TRAFFIC OPERATIONS ANALYSIS

West Valley Connector Project

sbcta
San Bernardino County Transportation Authority

OmniTrans
Connecting Our Community.

April 2018

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1.0 INTRODUCTION

This Traffic Operations Analysis Report (TOA) analyzes the potential traffic impacts along the West Valley Connector (WVC) Project (the WVC Project or the proposed project). The objectives of this analysis are to describe the regulatory setting, affected environment, impacts on traffic that would result from the project, and mitigation measures that would reduce these impacts.

The San Bernardino County Transportation Authority (SBCTA), in cooperation with the cities of Pomona, Montclair, Ontario, Rancho Cucamonga, and Fontana, proposes construction of the West Valley Connector Project, a 35-mile-long Bus Rapid Transit (BRT) project that will decrease travel times and improve the existing public transit system within the corridor

In January, 2017, SBCTA entered into a cooperative agreement with Omnitrans designating SBCTA as the lead agency for the proposed WVC Project. SBCTA intends to construct the WVC, which will then be operated by Omnitrans. SBCTA has the authority to allocate Federal Transit Administration (FTA) funds; however, it does not have the ability to receive funds directly from the FTA. Omnitrans is the direct FTA grantee for the San Bernardino Valley. As a result, SBCTA and Omnitrans have developed a successful direct recipient/sub-recipient working relationship to deliver projects with FTA funds. The current relationship allows the delivery of FTA-funded projects that meet FTA requirements without duplicating staff, assuring the best use of limited public funds available. Omnitrans and SBCTA executed Memorandum of Understanding (MOU) 15-1001289 in October 2015, setting forth the roles and responsibilities of the recipient/sub-recipient relationship.

The project is subject to state and federal environmental review requirements because it involves the use of federal funds from the Federal Transit Administration (FTA). An Environmental Impact Report (EIR)/Environmental Assessment (EA) has been prepared for the proposed project in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). SBCTA is the CEQA lead agency, and FTA is the NEPA lead agency. This TOA has been prepared as part of the technical analysis required to support the EIR/EA.

The West Valley Connector line would primarily run along Holt Avenue/Boulevard, Milliken Avenue, Foothill Boulevard, and Sierra Avenue through the cities mentioned. It would consist of two phases. On the west end of the line, in the City of Pomona, the Phase 1 route would begin at the Pomona Metrolink station. On the east end, the Phase 2 route would terminate and subsequently loop back at the Kaiser Permanente medical facility along Sierra Avenue in the City of Fontana. **Figure 1-1** shows the overall study area and the proposed alignments of the West Valley Connector line for Phases 1 and 2. The proposed project studies two phases with varying alignments which includes six build alternatives. Four of the build alternatives consist of

center-running bus lanes, raised medians, and left-turn access restrictions within the City of Ontario. A detailed description of each of the proposed project alternatives is provided in Section 2.

1.1 Study Area

The project is located primarily at the eastern end of Los Angeles County in the city of Pomona and at the southwestern end of San Bernardino County in the cities of Montclair, Ontario, Rancho Cucamonga, and Fontana. There are two proposed alignments analyzed in this report: Phase 1 Alignment (Milliken Avenue alignment) consists of 84 intersections to be studied, which includes 65 intersections along the proposed West Valley Connector routes and 19 intersections along parallel routes, such as D Street, State Street, and Mission Boulevard, within the City of Ontario. Phase 2 Alignment (Haven Avenue branch alignment) consists of an additional 45 intersections to be studied, for a total of 129 intersections. The existing study area includes the following intersections, also shown in **Figure 1-2**:

1. Garey Avenue/Monterey Avenue;
2. Garey Avenue/Holt Avenue;
3. Palomares Street/Holt Avenue;
4. Towne Avenue/Holt Avenue;
5. San Antonio Avenue/Holt Avenue;
6. Reservoir Street/Holt Avenue;
7. Clark Avenue/Holt Avenue;
8. East End Avenue/Holt Avenue;
9. Via Del Paseo/Holt Avenue;
10. Indian Hill Boulevard/Holt Avenue;
11. Mills Avenue/Holt Boulevard;
12. Amherst Avenue/Holt Boulevard;
13. Ramona Avenue/Holt Boulevard;
14. Monte Vista Avenue/Holt Boulevard;
15. Central Avenue/Holt Boulevard;
16. Vernon Avenue/Holt Boulevard;
17. Benson Avenue/D Street;
18. Benson Avenue/Holt Boulevard;
19. Benson Avenue/Mission Boulevard;
20. Mountain Avenue/D Street;
21. Mountain Avenue/Holt Boulevard;
22. Mountain Avenue/Mission Boulevard;
23. San Antonio Avenue/D Street;
24. San Antonio Avenue/Holt Boulevard;
25. San Antonio Avenue/State Street;

26. Vine Avenue/D Street;
27. Vine Avenue/Holt Boulevard;
28. Vine Avenue/State Street;
29. Euclid Avenue/D Street;
30. Euclid Avenue/Holt Boulevard;
31. Euclid Avenue/Mission Boulevard;
32. Plum Avenue/Holt Boulevard;
33. Sultana Avenue/D Street;
34. Sultana Avenue/Holt Boulevard;
35. Sultana Avenue/State Street;
36. Campus Avenue/D Street;
37. Campus Avenue/Holt Boulevard;
38. Campus Avenue/State Street;
39. Allyn Avenue/D Street;
40. Bon View Avenue-Allyn Avenue/Holt Boulevard;
41. Bon View Avenue/State Street;
42. Grove Avenue/D Street;
43. Grove Avenue/Holt Boulevard;
44. Grove Avenue/State Street;
45. County Building/Holt Boulevard;
46. Corona Avenue/Holt Boulevard;
47. Vineyard Avenue/D Street;
48. Vineyard Avenue/Holt Boulevard;
49. Vineyard Avenue/Airport Drive;
50. Guasti Road/Holt Boulevard;
51. Archibald Avenue/Guasti Road;
52. Archibald Avenue/Airport Drive;
53. Moore Way/Airport Drive;
54. Terminal Way/Airport Drive;
55. Archibald Avenue/I-10 Ramps;
56. Archibald Avenue/Inland Empire Boulevard;
57. Hermosa Avenue/Inland Empire Boulevard;
58. Shelby Street/Inland Empire Boulevard;
59. Center Avenue/Inland Empire Boulevard;
60. Haven Avenue/Inland Empire Boulevard;
61. Porsche Way/Inland Empire Boulevard;
62. Mercedes Lane/Inland Empire Boulevard;
63. Private Driveway/Inland Empire Boulevard;
64. Mathis-Car Max/Inland Empire Boulevard;
65. Ferrari Lane/Inland Empire Boulevard;

66. Milliken Avenue/Inland Empire Boulevard;
67. Milliken Avenue/Concours Street;
68. Milliken Avenue/4th Street;
69. Milliken Avenue/6th Street;
70. Milliken Avenue/7th Street;
71. Milliken Avenue/Jersey Boulevard;
72. Milliken Avenue/Arrow Route;
73. Milliken Avenue/Millennium Court;
74. Milliken Avenue/Foothill Boulevard;
75. Mayten Avenue/Foothill Boulevard;
76. Masi Drive/Foothill Boulevard;
77. Rochester Avenue/Foothill Boulevard;
78. Victoria Commons/Foothill Boulevard;
79. Day Creek Boulevard/Foothill Boulevard;
80. I-15 Southbound Ramps/Foothill Boulevard (Phase 1 and 2 alignment only);
81. I-15 Northbound Ramps/Foothill Boulevard (Phase 1 and 2 alignment only);
82. Etiwanda Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
83. Cornwall Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
84. East Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
85. Cottonwood Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
86. Mulberry Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
87. Banana Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
88. Cherry Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
89. Redwood Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
90. Hemlock Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
91. Almeria Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
92. Tokay Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
93. Citrus Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
94. Cypress Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
95. Juniper Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
96. Sierra Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
97. Sierra Avenue/Upland Avenue (Phase 1 and 2 alignment only);
98. Sierra Avenue/Seville Avenue (Phase 1 and 2 alignment only);
99. Sierra Avenue/Spring Street (Phase 1 and 2 alignment only);
100. Sierra Avenue/Arrow Boulevard (Phase 1 and 2 alignment only);
101. Sierra Avenue/Valencia Avenue (Phase 1 and 2 alignment only);
102. Sierra Avenue/Orange Way (Phase 1 and 2 alignment only);
103. Sierra Avenue/Ceres Avenue (Phase 1 and 2 alignment only);
104. Sierra Avenue/Merrill Avenue (Phase 1 and 2 alignment only);
105. Sierra Avenue/Randall Avenue (Phase 1 and 2 alignment only);

106. Sierra Avenue/San Bernardino Avenue (Phase 1 and 2 alignment only);
107. Sierra Avenue/Marygold Avenue (Phase 1 and 2 alignment only);
108. Juniper Avenue/Marygold Avenue (Phase 1 and 2 alignment only);
109. Juniper Avenue/Valley Boulevard (Phase 1 and 2 alignment only);
110. Inland Empire Center/Valley Boulevard (Phase 1 and 2 alignment only);
111. Sierra Avenue/Valley Boulevard (Phase 1 and 2 alignment only);
112. Sierra Avenue/Kaiser Permanente (Phase 1 and 2 alignment only);
113. Haven Avenue/Concours Street (Phase 1 and 2 alignment only);
114. Haven Avenue/4th Street (Phase 1 and 2 alignment only);
115. Haven Avenue/Trademark Street (Phase 1 and 2 alignment only);
116. Haven Avenue/6th Street (Phase 1 and 2 alignment only);
117. Haven Avenue/7th Street (Phase 1 and 2 alignment only);
118. Haven Avenue/Jersey Boulevard (Phase 1 and 2 alignment only);
119. Haven Avenue/Arrow Route (Phase 1 and 2 alignment only);
120. Haven Avenue/Civic Center Drive (Phase 1 and 2 alignment only);
121. Haven Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
122. Aspen Street/Foothill Boulevard (Phase 1 and 2 alignment only);
123. Spruce Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
124. Elm Avenue/Foothill Boulevard (Phase 1 and 2 alignment only);
125. Day Creek Boulevard/Victoria Gardens Lane;
126. Day Creek Boulevard/South Main Street;
127. Day Creek Boulevard/North Main Street;
128. Day Creek Boulevard/Church Street; and
129. Rochester Avenue/Church Street.

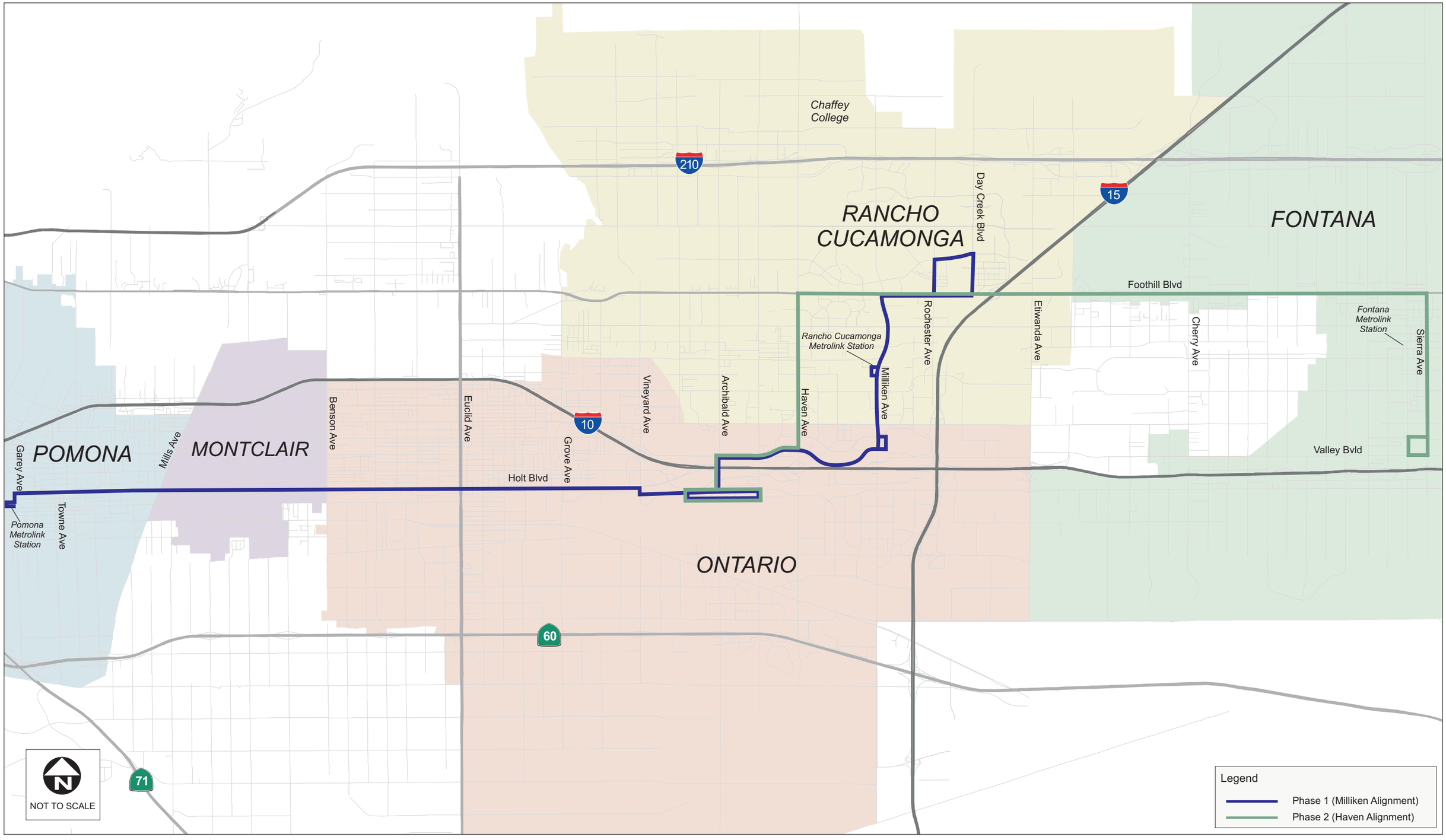
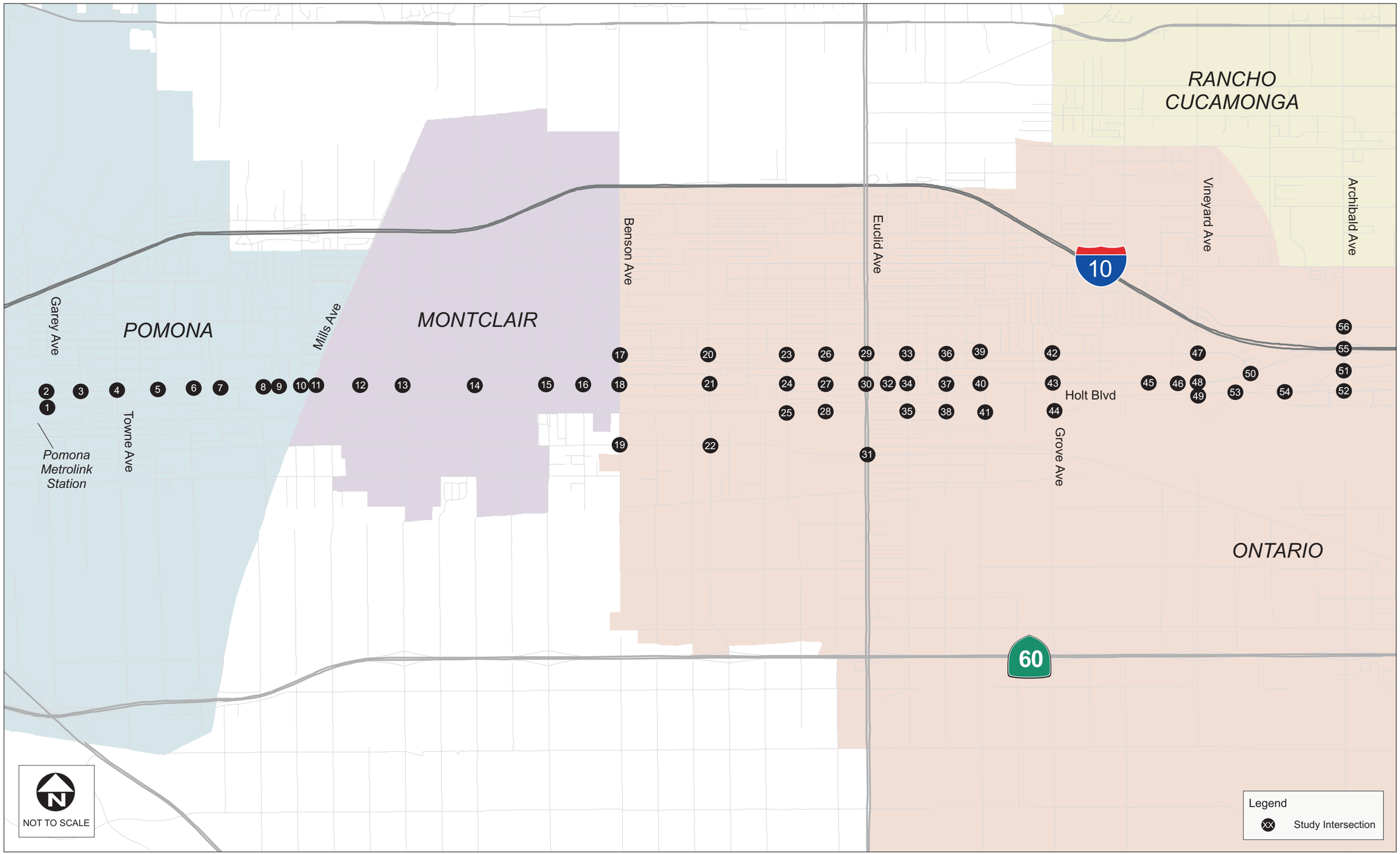


Figure 1-1
Proposed West Valley Connector Alignments


POMONA
MONTCLAIR
RANCHO CUCAMONGA
ONTARIO
Garey Ave
Mills Ave
Benson Ave
Euclid Ave
Vineyard Ave
Archibald Ave
Towne Ave
Grove Ave
Holt Blvd
10
60
Pomona Metrolink Station
1
2
3
4
5
6
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8
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11
12
13
14
15
16
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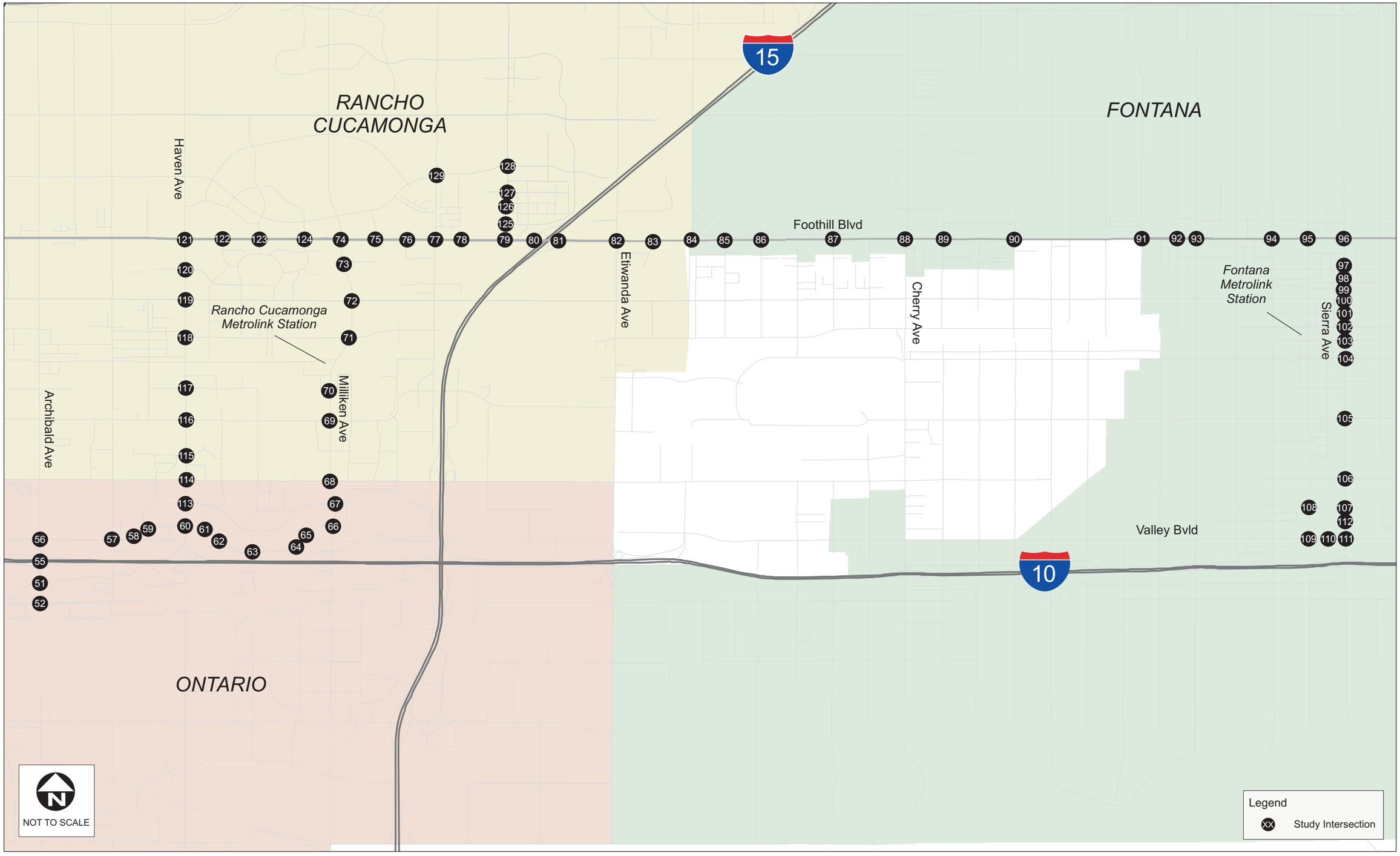
NOT TO SCALE
Legend
XX
Study Intersection


RANCHO CUCAMONGA
FONTANA
ONTARIO
15
10
Haven Ave
Archibald Ave
Milliken Ave
Etiwanda Ave
Cherry Ave
Sierra Ave
Foothill Blvd
Valley Blvd
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
NOT TO SCALE
Legend
XX Study Intersection

1.2 Purpose and Need

The purpose of the proposed project is to improve corridor mobility and transit efficiency in the western San Bernardino Valley from the city of Pomona, in Los Angeles County, to the city of Fontana, in San Bernardino County, with an enhanced, state-of-the-art BRT system (i.e., the system that includes off-board fare vending, all-door boarding, TSP (transit signal priority), optimized operating plans, and stations that consist of a branded shelter/canopy, security cameras, benches, lighting, and variable message signs).

The proposed project would address the growing traffic congestion and travel demands of the nearly one million people that would be added to Los Angeles and San Bernardino County by 2040 per SCAG 2106 RTP/SCS growth forecast. Improved rapid transit along the project corridor would help Omnitrans/SBCTA achieve its long-range goals to cost effectively enhance lifeline mobility and accessibility, improve transit operations, increase ridership, support economic growth and redevelopment, conserve nonrenewable resources, and improve corridor safety.

Recognizing the importance of the WVC transit corridor, SBCTA is proposing a project that is designed to achieve the following objectives:

- Improve transit service by better accommodating high existing bus ridership.
- Improve ridership by providing a viable and competitive transit alternative to the automobile.
- Improve efficiency of transit service delivery while lowering Omnitrans' operating costs per rider.
- Support local and regional planning goals to organize development along transit corridors and around transit stations.

The project purpose and objectives stated above would respond to the following needs:

- Current and future population and employment conditions establish a need for higher-quality transit service.
- Current and future transportation conditions establish a need for an improved transit system.
- Transit-related opportunities exist in the project area.

2.0 PROJECT DESCRIPTION

The WVC Project is a 35-mile-long BRT corridor project located primarily along Holt Avenue /Boulevard and Foothill Boulevard that would connect the cities of Pomona, Montclair, Ontario, Rancho Cucamonga, and Fontana in the counties of Los Angeles and San Bernardino, California. The project proposes limited stops, providing speed and quality improvements to the public transit system within the corridor. The project includes BRT stations at up to 33 locations/major intersections and associated improvements, premium transit service, Transit Signal Priority (TSP) and queue jump lanes, dedicated lanes, and integration with other bus routes.

The West Valley Connector BRT line would primarily run along Holt Avenue/Boulevard, Foothill Boulevard, and Sierra Avenue through the cities mentioned. On the west end of the line, in the City of Pomona, the route would begin at the Pomona Metrolink station. On the east end, the route would terminate and subsequently loop back at the Kaiser Permanente medical facility along Sierra Avenue in the City of Fontana.

The six build alternatives are proposed for analysis in this study, and are described as follows:

- **Build Alternative A** consists of the proposed West Valley Connector Phase 1 alignment buses operating within mixed-flow lanes, stopping at side-running stations only, along the entirety of the route.
- **Build Alternative B** consists of the construction of one center-running, dedicated BRT lane in each direction within the City of Ontario portion of the route, between Benson Avenue and Vineyard Avenue. The posted vehicular speed limit along this segment would be reduced to 35 mph and on-street parking would be eliminated. In addition, left-turn and north-south through movement access along the segment would be restricted at unsignalized, minor streets, as well as Plum Avenue, via raised medians constructed to separate mixed-flow traffic from bus lane traffic. The proposed West Valley Connector Phase 1 alignment buses will operate within mixed-flow lanes, stopping at side-running stations only, along the rest of the route.
- **Build Alternative C** consists of the construction of one center-running, dedicated BRT lane in each direction along with the reduction in travel lanes from two lanes to one lane within the City of Ontario portion of the route, between Benson Avenue and Vineyard Avenue. Similar to Alternative B, the posted vehicular speed limit along this segment would be reduced to 35 mph. In addition, left-turn and north-south through movement access along the segment would be restricted at unsignalized, minor streets, as well as Plum Avenue, via raised medians constructed to separate mixed-flow traffic from bus lane traffic. The proposed West Valley Connector Phase 1 alignment buses will operate

within mixed-flow lanes, stopping at side-running stations only, along the rest of the route.

- **Build Alternative D** includes all design components of Alternative A, but with the addition of the Phase 2 alignment along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along the Phase 2 alignment, buses would operate within mixed-flow lanes, stopping at side-running stations only.
- **Build Alternative E** includes all design components of Alternative B, but with the addition of the Phase 2 alignment along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along the Phase 2 alignment, buses would operate within mixed-flow lanes, stopping at side-running stations only.
- **Build Alternative F** includes all design components of Alternative C, but with the addition of the Phase 2 alignment along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along the Phase 2 alignment, buses would operate within mixed-flow lanes, stopping at side-running stations only.

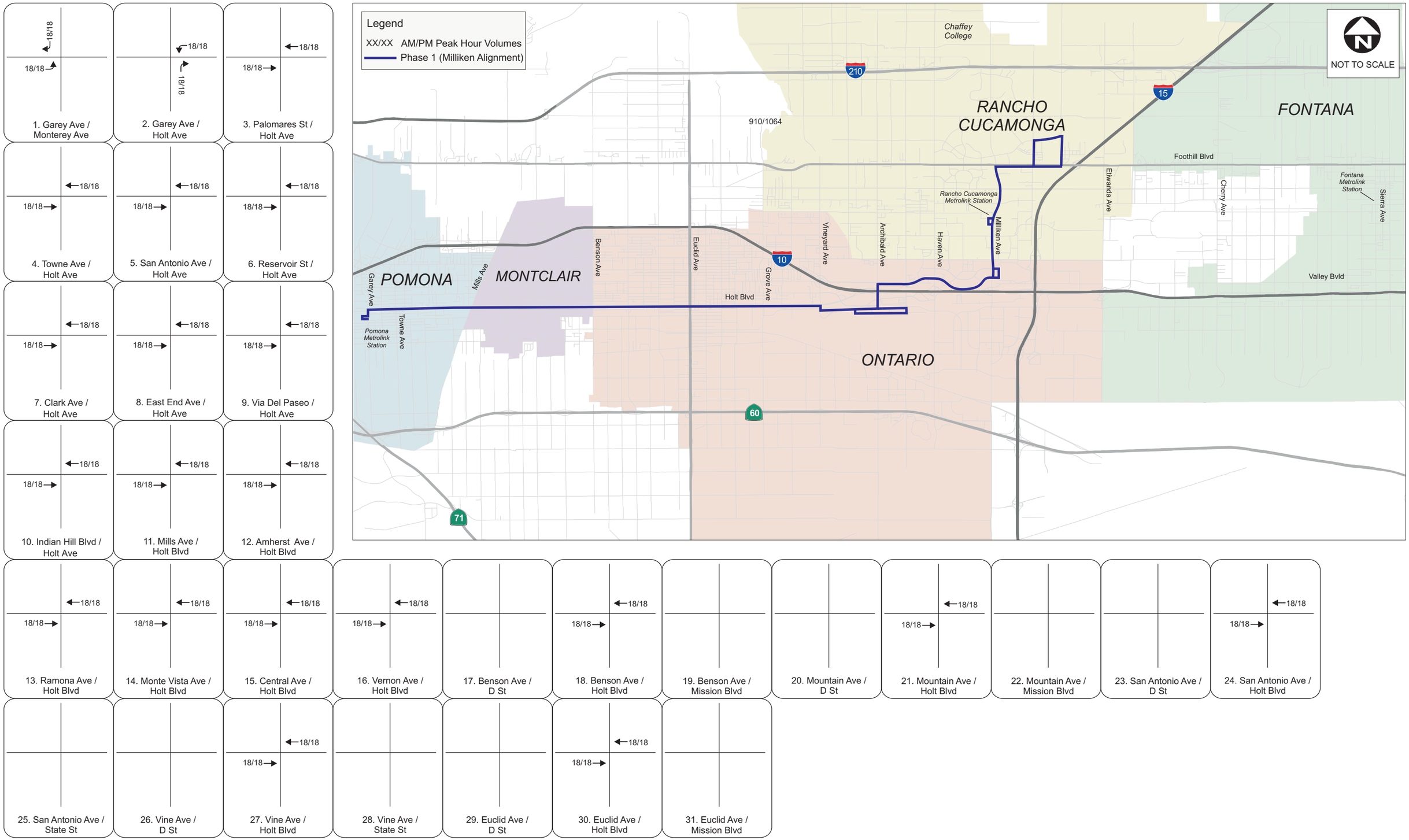
In Build Alternatives A, B, and C, the proposed West Valley Connector BRT line is anticipated to consist of limited stop service on 10-minute peak and 15-minute off-peak headways during 14 service hours per day on weekdays. Assuming this frequency, **Figure 2-1** shows the proposed assignment of project trips at the study intersections, during the a.m. and p.m. peak hours, assuming the conversion to Passenger Car Equivalent (PCE) trips using a PCE factor of 3.0 passenger vehicles per bus. BRT buses are anticipated to be 60-foot-long articulated vehicles with sbX branding.

