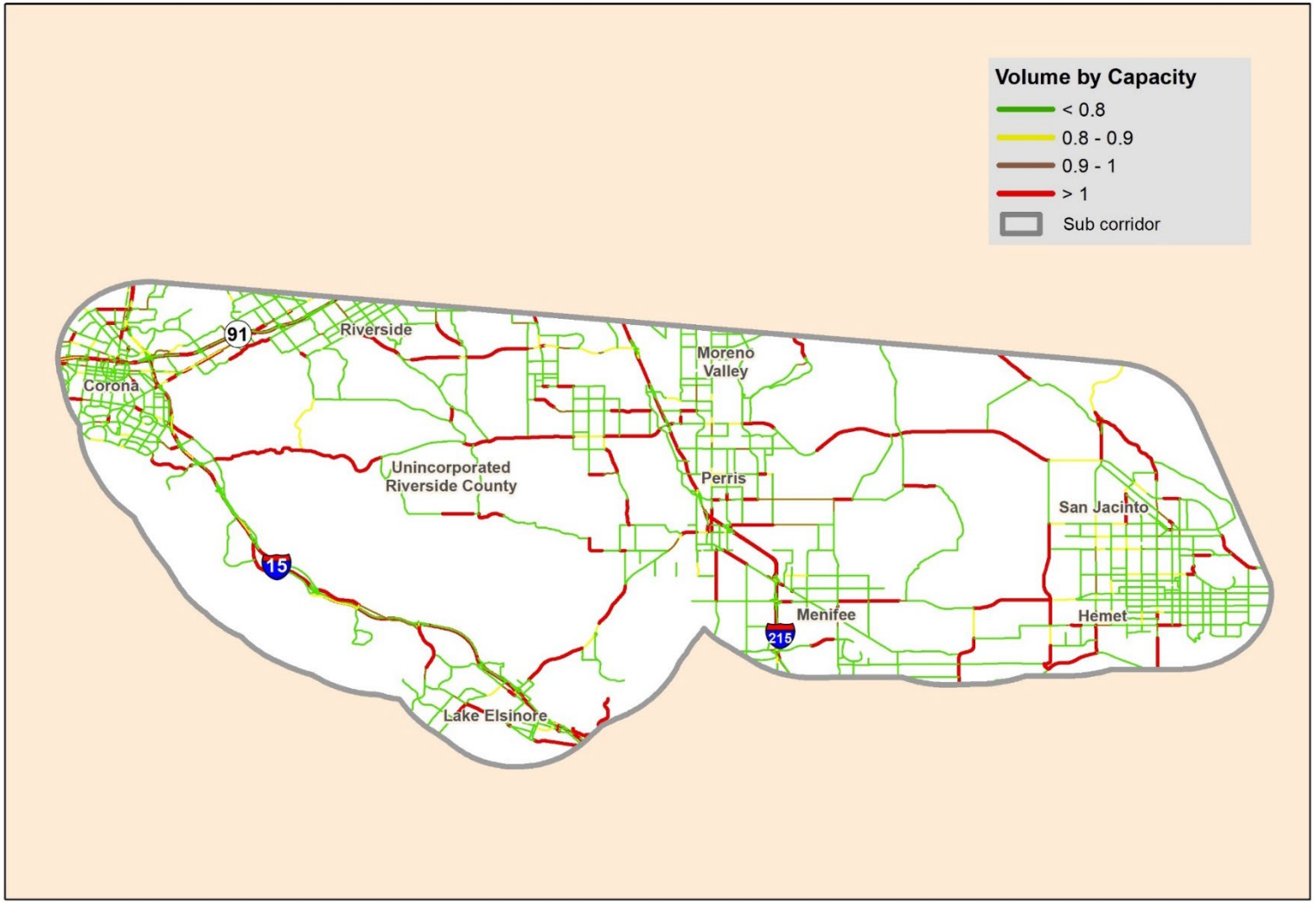
Figure 5.89 | Future 2040 Traffic Conditions—AM
Helmet to Corona Sub-Corridor



Hemet to Corona Sub-Corridor

0 2.5 5 10 Miles

Figure 5.90 | Future 2040 Traffic Conditions—PM
Helmet to Corona Sub-Corridor



Hemet to Corona Sub-Corridor

0 2.5 5 10 Miles

5.11.2 Strategic Approach for Hemet to Corona Sub-Corridor

Strategic Approach for Hemet to Corona Sub-Corridor

Problems to Be Addressed

- Lack of good east/west routes. No adequate east/west routes to connect communities.
- Need to preserve environmentally sensitive areas and habitats.
- SR-74 is an east-west principal arterial that transects the cities of Perris and Hemet. It functions as the cities' main street with a large concentration of local businesses and retailers but lacks adequate driveway access control, safe sidewalks and bike lanes, and traffic signals.
- High number of traffic incidents on east/west roadways.

Strategies

1. Complete regional Salt Creek Trail.
2. Complete Mid County Parkway to provide an additional regional east/west corridor, minimize use of local roads, and shift traffic away from SR-74.
3. Build on substantial transit assets. Invest in Metrolink rail expansion for the 91/Perris Valley line and construct accessibility improvements and station improvements at existing Metrolink stations.
4. Construct a new commuter rail station along the Perris Valley line in Mead Valley to grow ridership by increasing access to commuter rail service.
5. Implement first/last mile transit connections, particularly from major destinations to Metrolink stations.
6. Complete SR-79 realignment; improve access to SR-74.
7. Extend I-15 Express Lanes to SR-74 with new express lanes to improve trip reliability for commuters and transit riders and provide additional incentives for carpool and vanpoolers.
8. Complete Cajalco Road Corridor and Ethanac Expressway to provide additional regional east/west corridors, minimize cut-through traffic on local roads, and shift traffic away from SR-91.
9. Explore policies and methods to increase work at home to decrease commute trips.

6.0 Multimodal Transportation Projects

The Inland Empire CMCP effort included significant outreach to key corridor stakeholders, as described previously in this report. The stakeholders each have their own transportation plans and programming initiatives which are aimed at bringing forth and implementing multimodal transportation improvements in their respective jurisdictions. These include transportation plans of Caltrans, RCTC, WRCOG, SBCTA, and the corridors' local agencies including counties and cities. For the CMCP, all of the currently available plans were reviewed in detail by the stakeholder agencies. Each stakeholder agency also assisted with identifying the short- and medium-term priority projects from their respective plans in the 10 sub-corridors, listed in Appendix A. Each stakeholder agency has completed their own detailed analysis of the potential improvements and benefits of the improvement projects, and thus the projects have already been screened for various performance metrics at the local, county, and subregional levels. However, to supplement the agency's own evaluations, a second level of qualitative performance metric evaluation was completed for the IE CMCP for each project, utilizing the performance measures described in this section. Furthermore, data and findings from all quantitative sources such as the regional travel models, the Census American Community Survey, and other sources were used to inform the evaluations.

