

Appendices

Appendix L: Transportation Impact Analysis

Appendices

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Transportation Impact Analysis San Bernardino County Policy Plan

Prepared for:



Updated March 27, 2019

OC15-0399

FEHR & PEERS

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1.0 Executive Summary

Proposed County Policy Plan

This impact assessment summarizes the transportation assessment completed for the San Bernardino County Policy Plan. This update incorporates land use assumptions and policies to guide the County forward into the future.

Scope of Study

The study evaluated 39 intersections and 153 roadway segments located throughout the County to identify potential needs at those locations. Additionally, consistent with recent state requirements, the study evaluated potential impacts related to vehicle miles of travel (VMT) associated with the project.

The study evaluated the Existing Condition and the Cumulative (2040) With Project Condition to identify potential impacts to the study locations. The current roadway system is shown in Figures ES-1A to 1C while the proposed roadway system (with all recommended improvements) is shown in Figures ES-2A to 2C.

Results

Key results are noted below:

Intersection Impacts:

Table ES-1 summarizes the study intersections that were identified as needing future additional capacity (beyond the capacity already programmed in the RTP/SCS) to support buildout of the County Policy Plan. To mitigate impacts to the study intersections and forecast an acceptable LOS, mitigation measures were identified including traffic signal installation and/or lane additions (at the Cherry Avenue/San Bernardino Avenue and Cedar Avenue/Slover Avenue intersections). These locations are shown on **Figures ES-3A to 3C**.

Table ES-1 County Intersections Requiring Improvement

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Existing Control Type	Existing Conditions				Future Capacity Increase?	Future Conditions (including RTP)				AM Impact	PM Impact	Future Improvement (beyond RTP)
							AM Peak Hour		PM Peak Hour				AM Peak Hour		PM Peak Hour			
							LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay			
1	End Ave & Francis Ave	Valley	NA	Chino	-	All-Way Stop	B	14.0	B	11.2	Yes	F	83.3	F	158.7	Yes	Yes	Signalized Control
3	Cherry Ave & San Bernardino Ave	Valley	NA	Fontana	-	Signalized	D	37.1	D	40.2	No	E	77.4	E	62.8	Yes	Yes	Lane Additions ¹
4	Live Oak Ave & Arrow Route	Valley	NA	Fontana	-	Two-Way Stop	C	23.8	D	26.5	Yes	F	56.7	F	917.9	Yes	Yes	Signalized Control
5	Alder Ave & Santa Ana Ave	Valley	Bloomington	Rialto	-	All-Way Stop	F	67.1	B	13.5	Yes	F	119.3	F	123.4	Yes	Yes	Signalized Control
7	Cedar Ave & Slover Ave	Valley	Bloomington	Rialto	-	Signalized	C	23.5	C	31.0	Yes	E	78.7	E	70.2	Yes	Yes	Lane Additions ²
18	Sheep Creek Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop	B	13.7	F	53.2	Yes	F	274.7	F	920.0	Yes	Yes	Signalized Control
19	Caughlin Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop	B	13.6	C	15.0	Yes	D	28.7	D	30.2	Yes	Yes	Signalized Control

Notes:

1. Lane additions needed consisting of adding a second left-turn lane to all approaches.

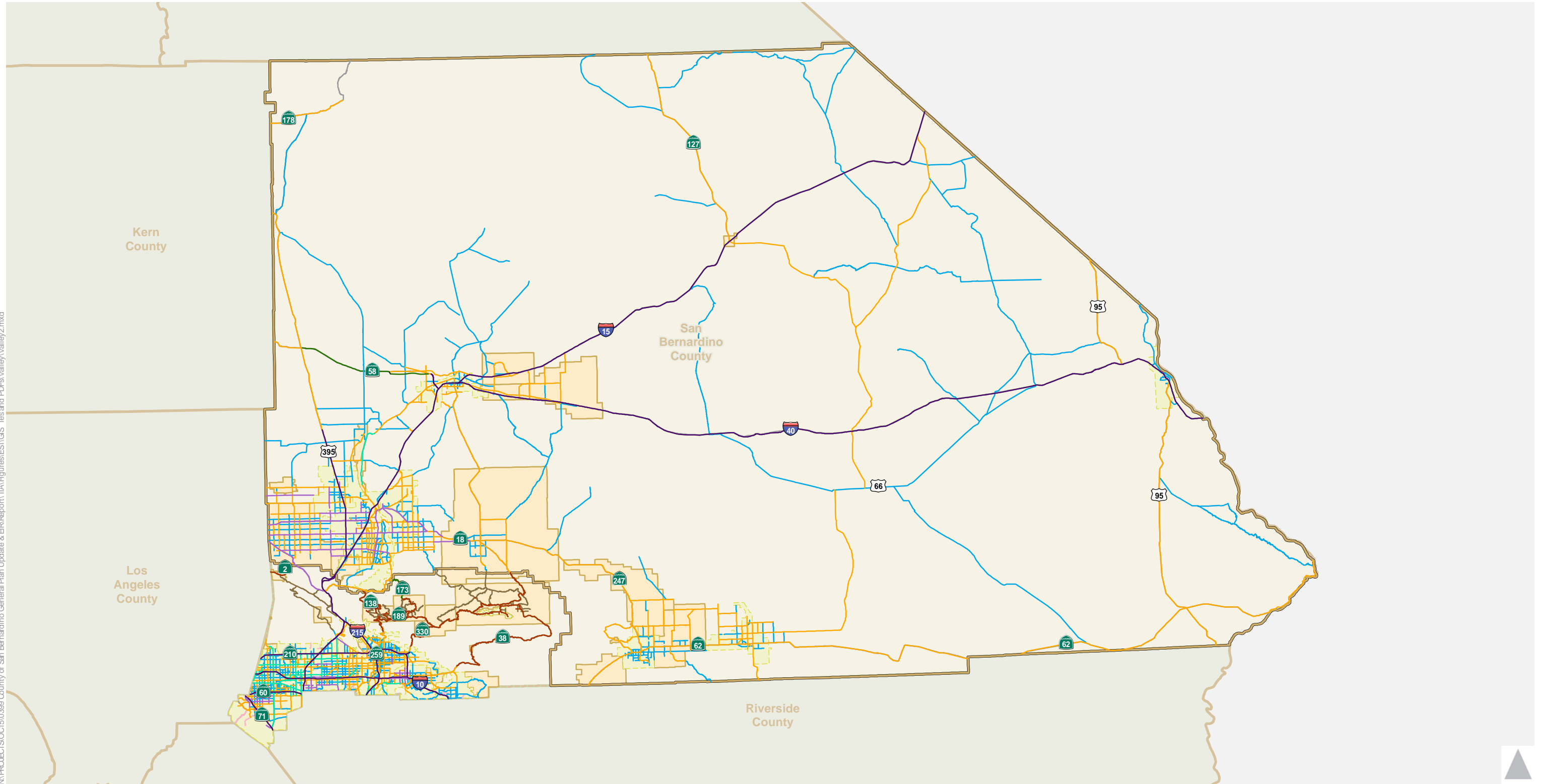
2. Lane additions needed consisting of adding a second eastbound and northbound left-turn lane and an additional southbound through lane (with receiving lane).















Roadway Segment Impacts:

The following roadway segments were identified as needing future additional capacity (beyond the capacity already programmed in the RTP/SCS) to support buildout of the County Policy Plan. To mitigate roadway segment impacts to an acceptable LOS, modifications to the roadway facility type and/or modification in the planned number of travel lanes were identified. These modifications are presented on **Figures ES-3A to 3C**.

Table ES-2 County Roadways Requiring Improvement									
Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Existing LOS	Future LOS (incl RTP)	Current/Planned Facility Type	Future Improvement (beyond RTP)
24	STATE HWY 138 WEST OF OASIS RD	North Desert	Phelan/Pinon Hills	NA	Yes	D	D	Major Arterial/ Major Hwy	Divided Facility
86	STATE HWY 173 EAST OF LAKES EDGE RD	Mountain	Lake Arrowhead	NA	-	E	E	Mountain Secondary Hwy	Mountain Major
90	NORTH BAY ROAD NORTH OF SH 189	Mountain	Lake Arrowhead	NA	-	E	E	Mountain Secondary Hwy	Mountain Major
99	LAKE DR WEST OF LAKE GREGORY DR	Mountain	Crest Forest	NA	-	F	F	Mountain Secondary Hwy	Mountain Major
115	CALIFORNIA ST NORTH OF HIGHLAND AVE	Valley	Muscoy	San Bernardino	-	E	E	Controlled/ Limited Access Collector	Major Arterial
118	MENTONE AVE WEST OF OPAL AVE	Valley	Mentone	Redlands	Yes	F	F	Major Arterial/ Major Hwy	Major Arterial

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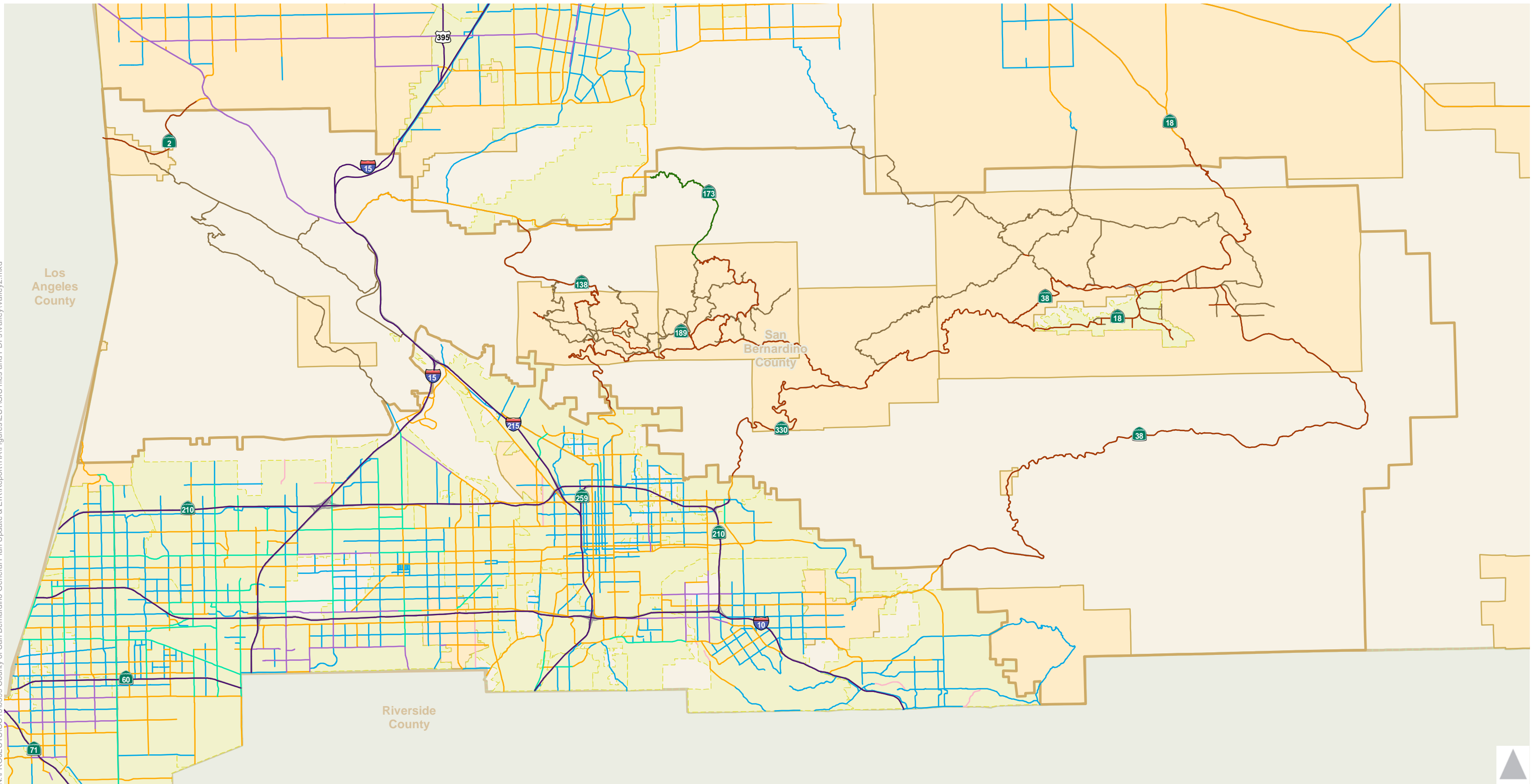
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|--|---|---|
|  Freeway |  Controlled/Limited Access Collector |  Desert Region |
|  Major Divided Highway |  Mountain Major Highway |  City Boundaries |
|  Major Arterial Highway |  Mountain Secondary Highway |  Community Plan Boundaries |
|  Major Highway |  State Highway (Special Standards or Conditions) |  San Bernardino County |
|  Secondary Highway | |  County Boundaries |



ES-1A

Existing Roadway Designations
Desert Region

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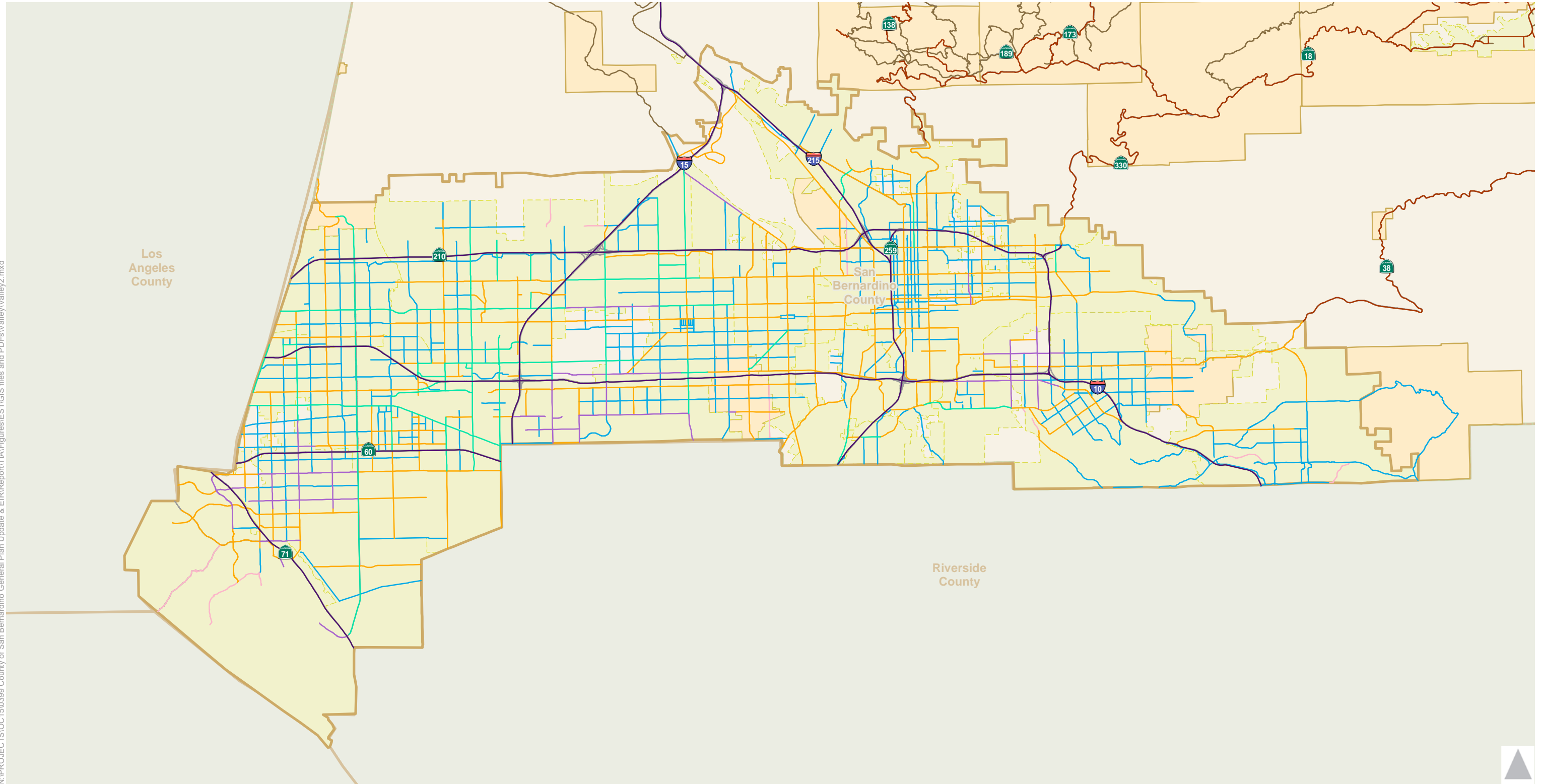


- | | | |
|------------------------|---|---------------------------|
| Freeway | Controlled/Limited Access Collector | Mountain Region |
| Major Divided Highway | Mountain Major Highway | City Boundaries |
| Major Arterial Highway | Mountain Secondary Highway | Community Plan Boundaries |
| Major Highway | State Highway (Special Standards or Conditions) | San Bernardino County |
| Secondary Highway | | County Boundaries |

Existing Roadway Designations
Mountain Region

ES-1B

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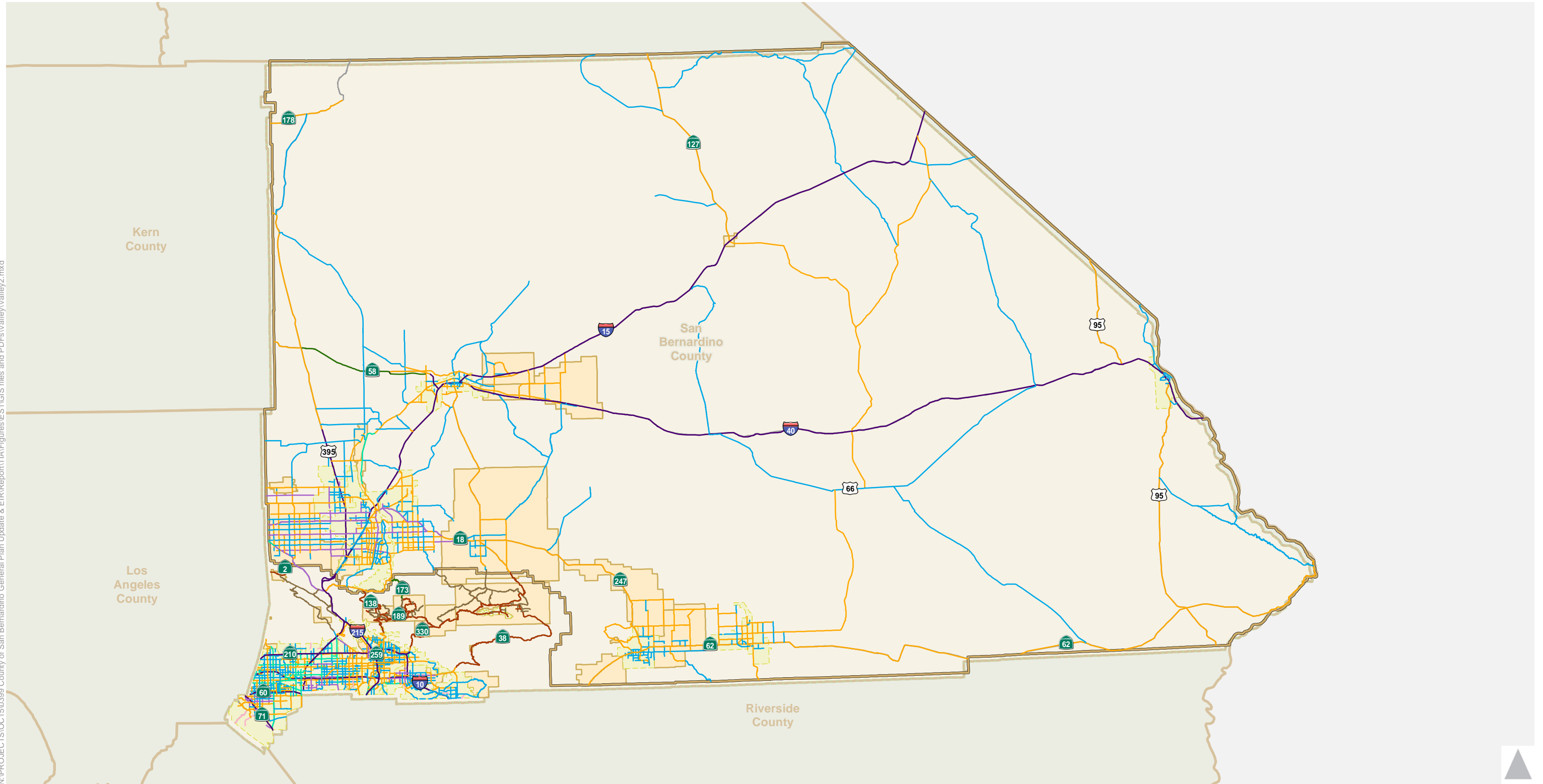


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|------------------------|---|---------------------------|
| Freeway | Controlled/Limited Access Collector | Valley Region |
| Major Divided Highway | Mountain Major Highway | City Boundaries |
| Major Arterial Highway | Mountain Secondary Highway | Community Plan Boundaries |
| Major Highway | State Highway (Special Standards or Conditions) | San Bernardino County |
| Secondary Highway | | County Boundaries |

ES-1C

Existing Roadway Designations
Valley Region

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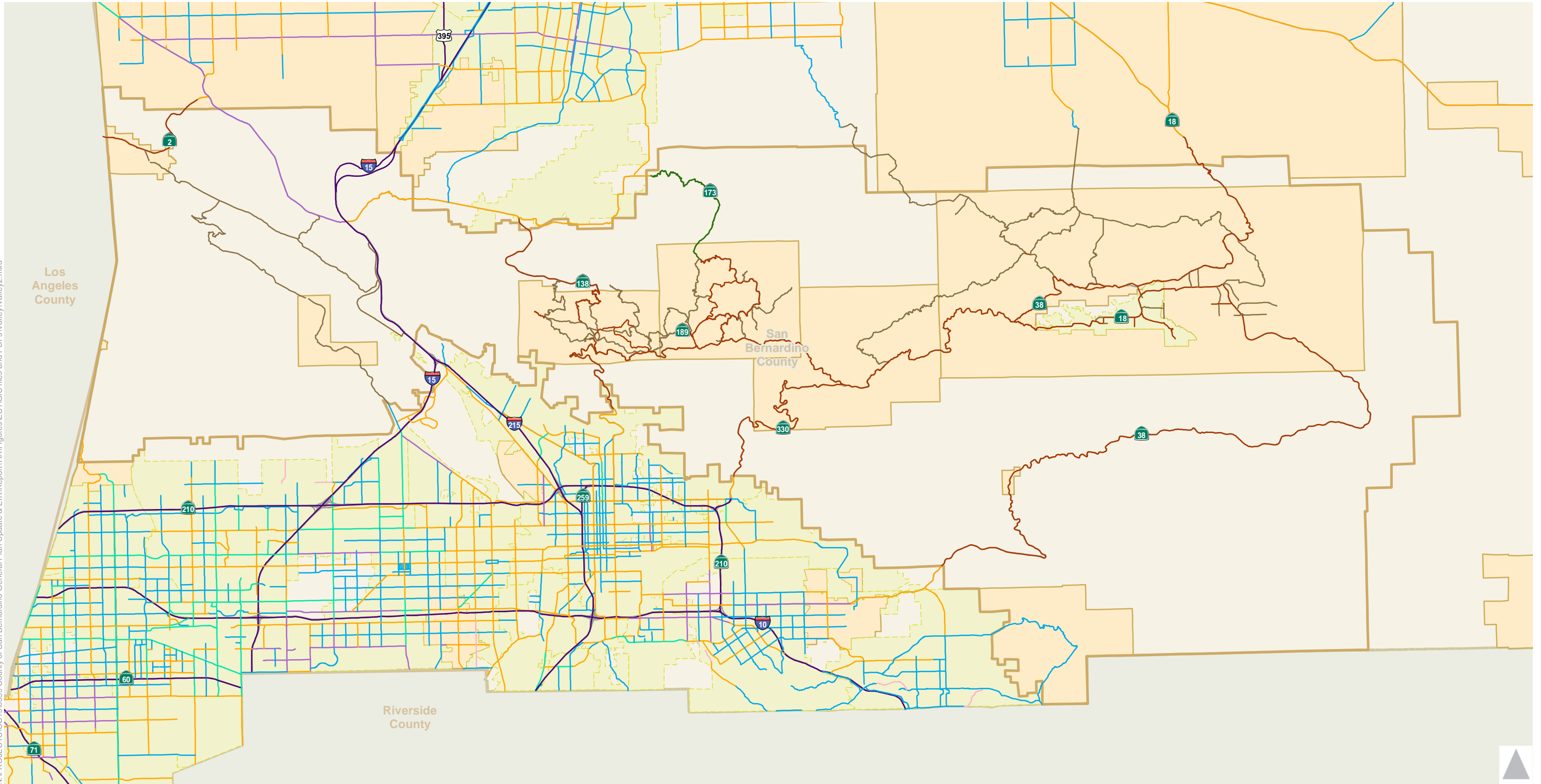
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|--------------------------|---|---------------------------|
| — Freeway | — Controlled/Limited Access Collector | Desert Region |
| — Major Divided Highway | — Mountain Major Highway | City Boundaries |
| — Major Arterial Highway | — Mountain Secondary Highway | Community Plan Boundaries |
| — Major Highway | — State Highway (Special Standards or Conditions) | San Bernardino County |
| — Secondary Highway | | County Boundaries |

















ES-2A

Proposed Roadway Designations
Desert Region

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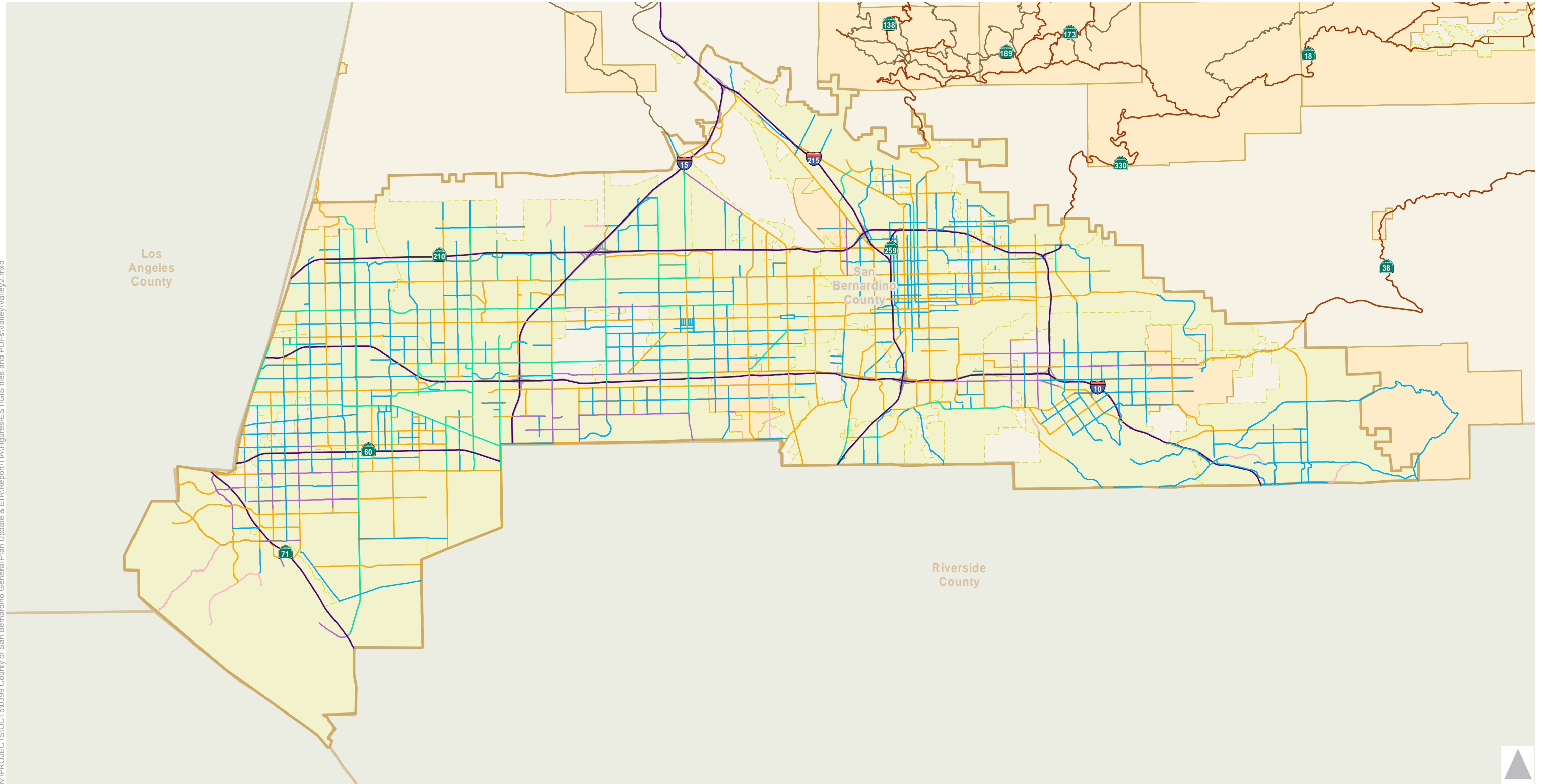
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|--|---|---|
|  Freeway |  Controlled/Limited Access Collector |  Mountain Region |
|  Major Divided Highway |  Mountain Major Highway |  City Boundaries |
|  Major Arterial Highway |  Mountain Secondary Highway |  Community Plan Boundaries |
|  Major Highway |  State Highway (Special Standards or Conditions) |  San Bernardino County |
|  Secondary Highway | |  County Boundaries |



ES-2B

Proposed Roadway Designations
Mountain Region

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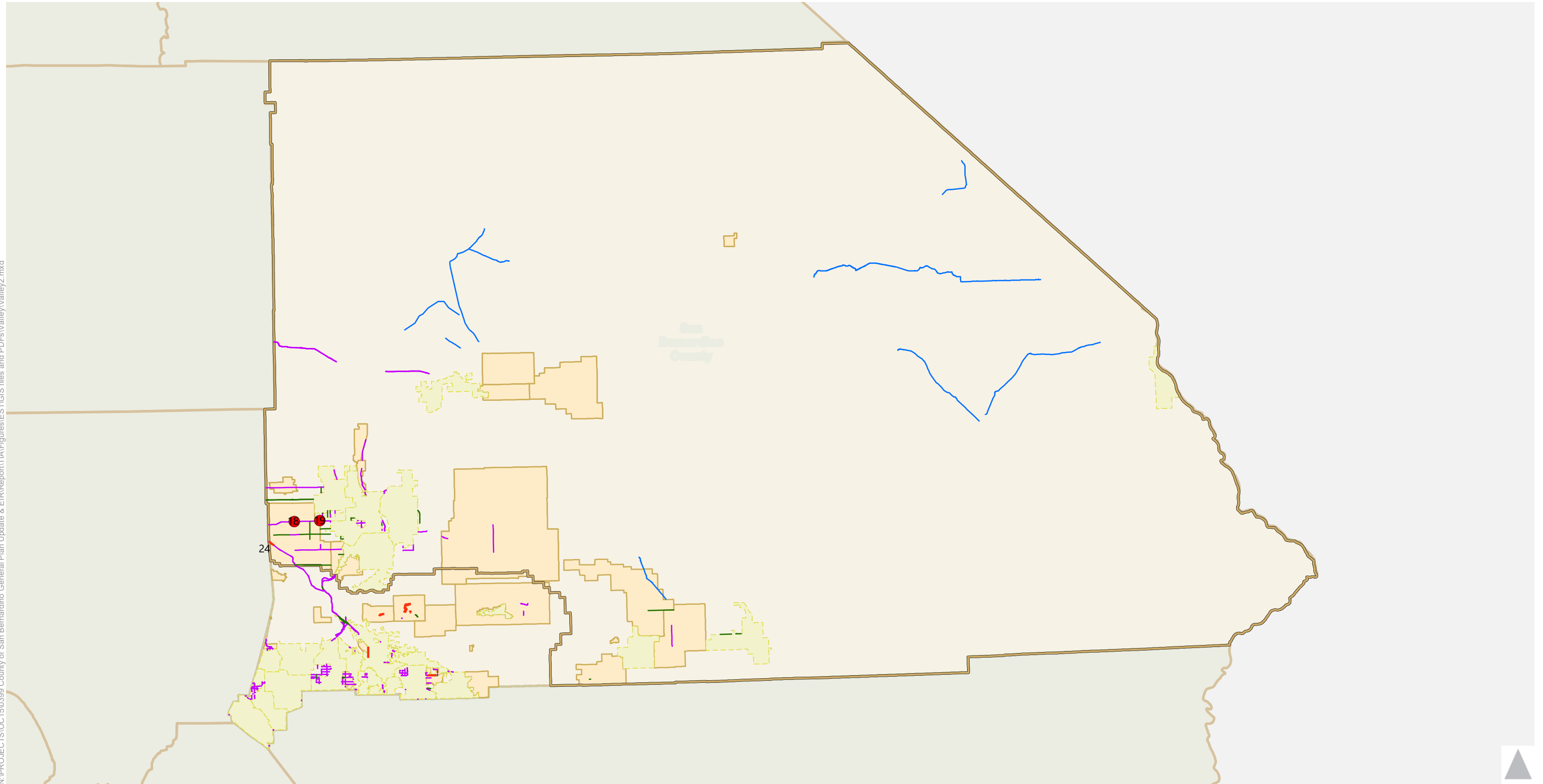
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|------------------------|---|---------------------------|
| Freeway | Controlled/Limited Access Collector | Valley Region |
| Major Divided Highway | Mountain Major Highway | City Boundaries |
| Major Arterial Highway | Mountain Secondary Highway | Community Plan Boundaries |
| Major Highway | State Highway (Special Standards or Conditions) | San Bernardino County |
| Secondary Highway | | County Boundaries |



ES-2C

Proposed Roadway Designations
Valley Region

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- Intersections Requiring Improvement
- Roadway Segments Needing Improvement
- RTP: New Facilities
- RTP: New Lanes/Widening
- Proposed Deletions

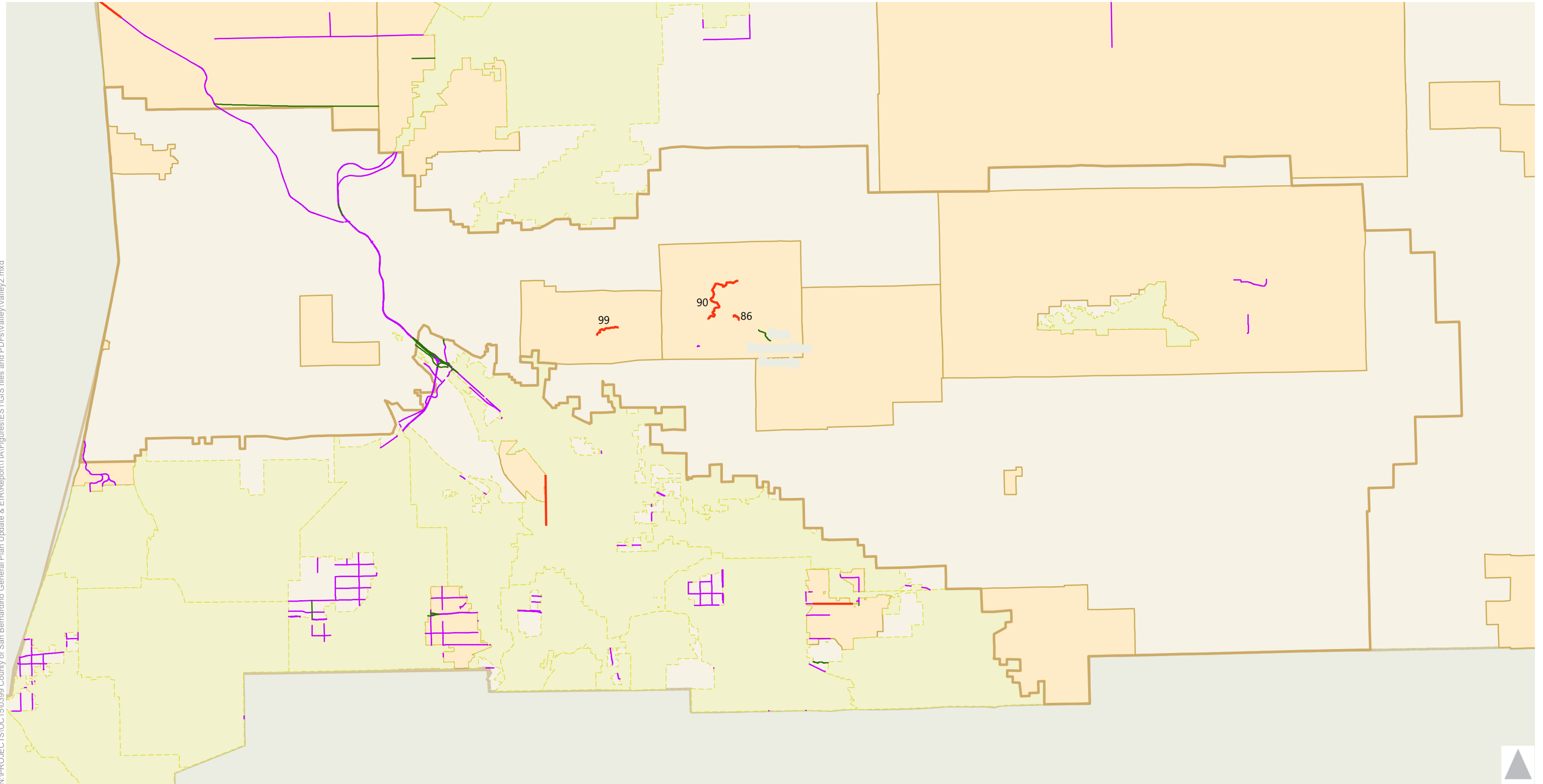
- Desert Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County
- County Boundaries



ES-3A

Proposed Changes to Roadway System
Desert Region

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- Roadway Segments Needing Improvement
- RTP: New Facilities
- RTP: New Lanes/Widening

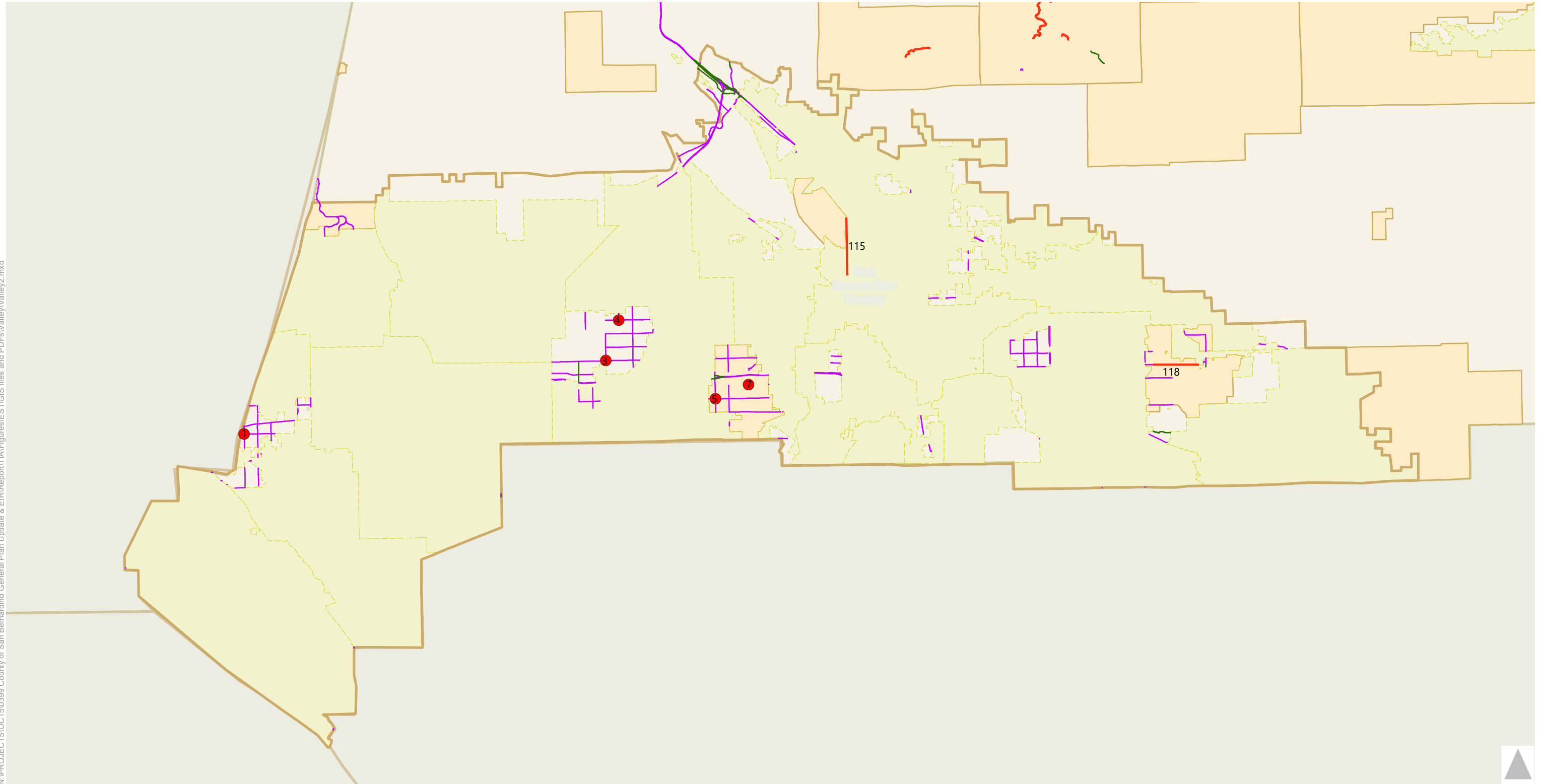
- Mountain Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County
- County Boundaries



ES-3B

Proposed Changes to Roadway System
Mountain Region

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- Roadway Segments Needing Improvement
- Intersections Needing Improvement
- RTP: New Facilities
- RTP: New Lanes/Widening

- Valley Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County
- County Boundaries



ES-3C

Proposed Changes to Roadway System
Valley Region

VTM Assessment:

In addition to the capacity assessment summarized above, the County Policy Plan was evaluated to identify the project effect to vehicle miles traveled (VTM). The results are summarized in **Table ES-3** and indicated that VTM per service population in the unincorporated areas of the North Desert, East Desert, and Mountain regions exceeds the existing VTM per service population in those regions. Additionally, the County Policy Plan results in unincorporated VTM per service population that is 1% lower in the unincorporated Valley area compared to the existing VTM per service population in the incorporated Valley area.