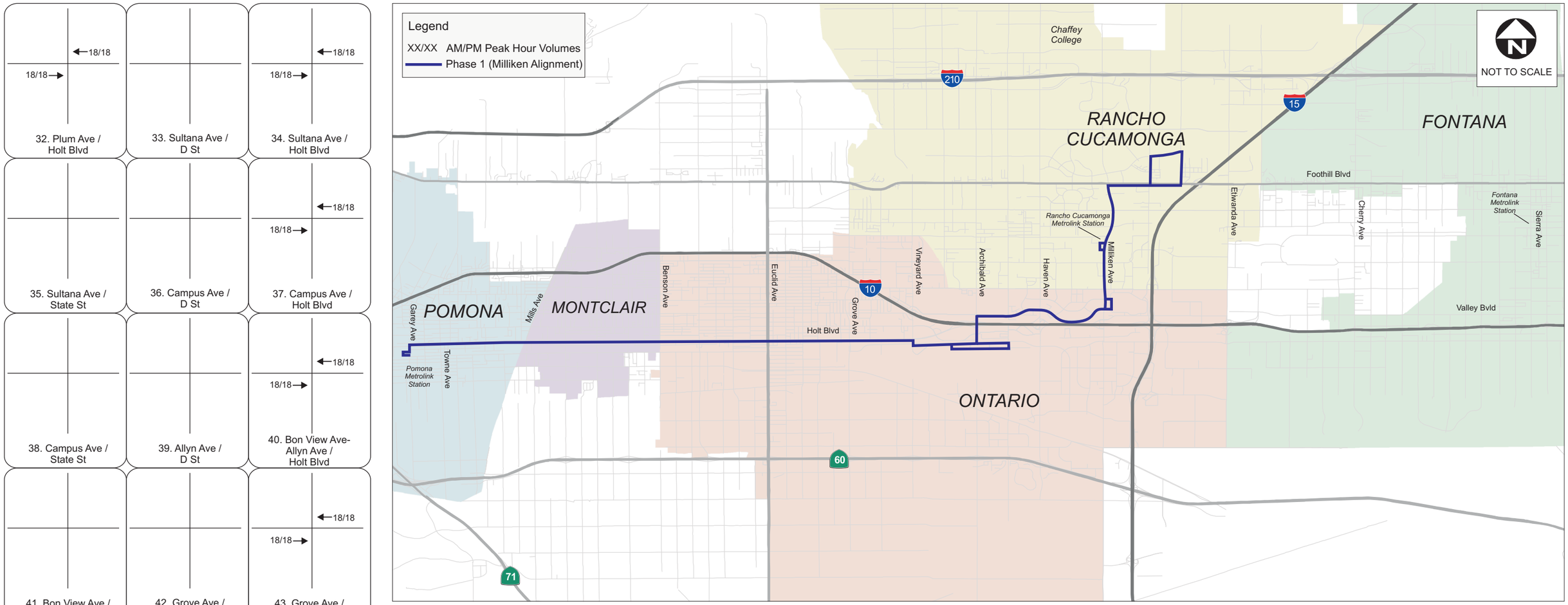
In Build Alternatives D, E, and F, the Phase 2 alignment is added to the Phase 1 alignment. The proposed West Valley Connector BRT line Phase 2 alignment is anticipated to consist of limited stop service on 20-minute peak and 30-minute off-peak headways during 14 service hours per day on weekdays (Phase 1 headways would remain unchanged). **Figure 2-2** shows the proposed assignment of project trips at the study intersections, during the a.m. and p.m. peak hours, assuming the conversion to Passenger Car Equivalent (PCE) trips using a PCE factor of 3.0 passenger vehicles per bus.

The following design features will be included as part of the proposed project:

- Reconstruction of curb and gutters along segments where dedicated bus-only lanes are proposed.

- Vehicular lanes where the sbX would operate in dedicated bus-only lanes would feature concrete roadways, painted, or striped to visually separate the exclusive lanes from the mixed flow lanes.
- Concrete pads would be placed at all station locations for the sbX vehicles.
- Wherever possible for exclusive lanes, the bus signals and the adjacent existing intersection signals would be integrated to create one signalized intersection controlling automobiles and buses.
- Intersection crossings would be controlled with signals and pedestrians would be allocated standard crossing time.
- Left turn movements for vehicular traffic from mixed flow lanes crossing exclusive lanes on the project alignment would require separate signal phases with red arrows when transit vehicles are crossing intersections.
- The signal modifications might also include “active” No-Right-Turn indications and “Bus Coming” signs to prevent right turns across the exclusive lanes.
- Signal modifications would include upgrades to signal controllers and software to accommodate the transit priority treatment at intersections.
- Presignals and queue cutters would be used to prevent traffic from stopping or blocking the exclusive lanes.


Legend
XX/XX AM/PM Peak Hour Volumes
Phase 1 (Milliken Alignment)
NOT TO SCALE
Chaffey College
910/1064
RANCHO CUCAMONGA
FONTANA
POMONA
MONTCLAIR
ONTARIO
Foothill Blvd
Holt Blvd
Valley Blvd
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
Pomona Metrolink Station
Garey Ave
Towne Ave
Mills Ave
Benson Ave
Euclid Ave
Grove Ave
Vineyard Ave
Archibald Ave
Haven Ave
Milliken Ave
Etiwanda Ave
Cherry Ave
Sierra Ave
210
10
15
60
71
1. Garey Ave / Monterey Ave
2. Garey Ave / Holt Ave
3. Palomares St / Holt Ave
4. Towne Ave / Holt Ave
5. San Antonio Ave / Holt Ave
6. Reservoir St / Holt Ave
7. Clark Ave / Holt Ave
8. East End Ave / Holt Ave
9. Via Del Paseo / Holt Ave
10. Indian Hill Blvd / Holt Ave
11. Mills Ave / Holt Blvd
12. Amherst Ave / Holt Blvd
13. Ramona Ave / Holt Blvd
14. Monte Vista Ave / Holt Blvd
15. Central Ave / Holt Blvd
16. Vernon Ave / Holt Blvd
17. Benson Ave / D St
18. Benson Ave / Holt Blvd
19. Benson Ave / Mission Blvd
20. Mountain Ave / D St
21. Mountain Ave / Holt Blvd
22. Mountain Ave / Mission Blvd
23. San Antonio Ave / D St
24. San Antonio Ave / Holt Blvd
25. San Antonio Ave / State St
26. Vine Ave / D St
27. Vine Ave / Holt Blvd
28. Vine Ave / State St
29. Euclid Ave / D St
30. Euclid Ave / Holt Blvd
31. Euclid Ave / Mission Blvd
18/18



32. Plum Ave / Holt Blvd

33. Sultana Ave / D St

34. Sultana Ave / Holt Blvd

35. Sultana Ave / State St

36. Campus Ave / D St

37. Campus Ave / Holt Blvd

38. Campus Ave / State St

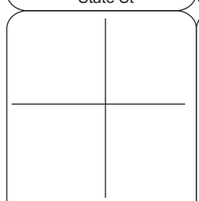
39. Allyn Ave / D St

40. Bon View Ave-Allyn Ave / Holt Blvd

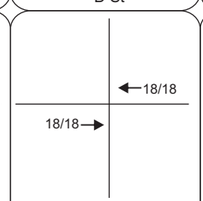
41. Bon View Ave / State St

42. Grove Ave / D St

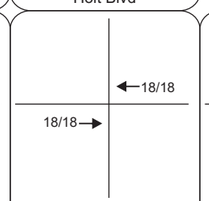
43. Grove Ave / Holt Blvd



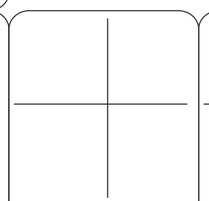
44. Grove Ave / State St



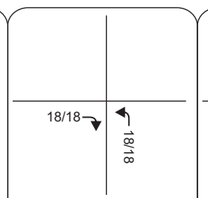
45. County Building / Holt Blvd



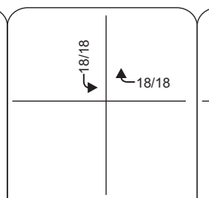
46. Corona Ave / Holt Blvd



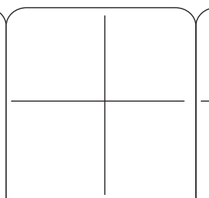
47. Vineyard Ave / D St



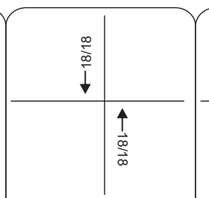
48. Vineyard Ave / Holt Blvd



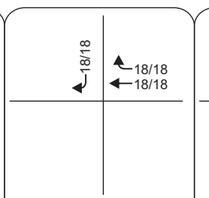
49. Vineyard Ave / Airport Dr



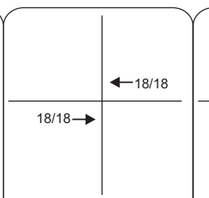
50. Guasti Rd / Holt Blvd



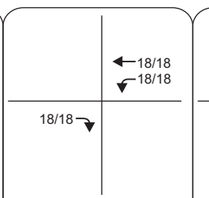
51. Archibald Ave / Guasti Rd



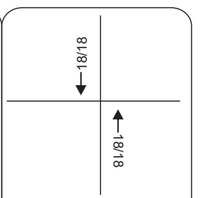
52. Archibald Ave / Airport Dr



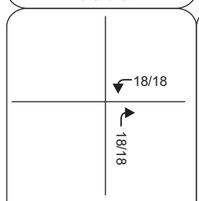
53. Moore Wy / Airport Dr



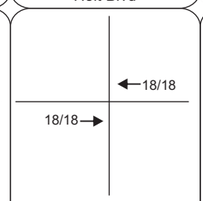
54. Terminal Wy / Airport Dr



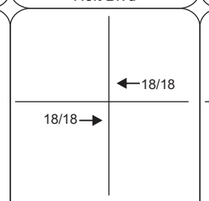
55. Archibald Ave / I-10 Ramps



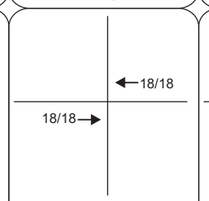
56. Archibald Ave / Inland Empire Blvd



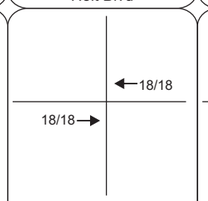
57. Hermosa Ave / Inland Empire Blvd



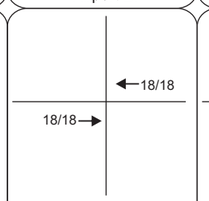
58. Shelby St / Inland Empire Blvd



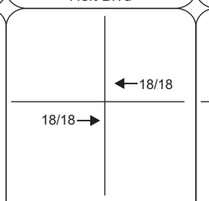
59. Center Ave / Inland Empire Blvd



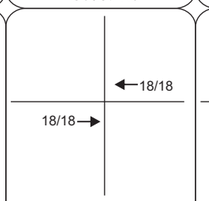
60. Haven Ave / Inland Empire Blvd



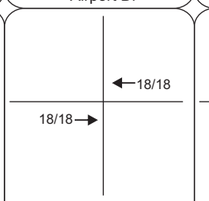
61. Porche Wy / Inland Empire Blvd



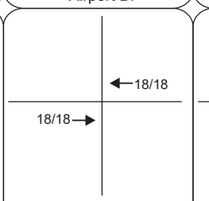
62. Mercedes Ln / Inland Empire Blvd



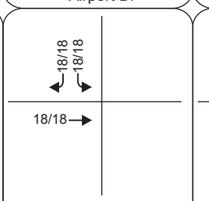
63. Private Dwy / Inland Empire Blvd



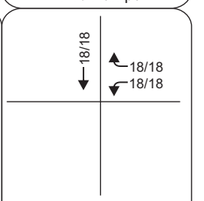
64. Mathir-Car Max / Inland Empire Blvd



65. Ferrari Ln / Inland Empire Blvd



66. Miliken Ave / Inland Empire Blvd



67. Miliken Ave / Concours St

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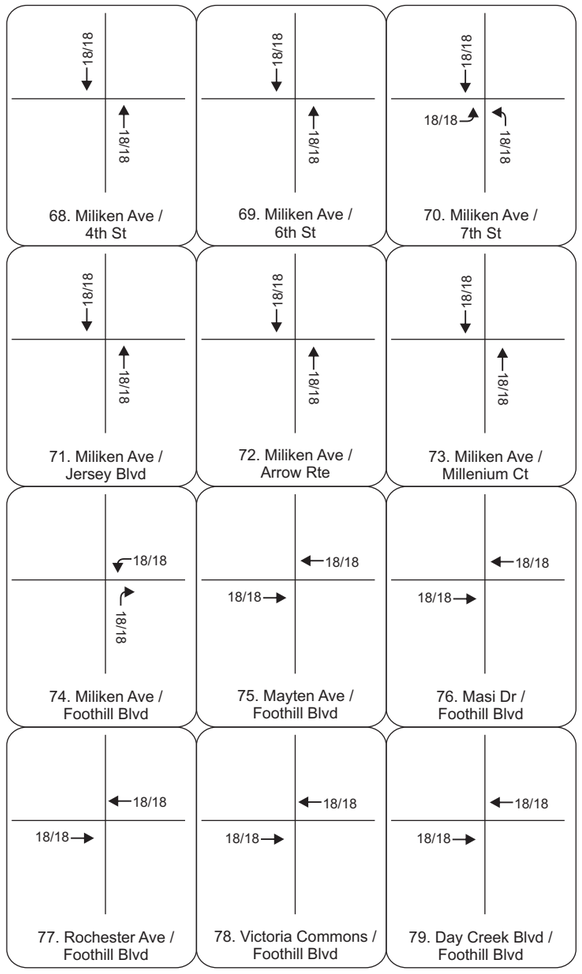
West Valley Connector Project
SBCTA

Figure 2-1B
Peak Hour Project Trip Assignment
Alternatives A, B, and C



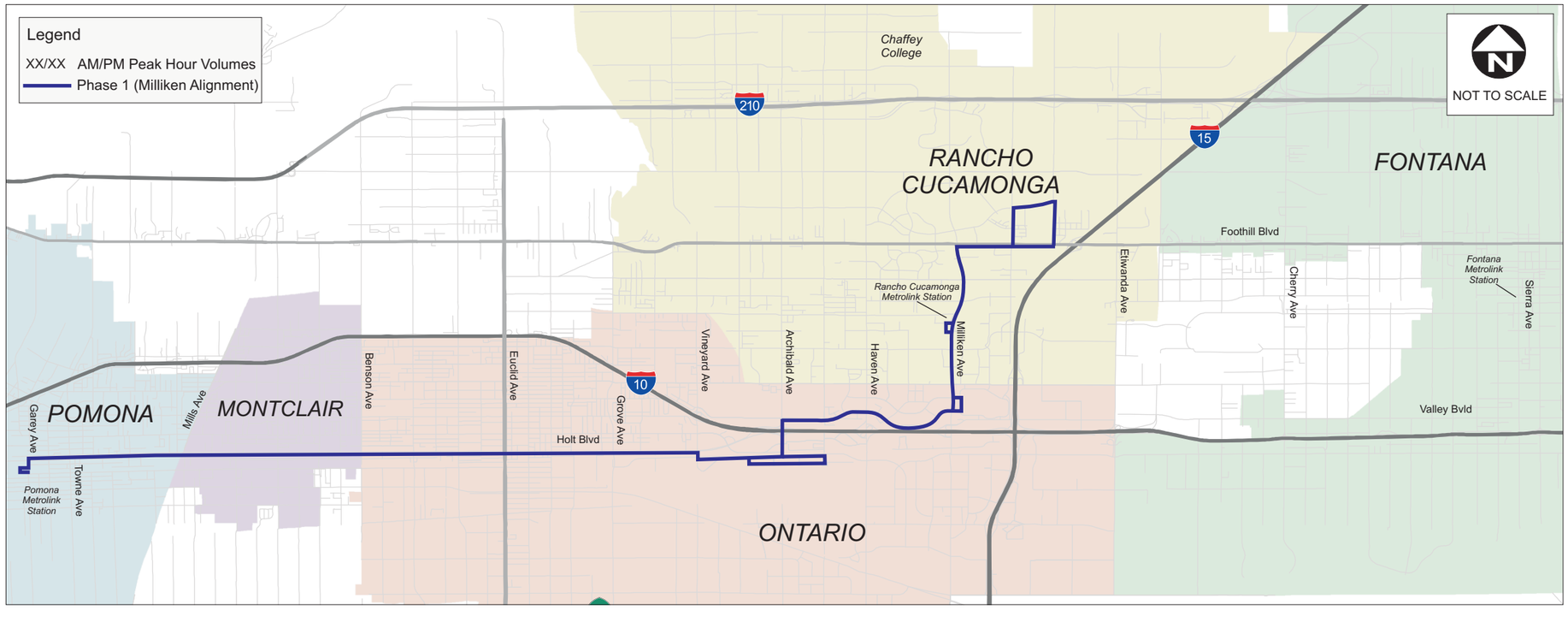
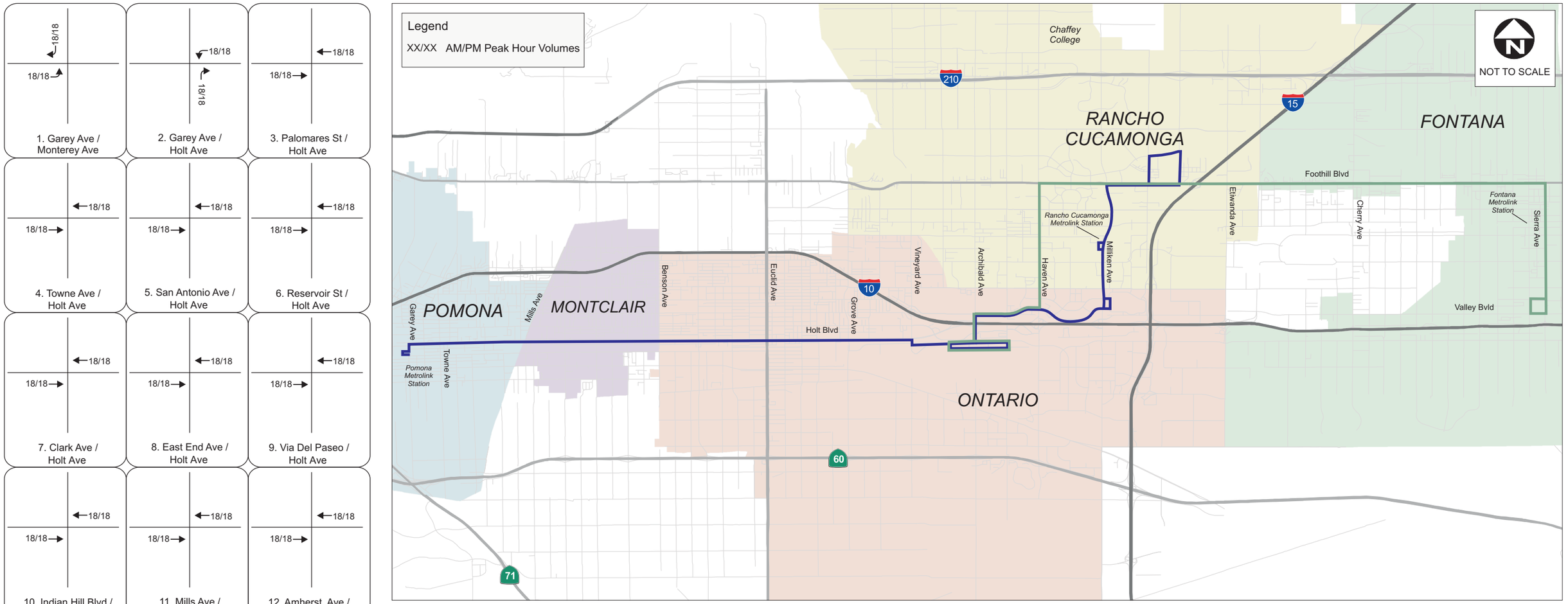


Figure 2-1C
Peak Hour Project Trip Assignment
Alternatives A, B, and C



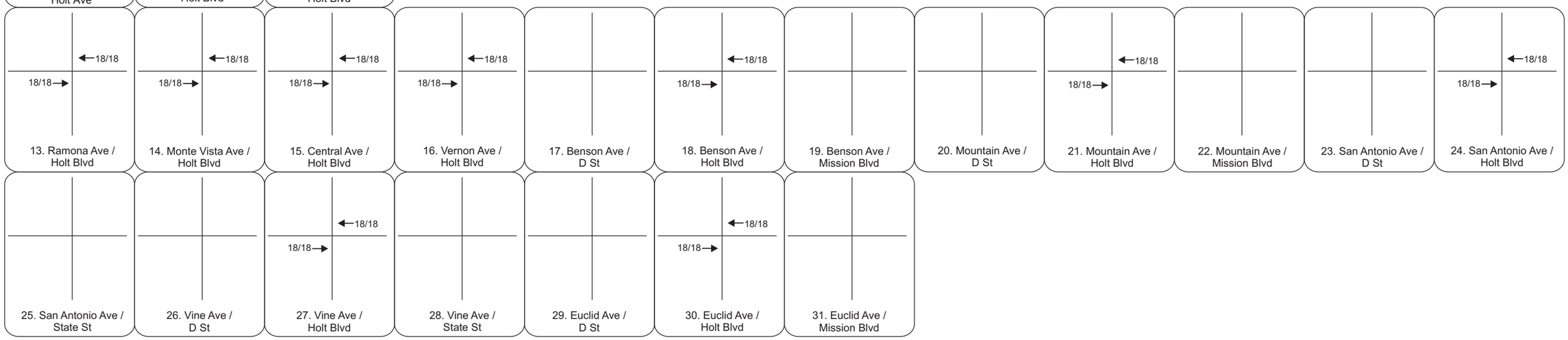
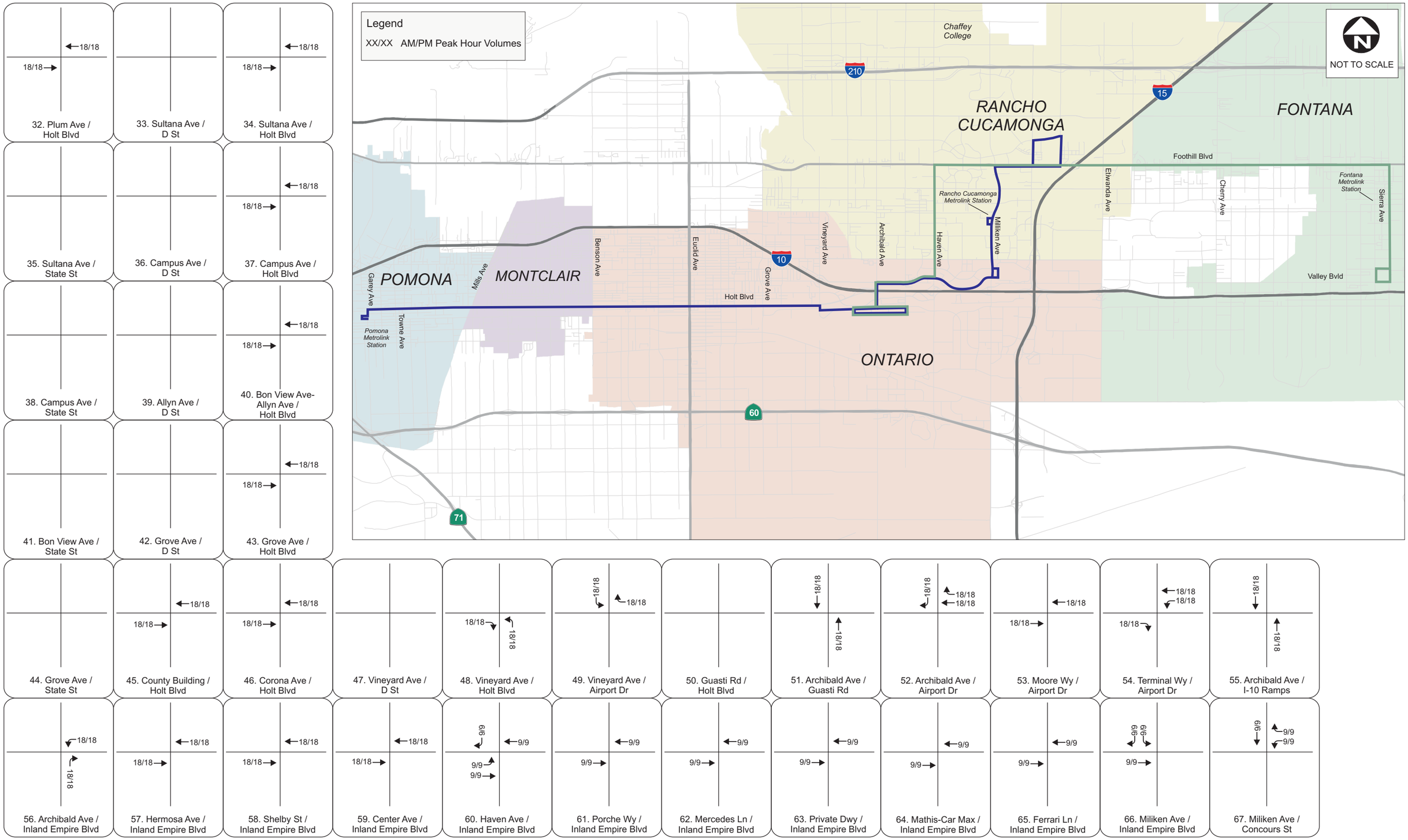
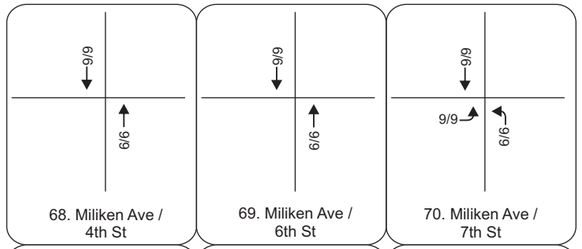


Figure 2-2A
Peak Hour Project Trip Assignment
Alternatives D, E, and F


Legend
XX/XX AM/PM Peak Hour Volumes
NOT TO SCALE
Chaffey College
RANCHO CUCAMONGA
FONTANA
POMONA
MONTCLAIR
ONTARIO
210
15
10
60
71
Foothill Blvd
Holt Blvd
Valley Bvld
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
Pomona Metrolink Station
Garey Ave
Towne Ave
Mills Ave
Benson Ave
Euclid Ave
Grove Ave
Vineyard Ave
Archibald Ave
Haven Ave
Milliken Ave
Etiwanda Ave
Cherry Ave
Sierra Ave

18/18
18/18
32. Plum Ave / Holt Blvd
33. Sultana Ave / D St
34. Sultana Ave / Holt Blvd
35. Sultana Ave / State St
36. Campus Ave / D St
37. Campus Ave / Holt Blvd
38. Campus Ave / State St
39. Allyn Ave / D St
40. Bon View Ave- Allyn Ave / Holt Blvd
41. Bon View Ave / State St
42. Grove Ave / D St
43. Grove Ave / Holt Blvd

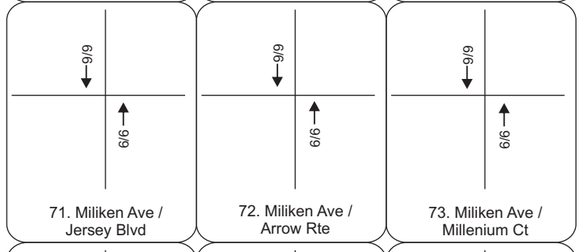
44. Grove Ave / State St
45. County Building / Holt Blvd
46. Corona Ave / Holt Blvd
47. Vineyard Ave / D St
48. Vineyard Ave / Holt Blvd
49. Vineyard Ave / Airport Dr
50. Guasti Rd / Holt Blvd
51. Archibald Ave / Guasti Rd
52. Archibald Ave / Airport Dr
53. Moore Wy / Airport Dr
54. Terminal Wy / Airport Dr
55. Archibald Ave / I-10 Ramps
56. Archibald Ave / Inland Empire Blvd
57. Hermosa Ave / Inland Empire Blvd
58. Shelby St / Inland Empire Blvd
59. Center Ave / Inland Empire Blvd
60. Haven Ave / Inland Empire Blvd
61. Porche Wy / Inland Empire Blvd
62. Mercedes Ln / Inland Empire Blvd
63. Private Dwy / Inland Empire Blvd
64. Mathis-Car Max / Inland Empire Blvd
65. Ferrari Ln / Inland Empire Blvd
66. Miliken Ave / Inland Empire Blvd
67. Miliken Ave / Concours St