As discussed in Section 2.3, a series of performance measures are used to assess the list of projects based on a combination of state, regional, and local plans, goals, and objectives. The following key performance measures were discussed and chosen by the Inland Empire CMCP Project Management Team to assess the sub-corridor improvements:

- VMT Reduction
- Person Delay Reduction
- Safety Improvement
- Mode Shift
- Person Throughput
- Improve Accessibility
- Reduce GHG and Improve Air Quality
- Improve System Reliability
- Project Deliverability
- Congestion Relief

These performance metrics are used to assess the potential transportation system improvements in each sub-corridor. The intent is not to rank the improvements or measure them against each other, but rather to inform the CMCP and SCCP process regarding how the projects address the overall goals and objectives related to state, regional, and local plans, and how they help move people and goods in congested corridors. It is also recognized that the county-level plans and Caltrans plans have carefully developed short range, 10-year, and long range improvement plans with sets of projects that have been reviewed by residents, system users, and elected officials. Those plans are used as a backbone for the sub-corridor recommendations, with additional analysis related specifically to the CMCP.

A set of rules were applied by project type for each performance metric to determine if that project type has a greater or lesser benefit. For example, some types of transportation improvements may significantly improve safety but not necessarily reduce congestion, while others may reduce VMT but not significantly affect system reliability. The list of projects, performance measures, and how each project type scores for each metric is included in Appendix A.

Many of the projects are located entirely within one sub-corridor, while others, such as freeway projects, longer distance arterial improvement projects, and longer distance active transportation projects are located in more than one sub-corridor. The number of recommended projects in each sub-corridor is shown in Table 6.1.

Table 6.1 | Recommended Projects By Sub-Corridor

Sub-Corridor	Number of Recommended Projects
Victorville to San Bernardino	5
San Bernardino to Riverside	4
Cajon Pass to Eastvale	5
Riverside to Temecula	6
Beaumont to Temecula	3
Apple Valley to LA County Line	4
Banning to Rialto	4
Riverside/Rialto to LA County Line	7
Riverside to Orange County Line	5
Hemet to Corona	3

As noted above, the intent is not to rank or compare the projects, but rather to identify how each project will provide benefit to the transportation system based on the key metrics. The scores may represent a starting point for further evaluation at an individual project level within the environmental process or other more detailed project-focused modeling or analytical exercise.

It is critical to understand that individual projects may have greater or lesser benefit than represented by their generic classification used for the scoring in Appendix A, depending on a number of factors, for example: 1) the scope and scale of the specific project; 2) the context within which the project is being proposed (e.g. a more congested or less congested setting; and 3) the cost of the project (e.g. a smaller scale, lower scoring project could have high cost-effectiveness where the cost is also low).

These caveats are important because it is impossible to conduct a project-level evaluation for each project, or even each major project, within the framework of the CMCP. When each project goes through environmental review or is submitted for state or federal funding consideration, each project will go through a rigorous analysis of the quantitative benefits associated with that project, in the specific context within which it will be implemented. This includes an assessment of the benefits against project costs, resulting in a cost-effectiveness assessment. This process has become more well established with the advent of the SB 1 competitive programs. Therefore, any project given a low score in Appendix A could prove to have greater benefits and greater cost-effectiveness in an actual project-level evaluation in a site-specific context. Some projects may also have substantial freight benefit in one context but not in another. Therefore, it is important not to pre-judge any individual project based on a score in

Appendix A but view it in its unique application in the real-world environment. That said, the performance measure classification process and scores in Appendix A may be useful in highlighting the strengths and weaknesses of projects in each class.

7.0 Implementation and Funding Plan

Funding for transportation improvements is available through a series of Federal, state, and local sources. Depending on the source of funding, eligible projects vary by mode, scope, and project phase. Some funding programs allocate resources through competitive grant processes or other discretionary means, while other funds are distributed by formula to state, regional, or local governments. This chapter summarizes some of the relevant funding sources available for projects in the IE CMCP Study Area.

7.1 Federal Funding Sources

Federal transportation funding is administered by the U.S. Department of Transportation (U.S. DOT) and authorized by Federal transportation bills. The most recent transportation funding bill, Infrastructure Investment and Jobs Act (IIJA), was signed into law in 2021.

The law authorizes $1.2 trillion for transportation and infrasturcutre investment for the nation. $550 billion goes towards new formula and discretionary programs. Much of the formula funding available through the U.S. DOT's Highway Trust Fund is allocated to California based on the state's population. The State of California, in turn, distributes those funds to local agencies by formula or through competitive grant programs. For instance, the majority of the federally funded Surface Transportation Program funding in California is programmed through the STIP (Statewide Transportation Improvement Program). Additionally, California's Active Transportation Program consolidated most of the Federal and state funding sources for bicycle and pedestrian projects.

Highlighted below in Table 7.1, these federal funding programs provide opportunities for the Inland Empire CMCP cities and regional entities to apply for substantial funding amounts for regionally significant projects.

Table 7.1 | Relevant Federal Funding Sources

Name	Funding Type	Eligible Modes/Description
INFRA	Discretionary	A Federal discretionary grant program reviewed by U.S. DOT. Emphasis on highway and goods movement projects.
BUILD	Discretionary	A Federal discretionary grant program reviewed by U.S. DOT. Emphasis on multimodal projects.
New Starts and Small Starts (FTA Section 5309)	Discretionary	Funds light rail, heavy rail, commuter rail, streetcar, and bus rapid transit projects.
Highway Safety Improvement Program (HSIP)	Discretionary	Federally allocated to the State by formula, the HSIP program is available for roadway safety projects through a competitive program administered by Caltrans.
Congestion Mitigation Air Quality (CMAQ)	Formula	Federally designated air quality containment areas receive funding by formula to program local and regional projects.
Rail-Highway Crossings (Section 130) Program	Discretionary	Safety improvements to reduce the number of fatalities, injuries and crashes at public railway-highway crossings.
Grade Separation (Section 190) Program	Discretionary	This competitive grant program provides $15 million each year to local agencies for the construction grade separation projects.
National Highway Freight Program	Discretionary	The FAST Act established National Highway Freight Program (NHFP) to improve the efficient movement of freight on the National Highway Freight Network (NHFN).
National Highway Performance Program	Discretionary	The NHPP provides support for the condition and performance of the National Highway System (NHS), for the construction of new facilities on the NHS.
Nationally Significant Federal Lands and Tribal Projects	Discretionary	The Nationally Significant Federal Lands and Tribal Projects (NSFLTP) program provides funding for constructing, reconstructing, and rehabilitating nationally significant projects on Federal or Tribal lands.
National Significant Freight and Highway Projects (NSFHP)	Discretionary	The Nationally Significant Freight and Highway Projects (NSFHP) provides financial assistance—competitive grants or credit assistance—to nationally and regionally significant freight and highway projects that align with the program goals to: improve safety, efficiency, and reliability of the movement of freight and people; generate national or regional economic benefits and an increase in U.S. global economic competitiveness; reduce highway congestion and bottlenecks; Improve connectivity between modes of freight transportation; enhance the resiliency of critical highway infrastructure and help protect the environment; improve roadways vital to national energy security; address the impact of population growth on the movement of people and freight, mitigate impacts of freight movements on communities.
Surface Transportation Block Grant Program	Formula	STBG provides flexible funding that states and local governments may use for projects on any Federal-aid highway, including the National Highway System; bridge projects on any public road; transit capital projects and; public bus terminals and facilities.
Federal Transit Administration Sections 5303, 5304, 5305	Discretionary	Provides procedural and funding requirements for multimodal transportation planning in States and metropolitan areas. Planning must to be cooperative, continuous, and comprehensive leading to long-range plans and short-range programs that reflect transportation investment priorities. Funds are available to States and Metropolitan Planning Organizations (MPOs) for planning activities.
Federal Transit Administration Section 5307	Formula	The Urbanized Area Formula Funding program provides Federal resources to urbanized areas and to governors for transit capital and operating assistance and for transportation related planning.
Federal Transit Administration Section 5311	Formula	This program provides formula-based funding for capital and/or operating assistance to rural areas with a population fewer than 50,000 where many residents rely on public transit to reach their destinations.
Federal Transit Administration Section 5312	Discretionary	This program supports research activities that improve the safety, reliability, efficiency, and sustainability of public transportation by investing in the development, testing, and deployment of innovative technologies, materials, and processes.