The County Policy Plan's effect on VTM was also evaluated for the total county geography (combined incorporated and unincorporated areas). The results are summarized in **Table ES-4** indicated that implementation of the County Policy Plan would result in a VTM per service population reduction for the North Desert, East Desert, and Valley regions. Only the Mountain region would experience an increase in VTM per service population relative to the RTP/SCS. Additionally, from a countywide perspective, the County Policy Plan would reduce VTM per service population by 6% in total compared to the anticipated RTP/SCS.

Table ES-3 New Development Generated VTM Summary			
VTM		VTM Target (4% Below Unincorporated Countywide Average)	New Development VTM (Estimated by the Change in Total VTM / Change in Population or Employment)
<i>Residential VTM per Person</i>			
Countywide	Unincorporated	19.7	30.7
North Desert	Unincorporated	19.7	37.4
East Desert	Unincorporated	19.7	22.2
Mountain	Unincorporated	19.7	43.1
Valley	Unincorporated	19.7	20.0
<i>Employment VTM per Person</i>			
Countywide	Unincorporated	23.1	19.2
North Desert	Unincorporated	23.1	18.5

Table ES-3 New Development Generated VMT Summary

VMT		VMT Target (4% Below Unincorporated Countywide Average)	New Development VMT (Estimated by the Change in Total VMT / Change in Population or Employment)
East Desert	Unincorporated	23.1	86.4
Mountain	Unincorporated	23.1	34.7
Valley	Unincorporated	23.1	17.6

Table ES-4 VMT Forecasts RTP/SCS vs CWP

VMT Per Service Population	2040 RTP/SCS	2040 County Policy Plan	Difference
North Desert	37.1	35.5	-4%
East Desert	37.3	34.1	-9%
Mountain	44.0	45.1	+3%
Valley	33.1	31.1	-6%
Countywide Total:	34.4	32.5	-6%

It should be noted that the VMT information is produced from the regional model and only accounts for the built environment variables that the regional model is sensitive to. Additional policies in the County Policy Plan supporting variables the model is not sensitive to (such as connectivity in neighborhoods, presence of bicycle and pedestrian facilities, and transportation demand management (TDM) measures) are not reflected in these estimates. As such, it is recommended that feasible TDM measures be required on future projects processed under the County Policy Plan.

2.0 Introduction

2.1 Purpose of the TIS and Study Objective

As part of the Environmental Impact Report (EIR), Fehr & Peers has completed a traffic assessment for the proposed 2018 San Bernardino County Policy Plan. While the County's current planning document is referred to as a "General Plan", the proposed planning document is referred to as a "Policy Plan" to reflect the broader policy coverage which includes general plan statutory requirements but also policy topics that reflect the County's role as a regional service provider.

This Traffic Impact Study (TIS) was developed based on the TIS requirements developed for the 2018 San Bernardino County Policy Plan and documented in the *Final County of San Bernardino Transportation Impact Study Guidelines Recommendations* memorandum (Fehr & Peers, February 13, 2018). It should be noted that the guidelines developed for the County were reviewed by multiple departments and are tailored toward project-level assessment for future development. As such, although this TIS is consistent with those guidelines, the nature of this project (County Policy Plan policies and a programmatic EIR) does require a slightly different approach when evaluating the project (for example, it is not realistic to assume full buildout of the County Policy Plan in a near-term planning scenario as the plan will require more than 20 years to implement).

This report summarizes the methodology, findings and conclusions of the analysis, including a discussion of mitigation strategies to maintain consistency with the Policy Plan goals and policies.

2.2 Project Description

The proposed San Bernardino County Policy Plan proposes changes in land use across the county, including residential, commercial, industrial, and mixed-use designations. This study evaluates the changes in traffic volumes and operations resulting from these land use changes. Land use designations are summarized in **Table 1**. A summary of land use changes in the County because of the Policy Plan are summarized in **Table 2**.

In addition to the Policy Plan land use, the project also includes transportation infrastructure consisting of roadways (including future roadways designated in the RTP/SCS and future roadway designations), transit facilities, bicycle facilities, and goods movement facilities. These future facilities are shown on Figures 8 through 11 later in this report. The Draft Transportation & Mobility Element also includes policies intended to accomplish key goals related to mobility, including implementation of future Roadway Capacity Improvements; Roadway Design Standards; Vehicle Miles Traveled; Complete Streets, Transit, and Active Transportation; Goods Movement; and Airports.

2.3 Study Area

The study area of this analysis includes intersections and roadway segments in and around unincorporated areas of San Bernardino County that are anticipated to be affected by the proposed County Policy Plan. The following lists define the study area:

Signalized Intersections:

- | | |
|--|--|
| 1. End Ave & Francis Ave | 2. Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy |
| 3. Cherry Ave & San Bernardino Ave | 4. Live Oak Ave & Arrow Route |
| 5. Alder Ave & Santa Ana Ave | 6. Locust Ave & San Bernardino Ave |
| 7. Cedar Ave & Slover Ave | 8. Cedar Ave & Santa Ana Ave |
| 9. Spruce Ave & Slover Ave | 10. Entrance to Ranger Station & Lytle Creek Rd |
| 11. Lytle Creek Rd & Glen Helen Pkwy | 12. Vermont St & Ogden St |
| 13. Vermont St & Blake St | 14. Macy St & Blake St |
| 15. Del Rosa Dr & Pacific St | 16. Alabama St & San Bernardino Ave |
| 17. Crafton Ave & Mentone Blvd | 18. Sheep Creek Rd & Palmdale Rd |
| 19. Caughlin Rd & Palmdale Rd | 20. Oasis Rd & State Hwy 138 |
| 21. Beekley Rd & State Hwy 138 | 22. Sheep Creek Rd & Phelan Rd |
| 23. Baldy Mesa Rd & Phelan Rd | 24. Escondido Ave & Ranchero Rd |
| 25. Lake Gregory Dr & Rim of the World Hwy | 26. State Route 173 & Rim of the World Hwy |

27. Lake Edge Rd & Village Rd

29. Live Oak Dr & Rim of the World Hwy

31. Division Dr & Big Bear Blvd

33. Barstow Rd & Rabbit Springs Rd

35. Juniper Ave & Pioneer Dr

37. Avalon Ave & Aberdeen Dr

39. Death Valley Rd & Baker Blvd

28. Live Oak Dr & City Creek Rd

30. Shore Dr & Big Bear Blvd

32. Greenway Dr & Big Bear Blvd

34. Barstow Rd & Old Woman Springs Rd

36. Old Woman Springs Rd & Linn Rd

38. Sunfair Rd & Broadway

Roadway Segments:

1. Trona Rd South of State Hwy 178

3. Fort Irwin Rd North of Yermo Cutoff

5. Irwin Rd North of Old Hwy 58

7. Yermo Rd West of Calico Rd

9. National Trails Hwy East of Daggett Yermo Rd

11. Wild Road

13. Vista Rd East of Mountain Rd

15. National Trails Highway South of Vista

17. Dale Evans Pkwy

19. National Trails Highway North of 1St

21. Sheep Creek Rd South of El Mirage Rd

23. Palmdale Rd West of Caughlin Rd

25. Phelan Rd East of Silver Rock Rd

27. Johnson Rd North of Smoke Tree Rd

29. Sunnyslope East of Sr 138

2. Fort Irwin Rd South of Starbright Rd

4. State Hwy 58 West of Hinkley Rd

6. Ghost Town Rd North of Yermo Rd

8. Daggett Yermo Rd North of Santa Fe St

10. National Trails Hwy East of Hinkley Rd

12. Indian Trail South of Wild Rd

14. Shadow Mountain Rd West of Silver Lakes Pkwy

16. Stoddard Wells East of Central Rd

18. National Trails Hwy North of Polish Lane

20. El Mirage Rd West of Linson St

22. Palmdale Rd West of Sheep Creek Rd

24. State Hwy 138 West of Oasis Rd

26. Beekley Rd North of Phelan Rd

28. Phelan Rd East of Johnson Rd

30. Sheep Creek Rd South of Nielson Rd

- 
- | | |
|--|--|
| 31. State Hwy 138 North of Angeles Crest Hwy | 32. Baldy Mesa Road South Mesquite |
| 33. Caliente Rd North of Ranchero | 34. Lone Pine Canyon Rd South of Angeles Crest Hwy |
| 35. Lytle Creek Canyon Rd South of Sycamore Dr | 36. Cajon Blvd North of Kenwood Ave |
| 37. Glen Helen Pkwy North of I-215 | 38. Lytle Creek Rd North of Devore Rd |
| 39. Mountain Ave West of Euclid Ave | 40. Mountain Ave North of 25Th St |
| 41. Euclid Ave North of 25Th St | 42. Arrow Rte West of Calabash Ave |
| 43. Cherry Ave North of Merrill Ave | 44. Merrill Ave East of Beech Ave |
| 45. San Bernardino Ave West of Cherry Ave | 46. Valley Blvd East of Commerce Dr |
| 47. San Bernardino Ave East of Beech Ave | 48. San Bernardino Ave West of Cedar Ave |
| 49. Valley Blvd West of Locust Ave | 50. Cedar Ave North of Bloomington Ave |
| 51. Valley Blvd East of Cedar Ave | 52. Cedar Ave North of Slover Ave |
| 53. Slover Ave East of Locust Ave | 54. Santa Ana Av West of Linden Ave |
| 55. Jurupa Ave East of Locust Ave | 56. Jurupa Ave West of Spruce Ave |
| 57. Cedar Ave South of 11Th St | 58. Barstow Rd North of Lucerne Valley Cutoff |
| 59. Barstow Rd North of Northside Rd | 60. Northside Rd East of Barstow Rd |
| 61. Barstow Rd North of Rabbit Springs Rd | 62. Rabbit Springs Rd East of State Hwy 18 |
| 63. Rabbit Springs Rd East of Barstow Rd | 64. State Hwy 18 West of High Rd |
| 65. Old Woman Springs Rd West of Midway Ave | 66. Old Woman Springs Rd East of Camp Rock Rd |
| 67. State Hwy 18 East of Barstow Rd | 68. Camp Rock Rd South of Old Woman Springs Rd |
| 69. State Highway 18 North of Shore Dr | 70. Shay Rd East of Wiebe Rd |
| 71. Greenspot Blvd South of Clark Ln | 72. Shore Dr East of Holden Ave |
| 73. Stanfield Cutoff South of N. Shore Drive | 74. Shore Dr North of State Highway 18 |
| 75. Big Bear Blvd East of Shore Dr | 76. State Highway 18 West of Shore Dr |

77. State Highway 18 West of Green Valley Lake Rd	78. State Highway 18 East of Hilltop Blvd
79. State Route 18 North of Hilltop Blvd	80. City Creek Rd West of Live Oak Dr
81. Kuffel Canyon Rd North of Sh 18	82. Rim of The World Hwy West of Kuffel Canyon Rd
83. Arrowhead Villa Road North of Sh 18	84. Cottage Grove Rd North of Sh 18
85. State Hwy 173 West of Dolly Varden Dr	86. State Hwy 173 East of Lakes Edge Rd
87. State Hwy 173 S of Mountains Hospital Access Rd	88. State Highway 173 North of Bay Rd
89. Grass Valley Rd South of Peninsula Dr	90. North Bay Road North of Sh 189
91. Daley Canyon Rd South of State Hwy 189	92. Bear Springs Rd South of State Hwy 189
93. State Hwy 189 West of Bear Springs Rd	94. North Rd West of State Highway 189
95. State Highway 189 West of Pinecrest Rd	96. State Highway 18 East of Lake Gregory Dr
97. Lake Gregory Dr South of San Moritz Dr	98. San Moritz Dr East of Lake Gregory Dr
99. Lake Dr West of Lake Gregory Dr	100. State Highway 18 East of State Highway 138
101. State Highway 18 West of State Highway 138	102. State Highway 138 South of Vista Ln
103. State Highway 138 East of Old Mill Rd	104. Crest Forest Dr West of Ponderosa Dr
105. 3Rd Street West of Cajon	106. Ogden St East of Bronson St
107. Duffy St South of Ogden St	108. Macy Street South of Ogden St
109. State Street South of Cajon	110. June St South of Ogden St
111. Blake St West of Duffy St	112. Darby St West of Macy St
113. State St South of Blake St	114. Macy St South of Darby St
115. California St North of Highland Ave	116. Olive St West of Rancho Ave
117. Alabama Street South of San Bernardino	118. Mentone Ave West of Opal Ave
119. Opal Ave South of Nice Ave	120. Crafton Ave South of Colton Ave
121. 5Th Ave East of Walnut St	122. Sand Canyon East of Crafton

123. Garnet Street at Bridge	124. Mill Creek Rd East of Garnet Ave
125. Oak Glen Rd North of Chagall Rd	126. Oak Glen Rd South of Pisgah Peak Rd
127. Old Woman Springs Rd West of Grand View Rd	128. Old Woman Springs Rd North of Reche Rd
129. Reche Rd West of Belfield Blvd	130. Old Woman Springs Rd North of Pipes Canyon Rd
131. Pipes Canyon Rd East of Pioneertown Rd	132. Pioneertown Rd South of Pipes Canyon Rd
133. Twentynine Palms Hwy North of Highland Rd	134. Twentynine Palms Hwy North of West Dr
135. State Hwy 62 South of Senils Dr	136. Aberdeen Dr West of Avalon Ave
137. Avalon Ave North of Aberdeen Dr	138. Aberdeen Dr East of Yucca Mesa Rd
139. Border Ave North of Aberdeen Dr	140. Yucca Mesa Rd North of Barron Dr
141. La Contenta Rd North of Alta Loma Rd	142. Alta Loma Rd West of Olympic Rd
143. Twentynine Palms Highway West of Sunny Vista Rd	144. Twentynine Palms Highway West of Rice Ave
145. Quail Springs Rd South of Alta Loma Dr	146. Twentynine Palms Hwy East of Godwin Rd
147. Amboy Rd East of Godwin Rd	148. Amboy Rd South of National Trails Hwy
149. National Trails Hwy East of Amboy Rd	150. Essex Rd South of I-40
151. Goffs Road	152. Nipton Rd West of Morning Star Mine Rd
153. Kingston Rd South of Mesquite Valley Rd	154. National Trails Hwy West of Hector Rd
155. National Trails Hwy West of Newberry Rd	156. Needles Hwy North of River Rd
157. Parker Dam Road East of Hwy 62	158. Baker Blvd
159. Riverside Dr East of Reservoir St	160. Phillips West of Ramona

2.4 Analysis Scenarios

To identify potential significant project impacts, Fehr & Peers analyzed the following two scenarios.

- Existing Year (2016) Conditions – Existing counts were collected in October 2016, December 2016, and January 2017.

- Cumulative Buildout (2040) Conditions – Consists of forecasted traffic volumes to Year 2040 based on the growth and travel forecasts contained in the San Bernardino Transportation Analysis Model (SBTAM) and the land uses proposed by the County Policy Plan.

Table 1 Land Use Categories

Land Use Category	Density / Intensity Range	Primary Purpose	Description of Typical Uses ²
RESIDENTIAL LAND USES			
RL	Rural Living	1 unit per 2.5 acres max	<ul style="list-style-type: none"> Allow for rural residential development set in expansive areas of open space that reinforce the rural lifestyle while preserving the county's natural areas Minimize development footprint and maximize undeveloped areas Allow for cluster-type development to provide and preserve open space
VLDR	Very Low Density Residential	0 to 2 units per acre	<ul style="list-style-type: none"> Allow for very low density residential uses when developed as single-family neighborhoods that can share common infrastructure, public facilities, and services
LDR	Low Density Residential	2 to 5 units per acre ¹	<ul style="list-style-type: none"> Promote conventional suburban residential neighborhoods that support and are served by common infrastructure, public facilities, and services
MDR	Medium Density Residential	5 to 20 units per acre ¹	<ul style="list-style-type: none"> Provide areas for a wide range of densities and housing types Promote efficient location of higher density residential development and neighborhoods in relation to infrastructure and transit systems, as well as employment opportunities, retail and service businesses, and community services and facilities
EMPLOYMENT GENERATING LAND USES			

Table 1 Land Use Categories

Land Use Category		Density / Intensity Range	Primary Purpose	Description of Typical Uses ²
C	Commercial	0.75 FAR max 5 units per acre max	<ul style="list-style-type: none"> Provide suitable locations for retail, office, and service commercial businesses that serve the needs of residents, regional markets, and visitors/tourists Provide employment opportunities for residents in the surrounding area Allow for a mix of commercial and lower density residential uses in rural areas (when residential is permitted in the underlying zoning district) 	<ul style="list-style-type: none"> Retail stores and personal services Office and professional services Lodging, recreation, and entertainment Heavy commercial with adequate buffering for surrounding residential uses In rural areas: agriculture and lower density residential
LI	Limited Industrial	0.50 FAR max	<ul style="list-style-type: none"> Provide suitable locations for light or limited industrial activities where operations are totally enclosed in a structure and limited exterior storage is fully screened from public view Provide suitable locations for employee-intensive uses, such as research and development, technology centers, corporate offices, clean industry, and supporting retail uses Provide employment opportunities for residents in the surrounding area 	<ul style="list-style-type: none"> Light industrial and manufacturing Wholesale, warehouse, and distribution Transportation services Agricultural support services Neighborhood-scale and community-scale energy facilities
IGI	General Industrial	0.75 FAR max	<ul style="list-style-type: none"> Provide suitable locations for general or heavy industrial activities where all or part of operations take place outside of enclosed structures, exterior storage is not fully screened from public view, or involve large equipment Provide areas for industrial activity that generates substantial odors, noise, vibration, or truck traffic Provide employment opportunities for residents in the surrounding area 	<ul style="list-style-type: none"> General or heavy industrial, manufacturing, and processing Recycling and salvage operations Wholesale, warehouse, and distribution, including rail facilities Mineral extraction and associated processing Transportation services Agricultural support services Neighborhood-, community-, and utility-scale energy facilities

Table 1 Land Use Categories

Land Use Category	Density / Intensity Range	Primary Purpose	Description of Typical Uses ²
PUBLIC AND SPECIAL LAND USES			
PF	Public Facility	n/a	<ul style="list-style-type: none"> Provides areas for public and quasi-public uses and facilities to meet current and future needs Protect and ensure the continued operation of public facilities and systems during times of flooding, fire, or other hazardous events Prevent the loss of life or property caused by flooding by preserving areas and capacity to carry/discharge flood flow Protect floodways from encroachment by land uses that could be endangered during times of flooding; prohibit occupancy or encroachment of any improvement that would unduly affect the capacity of floodways
RLM	Resource/Land Management	1 unit per 40 acres max	<ul style="list-style-type: none"> Manage, preserve, and protect natural resources such as agricultural/grazing lands, watersheds, minerals, and wildlife habitat areas, as well as open space areas not otherwise protected or preserved Provide areas for military operations and training while minimizing impacts on and from surrounding civilian uses Allow for limited rural development while minimizing the expansion of development outside of existing communities
			<ul style="list-style-type: none"> Civic and educational buildings and facilities Utility systems, facilities, and corridors Neighborhood, community, and utility-scale energy facilities Channels, drainage areas, and other floodways Transportation corridors and facilities Cemeteries and landfills Commercial agriculture/grazing
			<ul style="list-style-type: none"> Natural resource conservation, such as watersheds, habitat areas and corridors, wilderness study areas, and areas of critical environmental concern Mineral resource extraction and processing, commercial agriculture and grazing Military facilities, operations, and training areas Recreation areas Community-scale and utility-scale energy facilities Single family homes on very large parcels Limited and low density commercial development Tribal lands Lands under the control of the state or federal government

Table 1 Land Use Categories

Land Use Category		Density / Intensity Range	Primary Purpose	Description of Typical Uses ²
OS	Open Space	n/a	<ul style="list-style-type: none"> Provide and preserve publicly-owned land for parks and open space Manage, preserve, and protect natural areas, habitats, and wildlife corridors 	<ul style="list-style-type: none"> Local, regional, and state parks and recreation areas National forests, monuments, parks, preserves, and wilderness areas Public facilities in an open space setting Privately-owned land may be treated as RLM designated lands, unless otherwise restricted by county, state, and/or federal regulations Mineral extraction, timbering, or similar activities as permitted by federal or state regulations
SD	Special Development	Without a Specific Plan: 4 units per acre max 0.25 FAR max With a Specific Plan: 30 units per acre max 2.0 FAR max	<ul style="list-style-type: none"> Allow for a combination of residential, commercial, and/or manufacturing activities that maximizes the utilization of natural and human-generated resources Identify areas suitable for large-scale, master planned developments Promote cluster-type development to provide and preserve open space Allow for a mix of residential, commercial, and public/quasi-public uses in rural areas Facilitate joint planning efforts among adjacent land owners and jurisdictions 	<ul style="list-style-type: none"> Specific plans and master planned development Mixed use development in rural areas

Table 2 Policy Plan Projected Growth Estimates (2016 to 2040)

Geography	Population	Housing Units	Employment	Building SF ¹
COUNTYWIDE				
San Bernardino 12,766.951	630,456	232,978	316,572	682,609,354
Incorporated 503,679 Ac.	580,776	217,622	304,026	663,211,453
Unincorporate 12,263.271	49,680	15,365	12,546	19,397,900
UNINCORPORATED^{2,3,4}				
Valley⁵ 42,095 Ac.	24,893	7,978	11,541	18,387,448
Bloomington CP	19,270	6,169	2,727	3,756,069
Mentone CP	323	108	501	271,603
Muscov CP	449	154	715	384,787
San Antonio Heights CP	49	15	1	793
East Valley Area Plan	3,243	977	2,138	4,129,593
Chino SOI	141	51	109	300,031
Colton SOI	194	65	-	-
Fontana SOI	482	225	4,397	8,724,613
Loma Linda SOI	548	155	10	6,347
Montclair SOI	58	21	-	-
San Bernardino SOI	137	38	944	813,614
Other Unincorporated Areas	-	-	-	-
Mountain⁶ 528,027	2,355	702	202	162,356
Bear Valley CP	650	199	62	49,052
Crest Forest CP	342	103	37	28,414
Hilltop CP	343	103	16	18,310
Lake Arrowhead CP	602	180	45	32,840
Little Creek CP	87	25	20	16,523
Mount Baldy CP	53	10	-	-
Oak Glen CP	191	56	4	2,451
Wrightwood CP	88	26	18	14,766
North Desert⁷ 9,642,978	21,073	6,281	725	783,047
Baker CP	83	25	3	1,836
Daguerre CP	83	25	9	7,025
El Mirage CP	84	26	3	1,605
Helendale CP	1,397	413	47	34,797
Lucerne Valley CP	531	158	28	20,314
Newberry Springs CP	205	62	29	22,894
Oak Hills CP	693	212	26	15,726

Oro Grande CP	83	26	20	16,100
Phelan/Pinon Hills CP	1,241	364	45	27,103
Yermo CP	88	26	20	16,614
Apple Valley SOI	16,280	4,841	483	613,380
Victorville SOI	107	42	5	1,884
Other Unincorporated Areas	198	60	6	3,769
East Desert ⁸	2,050,172	1,359	78	65,050
Homestead Valley CP	355	105	12	7,220
Joshua Tree CP	827	238	53	39,970
Morongo Valley CP	177	52	14	17,859

Source: County of San Bernardino for unincorporated areas (2018); SCAG 2016 RTP/SCS Growth Forecast for incorporated jurisdictions, adjusted for growth in housing and population from 2012 to 2016 based on ACS population/housing estimates; and growth in employment from 2012 to 2015 based on the 2015 U.S. Census Bureau, LEHD Employment Statistics.

1. Building SF refers to projected square footage of non-residential structures.
2. For the purposes of this table, the unincorporated geography is divided into three areas: 1) community plans (CP): unincorporated areas in a Community Plan boundary, 2) spheres of influence (SOI): unincorporated areas in an incorporated city/town SOI, but not in a CP, and 3) other unincorporated areas that are not in a CP or incorporated SOI.
3. Overlap of Community Plan and SOI boundaries. Bear Valley: The Bear Valley CP includes the entire Big Bear Lake SOI; SOI growth is included in Bear Valley CP. Bloomington: Bloomington CP is primarily in Rialto SOI; small portion in Fontana SOI, CP growth not included in either SOI. Muscoy: The Muscoy CP is in the San Bernardino SOI. Oak Hills: The Oak Hills CP is in the Hesperia SOI. Oro Grande: A very small section of the Oro Grande CP is in the Victorville SOI. San Antonio Heights: The San Antonio Heights CP occupies the entire unincorporated Upland SOI.
4. Jurisdictions with limited or no unincorporated SOIs: Chino Hills, Grand Terrace, Highlands, Ontario, and Yucca Valley SOIs.
5. No growth is projected (outside of the CP boundaries) in the following Valley region SOIs: Chino Hills, Grand Terrace, Highland, Ontario, Rancho Cucamonga, Redlands, Rialto, Upland, and Yucaipa. No growth is projected in unincorporated areas of the Valley outside of a CP, SOI or Area Plan.
6. No growth is projected in the following Mountain region areas: Angeles Oaks CP, Big Bear Lake SOI, unincorporated areas outside of a CP or incorporated SOI.
7. No growth is projected in the following North and East Desert regions areas: Pioneertown CP, Adelanto SOI, Barstow SOI, Hesperia SOI, Needles SOI unincorporated areas outside of a Community Plan or Sphere of Influence; No growth is projected outside of the Community Plan boundaries in: Twentynine Palms SOI, Yucca Valley SOI.
8. No growth is projected in the following East Desert region areas: Pioneertown CP, areas outside CP boundaries in the Twentynine Palms SOI, or unincorporated areas outside a CP or SOI.

As previously noted, the County guidelines identify assessment of a potential Existing Plus Project Condition, Background Condition, Background Plus Project Condition, and Cumulative No Project Condition. However, since this is a County Policy Plan project (evaluating the policies of the County Policy Plan at a programmatic level), these scenarios have not been included since it is unreasonable to assume that a policy plan would be implemented in a near-term context and would not provide realistic information to the decision makers. Additionally, since the regional SBTAM model was utilized for the assessment, all reasonably foreseeable projects that are consistent with the Regional Transportation Plan/ Sustainable Communities Strategy are included under the Cumulative Condition.

3.0 Methodology and Impact Thresholds

This chapter discusses the analysis methodologies and assumptions used to evaluate traffic impacts based on the proposed County Policy Plan.

3.1 Level of Service Criteria

3.1.1 Intersection Analysis

Per the San Bernardino County Congestion Management Program Guidelines (2016), intersections within the County were evaluated using Highway Capacity Manual (HCM) 6th Edition Transportation Research Board (TRB) methodology. Intersections within Caltrans Right of Way were also evaluated using the HCM 6th Edition methodology.

The HCM Methodology estimates a quantitative delay at intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from level of service (LOS) A (minimal delay) to LOS F (excessive congestion). LOS E represents at-capacity operations. Descriptions of the LOS letter grades are provided in **Table 3**.

Table 3 Level of Service Definitions for Signalized Intersections			
LOS	Description	Signalized Delay (Seconds)	V/C Ratio
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	≤ 10.0	<0.61
B	Operations with low delay occurring with good progression and/or short cycle lengths.	> 10.0 to 20.0	0.61 to 0.70
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	> 20.0 to 35.0	0.71 to 0.80
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop and individual cycle failures are noticeable.	> 35.0 to 55.0	0.81 to 0.90
E	Operations with high delay values indicating poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0	0.91 to 1.00

Table 3 Level of Service Definitions for Signalized Intersections

LOS	Description	Signalized Delay (Seconds)	V/C Ratio
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	> 80.0	> 1.00

Source:

1. *Highway Capacity Manual*, 6th Edition

Synchro 10 was used to perform the HCM 6th Edition level of service calculations for intersections under the jurisdiction of San Bernardino County with the following assumptions:

- Existing signal timing for Existing Conditions; Optimized signal timing for non-coordinated intersections for all other analysis scenarios
- For coordinated intersections, the existing coordination timing plan was obtained from the responsible agency
- Four (4) seconds of lost time per critical phase was assumed if signal timing data was not available
- Field-collected heavy vehicle factor if available; otherwise, 2% was assumed
- Field-collected peak hour factor (PHF) for existing and background conditions analyses; for cumulative assessment, 0.95 was assumed

Saturation flow rates were used based on actual field measurements of intersections if possible. Otherwise, the following saturation flow rates were used, consistent with the SBCTA CMP:

- For Existing and Background scenarios:
 - 1,800 vehicles per hour green per lane (vphgpl) for exclusive thru and exclusive right turn lanes
 - 1,700 vphgpl for exclusive left turn lanes
 - 1,600 vphgpl for exclusive dual left turn lanes
 - 1,500 vphgpl for exclusive triple left turn lanes
- For the Cumulative and County Policy Plan Build-Out scenarios:
 - 1,900 vphgpl for exclusive thru and exclusive right turn lanes
 - 1,800 vphgpl for exclusive double right turn lanes

- 1,800 vphgpl for exclusive left turn lanes
- 1,700 vphgpl for exclusive dual left turn lanes
- 1,600 vphgpl for exclusive triple left turn lanes

3.1.2 Roadway Analysis

Average Daily Traffic (ADT) defines roadway segment LOS. Roadway segments for Existing (2016) and Cumulative (2040) Years were analyzed utilizing the roadway segment LOS criteria based on the HCM. These traffic volume thresholds are shown in **Table 4**.

3.2 Roadway and Intersection Criteria for County Policy Plan Consistency

LOS significance criteria were employed by region to determine where the buildout scenario traffic causes traffic impacts to intersections within the study area. LOS C is the threshold of significance for the North Desert and East Desert regions of the County. LOS D is the threshold of significance for all other unincorporated areas of the county.

The following analysis was completed to verify consistency between the County Policy Plan proposed roadway network and Policy Plan goals and policies.

3.2.1 County of San Bernardino & Congestion Management Program

SBCTA has identified LOS E as the minimum acceptable standard on roadway segments and intersections designated within the Congestion Management Program. This is based on California Government Code Section 65089. (b) (1) of the San Bernardino County Congestion Management Plan (2007). Because the thresholds for acceptable operating conditions in the proposed County Policy Plan are LOS D or LOS C (e.g. more restrictive than the CMP LOS E policy), no further analysis was needed to determine where significant impacts occur under the CMP guidelines.

3.2.2 Intersections

Consistent with the acceptable LOS for the County sub-regions (North Desert, East Desert, Valley, and Mountain regions) as described in the proposed County Policy Plan, the proposed County Policy Plan buildout impacted:

Table 4 Level of Service Criteria for Roadway Segments

Facility	Lanes	Speed (mph)	LOS C	LOS D	LOS E
Freeway	8	65	123,200	148,800	160,000
	6	65	92,400	111,600	120,000
	4	65	61,600	74,400	80,000
Divided Highway	6	55	72,000	81,000	100,000
	4	55	57,600	64,800	72,000
	2	55	28,800	32,400	36,000
Major Arterial / Major Highway	6	55	48,000	54,000	60,000
		45	31,900	54,000	54,300
		40	26,700	51,500	54,300
		35	21,500	48,900	54,300
	4	45	21,400	37,200	37,900
		40	18,000	35,300	37,900
		35	14,700	33,300	37,900
	2	45	10,700	18,600	19,000
		40	9,000	17,700	19,000
		35	7,400	16,700	19,000
Mountain Major Highway	4	45	20,300	35,300	36,000
		40	17,100	33,500	36,000
		35	14,000	31,600	36,000
	2	45	9,800	17,700	18,900

Table 4 Level of Service Criteria for Roadway Segments

Facility	Lanes	Speed (mph)	LOS C	LOS D	LOS E
Controlled/Limited Access Collector		40	8,400	16,600	18,900
		35	7,000	15,700	18,900
	4	35	6,800	14,100	34,800
	2	35	3,400	7,000	17,400
Mountain Secondary Highway	4	35	6,000	10,500	23,300
	2	35	3,000	6,000	11,700

- Any signalized study intersection in the Valley or Mountain regions operating at an acceptable LOS D or better with existing traffic in which the addition of buildout traffic caused the intersection to degrade to an LOS E or F;
- Any signalized study intersection in the North Desert or East Desert regions operating at an LOS C or better with existing traffic in which the addition of buildout traffic caused the intersection to degrade to an LOS D, E, or F;
- Any signalized study intersection in the Valley or Mountain regions operating at LOS E or F with existing traffic where the addition of buildout traffic increased delay by 5.0 or more seconds; or
- Any signalized study intersection in the North Desert or East Desert regions that is operating at LOS D, E, or F with existing traffic where the addition of buildout traffic where the project increased delay by 5.0 or more seconds.

Consistent with the acceptable LOS for the County sub-regions as described in the proposed County Policy Plan, the proposed County Policy Plan buildout impacted an unsignalized intersection if the following points a) or both sections b) and c) occurred:

- The addition of project related traffic caused the intersection to degrade from an LOS D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the North Desert and East Desert regions.

OR

- b) The project added 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F in the Valley and Mountain regions or at an LOS D, E, or F in the North Desert or East Desert region (per Section 10.5.2 b))

AND

- c) One or both of the following conditions are met:
 - 1) The project added ten (10) or more trips to any minor street approach
 - 2) The intersection met the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c)).

3.2.1.2 Roadway Segments

Consistent with the acceptable LOS for the North Desert, East Desert, Valley, and Mountain regions as described in the proposed County Policy Plan, the proposed County Policy Plan impacted:

- Any study roadway segment in the Valley or Mountain regions that was operating at an LOS D or better in which the addition of buildout traffic caused the segment to degrade to an LOS E or F
- Any study roadway segment in the North Desert or East Desert regions that was operating at an LOS C or better without in which the addition of buildout traffic caused the segment to degrade to an LOS D, E, or F
- Any roadway segment that operated unacceptably in the existing scenario where the buildout scenario added traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05)

3.3 VMT Thresholds

Based on the County's guidelines, a VMT impact caused by the proposed County Policy Plan buildout was considered significant if the buildout VMT per service population in a sub-region (service population includes population plus employment in the County and is appropriate for the County Policy Plan as the County Policy Plan is truly a mixed-use project) was not at least four percent below the VMT per service population that is currently generated in the incorporated areas of the sub-region of the County. In addition to the project assessment of VMT, the

Cumulative effect of the project was assessed by comparing the sub-regional VMT per service population with the County Policy Plan to the sub-regional VMT per service population from the planned roadway network and land use from the SCAG RTP/SCS.

3.4 Traffic Volume Forecasting

3.4.1 San Bernardino Transportation Analysis Model (SBTAM)

San Bernardino County Transportation Analysis Model (SBTAM) is a regional model that is based on the traditional four-step sequential modeling methodology with “feedback loop” procedures to insure internal modeling consistency. The model incorporates multi-modal analytical capabilities to analyze the following modes of travel: local and express bus transit, urban rail, commuter rail, toll roads, carpools, truck traffic, as well as non-motorized transportation which includes pedestrian and bicycle trips. Regional transportation models, such as the SBTAM, use socioeconomic data to estimate trip generation, mode choice, as well as several submodels to address complex travel behavior and multi-modal transportation issues. The model responds to changes in land use types, household characteristics, transportation infrastructure, and travel costs such as transit fares, parking costs, tolls, and auto operating costs.

SBTAM Version 3.4 (constrained network) was used to develop the future traffic volume forecasts. Two model scenarios were utilized in the forecasting process: Base Year and Future Year as described below:

- Base Year Model – This scenario contains the Base Year (2012) land use and roadway network assumptions without any modifications by Fehr & Peers.
- Future Year Model – This scenario contains the Future Year (2040) land use and roadway network assumptions. The most recent information for transportation improvements included in the 2016 Regional Transportation Project Plan was used to update the roadway network.

3.5 Future Year Roadway Improvement Assumptions

The following intersection configuration improvements have been assumed based on the approved project list from the Regional Transportation Plan Sustainable Communities (2016). Additionally, the roadway network identified in the Transportation & Mobility Element of the County Policy Plan is assumed (shown on Figure 8). Some of these projects are under development by the County (highlighted), while others have yet to begin the process for improvement.

Table 5 Assumed RTP Roadway Network Improvements

RTP/SCS Project ID	RTP/SCS Project Description	RTP Completion Year
4351	SR58 EXPRESSWAY-REALIGN AND WIDEN FROM 2-4 LANE EXPRESSWAY.	2016
4A07007	WIDEN DALE EVANS PKWY FROM THUNDERBIRD RD TO I-15 FROM 2 TO 4 LANES	2030
4A07020	SAFETY UPGRADES TO NATIONAL TRAILS HIGHWAY IN SAN BERNARDINO COUNTY	2020
4A01270	WIDEN EL MIRAGE RD FROM ADELANTO RD TO LA COUNTY LINE FROM 2 TO 4 LANES	2040
4A01900	WIDEN SR-18 FROM LA COUNTY LINE TO US-395 FROM 2 TO 4 LANES (PM 116-100.9)	2030
4A01900	WIDEN SR-18 FROM LA COUNTY LINE TO US-395 FROM 2 TO 4 LANES (PM 116-100.9)	2030
4A01278	WIDEN PHELAN RD FROM SHEEP CREEK RD TO BALDY MESA RD FROM 2 TO 6 LANES	2020
4A07125	WIDEN DEVORE RD FROM I-215 TO KENWOOD DR FROM 2 TO 4 LANES	2023
4A07024	WIDEN ARROW BLVD FROM HICKORY AV TO TOKAY AV FROM 2 TO 4 LANES	2020
200409, 4A07040	WIDEN CHERRY AVE FROM VALLEY BLVD TO FOOTHILL BLVD FROM 4 TO 6 LANES	2015 2020
4A07055	WIDEN MERRILL AVE FROM CHERRY AVE TO CITRUS AVE FROM 2 TO 4 LANES	2020
4A07109	WIDEN SAN BERNARDINO AVE FROM ETIWANDA AVE TO CHERRY AVE FROM 4 TO 6 LANES	2020
4A07218	WIDEN VALLEY BLVD FROM COMMERCE DR TO ALMOND AVE FROM 4/5 TO 6 LANES (3 LANES EACH DIRECTION)	2020
200835, 4A07072	SAN BERNARDINO AVE. FROM CHERRY AVE. TO FONTANA CITY LIMITS (LIME AVE.) (1.25 MILES)-WIDEN 2-4 LANES	2018
4A07079, 200823	WIDEN SAN BERNARDINO AVE FROM LAUREL AVE TO RIALTO CITY LIMITS FROM 2 TO 4 LANES	2023

Table 5 Assumed RTP Roadway Network Improvements		
RTP/SCS Project ID	RTP/SCS Project Description	RTP Completion Year
1830	I-10 AT CEDAR AVE. BETWEEN SLOVER AND VALLEY WIDEN FROM 4-6 LANES WITH LEFT AND RIGHT TURN LANES	2019
201161, 4A01285	WIDEN SLOVER AVE FROM ALDER AVE TO CACTUS AVE FROM 2 TO 4 LANES	2025
4A07159	WIDEN SANTA ANA AVE FROM LOCUST AVE AVE TO CEDAR AVE FROM 2 TO 4 LANES	2023
4A07165	WIDEN JURUPA AVE FROM LOCUST AVE TO CEDAR AVE FROM 2 TO 4 LANES	2023
4A07111	WIDEN JURUPA AVE FROM CEDAR AVE TO LILAC AVE FROM 2 TO 4 LANES	2025
4A07197, 200822	WIDEN OLIVE ST FROM JACKSON AVE TO RANCHO AVE FROM 2 TO 4 LANES	2025
4A01262A, 200839, 4A01262B	WIDEN 5TH AVE FROM CRAFTON AVE TO WABASH AVE FROM 2 TO 4 LANES	2025
4A07314	WIDEN GARNET ST FROM SR-38 TO NEWPORT AVE FROM 2 TO 4 LANES	2035
4160015	WIDEN SR-62 FROM RIVERSIDE COUNTY LINE TO YUCCA VALLEY TOWN LIMITS FROM 4 TO 6 LANES	2030
4160015	WIDEN SR-62 FROM RIVERSIDE COUNTY LINE TO YUCCA VALLEY TOWN LIMITS FROM 4 TO 6 LANES	2030
4160015	WIDEN SR-62 FROM RIVERSIDE COUNTY LINE TO YUCCA VALLEY TOWN LIMITS FROM 4 TO 6 LANES	2030
SBD031152	RIVERSIDE DRIVE AT SAN ANTONIO FLOOD CONTROL CHANNEL WIDEN BRIDGE FROM 4 LANES TO 6 LANES	2021
4A07124	WIDEN PHILLIPS BLVD FROM ROSWELL AVE TO YORBA AVE FROM 2 TO 4 LANES	2025
4A07153	WIDEN SANTA ANA AVE FROM TAMARIND AVE TO LOCUST AVE FROM 2 TO 4 LANES	2030
20150010	SLOVER AVE PHASE II: TAMARIND AVE TO ALDER / LINDEN AVE TO CEDAR AVE; WIDEN 2-4 LNS	-

Table 5 Assumed RTP Roadway Network Improvements

RTP/SCS Project ID	RTP/SCS Project Description	RTP Completion Year
4A07132	WIDEN SANTA ANA AVE FROM CEDAR AVE TO CACTUS AVE FROM 2 TO 4 LANES	2023
4A07036	WIDEN GLEN HELEN PKWY FROM LYTLE CREED RD TO I-15 FROM 2 TO 4 LANES	2023
4A01281	WIDEN SAN BERNARDINO AVE FROM ALABAMA ST TO CALIFORNIA ST FROM 2 TO 4 LANES	2025
4A01900	WIDEN SR-18 FROM LA COUNTY LINE TO US-395 FROM 2 TO 4 LANES (PM 116-100.9)	2030
4A01900	WIDEN SR-18 FROM LA COUNTY LINE TO US-395 FROM 2 TO 4 LANES (PM 116-100.9)	2030
4M07035	WIDEN SR-138 FROM SR-18 TO PHELAN RD FROM 2 TO 4 LANES (PHASE II)	2030
34011-34011	NEAR WRIGHTWOOD FROM PHELAN RD TO I-15 WIDEN FROM 2 TO 4 LANES WITH MEDIAN(EA3401U) (BRIDGE WIDENING IN FTIP ID 20150601)	2016
4A01278	WIDEN PHELAN RD FROM SHEEP CREEK RD TO BALDY MESA RD FROM 2 TO 6 LANES	2020
4A01278	WIDEN PHELAN RD FROM SHEEP CREEK RD TO BALDY MESA RD FROM 2 TO 6 LANES	2020
4A01025	WIDEN BIG BEAR BLVD FROM WEST BIG BEAR CITY LIMITS TO EAST BIG BEAR CITY LIMITS FROM 2 TO 4 LANES	2020
20130402	RESTRIPE EXISTING STRUCTURAL SECTION OF BAKER BLVD BETWEEN I-15 RAMPS AND SH 127 FROM 2 - 4 LANE CONFIGURATION IN CONJUNCTION WITH PROJECT TO REPLACE EXISTING 2 LANE BRIDGE 54CO127 WITH 4 LANE BRIDGE	2016

4.0 Existing (2017) Conditions

This chapter discusses the existing transportation conditions in the project study area. This discussion addresses the roadway, transit, bicycle, and pedestrian networks. An operational analysis of the study area intersections and roadway segments is also discussed.