68. Miliken Ave / 4th St

69. Miliken Ave / 6th St

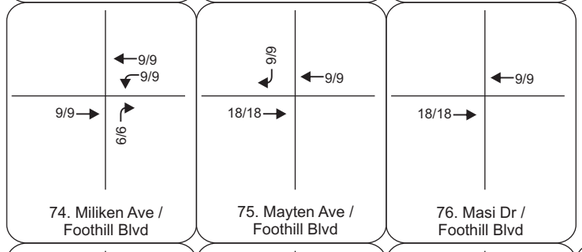
70. Miliken Ave / 7th St



71. Miliken Ave / Jersey Blvd

72. Miliken Ave / Arrow Rte

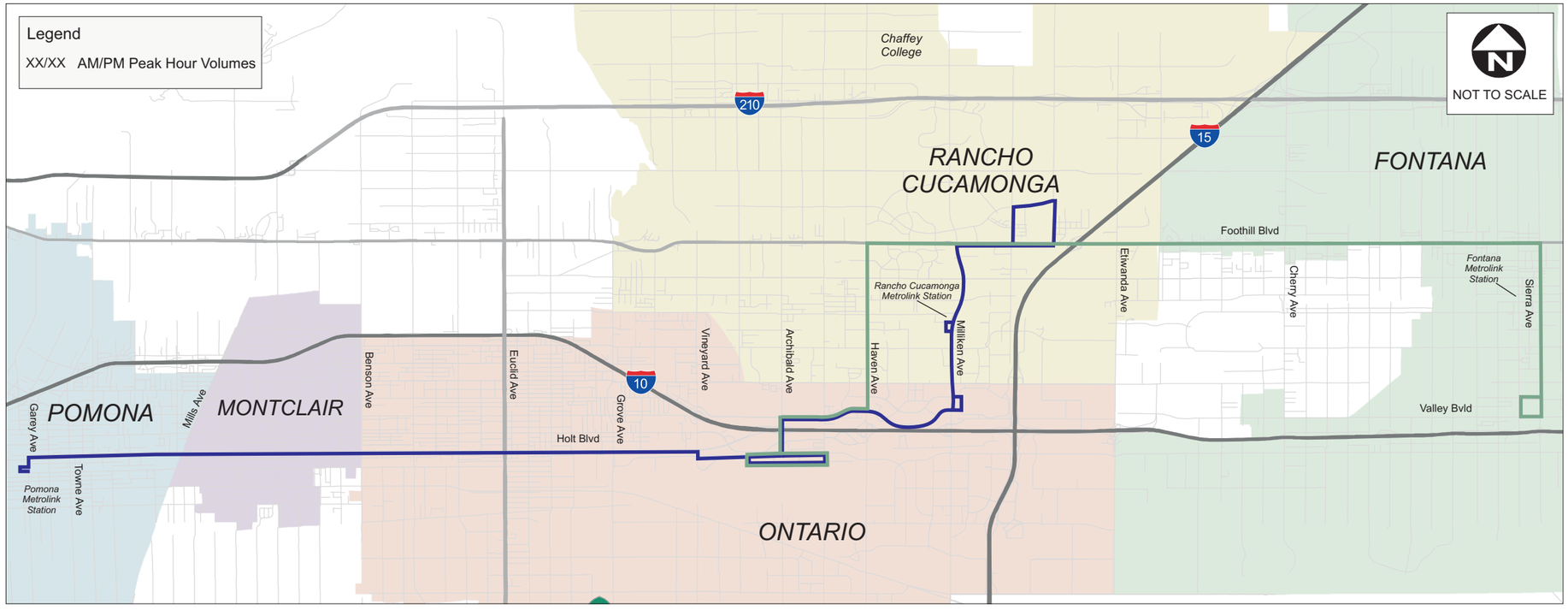
73. Miliken Ave / Millenium Ct

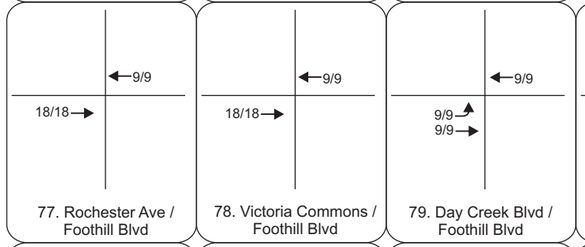


74. Miliken Ave / Foothill Blvd

75. Mayten Ave / Foothill Blvd

76. Masi Dr / Foothill Blvd

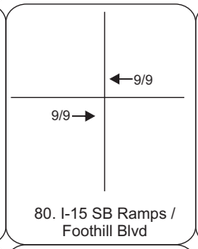




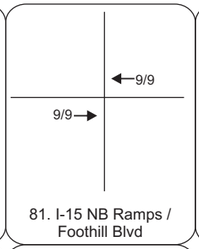
77. Rochester Ave / Foothill Blvd

78. Victoria Commons / Foothill Blvd

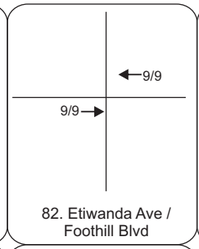
79. Day Creek Blvd / Foothill Blvd



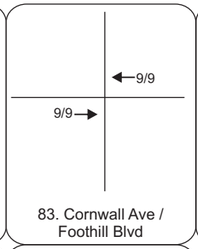
80. I-15 SB Ramps / Foothill Blvd



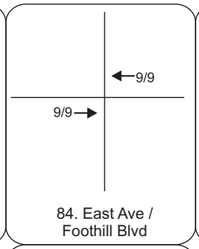
81. I-15 NB Ramps / Foothill Blvd



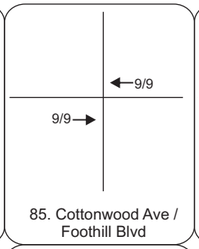
82. Etiwanda Ave / Foothill Blvd



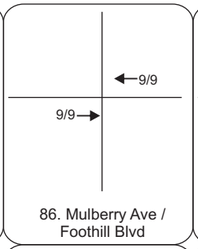
83. Cornwall Ave / Foothill Blvd



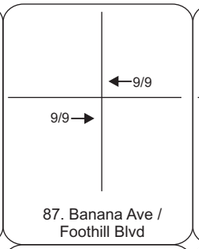
84. East Ave / Foothill Blvd



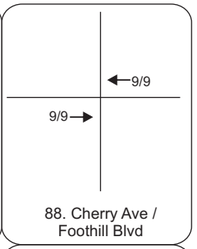
85. Cottonwood Ave / Foothill Blvd



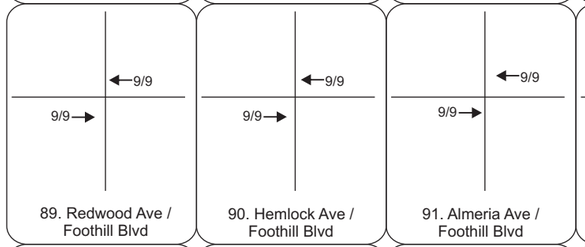
86. Mulberry Ave / Foothill Blvd



87. Banana Ave / Foothill Blvd



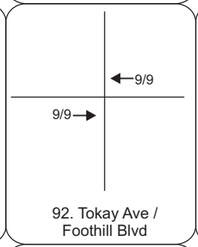
88. Cherry Ave / Foothill Blvd



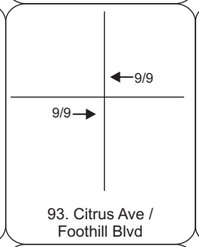
89. Redwood Ave / Foothill Blvd

90. Hemlock Ave / Foothill Blvd

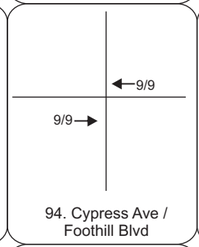
91. Almeria Ave / Foothill Blvd



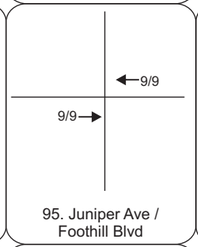
92. Tokay Ave / Foothill Blvd



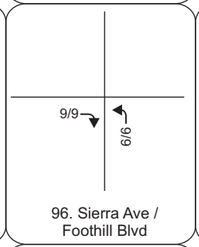
93. Citrus Ave / Foothill Blvd



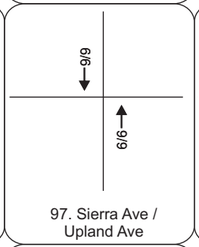
94. Cypress Ave / Foothill Blvd



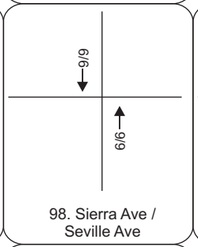
95. Juniper Ave / Foothill Blvd



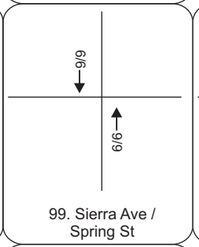
96. Sierra Ave / Foothill Blvd



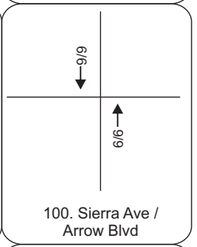
97. Sierra Ave / Upland Ave



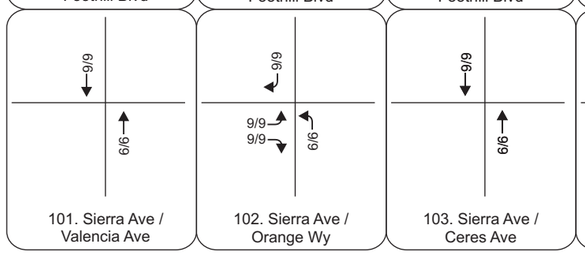
98. Sierra Ave / Seville Ave



99. Sierra Ave / Spring St



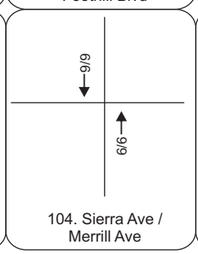
100. Sierra Ave / Arrow Blvd



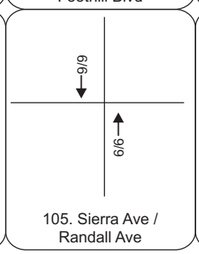
101. Sierra Ave / Valencia Ave

102. Sierra Ave / Orange Wy

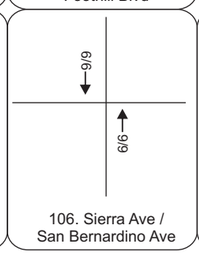
103. Sierra Ave / Ceres Ave



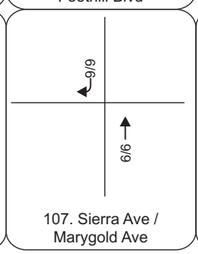
104. Sierra Ave / Merrill Ave



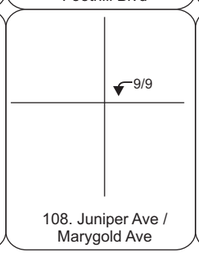
105. Sierra Ave / Randall Ave



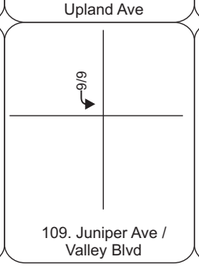
106. Sierra Ave / San Bernardino Ave



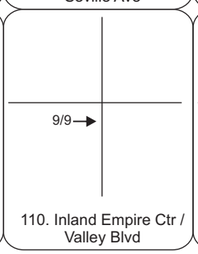
107. Sierra Ave / Marygold Ave



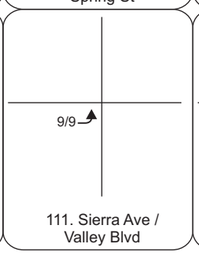
108. Juniper Ave / Marygold Ave



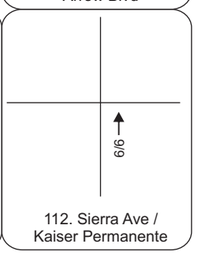
109. Juniper Ave / Valley Blvd



110. Inland Empire Ctr / Valley Blvd



111. Sierra Ave / Valley Blvd



112. Sierra Ave / Kaiser Permanente

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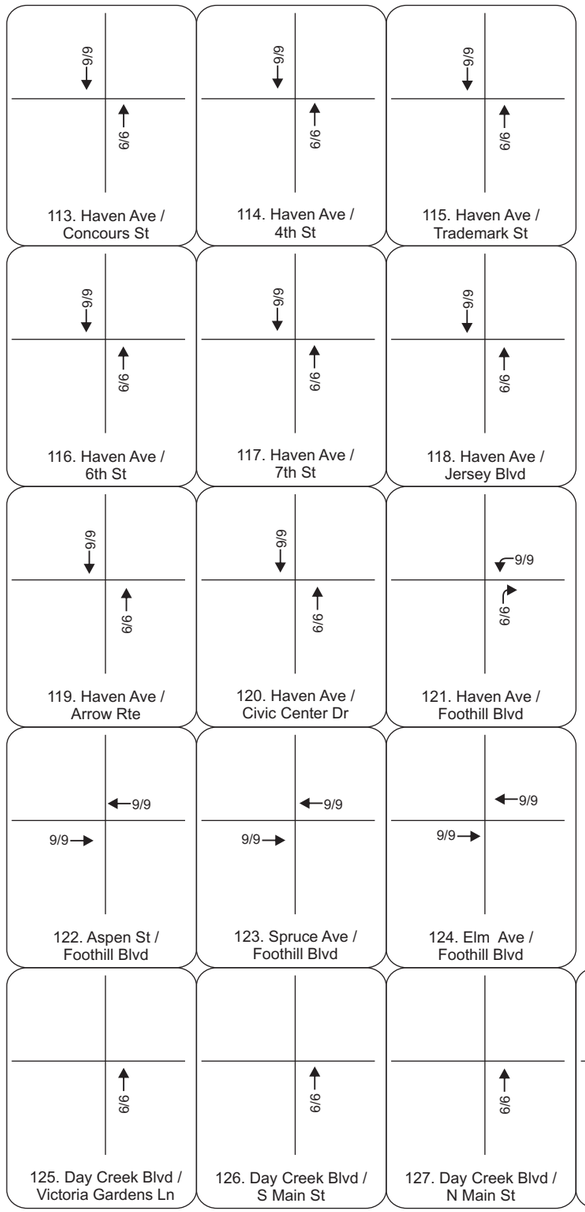
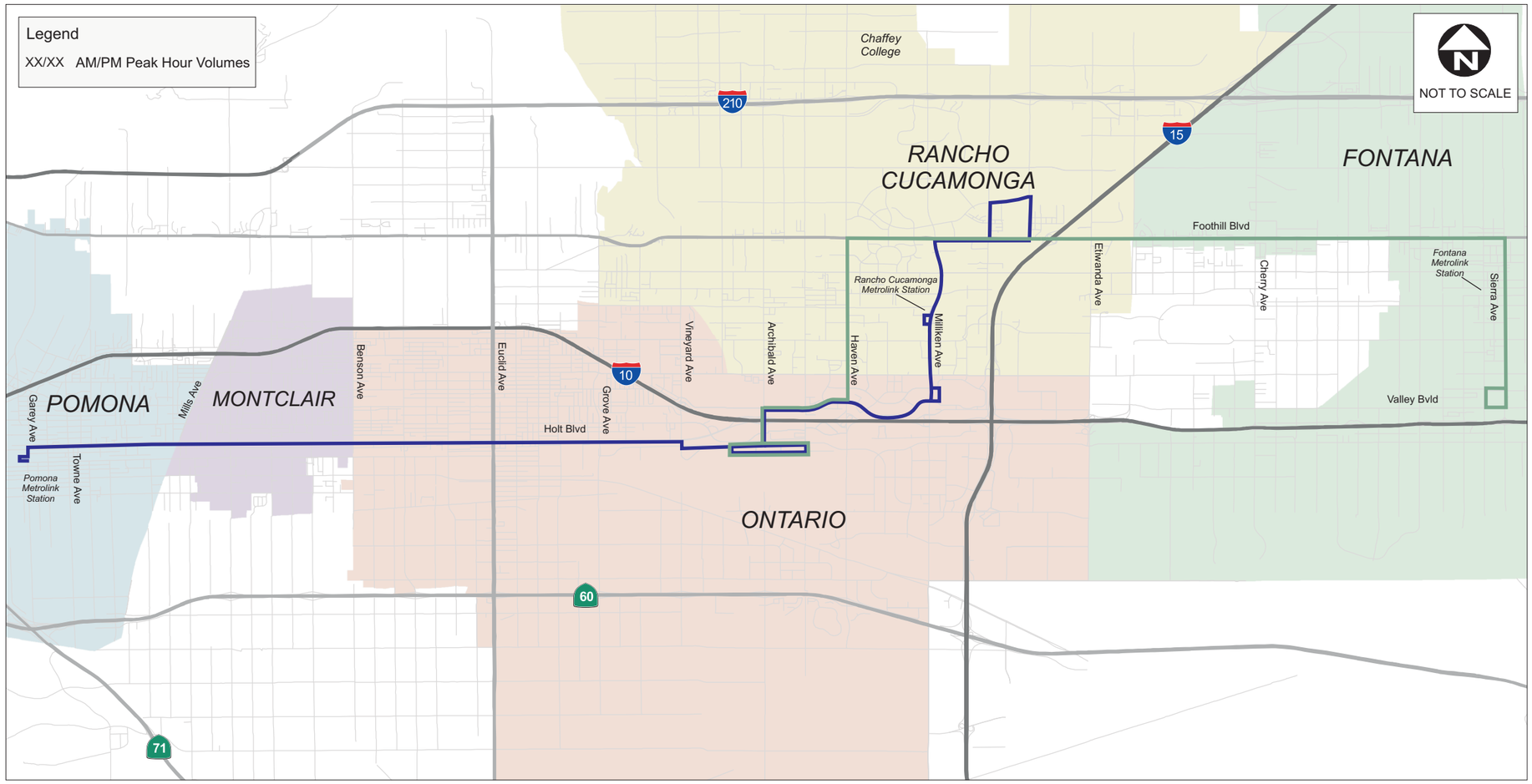
West Valley Connector Project
Omnitrans

Figure 2-2C
Peak Hour Project Trip Assignment
Alternatives D, E, and F


6/6
9/9
113. Haven Ave / Concours St
114. Haven Ave / 4th St
115. Haven Ave / Trademark St
116. Haven Ave / 6th St
117. Haven Ave / 7th St
118. Haven Ave / Jersey Blvd
119. Haven Ave / Arrow Rte
120. Haven Ave / Civic Center Dr
121. Haven Ave / Foothill Blvd
122. Aspen St / Foothill Blvd
123. Spruce Ave / Foothill Blvd
124. Elm Ave / Foothill Blvd
125. Day Creek Blvd / Victoria Gardens Ln
126. Day Creek Blvd / S Main St
127. Day Creek Blvd / N Main St
128. Day Creek Blvd / Church St
129. Rochester Ave / Church St


Legend
XX/XX AM/PM Peak Hour Volumes
NOT TO SCALE
Chaffey College
210
15
RANCHO CUCAMONGA
FONTANA
Foothill Blvd
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
Etiwanda Ave
Cherry Ave
Sierra Ave
Milliken Ave
Haven Ave
Vineyard Ave
Archibald Ave
Benson Ave
Euclid Ave
Grove Ave
10
Garey Ave
Mills Ave
POMONA
MONTCLAIR
Holt Blvd
Valley Blvd
Pomona Metrolink Station
Towne Ave
ONTARIO
60
71

2.1 Side-Running Stations

Side-running stations would typically be located on the far side of an intersection to facilitate transit priority and to avoid a stopped bus from blocking those turning right from the corridor. Where curb cuts for driveways and other conditions do not provide enough space along the curbside for both the sbX and the local bus on the far side of the intersection, the local buses would be located on the near side of the intersection.

In the side-running condition, stations may include new or improved shelters with passenger amenities, or only an sbX-branded pylon with signature light. Proposed shelters would be approximately 18 feet in length and a width that would fit a 10-foot-wide-minimum sidewalk. Passenger amenities at the side platform stations would include benches, bicycle racks, trash receptacles, variable message signs, security cameras, and lighting integrated with the shelter. There would be no fare collection equipment on the sidewalks or shelters when the available ROW is less than 10 feet, and the passengers may pay the fee on the bus. Side-running stations would also include various amenities.

For all stations in Rancho Cucamonga, only an sbX-branded pylon with signature light is proposed. Should shelters be implemented in the future, coordination between the City of Rancho Cucamonga and SBCTA would be required to environmentally clear the shelters at a later time.

2.2 Center Platform Stations

Five center platform stations are proposed to be constructed as part of Alternatives B, C, E, and F.

The center platform stations would be located in the center of the street ROW on a raised platform with an end-block crossing. Access would be provided by crosswalks at intersections and Americans with Disabilities Act (ADA)-compliant ramps to the station platforms. Center platforms would be placed as close to the intersection as possible while still maintaining left-turn pockets, where required.

In the optimum center platform configuration, the platform would accommodate a canopy with its seating area, passenger amenities, fare equipment, and a ramp to comply with relevant accessibility requirements and provide clearance in front of ticket vending machines. Stations would include amenities that can be assembled and laid out to suit the functionality of the station and fit with the surrounding land uses.

2.3 sbX Bus Operations

The proposed project would require 18 buses during the Phase I operation and increase to 27 buses for the Phase I and Phase II operation to serve the designed headways and have sufficient spare vehicles.

Under Alternative A and D, sbX buses would operate entirely in mixed-flow lanes along the proposed 35 miles of the Phase I and Phase II alignments. For Alternative B, C, E, and F, sbX buses will operate in mixed flow lanes similar to Alternative A except where dedicated bus-only lanes (3.5 miles) are proposed along Holt Boulevard, between Benson Avenue and Vine Avenue and between Euclid Avenue and Vineyard Avenue, in Ontario.

Roadway sections where the sbX would operate in mixed-flow lanes would generally be kept as existing conditions, although some modifications, such as relocated curb and gutter, may be necessary near the stations to provide sufficient room for bus stopping and loading. Reconstruction of curb and gutters would only be required for the segment where dedicated bus-only lanes are proposed. Vehicular lanes where the sbX buses would operate in dedicated bus-only lanes would feature concrete roadways, painted or striped to visually separate the exclusive lanes from mixed-flow lanes. Transition areas from mixed-flow to exclusive lanes would be provided at each end of an exclusive lane location. Such transitions would be clearly marked to separate bus movements from other vehicular traffic. Reinforced concrete bus pad in the pavement would be placed at all station locations for the sbX buses.

sbX buses would operate from 6:00 a.m. to 8:00 p.m. with peak headways for 4 hours and off-peak headways for 10 hours per day for a total span of service of 14 hours per day, Monday through Friday. From the Pomona Metrolink Transit Center station to Inland Empire Boulevard, the sbX buses would operate on 10-minute peak headways and 15-minute off-peak headways. Additional service hours, including weekend service, may be added if additional operating funds become available in the future.

3.0 TRAFFIC OPERATIONS METHODOLOGY

The quality of traffic operations is characterized using the concept of Level of Service (LOS). LOS is defined by a range of grades from A (best) to F (worst). At intersections, LOS "A" represents relatively free operating conditions with little or no delay. LOS "F" is characterized by extremely unstable flow conditions and severe congestion with volumes at or near the intersection's design capacity. This results in long queues backing up from all approaches to intersections.

Analysis of traffic operations were conducted using the SBCTA) CMP Traffic Impact Analysis guidelines. SBCTA uses the Highway Capacity Manual (HCM) methodology for evaluation of intersection operating conditions. LOS analysis was calculated at the majority of the study area intersections using Synchro software (version 9). Within each scenario, network cycle lengths and splits were optimized. As a result, some intersections may show lower average vehicle delays in the build alternatives with additional bus trips, due to improved signal coordination. **Table 3-1** presents a brief description of each LOS letter grade, as well as the range of HCM average intersection delay associated with each grade for both signalized and unsignalized intersections.

Table 3-1: Intersection LOS Definitions

Level of Service	Description	Signalized Intersection Delay (seconds per vehicle)	Unsignalized Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	>10 and ≤ 20	>10 and ≤ 15
C	Good operation. Occasionally drivers may have to wait more than 60 seconds, and back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤ 35	>15 and ≤ 25
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	>35 and ≤ 55	>25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55 and ≤ 80	>35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups form locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	> 80	> 50

Source: *Highway Capacity Manual*, Special Report 209, Transportation Research Board, Washington, DC, 2000.

Due to the difference in the configuration and operation of the dedicated bus lane facility along Holt Boulevard between Benson Avenue and Vineyard Avenue in the City of Ontario, intersection analysis was performed using the VISSIM micro-simulation software for this segment. VISSIM is capable of simulating transit, automobile, pedestrian operations, parking operations, and incorporating transit signal priority (TSP) systems. This software has the capability to model bus operations in exclusive bus lanes with TSP while incorporating bus dwell time. The VISSIM model includes road geometrics, intersection configuration, signal parameters, speed limits, and traffic volumes. Output statistics from the VISSIM model were collected after an initial seeding time interval of 900 seconds. In order to increase the confidence level of the data obtained from the simulation runs, a total of five simulation runs, each with a different random seed, were performed for each peak hour. The average of these runs was used in the output results. The analysis will include the a.m. and p.m. peak hour HCM LOS (average delay) and queue length results at the 13 signalized intersections along this segment.

It should be noted that intersection vehicle delay results generated by microsimulation models such as VISSIM are not HCM compliant. HCM calculations are based on control delay and stopped delay that directly contributes to the traffic control devices. VISSIM directly measures the total delay, which consists of control delay, stopped delay, and other delay incurred in the vicinity of the traffic control device, such as vehicles slowing down for turn movements. The differences are typically negligible.

3.1 Thresholds of Significance

The jurisdictions within the study area consider LOS D as the minimum acceptable LOS to be used for all intersections. A significant impact is considered to occur if an intersection that is forecast to operate at LOS D or better in “No Build” conditions exceeds LOS D in “Build” conditions. In addition, a significant impact is considered to occur if the project results in any increase in delay at an intersection forecast to operate at LOS E or F in “No Build” conditions. The jurisdictions do not have specific significant impact criteria for unsignalized intersections.

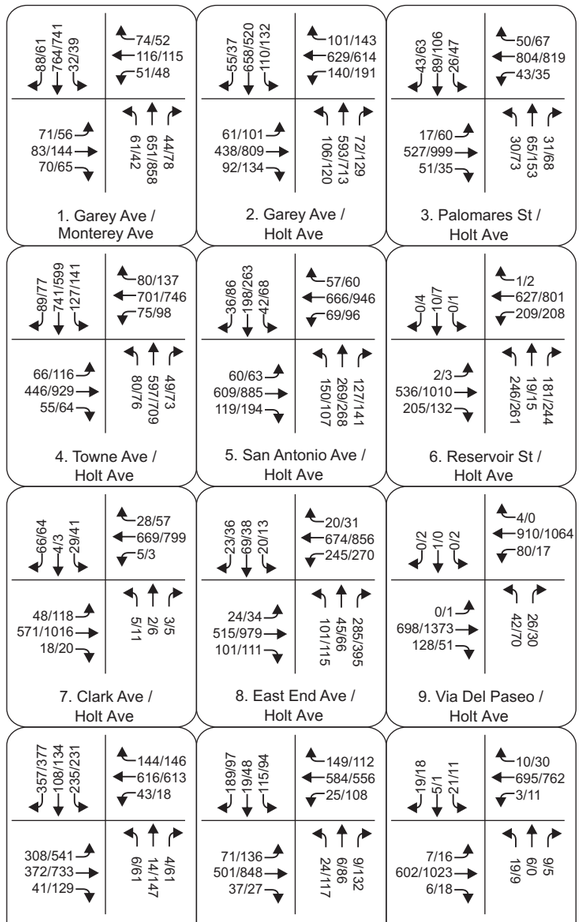
4.0 TRAFFIC VOLUME DEVELOPMENT

This section summarizes the methodologies used to develop the existing and forecast future traffic volumes in the study area.

4.1 Existing (2016) Volumes

Existing traffic counts were collected in April, May, July, and September 2016 at 126 of the 129 study intersections. Recent traffic count data (2015) was obtained at 3 of the intersections. Detailed vehicle classification counts (passenger vehicles, buses, 2-axle trucks, 3-axle trucks, and trucks with 4 or more axles) were conducted at 7 of the 129 intersections. Peak hour vehicle counts were collected at the remaining study intersections. Truck percentages from the seven intersections were used to calculate the vehicle classification counts at the other 123 intersections. Traffic volumes at all study intersections were then converted to passenger car equivalent (PCE) volumes. PCE volumes are used to represent the greater impact that trucks have on traffic operations because of their larger size and generally slower acceleration than passenger vehicles. A PCE factor of 1.5 was used for 2-axle trucks, 2.0 for 3-axle trucks, and 3.0 for trucks with 4 or more axles. PCE volumes at the remaining 105 intersections were calculated utilizing an average PCE factor and truck percentage based on the data at these seven intersections. Existing traffic count data is provided in **Appendix A**. Existing a.m. and p.m. peak hour traffic volumes at the study intersections are illustrated in **Figure 4-1**, split into four sub-figures.