Name	Funding Type	Eligible Modes/Description
Federal Transit Administration Section 5337	Formula	The State of Good Repair program is dedicated to repairing and upgrading the Nation's rail transit systems along with high-intensity motor bus systems that use high-occupancy vehicle lanes, including bus rapid transit.
Federal Transit Administration Section 5339	Formula	The Bus and Bus Facilities Infrastructure Investment Program (49 U.S.C. 5339) provides Federal resources to states and direct recipients to replace, rehabilitate and purchase buses and related equipment. This programs also allows for the construction of bus-related facilities, including technological changes or innovations to modify low or no emission vehicles or facilities.
Federal Transit Administration Transit-Oriented Development Planning Pilot	Discretionary	Provides funding to advance planning efforts that support transit-oriented development (TOD) associated with new fixed-guideway and core capacity improvement projects. TOD focuses growth around transit stations to promote ridership, affordable housing near transit, revitalized downtown centers and neighborhoods, and encourage local economic development.
Recreational Trails Program	Discretionary	The Recreational Trails Program (RTP) provides funds annually for recreational trails and trails-related projects. The RTP is administered at the Federal level by the Federal Highway Administration. It is administered at the state level by the California Department of Parks and Recreation (DPR).
Captial Investment Grants Program	Discrentionary	The Capital Investment Grants (CIG) Program funds fixed guideway investments inlcuidng new and expanded rapid rail,commuter rail, light rail, streetcars, bus rapid transit, and ferries, as well as corridor based bus rapid transit investments that emulate rail. There are three categories of eligible projects – New Starts, Small Starts and Core Capacity.
National Infrastructure Project Assistance "Megaprojects" or "Mega"	Discretionary	The Megaproject grant funds highway, bridge, freight intermodal or freight project, railway-highway grade separation or elimination project, or an intercity passenger rail project. Program funds projects that will likely generate nationa, regional, economic mobility or safety benefits.
Promoting Resilient Operations for Transformative, Efficient, Cost-Saving Transportation (PROTECT) Grants	Discretionary	PROTECT Grants will support planning, resilience improvements, community resilience and evacuation routes, and at-risk coastal infrastructure. States may use PROTECT Formula Program funds to conduct resilience planning, strengthen and protect evacuation routes, and increase the resilience of surface transportation infrastructure from the impacts of sea level rise. Highway, transit, and certain port projects are eligible.
Bridge Formula Program	Formula	This program provides funding for bridge replacement, rehabilitation, preservation, protection, or construction projects on public roads.
Bridge Investment Program	Discretionary	Program will support projects to improve bridge and culvert condition, safety, efficiency, and reliability. Eligible uses include: replace, rehabilitate, preserve or protect one or more bridges on the National Bridge Inventory and projects to replace or rehabilitate culverts to improve flood control and improve habitat connectivity for aquatic species.
Advanced Transportation Technologies & Innovative Mobility Development	Discretionary	Program will make funds available to deploy, install, and operate advanced transportation technologies. Eligible uses are for projects that improve safety, mobility, efficiency, system performance, intermodal connectivity, and infrastructure return on investment.
Consolidated Rail Infrastructure and Safety Improvement Grants	Discretionary	Grant funding that improve the safety, efficiency, and reliability of intercity passenger and freight rail.
Carbon Reduction Program	Formula	Program will provide grants to reduce transportation emissions or the development of carbon reduction strategies. Eligible projects include the construction, planning, and design of trail facilities for pedestrians, bicyclists, and other non-motorized forms of transportation; public transportation projects; and congestion management technologies.

Sources: United States Department of Transportation; California Department of Transportation; RCTC; SBCTA; Cambridge Systematics.

In addition to these Federal funding sources, IIJA continues the Transportation Infrastructure Finance and Innovation Act (TIFIA) Program, which provides Federal credit assistance to eligible surface transportation projects, including highway, transit, intercity passenger rail, some types of freight rail, intermodal freight transfer facilities, and some modifications inside a port terminal.

IIJA continues the authority of the TIFIA program to provide to States, localities, or other public authorities, as well as private entities undertaking projects sponsored by public authorities, three distinct types of financial assistance:

- *Secured loans* are direct Federal loans to project sponsors offering flexible repayment terms and providing combined construction and permanent financing of capital costs.
- *Loan guarantees* provide full-faith-and-credit guarantees by the Federal Government to institutional investors, such as pension funds, that make loans for projects.
- *Lines of credit* are contingent sources of funding in the form of Federal loans that may be drawn upon to supplement project revenues, if needed, during the first 10 years of project operations. [23 U.S.C. 603 and 604]

7.2 State Funding Sources

With the passage of California Senate Bill 1 (SB1), the Road Repair and Accountability Act of 2017, the State of California has additional transportation funding for local and regional projects. SB1 augmented existing sources of funding, such as the Active Transportation Program and State Highway Operation and Protection Program, and created entirely new funding programs, such as the Solutions for Congested Corridors and Trade Corridor Enhancement programs. Table 7.2 highlights the state funding sources that are most relevant to the IE CMCP projects.

Table 7.2 | Relevant State Funding Sources

Name	Funding Type	Eligible Mode/Notes
Local Streets and Roads	Formula	Cities and counties receive funds for road maintenance, safety projects, railroad grade separations, complete streets, and traffic control devices.
Solutions for Congested Corridors (SCCP)	Discretionary	Regional transportation authorities and Caltrans may nominate projects for funding to achieve a balanced set of transportation, environmental, and community access improvements to reduce congestion.
Trade Corridor Enhancement (TCEP)	Discretionary	Caltrans and regional entities can be project sponsors. Funding is available for infrastructure improvements in theBay Area, Central Valley, Central Coast, LA/Inland Empire, and San Diego/Border.
Local Partnership Program (LPP)	60% Discretionary 40% Formula	Eligible funding for "self-help" counties.[1] Most transportation improvements are eligible.
Active Transportation Program (ATP)	Discretionary	Eligible projects include bicycle and pedestrian improvements and planning. SB1 augmented the ATP with an extra $100M annually to the program.
State Highway Operation and Protection Program (SHOPP)	Formula	Projects are selected by Caltrans and adopted by the CTC. Projects included in the program are limited to capital improvements relative to the maintenance, safety, operation, and rehabilitation of the state highway system that do not add new capacity to the system.
State Transportation Improvement Program (STIP)	Formula	Projects are proposed by regional transportation agencies and approved by the CTC on a bi-annual basis. The majority of the STIP funding comes from Federal sources.
Transit and Intercity Rail Capital Program (TIRCP)	Discretionary	Discretionary program administered by Caltrans and the California State Transportation Agency (CalSTA). Funds transformative capital improvements that will modernize California's intercity, commuter, and urban rail systems, and bus and ferry transit systems, to significantly reduce emissions of greenhouse gases, vehicle miles traveled, and congestion.
SB 821 Bicycle and Pedestrian Facilities Program	Discretionary	Each year 2 percent of the LTF revenue is made available for use on bicycle and pedestrian facility projects. RCTC allocates SB 821 funds through a biennial Call for Projects. All of the cities and the County of Riverside are notified of available funding and are requested to submit project proposals. Eligible projects include sidewalks, access ramps, bicycle facilities, and bicycle plan development.