4.1 Existing Roadway Network

Major regional facilities within the county include:

Interstate 15 (I-15), The most extensive stretch of interstate highway in the county. Access is provided starting in the densely populated southwestern edge of the county and ends to the Nevada border near the town of Primm, Nevada. The highway runs through the San Gabriel Mountains into the high desert region through major population centers of Victorville, Hesperia, Apple Valley, Barstow, etc. It runs north/south from the southwestern to the northeastern edge of the county lines. It consists of four lanes each direction in the population centers of the southwestern edge of the county and two lanes each way through the high desert region. Speed limits are 65 mph in urban southwestern county and 70 mph through the high desert to the Nevada border.

Interstate 215 (I-215), Also named as the Riverside/Barstow freeway. Begins at the southern tip of the city of San Bernardino and runs north/south to connect to Interstate 15 on the north side of San Bernardino at the base of the San Gabriel Mountains. Provides convenient access to downtown San Bernardino, as well as California State University, San Bernardino, and Glen Helen Regional Park at the northern end of the highway. The speed limit is 65 mph and ranges from three to five lanes in each direction.

Interstate 10 (I-10), Also known as the San Bernardino Highway or the Christopher Columbus Transcontinental Highway. Runs east/west starting in the city of Ontario on the western edge of the county. It continues east and ends at the eastern edge of the county near the city of Yucaipa. The highway provides San Bernardino County residents direct access to Los Angeles to the west, as well as Palm Springs and surrounding cities/towns to the east. The speed limit is 65 mph with four lanes in each direction.

Interstate 40 (I-40), This highway is the second of two east/west running interstate highways in the county. Also known as the Needles Highway, which only runs through the high desert region of the county. The western edge of the highway starts in Barstow at the junction with Interstate

15 and ends at the Arizona state border adjacent to the town of Needles. The highway contains two lanes in each direction with a posted speed limit of 70 mph.

State Route 60 (SR-60), Known as the Pomona Freeway, as well as CYA Counselor Ineasie M. Baker Memorial Freeway. Runs east/west for a small portion of southwestern San Bernardino County. This state route runs east/west primarily through the cities of Chino and Ontario. Access is provided to Los Angeles County to the west and Riverside County to the east. The speed limit is 65 mph and it provides five lanes in each direction.

State Route 71 (SR-71), Also called the Chino Valley Freeway. This state route runs north/south starting at the junction of SR-60 near Pomona at the northern end and ends at the Riverside County line and the junction with SR-83 near Prado Regional Park. The highway contains two lanes in each direction and provides access to Los Angeles County to the north near Pomona and runs south to the junction with SR-91 in Riverside County.

State Route 83 (SR-83), This route runs north/south and is also known as Euclid Avenue. This state route runs through the downtown districts of Chino and Upland. The northern end of the highway ends in Upland and runs south to the junction with SR-71. Lane access ranges from one to three lanes in each direction.

State Route 210 (SR-210), Also known as Foothill Highway. Runs east/west in the densely populated southwestern region of the county. The western edge of the route begins in Ontario and runs east to the junction with Interstate 10 in Redlands. Lane access ranges from two to four lanes in each direction.

State Route 62 (SR-62), Known as the Twentynine Palms Highway. This state route runs east-west through starting with the town of Yucca Valley on the western edge and east to the Arizona border near the town of Parker, AZ. This route contains one to two lanes in each direction. This is also a primary state route running through Joshua Tree National Park.

State Route 138 (SR-138), This state route runs east-west and begins in the high desert region on the western edge and connects to Interstate 15 near Cajon Junction. It then continues east and ends at the junction with SR-18 at the mountain town of Crestline. This route is one to two lanes in each direction with a posted speed limit of 55 mph.

State Route 18 (SR-18), This highway begins at SR-210 in San Bernardino and ends at the Los Angeles County line about ten miles west of Victorville in the Mojave Desert. It primarily runs east-west and loops through the mountain resort towns of Lake Arrowhead and Big Bear Lake, then around through Lucerne Valley, Apple Valley, and Victorville. It is also known as the Rim of the World Highway due to a portion of the highway providing panoramic views of San Bernardino and surrounding Inland Empire cities. The highway contains one lane in each direction.

State Route 247 (SR-247), This highway runs north-south starting in Barstow at the junction with I-15 at the northern edge and continuing south to Yucca Valley at the junction with SR-62. It is also known as Old Woman Springs Road and contains one lane in each direction.

State Route 330 (SR-330), This state route runs north-south begins at SR-210 in the town of Highland on the southern edge and continues north to the mountain town of Running Springs at the junction with SR-18. It is also known as City Creek Road and is one lane in each direction.

State Route 58 (SR-58), This state route runs east-west in the Mojave Desert region of the county. The highway's western edge within the county borders the Kern County line, then runs east to the junction with Interstate 15 in Barstow. Also known as the Barstow-Bakersfield Highway. This state route is one to two lanes in each direction and contains a posted speed limit of 55 mph.

Roadway classifications for existing facilities in the County are shown on Figure 1.

4.2 Existing Transit Facilities

Transit within the county consists of Metrolink, BRT, and local bus routes. Existing transit is shown on Figure 2 and is described in detail in the *San Bernardino County Policy Plan Transportation Existing Conditions Report*_(Fehr & Peers, March 2017). The Existing Conditions report is provided in Appendix A.

4.3 Existing Bicycle Facilities

Existing bicycle facilities in the County of San Bernardino are described below. Existing bicycle facilities are shown on Figure 3 and are described in detail in the *San Bernardino County Policy Plan Transportation Existing Conditions Report*_(Fehr & Peers, March 2017). The Existing Conditions report is provided in Appendix A.

4.3.1 Class I Bikeways (Bike Paths)

Class I bicycle facilities are bicycle trails or paths that are off-street and separated from automobiles. They are a minimum of eight feet in width for two-way travel and include bike lane signage and designated street crossings where needed. A Class I Bike Path may parallel a roadway (within the parkway) or may be a completely separate right-of-way that meanders through a neighborhood or along a flood control channel or utility right-of-way.



CLASS I - Multi-Use Path

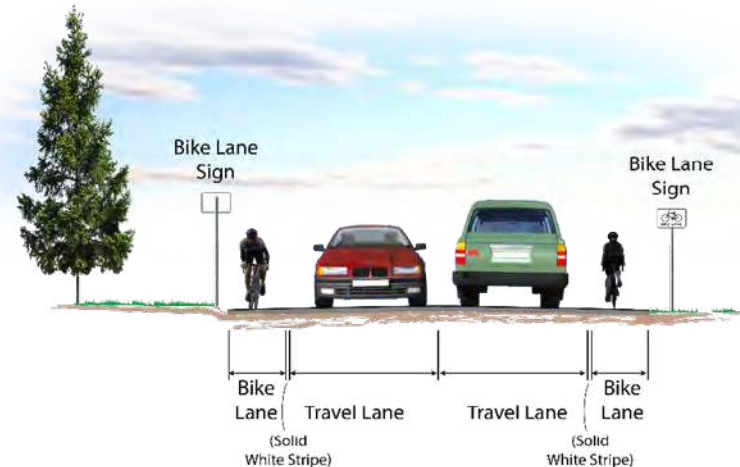
Provides a completely separated right-of-way for exclusive use of bicycles and pedestrians with crossflow minimized.



MUTCD R44A (CA)

4.3.2 Class II Bikeways (Bike Lanes)

Class II bicycle facilities are striped lanes that provide bike travel and can be either located next to a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended. However, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.



CLASS II - Bike Lane

Provides a striped lane for one-way bike travel on a street or highway.



MUTCD R81 (CA)

4.3.3 Class III Bikeways (Bike Routes)

Class II bicycle facilities are striped lanes that provide bike travel and can be either located next to a curb or parking lane. If located next to a curb, a minimum width of five feet is recommended. However, a bike lane adjacent to a parking lane can be four feet in width. Bike lanes are exclusively for the use of bicycles and include bike lane signage, special lane lines, and pavement markings.

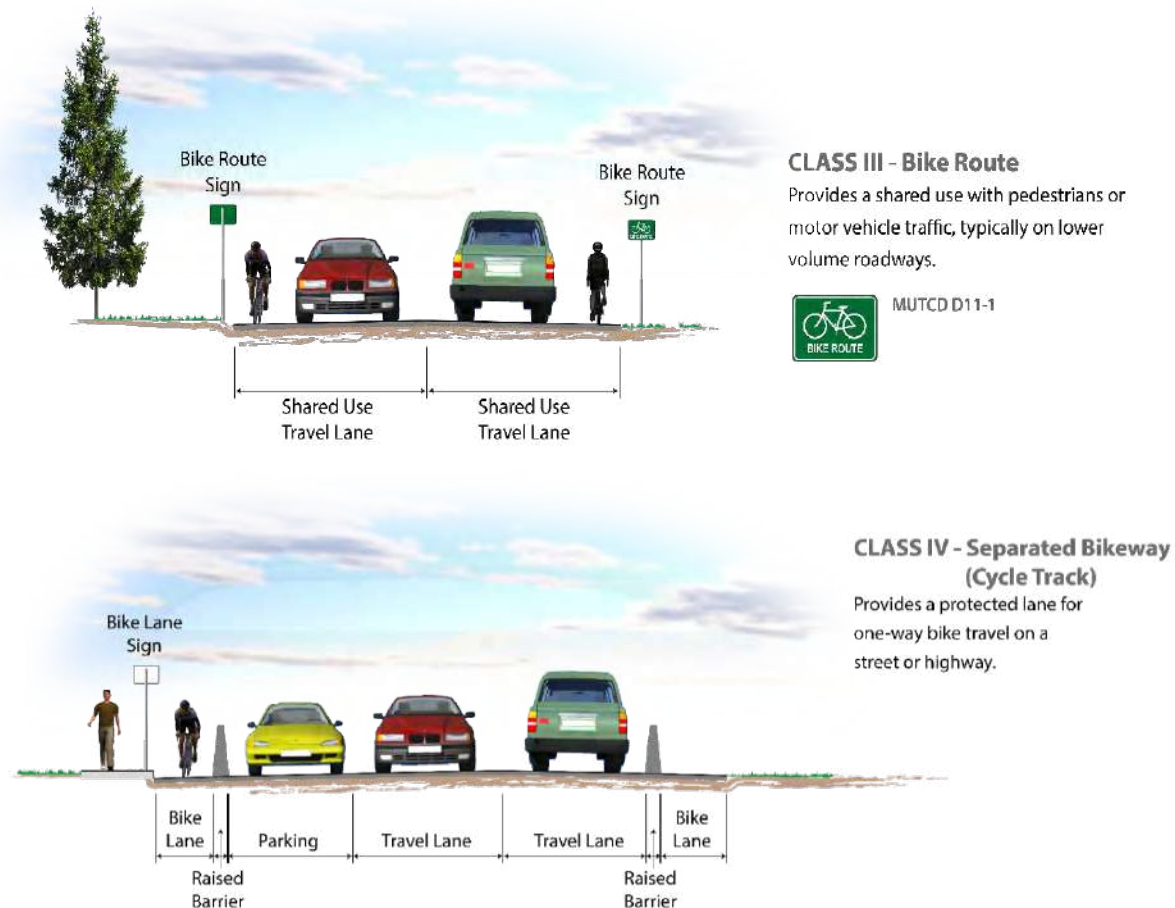
4.3.4 Class IV Bikeways (Cycle Tracks)

Class IV bicycle facilities, sometimes called cycle tracks or separated bikeways, provide a right-of-way designated exclusively for bicycle travel adjacent to a roadway and are protected from vehicular traffic via separations (e.g. grade separation, flexible posts, inflexible physical barriers, on-street parking). California Assembly Bill 1193 (AB 1193) legalized and established design standards for Class IV bikeways in 2015.

Existing bicycle facilities are shown on **Figure 3**.

4.4 Existing Airports

The San Bernardino County Department of Airports provides for the management, maintenance, and operation of six County-owned airports. These airports are listed below.



- Apple Valley Airport (APV): Services at this general aviation airport include fuel, maintenance, rentals, and flight training. Two runways are provided.
- Baker Airport (002): Baker Airport is an emergency airfield with one runway.
- Barstow-Daggett Airport (DAG): This is a general aviation airport that can also support military training conducted at the nearby Fort Irwin Training Center. Two runways are provided.
- Chino Airport (CNO): Chino Airport is a general aviation facility and a base for business jets and air taxi services with three aviation groups providing business aviation operations. This airport also provides fuel, repair, and avionics services. Three runways are available.
- Needles Airport (EED): This is a general aviation airport with services including fuel and minor airframe and power plant service. There are two runways.
- Twentynine Palms Airport (TNP): This is a general aviation airport with some military aircraft operations. Two runways are provided.

In addition to operating these six County-owned airports, the Department assists private and municipal airport operators in the county with planning, interpretation, and implementation of Federal Aviation Administration (FAA) general aviation requirements.

Airports throughout the County are shown on **Figure 4**.

4.5 Existing Goods Movement Facilities

Goods movement plays an important role in both the circulation network and the economy of a county such as San Bernardino. Often, it can be difficult to balance accommodating trucks and other vehicles without impeding other modes or the well-being of residents of the county's communities. Due to its important location among numerous freeways and highways, San Bernardino should incorporate goods movement along its roadways into effective transportation planning.

The Surface Transportation Assistance Act (STAA) of 1982 defines a network of highways as truck routes. Large trucks are allowed to operate on these routes. Goods movement into and through the county is currently accommodated by several STAA-designated routes including Interstate 40, Interstate 15, Interstate 10, US Route 395, and State Route 127. The STAA also encourages local governments to accommodate trucks on roadways beyond those designated by the Act.

Additionally, goods movement in San Bernardino County includes freight railways such as the Burlington Northern and Santa Fe Railway, the Union Pacific Railroad, the Trona Railway, and the Arizona and California Railroad.

Facilities accommodating goods movement in the County are shown on **Figure 5**.

4.6 Existing Traffic Volumes and Lane Configurations

4.6.1 Data Collection

Existing morning (7:00am to 9:00am) and evening (4:00pm to 6:00pm) peak period intersection counts were collected at 39 study intersections throughout the County during 2017. Daily roadway segment counts were collected at 160 locations throughout the County during 2017. All traffic counts were collected during typical weekdays with clear weather and when school was in session. Existing (peak hour traffic volumes and lane configurations for the study intersections are shown on **Figure 6**. Roadway segment ADT volumes are shown in **Table 7**.

4.7 Intersection Operation Analysis

Intersection delay and level of service for the Existing Conditions is provided in **Table 6**.

The results indicate that most of the study intersections currently operate at acceptable levels of service, with the exception of the following two study intersections:

- Alder Ave / Santa Ana Ave (Bloomington CPA, Rialto SOI)– LOS F during the AM peak hour at this all-way stop-controlled intersection
- Sheep Creek Rd / Palmdale Rd (Phelan/Pinon Hills CPA)– LOS F during the PM peak hour at this side-street top-controlled intersection

4.8 Roadway Segment Operation Analysis

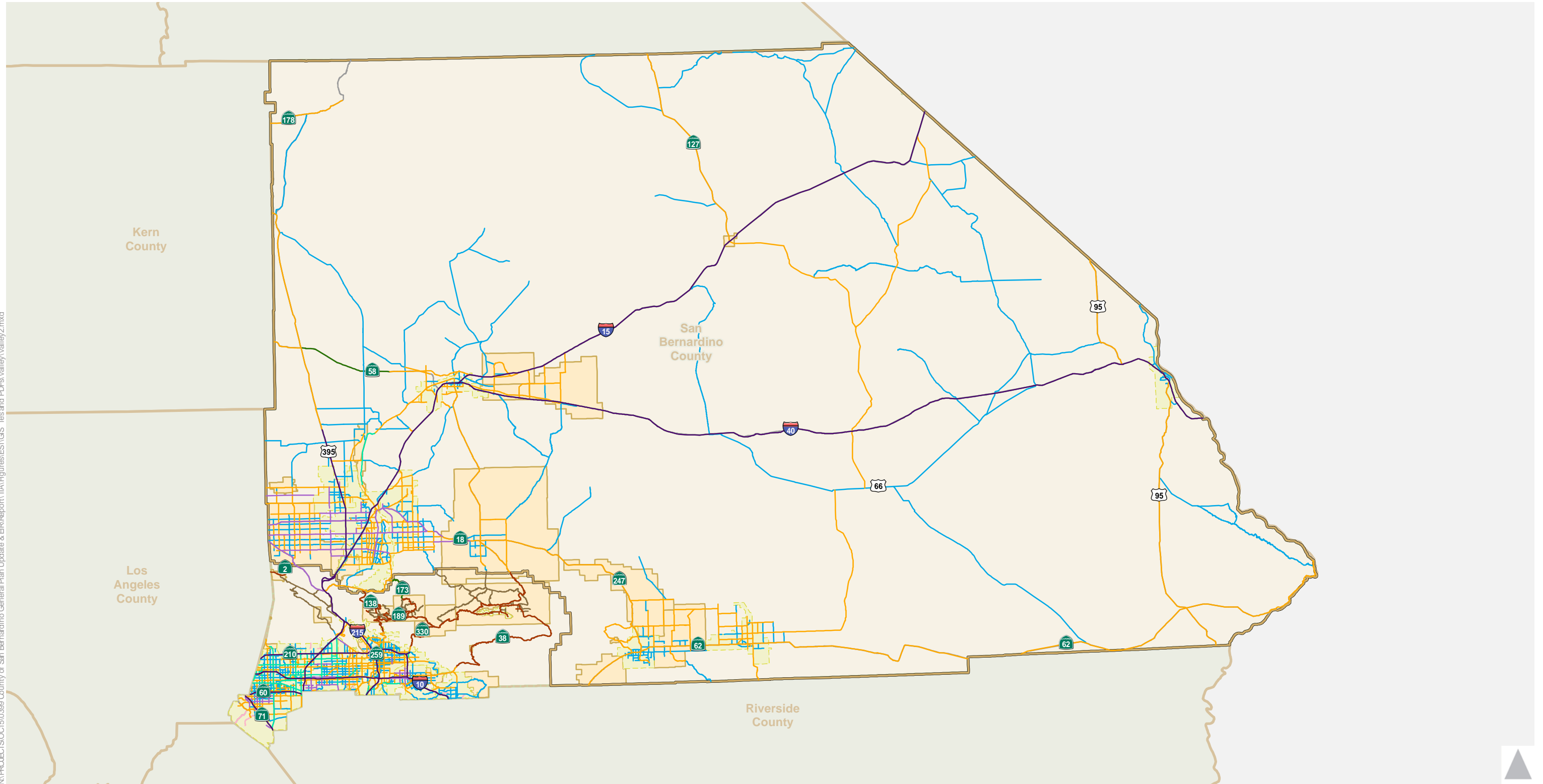
Roadway segment ADT and level of service for Existing Conditions is shown in **Table 7**.

The results indicate that most of the study roadway segments currently operate at an acceptable level of service, except for the following locations:

- SR-138 west of Oasis Rd – LOS D (Phelan/Pinon Hills CPA)
- Phelan Rd east of Johnson Rd – LOS D (Lake Arrowhead CPA)
- SR 173 east of Lakes Edge Rd – LOS E (Lake Arrowhead CPA)
- North Bay Rd north of SR-189 – LOS E (Crest Forest CPA)
- California St north of Highland Ave – LOS E (Muscoy CPA, San Bernardino SOI) Mentone Ave west of Opal Ave – LOS E (Mentone CPA, Redlands SOI)

Intersections and road segments that operate unacceptably under Existing Conditions are shown on **Figure 7**.

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
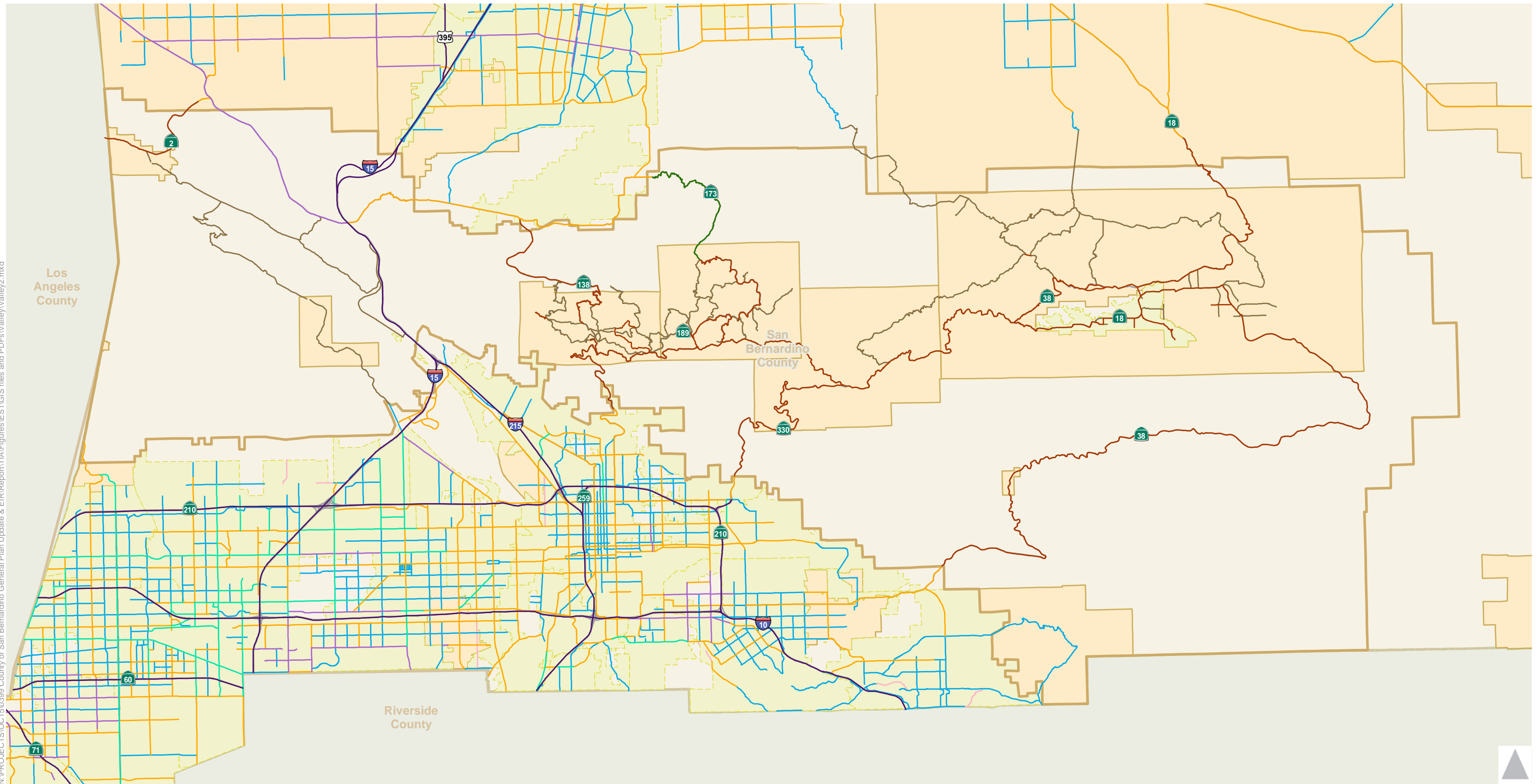
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|--|---|---|
|  Freeway |  Controlled/Limited Access Collector |  Desert Region |
|  Major Divided Highway |  Mountain Major Highway |  City Boundaries |
|  Major Arterial Highway |  Mountain Secondary Highway |  Community Plan Boundaries |
|  Major Highway |  State Highway (Special Standards or Conditions) |  San Bernardino County |
|  Secondary Highway | |  County Boundaries |



Figure 1.1

Existing Roadway Designations
Desert Region

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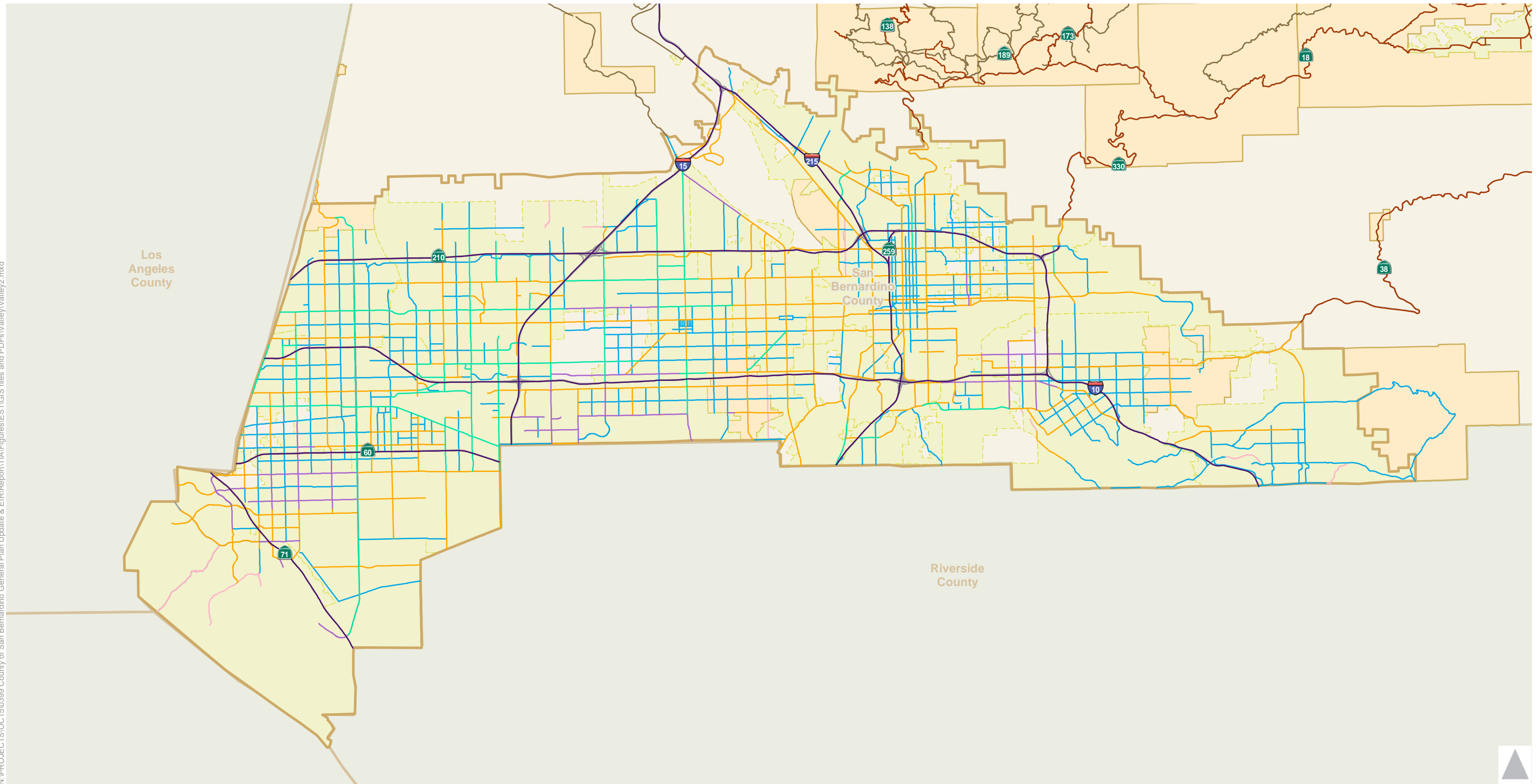


- | | | |
|--------------------------|---|--|
| — Freeway | — Controlled/Limited Access Collector | Mountain Region |
| — Major Divided Highway | — Mountain Major Highway | City Boundaries |
| — Major Arterial Highway | — Mountain Secondary Highway | Community Plan Boundaries |
| — Major Highway | — State Highway (Special Standards or Conditions) | San Bernardino County |
| — Secondary Highway | | County Boundaries |



Figure 1.2

Existing Roadway Designations
Mountain Region



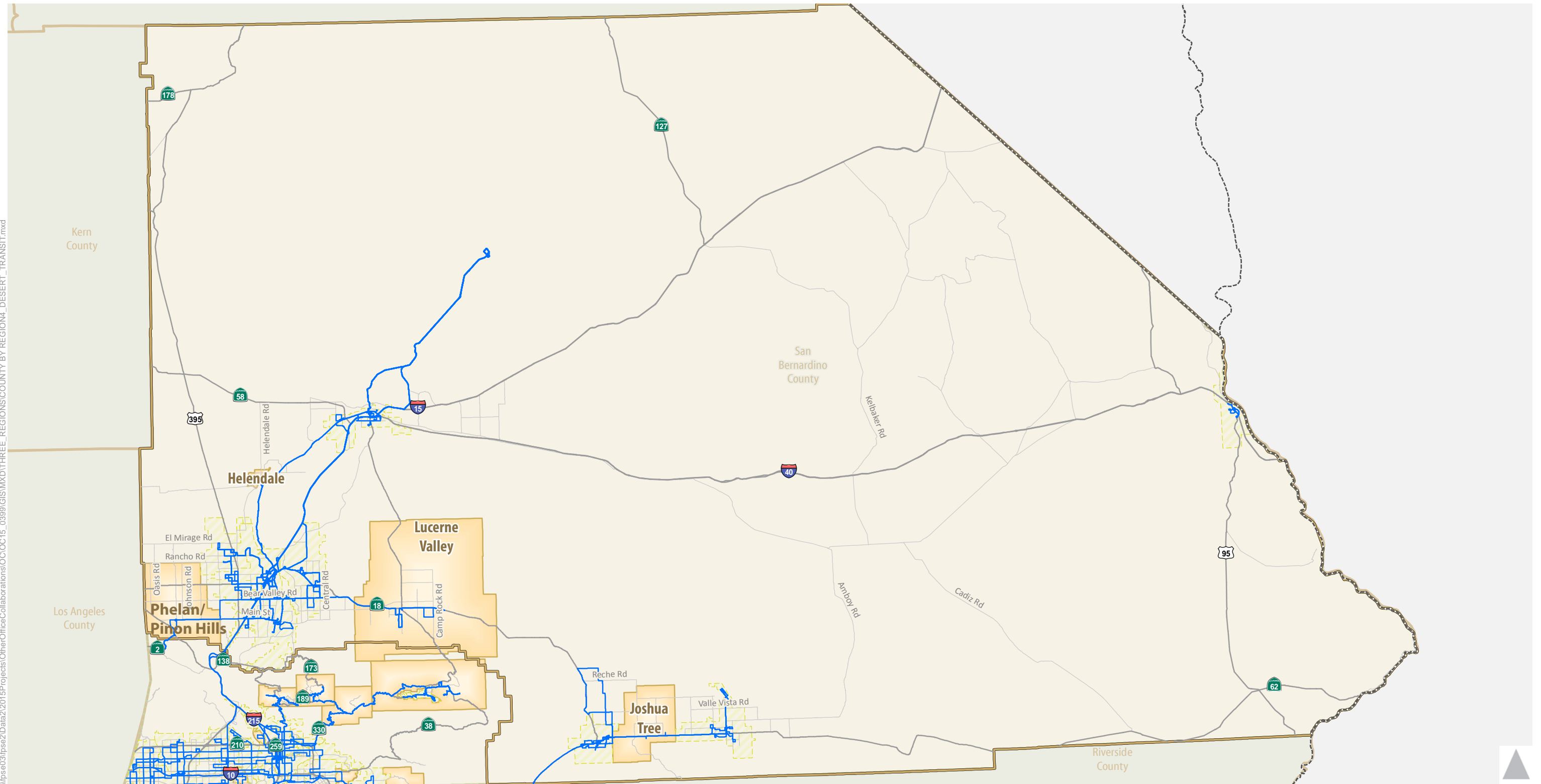
- | | | |
|------------------------|---|---------------------------|
| Freeway | Controlled/Limited Access Collector | Valley Region |
| Major Divided Highway | Mountain Major Highway | City Boundaries |
| Major Arterial Highway | Mountain Secondary Highway | Community Plan Boundaries |
| Major Highway | State Highway (Special Standards or Conditions) | San Bernardino County |
| Secondary Highway | | County Boundaries |



Figure 1.3

Existing Roadway Designations
Valley Region

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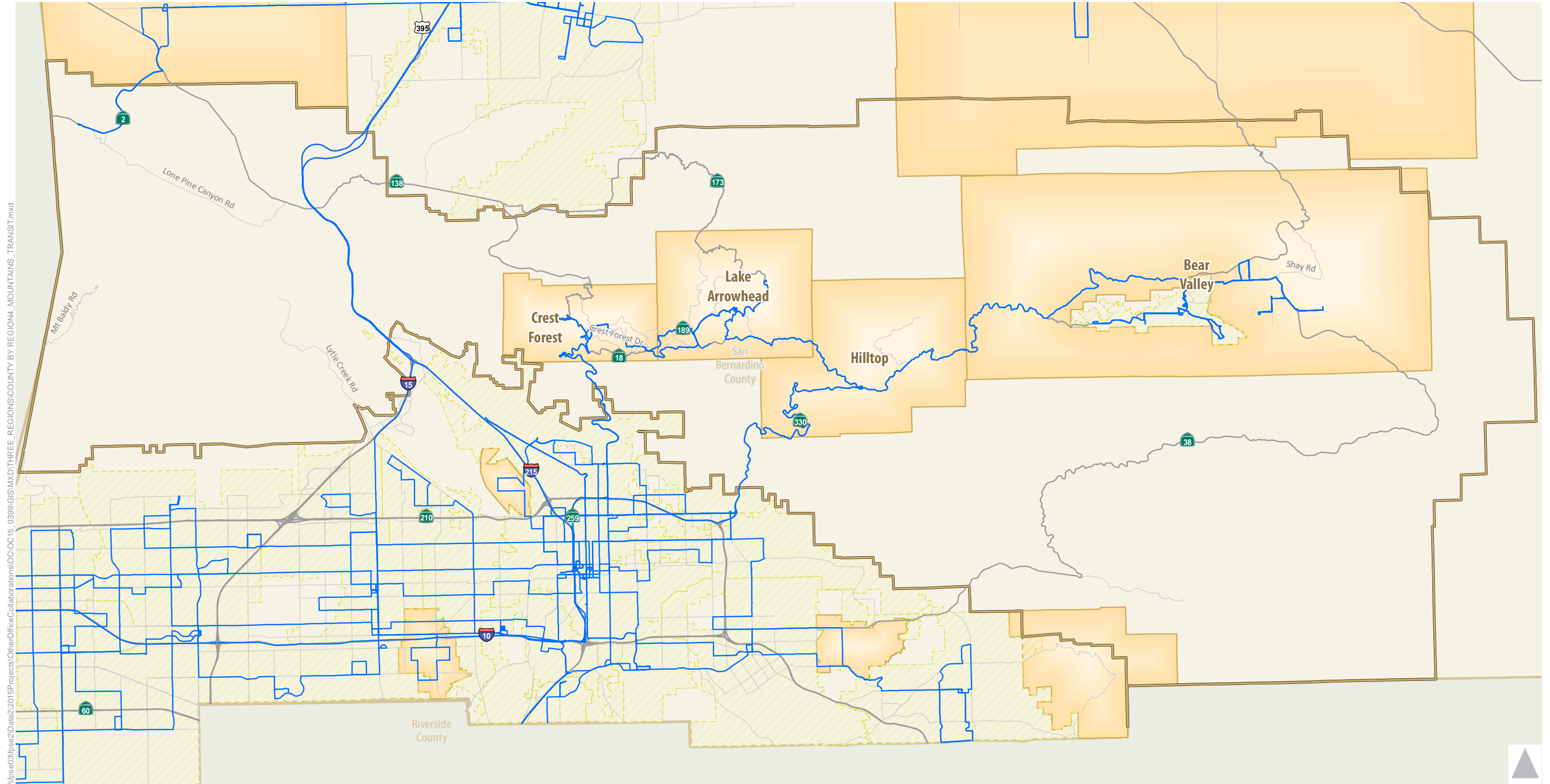


- Transit Route
- Desert Region
- Community Plan Boundaries
- City Boundaries
- San Bernardino County
- County Boundaries
- State Boundaries



Figure 2.1

Desert Region Transit Routes



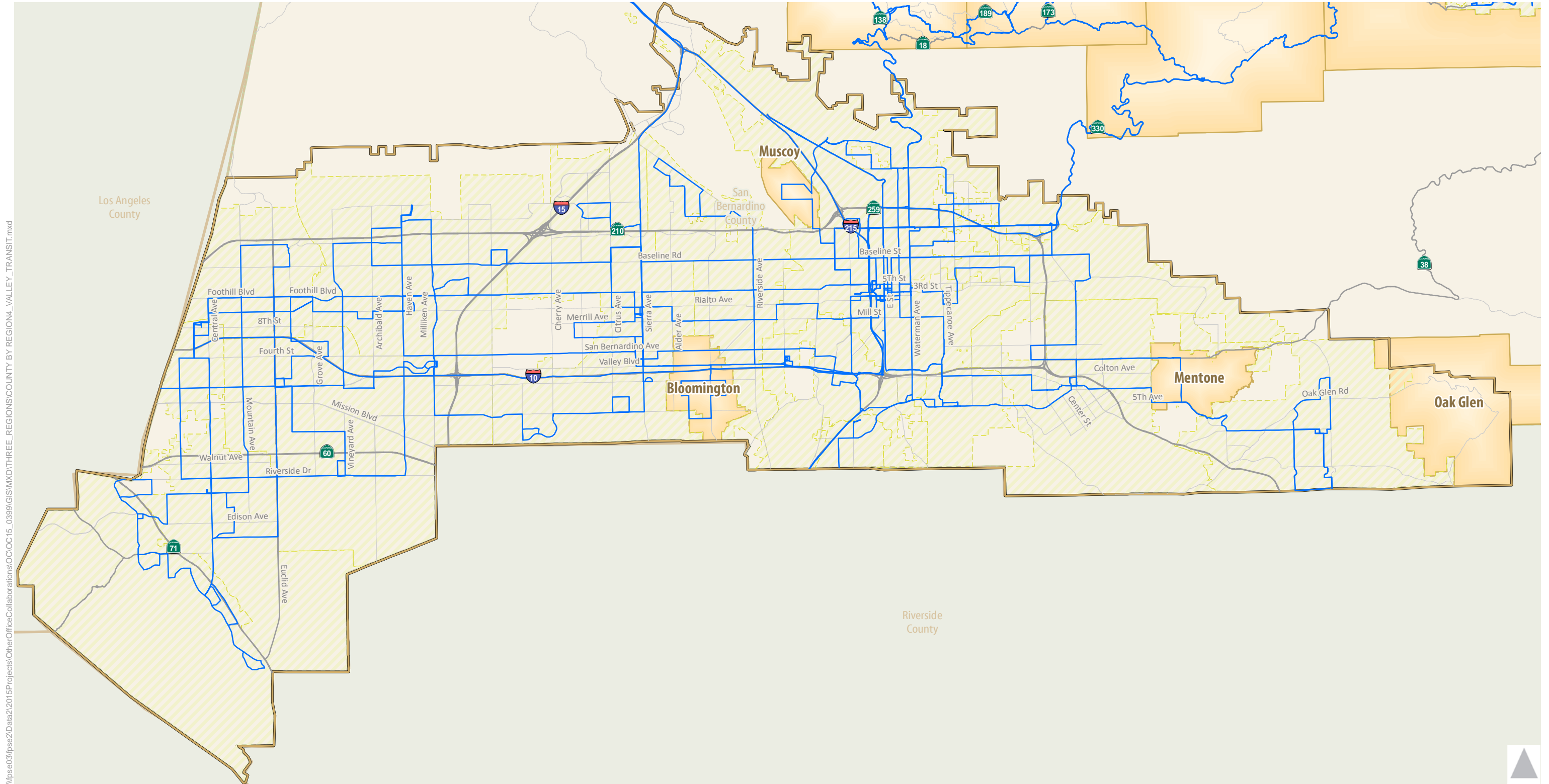
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- Transit Route
- Mountain Region
- Community Plan Boundaries
- ▨ City Boundaries
- ▨ San Bernardino County
- ▨ County Boundaries



Figure 2.2

Mountain Region Transit Routes



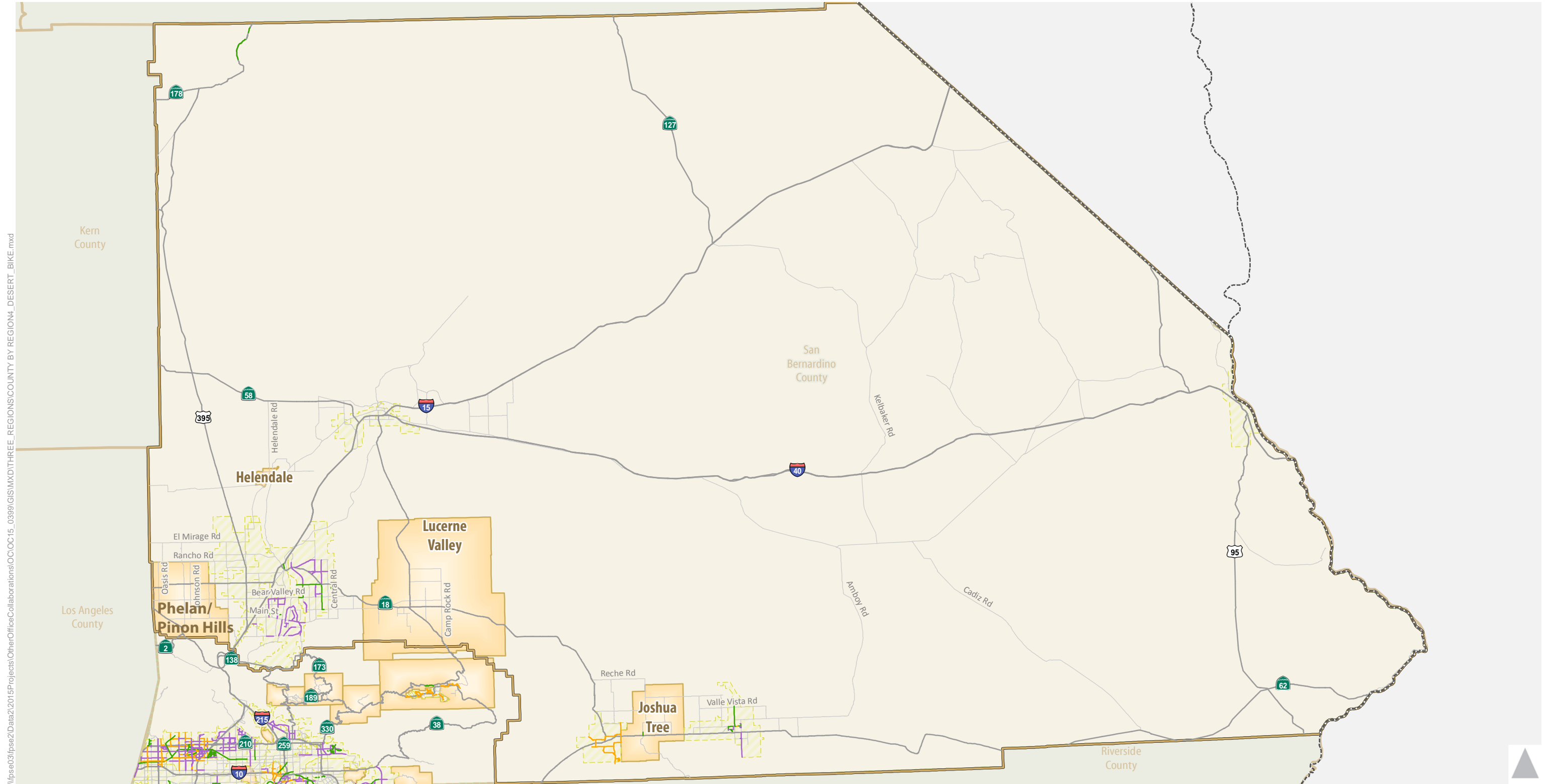
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- Transit Route
- Valley Region
- Community Plan Boundaries
- City Boundaries
- San Bernardino County
- County Boundaries