In addition to the intersection counts at the 129 study intersections, peak hour turning movement counts were collected at six unsignalized, minor street intersections along Holt Boulevard, between Benson Avenue and Vineyard Avenue, in order to estimate the magnitude of trip diversion may could result upon construction of center-running bus lanes with raised medians. These streets were Oaks Avenue, Boulder Avenue, Lemon Avenue, Monterey Avenue, Virginia Avenue, and Imperial Avenue. Traffic count data for these intersections are also provided in **Appendix A**.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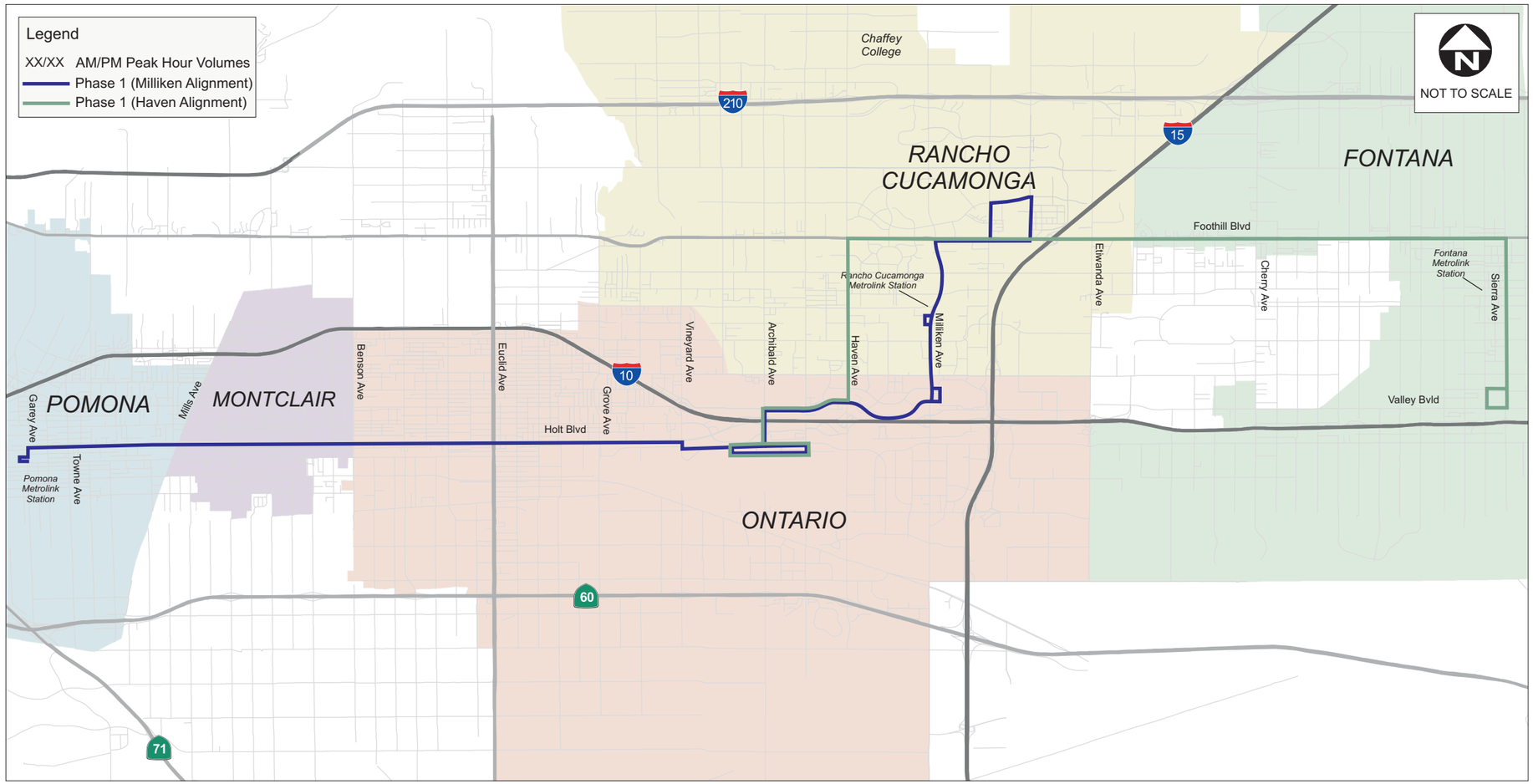
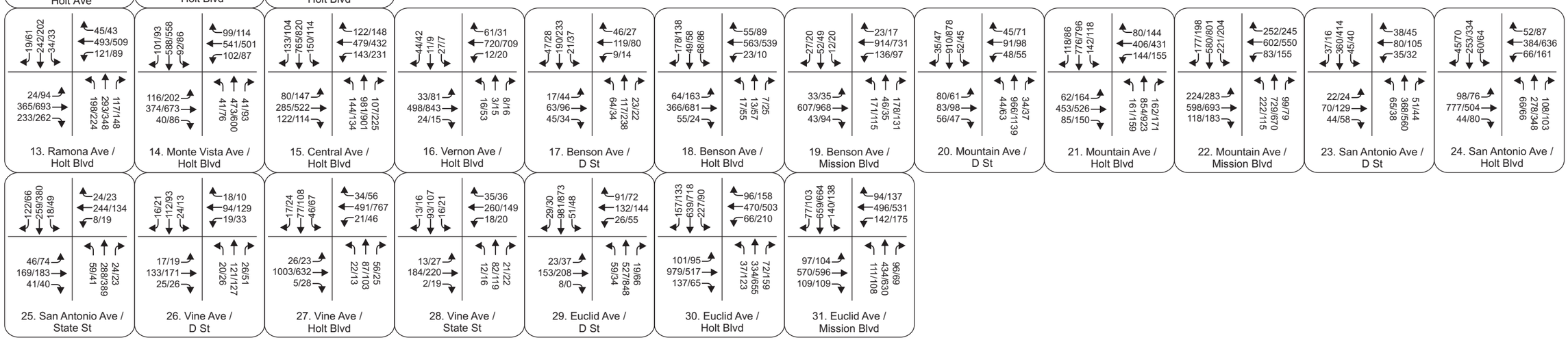
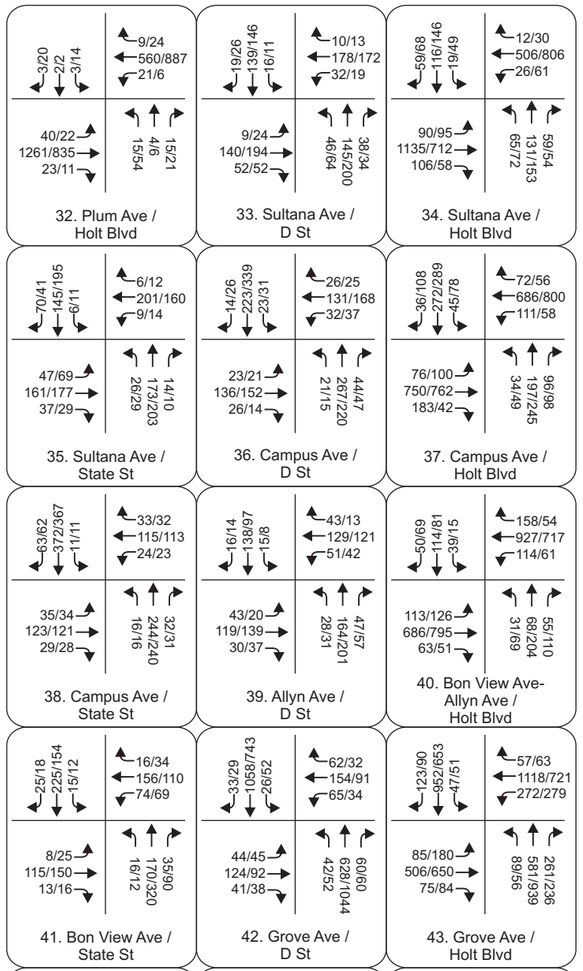
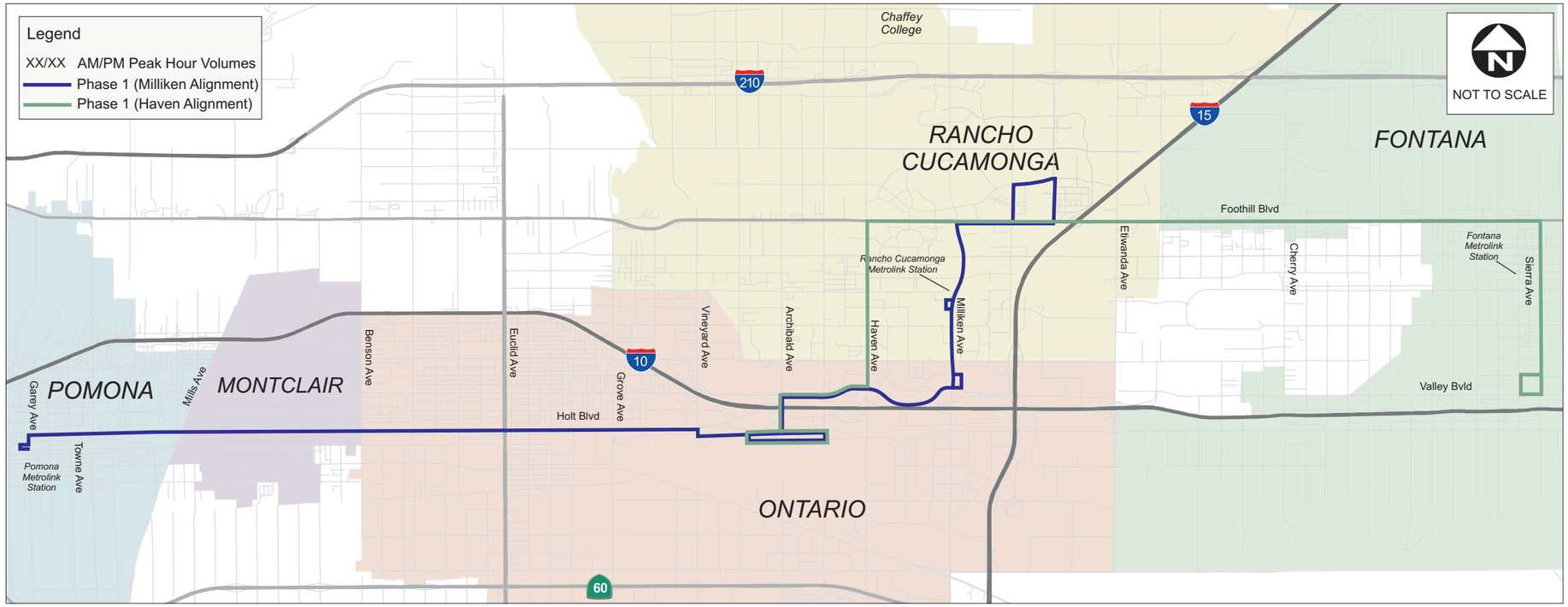
2. Garey Ave / Holt Ave
3. Palomares St / Holt Ave
4. Towne Ave / Holt Ave
5. San Antonio Ave / Holt Ave
6. Reservoir St / Holt Ave
7. Clark Ave / Holt Ave
8. East End Ave / Holt Ave
9. Via Del Paseo / Holt Ave
10. Indian Hill Blvd / Holt Ave
11. Mills Ave / Holt Blvd
12. Amherst Ave / Holt Blvd


Legend
XX/XX AM/PM Peak Hour Volumes
Phase 1 (Milliken Alignment)
Phase 1 (Haven Alignment)
NOT TO SCALE
Chaffey College
RANCHO CUCAMONGA
FONTANA
POMONA
MONTCLAIR
ONTARIO
Foothill Blvd
Valley Blvd
Holt Blvd
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
Pomona Metrolink Station
Garey Ave
Towne Ave
Mills Ave
Benson Ave
Euclid Ave
Grove Ave
Vineyard Ave
Archibald Ave
Haven Ave
Milliken Ave
Etiwanda Ave
Cherry Ave
Sierra Ave
210
15
10
60
71


13. Ramona Ave / Holt Blvd
14. Monte Vista Ave / Holt Blvd
15. Central Ave / Holt Blvd
16. Vernon Ave / Holt Blvd
17. Benson Ave / D St
18. Benson Ave / Holt Blvd
19. Benson Ave / Mission Blvd
20. Mountain Ave / D St
21. Mountain Ave / Holt Blvd
22. Mountain Ave / Mission Blvd
23. San Antonio Ave / D St
24. San Antonio Ave / Holt Blvd
25. San Antonio Ave / State St
26. Vine Ave / D St
27. Vine Ave / Holt Blvd
28. Vine Ave / State St
29. Euclid Ave / D St
30. Euclid Ave / Holt Blvd
31. Euclid Ave / Mission Blvd


3/20 2/2 3/14
9/24 560/887 21/6
40/22 1261/835 23/11
4/6 15/54 15/21
32. Plum Ave / Holt Blvd
19/26 139/146 16/11
10/13 178/172 32/19
9/24 140/194 52/52
38/34 145/200 46/64
33. Sultana Ave / D St
59/68 116/146 19/49
12/30 506/806 26/61
90/95 1135/712 106/58
59/54 131/153 65/72
34. Sultana Ave / Holt Blvd
70/41 145/195 6/11
6/12 201/160 9/14
47/69 161/177 37/29
14/10 173/203 26/29
35. Sultana Ave / State St
14/26 223/339 23/31
26/25 131/168 32/37
23/21 136/152 26/14
44/47 267/220 21/15
36. Campus Ave / D St
36/108 272/289 45/78
72/56 686/800 111/58
76/100 750/762 183/42
96/98 197/245 34/49
37. Campus Ave / Holt Blvd
63/62 372/367 11/11
33/32 115/113 24/23
35/34 123/121 29/28
32/31 244/240 16/16
38. Campus Ave / State St
16/14 138/97 15/8
43/13 129/121 51/42
43/20 119/139 30/37
47/57 164/201 28/31
39. Allyn Ave / D St
50/69 114/181 39/15
158/54 927/717 114/61
113/126 686/795 63/51
55/110 68/204 31/69
40. Bon View Ave- Allyn Ave / Holt Blvd
25/18 225/154 15/12
16/34 156/110 74/69
8/25 115/150 13/16
35/90 170/320 16/12
41. Bon View Ave / State St
33/29 1058/743 26/52
62/32 154/91 65/34
44/45 124/92 41/38
60/60 628/1044 42/52
42. Grove Ave / D St
123/90 952/653 47/51
57/63 1118/721 272/279
85/180 506/650 75/84
261/236 581/939 89/56
43. Grove Ave / Holt Blvd
Legend
XX/XX AM/PM Peak Hour Volumes
Phase 1 (Milliken Alignment)
Phase 1 (Haven Alignment)
Chaffey College
210
15
RANCHO CUCAMONGA
FONTANA
NOT TO SCALE
Foothill Blvd
Rancho Cucamonga Metrolink Station
Etiwanda Ave
Cherry Ave
Fontana Metrolink Station
Sierra Ave
Milliken Ave
Haven Ave
Archibald Ave
Vineyard Ave
Euclid Ave
Benson Ave
Mills Ave
Garey Ave
POMONA
MONTCLAIR
10
Grove Ave
Holt Blvd
Valley Bvld
Towne Ave
Pomona Metrolink Station
ONTARIO
60
71
20/18 1260/1000 16/17
28/26 239/180 788/599
22/23 112/234 14/8
539/775 852/1162 14/20
44. Grove Ave / State St
7/21 0/26
31/6 1450/925
15/1 747/913
45. County Building / Holt Blvd
101/45 0/3 16/18
19/23 1362/821 4/9
66/34 668/909 0/2
1/1
46. Corona Ave / Holt Blvd
194/191 743/370 138/75
89/189 45/97 18/31
211/225 32/38 35/28
31/20 342/547 23/26
47. Vineyard Ave / D St
309/167 394/227 60/47
102/43 980/630 162/142
129/218 535/723 39/44
134/96 163/307 49/65
48. Vineyard Ave / Hold Blvd
420/267 22/10 128/127
79/132 520/532 10/6
303/385 451/647 6/2
6/1 1/0
49. Vineyard Ave / Airport Dr
10/15 41/94 51/83
165/92 1225/681 19/28
25/32 598/776 73/76
4/3 61/86 53/60
50. Guasti Rd / Holt Blvd
85/42 594/678 275/122
33/281 25/46 8/64
33/92 22/50 24/70
56/23 499/858 52/45
51. Archibald Ave / Guasti Rd
270/350 164/137 198/332
222/315 184/342 47/45
364/538 189/314 8/11
6/26 20/85 12/18
52. Archibald Ave / Airport Dr
404/635
593/820
10/36 8/5
53. Moore Wy / Airport Dr
407/649 51/46
543/825 67/88
16/39 16/38
54. Terminal Wy / Airport Dr
515/817 436/505 429/366
409/388 235/92
804/760 253/239
94/330 421/1613 51/276
55. Archibald Ave / I-10 Ramps
7/15 1105/1205 148/129
37/143 47/90 242/382
14/22 10/26 33/110
493/427 1013/1230 133/98
56. Archibald Ave / Inland Empire Blvd
114/108 65/18 167/115
51/156 147/253 201/45
81/210 255/342 129/26
24/109 10/60 20/109
57. Hermosa Ave / Inland Empire Blvd
18/10 4/3 26/18
11/31 387/391 18/5
8/16 370/576 49/12
6/23 1/3 10/44
58. Shelby St / Inland Empire Blvd
34/52 2/0 25/36
28/57 380/367 72/20
58/64 323/557 17/0
3/43 0/2 2/6
59. Center Ave / Inland Empire Blvd
69/41 1246/1969 48/37
19/36 95/140 108/567
49/151 90/194 220/429
596/387 1916/1684 423/313
60. Haven Ave / Inland Empire Blvd
22/74 1/2 5/12
15/9 189/522 33/31
84/27 546/605 87/53
3/10 1/2 28/76
61. Porche Wy / Inland Empire Blvd
26/98 1/4 10/8
8/7 217/430 14/26
117/29 395/582 29/25
1/15 0/5 5/19
62. Mercedes Ln / Inland Empire Blvd
6/86 0/1 4/41
56/2 234/327 84/58
102/21 224/560 0/6
3/15 2/9
63. Private Dwy / Inland Empire Blvd
0/10 0/34
1/8 415/345 10/22
7/7 146/639 17/20
6/18 3/15
64. Mathir-Car Max / Inland Empire Blvd
5/30 6/7 11/40
38/18 414/328 34/63
20/34 126/658 5/12
6/38 3/6 8/11
65. Ferrari Ln / Inland Empire Blvd
120/105 759/1249 30/86
18/77 72/69 91/189
58/261 31/255 48/287
102/325 967/1413 373/348
66. Miliken Ave / Inland Empire Blvd
217/114 828/1102 49/163
36/103 72/61 45/153
65/301 22/118 47/128
55/115 864/1479 143/165
67. Miliken Ave / Concours St



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69. Miliken Ave / 6th St: 223/136, 649/953, 96/171 | 86/189, 243/233, 63/126 | 99/341, 169/571, 59/188 | 170/103, 628/1302, 95/125

70. Miliken Ave / 7th St: 11/18, 926/100, 30/21 | 8/46, 14/29 | 38/167, 0/2, 23/108 | 128/73, 655/1751, 21/11

71. Miliken Ave / Jersey Blvd: 55/27, 900/894, 28/21 | 16/48, 85/86, 70/78 | 16/129, 45/96, 67/160 | 145/59, 478/1913, 92/26

72. Miliken Ave / Arrow Rte: 154/129, 745/578, 65/50 | 55/107, 704/465, 151/118 | 63/245, 261/864, 110/208 | 180/211, 254/1586, 55/282

73. Miliken Ave / Millenium Ct: 1/2, 934/710, 10/70 | 0/13, 2/0, 24/27 | 2/5, 2/0 | 11/33, 322/2044, 14/25

74. Miliken Ave / Foothill Blvd: 188/123, 735/384, 167/159 | 77/178, 968/803, 199/173 | 61/282, 415/1545, 98/179 | 85/329, 186/1285, 68/467

75. Mayten Ave / Foothill Blvd: 30/17, 8/8, 23/30 | 25/31, 1158/1070, 36/55 | 10/35, 593/2030, 5/43 | 11/24, 4/18, 19/58

76. Masi Dr / Foothill Blvd: 48/75, 6/7, 24/36 | 32/23, 1102/962, 70/69 | 40/113, 509/1814, 82/174 | 64/114, 5/15, 54/106

77. Rochester Ave / Foothill Blvd: 99/76, 359/239, 246/222 | 87/199, 1060/922, 209/173 | 53/208, 495/1664, 58/64 | 42/102, 75/546, 79/313

78. Victoria Commons / Foothill Blvd: 2/4, 0/2, 11/20 | 6/14, 1394/1333, 15/47 | 3/10, 792/2191, 3/35 | 4/27, 3/56

79. Day Creek Blvd / Foothill Blvd: 83/240, 93/152, 458/735 | 176/419, 1327/1081, 283/369 | 49/444, 768/1787, 4/46 | 4/64, 22/295, 67/483

80. I-15 SB Ramps / Foothill Blvd: 601/526, 118/140 | 1761/1492 | 447/2129, 920/996

81. I-15 NB Ramps / Foothill Blvd: 1146/1070 | 324/1136, 196/904 | 702/790, 368/584

82. Etiwanda Ave / Foothill Blvd: 212/157, 280/190, 26/51 | 28/50, 919/739, 188/113 | 45/248, 357/973, 157/170 | 120/272, 80/325, 36/226

83. Cornwall Ave / Foothill Blvd: 43/18, 3/0, 7/4 | 16/8, 1426/828, 32/8 | 11/24, 554/1278, 7/8 | 14/10, 0/2, 12/127

84. East Ave / Foothill Blvd: 170/61, 136/89 | 173/132, 1322/820 | 142/136, 502/1307

85. Cottonwood Ave / Foothill Blvd: 1413/866, 49/46 | 578/1324, 25/32 | 101/60, 48/61

86. Mulberry Ave / Foothill Blvd: 243/105, 141/64, 60/50 | 19/21, 1053/719, 50/38 | 69/177, 544/1129, 26/41 | 69/61, 67/166, 58/46

87. Banana Ave / Foothill Blvd: 48/24, 41/21, 97/56 | 84/100, 986/777, 33/44 | 21/48, 713/1068, 10/31 | 23/27, 30/35, 29/38

88. Cherry Ave / Foothill Blvd: 184/135, 435/351, 132/170 | 87/122, 845/558, 180/98 | 175/238, 384/813, 107/94 | 193/167, 407/530, 101/203

89. Redwood Ave / Foothill Blvd: 11/29, 16/23, 10/31 | 14/21, 1092/733, 31/45 | 43/20, 529/1172, 35/42 | 27/43, 40/48, 18/38

90. Hemlock Ave / Foothill Blvd: 6/79, 1/23, 23/158 | 58/79, 1149/722, 71/59 | 38/53, 502/1142, 14/37 | 23/34, 9/8, 63/52

91. Almeria Ave / Foothill Blvd: 140/60, 47/33, 73/43 | 164/78, 860/808, 16/24 | 39/82, 404/1166, 12/13 | 3/17, 42/92, 8/36

92. Tokay Ave / Foothill Blvd: 94/54, 59/37, 68/52 | 50/121, 944/743, 31/57 | 33/75, 483/1184, 31/58 | 59/62, 64/102, 39/73

93. Citrus Ave / Foothill Blvd: 154/92, 702/539, 118/217 | 66/117, 761/696, 167/232 | 126/255, 403/913, 116/181 | 119/164, 432/658, 68/110

94. Cypress Ave / Foothill Blvd: 63/43, 53/45, 25/30 | 24/42, 703/853, 3/13 | 18/54, 514/1032, 26/46 | 26/31, 38/58, 21/25

95. Juniper Ave / Foothill Blvd: 44/31, 171/207, 21/28 | 14/25, 573/670, 54/115 | 21/43, 544/916, 93/133 | 79/181, 151/320, 90/127

96. Sierra Ave / Foothill Blvd: 96/109, 811/557, 194/170 | 125/200, 579/566, 149/252 | 114/162, 389/756, 80/149 | 69/159, 316/862, 73/161

97. Sierra Ave / Upland Ave: 21/30, 884/745, 57/113 | 47/97, 71/52, 18/30 | 10/57, 29/58, 12/24 | 18/20, 442/1006, 13/42

98. Sierra Ave / Seville Ave: 6/6, 878/804, 3/34 | 5/22, 4/9, 6/7 | 1/8, 3/5, 10/28 | 2/7, 496/1003, 9/29

99. Sierra Ave / Spring St: 26/25, 869/809 | 12/86, 8/39 | 494/951, 5/20

100. Sierra Ave / Arrow Blvd: 61/62, 729/593, 61/121 | 58/55, 471/340, 34/104 | 40/86, 267/517, 56/83 | 45/77, 381/863, 47/70

101. Sierra Ave / Valencia Ave: 12/22, 842/729, 5/18 | 9/19, 9/26, 4/18 | 4/15, 13/19, 16/40 | 14/27, 458/965

102. Sierra Ave / Orange Wy: 21/25, 826/750, 7/6 | 3/20, 22/27, 11/21 | 12/35, 24/34, 42/71 | 43/33, 486/923, 8/46

103. Sierra Ave / Ceres Ave: 23/22, 870/824, 4/10 | 19/14, 20/16, 13/17 | 10/27, 20/46, 21/39 | 9/16, 491/974, 15/29

104. Sierra Ave / Merrill Ave: 52/51, 817/732, 28/85 | 26/45, 337/261, 115/119 | 42/99, 222/481, 100/103 | 64/146, 469/901, 76/149

105. Sierra Ave / Randall Ave: 49/56, 877/890, 37/67 | 28/53, 223/185, 171/104 | 38/121, 188/286, 63/104 | 58/89, 572/1086, 59/146

106. Sierra Ave / San Bernardino Ave: 43/43, 975/1049, 25/77 | 16/53, 327/174, 303/207 | 35/110, 204/405, 65/108 | 65/143, 627/1153, 120/241

107. Sierra Ave / Marygold Ave: 25/41, 999/1120, 225/69 | 83/54, 97/174, 334/246 | 64/104, 109/364, 37/105 | 58/183, 726/1256, 211/278

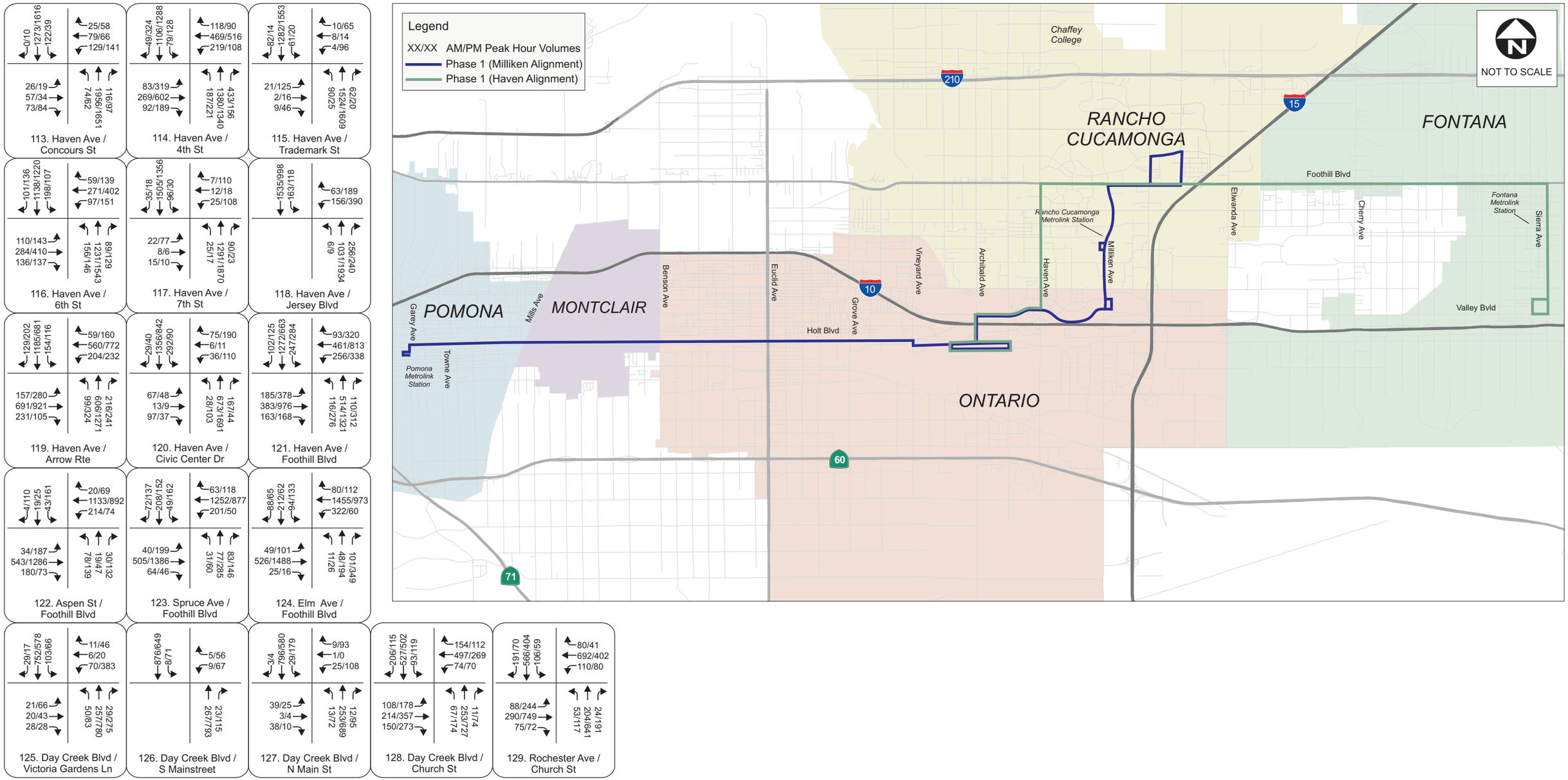
108. Juniper Ave / Marygold Ave: 222/201, 122/204 | 120/283, 79/96 | 93/242, 88/185

109. Juniper Ave / Valley Blvd: 181/85, 29/83, 116/129 | 42/141, 475/582, 21/106 | 135/236, 393/805, 50/124 | 25/120, 12/70, 20/56

110. Inland Empire Ctr / Valley Blvd: 2/4 | 434/708, 111/402 | 2/7, 530/1061, 30/65 | 19/74, 0/2, 8/95

111. Sierra Ave / Valley Blvd: 50/72, 1264/1278, 109/161 | 65/186, 331/531, 579/637 | 99/224, 259/588, 187/252 | 142/259, 983/1199, 789/775

112. Sierra Ave / Kaiser Permanente: 8/16, 1405/1446, 0/1 | 0/0, 0/0, 0/0 | 6/85, 0/0, 28/47 | 44/136, 981/1573, 0/0


Legend
XX/XX AM/PM Peak Hour Volumes
Phase 1 (Milliken Alignment)
Phase 1 (Haven Alignment)
NOT TO SCALE
Chaffey College
RANCHO CUCAMONGA
FONTANA
POMONA
MONTCLAIR
ONTARIO
Foothill Blvd
Rancho Cucamonga Metrolink Station
Fontana Metrolink Station
Pomona Metrolink Station
Holt Blvd
Valley Blvd
Garey Ave
Towne Ave
Mills Ave
Benson Ave
Euclid Ave
Grove Ave
Vineyard Ave
Archibald Ave
Haven Ave
Milliken Ave
Etiwanda Ave
Cherry Ave
Sierra Ave
210
15
10
60
71
0/10 1273/1616 122/39
25/58 79/66 129/141
26/19 57/34 73/84
74/62 1956/1651 116/97
113. Haven Ave / Concours St
49/324 1106/1288 79/128
118/90 469/516 219/108
83/319 269/602 92/189
187/221 1380/1340 433/156
114. Haven Ave / 4th St
82/14 1282/1553 61/20
10/65 8/14 4/96
21/125 2/16 9/46
90/25 1524/1609 62/20
115. Haven Ave / Trademark St
101/136 1138/1220 198/107
59/139 271/402 97/151
110/143 284/410 136/137
156/146 1231/1543 89/129
116. Haven Ave / 6th St
35/18 1505/1356 96/30
7/110 12/18 25/108
22/77 8/6 15/10
25/17 1291/1870 90/23
117. Haven Ave / 7th St
1535/998 163/118
63/189 156/390
6/9 1031/1934 256/240
118. Haven Ave / Jersey Blvd
129/202 1185/681 154/116
59/160 560/772 204/232
157/280 691/921 231/105
99/324 606/1271 216/241
119. Haven Ave / Arrow Rte
29/40 1356/842 292/90
75/190 6/11 36/110
67/48 13/9 97/37
28/103 673/1691 167/44
120. Haven Ave / Civic Center Dr
102/125 1272/663 247/284
93/320 461/813 256/338
185/378 383/976 163/168
116/276 514/1321 110/312
121. Haven Ave / Foothill Blvd
4/110 19/25 43/161
20/69 1133/892 214/74
34/187 543/1286 180/73
78/139 19/47 30/132
122. Aspen St / Foothill Blvd
72/137 208/152 49/162
63/118 1252/877 201/50
40/199 505/1386 64/46
31/60 77/285 83/146
123. Spruce Ave / Foothill Blvd
88/65 212/62 94/133
80/112 1455/973 322/60
49/101 526/1488 25/16
11/26 48/194 101/349
124. Elm Ave / Foothill Blvd
29/17 75/578 103/66
11/46 6/20 70/383
21/66 20/43 28/28
50/83 257/780 29/275
125. Day Creek Blvd / Victoria Gardens Ln
876/649 8/71
5/56 9/67
23/115 267/793
126. Day Creek Blvd / S Mainstreet
3/4 796/580 29/179
9/93 1/0 25/108
39/25 3/4 38/10
13/72 253/689 12/95
127. Day Creek Blvd / N Main St
206/115 527/502 93/119
154/112 497/269 74/70
108/178 214/357 150/273
67/174 253/727 11/74
128. Day Creek Blvd / Church St
191/70 566/404 106/59
80/41 692/402 110/80
88/244 290/749 75/72
53/117 204/641 24/191
129. Rochester Ave / Church St

4.2 Travel Demand Model Refinement

This section describes the methodology used to develop future traffic volume forecasts in the study area using a travel-demand model. A key objective of the traffic modeling effort for this project was to maintain consistency with the traffic forecasts developed for the I-10 Corridor Study – PA/ED HOV and Express Lanes Project by the San Bernardino County Transportation Authority (SBCTA). The San Bernardino County Transportation Analysis Model (SBTAM) used for the I-10 Corridor Study – PA/ED HOV and Express Lanes Project was utilized for this project, including all base roadway network and demographic data assumptions.

SANBAG developed the SBTAM based on the SCAG RTP 2012 model. The SBTAM has been validated to Base Year 2008 conditions and has a horizon year of 2035. The SBTAM, which utilizes the TransCAD platform (version 5.0 r4), includes additional detail within San Bernardino County. The model has been recalibrated based on countywide traffic activity, with the screenline analysis showing that the model validates against base year counts along several screenlines in both the Valley and Mountain/Desert areas. SBTAM is a multi-modal model that can incorporate potential vehicle trip reductions as a result of a mode shift to transit use.

As mentioned, the SBTAM currently includes base year 2008 and horizon year 2035 model scenarios. The West Valley Connector project required model runs for one No Build scenario and three (3) build alternative scenarios for each model scenario. The following model scenarios, including the resulting configuration changes from center-running bus lanes and restricted left-turn movements along Holt Boulevard between Benson Avenue and Vineyard Avenue, have been run as follows:

- Base Year 2008 No Build Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario (existing configuration).
- Base Year 2008 Build Alternative A Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario, with additional buses operating in mixed-flow lanes throughout the corridor, with side-running stations only.
- Base Year 2008 Build Alternative B Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario, with center-running bus lanes and left-turn access restrictions at minor streets. In addition, a reduction in the posted vehicular speed limit to 35 mph was incorporated.
- Base Year 2008 Build Alternative C Conditions – Includes Holt Boulevard as a 2-lane roadway within the City of Ontario, with center-running bus lanes and left-turn access restrictions at minor streets. In addition, a reduction in the posted vehicular speed limit to 35 mph was incorporated.
- Future Year 2035 No Build Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario (existing configuration), as well as 2035 SED in the study area.