[1] *Counties that have passed local option sales tax measures to fund transportation improvements.*

Source: California Department of Transportation, California Transportation Commission.

7.3 Local Funding Sources

Riverside County

Toll Revenue

Congestion-pricing involves charging varying tolls or fees to transportation system users. Implementation of express lanes is a strategy of congestion pricing. Routinely, service demands exhibit a peaking characteristic related to the time of day or seasonal time of the year. The 91 Express Lanes currently applies a time of day pricing policy, which charges higher tolls in the peak period allowing for a more reliable trip in the express lanes during the most congested hours of the day.

RCTC's venture into tolling expanded the agency's funding and financing options for the design and construction of the currently operational 91 Express Lanes and the future 15 Express Lanes, currently in construction. Toll revenue is a new funding source in addition to Measure A and traditional state and Federal funding sources.

As a result of the financing successes from the 91 Express Lanes and 15 Express Lanes, RCTC will continue to use toll revenue in the following ways:

1. Borrow against future toll revenue to help fund capital costs of new express lane facilities (e.g., project financings for the 91 and 15 Express Lanes).
2. Pay annual Operation and Maintenance (O&M) expenses on express lanes facilities, debt service and financing reserves, and life-cycle repair and rehabilitation of the toll system and roadway.
3. Construct RCTC-approved transportation projects in the corridor from which the surplus toll revenue was generated (statutorily mandated).

Local Transportation Revenue Funds

Several transportation funding sources have their origins in city or county revenues. These include general fund revenues used for street purposes at the city level, development impact fees, gas tax shares, proceeds from bond sales for street purposes, street assessment levies, and traffic safety fund revenues.

Transportation Uniform Mitigation Fee

Transportation Uniform Mitigation Fees (TUMF) are an important part of the Measure A extension. The TUMF programs for the Western Riverside County subregion and the Coachella Valley subregion ensure that future development contributes its fair share toward infrastructure costs to mitigate new growth's cumulative, indirect, and regional transportation impacts consistent with the State's Mitigation Fee Act. The fees help fund improvements to maintain target levels of service in the face of higher traffic volumes that new developments bring.

Riverside County Local Sales Tax—Measure A Funds

Measure A was first approved by Riverside County voters in 1988 and was in effect for 20 years from 1989 to 2009. It was extended for an additional 30 years in 2002. Measure A is administered by RCTC for the purpose of collecting a half-cent local transaction and use tax for transportation. Measure A was enacted to fill the funding shortfall to: implement necessary highway, commuter rail, and transit projects; secure new transportation corridors through environmental clearance and right-of-way purchases; provide adequate maintenance and improvements on the local street and road system; promote economic growth throughout the County; and provide specialized programs to meet the needs of commuters and the specialized needs of the growing senior and disabled population. Approximately $4.662 billion will be collected over the 30-year period between 2009 and 2039 for a variety of transportation mode improvements and programs in Riverside County.

San Bernardino County Financial Strategy

Revenue sources in San Bernardino County include Measure I (cash and bond), local contributions, and state and Federal funds as described in this chapter. Measure I is the half-cent sales tax collected throughout San Bernardino County for transportation improvements. San Bernardino County voters first approved the measure in 1989 and in 2004 approved the extension through 2040.

SBCTA administers Measure I revenue and is responsible for ensuring that funds are used in accordance with various plans and policies. Measure I funds are allocated based on the Measure I-2010-2040 Ordinance and Expenditure Plan and the Strategic Plan policies that define the framework for the programs and projects referenced in the measure. The 10-Year Delivery Plan outlines the near-term strategy.

The administration of Measure I is different between the Valley and the Mountain/Desert areas. The County is divided into six “subareas” with distinct expenditure plans and policies. Additionally, Measure I has a return-to-source provision so that revenue collected within a subarea can only be used in that subarea.

The financial strategy used in the development of the 10-Year Delivery Plan includes:

- Apply ordinance and policy criteria.
- Preserve existing grants.
- Maximize available funds.

The 10-Year Delivery Plan is built off of the Measure I Ordinance and Board Policies.

Key Ordinance requirements are:

- Measure I revenues shall be allocated by formula to subareas and programs.
- State and Federal funds shall be allocated proportionally to subareas over time.

Key Board Policies are:

- State and Federal funds shall be allocated to maintain geographic equity.
- Congestion Mitigation and Air Quality (CMAQ) funds for the San Bernardino Valley shall be allocated in the following priority: 1) regional programs; 2) transit capital projects; and 3) freeway HOV projects. There is no established policy for the Mountain/Desert Subareas.
- Surface Transportation Program (STP) funds for the San Bernardino Valley shall be allocated to the Freeway Projects Program. There is no established policy for the Mountain/Desert Subareas.
- A Measure I Program that benefits from bonding shall accommodate the debt service within the Program's revenue.

Numerous existing grants have to be used by a certain date or the grant is rescinded. The 10-Year Delivery Plan is developed to ensure these funds are not lost. This strategy is critical in the development of each 10-Year Delivery Plan to allow SBCTA to meet the delivery deadlines and make full use of grant awards that have allocation and award deadlines, like many of the competitive SB1 programs.

With SBCTA facing transportation funding challenges, maximizing all available funds is critical. State and Federal funds are subject to rescission if the funds are not used in a timely manner. The 10-Year Delivery Plan allows for better management of all funds across programs and subareas, minimizing the potential for funds to be rescinded.