Figure 2.3

Valley Region Transit Routes



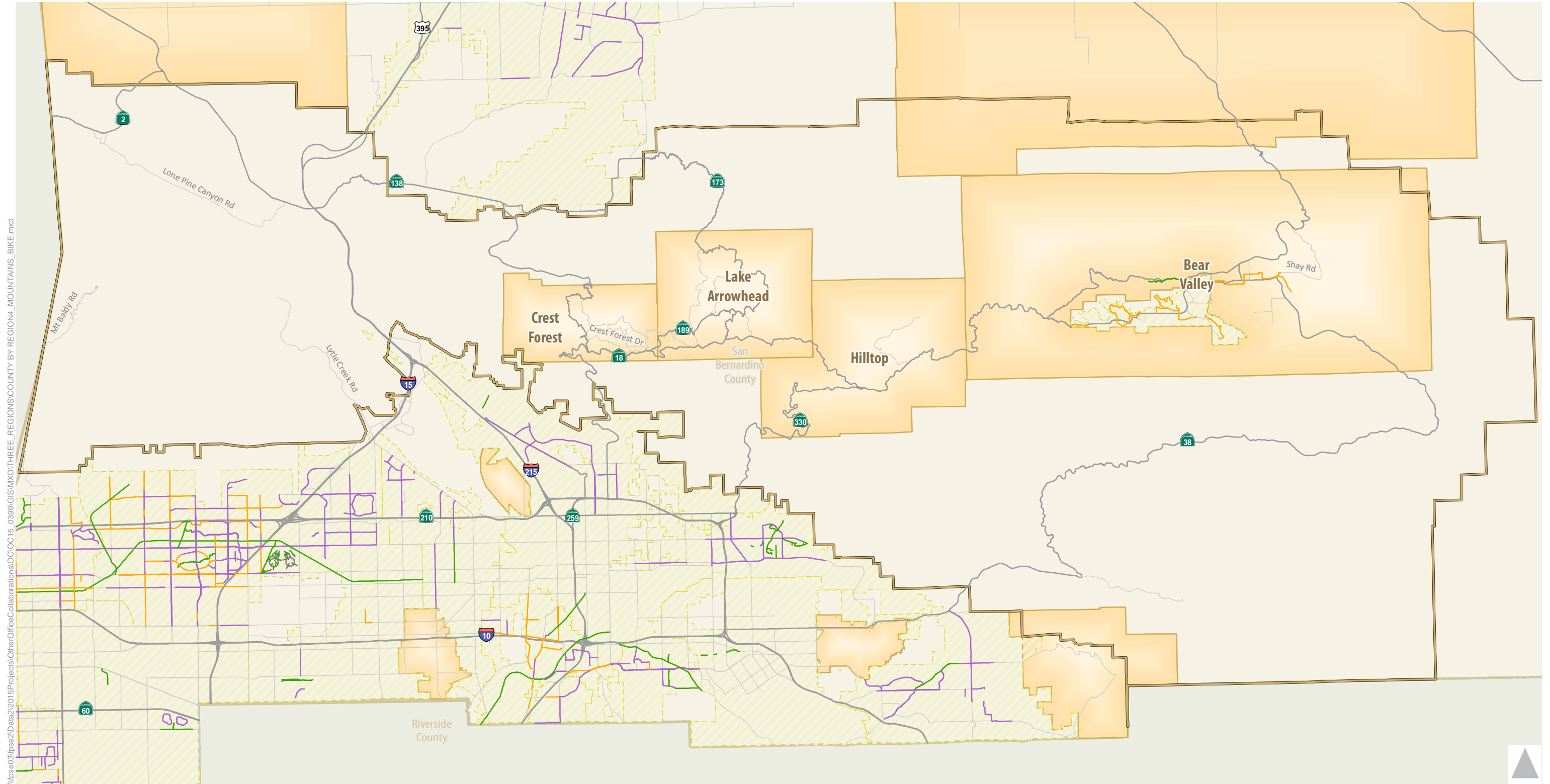
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- Class I Bike Path
- Class III Bike Route
- Desert Region
- City Boundaries
- County Boundaries
- Class II Bike Lane
- Community Plan Boundaries
- San Bernardino County
- State Boundaries



Figure 3.1

Desert Region Bicycle Facilities



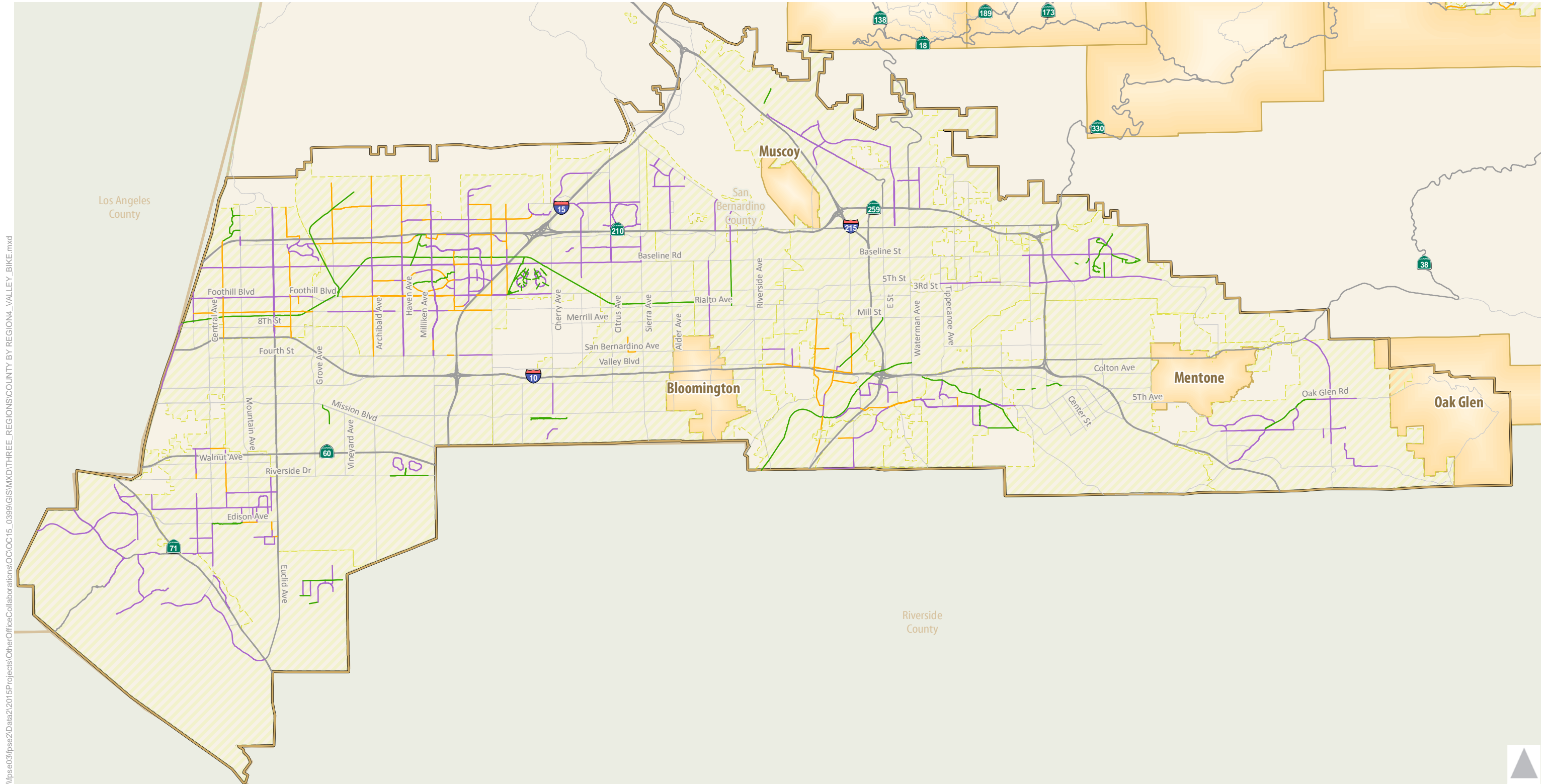
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- Class I Bike Path
- Class III Bike Route
- Mountain Region
- City Boundaries
- County Boundaries
- Class II Bike Lane
- Community Plan Boundaries
- San Bernardino County



Figure 3.2

Mountain Region Bicycle Facilities

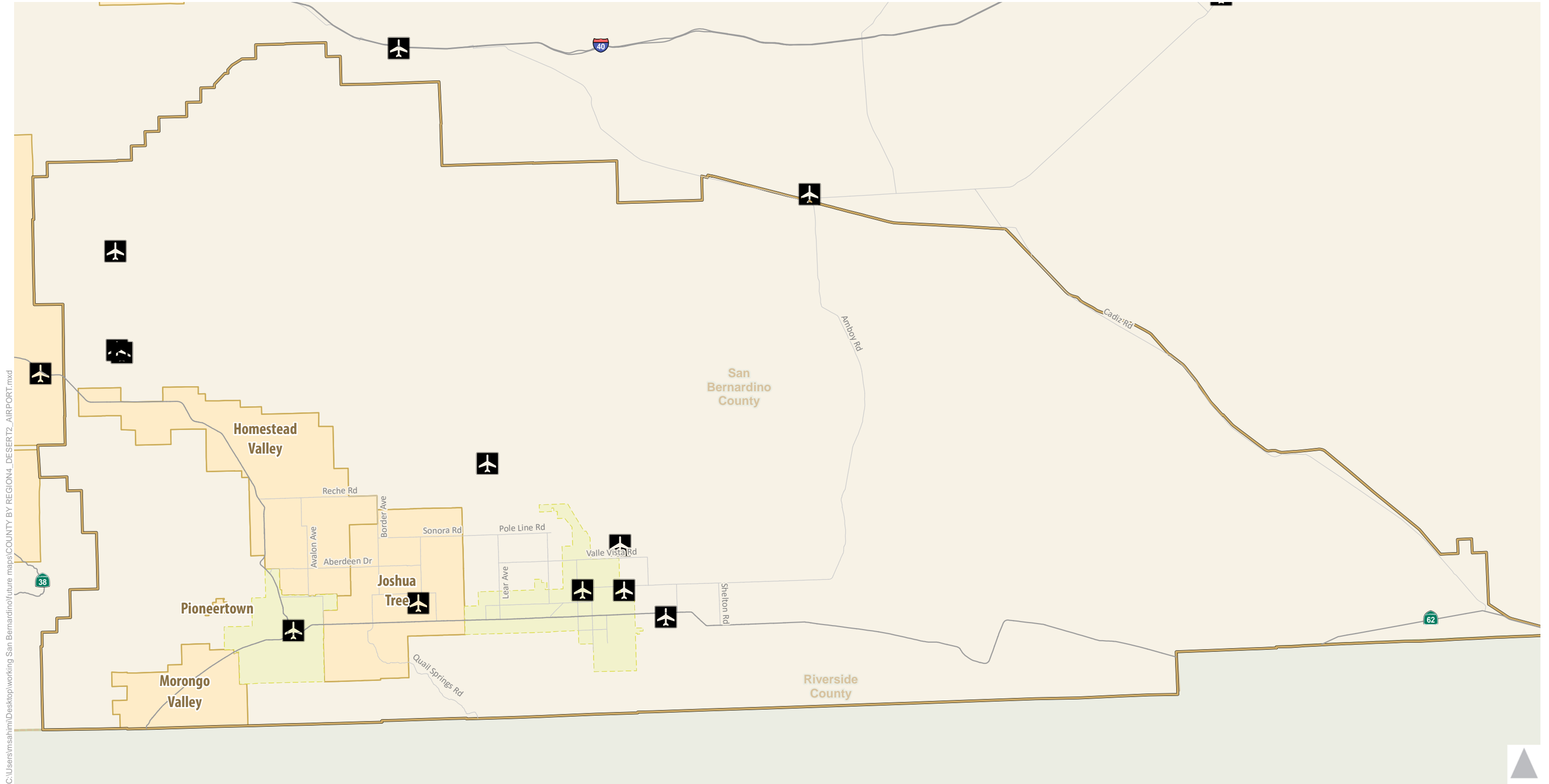


- Class I Bike Path
 — Class III Bike Route
 Valley Region
 City Boundaries
 County Boundaries
- Class II Bike Lane
 Community Plan Boundaries
 San Bernardino County



Figure 3.3

Valley Region Bicycle Facilities

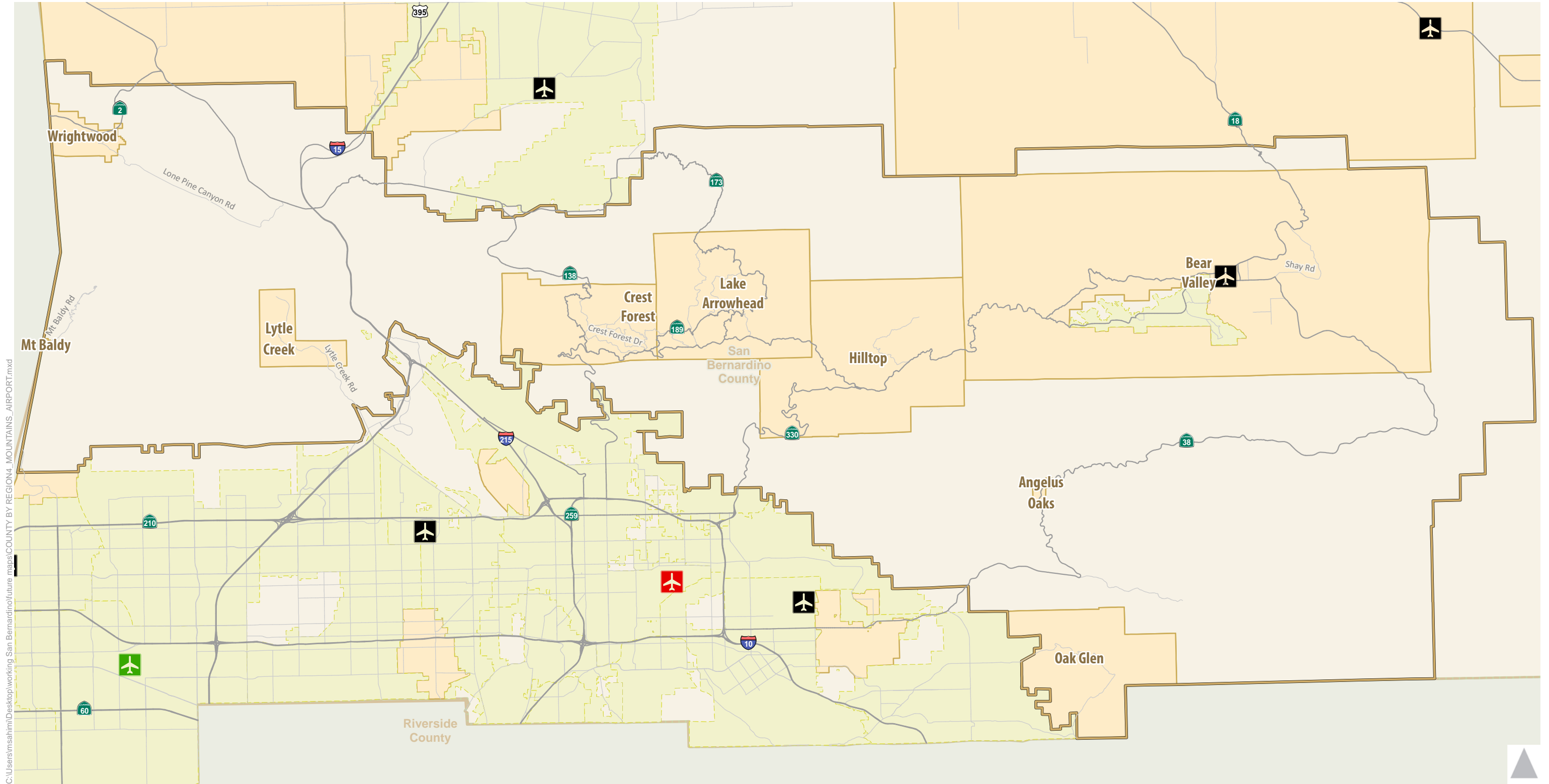


- Airports
- City Boundaries
- San Bernardino County
- East Desert Region
- Community Plan Boundaries



Figure 4.1

East Desert Region - Airports






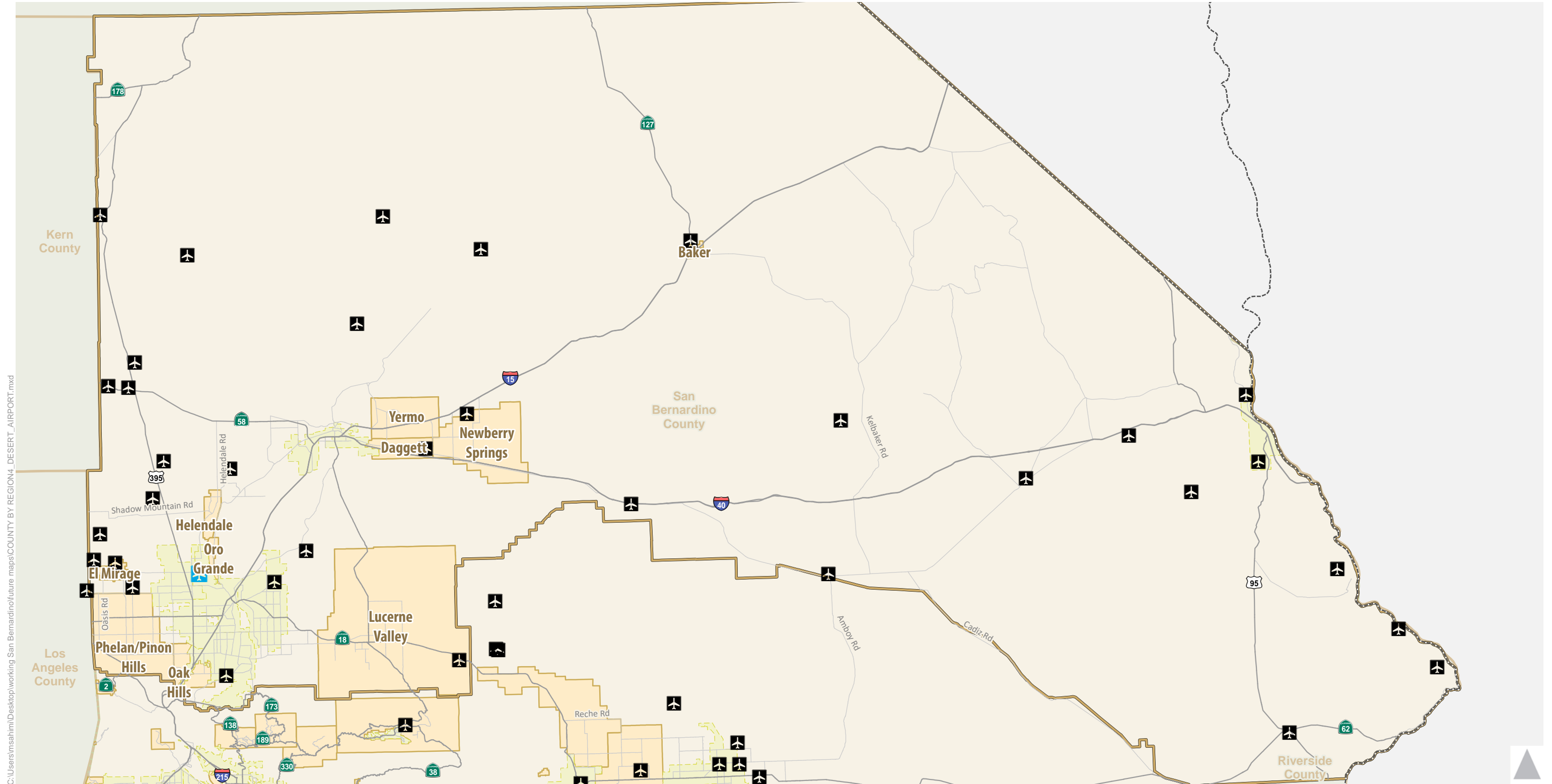
- | | | | | | |
|---|--------------------------------------|---|-----------------|---|---------------------------|
|  | Ontario International Airport |  | Mountain Region |  | San Bernardino County |
|  | San Bernardino International Airport |  | City Boundaries |  | Community Plan Boundaries |
|  | Other Airports | | | | |



Figure 4.2

Mountain Region - Airports









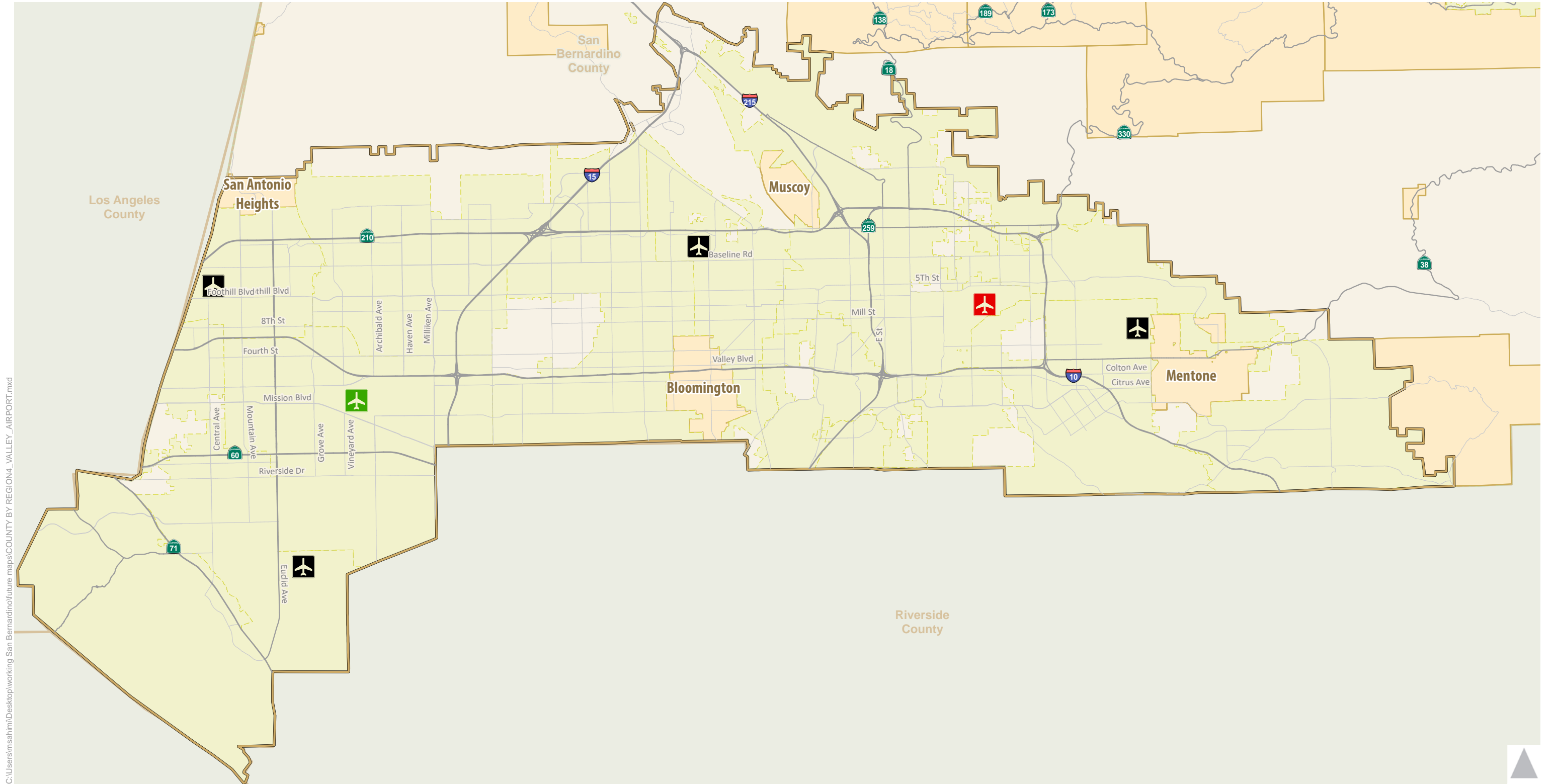
-  Southern Calif. Logistics Airport
-  Other Airports
-  North Desert Region
-  City Boundaries
-  Community Plan Boundaries
-  San Bernardino County



Figure 4.3

North Desert Region - Airports




-  Ontario International Airport
-  San Bernardino International Airport
-  Other Airports
-  Valley Region
-  City Boundaries
-  Community Plan Boundaries
-  San Bernardino County



Figure 4.4

Valley Region - Airports

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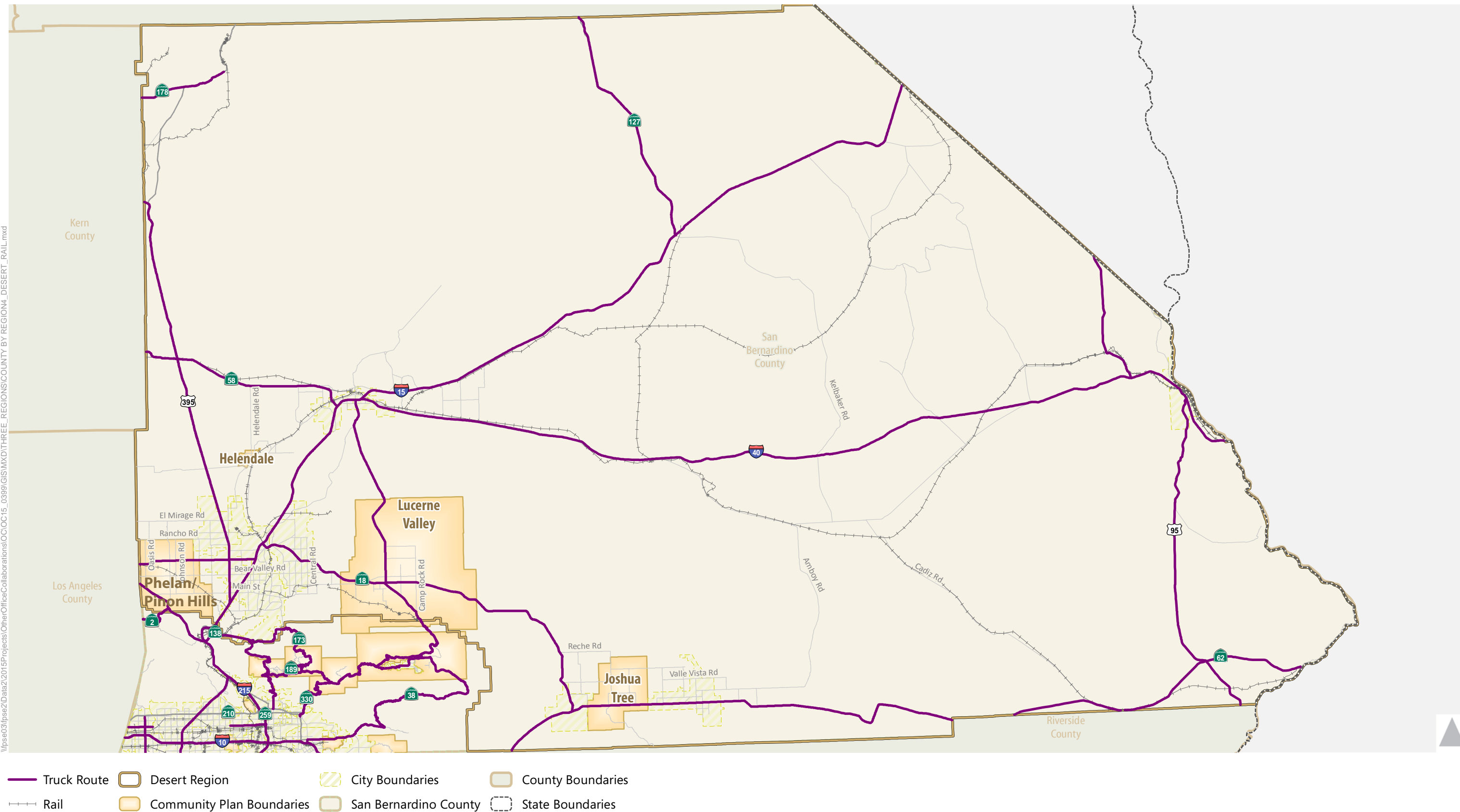


Figure 5.1

Desert Region Goods Movement



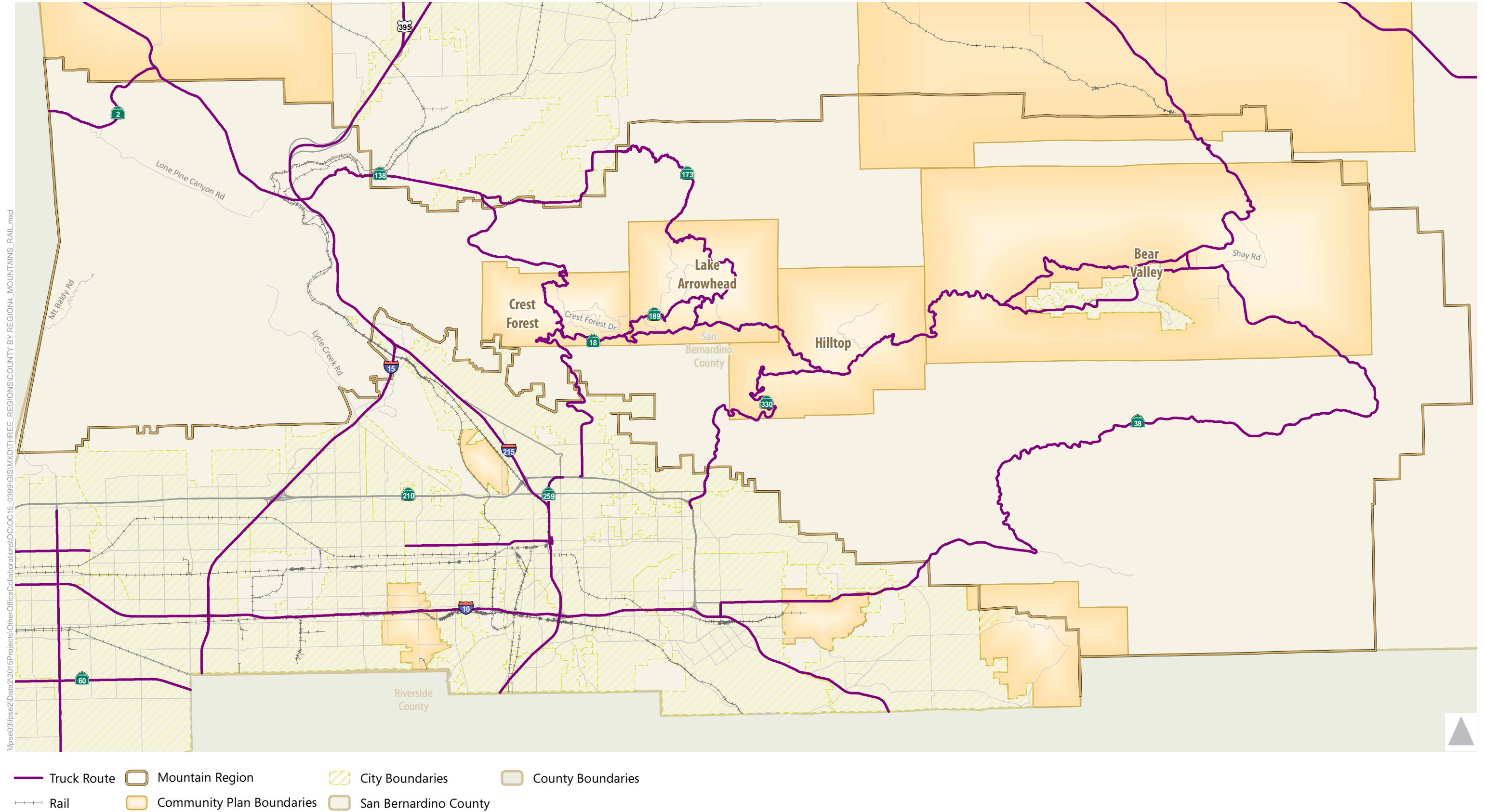
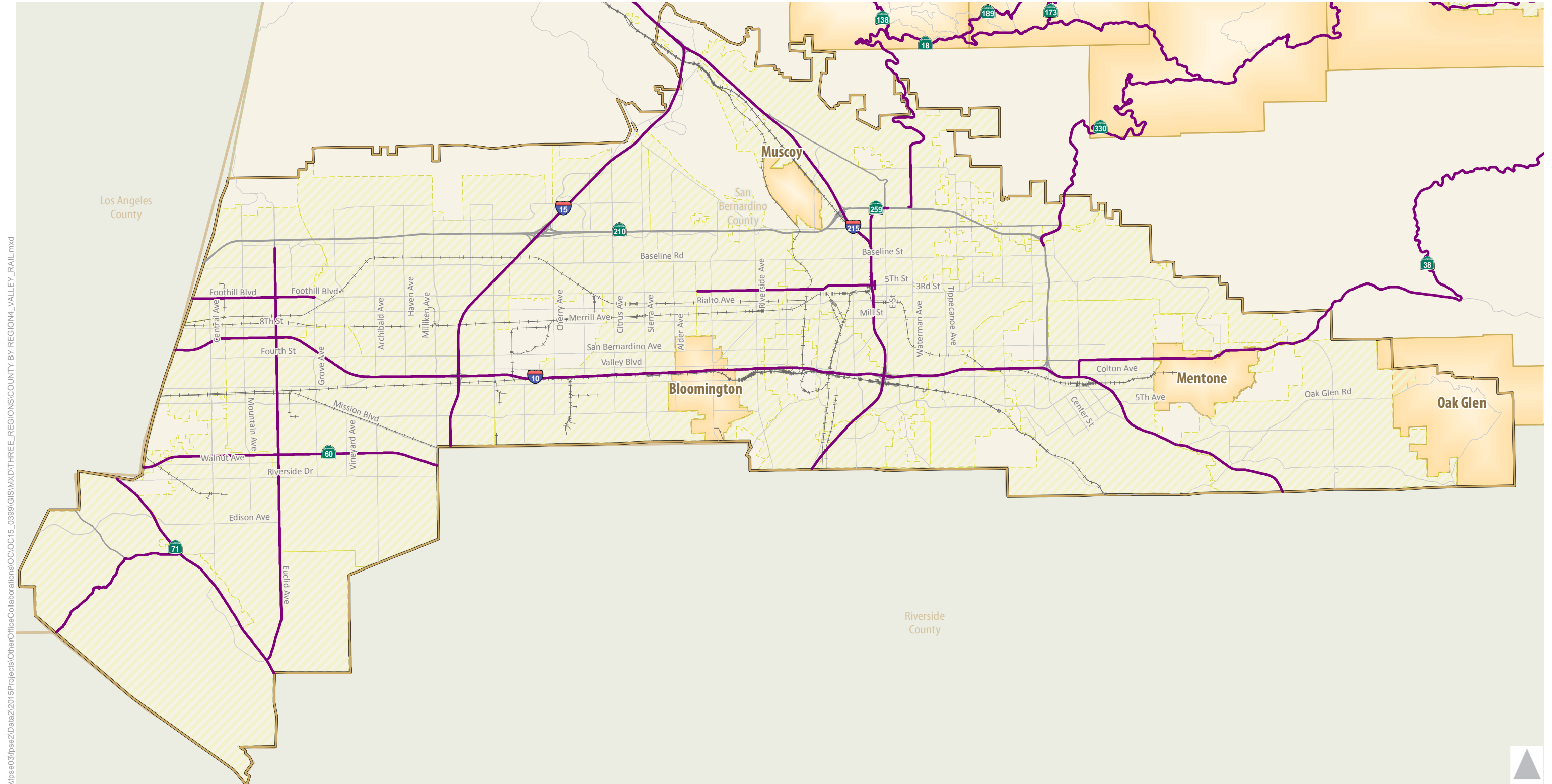


Figure 5.2

Mountain Region Goods Movement





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- Truck Route
- Valley Region
- City Boundaries
- County Boundaries
- Rail
- Community Plan Boundaries
- San Bernardino County



Figure 5.3

Valley Region Goods Movement

Table 6 Existing Conditions Intersection Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Existing Conditions			
							AM Peak Hour		PM Peak Hour	
							LOS	Delay	LOS	Delay
1	End Ave & Francis Ave	Valley	NA	Chino		All-Way Stop Controlled	B	14.0	B	11.2
2	Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy	Valley	NA	Fontana		Signalized	C	32.7	C	27.5
3	Cherry Ave & San Bernardino Ave	Valley	NA	Fontana		Signalized	D	37.1	D	40.2
4	Live Oak Ave & Arrow Route	Valley	NA	Fontana		Two-Way Stop Controlled	C	23.8	D	26.5
5	Alder Ave & Santa Ana Ave	Valley	Bloomington	Rialto		All-Way Stop Controlled	F	67.1	B	13.5
6	Locust Ave & San Bernardino Ave	Valley	Bloomington	Rialto		Signalized	C	26.9	C	26.0
7	Cedar Ave & Slover Ave	Valley	Bloomington	Rialto		Signalized	C	23.5	C	31.0
8	Cedar Ave & Santa Ana Ave	Valley	Bloomington	Rialto		Signalized	C	23.2	C	26.7
9	Spruce Ave & Slover Ave	Valley	Bloomington	Rialto		Two-Way Stop Controlled	B	13.8	C	15.4
10	Entrance to Ranger Station & Lytle Creek Rd	Mountain	Lytle Creek	NA		Two-Way Stop Controlled	A	8.4	A	9.2
11	Lytle Creek Rd & Glen Helen Pkwy	Valley	NA	Rialto		Signalized	B	12.2	A	10.0
12	Vermont St & Ogden St	Valley	Muscoy	San Bernardino		All-Way Stop Controlled	A	8.3	A	8.8
13	Vermont St & Blake St	Valley	Muscoy	San Bernardino		Two-Way Stop Controlled	B	10.5	A	9.3
14	Macy St & Blake St	Valley	Muscoy	San Bernardino		All-Way Stop Controlled	B	10.2	A	9.0

Table 6 Existing Conditions Intersection Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Existing Conditions			
							AM Peak Hour		PM Peak Hour	
							LOS	Delay	LOS	Delay
15	Del Rosa Dr & Pacific St	Valley	NA	San Bernardino		Signalized	C	23.8	C	24.7
16	Alabama St & San Bernardino Ave	Valley	NA	NA		Signalized	C	23.2	C	27.6
17	Crafton Ave & Mentone Blvd	Valley	Mentone	Redlands	Yes	Signalized	B	15.3	B	12.2
18	Sheep Creek Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop Controlled	B	13.7	F	53.2
19	Caughlin Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop Controlled	B	13.6	C	15.0
20	Oasis Rd & State Hwy 138	North Desert	Phelan/Pinon Hills	NA	Yes	Signalized	B	15.4	B	16.5
21	Beekley Rd & State Hwy 138	North Desert	Phelan/Pinon Hills	NA	Yes	Signalized	B	16.3	C	21.6
22	Sheep Creek Rd & Phelan Rd	North Desert	Phelan/Pinon Hills	NA		Signalized	C	23.3	C	24.6
23	Baldy Mesa Rd & Phelan Rd	North Desert	Phelan/Pinon Hills	NA		Signalized	C	28.1	C	23.5
24	Escondido Ave & Ranchero Rd	North Desert	Oak Hills	Hesperia		Signalized	B	17.0	B	18.8
25	Lake Gregory Dr & Rim of the World Hwy	Mountain	Crest Forest	NA	Yes	Signalized	B	12.7	B	11.7
26	State Route 173 & Rim of the World Hwy	Mountain	Lake Arrowhead	NA	Yes	Two-Way Stop Controlled	B	11.6	B	12.4
27	Lake Edge Rd & Village Rd	Mountain	Lake Arrowhead	NA	Yes	All-Way Stop Controlled	A	9.0	B	11.9
28	Live Oak Dr & City Creek Rd	Mountain	Hilltop	NA	Yes	Two-Way Stop Controlled	B	12.3	C	17.5
29	Live Oak Dr & Rim of the World Hwy	Mountain	Hilltop	NA	Yes	Two-Way Stop Controlled	B	12.0	B	12.1

Table 6 Existing Conditions Intersection Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Existing Conditions			
							AM Peak Hour		PM Peak Hour	
							LOS	Delay	LOS	Delay
30	Shore Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized	A	8.2	A	7.4
31	Division Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized	B	15.1	B	13.6
32	Greenway Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized	A	5.4	A	6.6
33	Barstow Rd & Rabbit Springs Rd	North Desert	Lucerne Valley	NA	Yes	Two-Way Stop Controlled	A	9.8	B	10.2
34	Barstow Rd & Old Woman Springs Rd	North Desert	Lucerne Valley	NA	Yes	All-Way Stop Controlled	A	8.6	A	9.6
35	Juniper Ave & Pioneer Dr	East Desert	Morongo Valley	NA		Two-Way Stop Controlled	A	9.3	A	9.5
36	Old Woman Springs Rd & Linn Rd	East Desert	Homestead Valley	NA	Yes	Two-Way Stop Controlled	A	9.5	A	9.6
37	Avalon Ave & Aberdeen Dr	East Desert	Homestead Valley	NA		All-Way Stop Controlled	A	8.1	A	7.4
38	Sunfair Rd & Broadway	East Desert	Joshua Tree	NA		Two-Way Stop Controlled	A	9.4	A	8.6
39	Death Valley Rd & Baker Blvd	North Desert	Baker	NA	Yes	All-Way Stop Controlled	A	8.6	A	9.0

Notes:

For two-way stop controlled intersections, LOS and delay are reported for the worst approach.