- Future Year 2035 Build Alternative A Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario, with additional buses operating in mixed-flow lanes throughout the corridor, with side-running stations only, as well as 2035 SED in the study area.
- Future Year 2035 Build Alternative B Conditions – Includes Holt Boulevard as a 4-lane roadway within the City of Ontario, with center-running bus lanes and left-turn access restrictions at minor streets, as well as 2035 SED in the study area. In addition, a reduction in the posted vehicular speed limit to 35 mph was incorporated.
- Future Year 2035 Build Alternative C Conditions – Includes Holt Boulevard as a 2-lane roadway within the City of Ontario, with center-running bus lanes and left-turn access restrictions at minor streets, as well as 2035 SED in the study area. In addition, a reduction in the posted vehicular speed limit to 35 mph was incorporated.

As noted in Alternatives B and C, construction of center-running bus lanes would require the restriction of left-turning access at minor cross-streets (unsignalized intersections) along Holt Boulevard between Benson Avenue and Vineyard Avenue. Several of these smaller cross streets were not in the original SBTAM circulation network, thus they were added to the network for this project.

Traffic volumes used along the Phase 2 alignment route intersections in Alternatives D, E, and F were developed by adding the project trip generation to the No Build volumes. Separate model runs, for turning movement volume purposes, were not conducted for these three alternatives because no roadway configuration changes or turn restrictions are recommended for intersections along the Phase 2 alignment (Haven Avenue branch) route.

Model Output Post-Processing

Future year 2040 forecasts were developed through the following process. Growth between the model's base year (2008) and horizon year (2035) volumes were extrapolated to represent traffic growth for the number of years between the existing traffic volumes and the project's design year using the following methodology:

- For each intersection approach, modeled 2008 turning movement volumes were subtracted from modeled 2035 volumes. This difference represents 27 years of model volume growth at each intersection.
- The 27 years of traffic volume growth were factored down linearly to develop 24 years of growth (representing 2016 to 2040) at each intersection turning movement.
- The 24 years of traffic volume growth were added to the 2016 traffic counts to obtain future year 2040 turning movement volumes.

Opening year 2023 traffic volumes were developed using growth rate factors extrapolated from the model growth between the 2008 and 2035 model scenarios. Note that the traffic analysis and forecast volumes were prepared when 2020 was the estimated opening year. The current opening year estimate is 2023. Nevertheless, the traffic modeling forecasts volumes through 2040, and the results showed that a negligible traffic increase would occur between 2020 and 2023. Thus, a three-year delay in the opening date does not substantially alter this analysis.

5.0 EXISTING (2016) CONDITIONS

This section presents the existing environmental setting in addition to the intersection traffic levels of service in existing conditions as well as the three build alternatives in existing conditions. Peak hour traffic volumes at the study intersections for all of the build alternatives in existing conditions are provided in **Appendix C**.

5.1 Environmental Setting

This section presents an overview of the existing roadway and transit system within the study area, and the methodology used to determine existing traffic volumes.

Roadway Configurations

The existing configurations of the major roadways within the study area are described as follows:

Holt Avenue/Boulevard, is a four-lane undivided roadway, oriented in an east-west direction, with posted speed limits varying from 40 to 45 miles per hour. Within the project study area, Holt Avenue/Boulevard traverses the Cities of Pomona, Montclair, and Ontario. Within Montclair, a raised landscaped median is provided, while a painted, two-way left-turn median is provided within Pomona and Ontario. On-street parking is provided along most of the corridor.

Foothill Boulevard, oriented in an east-west direction, is generally a six-lane divided roadway with a raised median, with posted speed limits ranging from 45 miles per hour in the eastern portion to 50 and 55 miles per in the western portion. Foothill Boulevard runs through Rancho Cucamonga and Fontana, and provides access to I-15 within the study area.

Haven Avenue, oriented in a north-south direction, is generally a six-lane divided roadway with a raised median, and a posted speed limit of 50 miles per hour. Haven Avenue runs through Rancho Cucamonga and Ontario.

Milliken Avenue, oriented in a north-south direction, is generally a six-lane divided roadway with a raised median, and a posted speed limit of 50 miles per hour. Milliken Avenue runs through Rancho Cucamonga and Ontario, and provides access to the Rancho Cucamonga Metrolink Station as well as the Ontario Mills Mall within the study area.

Inland Empire Boulevard, oriented in an east-west direction, is a four-lane divided roadway with a raised median and a posted speed limit of 45 miles per hour west of Haven Avenue. Between Haven Avenue and Milliken Avenue, Inland Empire Boulevard is a six-lane divided roadway.

Sierra Avenue, oriented in a north-south direction, is a four-lane divided roadway with on-street parking provided, and posted speed limits varying from 30 to 40 miles per hour. A raised median

is provided within the Downtown area as well as south of San Bernardino Avenue, and a painted, two-way left-turn median is provided along the rest of the corridor. Sierra Avenue runs through Fontana, and provides access to the Fontana Metrolink Station as well as the Kaiser Permanente Hospital within the study area.

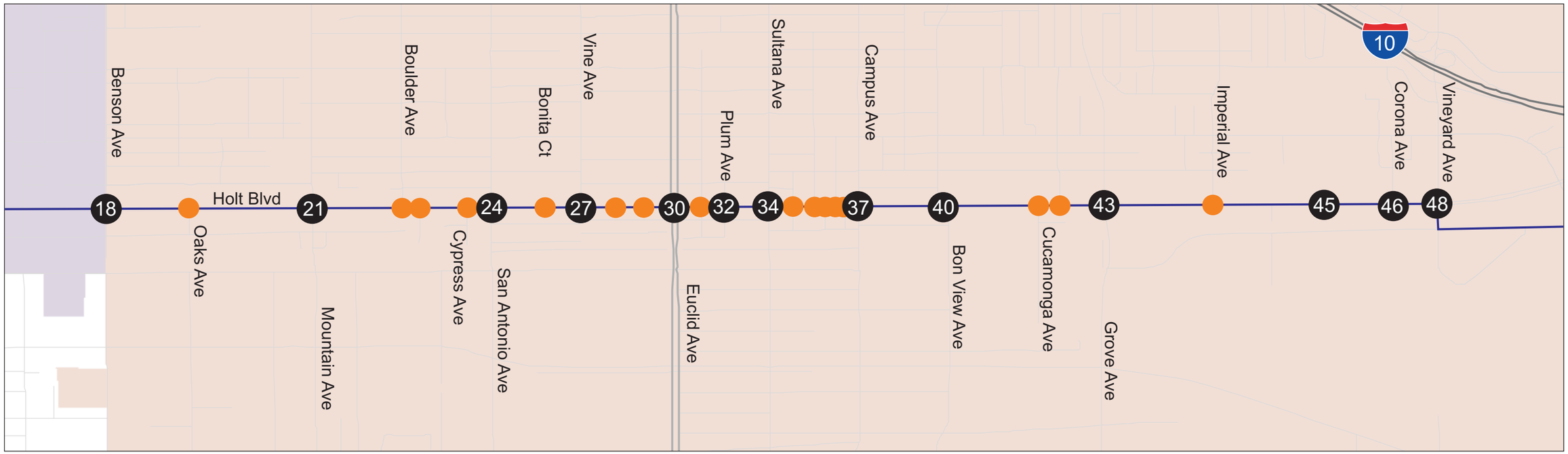
Existing Public Transit

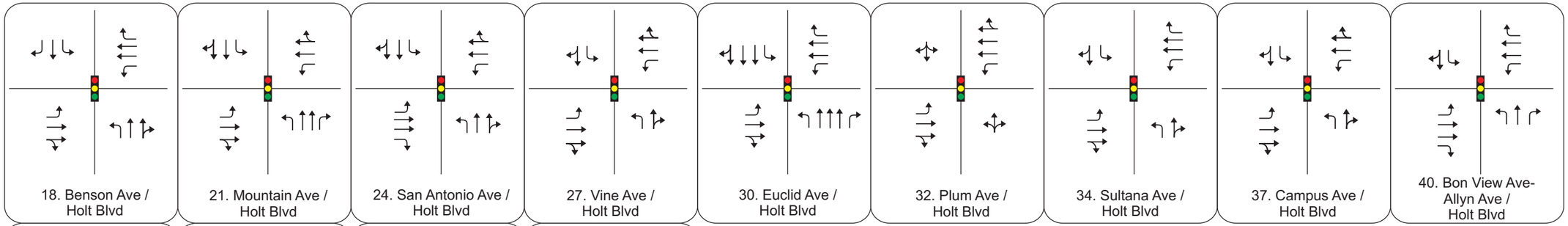
Omnitrans operates several bus routes within the project study area, including Route 61 along Holt Avenue/Boulevard and Inland Empire Boulevard. In addition, other Omnitrans routes that currently run along roadways within the project study area include:

- Route 80 along Holt Boulevard (between Euclid Avenue and Vineyard Avenue)
- Route 81 along Milliken Avenue
- Route 66 along Foothill Boulevard
- Route 82 along Milliken Avenue and Sierra Avenue
- Routes 10, 14, 15, 19, 20, and 67 along Sierra Avenue
- Route 29 along Valley Boulevard

5.2 Existing Intersection LOS Analysis

A LOS analysis was conducted to evaluate existing intersection operations during the a.m. and p.m. peak hours at the 129 study intersections using the methodologies described in Section 3. **Table 5-1** summarizes the existing peak hour intersection LOS at the study intersections. LOS calculations sheets are provided in **Appendix C**. **Figure 5-1** shows the existing intersection lane configurations along the Holt Boulevard segment within the City of Ontario where dedicated BRT lanes would be provided as part of the project.





NOT TO SCALE

Legend
- # Study Intersection
- Full Access Unsignalized Intersection

iteris

West Valley Connector Project
Omnitrans

Figure 5-1
Existing Intersection Configurations
(Benson Avenue to Vineyard Avenue)

Table 5-1: Existing (2016) Intersection Peak Hour LOS

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
1	Garey Ave/Monterey Ave	Signalized	16.2	B	15.1	B
2	Garey Ave/Holt Ave	Signalized	37.7	D	46.5	D
3	Palomares St/Holt Ave	Signalized	9.6	A	11.2	B
4	Towne Ave/Holt Ave	Signalized	32.6	C	40.6	D
5	San Antonio Ave/Holt Ave	Signalized	17.0	B	11.3	B
6	Reservoir St/Holt Ave	Signalized	14.5	B	17.2	B
7	Clark Ave/Holt Ave	Signalized	7.2	A	7.7	A
8	East End Ave/Holt Ave	Signalized	21.7	C	40.3	D
9	Via Del Paseo/Holt Ave	Signalized	5.9	A	6.3	A
10	Indian Hill Blvd/Holt Ave	Signalized	21.6	C	22.6	C
11	Mills Ave/Holt Blvd	Signalized	11.0	B	16.7	B
12	Amherst Ave/Holt Blvd	Signalized	5.8	A	2.8	A
13	Ramona Ave/Holt Blvd	Signalized	30.1	C	21.1	C
14	Monte Vista Ave/Holt Blvd	Signalized	19.4	B	19.4	B
15	Central Ave/Holt Blvd	Signalized	26.2	C	28.2	C
16	Vernon Ave/Holt Blvd	Signalized	9.2	A	12.9	B
17	Benson Ave/D St	Stop Control	10.6	B	9.9	A
18	Benson Ave/Holt Blvd*	Signalized	10.9	B	11.1	B
19	Benson Ave/Mission Blvd	Signalized	26.5	C	22.7	C
20	Mountain Ave/D St	Signalized	12.8	B	13.3	B
21	Mountain Ave/Holt Blvd*	Signalized	33.5	C	34.8	C
22	Mountain Ave/Mission Blvd	Signalized	38.5	D	38.6	D
23	San Antonio Ave/D St	Stop Control	12.4	B	16.9	C
24	San Antonio Ave/Holt Blvd*	Signalized	19.2	B	24.2	C
25	San Antonio Ave/State St	Stop Control	**273.8**	**F**	**397.6**	**F**
26	Vine Ave/D St	Stop Control	10.4	B	10.0	A
27	Vine Ave/Holt Blvd*	Signalized	12.3	B	9.3	A
28	Vine Ave/State St	Stop Control	22.5	C	17.3	C
29	Euclid Ave/D St	Signalized	11.3	B	11.9	B
30	Euclid Ave/Holt Blvd*	Signalized	35.4	D	33.5	C
31	Euclid Ave/Mission Blvd	Signalized	35.9	D	37.2	D
32	Plum Ave/Holt Blvd*	Signalized	2.9	A	4.1	A
33	Sultana Ave/D St	Stop Control	12.8	B	13.8	B
34	Sultana Ave/Holt Blvd*	Signalized	17.3	B	18.6	B
35	Sultana Ave/State St	Stop Control	14.2	B	12.1	B
36	Campus Ave/D St	Stop Control	16.9	C	17.5	C

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
37	Campus Ave/Holt Blvd*	Signalized	12.8	B	15.2	B
38	Campus Ave/State St	Stop Control	**49.5**	**E**	**45.3**	**E**
39	Allyn Ave/D St	Stop Control	11.6	B	11.0	B
40	Bon View Ave-Allyn Ave/Holt Blvd*	Signalized	12.3	B	14.3	B
41	Bon View Ave/State St	Stop Control	12.6	C	19.7	C
42	Grove Ave/D St	Signalized	11.9	B	6.9	A
43	Grove Ave/Holt Blvd*	Signalized	37.9	D	44.8	D
44	Grove Ave/State St	Signalized	**76.3**	**E**	40.5	D
45	County Building/Holt Blvd*	Signalized	10.9	B	9.9	A
46	Corona Ave/Holt Blvd*	Signalized	12.9	B	8.0	A
47	Vineyard Ave/D St	Signalized	19.1	B	17.4	B
48	Vineyard Ave/Holt Blvd*	Signalized	24.8	C	20.6	C
49	Vineyard Ave/Airport Dr	Signalized	24.8	C	22.4	C
50	Guasti Rd/Holt Blvd	Signalized	9.7	A	10.1	B
51	Archibald Ave/Guasti Rd	Signalized	14.8	B	17.0	B
52	Archibald Ave/Airport Dr	Signalized	25.2	C	28.4	C
53	Moore Wy/Airport Dr	Signalized	13.3	B	13.0	B
54	Terminal Wy/Airport Dr	Signalized	14.9	B	15.1	B
55	Archibald Ave/I-10 Ramps	Signalized	21.0	C	18.6	B
56	Archibald Ave/Inland Empire Blvd	Signalized	25.1	C	33.1	C
57	Hermosa Ave/Inland Empire Blvd	Signalized	25.3	C	20.9	C
58	Shelby St/Inland Empire Blvd	Signalized	7.3	A	9.4	A
59	Center Ave/Inland Empire Blvd	Signalized	6.8	A	7.7	A
60	Haven Ave/Inland Empire Blvd	Signalized	15.5	B	30.5	C
61	Porsche Wy/Inland Empire Blvd	Signalized	19.4	B	19.6	B
62	Mercedes Ln/Inland Empire Blvd	Signalized	8.3	A	9.3	A
63	Private Drwy/Inland Empire Blvd	Signalized	6.9	A	7.9	A
64	Mathis-Car Max/Inland Empire Blvd	Signalized	2.3	A	5.4	A
65	Ferrari Ln/Inland Empire Blvd	Signalized	8.5	A	9.5	A
66	Milliken Ave/Inland Empire Blvd	Signalized	12.8	B	15.0	B
67	Milliken Ave/Concours St	Signalized	8.6	A	14.8	B
68	Milliken Ave/4th St	Signalized	23.4	C	36.7	D
69	Milliken Ave/6th St	Signalized	16.9	B	20.1	C
70	Milliken Ave/7th St	Signalized	7.7	A	8.5	A
71	Milliken Ave/Jersey Blvd	Signalized	13.0	B	15.2	B
72	Milliken Ave/Arrow Route	Signalized	24.5	C	29.6	C
73	Milliken Ave/Millennium Ct	Signalized	4.4	A	3.2	A
74	Milliken Ave/Foothill Blvd	Signalized	22.0	C	27.1	C

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
75	Mayten Ave/Foothill Blvd	Signalized	6.3	A	14.8	B
76	Masi Dr/Foothill Blvd	Signalized	6.7	A	8.4	A
77	Rochester Ave/Foothill Blvd	Signalized	14.3	B	33.6	C
78	Victoria Commons/Foothill Blvd	Signalized	2.2	A	5.1	A
79	Day Creek Blvd/Foothill Blvd	Signalized	23.5	C	**57.3**	**E**
80	I-15 SB Ramps/Foothill Blvd	Signalized	12.6	B	11.8	B
81	I-15 NB Ramps/Foothill Blvd	Signalized	12.9	B	12.8	B
82	Etiwanda Ave/Foothill Blvd	Signalized	20.6	C	29.1	C
83	Cornwall Ave/Foothill Blvd	Signalized	6.9	A	5.1	A
84	East Ave/Foothill Blvd	Signalized	10.4	B	7.8	A
85	Cottonwood Ave/Foothill Blvd	Signalized	6.5	A	6.0	A
86	Mulberry Ave/Foothill Blvd	Signalized	15.4	B	14.9	B
87	Banana Ave/Foothill Blvd	Signalized	8.2	A	6.2	A
88	Cherry Ave/Foothill Blvd	Signalized	24.1	C	22.8	C
89	Redwood Ave/Foothill Blvd	Signalized	5.9	A	8.8	A
90	Hemlock Ave/Foothill Blvd	Signalized	9.2	A	10.3	B
91	Almeria Ave/Foothill Blvd	Signalized	13.7	B	9.8	A
92	Tokay Ave/Foothill Blvd	Signalized	11.9	B	8.8	A
93	Citrus Ave/Foothill Blvd	Signalized	32.6	C	47.1	D
94	Cypress Ave/Foothill Blvd	Signalized	7.5	A	8.4	A
95	Juniper Ave/Foothill Blvd	Signalized	13.0	B	19.4	B
96	Sierra Ave/Foothill Blvd	Signalized	32.1	C	53.0	D
97	Sierra Ave/Upland Ave	Signalized	10.2	B	12.5	B
98	Sierra Ave/Seville Ave	Signalized	1.5	A	3.7	A
99	Sierra Ave/Spring St	Signalized	1.5	A	4.4	A
100	Sierra Ave/Arrow Blvd	Signalized	22.2	C	31.4	C
101	Sierra Ave/Valencia Ave	Signalized	3.2	A	10.4	B
102	Sierra Ave/Orange Wy	Signalized	6.5	A	6.8	A
103	Sierra Ave/Ceres Ave	Signalized	4.2	A	5.0	A
104	Sierra Ave/Merrill Ave	Signalized	18.3	B	28.1	C
105	Sierra Ave/Randall Ave	Signalized	19.5	B	18.5	B
106	Sierra Ave/San Bernardino Ave	Signalized	30.3	C	33.9	C
107	Sierra Ave/Marygold Ave	Signalized	27.7	C	40.1	D
108	Juniper Ave/Marygold Ave	Signalized	11.9	B	16.8	B
109	Juniper Ave/Valley Blvd	Signalized	31.1	C	43.0	D
110	Inland Empire Ctr/Valley Blvd	Signalized	17.7	B	20.7	C
111	Sierra Ave/Valley Blvd	Signalized	29.2	C	51.9	D
112	Sierra Ave/Kaiser Permanente	Signalized	3.6	A	5.5	A

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
113	Haven Ave/Concours St	Signalized	16.5	B	13.2	B
114	Haven Ave/4th St	Signalized	17.9	B	31.7	C
115	Haven Ave/Trademark St	Signalized	5.7	A	8.4	A
116	Haven Ave/6th St	Signalized	20.1	C	26.9	C
117	Haven Ave/7th St	Signalized	4.7	A	15.5	B
118	Haven Ave/Jersey Blvd	Signalized	8.9	A	28.8	C
119	Haven Ave/Arrow Route	Signalized	24.6	C	34.6	C
120	Haven Ave/Civic Center Dr	Signalized	18.9	B	17.0	B
121	Haven Ave/Foothill Blvd	Signalized	31.9	C	41.7	D
122	Aspen St/Foothill Blvd	Signalized	13.6	B	18.3	B
123	Spruce Ave/Foothill Blvd	Signalized	14.2	B	23.2	C
124	Elm Ave/Foothill Blvd	Signalized	15.3	B	16.9	B
125	Day Creek Blvd/Victoria Gardens Ln	Signalized	15.3	B	20.6	C
126	Day Creek Blvd/S Main St	Signalized	2.1	A	8.2	A
127	Day Creek Blvd/N Main St	Signalized	10.0	A	16.9	B
128	Day Creek Blvd/Church St	Signalized	24.1	C	28.5	C
129	Rochester Ave/Church St	Signalized	25.6	C	23.2	C

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 5-1**, the following study intersections are currently operating at LOS E or worse:

- 25. San Antonio Avenue/State Street;
- 38. Campus Avenue/State Street;
- 44. Grove Avenue/State Street; and
- 79. Day Creek Boulevard/Foothill Boulevard.

5.3 Existing Plus Build Alternative A LOS Analysis

This section presents the existing plus Build Alternative A conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 5-2** summarizes the existing plus Build Alternative A LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative A consists of proposed project buses operating in mixed-flow lanes throughout the corridor, with side-running stations only. All intersection configurations would remain identical to existing conditions.

Table 5-2: Existing (2016) Plus Build Alternative A Intersection Peak Hour LOS

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.2	B	15.1	B	16.7	B	15.2	B	0.5	0.1	No
2	Garey Ave/Holt Ave	37.7	D	46.5	D	39.6	D	50.0	D	1.9	3.5	No
3	Palomares St/Holt Ave	9.6	A	11.2	B	10.0	A	10.2	B	0.4	-1.0	No
4	Towne Ave/Holt Ave	32.6	C	40.6	D	32.9	C	40.2	D	0.3	-0.4	No
5	San Antonio Ave/Holt Ave	17.0	B	11.3	B	15.1	B	12.0	B	-1.9	0.7	No
6	Reservoir St/Holt Ave	14.5	B	17.2	B	15.6	B	16.8	B	1.1	-0.4	No
7	Clark Ave/Holt Ave	7.2	A	7.7	A	7.1	A	7.5	A	-0.1	-0.2	No
8	East End Ave/Holt Ave	21.7	C	40.3	D	22.1	C	41.5	D	0.4	1.2	No
9	Via Del Paseo/Holt Ave	5.9	A	6.3	A	6.3	A	7.8	A	0.4	1.5	No
10	Indian Hill Blvd/Holt Ave	21.6	C	22.6	C	21.6	C	22.4	C	0.0	-0.2	No
11	Mills Ave/Holt Blvd	11.0	B	16.7	B	9.7	A	16.7	B	-1.3	0.0	No
12	Amherst Ave/Holt Blvd	5.8	A	2.8	A	4.7	A	3.0	A	-1.1	0.2	No
13	Ramona Ave/Holt Blvd	30.1	C	21.1	C	31.3	C	22.3	C	1.2	1.2	No
14	Monte Vista Ave/Holt Blvd	19.4	B	19.4	B	19.6	B	19.4	B	0.2	0.0	No
15	Central Ave/Holt Blvd	26.2	C	28.2	C	26.4	C	28.0	C	0.2	-0.2	No
16	Vernon Ave/Holt Blvd	9.2	A	12.9	B	9.2	A	12.9	B	0.0	0.0	No
17	Benson Ave/D St	10.6	B	9.9	A	10.6	B	9.9	A	0.0	0.0	No
18	Benson Ave/Holt Blvd*	10.9	B	11.1	B	10.8	B	11.3	B	-0.1	0.2	No
19	Benson Ave/Mission Blvd	26.5	C	22.7	C	26.5	C	22.7	C	0.0	0.0	No
20	Mountain Ave/D St	12.8	B	13.3	B	12.8	B	13.3	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	33.5	C	34.8	C	33.5	C	34.9	C	0.0	0.1	No
22	Mountain Ave/Mission Blvd	38.5	D	38.6	D	38.5	D	38.6	D	0.0	0.0	No
23	San Antonio Ave/D St	12.4	B	16.9	C	12.4	B	16.9	C	0.0	0.0	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.2	B	24.2	C	19.3	B	24.4	C	0.1	0.2	No
25	San Antonio Ave/State St	**273.8**	**F**	**397.6**	**F**	**273.8**	**F**	**397.6**	**F**	0.0	0.0	No
26	Vine Ave/D St	10.4	B	10.0	A	10.4	B	10.0	A	0.0	0.0	No
27	Vine Ave/Holt Blvd*	12.3	B	9.3	A	12.3	B	9.2	A	0.0	-0.1	No
28	Vine Ave/State St	22.5	C	17.3	C	22.5	C	17.3	C	0.0	0.0	No
29	Euclid Ave/D St	11.3	B	11.9	B	11.3	B	11.9	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	35.4	D	33.5	C	35.8	D	33.4	C	0.4	-0.1	No
31	Euclid Ave/Mission Blvd	35.9	D	37.2	D	35.9	D	37.2	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	2.9	A	4.1	A	2.9	A	4.1	A	0.0	0.0	No
33	Sultana Ave/D St	12.8	B	13.8	B	12.8	B	13.8	B	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.3	B	18.6	B	17.7	B	18.7	B	0.4	0.1	No
35	Sultana Ave/State St	14.2	B	12.1	B	14.2	B	12.1	B	0.0	0.0	No
36	Campus Ave/D St	16.9	C	17.5	C	16.9	C	17.5	C	0.0	0.0	No
37	Campus Ave/Holt Blvd*	12.8	B	15.2	B	12.7	B	15.2	B	-0.1	0.0	No
38	Campus Ave/State St	**49.5**	**E**	**45.3**	**E**	**49.5**	**E**	**45.3**	**E**	0.0	0.0	No
39	Allyn Ave/D St	11.6	B	11.0	B	11.6	B	11.0	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.3	B	14.3	B	12.5	B	14.2	B	0.2	-0.1	No
41	Bon View Ave/State St	12.6	C	19.7	C	12.6	B	19.7	C	0.0	0.0	No
42	Grove Ave/D St	11.9	B	6.9	A	11.9	B	6.9	A	0.0	0.0	No
43	Grove Ave/Holt Blvd*	37.9	D	44.8	D	38.3	D	45.7	D	0.4	0.9	No
44	Grove Ave/State St	**76.3**	**E**	40.5	D	**76.3**	**E**	40.4	D	0.0	0.0	No
45	County Building/Holt Blvd*	10.9	B	9.9	A	10.8	B	9.8	A	-0.1	-0.1	No
46	Corona Ave/Holt Blvd*	12.9	B	8.0	A	13.0	A	8.2	A	0.1	0.2	No
47	Vineyard Ave/D St	19.1	B	17.4	B	18.0	B	17.4	B	-1.1	0.0	No
48	Vineyard Ave/Holt Blvd*	24.8	C	20.6	C	25.0	C	20.6	C	0.2	0.0	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	24.8	C	22.4	C	24.9	C	22.7	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	9.7	A	10.1	B	9.7	A	10.1	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.8	B	17.0	B	14.7	B	17.0	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.2	C	28.4	C	25.3	C	28.5	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.3	B	13.0	B	13.2	B	12.9	B	-0.1	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.3	B	0.5	0.2	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.6	B	0.0	0.0	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	25.9	C	33.5	C	0.8	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.3	B	23.8	C	-2.7	-3.3	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.2	B	-0.1	0.4	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.6	A	8.2	A	-0.1	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.3	B	34.5	C	0.0	0.9	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.3	A	5.1	A	1.1	0.0	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.0	C	**58.0**	**E**	-0.5	0.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

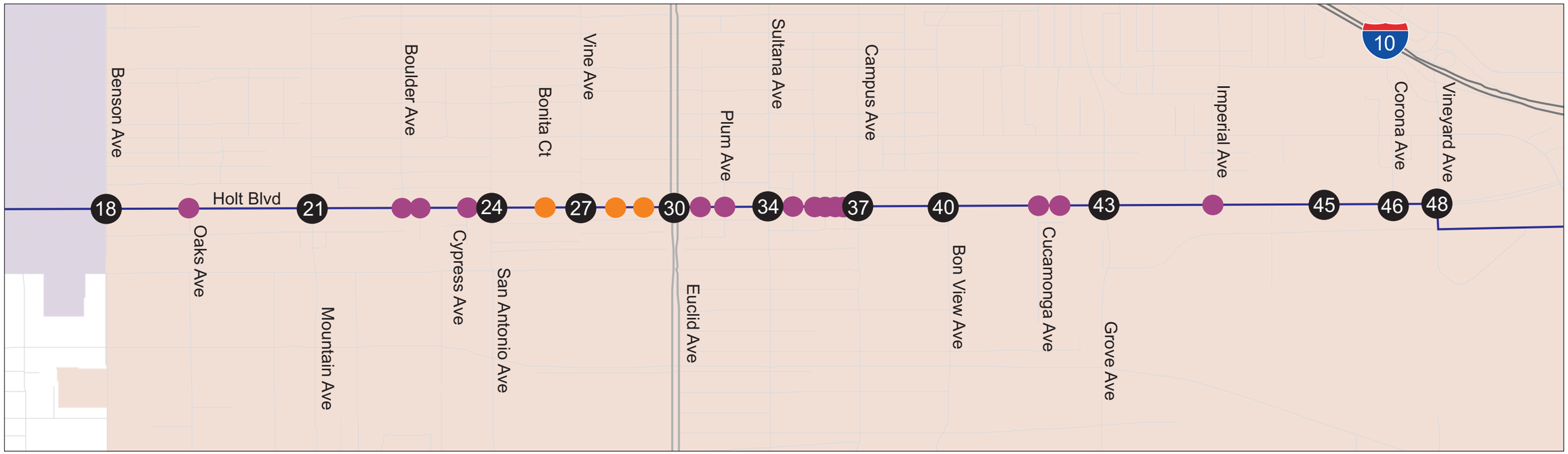
As shown in **Table 5-2**, based on the thresholds of significance described in Section 3.1, the following intersection is forecast to be significantly impacted by the Build Alternative A scenario in existing conditions:

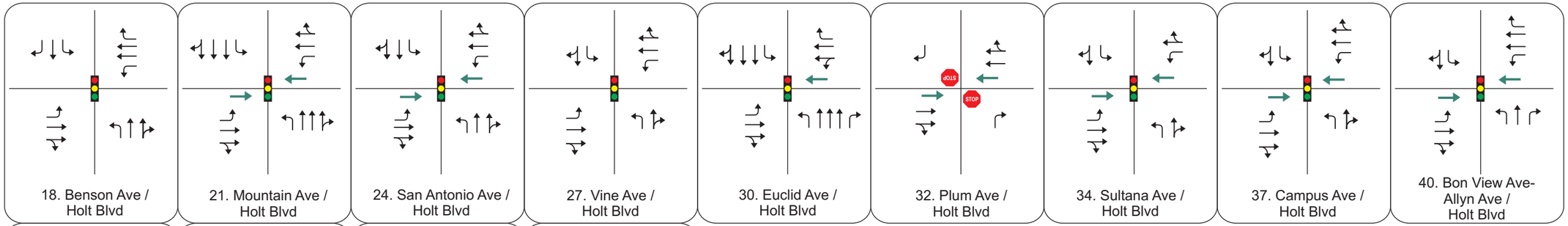
- 79. Day Creek Boulevard/Foothill Boulevard.

5.4 Existing Plus Build Alternative B LOS Analysis

This section presents the existing plus Build Alternative B conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 5-3** summarizes the existing plus Build Alternative B LOS at the study intersections. LOS calculations sheets are provided in **Appendix B.** As described earlier, Build Alternative B consists of center-running bus lanes and left-turn access restrictions at several minor intersections along Holt Boulevard between Benson Avenue and Vineyard Avenue. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data. **Figure 5-2** shows the Build Alternative B intersection lane configurations along the Holt Boulevard segment where dedicated BRT lanes would be provided. Intersection lane configurations along the rest of the project alignment would remain identical to existing conditions.

Intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.





NOT TO SCALE

Legend

- Study Intersection
- Full Access Unsignalized Intersection
- Restricted Access Unsignalized Intersection
- Center Running Bus Lane

Table 5-3: Existing (2016) Plus Build Alternative B Intersection Peak Hour LOS

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.2	B	15.1	B	16.7	B	15.2	B	0.5	0.1	No
2	Garey Ave/Holt Ave	37.7	D	46.5	D	39.6	D	50.0	D	1.9	3.5	No
3	Palomares St/Holt Ave	9.6	A	11.2	B	10.0	A	10.2	B	0.4	-1.0	No
4	Towne Ave/Holt Ave	32.6	C	40.6	D	32.9	C	40.2	D	0.3	-0.4	No
5	San Antonio Ave/Holt Ave	17.0	B	11.3	B	15.1	B	12.0	B	-1.9	0.7	No
6	Reservoir St/Holt Ave	14.5	B	17.2	B	15.6	B	16.8	B	1.1	-0.4	No
7	Clark Ave/Holt Ave	7.2	A	7.7	A	7.1	A	7.5	A	-0.1	-0.2	No
8	East End Ave/Holt Ave	21.7	C	40.3	D	22.1	C	41.5	D	0.4	1.2	No
9	Via Del Paseo/Holt Ave	5.9	A	6.3	A	6.3	A	7.8	A	0.4	1.5	No
10	Indian Hill Blvd/Holt Ave	21.6	C	22.6	C	21.6	C	22.4	C	0.0	-0.2	No
11	Mills Ave/Holt Blvd	11.0	B	16.7	B	9.7	A	16.7	B	-1.3	0.0	No
12	Amherst Ave/Holt Blvd	5.8	A	2.8	A	4.7	A	3.0	A	-1.1	0.2	No
13	Ramona Ave/Holt Blvd	30.1	C	21.1	C	31.3	C	22.3	C	1.2	1.2	No
14	Monte Vista Ave/Holt Blvd	19.4	B	19.4	B	19.6	B	19.4	B	0.2	0.0	No
15	Central Ave/Holt Blvd	26.2	C	28.2	C	26.3	C	28.0	C	0.1	-0.2	No
16	Vernon Ave/Holt Blvd	9.2	A	12.9	B	9.3	A	12.9	B	0.1	0.0	No
17	Benson Ave/D St	10.6	B	9.9	A	10.6	B	9.9	A	0.0	0.0	No
18	Benson Ave/Holt Blvd*	10.9	B	11.1	B	11.2	B	11.9	B	0.3	0.8	No
19	Benson Ave/Mission Blvd	26.5	C	22.7	C	26.5	C	22.7	C	0.0	0.0	No
20	Mountain Ave/D St	12.8	B	13.3	B	12.8	B	13.3	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	33.5	C	34.8	C	34.0	C	35.5	D	0.5	0.7	No
22	Mountain Ave/Mission Blvd	38.5	D	38.6	D	38.5	D	38.6	D	0.0	0.0	No
23	San Antonio Ave/D St	12.4	B	16.9	C	12.4	B	16.9	C	0.0	0.0	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.2	B	24.2	C	22.8	C	28.1	C	3.6	3.9	No
25	San Antonio Ave/State St	**273.8**	**F**	**397.6**	**F**	**273.8**	**F**	**397.6**	**F**	0.0	0.0	No
26	Vine Ave/D St	10.4	B	10.0	A	10.4	B	10.0	A	0.0	0.0	No
27	Vine Ave/Holt Blvd*	12.3	B	9.3	A	33.1	C	15.9	B	20.8	6.6	No
28	Vine Ave/State St	22.5	C	17.3	C	22.5	C	17.3	C	0.0	0.0	No
29	Euclid Ave/D St	11.3	B	11.9	B	11.3	B	11.9	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	35.4	D	33.5	C	**74.1**	**E**	40.6	D	38.7	7.1	**Yes**
31	Euclid Ave/Mission Blvd	35.9	D	37.2	D	35.9	D	37.2	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	2.9	A	4.1	A	0.5	A	1.2	A	-2.4	-2.9	No
33	Sultana Ave/D St	12.8	B	13.8	B	12.8	B	13.8	B	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.3	B	18.6	B	20.6	C	29.3	C	3.3	10.7	No
35	Sultana Ave/State St	14.2	B	12.1	B	14.2	B	12.1	B	0.0	0.0	No
36	Campus Ave/D St	16.9	C	17.5	C	16.9	C	17.5	C	0.0	0.0	No
37	Campus Ave/Holt Blvd*	12.8	B	15.2	B	19.5	B	22.4	C	6.7	7.2	No
38	Campus Ave/State St	**49.5**	**E**	**45.3**	**E**	**49.5**	**E**	**45.3**	**E**	0.0	0.0	No
39	Allyn Ave/D St	11.6	B	11.0	B	11.6	B	11.0	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.3	B	14.3	B	10.4	B	11.7	B	-1.9	-2.6	No
41	Bon View Ave/State St	12.6	C	19.7	C	12.6	B	19.7	C	0.0	0.0	No
42	Grove Ave/D St	11.9	B	6.9	A	11.9	B	6.9	A	0.0	0.0	No
43	Grove Ave/Holt Blvd*	37.9	D	44.8	D	45.5	D	41.2	D	7.6	-3.6	No
44	Grove Ave/State St	**76.3**	**E**	40.5	D	**76.3**	**E**	40.2	D	0.0	-0.2	No
45	County Building/Holt Blvd*	10.9	B	9.9	A	10.6	B	10.4	B	-0.3	0.5	No
46	Corona Ave/Holt Blvd*	12.9	B	8.0	A	13.4	B	8.9	A	0.5	0.9	No
47	Vineyard Ave/D St	19.1	B	17.4	B	18.0	B	17.4	B	-1.1	0.0	No
48	Vineyard Ave/Holt Blvd*	24.8	C	20.6	C	25.1	C	21.5	C	0.3	0.9	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	24.8	C	22.4	C	24.9	C	22.7	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	9.7	A	10.1	B	9.7	A	10.1	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.8	B	17.0	B	14.7	B	17.0	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.2	C	28.4	C	25.3	C	28.5	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.3	B	13.0	B	13.2	B	12.9	B	-0.1	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.3	B	0.5	0.2	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.6	B	0.0	0.0	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	25.9	C	33.5	C	0.8	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.3	B	23.8	C	-2.7	-3.3	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.2	B	-0.1	0.4	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.6	A	8.2	A	-0.1	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.3	B	34.5	C	0.0	0.9	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.3	A	5.1	A	1.1	0.0	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.0	C	**58.0**	**E**	-0.5	0.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

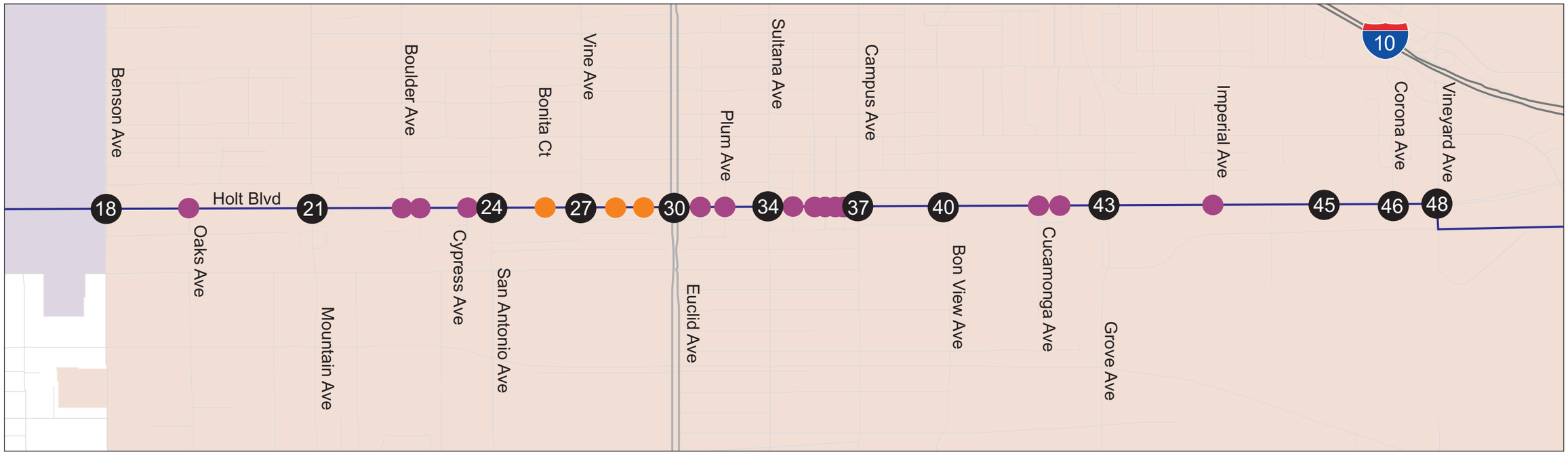
As shown in **Table 5-3**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative B scenario in existing conditions:

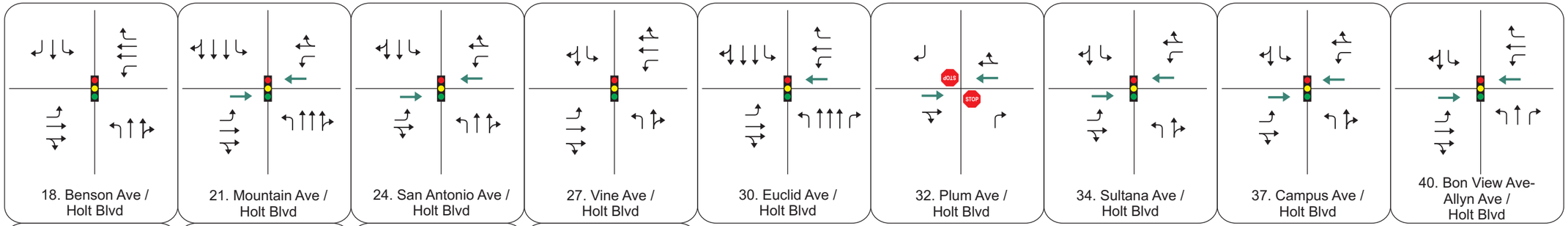
- 30. Euclid Avenue/Holt Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

5.5 Existing Plus Build Alternative C LOS Analysis

This section presents the existing plus Build Alternative C conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 5-4** summarizes the existing plus Build Alternative C LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative C consists of a reduction in travel lanes, from four lanes to two lanes, along Holt Boulevard between Benson Avenue and Vineyard Avenue, as well as center-running bus lanes and left-turn access restrictions at several minor intersections in this segment. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data. **Figure 5-3** shows the Build Alternative C intersection lane configurations along the Holt Boulevard segment where dedicated BRT lanes would be provided. Intersection lane configurations along the rest of the project alignment would remain identical to existing conditions.

Similar to Build Alternative B, intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.





NOT TO SCALE

Legend

- Study Intersection
- Full Access Unsignalized Intersection
- Restricted Access Unsignalized Intersection
- Center Running Bus Lane

Figure 5-3
Alternative C Intersection Configurations
(Benson Avenue to Vineyard Avenue)

Table 5-4: Existing (2016) Plus Build Alternative C Intersection Peak Hour LOS

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.2	B	15.1	B	16.7	B	15.2	B	0.5	0.1	No
2	Garey Ave/Holt Ave	37.7	D	46.5	D	39.6	D	50.0	D	1.9	3.5	No
3	Palomares St/Holt Ave	9.6	A	11.2	B	10.0	A	10.2	B	0.4	-1.0	No
4	Towne Ave/Holt Ave	32.6	C	40.6	D	32.9	C	40.2	D	0.3	-0.4	No
5	San Antonio Ave/Holt Ave	17.0	B	11.3	B	15.1	B	12.0	B	-1.9	0.7	No
6	Reservoir St/Holt Ave	14.5	B	17.2	B	15.6	B	16.8	B	1.1	-0.4	No
7	Clark Ave/Holt Ave	7.2	A	7.7	A	7.1	A	7.5	A	-0.1	-0.2	No
8	East End Ave/Holt Ave	21.7	C	40.3	D	22.1	C	41.5	D	0.4	1.2	No
9	Via Del Paseo/Holt Ave	5.9	A	6.3	A	6.3	A	7.8	A	0.4	1.5	No
10	Indian Hill Blvd/Holt Ave	21.6	C	22.6	C	21.6	C	22.4	C	0.0	-0.2	No
11	Mills Ave/Holt Blvd	11.0	B	16.7	B	9.8	A	16.7	B	-1.2	0.0	No
12	Amherst Ave/Holt Blvd	5.8	A	2.8	A	4.7	A	3.0	A	-1.1	0.2	No
13	Ramona Ave/Holt Blvd	30.1	C	21.1	C	31.3	C	22.3	C	1.2	1.2	No
14	Monte Vista Ave/Holt Blvd	19.4	B	19.4	B	20.0	B	19.5	B	0.6	0.1	No
15	Central Ave/Holt Blvd	26.2	C	28.2	C	26.2	C	28.2	C	0.0	0.0	No
16	Vernon Ave/Holt Blvd	9.2	A	12.9	B	9.2	A	13.4	B	0.0	0.5	No
17	Benson Ave/D St	10.6	B	9.9	A	10.5	B	10.8	B	-0.1	0.9	No
18	Benson Ave/Holt Blvd*	10.9	B	11.1	B	12.0	B	11.6	B	1.1	0.5	No
19	Benson Ave/Mission Blvd	26.5	C	22.7	C	27.0	C	24.4	C	0.5	1.7	No
20	Mountain Ave/D St	12.8	B	13.3	B	13.0	B	15.0	B	0.2	1.7	No
21	Mountain Ave/Holt Blvd*	33.5	C	34.8	C	35.7	D	43.5	D	2.2	8.7	No
22	Mountain Ave/Mission Blvd	38.5	D	38.6	D	38.7	D	47.4	D	0.2	8.8	No
23	San Antonio Ave/D St	12.4	B	16.9	C	12.5	B	21.3	C	0.1	4.4	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.2	B	24.2	C	21.7	C	26.8	B	2.5	2.6	No
25	San Antonio Ave/State St	**273.8**	**F**	**397.6**	**F**	**347.7**	**F**	**500.0**	**F**	73.9	102.4	**Yes**
26	Vine Ave/D St	10.4	B	10.0	A	10.5	B	11.1	B	0.1	1.1	No
27	Vine Ave/Holt Blvd*	12.3	B	9.3	A	18.4	B	15.8	B	6.1	6.5	No
28	Vine Ave/State St	22.5	C	17.3	C	22.9	C	21.3	C	0.4	4.0	No
29	Euclid Ave/D St	11.3	B	11.9	B	11.7	B	14.3	B	0.4	2.4	No
30	Euclid Ave/Holt Blvd*	35.4	D	33.5	C	**55.1**	**E**	**77.3**	**E**	19.7	43.8	**Yes**
31	Euclid Ave/Mission Blvd	35.9	D	37.2	D	36.5	D	51.9	D	0.6	14.7	No
32	Plum Ave/Holt Blvd*	2.9	A	4.1	A	4.7	A	28.9	C	1.8	24.8	No
33	Sultana Ave/D St	12.8	B	13.8	B	13.0	B	17.6	C	0.2	3.8	No
34	Sultana Ave/Holt Blvd*	17.3	B	18.6	B	30.9	C	**55.1**	**E**	13.6	36.5	**Yes**
35	Sultana Ave/State St	14.2	B	12.1	B	15.2	C	15.2	C	1.0	3.1	No
36	Campus Ave/D St	16.9	C	17.5	C	17.3	C	28.7	D	0.4	11.2	No
37	Campus Ave/Holt Blvd*	12.8	B	15.2	B	23.5	C	**66.8**	**E**	10.7	51.6	**Yes**
38	Campus Ave/State St	**49.5**	**E**	**45.3**	**E**	**72.8**	**F**	**353.1**	**F**	23.3	307.8	**Yes**
39	Allyn Ave/D St	11.6	B	11.0	B	11.7	B	11.7	B	0.1	0.7	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.3	B	14.3	B	22.6	C	46.3	D	10.3	32.0	No
41	Bon View Ave/State St	12.6	C	19.7	C	13.0	B	23.9	C	0.4	4.2	No
42	Grove Ave/D St	11.9	B	6.9	A	12.2	B	8.2	A	0.3	1.3	No
43	Grove Ave/Holt Blvd*	37.9	D	44.8	D	**61.6**	**E**	**71.4**	**E**	23.7	26.6	**Yes**
44	Grove Ave/State St	**76.3**	**E**	40.5	D	**79.7**	**E**	**58.3**	**E**	3.4	17.9	**Yes**
45	County Building/Holt Blvd*	10.9	B	9.9	A	**71.9**	**E**	16.3	B	61.0	6.4	**Yes**
46	Corona Ave/Holt Blvd*	12.9	B	8.0	A	37.2	D	8.3	A	24.3	0.3	No
47	Vineyard Ave/D St	19.1	B	17.4	B	18.3	B	19.8	B	-0.8	2.4	No
48	Vineyard Ave/Holt Blvd*	24.8	C	20.6	C	40.5	D	26.6	C	15.7	6.0	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	24.8	C	22.4	C	27.0	C	24.7	C	2.2	2.3	No
50	Guasti Rd/Holt Blvd	9.7	A	10.1	B	9.7	A	10.1	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.8	B	17.0	B	14.7	B	17.0	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.2	C	28.4	C	25.3	C	28.5	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.3	B	13.0	B	13.2	B	12.9	B	-0.1	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.3	B	0.5	0.2	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.6	B	0.0	0.0	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	25.9	C	33.5	C	0.8	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.3	B	23.8	C	-2.7	-3.3	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.2	B	-0.1	0.4	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.6	A	8.2	A	-0.1	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.3	B	34.5	C	0.0	0.9	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.3	A	5.1	A	1.1	0.0	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.0	C	**58.0**	**E**	-0.5	0.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 5-4**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative C scenario:

- 25. San Antonio Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative A and Alternative B conditions.

5.6 Existing Plus Build Alternative D LOS Analysis

This section presents the existing plus Build Alternative D conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 5-5** summarizes the existing plus Build Alternative D LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative D includes all design components of Alternative A, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 5-5: Existing (2016) Plus Build Alternative D Intersection Peak Hour LOS

	Intersection	Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

	Intersection	Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.5	B	0.7	0.4	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.7	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	26.5	C	33.7	C	1.4	0.6	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.2	B	23.9	C	-2.8	-3.2	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.4	B	-0.1	0.6	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.5	A	8.2	A	-0.2	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.2	B	34.8	C	-0.1	1.2	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.4	A	5.2	A	1.2	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.1	C	**58.6**	**E**	-0.4	1.3	**Yes**
80	I-15 SB Ramps/Foothill Blvd	12.6	B	11.8	B	12.7	B	11.7	B	0.1	-0.1	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.8	B	12.6	B	12.3	B	-0.3	-0.5	No
82	Etiwanda Ave/Foothill Blvd	20.6	C	29.1	C	20.8	C	29.3	C	0.2	0.2	No
83	Cornwall Ave/Foothill Blvd	6.9	A	5.1	A	5.6	A	6.2	A	-1.3	1.1	No
84	East Ave/Foothill Blvd	10.4	B	7.8	A	11.8	B	7.5	A	1.4	-0.3	No
85	Cottonwood Ave/Foothill Blvd	6.5	A	6.0	A	6.1	A	6.0	A	-0.4	0.0	No
86	Mulberry Ave/Foothill Blvd	15.4	B	14.9	B	15.3	B	14.9	B	-0.1	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	6.2	A	8.2	A	6.2	A	0.0	0.0	No
88	Cherry Ave/Foothill Blvd	24.1	C	22.8	C	24.1	C	22.8	C	0.0	0.0	No
89	Redwood Ave/Foothill Blvd	5.9	A	8.8	A	6.0	A	8.9	A	0.1	0.1	No
90	Hemlock Ave/Foothill Blvd	9.2	A	10.3	B	8.9	A	10.2	B	-0.3	-0.1	No
91	Almeria Ave/Foothill Blvd	13.7	B	9.8	A	13.7	B	9.8	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	11.9	B	8.8	A	11.8	B	8.8	A	-0.1	0.0	No
93	Citrus Ave/Foothill Blvd	32.6	C	47.1	D	32.5	C	47.6	D	-0.1	0.5	No
94	Cypress Ave/Foothill Blvd	7.5	A	8.4	A	7.2	A	8.5	A	-0.3	0.1	No
95	Juniper Ave/Foothill Blvd	13.0	B	19.4	B	14.7	B	19.5	B	1.7	0.1	No
96	Sierra Ave/Foothill Blvd	32.1	C	53.0	D	32.2	C	53.0	D	0.1	0.0	No
97	Sierra Ave/Upland Ave	10.2	B	12.5	B	10.0	A	12.3	B	-0.2	-0.2	No
98	Sierra Ave/Seville Ave	1.5	A	3.7	A	1.6	A	3.6	A	0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.5	A	4.4	A	1.8	A	4.6	A	0.3	0.2	No
100	Sierra Ave/Arrow Blvd	22.2	C	31.4	C	21.9	C	33.6	C	-0.3	2.2	No
101	Sierra Ave/Valencia Ave	3.2	A	10.4	B	3.2	A	7.2	A	0.0	-3.2	No
102	Sierra Ave/Orange Wy	6.5	A	6.8	A	7.2	A	7.9	A	0.7	1.1	No
103	Sierra Ave/Ceres Ave	4.2	A	5.0	A	4.8	A	5.1	A	0.6	0.1	No
104	Sierra Ave/Merrill Ave	18.3	B	28.1	C	17.9	B	28.1	C	-0.4	0.0	No
105	Sierra Ave/Randall Ave	19.5	B	18.5	B	19.7	B	17.8	B	0.2	-0.7	No
106	Sierra Ave/San Bernardino Ave	30.3	C	33.9	C	30.6	C	34.2	C	0.3	0.3	No
107	Sierra Ave/Marygold Ave	27.7	C	40.1	D	27.9	C	41.1	D	0.2	1.0	No
108	Juniper Ave/Marygold Ave	11.9	B	16.8	B	12.2	B	17.1	B	0.3	0.3	No
109	Juniper Ave/Valley Blvd	31.1	C	43.0	D	31.5	C	43.3	D	0.4	0.3	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.7	C	17.7	B	20.7	C	0.0	0.0	No
111	Sierra Ave/Valley Blvd	29.2	C	51.9	D	29.3	C	51.7	D	0.1	-0.2	No
112	Sierra Ave/Kaiser Permanente	3.6	A	5.5	A	3.6	A	5.9	A	0.0	0.4	No
113	Haven Ave/Concours St	16.5	B	13.2	B	16.5	B	13.2	B	0.0	0.0	No
114	Haven Ave/4th St	17.9	B	31.7	C	17.9	B	31.8	C	0.0	0.1	No
115	Haven Ave/Trademark St	5.7	A	8.4	A	5.7	A	8.4	A	0.0	0.0	No
116	Haven Ave/6th St	20.1	C	26.9	C	20.1	C	26.9	C	0.0	0.0	No
117	Haven Ave/7th St	4.7	A	15.5	B	4.7	A	15.6	B	0.0	0.1	No
118	Haven Ave/Jersey Blvd	8.9	A	28.8	C	8.9	A	29.3	C	0.0	0.5	No
119	Haven Ave/Arrow Rte	24.6	C	34.6	C	24.6	C	34.7	C	0.0	0.1	No
120	Haven Ave/Civic Center Dr	18.9	B	17.0	B	18.9	B	17.0	B	0.0	0.0	No
121	Haven Ave/Foothill Blvd	31.9	C	41.7	D	31.9	C	42.3	D	0.0	0.6	No
122	Aspen St/Foothill Blvd	13.6	B	18.3	B	13.7	B	18.4	B	0.1	0.1	No
123	Spruce Ave/Foothill Blvd	14.2	B	23.2	C	14.2	B	23.3	C	0.0	0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	15.3	B	16.9	B	15.3	B	17.0	B	0.0	0.1	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 5-5**, based on the thresholds of significance described in Section 3.1, the following intersection is forecast to be significantly impacted by the Build Alternative D scenario:

- 79. Day Creek Boulevard/Foothill Boulevard.

5.7 Existing Plus Build Alternative E LOS Analysis

This section presents the existing plus Build Alternative E conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 5-6** summarizes the existing plus Build Alternative E LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative E includes all design components of Alternative B, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 1-6: Existing (2016) Plus Build Alternative E Intersection Peak Hour LOS

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.5	B	0.7	0.4	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.7	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	26.5	C	33.7	C	1.4	0.6	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.2	B	23.9	C	-2.8	-3.2	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.4	B	-0.1	0.6	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.5	A	8.2	A	-0.2	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.2	B	34.8	C	-0.1	1.2	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.4	A	5.2	A	1.2	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.1	C	**58.6**	**E**	-0.4	1.3	**Yes**
80	I-15 SB Ramps/Foothill Blvd	12.6	B	11.8	B	12.7	B	11.7	B	0.1	-0.1	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.8	B	12.6	B	12.3	B	-0.3	-0.5	No
82	Etiwanda Ave/Foothill Blvd	20.6	C	29.1	C	20.8	C	29.3	C	0.2	0.2	No
83	Cornwall Ave/Foothill Blvd	6.9	A	5.1	A	5.6	A	6.2	A	-1.3	1.1	No
84	East Ave/Foothill Blvd	10.4	B	7.8	A	11.8	B	7.5	A	1.4	-0.3	No
85	Cottonwood Ave/Foothill Blvd	6.5	A	6.0	A	6.1	A	6.0	A	-0.4	0.0	No
86	Mulberry Ave/Foothill Blvd	15.4	B	14.9	B	15.3	B	14.9	B	-0.1	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	6.2	A	8.2	A	6.2	A	0.0	0.0	No
88	Cherry Ave/Foothill Blvd	24.1	C	22.8	C	24.1	C	22.8	C	0.0	0.0	No
89	Redwood Ave/Foothill Blvd	5.9	A	8.8	A	6.0	A	8.9	A	0.1	0.1	No
90	Hemlock Ave/Foothill Blvd	9.2	A	10.3	B	8.9	A	10.2	B	-0.3	-0.1	No
91	Almeria Ave/Foothill Blvd	13.7	B	9.8	A	13.7	B	9.8	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	11.9	B	8.8	A	11.8	B	8.8	A	-0.1	0.0	No
93	Citrus Ave/Foothill Blvd	32.6	C	47.1	D	32.5	C	47.6	D	-0.1	0.5	No
94	Cypress Ave/Foothill Blvd	7.5	A	8.4	A	7.2	A	8.5	A	-0.3	0.1	No
95	Juniper Ave/Foothill Blvd	13.0	B	19.4	B	14.7	B	19.5	B	1.7	0.1	No
96	Sierra Ave/Foothill Blvd	32.1	C	53.0	D	32.2	C	53.0	D	0.1	0.0	No
97	Sierra Ave/Upland Ave	10.2	B	12.5	B	10.0	A	12.3	B	-0.2	-0.2	No
98	Sierra Ave/Seville Ave	1.5	A	3.7	A	1.6	A	3.6	A	0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.5	A	4.4	A	1.8	A	4.6	A	0.3	0.2	No
100	Sierra Ave/Arrow Blvd	22.2	C	31.4	C	21.9	C	33.6	C	-0.3	2.2	No
101	Sierra Ave/Valencia Ave	3.2	A	10.4	B	3.2	A	7.2	A	0.0	-3.2	No
102	Sierra Ave/Orange Wy	6.5	A	6.8	A	7.2	A	7.9	A	0.7	1.1	No
103	Sierra Ave/Ceres Ave	4.2	A	5.0	A	4.8	A	5.1	A	0.6	0.1	No
104	Sierra Ave/Merrill Ave	18.3	B	28.1	C	17.9	B	28.1	C	-0.4	0.0	No
105	Sierra Ave/Randall Ave	19.5	B	18.5	B	19.7	B	17.8	B	0.2	-0.7	No
106	Sierra Ave/San Bernardino Ave	30.3	C	33.9	C	30.6	C	34.2	C	0.3	0.3	No
107	Sierra Ave/Marygold Ave	27.7	C	40.1	D	27.9	C	41.1	D	0.2	1.0	No
108	Juniper Ave/Marygold Ave	11.9	B	16.8	B	12.2	B	17.1	B	0.3	0.3	No
109	Juniper Ave/Valley Blvd	31.1	C	43.0	D	31.5	C	43.3	D	0.4	0.3	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.7	C	17.7	B	20.7	C	0.0	0.0	No
111	Sierra Ave/Valley Blvd	29.2	C	51.9	D	29.3	C	51.7	D	0.1	-0.2	No
112	Sierra Ave/Kaiser Permanente	3.6	A	5.5	A	3.6	A	5.9	A	0.0	0.4	No
113	Haven Ave/Concours St	16.5	B	13.2	B	16.5	B	13.2	B	0.0	0.0	No
114	Haven Ave/4th St	17.9	B	31.7	C	17.9	B	31.8	C	0.0	0.1	No
115	Haven Ave/Trademark St	5.7	A	8.4	A	5.7	A	8.4	A	0.0	0.0	No
116	Haven Ave/6th St	20.1	C	26.9	C	20.1	C	26.9	C	0.0	0.0	No
117	Haven Ave/7th St	4.7	A	15.5	B	4.7	A	15.6	B	0.0	0.1	No
118	Haven Ave/Jersey Blvd	8.9	A	28.8	C	8.9	A	29.3	C	0.0	0.5	No
119	Haven Ave/Arrow Rte	24.6	C	34.6	C	24.6	C	34.7	C	0.0	0.1	No
120	Haven Ave/Civic Center Dr	18.9	B	17.0	B	18.9	B	17.0	B	0.0	0.0	No
121	Haven Ave/Foothill Blvd	31.9	C	41.7	D	31.9	C	42.3	D	0.0	0.6	No
122	Aspen St/Foothill Blvd	13.6	B	18.3	B	13.7	B	18.4	B	0.1	0.1	No
123	Spruce Ave/Foothill Blvd	14.2	B	23.2	C	14.2	B	23.3	C	0.0	0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	15.3	B	16.9	B	15.3	B	17.0	B	0.0	0.1	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 5-6**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative E scenario:

- 30. Euclid Avenue/Holt Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

5.8 Existing Plus Build Alternative F LOS Analysis

This section presents the existing plus Build Alternative F conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 5-7** summarizes the existing plus Build Alternative F LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative F includes all design components of Alternative C, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 5-7: Existing (2016) Plus Build Alternative F Intersection Peak Hour LOS