Appendix A to the Inland Empire Comprehensive Multimodal Corridor Plan
- Inland Empire Projects and Performance Assessment -

This Appendix A to the Inland Empire (IE) Comprehensive Multimodal Corridor Plan (CMCP) provides an overview of a non-exhaustive list of projects in Riverside and San Bernardino Counties that have a potential to receive funding/support from the State of California. While the CMCP is required only for qualification of projects for SB 1 Solutions for Congested Corridors Program (SCCP) funding, other projects have been included in this listing to present a more comprehensive picture of current and future project proposals. Examples of other potential state funding sources (not a complete list) include:

- State Transportation Improvement Program (STIP)
- Caltrans Active Transportation Program (ATP)
- State Transit Assistance (STA) Fund
- Transit and Intercity Rail Capital Program (TIRCP)
- SB 1 Local Partnership Program (LPP)
- SB 1 Trade Corridor Enhancement Program (TCEP)
- State Highway Operation and Protection Program (SHOPP)

Table A.1 below provides a listing of projects organized under the 10 sub-corridors of the IE CMCP. The title of the project is listed in the first column (projects are not in any priority order). This is followed by qualitative ratings of each project against the performance measures identified on page 6-1 of the CMCP. The ratings are on a scale of 1 to 5, as described below:

1 = Strongly negative impact
2 = Moderately negative impact
3 = Neutral
4 = Moderately positive impact
5 = Strongly positive impact

The last two columns identify funding sources and timeframe. Codes for funding sources are at the bottom of the table. For timeframe, S = short-term, generally with construction start within 5 years; M = medium-term, with construction start generally between 5 and 10 years; and L = long term or over 10 years.

Table A.1. Listing of Multimodal Projects in the Inland Empire

Projects by Sub-Corridor	Reduce VMT	Reduce Person-Delay	Improve Safety	Shift to non-SOV modes	Increase throughput	Improve Accessibility	Reduce GHGs/ Emissions	Improve System Reliability	Reduce Congestion	Project Deliverability	Funding sources (L, T, P, S, F)	Time Frame (S, M, L)
1. Victorville to San Bernardino												
a. US 395 Freight Mobility and Safety Project	4	5	5	3	5	5	4	5	5	5	L, S, F	S
b. Cajon Pass Freight Operational and Safety Improvements	3	4	5	3	4	4	3	4	4	5	L, S	M
c. Brightline High Speed Rail	5	4	3	5	5	4	5	4	4	5	P	S
d. Enhanced transit feeder service to Brightline Station	5	4	3	5	5	4	5	4	4	5	L, S, F	S
e. I-15 Alternate Route Planning and Development	3	4	5	3	5	5	3	4	4	3	L, S	M
2. San Bernardino to Riverside												
a. I-10/Mt. Vernon Ave. Interchange Improvements	3	5	4	2	5	4	3	5	5	5	L	S
b. Santa Ana River Trail Improvements	4	3	3	4	3	4	4	3	3	4	L, S	S
c. I-215 Freight and Managed Lane Project N. of 210	2	5	4	4	5	5	5	5	5	5	L, S	L
d. I-215/University Parkway Interchange	3	5	4	2	5	4	3	5	5	5	L	S
3. Cajon Pass to Eastvale												
a. I-15 Freight Improvement Project: Auxiliary Lanes and Managed Lanes, Phase 1	2	5	5	4	5	4	2	5	5	5	L, S, F, T	S
b. West Valley Connector BRT	5	4	4	5	4	5	5	3	4	5	L, S, F	S
c. Brightline High Speed Rail to Cucamonga Station	5	4	3	5	5	5	5	4	5	3	P	S
d. ONT Connector	5	3	3	5	4	5	5	3	3	3	S, F	S
e. San Sevaine Bike/Ped Trail	4	3	3	4	3	4	4	3	3	4	L, S	S

Projects by Sub-Corridor	Reduce VMT	Reduce Person-Delay	Improve Safety	Shift to non-SOV modes	Increase throughput	Improve Accessibility	Reduce GHGs/ Emissions	Improve System Reliability	Reduce Congestion	Project Deliverability	Funding sources (L, T, P, S, F)	Time Frame (S, M, L)
4. Riverside to Temecula												
a. Metrolink Perris-South Station Expansion	5	4	5	5	5	4	5	5	5	5	S, F	S
b. Metrolink Double Track Project: Moreno Valley to Perris	5	5	4	5	5	5	4	5	4	5	S, F	S
c. I-15 Express Lanes Southern Extension	3	4	3	4	3	3	3	4	5	5	L, S, F, T	S
d. I-15 Smart Freeway Temecula	3	5	3	3	5	4	3	5	5	4	S, F	S
e. Bundy Canyon Road Widening	2	4	3	2	4	5	2	4	5	4	L	S
f. Temescal Canyon Road Widening	2	4	4	2	4	5	2	5	4	4	L, S	S
g. I-15/SR-74 Interchange	4	4	4	2	3	4	4	4	4	5	L, F	S
5. Beaumont to Temecula												
a. SR-79 Realignment	2	4	5	2	4	5	3	4	5	3	L, F	M
b. I-15 Smart Freeway Temecula	3	5	3	3	5	4	3	5	5	4	S, F	S
c. French Valley Parkway, Phase III	2	4	2	2	5	5	2	5	4	3	L, S	M
6. Apple Valley to LA County Line												
a. Yucca Loma Corridor, Greentree Extension	2	5	4	4	5	5	2	5	5	5	L, S	S
b. Phelan Road Widening from SR-138 to Hesperia City Limits	2	5	4	4	5	5	2	5	5	5	L, S	S
c. SR-247 Operational, Safety, and Bike/Ped Improvements	3	4	5	3	4	4	3	4	5	4	L, S	M
d. SR-18 Operational, Safety, and Bike/Ped Improvements	3	4	5	3	4	4	3	4	5	4	L, S	M
7. Banning to Rialto												
a. I-10 EB Truck Climbing Lane in Yucaipa	3	4	5	3	4	4	3	4	5	5-	L, S	S
b. I-10/Wildwood Canyon Interchange	3	5	4	2	5	4	3	5	5	5	L	M

Projects by Sub-Corridor	Reduce VMT	Reduce Person-Delay	Improve Safety	Shift to non-SOV modes	Increase throughput	Improve Accessibility	Reduce GHGs/ Emissions	Improve System Reliability	Reduce Congestion	Project Deliverability	Funding sources (L, T, P, S, F)	Time Frame (S, M, L)
d. I-10 Freight and Managed Lane Project, Pepper to Ford	2	5	5	4	5	4	2	5	5	5	L, S, F, T	M
d. I-10 Bypass	2	5	5	4	5	4	2	5	5	5	L, S, F, T	M
8. Riverside/Rialto to LA County Line												
a. West Valley Connector Bus Rapid Transit	5	4	4	5	4	5	5	3	4	5	L, S, F	S
b. Metrolink Double-Track, Lilac to Sycamore	5	4	4	5	4	4	4	5	4	5	L, S	S
c. Gold Line to Montclair	5	4	4	5	4	5	5	3	4	5	L, S,	S
d. I-10 Corridor Freight and Managed Lane Project, I-15 to Pepper Ave.	2	5	4	4	5	4	3	5	5	5	L, S, F	S
e. I-10/Riverside Ave. Interchange, Phase 2	3	5	4	2	5	4	3	5	5	5	S	S
f. I-10/Cedar Ave. Interchange	3	5	4	2	5	4	3	5	5	5	S	S
g. Coachella Valley Rail	5	5	5	5	5	5	5	5	5	5	L, S, F	M
h. Enhanced Metrolink Services	5	4	4	5	4	5	4	5	4	5	L, S, F	S
9. Riverside to Orange County Line												
a. Coachella Valley Rail	5	5	5	5	5	5	5	5	5	5	L, S, F	M
b. BNSF Triple Track at Fullerton to Fourth track at Riverside-Downtown Metrolink station	5	5	4	5	5	4	5	5	5	4	S, F	M
c. 241/91 Express Lanes Connector	3	5	3	3	3	4	4	4	5	5	L, T	S
d. Third Street Grade Separation	3	5	5	3	3	3	4	5	5	5	L, S, F, P	S
e. 91 Eastbound Corridor Operations Project	3	5	4	3	3	3	3	5	5	3	L	M
10. Hemet to Corona												
a. Mid County Parkway	3	4	5	3	4	4	3	4	4	3	L, S, F	S
b. Cajalco Road Widening	2	4	3	3	4	4	3	5	4	4	L	L
c. Ethanac Expressway	2	4	3	3	4	4	3	5	4	3	L	L