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
1	TRONA RD SOUTH OF STATE HWY 178	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	413	C or Better
2	FORT IRWIN RD SOUTH OF STARBRIGHT RD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	7,269	C or Better
3	FORT IRWIN RD NORTH OF YERMO CUTOFF	North Desert	Yermo	NA		65	3	Controlled/Limited Access Collector	6,068	C or Better
4	STATE HWY 58 WEST OF HINKLEY RD	North Desert	NA	Barstow	Yes	60	2	Divided Highway	13,111	C or Better
5	IRWIN RD NORTH OF OLD HWY 58	North Desert	NA	Barstow		55	2	Controlled/Limited Access Collector	1,515	C or Better
6	GHOST TOWN RD NORTH OF YERMO RD	North Desert	Yermo	NA		55	2	Major Arterial/Major Highway	1,754	C or Better
7	YERMO RD WEST OF CALICO RD	North Desert	Yermo	NA		55	2	Major Arterial/Major Highway	1,790	C or Better
8	DAGGETT YERMO RD NORTH OF SANTA FE ST	North Desert	Daggett	NA		55	2	Major Arterial/Major Highway	2,551	C or Better
9	NATIONAL TRAILS HWY EAST OF DAGGETT YERMO RD	North Desert	Daggett	NA		40	2	Major Arterial/Major Highway	716	C or Better
10	NATIONAL TRAILS HWY EAST OF HINKLEY RD	North Desert	NA	Barstow		55	2	Major Arterial/Major Highway	2,886	C or Better
11	WILD ROAD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	357	C or Better
12	INDIAN TRAIL SOUTH OF WILD RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	396	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
13	VISTA RD EAST OF MOUNTAIN RD	North Desert	Helendale	NA		50	2	Controlled/Limited Access Collector	7,976	C or Better
14	SHADOW MOUNTAIN RD WEST OF SILVER LAKES PKWY	North Desert	Helendale	NA		55	2	Controlled/Limited Access Collector	1,990	C or Better
15	NATIONAL TRAILS HIGHWAY SOUTH OF VISTA - CPC REQ	North Desert	Helendale	NA		55	2	Divided Highway	6,457	C or Better
16	STODDARD WELLS EAST OF CENTRAL RD	North Desert	NA	Apple Valley		40	2	Controlled/Limited Access Collector	68	C or Better
17	DALE EVANS PKWY	North Desert	NA	Apple Valley		55	2	Major Arterial/Major Highway	3,036	C or Better
18	NATIONAL TRAILS HWY NORTH OF POLISH LANE -CPC REQ	North Desert	Oro Grande	NA		45	2	Divided Highway	6,700	C or Better
19	NATIONAL TRAILS HIGHWAY NORTH OF 1ST -CPC REQUEST	North Desert	Oro Grande	NA		45	2	Major Arterial/Major Highway	8,221	C or Better
20	EL MIRAGE RD WEST OF LINSON ST	North Desert	NA	NA		55	2	Major Arterial/Major Highway	6,007	C or Better
21	SHEEP CREEK RD SOUTH OF EL MIRAGE RD	North Desert	NA	NA		55	2	Major Arterial/Major Highway	2,986	C or Better
22	PALMDALE RD WEST OF SHEEP CREEK RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	2	Major Arterial/Major Highway	3,882	C or Better
23	PALMDALE RD WEST OF CAUGHLIN RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	2	Major Arterial/Major Highway	8,882	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
24	STATE HWY 138 WEST OF OASIS RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	2	Major Arterial/Major Highway	15,450	D
25	PHELAN RD EAST OF SILVER ROCK RD	North Desert	Phelan/Pinon Hills	NA		55	2	Major Arterial/Major Highway	7,740	C or Better
26	BEEKLEY RD NORTH OF PHELAN RD - CPC REQUEST	North Desert	Phelan/Pinon Hills	NA		45	2	Controlled/Limited Access Collector	236	C or Better
27	JOHNSON RD NORTH OF SMOKE TREE RD	North Desert	Phelan/Pinon Hills	NA		55	2	Major Arterial/Major Highway	3,547	C or Better
28	PHELAN RD EAST OF JOHNSON RD	North Desert	Phelan/Pinon Hills	NA		55	2	Major Arterial/Major Highway	15,995	D
29	SUNNYSLOPE EAST OF SH 138 -CPC REQUEST	North Desert	Phelan/Pinon Hills	NA		25	2	Controlled/Limited Access Collector	68	C or Better
30	SHEEP CREEK RD SOUTH OF NIELSON RD	North Desert	Phelan/Pinon Hills	NA		40	2	Major Arterial/Major Highway	4,695	C or Better
31	STATE HWY 138 NORTH OF ANGELES CREST HWY	North Desert	Phelan/Pinon Hills	NA	Yes	55	4	Major Arterial/Major Highway	10,527	C or Better
32	BALDY MESA ROAD SOUTH MESQUITE	North Desert	Phelan/Pinon Hills	NA		25	2	Controlled/Limited Access Collector	32	C or Better
33	CALIENTE RD NORTH OF RANCHERO	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	2,980	C or Better
34	LONE PINE CANYON RD SOUTH OF ANGELES CREST HWY	Mountain	NA	NA		35	2	Mountain Secondary Highway	1,842	C or Better
35	LYTLE CREEK CANYON RD SOUTH OF SYCAMORE DR	Mountain	Lytle Creek	NA		15	2	Mountain Secondary Highway	819	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
36	CAJON BLVD NORTH OF KENWOOD AVE	Mountain	NA	NA		55	2	Mountain Secondary Highway	3,536	D
37	GLEN HELEN PKWY NORTH OF I-215	Valley	NA	NA		40	2	Controlled/Limited Access Collector	3,813	C or Better
38	LYTLE CREEK RD NORTH OF DEVORE RD	Mountain	NA	Rialto		45	2	Mountain Secondary Highway	2,416	C or Better
39	MOUNTAIN AVE WEST OF EUCLID AVE	Valley	San Antonio Heights	Upland		45	2	Major Arterial/Major Highway	1,502	C or Better
40	MOUNTAIN AVE NORTH OF 25TH ST	Valley	San Antonio Heights	Upland		40	2	Major Arterial/Major Highway	796	C or Better
41	EUCLID AVE NORTH OF 25TH ST	Valley	San Antonio Heights	Upland		35	2	Divided Highway	1,169	C or Better
42	ARROW RTE WEST OF CALABASH AVE	Valley	NA	Fontana		45	2	Major Arterial/Major Highway	12,520	D
43	CHERRY AVE NORTH OF MERRILL AVE	Valley	NA	Fontana		40	4	Divided Highway	29,758	C or Better
44	MERRILL AVE EAST OF BEECH AVE	Valley	NA	Fontana		40	2	Controlled/Limited Access Collector	9,063	D
45	SAN BERNARDINO AVE WEST OF CHERRY AVE	Valley	NA	Fontana		55	4	Divided Highway	15,837	C or Better
46	VALLEY BLVD EAST OF COMMERCE DR	Valley	NA	Fontana		50	5	Major Arterial/Major Highway	20,156	C or Better
47	SAN BERNARDINO AVE EAST OF BEECH AVE	Valley	NA	Fontana		40	2	Divided Highway	8,723	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
48	SAN BERNARDINO AVE WEST OF CEDAR AVE	Valley	Bloomington	Rialto		40	2	Controlled/Limited Access Collector	6,659	C or Better
49	VALLEY BLVD WEST OF LOCUST AVE	Valley	Bloomington	Rialto		45	4	Major Arterial/Major Highway	18,053	C or Better
50	CEDAR AVE NORTH OF BLOOMINGTON AVE	Valley	Bloomington	Rialto		40	4	Major Arterial/Major Highway	27,980	D
51	VALLEY BLVD EAST OF CEDAR AVE	Valley	Bloomington	Rialto		35	4	Major Arterial/Major Highway	17,841	D
52	CEDAR AVE NORTH OF SLOVER AVE	Valley	Bloomington	Rialto		40	4	Major Arterial/Major Highway	29,057	D
53	SLOVER AVE EAST OF LOCUST AVE	Valley	Bloomington	Rialto		50	4	Major Arterial/Major Highway	6,961	C or Better
54	SANTA ANA AV WEST OF LINDEN AVE	Valley	Bloomington	Rialto		40	2	Controlled/Limited Access Collector	7,212	C or Better
55	JURUPA AVE EAST OF LOCUST AVE	Valley	Bloomington	Rialto		40	2	Major Arterial/Major Highway	3,313	C or Better
56	JURUPA AVE WEST OF SPRUCE AVE	Valley	Bloomington	Rialto		40	2	Major Arterial/Major Highway	4,342	C or Better
57	CEDAR AVE SOUTH OF 11TH ST	Valley	Bloomington	Rialto		45	4	Major Arterial/Major Highway	21,927	D

Table 7 Existing Roadway Segment Assessment										
Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
58	BARSTOW RD NORTH OF LUCERNE VALLEY CUTOFF	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	1,459	C or Better
59	BARSTOW RD NORTH OF NORTHSIDE RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	1,632	C or Better
60	NORTHSIDE RD EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA		45	2	Controlled/Limited Access Collector	105	C or Better
61	BARSTOW RD NORTH OF RABBIT SPRINGS RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	1,909	C or Better
62	RABBIT SPRINGS RD EAST OF STATE HWY 18	North Desert	Lucerne Valley	NA		55	2	Controlled/Limited Access Collector	952	C or Better
63	RABBIT SPRINGS RD EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA		55	2	Controlled/Limited Access Collector	1,557	C or Better
64	STATE HWY 18 WEST OF HIGH RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	9,142	C or Better
65	OLD WOMAN SPRINGS RD WEST OF MIDWAY AVE	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	4,074	C or Better
66	OLD WOMAN SPRINGS RD EAST OF CAMP ROCK RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	2,689	C or Better
67	STATE HWY 18 EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA	Yes	35	2	Major Arterial/Major Highway	3,549	C or Better
68	CAMP ROCK RD SOUTH OF OLD WOMAN SPRINGS RD	North Desert	Lucerne Valley	NA		45	2	Major Arterial/Major Highway	569	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
69	STATE HIGHWAY 18 NORTH OF SHORE DR	Mountain	Bear Valley	NA		35	2	Mountain Major Highway	2,482	C or Better
70	SHAY RD EAST OF WIEBE RD	Mountain	Bear Valley	NA		35	2	Mountain Secondary Highway	1,747	C or Better
71	GREENSPOT BLVD SOUTH OF CLARK LN	Mountain	Bear Valley	NA		55	2	Mountain Major Highway	6,267	C or Better
72	SHORE DR EAST OF HOLDEN AVE	Mountain	Bear Valley	NA		40	2	Mountain Major Highway	5,600	C or Better
73	STANFIELD CUTOFF SOUTH OF N. SHORE DRIVE	Mountain	Bear Valley	NA		35	2	Mountain Major Highway	6,964	C or Better
74	SHORE DR NORTH OF STATE HIGHWAY 18	Mountain	Bear Valley	NA		45	2	Mountain Major Highway	1,313	C or Better
75	BIG BEAR BLVD EAST OF SHORE DR	Mountain	Bear Valley	NA		40	2	Mountain Major Highway	3,761	C or Better
76	STATE HIGHWAY 18 WEST OF SHORE DR	Mountain	Bear Valley	NA		40	3	Mountain Major Highway	3,988	C or Better
77	STATE HIGHWAY 18 WEST OF GREEN VALLEY LAKE RD	Mountain	Hilltop	NA		40	2	Mountain Major Highway	5,033	C or Better
78	STATE HIGHWAY 18 EAST OF HILLTOP BLVD	Mountain	Hilltop	NA		35	2	Mountain Major Highway	8,136	D
79	STATE ROUTE 18 NORTH OF HILLTOP BLVD	Mountain	Hilltop	NA		40	2	Mountain Major Highway	4,943	C or Better
80	CITY CREEK RD WEST OF LIVE OAK DR	Mountain	Hilltop	NA		55	2	Mountain Major Highway	7,828	C or Better
81	KUFFEL CANYON RD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		20	2	Mountain Secondary Highway	2,950	C or Better
82	RIM OF THE WORLD HWY WEST OF KUFFEL CANYON RD	Mountain	Lake Arrowhead	NA		45	2	Mountain Major Highway	5,446	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
83	ARROWHEAD VILLA ROAD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		30	2	Controlled/Limited Access Collector	1,131	C or Better
84	COTTAGE GROVE RD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		35	2	Mountain Major Highway	393	C or Better
85	STATE HWY 173 WEST OF DOLLY VARDEN DR	Mountain	Lake Arrowhead	NA		20	2	Mountain Major Highway	4,249	C or Better
86	STATE HWY 173 EAST OF LAKES EDGE RD	Mountain	Lake Arrowhead	NA		20	2	Mountain Secondary Highway	6,895	E
87	STATE HWY 173 S OF MOUNTAINS HOSPITAL ACCESS RD	Mountain	Lake Arrowhead	NA		25	2	Mountain Major Highway	4,879	C or Better
88	STATE HIGHWAY 173 NORTH OF BAY RD	Mountain	Lake Arrowhead	NA		25	2	Mountain Major Highway	479	C or Better
89	GRASS VALLEY RD SOUTH OF PENINSULA DR	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	3,592	D
90	NORTH BAY ROAD NORTH OF SR 189	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	7,088	E
91	DALEY CANYON RD SOUTH OF STATE HWY 189	Mountain	Lake Arrowhead	NA		30	2	Mountain Major Highway	8,417	D
92	BEAR SPRINGS RD SOUTH OF STATE HWY 189	Mountain	Lake Arrowhead	NA		35	2	Controlled/Limited Access Collector	743	C or Better
93	STATE HWY 189 WEST OF BEAR SPRINGS RD	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	4,302	D
94	NORTH RD WEST OF STATE HIGHWAY 189	Mountain	Crest Forest	NA		30	2	Mountain Secondary Highway	848	C or Better
95	STATE HIGHWAY 189 WEST OF PINECREST RD	Mountain	Crest Forest	NA		35	2	Mountain Secondary Highway	4,041	D
96	STATE HIGHWAY 18 EAST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		45	2	Mountain Major Highway	10,507	D

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
97	LAKE GREGORY DR SOUTH OF SAN MORITZ DR	Mountain	Crest Forest	NA		40	2	Mountain Major Highway	6,868	C or Better
98	SAN MORITZ DR EAST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		35	2	Mountain Secondary Highway	1,366	C or Better
99	LAKE DR WEST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		25	2	Mountain Secondary Highway	11,534	E
100	STATE HIGHWAY 18 EAST OF STATE HIGHWAY 138	Mountain	Crest Forest	NA		55	2	Mountain Major Highway	7,904	C or Better
101	STATE HIGHWAY 18 WEST OF STATE HIGHWAY 138	Mountain	Crest Forest	NA		55	4	Mountain Major Highway	16,091	C or Better
102	STATE HIGHWAY 138 SOUTH OF VISTA LN	Mountain	Crest Forest	NA		30	2	Mountain Major Highway	470	C or Better
103	STATE HIGHWAY 138 EAST OF OLD MILL RD	Mountain	Crest Forest	NA		30	2	Mountain Major Highway	1,320	C or Better
104	CREST FOREST DR WEST OF PONDEROSA DR	Mountain	Crest Forest	NA		25	2	Mountain Secondary Highway	656	C or Better
105	3RD STREET WEST OF CAJON - CPC REQUEST	Valley	Muscoy	San Bernardino		25	2	Controlled/Limited Access Collector	2,442	C or Better
106	OGDEN ST EAST OF BRONSON ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	1,924	C or Better
107	DUFFY ST SOUTH OF OGDEN ST	Valley	Muscoy	San Bernardino		25	2	Controlled/Limited Access Collector	1,155	C or Better
108	MACY STREET SOUTH OF OGDEN - CPC REQUEST	Valley	Muscoy	San Bernardino		35	2	Major Arterial/Major Highway	1,719	C or Better
109	STATE STREET SOUTH OF CAJON - CPC REQUEST	Valley	NA	San Bernardino		40	4	Major Arterial/Major Highway	10,600	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
110	JUNE ST SOUTH OF OGDEN ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	1,103	C or Better
111	BLAKE ST WEST OF DUFFY ST	Valley	Muscoy	San Bernardino		30	2	Controlled/Limited Access Collector	1,705	C or Better
112	DARBY ST WEST OF MACY ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	3,976	C or Better
113	STATE ST SOUTH OF BLAKE ST	Valley	Muscoy	San Bernardino		40	2	Major Arterial/Major Highway	10,635	D
114	MACY ST SOUTH OF DARBY ST	Valley	Muscoy	San Bernardino		35	2	Major Arterial/Major Highway	6,750	C or Better
115	CALIFORNIA ST NORTH OF HIGHLAND AVE	Valley	Muscoy	San Bernardino		40	2	Controlled/Limited Access Collector	7,212	E
116	OLIVE ST WEST OF RANCHO AVE	Valley	NA	Colton		35	2	Controlled/Limited Access Collector	4,635	C or Better
117	ALABAMA STREET SOUTH OF SAN BERNARDINO	Valley	NA	NA		40	5	Major Arterial/Major Highway	15,659	C or Better
118	MENTONE AVE WEST OF OPAL AVE	Valley	Mentone	Redlands	Yes	40	2	Major Arterial/Major Highway	18,340	E
119	OPAL AVE SOUTH OF NICE AVE	Valley	Mentone	Redlands		35	2	Controlled/Limited Access Collector	1,046	C or Better
120	CRAFTON AVE SOUTH OF COLTON AVE	Valley	Mentone	Redlands		40	2	Major Arterial/Major Highway	6,342	C or Better
121	5TH AVE EAST OF WALNUT ST	Valley	Mentone	Redlands		45	2	Controlled/Limited Access Collector	7,089	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
122	SAND CANYON EAST OF CRAFTON	Valley	Mentone	Redlands		50	4	Major Arterial/Major Highway	11,100	C or Better
123	GARNET STREET AT BRIDGE	Valley	Mentone	Redlands		50	2	Controlled/Limited Access Collector	3,519	C or Better
124	MILL CREEK RD EAST OF GARNET AVE	Valley	Mentone	Redlands	Yes	50	2	Major Arterial/Major Highway	8,138	C or Better
125	OAK GLEN RD NORTH OF CHAGALL RD	Valley	Oak Glen	NA		50	2	Controlled/Limited Access Collector	2,462	C or Better
126	OAK GLEN RD SOUTH OF PISGAH PEAK RD	Mountain	Oak Glen	NA		45	2	Controlled/Limited Access Collector	2,102	C or Better
127	OLD WOMAN SPRINGS RD WEST OF GRAND VIEW RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	2,222	C or Better
128	OLD WOMAN SPRINGS RD NORTH OF RECHE RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	3,261	C or Better
129	RECHE RD WEST OF BELFIELD BLVD	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,353	C or Better
130	OLD WOMAN SPRINGS RD NORTH OF PIPES CANYON RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	5,045	C or Better
131	PIPES CANYON RD EAST OF PIONEERTOWN RD	East Desert	Pioneertown	NA		55	2	Major Arterial/Major Highway	385	C or Better
132	PIONEERTOWN RD SOUTH OF PIPES CANYON RD	East Desert	Pioneertown	NA		55	2	Major Arterial/Major Highway	565	C or Better

Table 7 Existing Roadway Segment Assessment										
Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
133	TWENTYNINE PALMS HWY NOTRH OF HIGHLAND RD	East Desert	Morongo Valley	NA	Yes	60	4	Major Arterial/Major Highway	19,825	C or Better
134	TWENTYNINE PALMS HWY NORTH OF WEST DR	East Desert	Morongo Valley	NA	Yes	50	4	Major Arterial/Major Highway	20,213	C or Better
135	STATE HWY 62 SOUTH OF SENILS DR	East Desert	Morongo Valley	NA	Yes	50	4	Major Arterial/Major Highway	20,364	C or Better
136	ABERDEEN DR WEST OF AVALON AVE	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,028	C or Better
137	AVALON AVE NORTH OF ABERDEEN DR	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,821	C or Better
138	ABERDEEN DR EAST OF YUCCA MESA RD	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,663	C or Better
139	BORDER AVE NORTH OF ABERDEEN DR	East Desert	Joshua Tree	NA		55	2	Major Arterial/Major Highway	1,387	C or Better
140	YUCCA MESA RD NORTH OF BARRON DR	East Desert	Joshua Tree	NA		55	2	Major Arterial/Major Highway	4,865	C or Better
141	LA CONTENTA RD NORTH OF ALTA LOMA RD	East Desert	Joshua Tree	NA		55	2	Controlled/Limited Access Collector	2,266	C or Better
142	ALTA LOMA RD WEST OF OLYMPIC RD	East Desert	Joshua Tree	NA		55	2	Controlled/Limited Access Collector	6,138	C or Better

Table 7 Existing Roadway Segment Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Existing Number of Lanes	Facility Type	ADT	LOS
143	TWEHTYNINE PALMS HIGHWAY WEST OF SUNNY VISTA RD	East Desert	Joshua Tree	NA	Yes	60	4	Major Arterial/Major Highway	20,239	C or Better
144	TWENTYNINE PALMS HIGHWAY WEST OF RICE AVE	East Desert	Joshua Tree	NA	Yes	60	4	Major Arterial/Major Highway	16,964	C or Better
145	QUAIL SPRINGS RD SOUTH OF ALTA LOMA DR	East Desert	Joshua Tree	NA		55	2	Major Arterial/Major Highway	2,254	C or Better
146	TWENTYNINE PALMS HWY EAST OF GODWIN RD	East Desert	NA	NA	Yes	55	2	Major Arterial/Major Highway	417	C or Better
147	AMBOY RD EAST OF GODWIN RD	East Desert	NA	NA		55	2	Major Arterial/Major Highway	1,267	C or Better
148	AMBOY RD SOUTH OF NATIONAL TRAILS HWY	East Desert	NA	NA		55	2	Major Arterial/Major Highway	853	C or Better
149	NATIONAL TRAILS HWY EAST OF AMBOY RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	950	C or Better
150	ESSEX RD SOUTH OF I-40	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	83	C or Better
151	GOFFS ROAD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	400	C or Better
152	NIPTON RD WEST OF MORNING STAR MINE RD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	1,101	C or Better
153	KINGSTON RD SOUTH OF MESQUITE VALLEY RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	48	C or Better

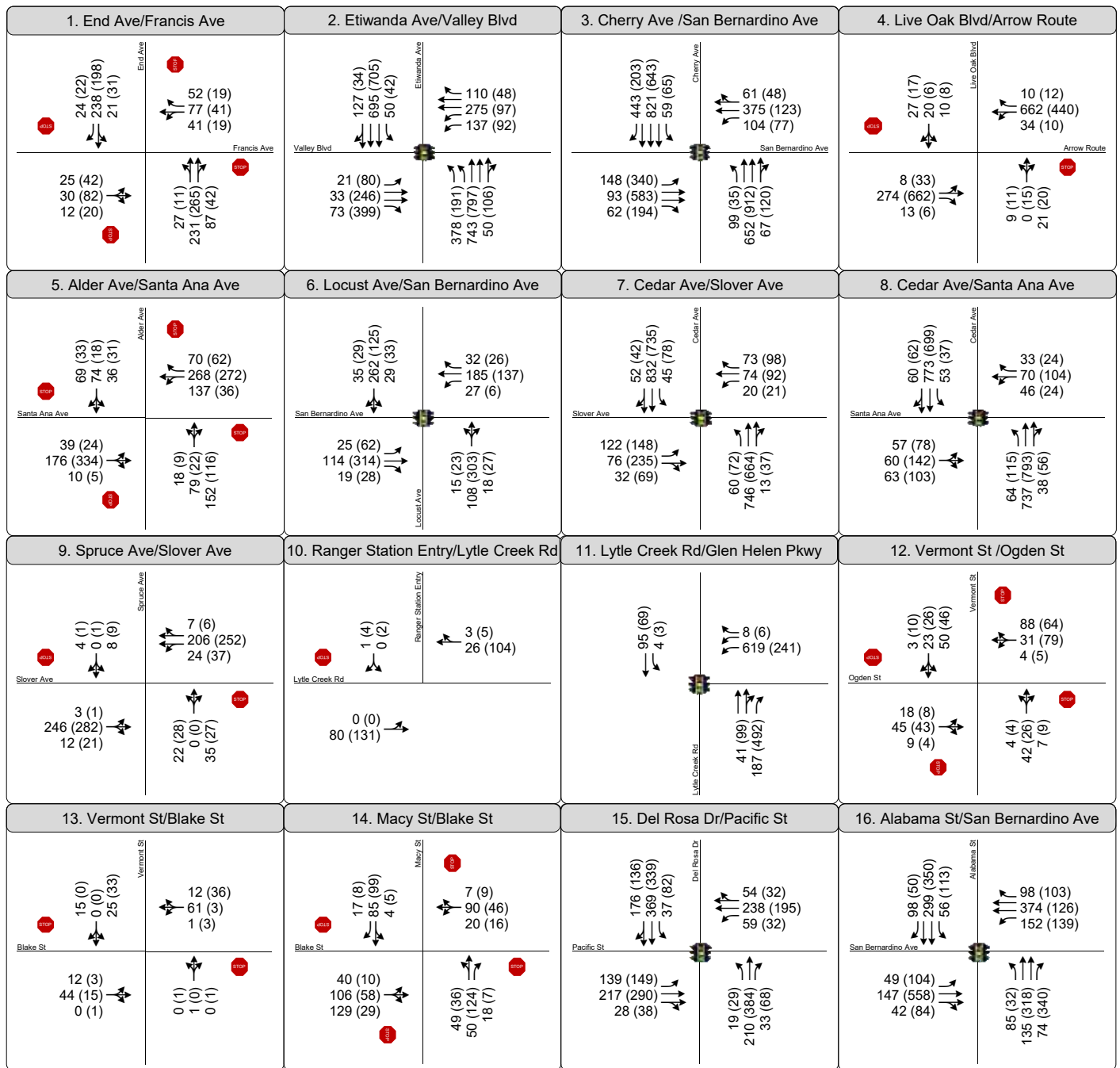


Figure 6

Peak Hour Traffic Volumes
and Lane Configurations -
Existing (2017) Conditions



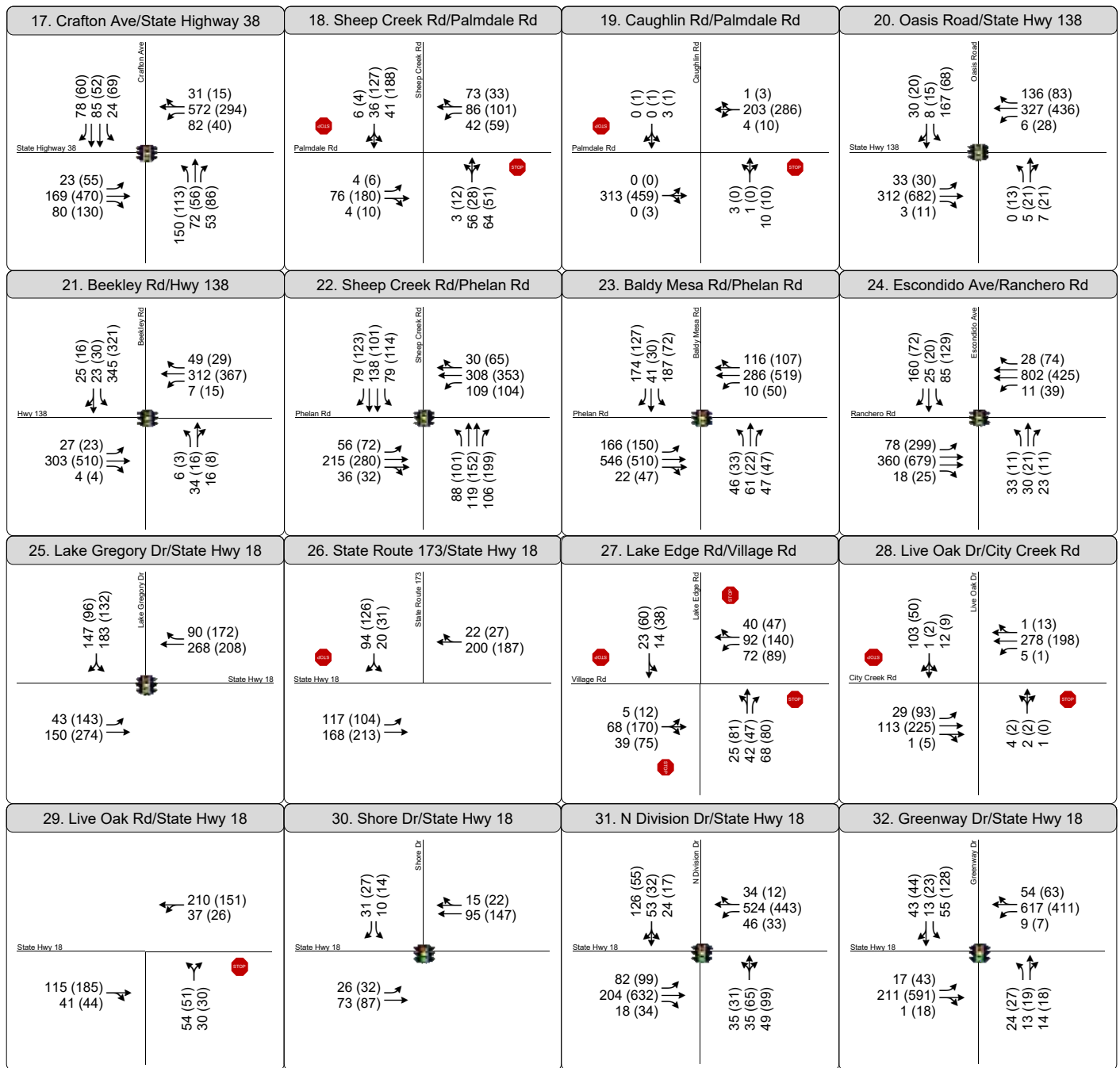


Figure 6

Peak Hour Traffic Volumes
and Lane Configurations -
Existing (2017) Conditions



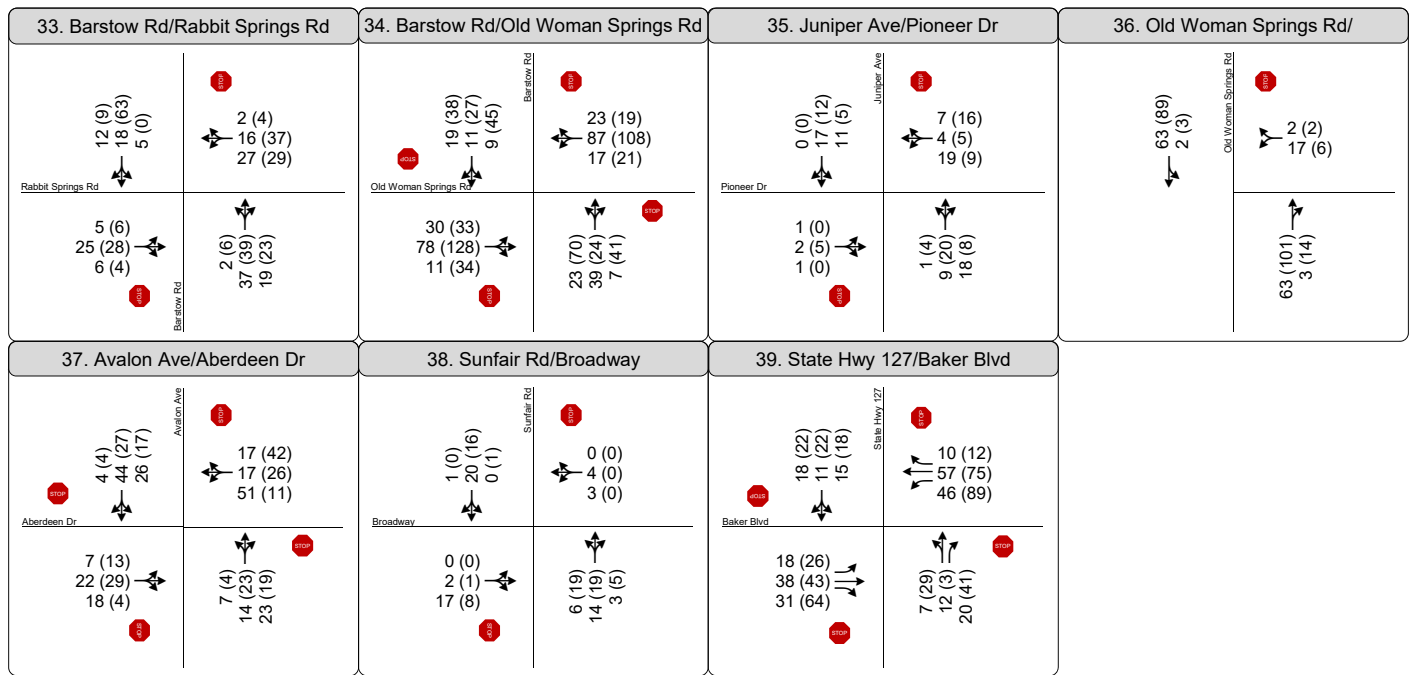


Figure 6

Peak Hour Traffic Volumes
and Lane Configurations -
Existing (2017) Conditions



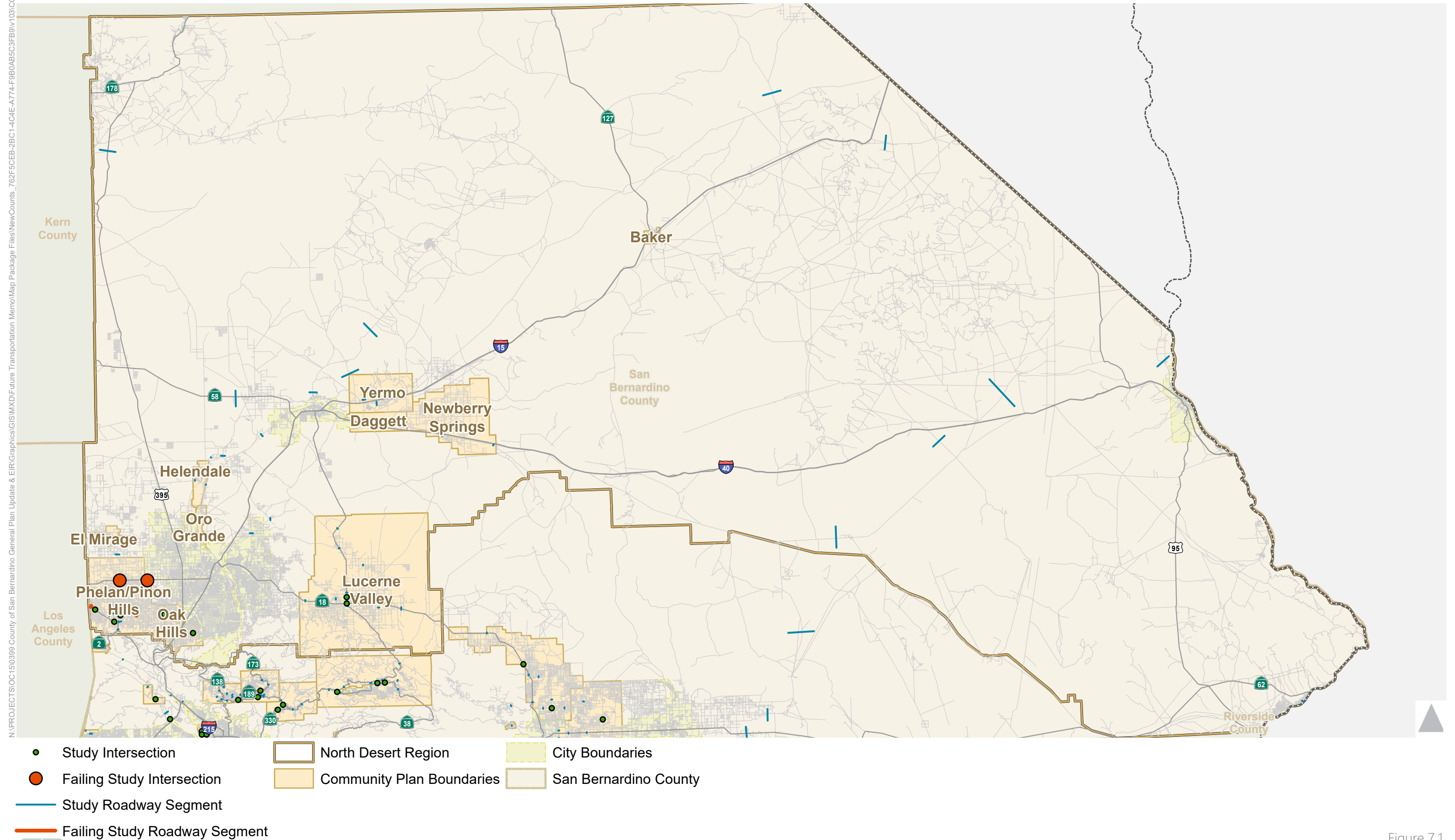


Figure 7.1

North Desert Region - Study Locations and Existing Conditions Failing Study Locations



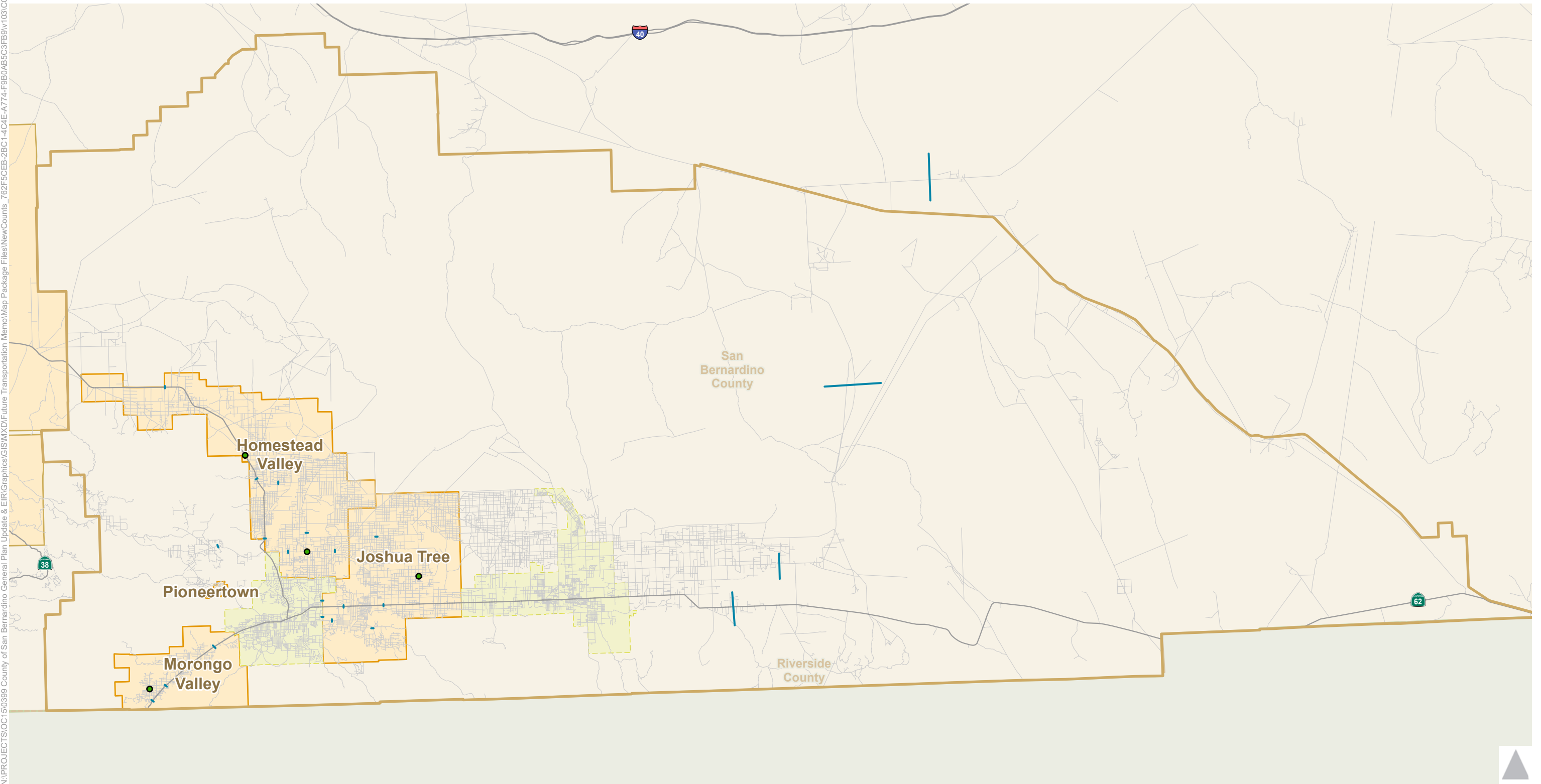


Figure 7.2

East Desert Region - Study Locations and Existing Conditions Failing Study Locations

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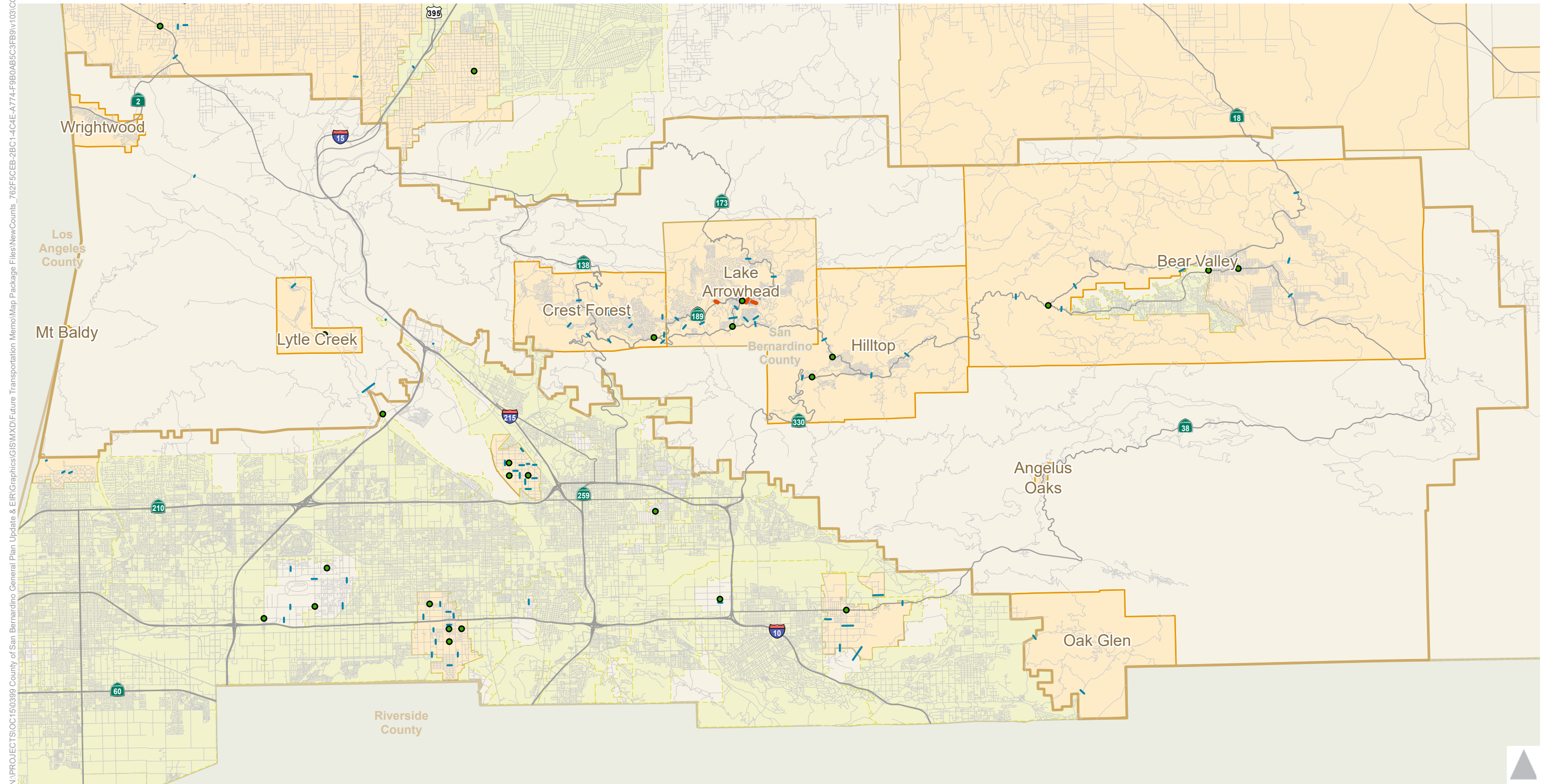
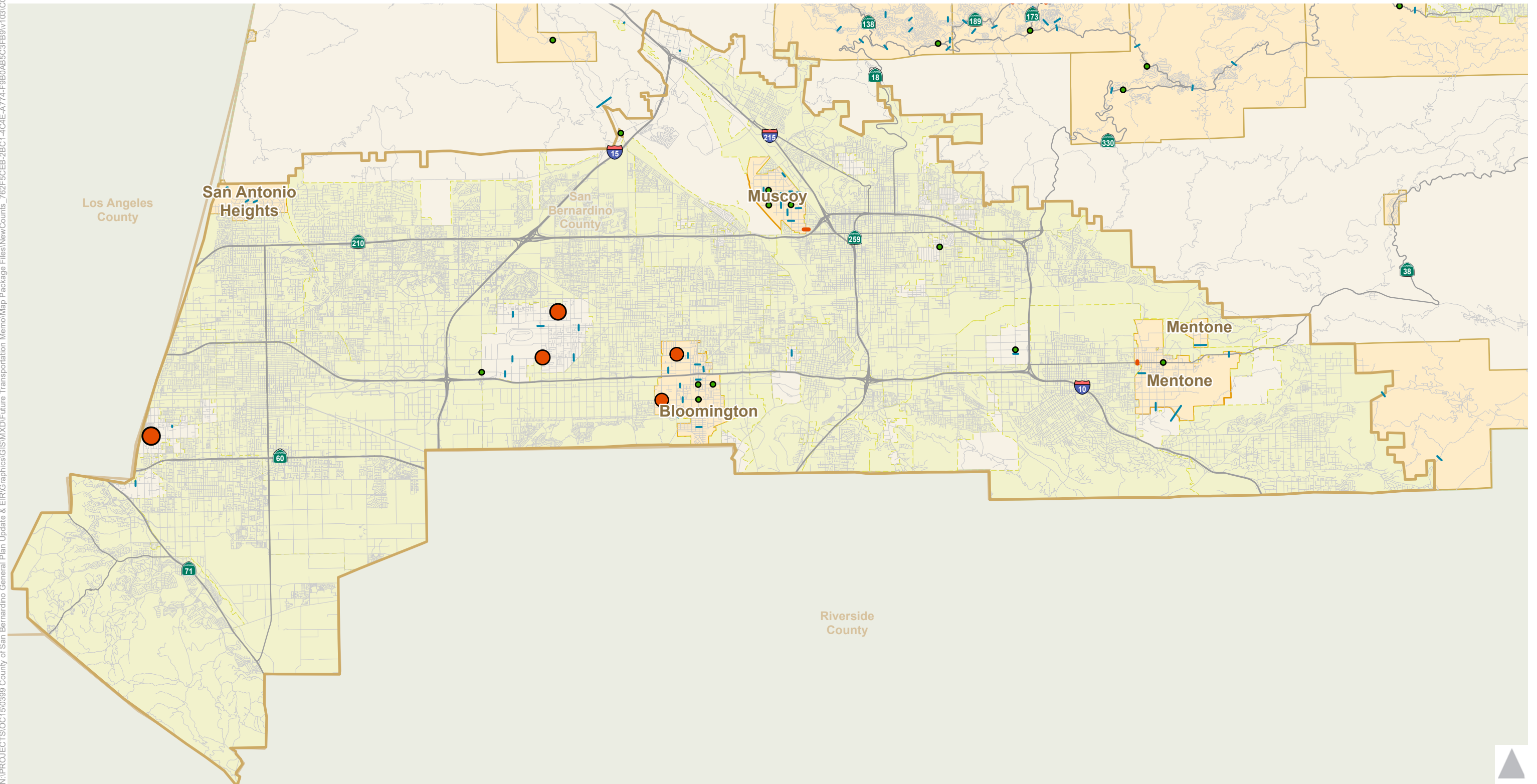


Figure 7.3

Study Locations and Existing Conditions Failing Study Locations - Mountain Region



- Study Intersection
- Failing Study Intersection
- Study Roadway Segment
- Failing Study Roadway Segment
- Valley
- City Boundaries
- Community Plan Boundaries
- San Bernardino County



Figure 7.4

Study Locations and Existing Conditions Failing Study Locations - Valley Region

5.0 Future Year (2040) Conditions

5.1 Future Roadway Network

Proposed roadways and new/widened facilities are shown on **Figure 8**. These facilities are consistent with the planned RTP/SCS improvements described earlier in this report and the circulation map presented in the Draft Transportation & Mobility Element.