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.5	B	0.7	0.4	No
55	Archibald Ave/I-10 Ramps	21.0	C	18.6	B	21.0	C	18.7	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.1	C	33.1	C	26.5	C	33.7	C	1.4	0.6	No
57	Hermosa Ave/Inland Empire Blvd	25.3	C	20.9	C	24.0	C	20.8	C	-1.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.3	A	9.4	A	10.1	B	9.3	A	2.8	-0.1	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.7	A	6.8	A	7.7	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.5	B	30.5	C	15.9	B	31.2	C	0.4	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	19.6	B	19.3	B	19.9	B	-0.1	0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.3	A	9.3	A	8.3	A	9.0	A	0.0	-0.3	No
63	Private Drwy/Inland Empire Blvd	6.9	A	7.9	A	6.9	A	8.9	A	0.0	1.0	No
64	Mathis-Car Max/Inland Empire Blvd	2.3	A	5.4	A	2.2	A	5.2	A	-0.1	-0.2	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.5	A	8.8	A	9.9	A	0.3	0.4	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	15.0	B	13.2	B	14.4	B	0.4	-0.6	No
67	Milliken Ave/Concours St	8.6	A	14.8	B	8.5	A	14.6	B	-0.1	-0.2	No
68	Milliken Ave/4th St	23.4	C	36.7	D	23.7	C	37.0	D	0.3	0.3	No
69	Milliken Ave/6th St	16.9	B	20.1	C	15.8	B	20.0	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	13.0	B	15.2	B	12.9	B	15.1	B	-0.1	-0.1	No
72	Milliken Ave/Arrow Route	24.5	C	29.6	C	24.8	C	29.5	C	0.3	-0.1	No
73	Milliken Ave/Millennium Ct	4.4	A	3.2	A	4.3	A	3.1	A	-0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.0	C	27.1	C	19.2	B	23.9	C	-2.8	-3.2	No
75	Mayten Ave/Foothill Blvd	6.3	A	14.8	B	6.2	A	15.4	B	-0.1	0.6	No
76	Masi Dr/Foothill Blvd	6.7	A	8.4	A	6.5	A	8.2	A	-0.2	-0.2	No
77	Rochester Ave/Foothill Blvd	14.3	B	33.6	C	14.2	B	34.8	C	-0.1	1.2	No
78	Victoria Commons/Foothill Blvd	2.2	A	5.1	A	3.4	A	5.2	A	1.2	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.5	C	**57.3**	**E**	23.1	C	**58.6**	**E**	-0.4	1.3	**Yes**
80	I-15 SB Ramps/Foothill Blvd	12.6	B	11.8	B	12.7	B	11.7	B	0.1	-0.1	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.8	B	12.6	B	12.3	B	-0.3	-0.5	No
82	Etiwanda Ave/Foothill Blvd	20.6	C	29.1	C	20.8	C	29.3	C	0.2	0.2	No
83	Cornwall Ave/Foothill Blvd	6.9	A	5.1	A	5.6	A	6.2	A	-1.3	1.1	No
84	East Ave/Foothill Blvd	10.4	B	7.8	A	11.8	B	7.5	A	1.4	-0.3	No
85	Cottonwood Ave/Foothill Blvd	6.5	A	6.0	A	6.1	A	6.0	A	-0.4	0.0	No
86	Mulberry Ave/Foothill Blvd	15.4	B	14.9	B	15.3	B	14.9	B	-0.1	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	6.2	A	8.2	A	6.2	A	0.0	0.0	No
88	Cherry Ave/Foothill Blvd	24.1	C	22.8	C	24.1	C	22.8	C	0.0	0.0	No
89	Redwood Ave/Foothill Blvd	5.9	A	8.8	A	6.0	A	8.9	A	0.1	0.1	No
90	Hemlock Ave/Foothill Blvd	9.2	A	10.3	B	8.9	A	10.2	B	-0.3	-0.1	No
91	Almeria Ave/Foothill Blvd	13.7	B	9.8	A	13.7	B	9.8	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	11.9	B	8.8	A	11.8	B	8.8	A	-0.1	0.0	No
93	Citrus Ave/Foothill Blvd	32.6	C	47.1	D	32.5	C	47.6	D	-0.1	0.5	No
94	Cypress Ave/Foothill Blvd	7.5	A	8.4	A	7.2	A	8.5	A	-0.3	0.1	No
95	Juniper Ave/Foothill Blvd	13.0	B	19.4	B	14.7	B	19.5	B	1.7	0.1	No
96	Sierra Ave/Foothill Blvd	32.1	C	53.0	D	32.2	C	53.0	D	0.1	0.0	No
97	Sierra Ave/Upland Ave	10.2	B	12.5	B	10.0	A	12.3	B	-0.2	-0.2	No
98	Sierra Ave/Seville Ave	1.5	A	3.7	A	1.6	A	3.6	A	0.1	-0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.5	A	4.4	A	1.8	A	4.6	A	0.3	0.2	No
100	Sierra Ave/Arrow Blvd	22.2	C	31.4	C	21.9	C	33.6	C	-0.3	2.2	No
101	Sierra Ave/Valencia Ave	3.2	A	10.4	B	3.2	A	7.2	A	0.0	-3.2	No
102	Sierra Ave/Orange Wy	6.5	A	6.8	A	7.2	A	7.9	A	0.7	1.1	No
103	Sierra Ave/Ceres Ave	4.2	A	5.0	A	4.8	A	5.1	A	0.6	0.1	No
104	Sierra Ave/Merrill Ave	18.3	B	28.1	C	17.9	B	28.1	C	-0.4	0.0	No
105	Sierra Ave/Randall Ave	19.5	B	18.5	B	19.7	B	17.8	B	0.2	-0.7	No
106	Sierra Ave/San Bernardino Ave	30.3	C	33.9	C	30.6	C	34.2	C	0.3	0.3	No
107	Sierra Ave/Marygold Ave	27.7	C	40.1	D	27.9	C	41.1	D	0.2	1.0	No
108	Juniper Ave/Marygold Ave	11.9	B	16.8	B	12.2	B	17.1	B	0.3	0.3	No
109	Juniper Ave/Valley Blvd	31.1	C	43.0	D	31.5	C	43.3	D	0.4	0.3	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.7	C	17.7	B	20.7	C	0.0	0.0	No
111	Sierra Ave/Valley Blvd	29.2	C	51.9	D	29.3	C	51.7	D	0.1	-0.2	No
112	Sierra Ave/Kaiser Permanente	3.6	A	5.5	A	3.6	A	5.9	A	0.0	0.4	No
113	Haven Ave/Concours St	16.5	B	13.2	B	16.5	B	13.2	B	0.0	0.0	No
114	Haven Ave/4th St	17.9	B	31.7	C	17.9	B	31.8	C	0.0	0.1	No
115	Haven Ave/Trademark St	5.7	A	8.4	A	5.7	A	8.4	A	0.0	0.0	No
116	Haven Ave/6th St	20.1	C	26.9	C	20.1	C	26.9	C	0.0	0.0	No
117	Haven Ave/7th St	4.7	A	15.5	B	4.7	A	15.6	B	0.0	0.1	No
118	Haven Ave/Jersey Blvd	8.9	A	28.8	C	8.9	A	29.3	C	0.0	0.5	No
119	Haven Ave/Arrow Rte	24.6	C	34.6	C	24.6	C	34.7	C	0.0	0.1	No
120	Haven Ave/Civic Center Dr	18.9	B	17.0	B	18.9	B	17.0	B	0.0	0.0	No
121	Haven Ave/Foothill Blvd	31.9	C	41.7	D	31.9	C	42.3	D	0.0	0.6	No
122	Aspen St/Foothill Blvd	13.6	B	18.3	B	13.7	B	18.4	B	0.1	0.1	No
123	Spruce Ave/Foothill Blvd	14.2	B	23.2	C	14.2	B	23.3	C	0.0	0.1	No

Intersection		Existing (2016) Conditions				Existing (2016) Plus Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	15.3	B	16.9	B	15.3	B	17.0	B	0.0	0.1	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	20.6	C	15.2	B	20.7	C	-0.1	0.1	No
126	Day Creek Blvd/S Main St	2.1	A	8.2	A	2.1	A	8.2	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	10.0	A	16.9	B	9.9	A	16.9	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	24.1	C	28.5	C	24.7	C	29.0	C	0.6	0.5	No
129	Rochester Ave/Church St	25.6	C	23.2	C	25.6	C	28.6	C	0.0	5.4	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 5-7**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative F scenario:

- 25. San Antonio Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative D and Alternative E conditions.

6.0 OPENING YEAR 2023 TRAFFIC OPERATIONS

This section provides the opening year 2023 intersection traffic levels of service for the No Build condition as well as the three build alternative conditions described. Peak hour traffic volumes at the study intersections for all of the opening year 2023 scenarios are provided in **Appendix C**. Note that the traffic analysis was prepared when 2020 was the estimated opening year. The current opening year estimate is 2023. Nevertheless, the traffic modeling forecasts volumes through 2040, and the results showed that a negligible traffic increase would occur between 2020 and 2023. Thus, a three-year delay in the opening date does not substantially alter this analysis.

6.1 Opening Year 2023 No Build LOS Analysis

This section presents the opening year 2023 No Build conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 6-1** summarizes the opening year 2023 peak hour intersection LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**.

Table 6-1: Opening Year 2023 Intersection Peak Hour LOS

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
1	Garey Ave/Monterey Ave	Signalized	16.5	B	15.3	B
2	Garey Ave/Holt Ave	Signalized	39.7	D	51.4	D
3	Palomares St/Holt Ave	Signalized	9.7	A	10.3	B
4	Towne Ave/Holt Ave	Signalized	35.4	D	42.9	D
5	San Antonio Ave/Holt Ave	Signalized	15.0	B	12.3	B
6	Reservoir St/Holt Ave	Signalized	15.9	B	17.5	B
7	Clark Ave/Holt Ave	Signalized	8.0	A	7.9	A
8	East End Ave/Holt Ave	Signalized	22.4	C	44.0	D
9	Via Del Paseo/Holt Ave	Signalized	6.4	A	6.3	A
10	Indian Hill Blvd/Holt Ave	Signalized	22.3	C	23.3	C
11	Mills Ave/Holt Blvd	Signalized	9.7	A	17.0	B
12	Amherst Ave/Holt Blvd	Signalized	5.1	A	3.0	A
13	Ramona Ave/Holt Blvd	Signalized	30.0	C	22.4	C
14	Monte Vista Ave/Holt Blvd	Signalized	19.8	B	19.7	B
15	Central Ave/Holt Blvd	Signalized	27.5	C	28.0	C
16	Vernon Ave/Holt Blvd	Signalized	9.3	A	12.9	B
17	Benson Ave/D St	Stop Control	10.7	B	10.1	B
18	Benson Ave/Holt Blvd*	Signalized	10.9	B	11.5	B
19	Benson Ave/Mission Blvd	Signalized	26.9	C	23.2	C

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
20	Mountain Ave/D St	Signalized	13.1	B	13.5	B
21	Mountain Ave/Holt Blvd*	Signalized	34.8	C	35.3	D
22	Mountain Ave/Mission Blvd	Signalized	40.2	D	40.0	D
23	San Antonio Ave/D St	Stop Control	12.8	B	21.5	C
24	San Antonio Ave/Holt Blvd*	Signalized	19.4	B	22.2	C
25	San Antonio Ave/State St	Stop Control	**348.6**	**F**	**523.2**	**F**
26	Vine Ave/D St	Stop Control	10.6	B	10.2	B
27	Vine Ave/Holt Blvd*	Signalized	12.3	B	10.5	B
28	Vine Ave/State St	Stop Control	24.4	C	18.1	C
29	Euclid Ave/D St	Signalized	11.6	B	12.2	B
30	Euclid Ave/Holt Blvd*	Signalized	38.6	D	35.0	D
31	Euclid Ave/Mission Blvd	Signalized	37.1	D	38.4	D
32	Plum Ave/Holt Blvd*	Signalized	3.0	A	4.4	A
33	Sultana Ave/D St	Stop Control	13.5	B	14.5	B
34	Sultana Ave/Holt Blvd*	Signalized	17.7	B	19.9	B
35	Sultana Ave/State St	Stop Control	15.0	B	12.5	B
36	Campus Ave/D St	Stop Control	18.0	C	19.0	C
37	Campus Ave/Holt Blvd*	Signalized	13.0	B	16.4	B
38	Campus Ave/State St	Stop Control	**63.0**	**F**	**58.5**	**F**
39	Allyn Ave/D St	Stop Control	11.9	B	11.3	B
40	Bon View Ave-Allyn Ave/Holt Blvd*	Signalized	12.9	B	15.0	B
41	Bon View Ave/State St	Stop Control	13.0	B	21.8	C
42	Grove Ave/D St	Signalized	12.2	B	7.1	A
43	Grove Ave/Holt Blvd*	Signalized	38.8	D	50.4	D
44	Grove Ave/State St	Signalized	**81.6**	**F**	44.8	D
45	County Building/Holt Blvd*	Signalized	10.8	B	11.5	B
46	Corona Ave/Holt Blvd*	Signalized	13.1	B	10.6	B
47	Vineyard Ave/D St	Signalized	18.6	B	17.6	B
48	Vineyard Ave/Holt Blvd*	Signalized	25.7	C	30.3	C
49	Vineyard Ave/Airport Dr	Signalized	25.1	C	22.7	C
50	Guasti Rd/Holt Blvd	Signalized	9.8	A	10.2	B
51	Archibald Ave/Guasti Rd	Signalized	14.7	B	17.8	B
52	Archibald Ave/Airport Dr	Signalized	25.5	C	28.9	C
53	Moore Wy/Airport Dr	Signalized	13.2	B	12.8	B
54	Terminal Wy/Airport Dr	Signalized	14.9	B	15.1	B
55	Archibald Ave/I-10 Ramps	Signalized	21.3	C	18.9	B
56	Archibald Ave/Inland Empire Blvd	Signalized	25.8	C	35.0	D
57	Hermosa Ave/Inland Empire Blvd	Signalized	25.9	C	21.3	C
58	Shelby St/Inland Empire Blvd	Signalized	7.4	A	9.2	A

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
59	Center Ave/Inland Empire Blvd	Signalized	6.8	A	7.8	A
60	Haven Ave/Inland Empire Blvd	Signalized	15.8	B	31.8	C
61	Porsche Wy/Inland Empire Blvd	Signalized	19.5	B	19.9	B
62	Mercedes Ln/Inland Empire Blvd	Signalized	8.1	A	9.0	A
63	Private Drwy/Inland Empire Blvd	Signalized	6.6	A	8.4	A
64	Mathis-Car Max/Inland Empire Blvd	Signalized	2.5	A	5.6	A
65	Ferrari Ln/Inland Empire Blvd	Signalized	8.7	A	10.0	B
66	Milliken Ave/Inland Empire Blvd	Signalized	12.8	B	14.5	B
67	Milliken Ave/Concours St	Signalized	8.7	A	14.8	B
68	Milliken Ave/4th St	Signalized	23.8	C	38.4	D
69	Milliken Ave/6th St	Signalized	16.8	B	20.5	C
70	Milliken Ave/7th St	Signalized	7.7	A	8.5	A
71	Milliken Ave/Jersey Blvd	Signalized	12.8	B	15.6	B
72	Milliken Ave/Arrow Route	Signalized	24.8	C	31.6	C
73	Milliken Ave/Millennium Ct	Signalized	4.8	A	3.2	A
74	Milliken Ave/Foothill Blvd	Signalized	22.3	C	27.6	C
75	Mayten Ave/Foothill Blvd	Signalized	6.5	A	17.1	B
76	Masi Dr/Foothill Blvd	Signalized	6.5	A	8.6	A
77	Rochester Ave/Foothill Blvd	Signalized	14.4	B	34.6	C
78	Victoria Commons/Foothill Blvd	Signalized	3.3	A	5.4	A
79	Day Creek Blvd/Foothill Blvd	Signalized	23.3	C	**63.4**	**E**
80	I-15 SB Ramps/Foothill Blvd	Signalized	13.0	B	11.5	B
81	I-15 NB Ramps/Foothill Blvd	Signalized	12.9	B	12.3	B
82	Etiwanda Ave/Foothill Blvd	Signalized	21.6	C	29.4	C
83	Cornwall Ave/Foothill Blvd	Signalized	6.0	A	6.7	A
84	East Ave/Foothill Blvd	Signalized	12.2	B	7.3	A
85	Cottonwood Ave/Foothill Blvd	Signalized	6.2	A	6.0	A
86	Mulberry Ave/Foothill Blvd	Signalized	15.8	B	14.9	B
87	Banana Ave/Foothill Blvd	Signalized	7.9	A	6.4	A
88	Cherry Ave/Foothill Blvd	Signalized	24.6	C	23.1	C
89	Redwood Ave/Foothill Blvd	Signalized	6.3	A	9.6	A
90	Hemlock Ave/Foothill Blvd	Signalized	8.9	A	10.9	B
91	Almeria Ave/Foothill Blvd	Signalized	14.0	B	9.0	A
92	Tokay Ave/Foothill Blvd	Signalized	12.1	B	9.0	A
93	Citrus Ave/Foothill Blvd	Signalized	33.8	C	51.0	D
94	Cypress Ave/Foothill Blvd	Signalized	7.2	A	9.1	A
95	Juniper Ave/Foothill Blvd	Signalized	14.6	B	20.7	C
96	Sierra Ave/Foothill Blvd	Signalized	32.4	C	**59.8**	**E**
97	Sierra Ave/Upland Ave	Signalized	10.3	B	12.8	B

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
98	Sierra Ave/Seville Ave	Signalized	1.4	A	3.6	A
99	Sierra Ave/Spring St	Signalized	1.7	A	4.6	A
100	Sierra Ave/Arrow Blvd	Signalized	22.7	C	33.5	C
101	Sierra Ave/Valencia Ave	Signalized	3.4	A	8.9	A
102	Sierra Ave/Orange Wy	Signalized	6.7	A	7.0	A
103	Sierra Ave/Ceres Ave	Signalized	5.2	A	5.5	A
104	Sierra Ave/Merrill Ave	Signalized	18.6	B	29.9	C
105	Sierra Ave/Randall Ave	Signalized	20.1	C	19.3	B
106	Sierra Ave/San Bernardino Ave	Signalized	37.1	D	34.7	C
107	Sierra Ave/Marygold Ave	Signalized	28.2	C	45.8	D
108	Juniper Ave/Marygold Ave	Signalized	12.0	B	17.1	B
109	Juniper Ave/Valley Blvd	Signalized	31.9	C	45.0	D
110	Inland Empire Ctr/Valley Blvd	Signalized	17.7	B	20.9	C
111	Sierra Ave/Valley Blvd	Signalized	31.4	C	**56.7**	**E**
112	Sierra Ave/Kaiser Permanente	Signalized	3.5	A	5.5	A
113	Haven Ave/Concours St	Signalized	17.1	B	14.2	B
114	Haven Ave/4th St	Signalized	15.2	B	26.8	C
115	Haven Ave/Trademark St	Signalized	4.2	A	12.8	B
116	Haven Ave/6th St	Signalized	20.7	C	25	C
117	Haven Ave/7th St	Signalized	3.7	A	16.1	B
118	Haven Ave/Jersey Blvd	Signalized	8.5	A	21.7	C
119	Haven Ave/Arrow Route	Signalized	25.5	C	40.6	D
120	Haven Ave/Civic Center Dr	Signalized	8.8	A	12.6	B
121	Haven Ave/Foothill Blvd	Signalized	28.5	C	39.2	D
122	Aspen St/Foothill Blvd	Signalized	14.1	B	15.9	B
123	Spruce Ave/Foothill Blvd	Signalized	13	B	20.5	C
124	Elm Ave/Foothill Blvd	Signalized	14.1	B	15	B
125	Day Creek Blvd/Victoria Gardens Ln	Signalized	14	B	22	C
126	Day Creek Blvd/S Main St	Signalized	2.2	A	9.4	A
127	Day Creek Blvd/N Main St	Signalized	11.9	B	17.2	B
128	Day Creek Blvd/Church St	Signalized	24.8	C	30.7	C
129	Rochester Ave/Church St	Signalized	26.6	C	30.6	C

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-1**, the following study intersections are forecast to operate at LOS E or worse in opening year 2023 No Build conditions:

- 25. San Antonio Avenue/State Street;
- 38. Campus Avenue/State Street;

- 44. Grove Avenue/State Street;
- 79. Day Creek Boulevard/Foothill Boulevard;
- 96. Sierra Avenue/Foothill Boulevard; and
- 111. Sierra Avenue/Valley Boulevard.

6.2 Opening Year 2023 Build Alternative A LOS Analysis

This section presents the opening year 2023 Build Alternative A conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 6-2** summarizes the opening year 2023 plus Build Alternative A LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative A consists of proposed project buses operating in mixed-flow lanes throughout the corridor, with side-running stations only.

Table 6-2: Opening Year 2023 Plus Build Alternative A Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.5	B	15.3	B	17.0	B	15.4	B	0.5	0.1	No
2	Garey Ave/Holt Ave	39.7	D	51.4	D	41.7	D	**57.0**	**E**	2.0	5.6	**Yes**
3	Palomares St/Holt Ave	9.7	A	10.3	B	10.0	B	7.5	A	0.3	-2.8	No
4	Towne Ave/Holt Ave	35.4	D	42.9	D	35.8	D	44.7	D	0.4	1.8	No
5	San Antonio Ave/Holt Ave	15.0	B	12.3	B	14.4	B	13.0	B	-0.6	0.7	No
6	Reservoir St/Holt Ave	15.9	B	17.5	B	16.4	B	16.6	B	0.5	-0.9	No
7	Clark Ave/Holt Ave	8.0	A	7.9	A	7.8	A	7.7	A	-0.2	-0.2	No
8	East End Ave/Holt Ave	22.4	C	44.0	D	22.5	C	46.6	D	0.1	2.6	No
9	Via Del Paseo/Holt Ave	6.4	A	6.3	A	6.5	A	6.4	A	0.1	0.1	No
10	Indian Hill Blvd/Holt Ave	22.3	C	23.3	C	22.5	C	23.4	C	0.2	0.1	No
11	Mills Ave/Holt Blvd	9.7	A	17.0	B	9.7	A	16.9	B	0.0	-0.1	No
12	Amherst Ave/Holt Blvd	5.1	A	3.0	A	5.0	A	3.0	A	-0.1	0.0	No
13	Ramona Ave/Holt Blvd	30.0	C	22.4	C	29.9	C	22.2	C	-0.1	-0.2	No
14	Monte Vista Ave/Holt Blvd	19.8	B	19.7	B	19.7	B	19.7	B	-0.1	0.0	No
15	Central Ave/Holt Blvd	27.5	C	28.0	C	27.6	C	27.8	C	0.1	-0.2	No
16	Vernon Ave/Holt Blvd	9.3	A	12.9	B	9.4	A	12.8	B	0.1	-0.1	No
17	Benson Ave/D St	10.7	B	10.1	B	10.7	B	10.1	B	0.0	0.0	No
18	Benson Ave/Holt Blvd*	10.9	B	11.5	B	10.9	B	11.6	B	0.0	0.1	No
19	Benson Ave/Mission Blvd	26.9	C	23.2	C	26.9	C	23.2	C	0.0	0.0	No
20	Mountain Ave/D St	13.1	B	13.5	B	13.1	B	13.5	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	34.8	C	35.3	D	34.8	C	35.6	D	0.0	0.3	No
22	Mountain Ave/Mission Blvd	40.2	D	40.0	D	40.2	D	40.0	D	0.0	0.0	No
23	San Antonio Ave/D St	12.8	B	21.5	C	12.8	B	17.9	C	0.0	-3.6	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.4	B	22.2	C	19.7	B	22.0	C	0.3	-0.2	No
25	San Antonio Ave/State St	**348.6**	**F**	**523.2**	**F**	**348.6**	**F**	**523.2**	**F**	0.0	0.0	No
26	Vine Ave/D St	10.6	B	10.2	B	10.6	B	10.2	B	0.0	0.0	No
27	Vine Ave/Holt Blvd*	12.3	B	10.5	B	12.2	B	10.6	B	-0.1	0.1	No
28	Vine Ave/State St	24.4	C	18.1	C	24.4	C	18.1	C	0.0	0.0	No
29	Euclid Ave/D St	11.6	B	12.2	B	11.6	B	12.2	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	38.6	D	35.0	D	38.4	D	35.7	D	-0.2	0.7	No
31	Euclid Ave/Mission Blvd	37.1	D	38.4	D	37.1	D	38.4	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	3.0	A	4.4	A	3.2	A	4.4	A	0.2	0.0	No
33	Sultana Ave/D St	13.5	B	14.5	B	13.5	B	14.5	B	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.7	B	19.9	B	18.1	B	20.1	C	0.4	0.2	No
35	Sultana Ave/State St	15.0	B	12.5	B	15.0	B	12.5	B	0.0	0.0	No
36	Campus Ave/D St	18.0	C	19.0	C	18.0	C	19.0	C	0.0	0.0	No
37	Campus Ave/Holt Blvd*	13.0	B	16.4	B	13.0	B	16.3	B	0.0	-0.1	No
38	Campus Ave/State St	**63.0**	**F**	**58.5**	**F**	**63.0**	**F**	**58.5**	**F**	0.0	0.0	No
39	Allyn Ave/D St	11.9	B	11.3	B	11.9	B	11.3	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.9	B	15.0	B	12.8	B	15.1	B	-0.1	0.1	No
41	Bon View Ave/State St	13.0	B	21.8	C	13.0	B	21.8	C	0.0	0.0	No
42	Grove Ave/D St	12.2	B	7.1	A	12.2	B	7.1	A	0.0	0.0	No
43	Grove Ave/Holt Blvd*	38.8	D	50.4	D	38.7	D	51.2	D	-0.1	0.8	No
44	Grove Ave/State St	**81.6**	**F**	44.8	D	**81.6**	**F**	44.8	D	0.0	0.0	No
45	County Building/Holt Blvd*	10.8	B	11.5	B	10.7	B	11.6	B	-0.1	0.1	No
46	Corona Ave/Holt Blvd*	13.1	B	10.6	B	13.3	B	10.7	B	0.2	0.1	No
47	Vineyard Ave/D St	18.6	B	17.6	B	18.6	B	17.6	B	0.0	0.0	No
48	Vineyard Ave/Holt Blvd*	25.7	C	30.3	C	26.0	C	30.4	C	0.3	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	25.1	C	22.7	C	25.2	C	23.0	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	9.8	A	10.2	B	9.8	A	10.2	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	17.8	B	14.6	B	17.8	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.5	C	28.9	C	25.6	C	29.0	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.2	B	12.8	B	13.2	B	12.7	B	0.0	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.4	B	0.5	0.3	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.3	C	19.0	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	26.9	C	35.4	D	1.1	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.1	C	21.3	C	0.2	0.0	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	16.1	B	32.5	C	0.3	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.8	B	26.1	C	-3.5	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.0	B	0.0	0.9	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.6	A	8.3	A	0.1	-0.3	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	36.7	D	0.0	2.1	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**63.8**	**E**	0.3	0.4	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-2**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative A scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue; and
- 79. Day Creek Boulevard/Foothill Boulevard.

6.3 Opening Year 2023 Build Alternative B LOS Analysis

This section presents the opening year 2023 Build Alternative B conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 6-3** summarizes the opening year 2023 plus Build Alternative B LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative B consists of center-running bus lanes and left-turn access restrictions at several minor intersections along Holt Boulevard between Benson Avenue and Vineyard Avenue. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data.

Intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.

Table 6-3: Opening Year 2023 Plus Build Alternative B Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.5	B	15.3	B	17.0	B	15.4	B	0.5	0.1	No
2	Garey Ave/Holt Ave	39.7	D	51.4	D	41.7	D	**57.0**	**E**	2.0	5.6	**Yes**
3	Palomares St/Holt Ave	9.7	A	10.3	B	10.0	A	7.5	A	0.3	-2.8	No
4	Towne Ave/Holt Ave	35.4	D	42.9	D	35.8	D	44.7	D	0.4	1.8	No
5	San Antonio Ave/Holt Ave	15.0	B	12.3	B	14.4	B	13.0	B	-0.6	0.7	No
6	Reservoir St/Holt Ave	15.9	B	17.5	B	16.4	B	16.6	B	0.5	-0.9	No
7	Clark Ave/Holt Ave	8.0	A	7.9	A	7.8	A	7.7	A	-0.2	-0.2	No
8	East End Ave/Holt Ave	22.4	C	44.0	D	22.5	C	46.6	D	0.1	2.6	No
9	Via Del Paseo/Holt Ave	6.4	A	6.3	A	6.5	A	6.4	A	0.1	0.1	No
10	Indian Hill Blvd/Holt Ave	22.3	C	23.3	C	22.5	C	23.4	C	0.2	0.1	No
11	Mills Ave/Holt Blvd	9.7	A	17.0	B	9.7	A	16.9	B	0.0	-0.1	No
12	Amherst Ave/Holt Blvd	5.1	A	3.0	A	5.0	A	3.0	A	-0.1	0.0	No
13	Ramona Ave/Holt Blvd	30.0	C	22.4	C	29.9	C	22.2	C	-0.1	-0.2	No
14	Monte Vista Ave/Holt Blvd	19.8	B	19.7	B	19.7	B	19.7	B	-0.1	0.0	No
15	Central Ave/Holt Blvd	27.5	C	28.0	C	27.5	C	27.9	C	0.0	-0.1	No
16	Vernon Ave/Holt Blvd	9.3	A	12.9	B	9.5	A	12.8	B	0.2	-0.1	No
17	Benson Ave/D St	10.7	B	10.1	B	10.7	B	10.1	B	0.0	0.0	No
18	Benson Ave/Holt Blvd*	10.9	B	11.5	B	11.2	B	11.8	B	0.3	0.3	No
19	Benson Ave/Mission Blvd	26.9	C	23.2	C	26.9	C	23.2	C	0.0	0.0	No
20	Mountain Ave/D St	13.1	B	13.5	B	13.1	B	13.5	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	34.8	C	35.3	D	35.3	D	36.5	D	0.5	1.2	No
22	Mountain Ave/Mission Blvd	40.2	D	40.0	D	40.2	D	40.0	D	0.0	0.0	No
23	San Antonio Ave/D St	12.8	B	21.5	C	12.8	B	17.9	C	0.0	-3.6	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.4	B	22.2	C	23.5	C	29.0	C	4.1	6.8	No
25	San Antonio Ave/State St	**348.6**	**F**	**523.2**	**F**	**348.6**	**F**	**523.2**	**F**	0.0	0.0	No
26	Vine Ave/D St	10.6	B	10.2	B	10.6	B	10.2	B	0.0	0.0	No
27	Vine Ave/Holt Blvd*	12.3	B	10.5	B	24.1	C	15.6	B	11.8	5.1	No
28	Vine Ave/State St	24.4	C	18.1	C	24.4	C	18.1	C	0.0	0.0	No
29	Euclid Ave/D St	11.6	B	12.2	B	11.6	B	12.2	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	38.6	D	35.0	D	**73.5**	**E**	42.3	D	34.9	7.3	**Yes**
31	Euclid Ave/Mission Blvd	37.1	D	38.4	D	37.1	D	38.4	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	3.0	A	4.4	A	0.5	A	0.9	A	-2.5	-3.5	No
33	Sultana Ave/D St	13.5	B	14.5	B	13.5	B	14.5	B	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.7	B	19.9	B	21.7	C	24.9	C	4.0	5.0	No
35	Sultana Ave/State St	15.0	B	12.5	B	15.0	B	12.5	B	0.0	0.0	No
36	Campus Ave/D St	18.0	C	19.0	C	18.0	C	19.0	C	0.0	0.0	No
37	Campus Ave/Holt Blvd*	13.0	B	16.4	B	19.8	C	23.7	C	6.8	7.3	No
38	Campus Ave/State St	**63.0**	**F**	**58.5**	**F**	**63.0**	**F**	**58.5**	**F**	0.0	0.0	No
39	Allyn Ave/D St	11.9	B	11.3	B	11.9	B	11.3	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.9	B	15.0	B	10.8	B	12.3	B	-2.1	-2.7	No
41	Bon View Ave/State St	13.0	B	21.8	C	13.0	B	21.8	C	0.0	0.0	No
42	Grove Ave/D St	12.2	B	7.1	A	12.2	B	7.0	A	0.0	-0.1	No
43	Grove Ave/Holt Blvd*	38.8	D	50.4	D	50.2	D	46.8	D	11.4	-3.6	No
44	Grove Ave/State St	**81.6**	**F**	44.8	D	**81.6**	**F**	44.5	D	0.0	-0.3	No
45	County Building/Holt Blvd*	10.8	B	11.5	B	10.5	B	10.0	B	-0.3	-1.5	No
46	Corona Ave/Holt Blvd*	13.1	B	10.6	B	13.7	B	8.9	A	0.6	-1.7	No
47	Vineyard Ave/D St	18.6	B	17.6	B	18.6	B	17.6	B	0.0	0.0	No
48	Vineyard Ave/Holt Blvd*	25.7	C	30.3	C	26.1	C	21.5	C	0.4	-8.8	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	25.1	C	22.7	C	25.2	C	23.0	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	9.8	A	10.2	B	9.8	A	10.2	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	17.8	B	14.6	B	17.8	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.5	C	28.9	C	25.6	C	29.0	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.2	B	12.8	B	13.2	B	12.7	B	0.0	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.4	B	0.5	0.3	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.3	C	19.0	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	26.9	C	35.4	D	1.1	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.1	C	21.3	C	0.2	0.0	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	16.1	B	32.5	C	0.3	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.8	C	26.1	C	-3.5	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.0	B	0.0	0.9	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.6	A	8.3	A	0.1	-0.3	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	36.7	D	0.0	2.1	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**63.8**	**E**	0.3	0.4	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-3**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative B scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue;
- 30. Euclid Avenue/Holt Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

6.4 Opening Year 2023 Build Alternative C LOS Analysis

This section presents the opening year 2023 Build Alternative C conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 6-4** summarizes the opening year 2023 plus Build Alternative C LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative C consists of a reduction in travel lanes, from four lanes to two lanes, along Holt Boulevard between Benson Avenue and Vineyard Avenue, as well as center-running bus lanes and left-turn access restrictions at several minor intersections in this segment. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data.