List of Funding Source Codes:

- L = Local – Measure I/A and Development Fees
- T = Toll
- P = Private
- S = State, such as SB 1, ATP, STIP, STA, and Local Transportation Fund (LTF)
- F = Federal, such as Surface Transportation Block Grant (STBG), Congestion Mitigation and Air Quality (CMAQ), Discretionary Grants

Brief Project Descriptions by Sub-Corridor (projects not in priority order):

1. Victorville to San Bernardino
    a. US 395 Freight Mobility and Safety Project – This project would convert the facility from 2 lanes to 4-lanes with a median lane, turning lanes, and eight-foot shoulders between I-15 and SR-18, a distance of approximately 7 miles. It would be a collaborative effort by SBCTA and Caltrans to close a critical gap in US 395 in the Victor Valley.
    b. Cajon Pass Freight Operational and Safety Improvements – This project consists of ramp merging improvements northbound and southbound at the truck scales just south of SR-138, moving the southbound weigh station to the top of the Cajon Pass. Also includes extension of the northbound truck climbing lane from Kenwood to SR-138.
    c. Brightline High Speed Rail – This is a privately and publicly funded project by Brightline West to implement an electrified high-speed passenger train from Las Vegas to the Cucamonga Metrolink Station, with intermediate stations in Apple Valley and Hesperia. An MOU has been executed with Caltrans for use of the I-15 median ROW.
    d. Enhanced transit feeder service to Brightline station – With the advent of Brightline, Victor Valley Transit Authority (VVTA) anticipates providing a feeder service to the Brightline station in Hesperia via a combination of route adjustments and new route(s) to the Brightline station including linear service down US 395. VVTA also expects to incorporate feeder service from the east side of I-15 via several east-west corridors such as Main Street in Hesperia and Bear Valley Road. This new service concept and financing will be developed as part of VVTA's planned Comprehensive Operational Analysis (COA)
    e. I-15 Alternate Route Planning and Development – I-15 in the Cajon Pass between San Bernardino and Hesperia is particularly vulnerable to extended closures through major traffic incidents and wildfires. This route was a case study for an Inland Empire Climate Adaptation Planning Study, and a state grant was received to study the SR-247/62 corridor specifically.

2. San Bernardino to Riverside
    a. I-10/Mt. Vernon Ave. Interchange Improvements – The project will improve local traffic operations associated with the I-10/Mount Vernon Avenue Interchange in the City of Colton. Improvements include lane additions, restriping, signal retiming, and the widening of the overcrossing, which better accommodate additional modes of travel, including bicycle/pedestrian.
    b. Santa Ana River Trail (SART) Improvements – The SART has been a primary Class 1 bicycle/pedestrian trail that ultimately extends from Highland in San Bernardino County, through Riverside County, and into Orange County, located in the Santa Ana

River Watershed. Most of the remainder of the trail to be developed is in San Bernardino County, with a primary source being ATP funds. A status report and construction notices may be found at: Santa Ana River Trail & Pkwy – Parks (sbcounty.gov).

c. I-215 Freight and Managed Lane Project – This project would add a managed lane and make ramp operational improvements for freight. This corridor is seeing an increase in logistics development and the associated truck volumes.
d. I-215/University Parkway Interchange Reconstruction – The project will improve freeway access from University Parkway and improve local street traffic operations through a reconfiguration of the existing tight diamond interchange to a Diverging Diamond Interchange (DDI) configuration. The project includes ramp improvements, driveway modifications, new traffic signals, overhead signs, drainage improvements, and aesthetic improvements.

3. Cajon Pass to Eastvale
    a. I-15 Freight Improvement Project: Auxiliary Lanes and Managed Lanes, Phase 1 – The I-15 project has been environmentally cleared for auxiliary lanes and express lanes from Cantu Galleano Ranch Road to 1.2 miles north of Duncan Canyon Road. The first contract being delivered is from the north terminus of the Riverside County Transportation Commission's express lanes project at Cantu Galleano Ranch Road to Foothill Boulevard in the City of Rancho Cucamonga. The design includes the addition of two express lanes and strategic auxiliary lanes.
    b. West Valley Connector Bus Rapid Transit, Phase 1 (also in the Riverside/Rialto to LA subcorridor) – The West Valley Connector (WVC) Project is a 19-mile BRT project that proposes limited stops, providing speed and quality improvements to the public transit system within the corridor. The WVC will serve the cities of Pomona, Montclair, Ontario and Rancho Cucamonga; interconnect with two Metrolink stations; provide service to the Ontario International Airport; and link to the Ontario Mills shopping/entertainment complex, Ontario Convention Center, and Victoria Gardens as well as other mixed use development in Rancho Cucamonga. The project includes the purchase of 18 battery electric buses and improvements to Omnitrans west O&M facility needed to operate and maintain the battery electric buses. The project began construction in early 2024.
    c. Brightline High Speed Rail (also in the Victorville to San Bernardino Subcorridor) – This is a privately and publicly funded project by Brightline West to implement an electrified high-speed passenger train from Las Vegas to the Cucamonga Metrolink Station, with intermediate stations in Apple Valley and Hesperia. An MOU has been executed with Caltrans for use of the I-15 median ROW.
    d. Ontario International Airport Connector (ONT Connector) – The ONT Connector takes the innovative approach of tunneling to create a subsurface transit connection that will quickly transport passengers the four miles between the Cucamonga Station and ONT in autonomous, zero-emission vehicles without disrupting the surface transportation network. To be operated by Omnitrans, the transit tunnel will serve travelers to ONT on an "on-demand" basis by having vehicles ready to pick them up at Cucamonga Station when they arrive on Metrolink (or other transit modes) and be ready to pick them up at the ONT terminals to travel back to the Cucamonga Station so that they can make their connection to the regional transit system. The tunnel and stations, will be a "closed system," accessible only to the autonomous vehicles.

e. San Sevaine Bicycle/Pedestrian Trail – The San Sevaine Trail project is a collaborative project between the San Bernardino Flood Control District, Caltrans District 8, the City of Fontana, and the City of Rancho Cucamonga that will construct 8 miles of Class 1 multi-use trail with pedestrian and bicycle amenities paralleling I-15. Trail construction will expand the existing San Sevaine Trail to create a total of 11 miles of Class 1 trail that traverses the I-15 Corridor with two undercrossings and one overcrossing.