The General Plan also incorporates two other mobility plans prepared for the County and provided in Appendix E. These are the Mountain Area Study (MATS) and the Moronga Basin Area Transportation Study (MBATS).

5.2 Future Transit Facilities

Transit within the county consists of Metrolink, BRT, and local bus routes. Future transit is shown on **Figure 9**. Major transit improvements include proposed BRT along several major arterials, Redlands Light Rail, the extension of Metrolink to Redlands, California High Speed Rail, and Xpress West High Speed Rail. These future transit facilities are consistent with planned and funded regional transit facilities in the region and support Draft Transportation & Mobility Element policies related to transit.

The Draft Transportation & Mobility Element incorporates policies related to supporting transit in the study area. These include supporting trip reduction strategies to reduce the number and length of vehicular trips, first mile/last mile connectivity to enhance the viability of and expand the utility of public transit, transit access for residents in unincorporated areas, and transit access to job centers and tourist destinations

5.3 Future Bicycle Facilities

Future bicycle facilities are a mixture of Class I, Class II, Class III, and Class VI facilities. Future Bicycle facilities are shown on **Figure 10** and are consistent with SBCTA's Active Transportation Plan. Bicycle facility upgrades are extensive and support the Draft Transportation & Mobility Element policies related to bicycle facilities.

The Draft Transportation & Mobility Element incorporates policies related to supporting bicycle facilities in the study area. These include prioritizing multi-modal systems inside village and town cores, supporting first mile/last mile connectivity to transit, maintaining a network of complete streets to provide mobility opportunities for all users, implementing additional complete streets improvements when it fits the context

of the community, developing and maintaining local and regional bicycle networks, and promoting bicycle and pedestrian safety when infrastructure improvements are made. Additionally, ATP facilities for the Rim of the World and Big Bear areas are identified in their respective plans. It should also be noted that an ATP is currently under development for the Morongo Basin area which are incorporated into the General Plan.

5.4 Future Airports

In addition to the existing airports shown on **Figure 11** and described above, the Draft Transportation & Mobility Element includes the policies related to Airports. The policies allow for general aviation services, seek to maximize economic development potential of County airports, advocate for expanded passenger and cargo service at the County's regional airports, and require adherence to airport master plans.

5.5 Future Goods Movement Facilities

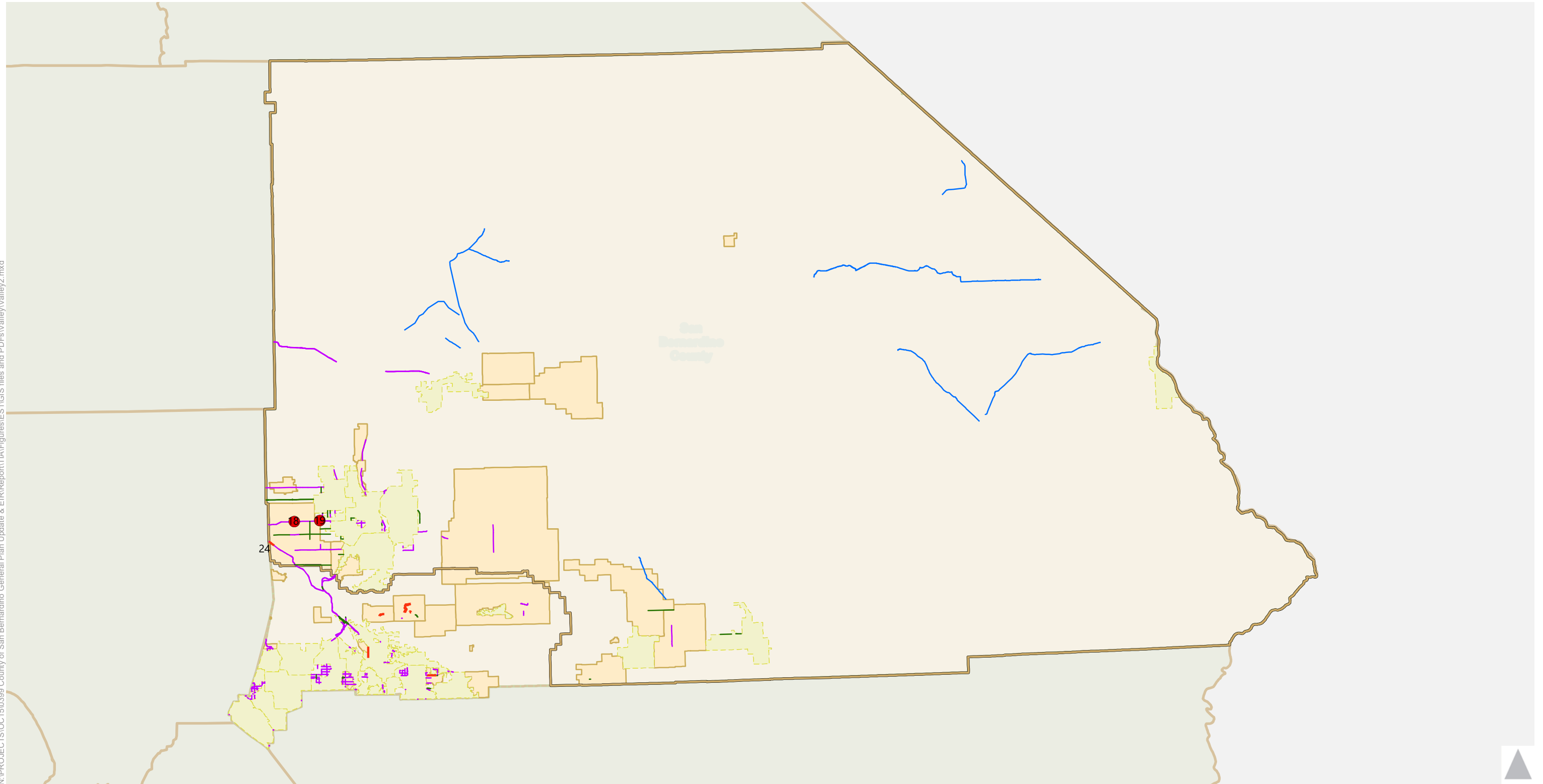
Goods movement within, into, and out of the county takes place primarily on rail and truck routes. Facilities accommodating goods movement in the County are shown on **Figure 12**. Improvements include new roadway facilities, such as the High Desert Corridor, as well as expanded facilities along SR-138 and I-15.

The Draft Transportation & Mobility Element includes policies to assist in supporting future goods movement in the County, such as advocating for maintaining an efficient goods movement network, supporting the development of an intermodal facility in connection with the Southern California Logistics Airport, supporting the development of the High Desert Corridor, supporting grade separations to reduce conflicts between rail facilities and roadways, and supporting the establishment of county wide truck routes and unincorporated truck routes to minimize impacts on residents in addition to efficiently distributing truck traffic.

5.6 Intersection Operation Analysis

Intersection delay and level of service for the Cumulative (2040) With Project Conditions is provided in **Table 8**. **Figure 13** shows the Cumulative with Project intersection traffic volumes and lane configurations. The Cumulative with Project Synchro reports are provided in Appendix B.

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- Intersections Requiring Improvement
- Roadway Segments Needing Improvement
- RTP: New Facilities
- RTP: New Lanes/Widening
- Proposed Deletions

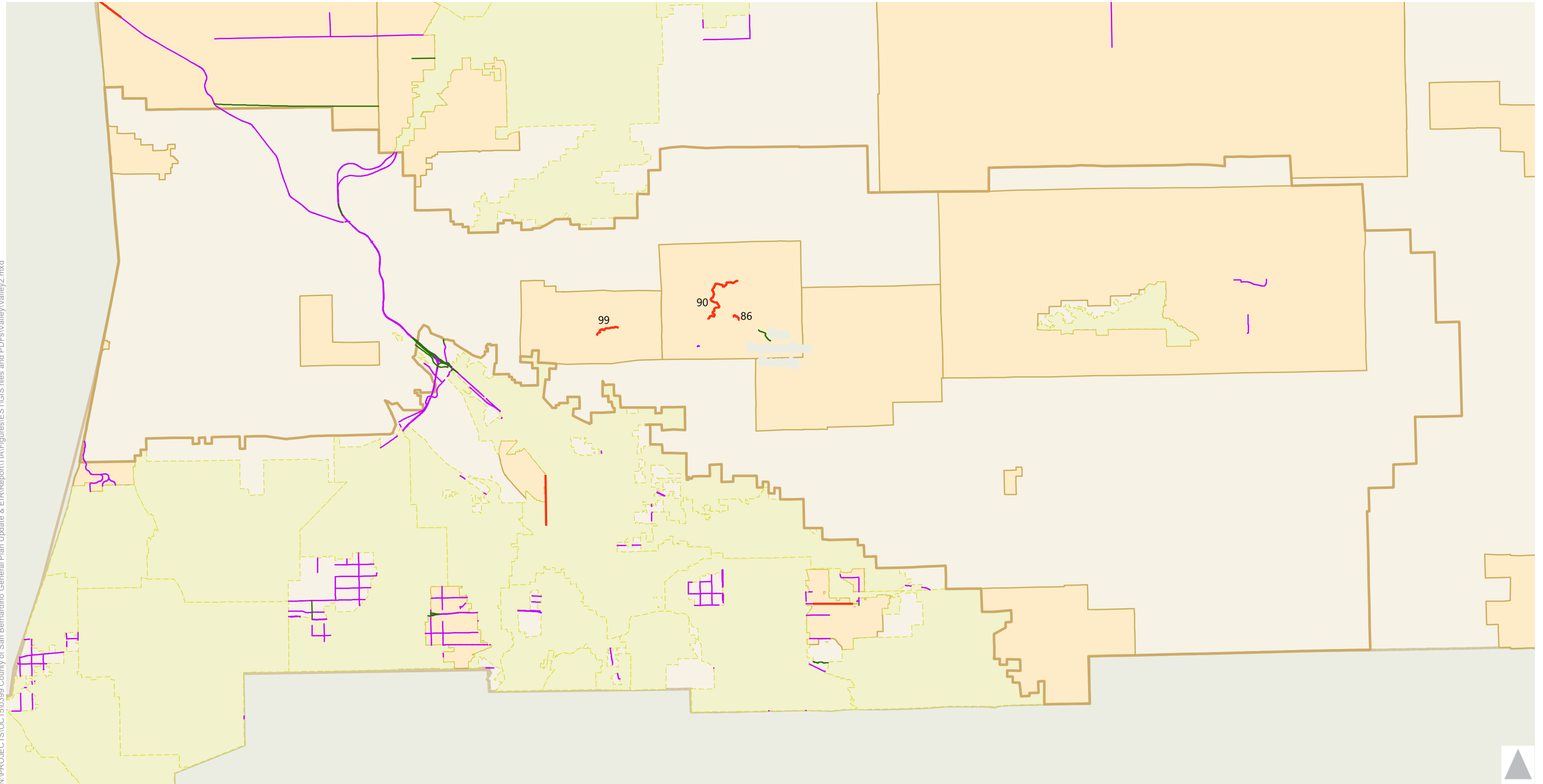
- Desert Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County
- County Boundaries



Figure 8.1

Future Roadways
Desert Region

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







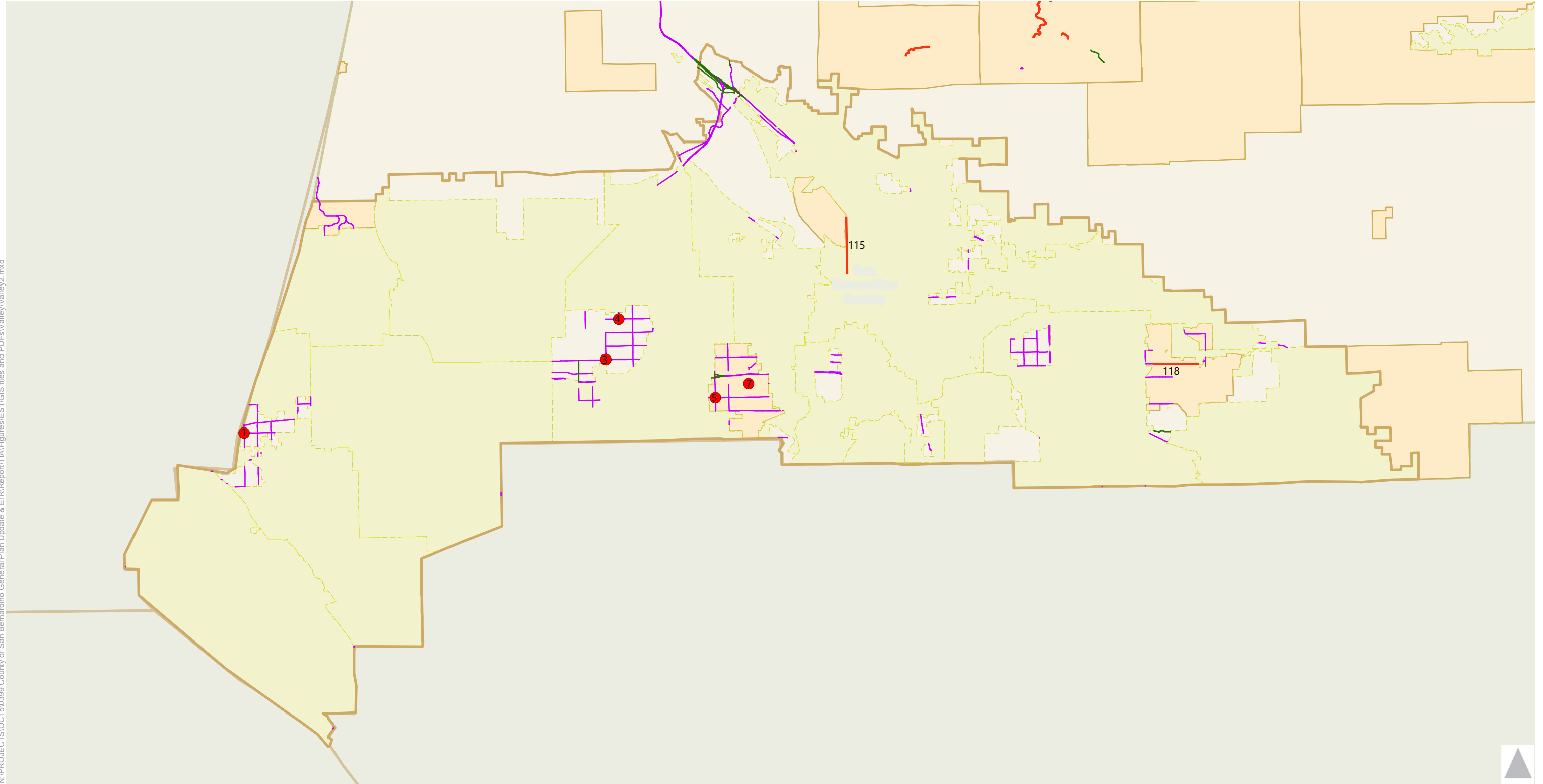
- | | |
|--|---|
|  Roadway Segments Needing Improvement |  Mountain Region |
|  RTP: New Facilities |  City Boundaries |
|  RTP: New Lanes/Widening |  Community Plan Boundaries |
| |  San Bernardino County |
| |  County Boundaries |



Figure 8.2

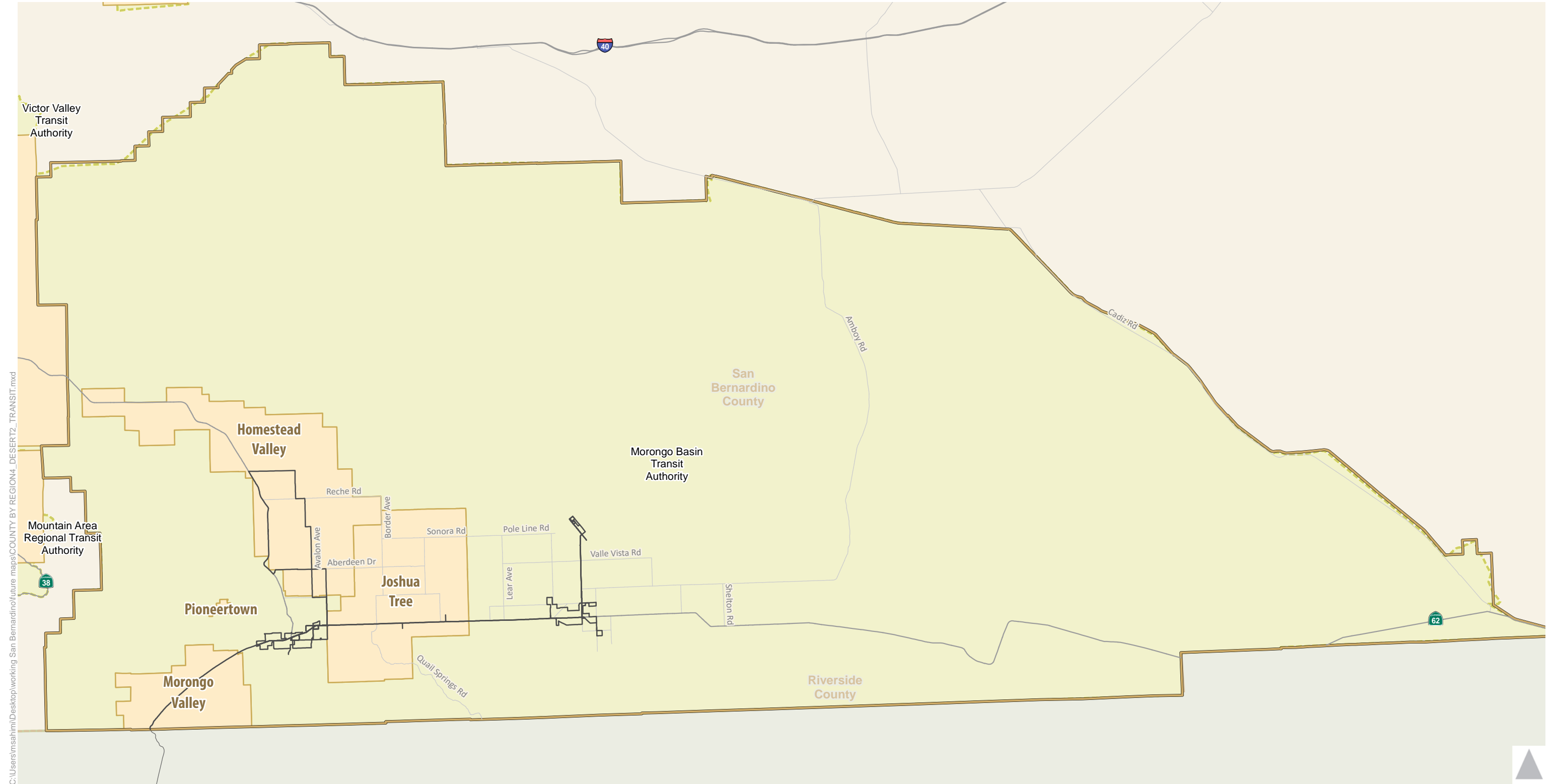
Future Roadways
Desert Region



- | | |
|---|---|
| — Roadway Segments Needing Improvement | Valley Region |
| ● Intersections Needing Improvement | City Boundaries |
| — RTP: New Facilities | Community Plan Boundaries |
| — RTP: New Lanes/Widening | San Bernardino County |
| | County Boundaries |



Figure 8.3
Future Roadways
Valley Region

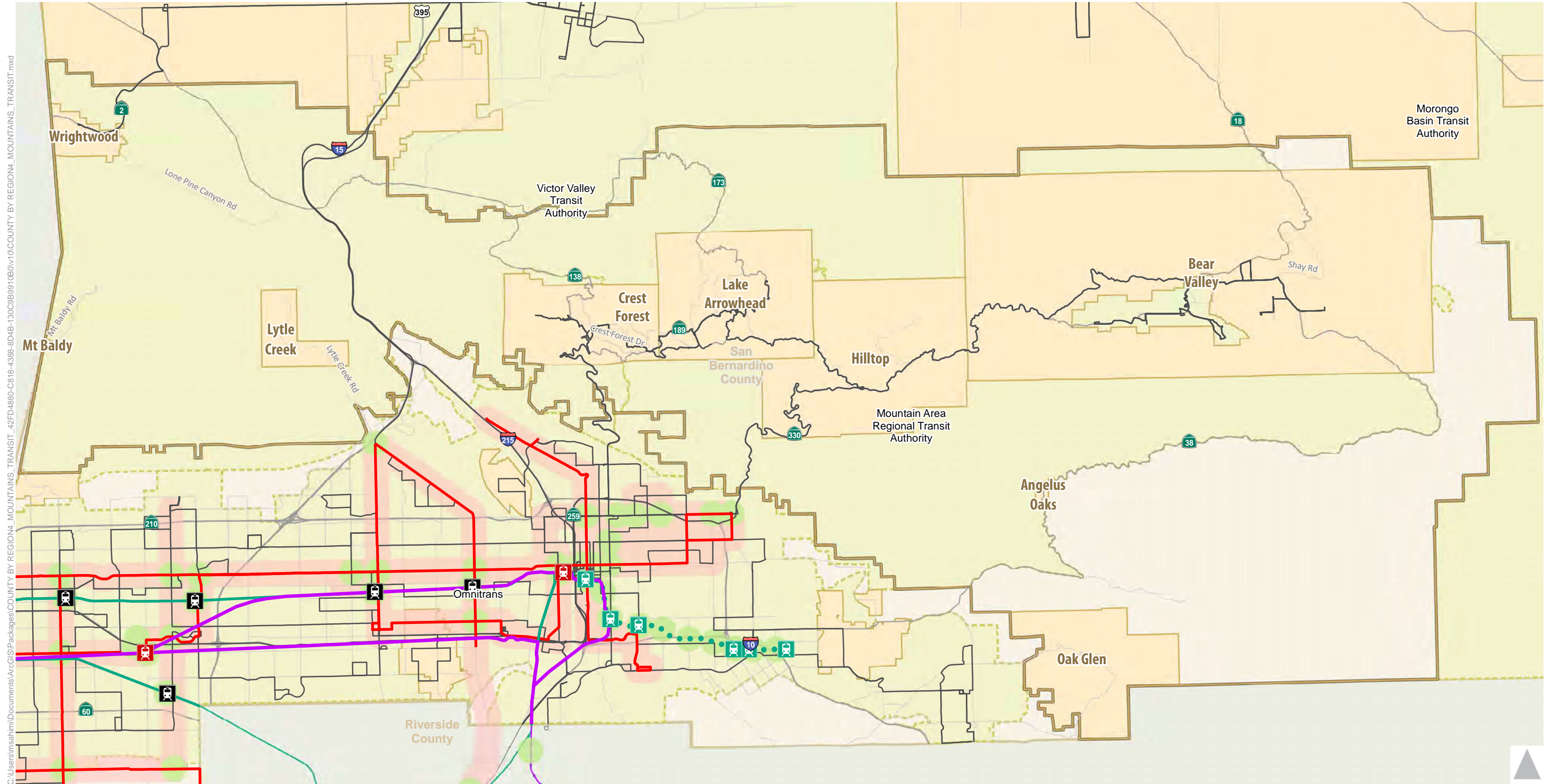


- Existing Bus Routes
- Community Plan Boundaries
- San Bernardino County
- East Desert Region
- Transit Service Areas



Figure 9.1

East Desert Region - Future Transit Routes



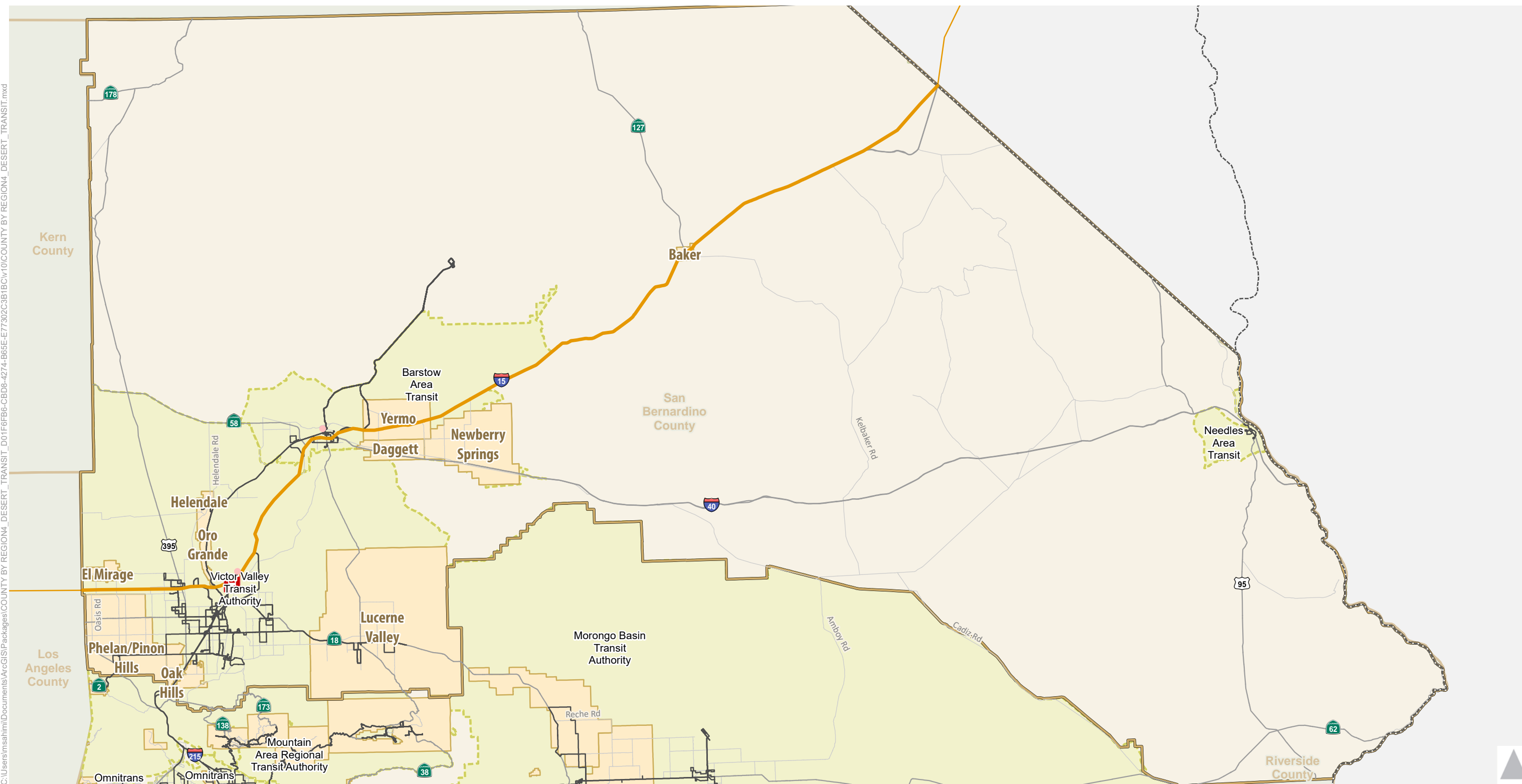
- | | | | | |
|----------------------------------|-------------------------|-------------------------|---------------------------|-----------------------|
| Future Metrolink Station | High Speed Rail Phase 2 | Proposed BRT | HQTA (2040 SCAG RTP/SCS) | Transit Service Areas |
| Proposed High Speed Rail Station | Existing Metrolink | Existing Bus Routes | Mountain Region | San Bernardino County |
| Metrolink Station | Metrolink Extension | TPA (2040 SCAG RTP/SCS) | Community Plan Boundaries | |



Mountain Region - Future Transit Routes

Notes: High Quality Transit Areas (HQTAs) reflect areas with rail transit service or bus service where lines have peak headways of less than 15 minutes. Transit Priority Areas (TPAs) are areas within one-half mile of major transit stop. High Speed Rail Phase 2 alignment is being developed and has not been finalized.

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





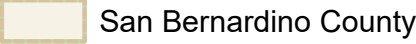
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|---|--|---|
|  Proposed XpressWest Station |  Existing Bus Routes |  Community Plan Boundaries |
|  Proposed XpressWest |  HQTATPA (2040 SCAG RTP/SCS) |  Transit Service Areas |
|  Existing Metrolink |  North Desert Region |  San Bernardino County |

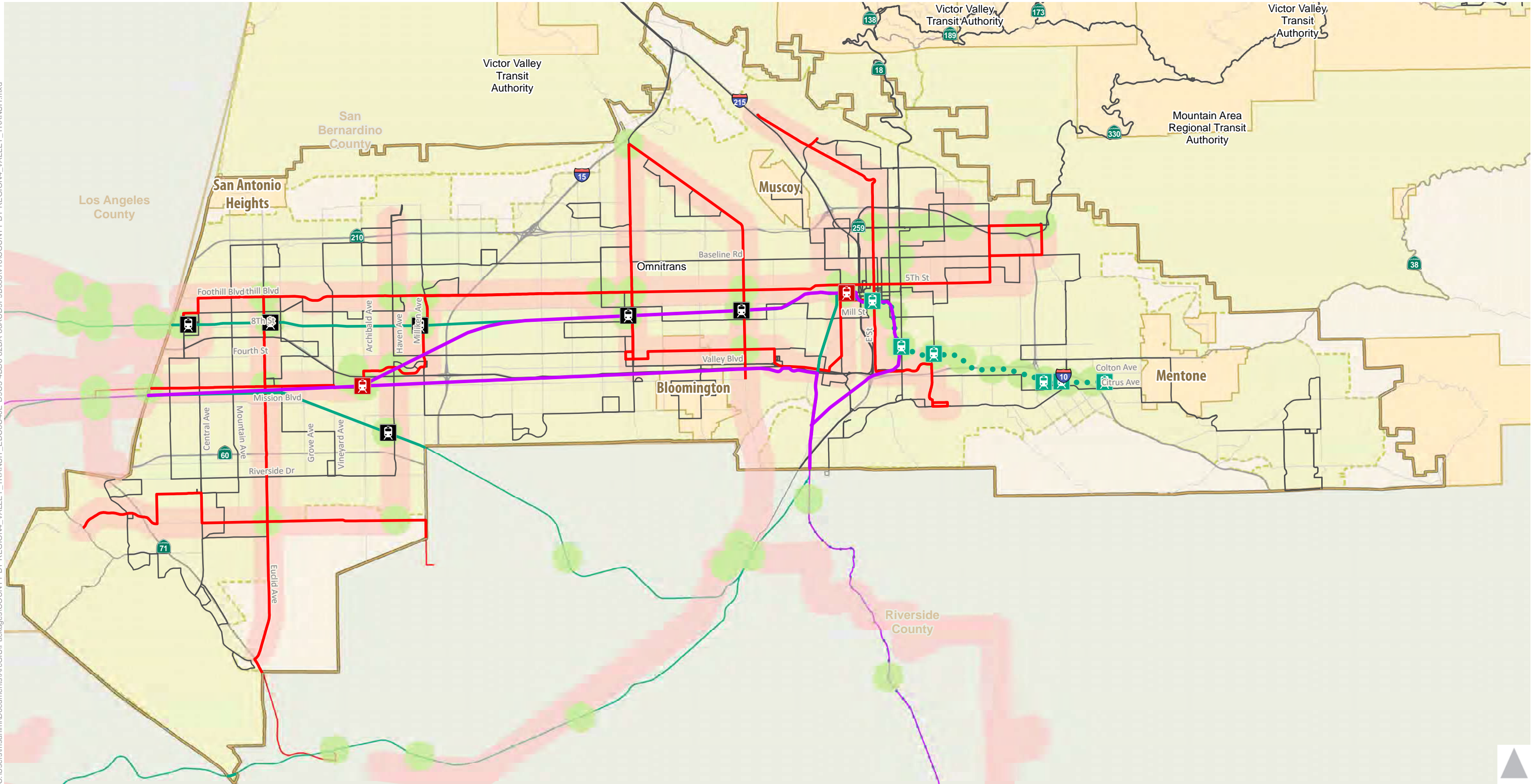


Figure 9.3

North Desert Region - Future Transit Routes

Note: High Quality Transit Areas (HQTAs) reflect areas with rail transit service or bus service where lines have peak hour headways of less than 15 minutes. Transit Priority Areas (TPAs) are areas within one-half mile of major transit stop.

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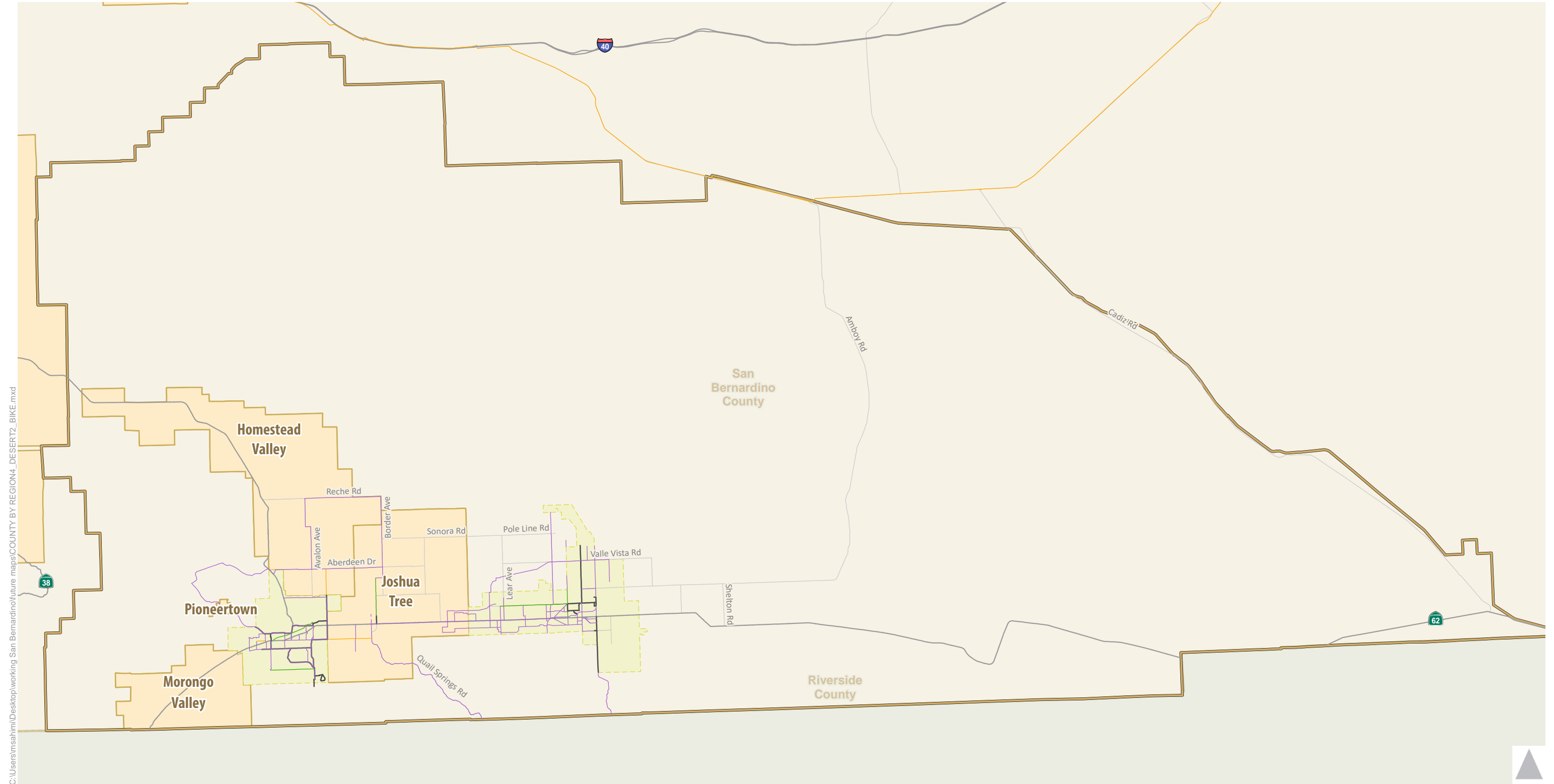
- | | | | | |
|----------------------------------|-------------------------|--------------------------|---------------------------|-----------------------|
| Future Metrolink Station | High Speed Rail Phase 2 | Proposed BRT | HQTAs (2040 SCAG RTP/SCS) | Transit Service Areas |
| Proposed High Speed Rail Station | Metrolink Extension | Existing Bus Routes | Valley Region | San Bernardino County |
| Metrolink Station | Existing Metrolink | TPAs (2040 SCAG RTP/SCS) | Community Plan Boundaries | |



Figure 9.4

Valley Region - Future Transit Routes

Notes: High Quality Transit Areas (HQTAs) reflect areas with rail transit service or bus service where lines have peak headways of less than 15 minutes. Transit Priority Areas (TPAs) are areas within one-half mile of major transit stop. High Speed Rail Phase 2 alignment is being developed and has not been finalized.