4. Riverside to Temecula
    a. Metrolink Perris-South Station Expansion – On the north side of Case Road in the City of Perris, construct a second passenger loading platform at the station along with canopies and passenger amenities. Additionally install 1,100 feet of station track to allow passengers to load and deboard at the same time.
    b. Metrolink Double Track Project: Moreno Valley to Perris – The project is located between Moreno Valley and Perris. Improvements include upgrading the existing six miles of second main track to passenger rail standards. By doing so, this will provide the Perris Valley Line a total of nine miles of double track for passenger rail.
    c. I-15 Express Lanes Southern Extension – The proposed project extends the I-15 Express Lanes by an additional 15.8 miles from El Cerrito Road in Corona, through Temescal Valley, to State Route 74 (Central Avenue) in Lake Elsinore. The project proposes adding two tolled express lanes in both directions within the I-15 median to accommodate increasing traffic volumes in Riverside County. The project would improve traffic operations and travel times, expand travel choice through carpooling and mass transit, increase travel time reliability, manage long-term traffic congestion, provide a cost-effective mobility solution, and expand and maintain compatibility with the regional express lanes network.
    d. I-15 Smart Freeway Temecula – On I-15 in the City of Temecula, install a new vehicle detection and adaptive highway metering systems on I-15 northbound from the San Diego County line to the I-15/I-215 split. Improvement includes relocation of existing ramp meters at Rancho California Road and Temecula Parkway, ramp modifications at Rancho California Road and Winchester Road, variable speed limit signs and other intelligent transportation system features.
    e. Bundy Canyon Road Widening – Widen Bundy Canyon Road from two to four lanes from Oak Canyon to Mission Trail Avenue. Includes construction of 2.2 miles of ADA-compliant 15-foot Class I shared bike and pedestrian path along Bundy Canyon Road between Monte Vista Drive and Harvest Way.
    f. Temescal Canyon Road Widening – Widen Temescal Canyon Road from two to four lanes, including curb and gutter, sidewalk, bike lanes, and curb ramps in segment 1 north of El Cerrito Road to Tom Barnes Street, plus a 200-foot segment of widening north of Cajalco Road.
    g. I-15/SR-74 Interchange – Construct new northbound loop off-ramp, dual hook ramps to Dexter Avenue, expanded ramp storage, widen SR-74 (Central Avenue) to four eastbound lanes and three westbound lanes, widen Dexter Avenue to four lanes, sidewalks in both directions on SR-47 and bike lanes on Dexter Avenue, and associated drainage and safety enhancements.

5. Beaumont to Temecula
    a. SR-79 Realignment – On SR-79 between Domenigoni Parkway to Gilman Springs Road, realign and widen SR-79 to four lanes.

b. I-15 Smart Freeway Temecula – On I-15 in the City of Temecula, install a new vehicle detection and adaptive highway metering systems on I-15 northbound from the San Diego County line to the I-15/I-215 split. Improvement includes relocation of existing ramp meters at Rancho California Road and Temecula Parkway, ramp modifications at Rancho California Road and Winchester Road, variable speed limit signs and other intelligent transportation system features.
c. French Valley Parkway, Phase III – In Temecula, construct six lanes on French Valley Parkway from Jefferson to Ynez, including ramps, northbound and southbound auxiliary lanes, and modify Winchester Road interchange.

6. Apple Valley to LA County Line
    a. Yucca Loma Corridor - Greentree Boulevard Extension – This project is the final segment of the Yucca Loma Corridor and will construct Green Tree Boulevard from Hesperia Road to Ridgecrest Road/Yates Road, a new four-lane road including a bridge over the BNSF railroad. This project is completing construction.
    b. Phelan Road Widening from SR-138 to Hesperia City Limits – The project is located on Phelan Road from SR 138 to Los Banos Avenue (12.1 miles) in the Phelan area. The project will widen Phelan Road from two to five lanes, which includes one continuous left turn lane, and will mill and overlay the existing pavement with asphalt concrete.
    c. SR-247 Operational, Safety, and Bicycle/Pedestrian Improvements – SR-247 is the primary connection between the Victor Valley and Morongo Valley, with a connection to the City of Big Bear Lake. It is also used as a diversion route in the event of a major incident in the I-15/Cajon Pass. A study of the need for operational/safety improvements will be conducted in the near term, with a program of improvements programmed thereafter.
    d. SR-18 Operational, Safety, and Bicycle/Pedestrian Improvements – SR-18 is the primary connection between the Victor Valley and Antelope Valley, together with SR-138. A study of the need for operational/safety improvements has been conducted, with a set of improvements being programmed for near term funding.

7. Banning to Rialto
    a. Redlands Passenger Rail Project (Arrow) ZEMU trainset – The project began operation in late 2022 with Tier 4 Diesel Multiple Unit (DMU) trainsets, running Arrow commuter rail service from the San Bernardino Transit Center at Rialto Avenue and E Street in the City of San Bernardino to the University of Redlands A Zero-Emission, hydrogen-powered trainset is being introduced into service in early 2025.
    b. I-10 Eastbound Truck Climbing Lane – The project will construct a truck climbing lane on eastbound I-10 from west of the 16th Street Bridge in the City of Yucaipa through east of County Line Road Bridge at the San Bernardino and Riverside County lines. This project will extend the existing eastbound truck climbing lane. The addition of the truck climbing lane will separate slow moving trucks climbing the steep grade from general traffic. This project is under construction.
    c. I-10/Wildwood Canyon Interchange – This would be a new interchange on I-10 just west of the Riverside County line to provide additional accessibility to/from the City of Yucaipa.

d. I-10 Freight and Managed Lane Project, Pepper Ave. to Ford Street – A single priced, managed lane will be added in each direction to complete the managed lane implementation on I-10. The project is also known as I-10 Contract 3. This will complement the sections to the east, the first of which was opened with express toll lanes in August 2024 (Contract 1). Contract 2 will be under construction in late 2025.
e. I-10 Bypass – In the unincorporated area of Riverside County, near the city of Banning, construct two lanes of an ultimate four lane roadway to provide a bypass for the I-10, where there lacks an alternative parallel roadway for the residents of surrounding area, including the Cabazon tribal communities. Project includes other improvements such as construction of bridge crossing at Smith Creek and San Gorgonio River.