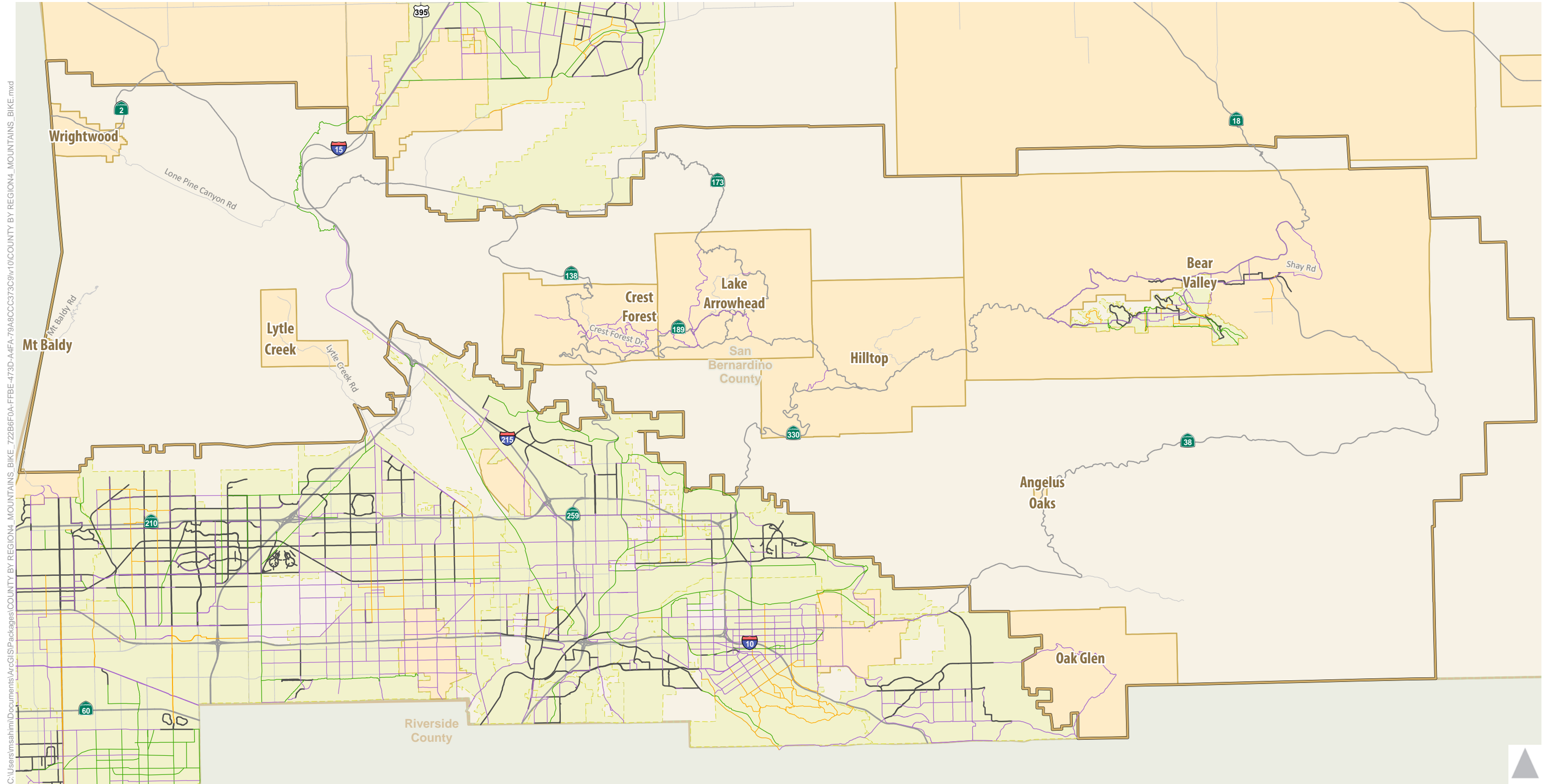
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- Planned Class I
- Planned Class II
- Planned Class III
- Existing Bikeways
- East Desert Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County



Figure 10.1

East Desert Region - Future Bicycle Facilities



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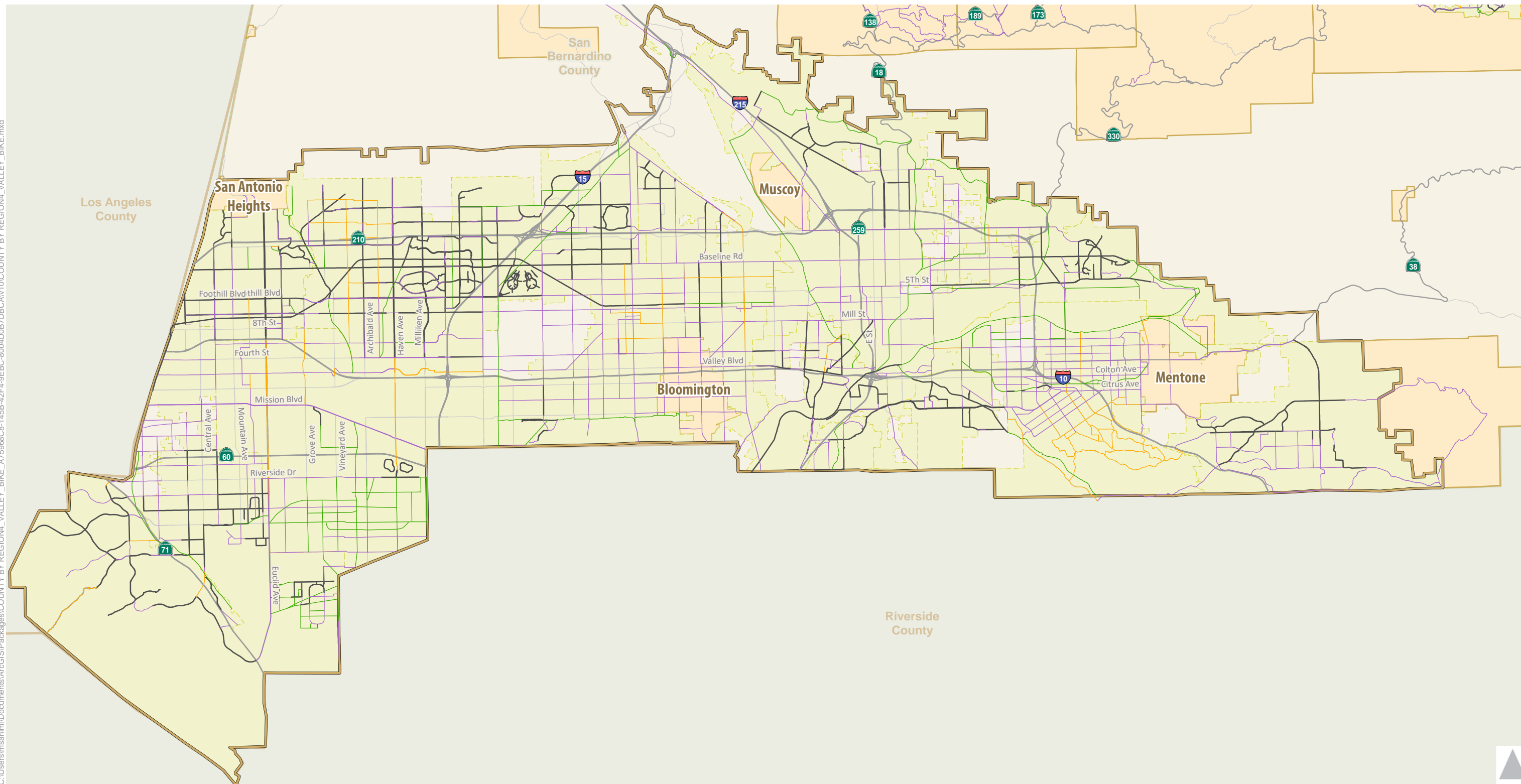
- Planned Class I Existing Bikeways Community Plan Boundaries
- Planned Class II Mountain Region San Bernardino County
- Planned Class III City Boundaries



Figure 10.2

Mountain Region - Future Bicycle Facilities

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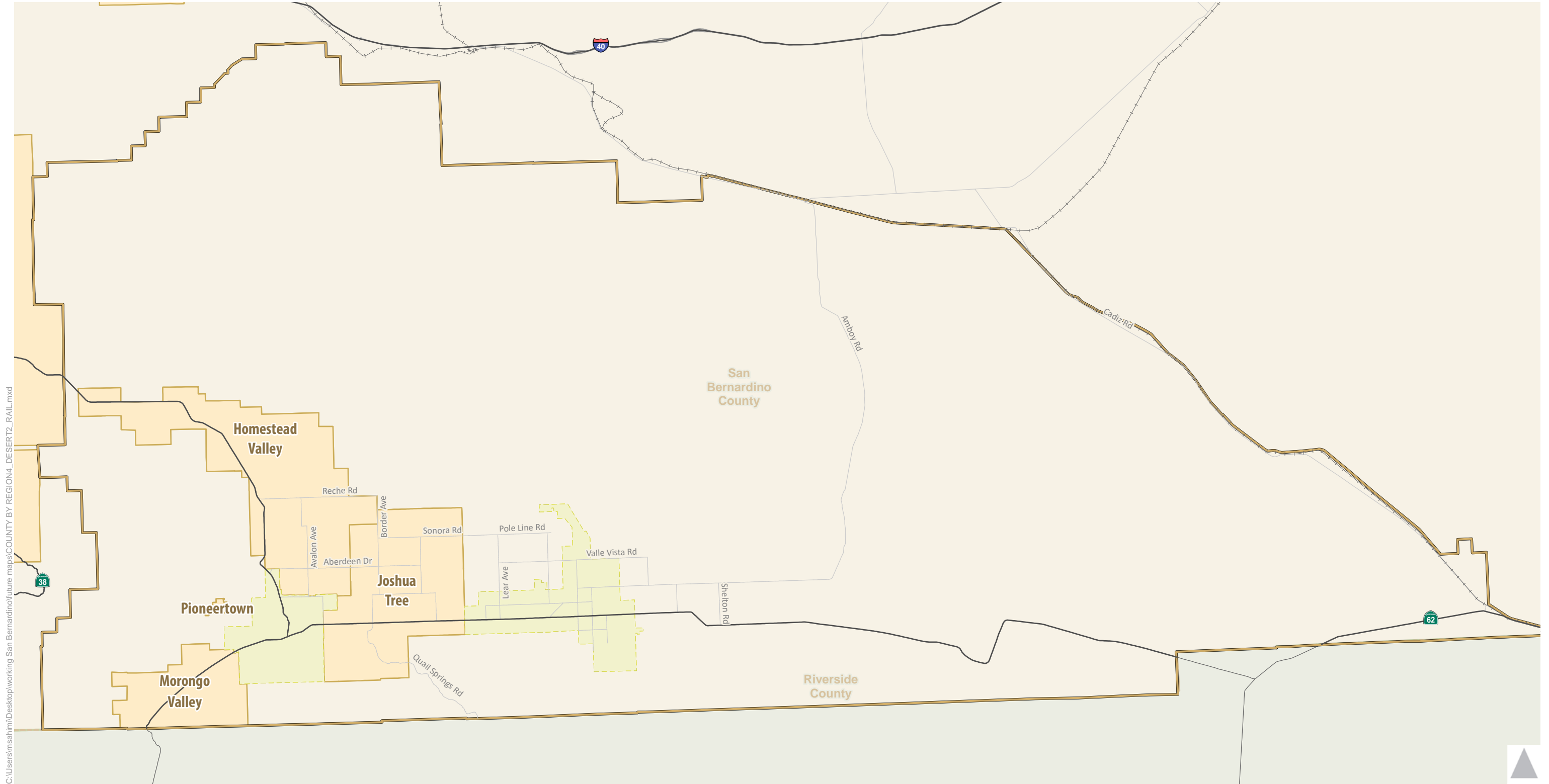


- Planned Class I
- Planned Class II
- Planned Class III
- Existing Bikeways
- Valley Region
- City Boundaries
- Community Plan Boundaries
- San Bernardino County



Figure 10.4

Valley Region - Future Bicycle Facilities



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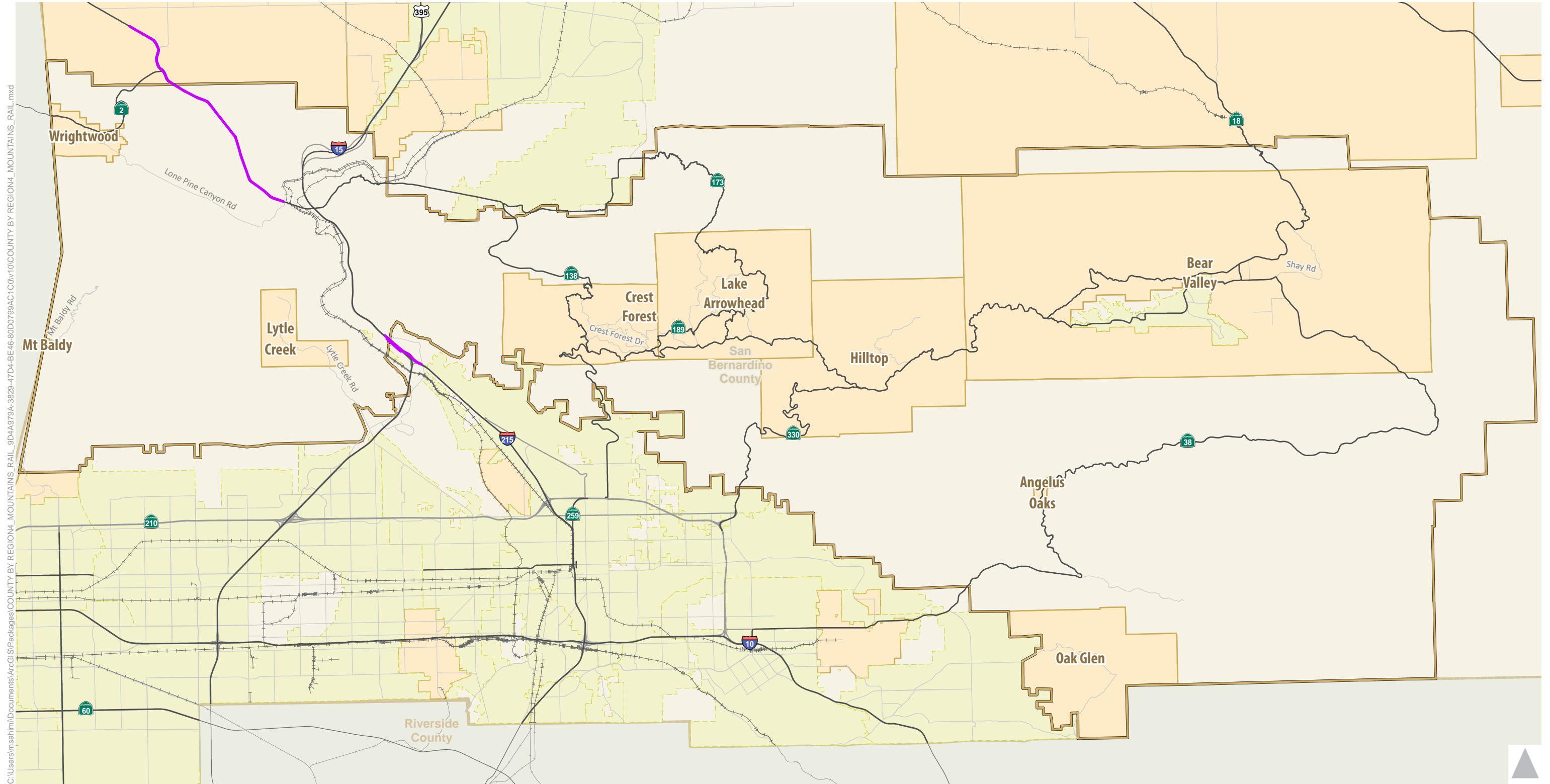
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|--|---|---|
|  High Desert Corridor |  Rail |  City Boundaries |
|  New/Expanded Facilities |  East Desert Region |  San Bernardino County |
|  Existing Truck Route |  Community Plan Boundaries | |



Figure 11.1

East Desert Region - Future Goods Movement

*within Unincorporated County



- New/Expanded Facilities
- Mountain Region
- Community Plan Boundaries
- Existing Truck Route
- City Boundaries
- San Bernardino County
- Rail



Figure 11.2

Mountain Region - Future Goods Movement

*within Unincorporated County

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- | | | |
|-------------------------|---------------------------|-----------------------|
| High Desert Corridor | Rail | City Boundaries |
| New/Expanded Facilities | North Desert Region | San Bernardino County |
| Existing Truck Route | Community Plan Boundaries | |

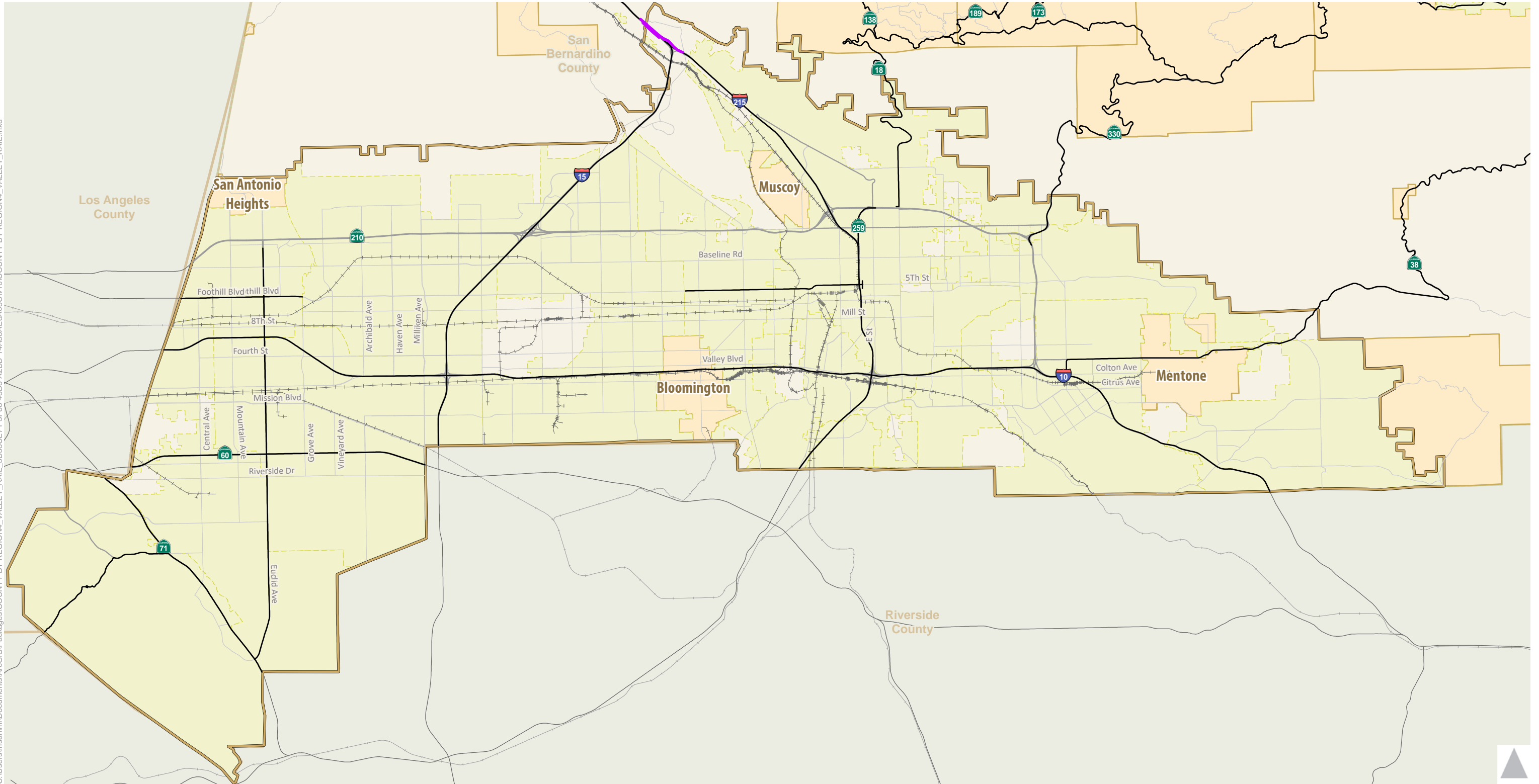


Figure 11.3

North Desert Region - Future Goods Movement

*within Unincorporated County

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
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|---|---|---|
|  New/Expanded Facilities |  Valley Region |  Community Plan Boundaries |
|  Existing Truck Route |  City Boundaries |  NewCPs |
|  Rail | |  San Bernardino County |



Figure 11.4

Valley Region - Future Goods Movement

*within Unincorporated County

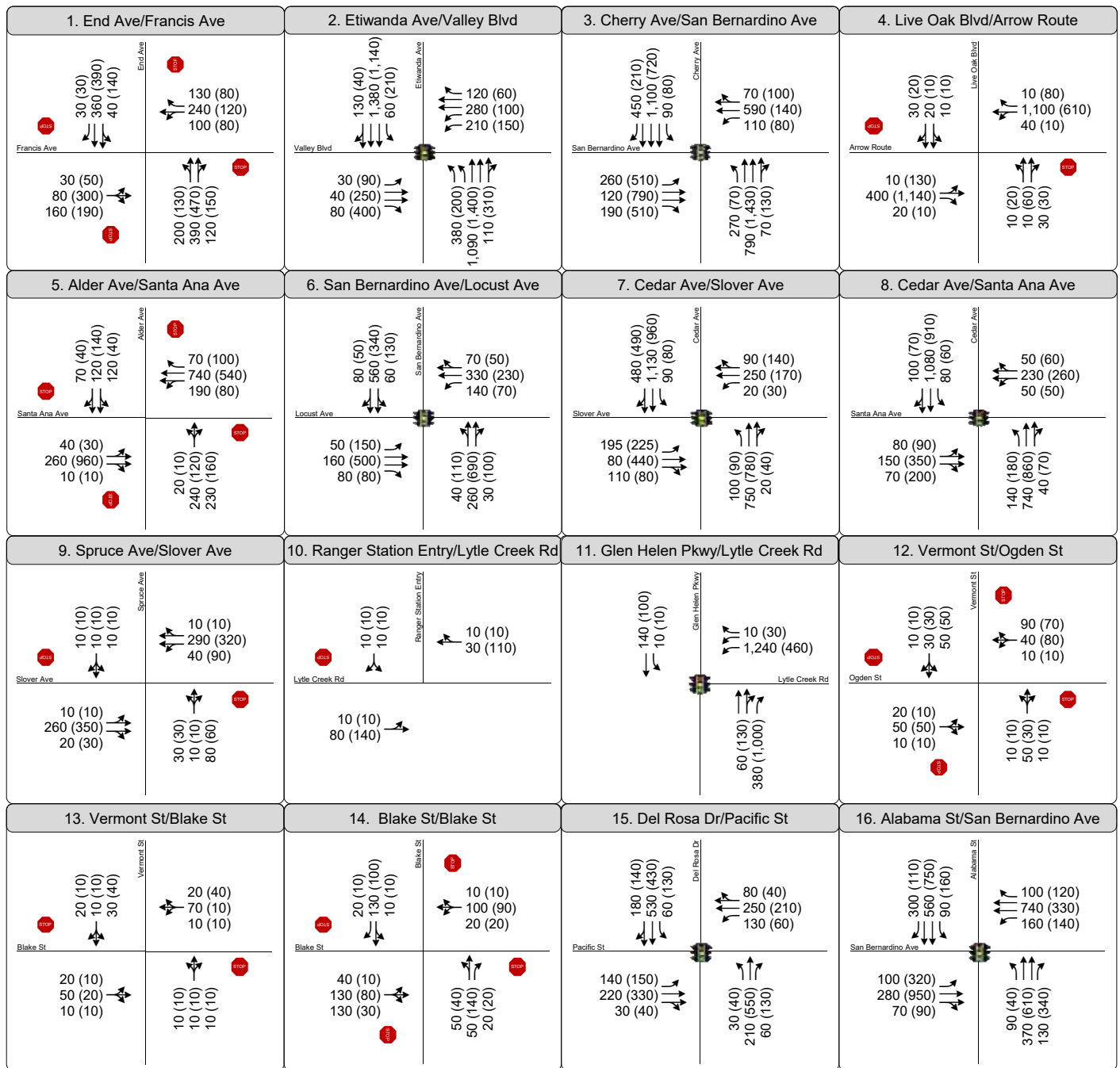


Figure 12

Peak Hour Traffic Volumes
and Lane Configurations -
Future Year (2040)



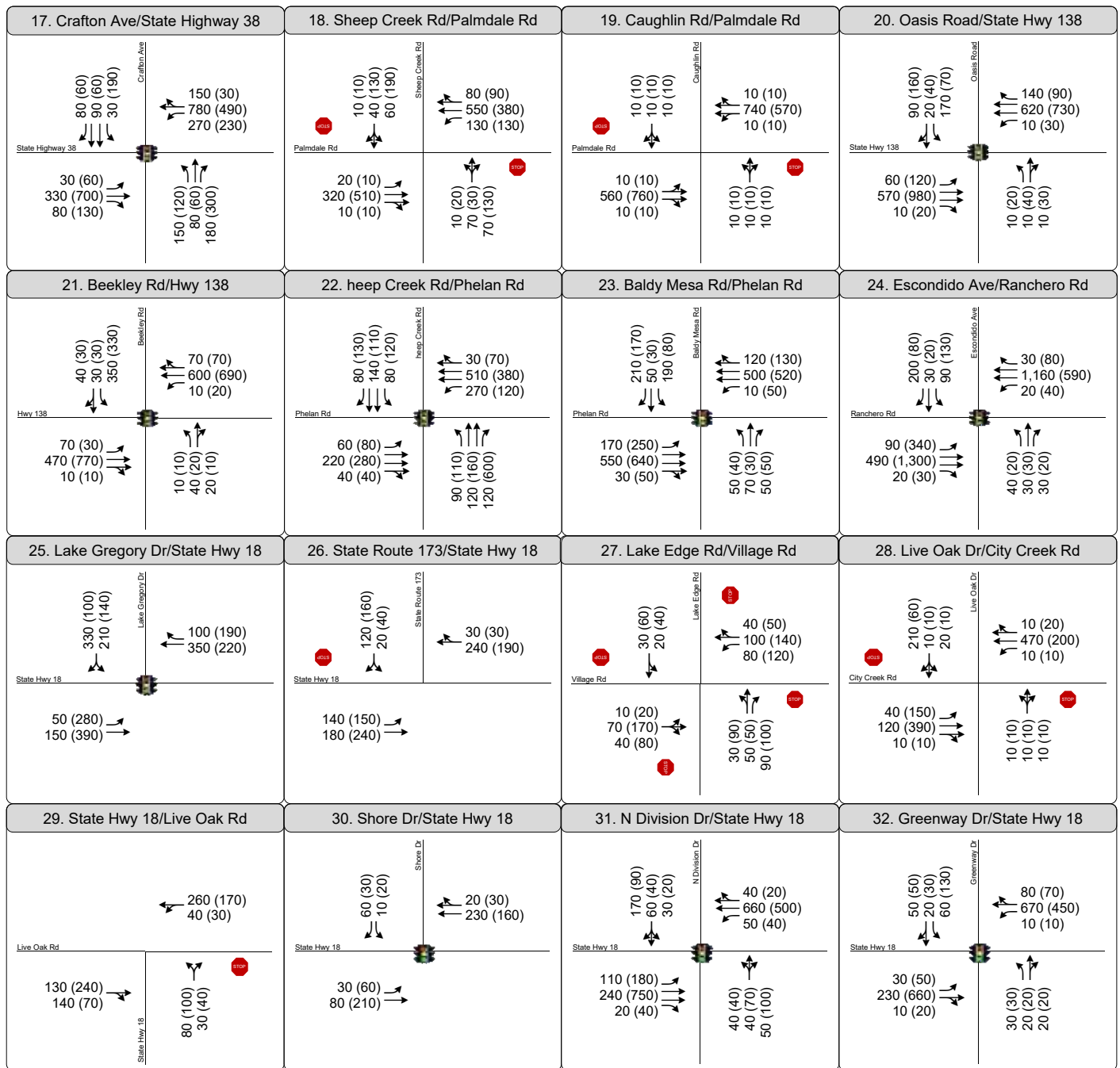


Figure 12

Peak Hour Traffic Volumes
and Lane Configurations -
Future Year (2040)



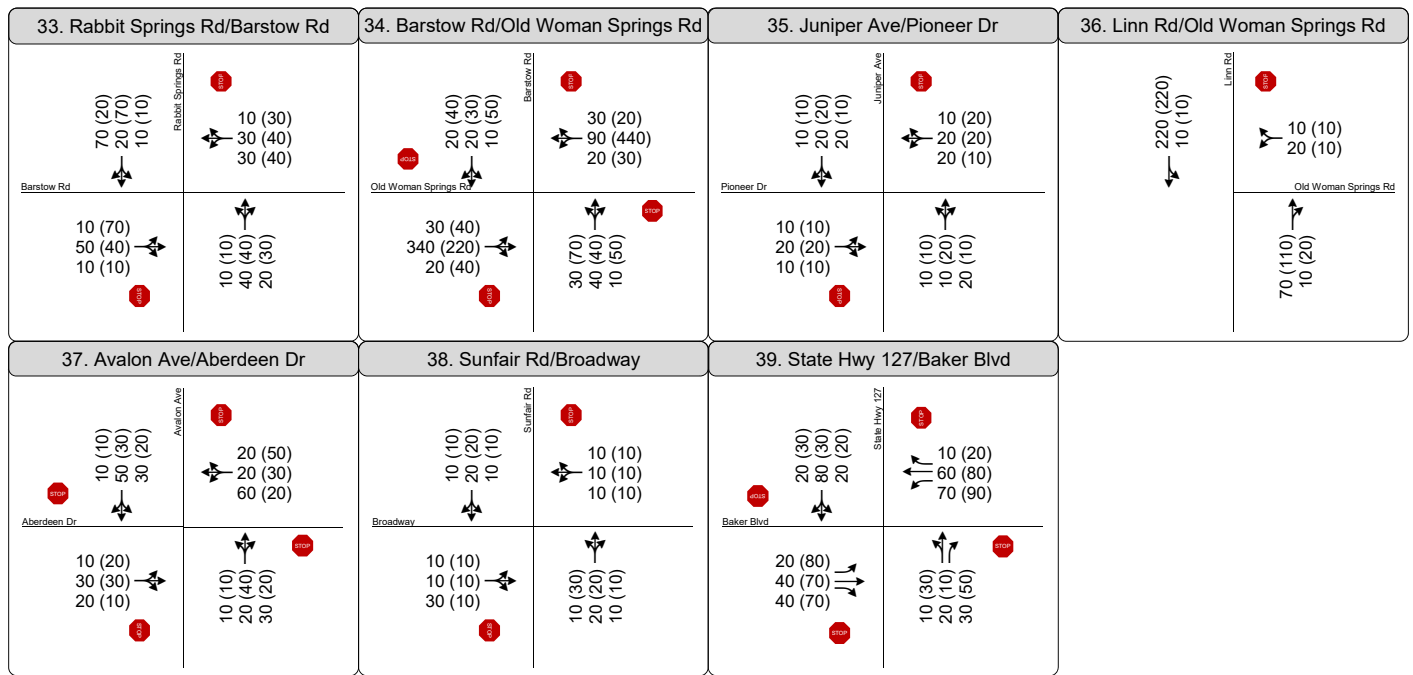


Figure 12
Peak Hour Traffic Volumes
and Lane Configurations -
Future Year (2040)



Table 8 Future (Year 2040) Intersection Level of Service Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Future Capacity Increase?	Existing Conditions				Future Conditions				AM Delay Change	PM Delay Change	AM Impact	PM Impact
								AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
								LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay				
1	End Ave & Francis Ave	Valley	NA	Chino		All-Way Stop Controlled	Yes	B	14.0	B	11.2	F	83.3	F	158.7	69.30	147.50	Yes	Yes
2	Etiwanda Ave & Valley Blvd/Ontario Mills Pkwy	Valley	NA	Fontana		Signalized		C	32.7	C	27.4	C	31.0	D	35.5	-1.70	8.10	No	No
3	Cherry Ave & San Bernardino Ave	Valley	NA	Fontana		Signalized		D	38.1	D	38.9	E	77.4	E	62.8	39.30	23.90	Yes	Yes
4	Live Oak Ave & Arrow Route	Valley	NA	Fontana		Two-Way Stop Controlled	Yes	C	24.0	D	26.7	F	56.7	F	917.9	32.70	891.20	Yes	Yes
5	Alder Ave & Santa Ana Ave	Valley	Bloomington	Rialto		All-Way Stop Controlled	Yes	F	67.1	B	13.5	F	119.3	F	123.4	52.20	109.90	Yes	Yes
6	Locust Ave & San Bernardino Ave	Valley	Bloomington	Rialto		Signalized	Yes	C	27.1	C	26.3	C	29.4	D	38.8	2.30	12.50	No	No
7	Cedar Ave & Slover Ave	Valley	Bloomington	Rialto		Signalized	Yes	C	24.4	C	31.3	E	78.7	E	70.2	54.30	38.90	Yes	Yes
8	Cedar Ave & Santa Ana Ave	Valley	Bloomington	Rialto		Signalized	Yes	C	22.7	C	27.4	C	27.9	D	36.7	5.20	9.30	No	No
9	Spruce Ave & Slover Ave	Valley	Bloomington	Rialto		Two-Way Stop Controlled	Yes	B	13.8	C	15.4	B	14.4	C	17.7	0.60	2.30	No	No
10	Entrance to Ranger Station & Lytle Creek Rd	Mountain	Lytle Creek	NA		Two-Way Stop Controlled		A	8.4	A	9.2	A	9.0	A	9.6	0.60	0.40	No	No
11	Lytle Creek Rd & Glen Helen Pkwy	Valley	NA	Rialto		Signalized		B	12.1	B	11.2	B	18.5	B	15.0	6.40	3.80	No	No

Table 8 Future (Year 2040) Intersection Level of Service Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Future Capacity Increase?	Existing Conditions				Future Conditions				AM Delay Change	PM Delay Change	AM Impact	PM Impact
								AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
								LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay				
12	Vermont St & Ogden St	Valley	Muscoy	San Bernardino		All-Way Stop Controlled		A	8.3	A	8.8	A	8.3	A	8.5	0.00	-0.30	No	No
13	Vermont St & Blake St	Valley	Muscoy	San Bernardino		Two-Way Stop Controlled		B	10.5	A	9.3	B	10.3	A	9.6	-0.20	0.30	No	No
14	Macy St & Blake St	Valley	Muscoy	San Bernardino		All-Way Stop Controlled		B	10.2	A	9.0	B	10.6	A	9.5	0.40	0.50	No	No
15	Del Rosa Dr & Pacific St	Valley	NA	San Bernardino		Signalized		C	24.2	C	23.6	C	24.0	C	29.7	-0.20	6.10	No	No
16	Alabama St & San Bernardino Ave	Valley	NA	NA		Signalized		C	23.0	C	26.4	C	32.6	D	45.7	9.60	19.30	No	No
17	Crafton Ave & Mentone Blvd	Valley	Mentone	Redlands	Yes	Signalized		B	15.1	B	12.2	C	28.6	C	31.5	13.50	19.30	No	No
18	Sheep Creek Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop Controlled	Yes	B	13.7	F	53.7	F	274.7	F	920.0	261.00	866.30	Yes	Yes
19	Caughlin Rd & Palmdale Rd	North Desert	Phelan/Pinon Hills	NA	Yes	Two-Way Stop Controlled	Yes	B	13.6	C	15.0	D	28.7	D	30.2	15.10	15.20	Yes	Yes
20	Oasis Rd & State Hwy 138	North Desert	Phelan/Pinon Hills	NA	Yes	Signalized	Yes	B	15.7	B	17.4	B	15.8	B	19.2	0.10	1.80	No	No
21	Beekley Rd & State Hwy 138	North Desert	Phelan/Pinon Hills	NA	Yes	Signalized	Yes	B	15.8	C	20.3	B	17.4	B	15.4	1.60	-4.90	No	No
22	Sheep Creek Rd & Phelan Rd	North Desert	Phelan/Pinon Hills	NA		Signalized	Yes	C	23.4	C	26.5	C	24.2	C	26.4	0.80	-0.10	No	No

Table 8 Future (Year 2040) Intersection Level of Service Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Future Capacity Increase?	Existing Conditions				Future Conditions				AM Delay Change	PM Delay Change	AM Impact	PM Impact
								AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
								LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay				
23	Baldy Mesa Rd & Phelan Rd	North Desert	Phelan/Pinon Hills	NA		Signalized	Yes	C	30.9	C	27.1	C	28.9	C	29.7	-2.00	2.60	No	No
24	Escondido Ave & Ranchero Rd	North Desert	Oak Hills	Hesperia		Signalized		B	19.3	B	17.8	B	19.9	C	21.9	0.60	4.10	No	No
25	Lake Gregory Dr & Rim of the World Hwy	Mountain	Crest Forest	NA	Yes	Signalized		B	12.6	B	11.9	B	17.7	B	13.5	5.10	1.60	No	No
26	State Route 173 & Rim of the World Hwy	Mountain	Lake Arrowhead	NA	Yes	Two-Way Stop Controlled		B	11.7	B	12.7	B	12.2	B	13.5	0.50	0.80	No	No
27	Lake Edge Rd & Village Rd	Mountain	Lake Arrowhead	NA	Yes	All-Way Stop Controlled		A	9.0	B	11.9	A	9.3	B	12.4	0.30	0.50	No	No
28	Live Oak Dr & City Creek Rd	Mountain	Hilltop	NA	Yes	Two-Way Stop Controlled		B	12.3	C	17.5	C	15.1	D	25.5	2.80	8.00	No	No
29	Live Oak Dr & Rim of the World Hwy	Mountain	Hilltop	NA	Yes	Two-Way Stop Controlled		B	12.0	B	12.1	B	13.7	B	14.0	1.70	1.90	No	No
30	Shore Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized		A	8.8	A	7.8	A	9.4	A	7.3	0.60	-0.50	No	No
31	Division Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized	Yes	B	17.0	B	14.5	B	14.4	B	13.0	-2.60	-1.50	No	No
32	Greenway Dr & Big Bear Blvd	Mountain	Bear Valley	NA	Yes	Signalized		A	6.2	A	7.0	A	6.1	A	7.0	-0.10	0.00	No	No
33	Barstow Rd & Rabbit Springs Rd	North Desert	Lucerne Valley	NA	Yes	Two-Way Stop Controlled		A	9.8	B	10.2	B	10.4	B	11.4	0.60	1.20	No	No

Table 8 Future (Year 2040) Intersection Level of Service Assessment

ID	Intersection	Region	CPA	SOI	Caltrans Facility?	Control Type	Future Capacity Increase?	Existing Conditions				Future Conditions				AM Delay Change	PM Delay Change	AM Impact	PM Impact
								AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour					
								LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay				
34	Barstow Rd & Old Woman Springs Rd	North Desert	Lucerne Valley	NA	Yes	All-Way Stop Controlled		A	8.6	A	9.6	B	11.3	C	21.8	2.70	12.20	No	No
35	Juniper Ave & Pioneer Dr	East Desert	Morongo Valley	NA		Two-Way Stop Controlled		A	9.3	A	9.5	A	9.6	A	9.5	0.30	0.00	No	No
36	Old Woman Springs Rd & Linn Rd	East Desert	Homestead Valley	NA	Yes	Two-Way Stop Controlled		A	9.5	A	9.6	B	10.2	B	10.0	0.70	0.40	No	No
37	Avalon Ave & Aberdeen Dr	East Desert	Homestead Valley	NA		All-Way Stop Controlled		A	8.1	A	7.4	A	8.0	A	7.6	-0.10	0.20	No	No
38	Sunfair Rd & Broadway	East Desert	Joshua Tree	NA		Two-Way Stop Controlled		A	9.4	A	8.6	A	9.3	A	9.5	-0.10	0.90	No	No
39	Death Valley Rd & Baker Blvd	North Desert	Baker	NA	Yes	All-Way Stop Controlled		A	8.6	A	9.0	A	9.0	A	9.5	0.40	0.50	No	No

Notes:

For two-way stop controlled intersections, LOS and delay are reported for the worst approach.

The results of the intersection assessment indicate that most of the study intersections operate at an acceptable level, with the exception of the following locations:

- End Ave / Francis Ave (Chino SOI)– LOS F in the AM and PM peak hours
- Cherry Ave / San Bernardino Ave (Fontana SOI)– LOS E during the AM and PM peak hours
- Live Oak Ave / Arrow Ave (Fontana SOI) – LOS F during the AM and PM peak hours
- Alder Ave / Santa Ana Ave (Bloomington CPA, Rialto SOI) – LOS F during the AM and PM peak hours
- Cedar Ave / Slover Ave (Bloomington CPA, Rialto SOI) – LOS E during the AM and PM peak hours
- Sheep Creek Rd / Palmdale Avenue (Phelan/Pinon Hills CPA)– LOS F during the AM and PM peak hours
- Caughlin Rd / Palmdale Rd (Phelan/Pinon Hills CPA) – LOS D during the AM and PM peak hours

5.6 Roadway Segment Analysis

Section 3.4 discusses the funded roadway improvements listed in the RTP applicable to this analysis. Future traffic volumes and lane configurations are shown on **Figure 9**.

Roadway segment delay and level of service for the Cumulative (2040) With Project Conditions is provided in **Table 9**.

The results indicate that most of the study roadway segments operate at an acceptable level of service, except for the following locations:

- SR 138 west of Oasis Rd (Phelan/Pinon Hills CPA) – LOS D
- State Hwy 173 east of Lake Edge Rd (Mountain/Lake Arrowhead CPA) – LOS E
- North Bay Rd north of SH 189 (Mountain/Lake Arrowhead CPA) – LOS E
- Lake Dr west of Lake Gregory Dr (Mountain/Crest Forest CPA) – LOS F
- California St North of Highland Ave (Muscoy CPA/San Bernardino SOI) – LOS E
- Mentone Ave west of Opal Ave (Mentone CPA, Redlands SOI) – LOS F

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
1	TRONA RD SOUTH OF STATE HWY 178	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	500	C or Better
2	FORT IRWIN RD SOUTH OF STARBRIGHT RD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	7,300	C or Better
3	FORT IRWIN RD NORTH OF YERMO CUTOFF	North Desert	Yermo	NA		65	3	Controlled/Limited Access Collector	6,100	C or Better
4	STATE HWY 58 WEST OF HINKLEY RD	North Desert	NA	Barstow	Yes	60	4	Divided Highway	14,100	C or Better
5	IRWIN RD NORTH OF OLD HWY 58	North Desert	NA	Barstow		55	2	Controlled/Limited Access Collector	1,600	C or Better
6	GHOST TOWN RD NORTH OF YERMO RD	North Desert	Yermo	NA		55	2	Major Arterial/Major Highway	1,800	C or Better
7	YERMO RD WEST OF CALICO RD	North Desert	Yermo	NA		55	2	Major Arterial/Major Highway	1,900	C or Better
8	DAGGETT YERMO RD NORTH OF SANTA FE ST	North Desert	Daggett	NA		55	2	Major Arterial/Major Highway	2,900	C or Better
9	NATIONAL TRAILS HWY EAST OF DAGGETT YERMO RD	North Desert	Daggett	NA		40	2	Major Arterial/Major Highway	800	C or Better
10	NATIONAL TRAILS HWY EAST OF HINKLEY RD	North Desert	NA	Barstow		55	2	Major Arterial/Major Highway	6,400	C or Better
11	WILD ROAD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	400	C or Better
12	INDIAN TRAIL SOUTH OF WILD RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	400	C or Better
13	VISTA RD EAST OF MOUNTAIN RD	North Desert	Helendale	NA		50	2	Controlled/Limited Access Collector	8,900	C or Better
14	SHADOW MOUNTAIN RD WEST OF SILVER LAKES PKWY	North Desert	Helendale	NA		55	2	Controlled/Limited Access Collector	6,000	C or Better
15	NATIONAL TRAILS HIGHWAY SOUTH OF VISTA - CPC REQ	North Desert	Helendale	NA		55	2	Divided Highway	7,300	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
16	STODDARD WELLS EAST OF CENTRAL RD	North Desert	NA	Apple Valley		40	2	Controlled/Limited Access Collector	1,500	C or Better
17	DALE EVANS PKWY	North Desert	NA	Apple Valley		55	4	Major Arterial/Major Highway	5,500	C or Better
18	NATIONAL TRAILS HWY NORTH OF POLISH LANE -CPC REQ	North Desert	Oro Grande	NA		45	4	Divided Highway	7,900	C or Better
19	NATIONAL TRAILS HIGHWAY NORTH OF 1ST -CPC REQUEST	North Desert	Oro Grande	NA		45	2	Major Arterial/Major Highway	9,400	C or Better
20	EL MIRAGE RD WEST OF LINSON ST	North Desert	NA	NA		55	4	Major Arterial/Major Highway	14,500	C or Better
21	SHEEP CREEK RD SOUTH OF EL MIRAGE RD	North Desert	NA	NA		55	2	Major Arterial/Major Highway	4,500	C or Better
22	PALMDALE RD WEST OF SHEEP CREEK RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	4	Major Arterial/Major Highway	11,700	C or Better
23	PALMDALE RD WEST OF CAUGHLIN RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	4	Major Arterial/Major Highway	16,600	C or Better
24	STATE HWY 138 WEST OF OASIS RD	North Desert	Phelan/Pinon Hills	NA	Yes	55	2	Major Arterial/Major Highway	24,400	D
25	PHELAN RD EAST OF SILVER ROCK RD	North Desert	Phelan/Pinon Hills	NA		55	2	Major Arterial/Major Highway	8,500	C or Better
26	BEEKLEY RD NORTH OF PHELAN RD - CPC REQUEST	North Desert	Phelan/Pinon Hills	NA		45	2	Controlled/Limited Access Collector	300	C or Better
27	JOHNSON RD NORTH OF SMOKE TREE RD	North Desert	Phelan/Pinon Hills	NA		55	2	Major Arterial/Major Highway	3,900	C or Better
28	PHELAN RD EAST OF JOHNSON RD	North Desert	Phelan/Pinon Hills	NA		55	6	Major Arterial/Major Highway	17,600	C or Better
29	SUNNYSLOPE EAST OF SH 138 - CPC REQUEST	North Desert	Phelan/Pinon Hills	NA		25	2	Controlled/Limited Access Collector	100	C or Better
30	SHEEP CREEK RD SOUTH OF NIELSON RD	North Desert	Phelan/Pinon Hills	NA		40	2	Major Arterial/Major Highway	5,200	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
31	STATE HWY 138 NORTH OF ANGELES CREST HWY	North Desert	Phelan/Pinon Hills	NA	Yes	55	4	Major Arterial/Major Highway	15,800	C or Better
32	BALDY MESA ROAD SOUTH MESQUITE	North Desert	Phelan/Pinon Hills	NA		25	2	Controlled/Limited Access Collector	100	C or Better
33	CALIENTE RD NORTH OF RANCHERO	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	6,500	C or Better
34	LONE PINE CANYON RD SOUTH OF ANGELES CREST HWY	Mountain	NA	NA		35	2	Mountain Secondary Highway	3,500	C or Better
35	LYTLE CREEK CANYON RD SOUTH OF SYCAMORE DR	Mountain	Lytle Creek	NA		15	2	Mountain Secondary Highway	900	C or Better
36	CAJON BLVD NORTH OF KENWOOD AVE	Mountain	NA	NA		55	2	Mountain Secondary Highway	7,700	D
37	GLEN HELEN PKWY NORTH OF I-215	Valley	NA	NA		40	4	Controlled/Limited Access Collector	6,900	C or Better
38	LYTLE CREEK RD NORTH OF DEVORE RD	Mountain	NA	Rialto		45	2	Mountain Secondary Highway	3,300	C or Better
39	MOUNTAIN AVE WEST OF EUCLID AVE	Valley	San Antonio Heights	Upland		45	2	Major Arterial/Major Highway	2,400	C or Better
40	MOUNTAIN AVE NORTH OF 25TH ST	Valley	San Antonio Heights	Upland		40	2	Major Arterial/Major Highway	1,000	C or Better
41	EUCLID AVE NORTH OF 25TH ST	Valley	San Antonio Heights	Upland		35	2	Divided Highway	1,900	C or Better
42	ARROW RTE WEST OF CALABASH AVE	Valley	NA	Fontana		45	4	Major Arterial/Major Highway	16,200	D
43	CHERRY AVE NORTH OF MERRILL AVE	Valley	NA	Fontana		40	6	Divided Highway	42,000	C or Better
44	MERRILL AVE EAST OF BEECH AVE	Valley	NA	Fontana		40	4	Controlled/Limited Access Collector	11,700	D
45	SAN BERNARDINO AVE WEST OF CHERRY AVE	Valley	NA	Fontana		55	6	Divided Highway	21,800	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
46	VALLEY BLVD EAST OF COMMERCE DR	Valley	NA	Fontana		50	6	Major Arterial/Major Highway	26,900	C or Better
47	SAN BERNARDINO AVE EAST OF BEECH AVE	Valley	NA	Fontana		40	4	Divided Highway	10,200	C or Better
48	SAN BERNARDINO AVE WEST OF CEDAR AVE	Valley	Bloomington	Rialto		40	4	Controlled/Limited Access Collector	9,800	C or Better
49	VALLEY BLVD WEST OF LOCUST AVE	Valley	Bloomington	Rialto		45	4	Major Arterial/Major Highway	19,900	C or Better
50	CEDAR AVE NORTH OF BLOOMINGTON AVE	Valley	Bloomington	Rialto		40	4	Major Arterial/Major Highway	30,000	D
51	VALLEY BLVD EAST OF CEDAR AVE	Valley	Bloomington	Rialto		35	4	Major Arterial/Major Highway	19,400	D
52	CEDAR AVE NORTH OF SLOVER AVE	Valley	Bloomington	Rialto		40	6	Major Arterial/Major Highway	41,200	D
53	SLOVER AVE EAST OF LOCUST AVE	Valley	Bloomington	Rialto		50	4	Major Arterial/Major Highway	9,400	C or Better
54	SANTA ANA AV WEST OF LINDEN AVE	Valley	Bloomington	Rialto		40	4	Controlled/Limited Access Collector	9,000	C or Better
55	JURUPA AVE EAST OF LOCUST AVE	Valley	Bloomington	Rialto		40	4	Major Arterial/Major Highway	9,200	C or Better
56	JURUPA AVE WEST OF SPRUCE AVE	Valley	Bloomington	Rialto		40	4	Major Arterial/Major Highway	6,300	C or Better
57	CEDAR AVE SOUTH OF 11TH ST	Valley	Bloomington	Rialto		45	4	Major Arterial/Major Highway	36,000	D
58	BARSTOW RD NORTH OF LUCERNE VALLEY CUTOFF	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	2,900	C or Better
59	BARSTOW RD NORTH OF NORTHSIDE RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	3,400	C or Better
60	NORTHSIDE RD EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA		45	2	Controlled/Limited Access Collector	700	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
61	BARSTOW RD NORTH OF RABBIT SPRINGS RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	3,400	C or Better
62	RABBIT SPRINGS RD EAST OF STATE HWY 18	North Desert	Lucerne Valley	NA		55	2	Controlled/Limited Access Collector	2,900	C or Better
63	RABBIT SPRINGS RD EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA		55	2	Controlled/Limited Access Collector	3,800	C or Better
64	STATE HWY 18 WEST OF HIGH RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	13,600	C or Better
65	OLD WOMAN SPRINGS RD WEST OF MIDWAY AVE	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	6,400	C or Better
66	OLD WOMAN SPRINGS RD EAST OF CAMP ROCK RD	North Desert	Lucerne Valley	NA	Yes	55	2	Major Arterial/Major Highway	6,800	C or Better
67	STATE HWY 18 EAST OF BARSTOW RD	North Desert	Lucerne Valley	NA	Yes	35	2	Major Arterial/Major Highway	4,000	C or Better
68	CAMP ROCK RD SOUTH OF OLD WOMAN SPRINGS RD	North Desert	Lucerne Valley	NA		45	2	Major Arterial/Major Highway	800	C or Better
69	STATE HIGHWAY 18 NORTH OF SHORE DR	Mountain	Bear Valley	NA		35	2	Mountain Major Highway	3,400	C or Better
70	SHAY RD EAST OF WIEBE RD	Mountain	Bear Valley	NA		35	2	Mountain Secondary Highway	2,200	C or Better
71	GREENSPOT BLVD SOUTH OF CLARK LN	Mountain	Bear Valley	NA		55	2	Mountain Major Highway	7,300	C or Better
72	SHORE DR EAST OF HOLDEN AVE	Mountain	Bear Valley	NA		40	2	Mountain Major Highway	6,600	C or Better
73	STANFIELD CUTOFF SOUTH OF N. SHORE DRIVE	Mountain	Bear Valley	NA		35	2	Mountain Major Highway	7,000	C or Better
74	SHORE DR NORTH OF STATE HIGHWAY 18	Mountain	Bear Valley	NA		45	2	Mountain Major Highway	1,600	C or Better
75	BIG BEAR BLVD EAST OF SHORE DR	Mountain	Bear Valley	NA		40	2	Mountain Major Highway	5,400	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
76	STATE HIGHWAY 18 WEST OF SHORE DR	Mountain	Bear Valley	NA		40	3	Mountain Major Highway	5,700	C or Better
77	STATE HIGHWAY 18 WEST OF GREEN VALLEY LAKE RD	Mountain	Hilltop	NA		40	2	Mountain Major Highway	6,800	C or Better
78	STATE HIGHWAY 18 EAST OF HILLTOP BLVD	Mountain	Hilltop	NA		35	2	Mountain Major Highway	10,000	D
79	STATE ROUTE 18 NORTH OF HILLTOP BLVD	Mountain	Hilltop	NA		40	2	Mountain Major Highway	6,500	C or Better
80	CITY CREEK RD WEST OF LIVE OAK DR	Mountain	Hilltop	NA		55	2	Mountain Major Highway	10,800	C or Better
81	KUFFEL CANYON RD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		20	2	Mountain Secondary Highway	3,000	C or Better
82	RIM OF THE WORLD HWY WEST OF KUFFEL CANYON RD	Mountain	Lake Arrowhead	NA		45	2	Mountain Major Highway	5,500	C or Better
83	ARROWHEAD VILLA ROAD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		30	2	Controlled/Limited Access Collector	1,200	C or Better
84	COTTAGE GROVE RD NORTH OF SH 18	Mountain	Lake Arrowhead	NA		35	2	Mountain Major Highway	1,000	C or Better
85	STATE HWY 173 WEST OF DOLLY VARDEN DR	Mountain	Lake Arrowhead	NA		20	2	Mountain Major Highway	4,300	C or Better
86	STATE HWY 173 EAST OF LAKES EDGE RD	Mountain	Lake Arrowhead	NA		20	2	Mountain Secondary Highway	6,900	E
87	STATE HWY 173 S OF MOUNTAINS HOSPITAL ACCESS RD	Mountain	Lake Arrowhead	NA		25	2	Mountain Major Highway	6,000	C or Better
88	STATE HIGHWAY 173 NORTH OF BAY RD	Mountain	Lake Arrowhead	NA		25	2	Mountain Major Highway	800	C or Better
89	GRASS VALLEY RD SOUTH OF PENINSULA DR	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	3,900	D

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
90	NORTH BAY ROAD NORTH OF SH 189	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	7,200	E
91	DALEY CANYON RD SOUTH OF STATE HWY 189	Mountain	Lake Arrowhead	NA		30	2	Mountain Major Highway	8,500	D
92	BEAR SPRINGS RD SOUTH OF STATE HWY 189	Mountain	Lake Arrowhead	NA		35	2	Controlled/Limited Access Collector	900	C or Better
93	STATE HWY 189 WEST OF BEAR SPRINGS RD	Mountain	Lake Arrowhead	NA		35	2	Mountain Secondary Highway	5,100	D
94	NORTH RD WEST OF STATE HIGHWAY 189	Mountain	Crest Forest	NA		30	2	Mountain Secondary Highway	1,000	C or Better
95	STATE HIGHWAY 189 WEST OF PINECREST RD	Mountain	Crest Forest	NA		35	2	Mountain Secondary Highway	5,500	D
96	STATE HIGHWAY 18 EAST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		45	2	Mountain Major Highway	11,500	D
97	LAKE GREGORY DR SOUTH OF SAN MORITZ DR	Mountain	Crest Forest	NA		40	2	Mountain Major Highway	7,800	C or Better
98	SAN MORITZ DR EAST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		35	2	Mountain Secondary Highway	1,600	C or Better
99	LAKE DR WEST OF LAKE GREGORY DR	Mountain	Crest Forest	NA		25	2	Mountain Secondary Highway	11,900	F
100	STATE HIGHWAY 18 EAST OF STATE HIGHWAY 138	Mountain	Crest Forest	NA		55	2	Mountain Major Highway	11,900	C or Better
101	STATE HIGHWAY 18 WEST OF STATE HIGHWAY 138	Mountain	Crest Forest	NA		55	4	Mountain Major Highway	22,300	C or Better
102	STATE HIGHWAY 138 SOUTH OF VISTA LN	Mountain	Crest Forest	NA		30	2	Mountain Major Highway	4,500	C or Better
103	STATE HIGHWAY 138 EAST OF OLD MILL RD	Mountain	Crest Forest	NA		30	2	Mountain Major Highway	5,400	C or Better
104	CREST FOREST DR WEST OF PONDEROSA DR	Mountain	Crest Forest	NA		25	2	Mountain Secondary Highway	700	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
105	3RD STREET WEST OF CAJON - CPC REQUEST	Valley	Muscoy	San Bernardino		25	2	Controlled/Limited Access Collector	2,500	C or Better
106	OGDEN ST EAST OF BRONSON ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	2,000	C or Better
107	DUFFY ST SOUTH OF OGDEN ST	Valley	Muscoy	San Bernardino		25	2	Controlled/Limited Access Collector	1,200	C or Better
108	MACY STREET SOUTH OF OGDEN - CPC REQUEST	Valley	Muscoy	San Bernardino		35	2	Major Arterial/Major Highway	3,700	C or Better
109	STATE STREET SOUTH OF CAJON - CPC REQUEST	Valley	NA	San Bernardino		40	4	Major Arterial/Major Highway	18,600	C or Better
110	JUNE ST SOUTH OF OGDEN ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	1,200	C or Better
111	BLAKE ST WEST OF DUFFY ST	Valley	Muscoy	San Bernardino		30	2	Controlled/Limited Access Collector	1,800	C or Better
112	DARBY ST WEST OF MACY ST	Valley	Muscoy	San Bernardino		35	2	Controlled/Limited Access Collector	7,800	C or Better
113	STATE ST SOUTH OF BLAKE ST	Valley	Muscoy	San Bernardino		40	2	Major Arterial/Major Highway	20,700	D
114	MACY ST SOUTH OF DARBY ST	Valley	Muscoy	San Bernardino		35	2	Major Arterial/Major Highway	11,100	C or Better
115	CALIFORNIA ST NORTH OF HIGHLAND AVE	Valley	Muscoy	San Bernardino		40	2	Controlled/Limited Access Collector	7,300	E
116	OLIVE ST WEST OF RANCHO AVE	Valley	NA	Colton		35	4	Controlled/Limited Access Collector	6,400	C or Better
117	ALABAMA STREET SOUTH OF SAN BERNARDINO	Valley	NA	NA		40	5	Major Arterial/Major Highway	22,200	C or Better
118	MENTONE AVE WEST OF OPAL AVE	Valley	Mentone	Redlands	Yes	40	2	Major Arterial/Major Highway	23,500	F
119	OPAL AVE SOUTH OF NICE AVE	Valley	Mentone	Redlands		35	2	Controlled/Limited Access Collector	1,700	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
120	CRAFTON AVE SOUTH OF COLTON AVE	Valley	Mentone	Redlands		40	2	Major Arterial/Major Highway	9,100	C or Better
121	5TH AVE EAST OF WALNUT ST	Valley	Mentone	Redlands		45	4	Controlled/Limited Access Collector	12,300	C or Better
122	SAND CANYON EAST OF CRAFTON	Valley	Mentone	Redlands		50	4	Major Arterial/Major Highway	17,300	C or Better
123	GARNET STREET AT BRIDGE	Valley	Mentone	Redlands		50	4	Controlled/Limited Access Collector	3,600	C or Better
124	MILL CREEK RD EAST OF GARNET AVE	Valley	Mentone	Redlands	Yes	50	2	Major Arterial/Major Highway	14,500	C or Better
125	OAK GLEN RD NORTH OF CHAGALL RD	Valley	Oak Glen	NA		50	2	Controlled/Limited Access Collector	2,700	C or Better
126	OAK GLEN RD SOUTH OF PISGAH PEAK RD	Mountain	Oak Glen	NA		45	2	Controlled/Limited Access Collector	2,700	C or Better
127	OLD WOMAN SPRINGS RD WEST OF GRAND VIEW RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	6,800	C or Better
128	OLD WOMAN SPRINGS RD NORTH OF RECHE RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	7,600	C or Better
129	RECHE RD WEST OF BELFIELD BLVD	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,400	C or Better
130	OLD WOMAN SPRINGS RD NORTH OF PIPES CANYON RD	East Desert	Homestead Valley	NA	Yes	55	2	Major Arterial/Major Highway	9,300	C or Better
131	PIPES CANYON RD EAST OF PIONEERTOWN RD	East Desert	Pioneertown	NA		55	2	Major Arterial/Major Highway	500	C or Better
132	PIONEERTOWN RD SOUTH OF PIPES CANYON RD	East Desert	Pioneertown	NA		55	2	Major Arterial/Major Highway	900	C or Better
133	TWENTYNINE PALMS HWY NOTRH OF HIGHLAND RD	East Desert	Morongo Valley	NA	Yes	60	6	Major Arterial/Major Highway	31,400	C or Better
134	TWENTYNINE PALMS HWY NORTH OF WEST DR	East Desert	Morongo Valley	NA	Yes	50	6	Major Arterial/Major Highway	32,400	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment

Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
135	STATE HWY 62 SOUTH OF SENILS DR	East Desert	Morongo Valley	NA	Yes	50	6	Major Arterial/Major Highway	33,300	C or Better
136	ABERDEEN DR WEST OF AVALON AVE	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,100	C or Better
137	AVALON AVE NORTH OF ABERDEEN DR	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	1,900	C or Better
138	ABERDEEN DR EAST OF YUCCA MESA RD	East Desert	Homestead Valley	NA		55	2	Major Arterial/Major Highway	2,100	C or Better
139	BORDER AVE NORTH OF ABERDEEN DR	East Desert	Joshua Tree	NA		55	2	Major Arterial/Major Highway	2,100	C or Better
140	YUCCA MESA RD NORTH OF BARRON DR	East Desert	Joshua Tree	NA		55	4	Major Arterial/Major Highway	5,500	C or Better
141	LA CONTENTA RD NORTH OF ALTA LOMA RD	East Desert	Joshua Tree	NA		55	2	Controlled/Limited Access Collector	2,300	C or Better
142	ALTA LOMA RD WEST OF OLYMPIC RD	East Desert	Joshua Tree	NA		55	2	Controlled/Limited Access Collector	6,500	C or Better
143	TWENTYNINE PALMS HIGHWAY WEST OF SUNNY VISTA RD	East Desert	Joshua Tree	NA	Yes	60	4	Major Arterial/Major Highway	23,000	C or Better
144	TWENTYNINE PALMS HIGHWAY WEST OF RICE AVE	East Desert	Joshua Tree	NA	Yes	60	4	Major Arterial/Major Highway	20,300	C or Better
145	QUAIL SPRINGS RD SOUTH OF ALTA LOMA DR	East Desert	Joshua Tree	NA		55	2	Major Arterial/Major Highway	2,400	C or Better
146	TWENTYNINE PALMS HWY EAST OF GODWIN RD	East Desert	NA	NA	Yes	55	2	Major Arterial/Major Highway	900	C or Better
147	AMBOY RD EAST OF GODWIN RD	East Desert	NA	NA		55	2	Major Arterial/Major Highway	3,800	C or Better
148	AMBOY RD SOUTH OF NATIONAL TRAILS HWY	East Desert	NA	NA		55	2	Major Arterial/Major Highway	1,100	C or Better
149	NATIONAL TRAILS HWY EAST OF AMBOY RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	2,100	C or Better

Table 9 Future (Year 2040) Roadway Segment Level of Service Assessment										
Segment ID	Roadway	Region	CPA	SOI	Caltrans Facility?	Speed	Future Number of Lanes	Facility Type	ADT	LOS
150	ESSEX RD SOUTH OF I-40	North Desert	NA	NA		50	2	Controlled/Limited Access Collector	100	C or Better
151	GOFFS ROAD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	500	C or Better
152	NIPTON RD WEST OF MORNING STAR MINE RD	North Desert	NA	NA		55	2	Controlled/Limited Access Collector	7,100	C or Better
153	KINGSTON RD SOUTH OF MESQUITE VALLEY RD	North Desert	NA	NA		45	2	Controlled/Limited Access Collector	100	C or Better

6.0 Vehicle Miles Traveled (VMT) Analysis

SB 743, signed by the Governor in 2013, is changing the way transportation impacts are identified. Specifically, the legislation has directed the Office of Planning and Research (OPR) to look at different metrics for identifying transportation as a CEQA impact. The Final OPR guidelines were released in November 2017 and has identified vehicle miles of travel (VMT) as the preferred metric moving forward. The Natural Resources Agency is completing the rule making process to modify the CEQA guidelines, which is expected later this year. Given the timing of this implementation with the County Policy Plan, it is prudent to address VMT and develop draft significance criteria to evaluate the County Policy Plan related to VMT.

This chapter is particularly important as VMT assessment is the basis of identifying CEQA impacts associated with transportation. The analyses provided in previous chapters focused on LOS and consistency with requirements associated with the County Policy Plan.

6.1 VMT Criteria

The San Bernardino County Policy Plan evaluates VMT based on project-generated VMT and Cumulative (or the project's effect on) VMT. VMT measurements are normalized depending on the project type, as shown in **Table 10**. Please note that VMT is reported for residential uses and employment uses as part of this assessment.

Table 10 Recommended VMT Measurements by Project Type		
Project Type	Appropriate Trip Purpose Average Trip Length	VMT Normalization (VMT per __)
Residential	Home-Based Work (Production) + Home-Based Other (Production)	VMT / Household
Office/Industrial	Home-Based Work (Attraction) + Truck (Production & Attraction)	VMT / Employee

Table 10 Recommended VMT Measurements by Project Type		
Project Type	Appropriate Trip Purpose Average Trip Length	VMT Normalization (VMT per __)
Regional Retail	Home-Based Work (Attraction) + Home-Based Other (Attraction) + Non-Home Based (Attraction) + Truck (Production & Attraction)	VMT / Employee
Government/Institutional	Calculate based on whether the project contains office or customer-serving components	
Community College (without on-campus housing)	Home-Based Work (Attraction) + Home-Based Other (Attraction) + Non-Home Based (Attraction) + Truck (Production & Attraction)	VMT / Employee and Student
University (with on-campus housing)	Home-Based Work (Production & Attraction) + Home-Based Other (Production & Attraction) + Non-Home Based (Production & Attraction) + Truck (Production & Attraction)	VMT / Service Population (Population plus Employment) and Students ¹

Note: 1. Employees, population, and students should not overlap since they are exclusive variables.

6.2 Project VMT Estimates

To estimate VMT for the project, we utilized the SBTAM for both the base year and the future year to estimate VMT by trip purpose for both trip attractions and for trip productions.

To estimate trip length, we utilized the SBTAM base year and future year models to extract trip length by trip purpose for the traffic analysis zones representing the unincorporated County area. Specifically, we used the model's congested network assignment skim matrices to derive trip length by trip purpose (e.g. home base work (HBW), home base other (HBO), and non-home based (NHB)) for both trips that are attractions and trips that are productions. It should be noted that, approaching trip length in this way, provides a full-accounting methodology for VMT estimation (e.g. it incorporates the entire length of the trip).

The average trip lengths were multiplied by the number of trips the model estimated from each land use by traffic analysis zone (TAZ) and those trips (by trip purpose) were multiplied by the trip length information to identify total VMT (e.g. trip generation multiplied by trip length) by TAZ. Fehr & Peers then aggregated the VMT information by TAZ into geographies needed for assessment. Specifically, we aggregated the data into the four key county regions and separated the information into both incorporated areas and unincorporated areas for assessment.

These VMT estimates are presented below. Please note that these VMT estimates reflect full accounting methodologies, where trips are tracked from their origins to their ultimate destinations and any trip having one trip end in the study area is accounted for in the estimate. However, the VMT estimates utilized for greenhouse gas assessment or air quality assessment typically rely on the ½ accounting method; or where trips where only one trip end occurs in the County and the other trip end occurs outside of the County, then only ½ of the VMT for the trip is assigned to the County. As such, the VMT estimates for other EIR assessment chapters will likely differ than the values noted below.

6.2.1 Existing VMT

To estimate the existing VMT, Fehr & Peers had to estimate VMT from both the Base Year (2012) and future Year (2040) horizons in the SBTAM Model. The VMT per service population was estimated for both of these horizons and then linear interpolation was utilized to estimate the existing (2016, consistent with our traffic count collection) VMT for the project. These VMT estimates are summarized below:

Table 11 Project-Generated VMT Summary				
VMT		2012 Model Base Year	Interpolated 2016	2040 Model Future Year

Residential VMT per Person

Countywide	Total	14.8	15.2	17.7
	Unincorporated	20.1	20.5	22.8
	Incorporated	13.9	14.3	16.8
North Desert	Unincorporated	25.2	25.7	28.4
	Incorporated	14.8	15.0	16.1
East Desert	Unincorporated	23.5	23.5	23.3
	Incorporated	13.5	13.0	9.8
Mountain	Unincorporated	20.8	21.6	26.5
	Incorporated	9.8	10.4	14.2
Valley	Unincorporated	13.9	14.1	15.4
	Incorporated	13.7	14.2	17.2

Employment VMT per Person

Countywide	Total	17.9	18.0	18.3
	Unincorporated	24.3	24.1	22.7
	Incorporated	17.2	17.3	17.8
North Desert	Unincorporated	36.2	35.3	29.9
	Incorporated	14.9	15.2	16.8
East Desert	Unincorporated	17.8	18.4	21.9

Table 11 Project-Generated VMT Summary				
VMT		2012 Model Base Year	Interpolated 2016	2040 Model Future Year
Mountain	Incorporated	15.1	15.9	20.9
	Unincorporated	21.6	21.7	22.3
	Incorporated	13.5	13.0	10.1
Valley	Unincorporated	19.6	19.5	18.8
	Incorporated	17.6	17.7	18.0

Please note that the numbers in Table 11 reflect both the existing development plus proposed new development in the region. However, based on the County's guidelines, the threshold for new development is VMT per person/employee that is 4% below the existing (2016) Countywide Unincorporated VMT noted above; or 19.7 VMT per person for residential development and 23.1 VMT per person for employment.

To estimate the VMT generated by just the new development, Fehr & Peers looked at the net change in VMT due to new development and compared that to the net change in population or employment. The results are summarized below and are compared back to the acceptability thresholds noted above. It should be noted that the VMT estimates presented in Table 12 are directly from the travel demand forecasting model and do not account for additional reductions that would occur from TDM strategies (which could potentially reduce VMT another 4% from the modeled values assuming full implementation and effectiveness of the program).

Table 12 New Development Generated VMT Summary			
VMT		VMT Target (4% Below Unincorporated Countywide Average)	New Development VMT (Estimated by the Change in Total VMT / Change in Population or Employment)
<i>Residential VMT per Person</i>			
Countywide	Unincorporated	19.7	30.7
North Desert	Unincorporated	19.7	37.4
East Desert	Unincorporated	19.7	22.2
Mountain	Unincorporated	19.7	43.1
Valley	Unincorporated	19.7	20.0
<i>Employment VMT per Person</i>			
Countywide	Unincorporated	23.1	19.2
North Desert	Unincorporated	23.1	18.5
East Desert	Unincorporated	23.1	86.4
Mountain	Unincorporated	23.1	34.7
Valley	Unincorporated	23.1	17.6

As shown above, without TDM mitigation, all residential development in the County will exceed the 4% below existing countywide average for all subregions of the County. However, if the County were to achieve a 4% reduction in VMT, then residential development in the Valley region would likely meet the City's reduction target goals (where the other regions of the County would not).

Employment uses in the County generate less commute-based VMT overall, and in the North Desert and Valley regions. However, the results indicate that the East Desert and Mountain region VMT would not achieve the desired VMT reduction target (4% below existing) identified by the County.

6.2.2 Project's Effect on VMT

The project generated VMT summarized above provides a summary of the potential project-generated VMT and how it relates to potential impacts. However, project-generated VMT provides only one part of the VMT "story". The other part is understanding the project's effect on VMT – e.g. is the VMT changes associated with the County Policy Plan correlate to a positive or negative effect on the environment.

To complete this assessment, Fehr & Peers compared the County Policy Plan VMT estimates to VMT estimates that are consistent with the RTP/SCS utilizing the SBTAM travel demand forecasting model for the 2040 analysis horizon. Please note that the results are aggregated into the total geographic area and are not refined by incorporated or unincorporated areas as the project effect on VMT relates to the entire sub-region of the County and the County as a whole.

Table 13 Cumulative Effect on VMT			
VMT Per Service Population (Includes Incorporated and Unincorporated Areas of the County)	2040 RTP/SCS	2040 General Plan	Difference
North Desert	37.1	35.5	-4%
East Desert	37.3	34.1	-9%
Mountain	44.0	45.1	+3%
Valley	33.1	31.1	-6%
Countywide Total:	34.4	32.5	-6%

As shown above, implementation of the County Policy Plan would result in a VMT per service population reduction for the North Desert, East Desert, and Valley regions. Only the Mountain region would experience an increase in VMT per service population relative to the RTP/SCS.

Additionally, from a countywide perspective, the County Policy Plan would reduce VMT per service population by 6% in total compared to the anticipated RTP/SCS.

7.0 Impact Analysis and Mitigation Measures

Based on the County's Draft traffic impact study guidelines and the Appendix G Environmental Checklist from the CEQA guidelines listed below, this study uses the following criteria to determine if the project causes a significant impact.

According to the Appendix G Environmental Checklist, a project may have a significant impact related to transportation and traffic if the project would:

- a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?
- b. Conflict with an applicable congestion management program, including, but not limited to, level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?
 - As previously described, the County Policy Plan has established LOS performance standards that are stricter than those identified in the CMP. As such, any potential CMP related impacts at study facilities would be identified as part of the local intersection assessment evaluated above.
- c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

- d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- e. Result in inadequate emergency access?
- f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

As previously discussed, the Natural Resources Agency is currently completing the rulemaking process to eliminate level of service as a CEQA threshold and replace it with VMT. The County guidelines reflect this change and utilizes VMT for impact assessment. The guidelines also identify needed level of service analysis for the County Policy Plan consistency findings related to the performance of the transportation system. Since the resources agency is still completing the rule making process under SB 743 to update the CEQA guidelines, this traffic study still treats general plan consistency impacts related to level of service assessment as a CEQA impact – a conservative approach for the purposes of this assessment

7.1 Traffic Operations Thresholds

As described in Chapter 3.0, the County Policy Plan and the County Traffic Impact Analysis Guidelines and relating to criterion (a) above, the following guidance related to impacts to transportation facilities as the project would conflict with applicable policies related to LOS.

7.1.1 Intersection Impacts

Consistent with the acceptable LOS for the County sub-regions (North Desert, East Desert, Valley, and Mountain regions) as described in the proposed County Policy Plan, the proposed County Policy Plan buildout impacted:

- Any signalized study intersection in the Valley or Mountain regions operating at an acceptable LOS D or better with existing traffic in which the addition of buildout traffic caused the intersection to degrade to an LOS E or F;
- Any signalized study intersection in the North Desert or East Desert regions operating at an LOS C or better with existing traffic in which the addition of buildout traffic caused the intersection to degrade to an LOS D, E, or F;
- Any signalized study intersection in the Valley or Mountain regions operating at LOS E or F with existing traffic where the addition of buildout traffic increased delay by 5.0 or more seconds; or

- Any signalized study intersection in the North Desert or East Desert regions that is operating at LOS D, E, or F with existing traffic where the addition of buildout traffic where the project increased delay by 5.0 or more seconds.

Consistent with the acceptable LOS for the County sub-regions as described in the proposed County Policy Plan, the proposed County Policy Plan buildout impacted an unsignalized intersection if the following points a) or both sections b) and c) occurred:

- a) The addition of project related traffic caused the intersection to degrade from an LOS D or better to a LOS E or worse in the Valley and Mountain regions or from an LOS C or better to an LOS D or worse in the North Desert and East Desert regions.

OR

- b) The project added 5.0 seconds or more of delay to an intersection that is already projected to operate without project traffic at an LOS E or F in the Valley and Mountain regions or at an LOS D, E, or F in the North Desert or East Desert region (per Section 10.5.2 b))

AND

- c) One or both of the following conditions are met:
 - 1) The project added ten (10) or more trips to any minor street approach
 - 2) The intersection met the peak hour traffic signal warrant after the addition of project traffic (per Section 10.5.2 c of the traffic study guidelines)).

7.1.2 Roadway Segments

Consistent with the acceptable LOS for the North Desert, East Desert, Valley, and Mountain regions as described in the proposed County Policy Plan, the proposed County Policy Plan impacted:

- Any study roadway segment in the Valley or Mountain regions that was operating at an LOS D or better in which the addition of buildout traffic caused the segment to degrade to an LOS E or F
- Any study roadway segment in the North Desert or East Desert regions that was operating at an LOS C or better without in which the addition of buildout traffic caused the segment to degrade to an LOS D, E, or F

- Any roadway segment that operated unacceptably in the existing scenario where the buildout scenario added traffic in excess of 5% of the roadway capacity (e.g. a volume-to-capacity ratio increase of 0.05)

7.2 Transit, Bicycle, and Pedestrian Facility Impacts

Based on the County's guidelines and the CEQA checklist item (f) listed above, a significant impact would occur to transit, bicycle, and/or pedestrian facilities if the project would:

- Disrupt or interfere with existing or planned public transit services or facilities
- Create an inconsistency with policies concerning transit systems set forth in an applicable General Plan or other applicable adopted policy document
- Disrupt or interfere with existing or planned bicycle/pedestrian facilities
- Result in unsafe conditions for pedestrians, including unsafe pedestrian/bicycle or pedestrian/vehicle conflicts
- Result in unsafe conditions for bicycles, including unsafe bicycle/pedestrian or bicycle/vehicle conflicts
- Create an inconsistency with policies related to bicycle or pedestrian systems set forth in an applicable General Plan, Bicycle Plan, or other applicable adopted policy document

7.3 Impacts and Mitigation Measures

7.3.1 Traffic Increases

Impact 1 ***The addition of project traffic to the roadway network and intersections would degrade operations at study locations to an unacceptable operating level as identified in the significance criteria.***

Key intersections and roadway segments identified as operating at an unacceptable level are noted below along with the improvements or County Policy Plan guidance that are required for the facilities to operate at an acceptable level. These impacts are considered **significant** and are subject to mitigation.

Intersections:

- End Ave / Francis Ave – Install traffic signal¹
- Cherry Ave / San Bernardino Ave – Lane additions needed consisting of adding a second left-turn lane to all approaches
- Live Oak Ave / Arrow Route – Install traffic signal¹
- Alder Ave / Santa Ana Ave – Install traffic signal¹
- Cedar Ave / Slover Ave – Lane additions needed consisting of adding a second eastbound and northbound left-turn lane and an additional southbound through lane (with receiving lane)
- Sheep Creek Rd / Palmdale Rd – Install traffic signal¹
- Caughlin Rd / Palmdale Rd – Install traffic signal¹

Roadway Segments:

- SR 138 west of Oasis Rd – Modify the Roadway Network map to show this as a divided facility or exempt this location from the County's LOS standard
- SR 173 east of Lakes Edge Rd – Modify the Roadway Network map to show this as a Mountain Major roadway or exempt this location from the County's LOS standard
- North Bay Rd north of SR-189 – Modify the Roadway Network map to show this as a Mountain Major roadway
- Lake Dr west of Lake Gregory Dr – Modify the Roadway Network map to show this as a Mountain Major roadway

¹ This analysis is intended to examine the general correlation between the planned level of future development and the need to install new traffic signals. It estimates future development-generated traffic compared against a sub-set of the standard traffic signal warrants recommended in the Federal Highway Administration *Manual on Uniform Traffic Control Devices* and associated State guidelines. This analysis should not serve as the only basis for deciding whether and when to install a signal. To reach such a decision, the full set of warrants should be investigated based on field-measured, rather than forecast, traffic data and a thorough study of traffic and roadway conditions by an experienced engineer. Furthermore, the decision to install a signal should not be based solely upon the warrants, since the installation of signals can lead to certain types of collisions. The responsible state or local agency should undertake regular monitoring of actual traffic conditions and accident data, and timely re-evaluation of the full set of warrants in order to prioritize and program intersections for signalization.

- California St north of Highland Ave – Modify the Roadway Network map to show this as a Major Arterial roadway or exempt this location from the County’s LOS standard
- Mentone Ave west of Opal Ave – Modify the Roadway Network map to show this as a four lane Major Arterial or exempt this location from the County’s LOS standard

Mitigation 1 The County Policy Plan has numerous policies that support implementation of needed improvements by new development. These policies address fair share and phasing recommendations related to new development’s requirement to mitigate impacts, LOS policy guidance, and LOS exemptions. Implementation of these policies that include the improvements noted above would result in all the facilities operating at an acceptable level and would demonstrate consistency with the County Policy Plan. However, some of these facilities are outside of the County’s control and are operated by Caltrans. Others (like California Street) are constrained due to limited right of way along the roadway. Given that the County cannot guarantee that Caltrans will implement the modifications noted above as the owner/operator of those facilities, the impact is considered **significant and unavoidable**.

7.3.2 Congestion Management Program

As previously noted, the County LOS requirements are more stringent than those identified in the County Congestion Management Program. As such, project impacts to CMP facilities are addressed above as part of Impact 1 and no further analysis is required.

7.3.3 Air Traffic Patterns

Impact 2 *The project would not result in a change in air traffic patterns, including no significant increase in traffic levels or a change in location.*

The County Policy Plan includes several policies that maintain consistency with requires consistency with and support of airports in the County. The policy directions ensure consistency and thus the impact is considered **less-than-significant**.

Mitigation 2 Since the County Policy Plan impact is considered less-than-significant, no mitigation is required.

7.3.4 Hazards

Impact 3 *The project would not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).*

The proposed County Policy Plan would result in some changes and growth of the County's transportation network but would not increase hazards. All future roadway system improvements associated with development and redevelopment activities under the proposed County Policy Plan would be designed in accordance with the established roadway design standards. These improvements would be subject to review and future consideration by the County's engineering staff. An evaluation of the roadway alignments, intersection geometrics, and traffic control features would be needed. Roadway improvements would have to be made in accordance with the County's Circulation Plan and roadway functional design guidelines and meet design guidelines in the California Manual of Uniform Traffic Control Devices and the Caltrans Roadway Design Manual.

In addition, the draft Transportation & Mobility Element includes goals and policies to improve the safety of all users of the transportation system in the County and to implement appropriate roadway design standards. Therefore, this impact is considered ***less-than-significant***.

Mitigation 3 Since the County Policy Plan impact is considered less-than-significant, no mitigation is required.

7.3.5 Emergency Access

Impact 4 *The project would not result in inadequate emergency access.*

A review of the County Policy Plan revealed no potential internal policy inconsistencies or discrepancies related to emergency access. Implementation of the County Policy Plan would increase the amount of vehicle traffic, which would require the improvement and expansion of some of the County's roadway system to accommodate forecasts travel demand as well as maintaining acceptable traffic operations (LOS) in the County as noted above. An enhanced roadway network that accommodates forecasted travel demand would also provide adequate emergency access.

Therefore, this impact is considered ***less-than-significant***.

Mitigation 4 Since the County Policy Plan impact is considered less-than-significant, no mitigation is required.

7.3.6 Transit, Bicycle, and Pedestrian Impacts

Impact 5 ***The project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.***

The County Policy Plan incorporates future networks and policies related to supporting transit, bicycle, and pedestrians in the County. These networks are consistent with regional and local planning efforts supporting these modes of travel. Additionally, the County Policy Plan has numerous policies supporting complete streets (providing accessibility for all users of all ages and abilities) and active transportation. Given the County Policy Plan's consistency with regional efforts, this impact is considered ***less-than-significant***.

Mitigation 5 Since the County Policy Plan impact is considered less-than-significant, no mitigation is required.

7.3.7 Additional VMT Reductions

As previously noted, the County Policy Plan will affect VMT in the area. It should be noted that the VMT information presented is produced from the regional model and only accounts for the built environment variables that the regional model is sensitive to. Additional policies in the County Policy Plan supporting variables the model is not sensitive to (such as connectivity in neighborhoods, presence of bicycle and pedestrian facilities, and transportation demand management (TDM) measures) are not reflected in these estimates. As such, the following provides a summary of built environment variables that the model is either accounting for or not accounting for, and the appropriate approach for the County to consider additional VMT reductions moving forward.

The CAPCOA documentation provides a variety of information related to potential VMT reduction strategies through implementation of Transportation Demand Management (TDM) measures. Some of the referenced strategies are already accounted for through the modeling of the General Plan and some are supported through policy language of the General Plan document. Other strategies are project specific and/or would be implemented through the development code or conditioned on future development as noted previously in this assessment.

The CAPCOA documentation identifies that, in a suburban context, the maximum achievable VMT reduction is 10% unless the development includes a NEV program; in which case a 15% VMT reduction is achievable (note that both of these numbers include land use measures that are already accounted for in the travel demand forecasting for the project). However, as previously discussed, Fehr & Peers worked with the County to identify feasible TDM programs that could be implemented in the County and recognized that the additional reduction that would be achievable would be limited to approximately 4%.

As noted above, most of the other measures would be implemented on a project-by-project basis or would occur during the development code update or modifications to the design guidelines and, because those have not yet been completed, cannot be relied upon for this General Plan evaluation.



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