8. Riverside/Rialto to LA County Line
    a. West Valley Connector Bus Rapid Transit, Phase 1 – The West Valley Connector (WVC) Project is a 19-mile BRT project that proposes limited stops, providing speed and quality improvements to the public transit system within the corridor. The WVC will serve the cities of Pomona, Montclair, Ontario and Rancho Cucamonga; interconnect with two Metrolink stations; provide service to the Ontario International Airport; and link to the Ontario Mills shopping/entertainment complex, Ontario Convention Center, and Victoria Gardens as well as other mixed use development in Rancho Cucamonga. The proposed project includes the purchase of 18 battery electric buses and improvements to Omnitrans west O&M facility needed to operate and maintain the battery electric buses. The project is now under construction.
    b. Metrolink Double-Track Project, Lilac to Rancho – The project entails construction of approximately three miles of second mainline track along the Metrolink San Bernardino Line from Control Point (CP) Lilac to CP Rancho and includes ten at-grade crossings, quiet zone-ready safety enhancements, and the addition of a second platform and underpass at the Rialto Metrolink Station. Once constructed, this project will provide for increased service reliability, support future expansion of service, and make it more feasible to run peak hour express service as stipulated by the Metrolink Strategic Plan. A first phase has been prioritized from Lilac to Sycamore, which incorporates improvements to the Rialto Station, including a pedestrian underpass and bicycle/pedestrian access improvements.
    c. Gold Line to Montclair – The project includes a 0.67 mile extension of the Metro Gold Line, now known as the “L” Line, from the Los Angeles County line to the Montclair Metrolink Station. The Foothill Gold Line Construction Authority (GLA) is the entity tasked with delivery of the entire Gold Line Extension from Azusa to Montclair with funding provided by Los Angeles County Metropolitan Transportation Authority (Metro) for the Los Angeles County portion and SBCTA for the San Bernardino County portion.
    d. I-10 Corridor Freight and Managed Lane Project, I-15 to Pepper Ave. (Contract 2) – The project will provide one express lane in each direction from just east of I-15 to Pepper Avenue in the City of Colton, connecting to the I-10 Corridor Contract 1 express lanes currently under construction. The Record of Decision was approved in July 2017 for the entire I-10 Corridor Project from the Los Angeles County line to Ford Street in the City of Redlands. The project is scheduled to start construction in late 2025.

e. I-10/Riverside Ave. Interchange, Phase 2 – The second phase of the I-10/Riverside Avenue Interchange project includes widening of the existing Riverside Avenue bridge structure over the UPRR railway to match the configuration of the recently completed I-10/Riverside Avenue Interchange Phase 1 project. The project will add two lanes in the northbound direction to connect to the existing two left turn lanes on the overcrossing as well as provide for sidewalks and a Class II bike lane in each direction.
f. I-10/Cedar Avenue Interchange Reconstruction – The project will reduce congestion and improve traffic operations along Cedar Avenue and the on/off-ramps of the I-10 Interchange. The project will improve Cedar Avenue generally between Slover Avenue and Bloomington Avenue, including left and right turn lanes, and modify the existing entrance and exit ramps.
g. Coachella Valley Rail – New rail service for Los Angeles, Orange, Riverside and San Bernardino Counties. The service would provide game-changing access to jobs and education centers while reducing vehicle miles traveled and combating climate change and air pollution. In addition, the rail service would significantly expand economic opportunities by opening travel to restaurants, resorts, music festivals, sports facilities, and commercial and retail centers. The nine stations also offer a host of transit-oriented development opportunities. The proposed service would extend approximately 144 miles between Los Angeles and the Coachella Valley with stops in Los Angeles, Orange, San Bernardino, and Riverside counties, including up to six stations on the east end. CV Rail would comprise a substantial segment of Amtrak's Tucson-Los Angeles corridor. The Tucson-Phoenix-Los Angeles corridor would connect passengers to Amtrak's Coast Starlight, Pacific Surfliner, Southwest Chief, Sunset Limited, and Texas Eagle routes, broadening travel opportunities nationwide.
h. Enhanced Metrolink Rail Service Project – The project will improve Metrolink service along the San Bernardino Line between Pomona-North and Rancho Cucamonga. The project includes targeted infrastructure improvements and vehicle procurement necessary to implement a train shuttle service operating between the Pomona-North and Rancho Cucamonga Metrolink stations. The train shuttle would operate at 30-minute frequencies and, when combined with the planned 30-minute bidirectional Metrolink service to be implemented through the SCORE program, would provide 15-minute train frequencies along this segment. Implementation of the train shuttle service will require additional infrastructure improvements and the procurement of at least two additional trainsets, which may include Multiple Unit vehicles similar to those used for Arrow service, such as the ZEMU vehicles.

9. Riverside to Orange County Line
    a. Coachella Valley Rail – New rail service for Los Angeles, Orange, Riverside and San Bernardino Counties. The service would provide game-changing access to jobs and education centers while reducing vehicle miles traveled and combating climate change and air pollution. In addition, the rail service would significantly expand economic opportunities by opening travel to restaurants, resorts, music festivals, sports facilities, and commercial and retail centers. The nine stations also offer a host of transit-oriented development opportunities. The proposed service would extend approximately 144 miles between Los Angeles and the Coachella Valley with stops in Los Angeles, Orange, San Bernardino, and Riverside counties, including up to six stations on the east end. CV Rail would comprise a substantial segment of Amtrak's Tucson-Los Angeles corridor. The Tucson-Phoenix-Los

Angeles corridor would connect passengers to Amtrak's Coast Starlight, Pacific Surfliner, Southwest Chief, Sunset Limited, and Texas Eagle routes, broadening travel opportunities nationwide.

b. BNSF Triple Track at Fullerton to Fourth track at Riverside-Downtown Metrolink station – Add an additional BNSF track between Fullerton Downtown Metrolink station and Riverside Downtown Metrolink station to increase passenger rail frequency and eliminate freight rail conflicts.
c. 241/91 Express Lanes Connector – Construct a direct connector for SR-241 and SR-91. The direct, median-to-median tolled connector would serve road users in both directions to relieve traffic congestion, alleviate bottlenecks, and improve traffic in and around Orange and Riverside counties.
d. Third Street Grade Separation – Construct a new four-lane underpass to replace the existing at-grade crossing at the BNSF Railway triple tracks near the Third Street and Commerce Street intersection in Riverside. Includes rail realignment, extends Vine Street in the west to Park Avenue in the east, raised median, bike lanes, and sidewalks on Third Street.
e. 91 Eastbound Corridor Operations Project – In eastern Orange County and western Riverside County on eastbound SR-91, add one operational lane from SR-241/SR-91 Express Lanes Connector to eastbound SR-91 and northbound SR-71 connector auxiliary lane.

10. Hemet to Corona
    a. Mid County Parkway – A 16-mile transportation corridor between the San Jacinto and Perris areas. This new east-west facility will open economic opportunities, reduce travel times, and expand access to employment and education for residents and businesses of Riverside County. The improvements will promote transportation equity for this long-underserved area and connect to Route 79, Interstate 215, and transit facilities that support Metrolink's 91/Perris Valley line and Riverside Transit Agency routes. With this connection, the Perris and San Jacinto communities will have access to multiple modes of travel. The project will construct six through lanes between I-215 in Perris east to SR-79 in San Jacinto.
    b. Cajalco Road Widening – In the unincorporated area of Riverside County, widen Cajalco Road from two to four lanes from Temescal Canyon Bridge/Eagle Canyon Road to Harvill Avenue and from four to six lanes from Temescal Canyon Road to Temescal Canyon Bridge, three lanes in the eastbound direction from Temescal Canyon Road to east of Eagle Canyon Road, and three lanes eastbound and westbound from Harvill Avenue to I-215.
    c. Ethanac Expressway – Project proposes to provide a four lane roadway connecting I-15 to I-215, providing needed east/west connection for the cities of Hemet, San Jacinto, Perris, Lake Elsinore, Menifee, and the unincorporated communities of Riverside County, including Winchester, Homeland, Romoland, Goodhope, Meadowbrook, and Warm Springs. Improvements include new sidewalks, bicycle lanes, and multi-use paths along the corridor.