Similar to Build Alternative B, intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.

Table 6-4: Opening Year 2023 Plus Build Alternative C Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	16.5	B	15.3	B	17.0	B	15.4	B	0.5	0.1	No
2	Garey Ave/Holt Ave	39.7	D	51.4	D	41.7	D	**57.0**	**E**	2.0	5.6	**Yes**
3	Palomares St/Holt Ave	9.7	A	10.3	B	10.0	B	7.5	A	0.3	-2.8	No
4	Towne Ave/Holt Ave	35.4	D	42.9	D	35.8	D	44.7	D	0.4	1.8	No
5	San Antonio Ave/Holt Ave	15.0	B	12.3	B	14.4	B	13.0	B	-0.6	0.7	No
6	Reservoir St/Holt Ave	15.9	B	17.5	B	16.4	B	16.6	B	0.5	-0.9	No
7	Clark Ave/Holt Ave	8.0	A	7.9	A	7.8	A	7.7	A	-0.2	-0.2	No
8	East End Ave/Holt Ave	22.4	C	44.0	D	22.5	C	46.6	D	0.1	2.6	No
9	Via Del Paseo/Holt Ave	6.4	A	6.3	A	6.5	A	6.4	A	0.1	0.1	No
10	Indian Hill Blvd/Holt Ave	22.3	C	23.3	C	22.5	C	23.4	C	0.2	0.1	No
11	Mills Ave/Holt Blvd	9.7	A	17.0	B	9.7	A	16.9	B	0.0	-0.1	No
12	Amherst Ave/Holt Blvd	5.1	A	3.0	A	5.0	A	3.0	A	-0.1	0.0	No
13	Ramona Ave/Holt Blvd	30.0	C	22.4	C	30.0	C	22.2	C	0.0	-0.2	No
14	Monte Vista Ave/Holt Blvd	19.8	B	19.7	B	20.1	C	19.6	B	0.3	-0.1	No
15	Central Ave/Holt Blvd	27.5	C	28.0	C	27.2	C	27.7	C	-0.3	-0.3	No
16	Vernon Ave/Holt Blvd	9.3	A	12.9	B	9.4	A	13.3	B	0.1	0.4	No
17	Benson Ave/D St	10.7	B	10.1	B	10.7	B	11.0	B	0.0	0.9	No
18	Benson Ave/Holt Blvd*	10.9	B	11.5	B	12.1	B	14.3	B	1.2	2.8	No
19	Benson Ave/Mission Blvd	26.9	C	23.2	C	27.7	C	25.0	C	0.8	1.8	No
20	Mountain Ave/D St	13.1	B	13.5	B	13.3	B	15.3	B	0.2	1.8	No
21	Mountain Ave/Holt Blvd*	34.8	C	35.3	D	37.3	D	41.3	D	2.5	6.0	No
22	Mountain Ave/Mission Blvd	40.2	D	40.0	D	40.3	D	49.8	D	0.1	9.8	No
23	San Antonio Ave/D St	12.8	B	21.5	C	12.9	B	22.9	C	0.1	1.4	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.4	B	22.2	C	22.1	B	27.8	C	2.7	5.6	No
25	San Antonio Ave/State St	**348.6**	**F**	**523.2**	**F**	**540.9**	**F**	**500.0**	**F**	192.3	-23.2	**Yes**
26	Vine Ave/D St	10.6	B	10.2	B	10.8	B	11.3	B	0.2	1.1	No
27	Vine Ave/Holt Blvd*	12.3	B	10.5	B	21.1	C	21.2	B	8.8	10.7	No
28	Vine Ave/State St	24.4	C	18.1	C	25.0	D	22.8	C	0.6	4.7	No
29	Euclid Ave/D St	11.6	B	12.2	B	12.0	B	14.7	B	0.4	2.5	No
30	Euclid Ave/Holt Blvd*	38.6	D	35.0	D	**63.3**	**E**	**93.7**	**F**	24.7	58.7	**Yes**
31	Euclid Ave/Mission Blvd	37.1	D	38.4	D	37.9	D	**55.4**	**E**	0.8	17.0	**Yes**
32	Plum Ave/Holt Blvd*	3.0	A	4.4	A	8.5	A	32.7	C	5.5	28.3	No
33	Sultana Ave/D St	13.5	B	14.5	B	13.6	B	18.8	C	0.1	4.3	No
34	Sultana Ave/Holt Blvd*	17.7	B	19.9	B	34.9	C	**59.8**	**E**	17.2	39.9	**Yes**
35	Sultana Ave/State St	15.0	B	12.5	B	16.0	C	15.9	C	1.0	3.4	No
36	Campus Ave/D St	18.0	C	19.0	C	18.4	C	34.2	D	0.4	15.2	No
37	Campus Ave/Holt Blvd*	13.0	B	16.4	B	24.1	C	**76.8**	**E**	11.1	60.4	**Yes**
38	Campus Ave/State St	**63.0**	**F**	**58.5**	**F**	**101.3**	**F**	**500.1**	**F**	38.3	441.6	**Yes**
39	Allyn Ave/D St	11.9	B	11.3	B	12.0	B	12.1	B	0.1	0.8	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.9	B	15.0	B	22.8	C	53.3	D	9.9	38.3	No
41	Bon View Ave/State St	13.0	B	21.8	C	13.5	B	26.9	D	0.5	5.1	No
42	Grove Ave/D St	12.2	B	7.1	A	12.4	B	8.4	A	0.2	1.3	No
43	Grove Ave/Holt Blvd*	38.8	D	50.4	D	**69.3**	**E**	**83.4**	**F**	30.5	33.0	**Yes**
44	Grove Ave/State St	**81.6**	**F**	44.8	D	**84.7**	**F**	**65.9**	**E**	3.1	21.1	**Yes**
45	County Building/Holt Blvd*	10.8	B	11.5	B	**74.4**	**E**	13.7	B	63.6	2.2	**Yes**
46	Corona Ave/Holt Blvd*	13.1	B	10.6	B	40.3	D	8.7	A	27.2	-1.9	No
47	Vineyard Ave/D St	18.6	B	17.6	B	18.7	B	20.2	C	0.1	2.6	No
48	Vineyard Ave/Holt Blvd*	25.7	C	30.3	C	43.5	D	26.8	C	17.8	-3.5	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	25.1	C	22.7	C	27.2	C	25.1	C	2.1	2.4	No
50	Guasti Rd/Holt Blvd	9.8	A	10.2	B	9.8	A	10.2	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	17.8	B	14.6	B	17.8	B	-0.1	0.0	No
52	Archibald Ave/Airport Dr	25.5	C	28.9	C	25.6	C	29.0	C	0.1	0.1	No
53	Moore Wy/Airport Dr	13.2	B	12.8	B	13.2	B	12.7	B	0.0	-0.1	No
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.4	B	15.4	B	0.5	0.3	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.3	C	19.0	B	0.0	0.1	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	26.9	C	35.4	D	1.1	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.1	C	21.3	C	0.2	0.0	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	16.1	B	32.5	C	0.3	0.7	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.8	B	26.1	C	-3.5	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.0	B	0.0	0.9	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.6	A	8.3	A	0.1	-0.3	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	36.7	D	0.0	2.1	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**63.8**	**E**	0.3	0.4	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-4**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative C scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue;
- 25. San Antonio Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 31. Euclid Avenue/Mission Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Blvd; and
- 79. Day Creek Boulevard/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative A and Alternative B conditions.

6.5 Opening Year 2023 Build Alternative D LOS Analysis

This section presents the opening year 2023 Build Alternative D conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 6-5** summarizes the opening year 2023 plus Build Alternative D LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative D includes all design components of Alternative A, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 6-5: Opening Year 2023 Plus Build Alternative D Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.6	B	0.7	0.5	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.4	C	19.1	B	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	27.3	C	35.7	D	1.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.2	C	21.2	C	0.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	15.8	B	32.4	C	0.0	0.6	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.7	B	26.1	C	-3.6	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.4	B	0.0	1.3	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.5	A	8.4	A	0.0	-0.2	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	37.0	D	0.0	2.4	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**64.6**	**E**	0.3	1.2	**Yes**
80	I-15 SB Ramps/Foothill Blvd	13.0	B	11.5	B	13.0	B	11.9	B	0.0	0.4	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.3	B	12.9	B	12.5	B	0.0	0.2	No
82	Etiwanda Ave/Foothill Blvd	21.6	C	29.4	C	21.6	C	29.1	C	0.0	-0.3	No
83	Cornwall Ave/Foothill Blvd	6.0	A	6.7	A	6.0	A	6.7	A	0.0	0.0	No
84	East Ave/Foothill Blvd	12.2	B	7.3	A	12.2	B	7.4	A	0.0	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.2	A	6.0	A	6.1	A	5.8	A	-0.1	-0.2	No
86	Mulberry Ave/Foothill Blvd	15.8	B	14.9	B	15.8	B	13.9	B	0.0	-1.0	No
87	Banana Ave/Foothill Blvd	7.9	A	6.4	A	7.8	A	7.7	A	-0.1	1.3	No
88	Cherry Ave/Foothill Blvd	24.6	C	23.1	C	24.6	C	23.0	C	0.0	-0.1	No
89	Redwood Ave/Foothill Blvd	6.3	A	9.6	A	6.2	A	9.6	A	-0.1	0.0	No
90	Hemlock Ave/Foothill Blvd	8.9	A	10.9	B	8.8	A	11.0	B	-0.1	0.1	No
91	Almeria Ave/Foothill Blvd	14.0	B	9.0	A	14.0	B	9.0	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	12.1	B	9.0	A	12.1	B	9.0	A	0.0	0.0	No
93	Citrus Ave/Foothill Blvd	33.8	C	51.0	D	33.8	C	51.9	D	0.0	0.9	No
94	Cypress Ave/Foothill Blvd	7.2	A	9.1	A	7.1	A	9.3	A	-0.1	0.2	No
95	Juniper Ave/Foothill Blvd	14.6	B	20.7	C	14.6	B	19.1	B	0.0	-1.6	No
96	Sierra Ave/Foothill Blvd	32.4	C	**59.8**	**E**	32.9	C	**61.2**	**E**	0.5	1.4	**Yes**
97	Sierra Ave/Upland Ave	10.3	B	12.8	B	10.2	B	12.8	B	-0.1	0.0	No
98	Sierra Ave/Seville Ave	1.4	A	3.6	A	1.6	A	3.6	A	0.2	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.7	A	4.6	A	1.6	A	4.5	A	-0.1	-0.1	No
100	Sierra Ave/Arrow Blvd	22.7	C	33.5	C	22.8	C	33.5	C	0.1	0.0	No
101	Sierra Ave/Valencia Ave	3.4	A	8.9	A	3.4	A	8.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.7	A	7.0	A	7.8	A	7.8	A	1.1	0.8	No
103	Sierra Ave/Ceres Ave	5.2	A	5.5	A	5.0	A	5.4	A	-0.2	-0.1	No
104	Sierra Ave/Merrill Ave	18.6	B	29.9	C	18.3	B	31.5	C	-0.3	1.6	No
105	Sierra Ave/Randall Ave	20.1	C	19.3	B	20.1	C	18.7	B	0.0	-0.6	No
106	Sierra Ave/San Bernardino Ave	37.1	D	34.7	C	37.9	D	35.1	D	0.8	0.4	No
107	Sierra Ave/Marygold Ave	28.2	C	45.8	D	28.4	C	45.6	D	0.2	-0.2	No
108	Juniper Ave/Marygold Ave	12.0	B	17.1	B	12.3	B	17.3	B	0.3	0.2	No
109	Juniper Ave/Valley Blvd	31.9	C	45.0	D	32.0	C	45.4	D	0.1	0.4	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.9	C	17.7	B	21.0	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	31.4	C	**56.7**	**E**	31.5	C	**56.6**	**E**	0.1	-0.1	No
112	Sierra Ave/Kaiser Permanente	3.5	A	5.5	A	3.5	A	5.5	A	0.0	0.0	No
113	Haven Ave/Concours St	17.1	B	14.2	B	17.1	B	14.2	B	0.0	0.0	No
114	Haven Ave/4th St	15.2	B	26.8	C	15.2	B	26.9	C	0.0	0.1	No
115	Haven Ave/Trademark St	4.2	A	12.8	B	4.2	A	12.8	B	0.0	0.0	No
116	Haven Ave/6th St	20.7	C	25.0	C	20.7	C	25.1	C	0.0	0.1	No
117	Haven Ave/7th St	3.7	A	16.1	B	3.7	A	16.1	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.5	A	21.7	C	8.5	A	21.9	C	0.0	0.2	No
119	Haven Ave/Arrow Rte	25.5	C	40.6	D	25.6	C	41.0	D	0.1	0.4	No
120	Haven Ave/Civic Center Dr	8.8	A	12.6	B	8.8	A	12.5	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	28.5	C	39.2	D	28.4	C	39.7	D	-0.1	0.5	No
122	Aspen St/Foothill Blvd	14.1	B	15.9	B	10.6	B	15.9	B	-3.5	0.0	No
123	Spruce Ave/Foothill Blvd	13.0	B	20.5	C	16.0	B	20.5	C	3.0	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.1	B	15.0	B	14.0	B	15.0	B	-0.1	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-5**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative D scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue;
- 79. Day Creek Boulevard/Foothill Boulevard; and
- 96. Sierra Avenue/Foothill Boulevard.

6.6 Opening Year 2023 Build Alternative E LOS Analysis

This section presents the opening year 2023 Build Alternative E conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 6-6** summarizes the opening year 2023 plus Build Alternative E LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative E includes all design components of Alternative B, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 6-6: Opening Year 2023 Plus Build Alternative E Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.6	B	0.7	0.5	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.4	C	19.1	B	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	27.3	C	35.7	D	1.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.2	C	21.2	C	0.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	15.8	B	32.4	C	0.0	0.6	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.7	B	26.1	C	-3.6	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.4	B	0.0	1.3	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.5	A	8.4	A	0.0	-0.2	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	37.0	D	0.0	2.4	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**64.6**	**E**	0.3	1.2	**Yes**
80	I-15 SB Ramps/Foothill Blvd	13.0	B	11.5	B	13.0	B	11.9	B	0.0	0.4	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.3	B	12.9	B	12.5	B	0.0	0.2	No
82	Etiwanda Ave/Foothill Blvd	21.6	C	29.4	C	21.6	C	29.1	C	0.0	-0.3	No
83	Cornwall Ave/Foothill Blvd	6.0	A	6.7	A	6.0	A	6.7	A	0.0	0.0	No
84	East Ave/Foothill Blvd	12.2	B	7.3	A	12.2	B	7.4	A	0.0	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.2	A	6.0	A	6.1	A	5.8	A	-0.1	-0.2	No
86	Mulberry Ave/Foothill Blvd	15.8	B	14.9	B	15.8	B	13.9	B	0.0	-1.0	No
87	Banana Ave/Foothill Blvd	7.9	A	6.4	A	7.8	A	7.7	A	-0.1	1.3	No
88	Cherry Ave/Foothill Blvd	24.6	C	23.1	C	24.6	C	23.0	C	0.0	-0.1	No
89	Redwood Ave/Foothill Blvd	6.3	A	9.6	A	6.2	A	9.6	A	-0.1	0.0	No
90	Hemlock Ave/Foothill Blvd	8.9	A	10.9	B	8.8	A	11.0	B	-0.1	0.1	No
91	Almeria Ave/Foothill Blvd	14.0	B	9.0	A	14.0	B	9.0	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	12.1	B	9.0	A	12.1	B	9.0	A	0.0	0.0	No
93	Citrus Ave/Foothill Blvd	33.8	C	51.0	D	33.8	C	51.9	D	0.0	0.9	No
94	Cypress Ave/Foothill Blvd	7.2	A	9.1	A	7.1	A	9.3	A	-0.1	0.2	No
95	Juniper Ave/Foothill Blvd	14.6	B	20.7	C	14.6	B	19.1	B	0.0	-1.6	No
96	Sierra Ave/Foothill Blvd	32.4	C	**59.8**	**E**	32.9	C	**61.2**	**E**	0.5	1.4	**Yes**
97	Sierra Ave/Upland Ave	10.3	B	12.8	B	10.2	B	12.8	B	-0.1	0.0	No
98	Sierra Ave/Seville Ave	1.4	A	3.6	A	1.6	A	3.6	A	0.2	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.7	A	4.6	A	1.6	A	4.5	A	-0.1	-0.1	No
100	Sierra Ave/Arrow Blvd	22.7	C	33.5	C	22.8	C	33.5	C	0.1	0.0	No
101	Sierra Ave/Valencia Ave	3.4	A	8.9	A	3.4	A	8.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.7	A	7.0	A	7.8	A	7.8	A	1.1	0.8	No
103	Sierra Ave/Ceres Ave	5.2	A	5.5	A	5.0	A	5.4	A	-0.2	-0.1	No
104	Sierra Ave/Merrill Ave	18.6	B	29.9	C	18.3	B	31.5	C	-0.3	1.6	No
105	Sierra Ave/Randall Ave	20.1	C	19.3	B	20.1	C	18.7	B	0.0	-0.6	No
106	Sierra Ave/San Bernardino Ave	37.1	D	34.7	C	37.9	D	35.1	D	0.8	0.4	No
107	Sierra Ave/Marygold Ave	28.2	C	45.8	D	28.4	C	45.6	D	0.2	-0.2	No
108	Juniper Ave/Marygold Ave	12.0	B	17.1	B	12.3	B	17.3	B	0.3	0.2	No
109	Juniper Ave/Valley Blvd	31.9	C	45.0	D	32.0	C	45.4	D	0.1	0.4	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.9	C	17.7	B	21.0	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	31.4	C	**56.7**	**E**	31.5	C	**56.6**	**E**	0.1	-0.1	No
112	Sierra Ave/Kaiser Permanente	3.5	A	5.5	A	3.5	A	5.5	A	0.0	0.0	No
113	Haven Ave/Concours St	17.1	B	14.2	B	17.1	B	14.2	B	0.0	0.0	No
114	Haven Ave/4th St	15.2	B	26.8	C	15.2	B	26.9	C	0.0	0.1	No
115	Haven Ave/Trademark St	4.2	A	12.8	B	4.2	A	12.8	B	0.0	0.0	No
116	Haven Ave/6th St	20.7	C	25.0	C	20.7	C	25.1	C	0.0	0.1	No
117	Haven Ave/7th St	3.7	A	16.1	B	3.7	A	16.1	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.5	A	21.7	C	8.5	A	21.9	C	0.0	0.2	No
119	Haven Ave/Arrow Rte	25.5	C	40.6	D	25.6	C	41.0	D	0.1	0.4	No
120	Haven Ave/Civic Center Dr	8.8	A	12.6	B	8.8	A	12.5	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	28.5	C	39.2	D	28.4	C	39.7	D	-0.1	0.5	No
122	Aspen St/Foothill Blvd	14.1	B	15.9	B	10.6	B	15.9	B	-3.5	0.0	No
123	Spruce Ave/Foothill Blvd	13.0	B	20.5	C	16.0	B	20.5	C	3.0	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.1	B	15.0	B	14.0	B	15.0	B	-0.1	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-6**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative E scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue;
- 30. Euclid Avenue/Holt Boulevard;
- 79. Day Creek Boulevard/Foothill Boulevard; and
- 96. Sierra Avenue/Foothill Boulevard.

6.7 Opening Year 2023 Build Alternative F LOS Analysis

This section presents the opening year 2023 Build Alternative F conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 6-7** summarizes the opening year 2023 plus Build Alternative F LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative F includes all design components of Alternative C, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 6-7: Opening Year 2023 Plus Build Alternative F Intersection Peak Hour LOS

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	14.9	B	15.1	B	15.6	B	15.6	B	0.7	0.5	No
55	Archibald Ave/I-10 Ramps	21.3	C	18.9	B	21.4	C	19.1	B	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	25.8	C	35.0	D	27.3	C	35.7	D	1.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.9	C	21.3	C	26.2	C	21.2	C	0.3	-0.1	No
58	Shelby St/Inland Empire Blvd	7.4	A	9.2	A	7.3	A	9.2	A	-0.1	0.0	No
59	Center Ave/Inland Empire Blvd	6.8	A	7.8	A	6.8	A	7.8	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	15.8	B	31.8	C	15.8	B	32.4	C	0.0	0.6	No
61	Porsche Wy/Inland Empire Blvd	19.5	B	19.9	B	19.3	B	19.6	B	-0.2	-0.3	No
62	Mercedes Ln/Inland Empire Blvd	8.1	A	9.0	A	8.0	A	9.4	A	-0.1	0.4	No
63	Private Drwy/Inland Empire Blvd	6.6	A	8.4	A	6.6	A	8.2	A	0.0	-0.2	No
64	Mathis-Car Max/Inland Empire Blvd	2.5	A	5.6	A	2.8	A	6.7	A	0.3	1.1	No
65	Ferrari Ln/Inland Empire Blvd	8.7	A	10.0	B	8.9	A	9.8	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	12.8	B	14.5	B	13.2	B	14.5	B	0.4	0.0	No
67	Milliken Ave/Concours St	8.7	A	14.8	B	8.6	A	14.8	B	-0.1	0.0	No
68	Milliken Ave/4th St	23.8	C	38.4	D	24.1	C	38.7	D	0.3	0.3	No
69	Milliken Ave/6th St	16.8	B	20.5	C	15.7	B	20.4	C	-1.1	-0.1	No
70	Milliken Ave/7th St	7.7	A	8.5	A	8.9	A	9.3	A	1.2	0.8	No
71	Milliken Ave/Jersey Blvd	12.8	B	15.6	B	12.7	B	15.6	B	-0.1	0.0	No
72	Milliken Ave/Arrow Route	24.8	C	31.6	C	25.7	C	32.1	C	0.9	0.5	No
73	Milliken Ave/Millennium Ct	4.8	A	3.2	A	4.9	A	3.3	A	0.1	0.1	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	22.3	C	27.6	C	18.7	B	26.1	C	-3.6	-1.5	No
75	Mayten Ave/Foothill Blvd	6.5	A	17.1	B	6.5	A	18.4	B	0.0	1.3	No
76	Masi Dr/Foothill Blvd	6.5	A	8.6	A	6.5	A	8.4	A	0.0	-0.2	No
77	Rochester Ave/Foothill Blvd	14.4	B	34.6	C	14.4	B	37.0	D	0.0	2.4	No
78	Victoria Commons/Foothill Blvd	3.3	A	5.4	A	3.3	A	5.5	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	23.3	C	**63.4**	**E**	23.6	C	**64.6**	**E**	0.3	1.2	**Yes**
80	I-15 SB Ramps/Foothill Blvd	13.0	B	11.5	B	13.0	B	11.9	B	0.0	0.4	No
81	I-15 NB Ramps/Foothill Blvd	12.9	B	12.3	B	12.9	B	12.5	B	0.0	0.2	No
82	Etiwanda Ave/Foothill Blvd	21.6	C	29.4	C	21.6	C	29.1	C	0.0	-0.3	No
83	Cornwall Ave/Foothill Blvd	6.0	A	6.7	A	6.0	A	6.7	A	0.0	0.0	No
84	East Ave/Foothill Blvd	12.2	B	7.3	A	12.2	B	7.4	A	0.0	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.2	A	6.0	A	6.1	A	5.8	A	-0.1	-0.2	No
86	Mulberry Ave/Foothill Blvd	15.8	B	14.9	B	15.8	B	13.9	B	0.0	-1.0	No
87	Banana Ave/Foothill Blvd	7.9	A	6.4	A	7.8	A	7.7	A	-0.1	1.3	No
88	Cherry Ave/Foothill Blvd	24.6	C	23.1	C	24.6	C	23.0	C	0.0	-0.1	No
89	Redwood Ave/Foothill Blvd	6.3	A	9.6	A	6.2	A	9.6	A	-0.1	0.0	No
90	Hemlock Ave/Foothill Blvd	8.9	A	10.9	B	8.8	A	11.0	B	-0.1	0.1	No
91	Almeria Ave/Foothill Blvd	14.0	B	9.0	A	14.0	B	9.0	A	0.0	0.0	No
92	Tokay Ave/Foothill Blvd	12.1	B	9.0	A	12.1	B	9.0	A	0.0	0.0	No
93	Citrus Ave/Foothill Blvd	33.8	C	51.0	D	33.8	C	51.9	D	0.0	0.9	No
94	Cypress Ave/Foothill Blvd	7.2	A	9.1	A	7.1	A	9.3	A	-0.1	0.2	No
95	Juniper Ave/Foothill Blvd	14.6	B	20.7	C	14.6	B	19.1	B	0.0	-1.6	No
96	Sierra Ave/Foothill Blvd	32.4	C	**59.8**	**E**	32.9	C	**61.2**	**E**	0.5	1.4	**Yes**
97	Sierra Ave/Upland Ave	10.3	B	12.8	B	10.2	B	12.8	B	-0.1	0.0	No
98	Sierra Ave/Seville Ave	1.4	A	3.6	A	1.6	A	3.6	A	0.2	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.7	A	4.6	A	1.6	A	4.5	A	-0.1	-0.1	No
100	Sierra Ave/Arrow Blvd	22.7	C	33.5	C	22.8	C	33.5	C	0.1	0.0	No
101	Sierra Ave/Valencia Ave	3.4	A	8.9	A	3.4	A	8.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.7	A	7.0	A	7.8	A	7.8	A	1.1	0.8	No
103	Sierra Ave/Ceres Ave	5.2	A	5.5	A	5.0	A	5.4	A	-0.2	-0.1	No
104	Sierra Ave/Merrill Ave	18.6	B	29.9	C	18.3	B	31.5	C	-0.3	1.6	No
105	Sierra Ave/Randall Ave	20.1	C	19.3	B	20.1	C	18.7	B	0.0	-0.6	No
106	Sierra Ave/San Bernardino Ave	37.1	D	34.7	C	37.9	D	35.1	D	0.8	0.4	No
107	Sierra Ave/Marygold Ave	28.2	C	45.8	D	28.4	C	45.6	D	0.2	-0.2	No
108	Juniper Ave/Marygold Ave	12.0	B	17.1	B	12.3	B	17.3	B	0.3	0.2	No
109	Juniper Ave/Valley Blvd	31.9	C	45.0	D	32.0	C	45.4	D	0.1	0.4	No
110	Inland Empire Ctr/Valley Blvd	17.7	B	20.9	C	17.7	B	21.0	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	31.4	C	**56.7**	**E**	31.5	C	**56.6**	**E**	0.1	-0.1	No
112	Sierra Ave/Kaiser Permanente	3.5	A	5.5	A	3.5	A	5.5	A	0.0	0.0	No
113	Haven Ave/Concours St	17.1	B	14.2	B	17.1	B	14.2	B	0.0	0.0	No
114	Haven Ave/4th St	15.2	B	26.8	C	15.2	B	26.9	C	0.0	0.1	No
115	Haven Ave/Trademark St	4.2	A	12.8	B	4.2	A	12.8	B	0.0	0.0	No
116	Haven Ave/6th St	20.7	C	25.0	C	20.7	C	25.1	C	0.0	0.1	No
117	Haven Ave/7th St	3.7	A	16.1	B	3.7	A	16.1	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.5	A	21.7	C	8.5	A	21.9	C	0.0	0.2	No
119	Haven Ave/Arrow Rte	25.5	C	40.6	D	25.6	C	41.0	D	0.1	0.4	No
120	Haven Ave/Civic Center Dr	8.8	A	12.6	B	8.8	A	12.5	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	28.5	C	39.2	D	28.4	C	39.7	D	-0.1	0.5	No
122	Aspen St/Foothill Blvd	14.1	B	15.9	B	10.6	B	15.9	B	-3.5	0.0	No
123	Spruce Ave/Foothill Blvd	13.0	B	20.5	C	16.0	B	20.5	C	3.0	0.0	No

Intersection		Opening Year 2023 No Build				Opening Year 2023 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.1	B	15.0	B	14.0	B	15.0	B	-0.1	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	14.0	B	22.0	C	14.0	B	22.0	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.2	A	9.4	A	2.2	A	9.4	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.9	B	17.2	B	11.8	B	17.3	B	-0.1	0.1	No
128	Day Creek Blvd/Church St	24.8	C	30.7	C	25.4	C	30.9	C	0.6	0.2	No
129	Rochester Ave/Church St	26.6	C	30.6	C	26.5	C	30.9	C	-0.1	0.3	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 6-7**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative F scenario in opening year 2023:

- 2. Garey Avenue/Holt Avenue;
- 25. San Antonio Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 31. Euclid Avenue/Mission Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Blvd;
- 79. Day Creek Boulevard/Foothill Boulevard; and
- 96. Sierra Avenue/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative D and Alternative E conditions.

7.0 FUTURE YEAR 2040 TRAFFIC OPERATIONS

This section provides the future year 2040 intersection traffic levels of service for the No Build condition as well as the three build alternative conditions described. Peak hour traffic volumes at the study intersections for all of the future year 2040 scenarios are provided in **Appendix C**.

7.1 Future Year 2040 No Build LOS Analysis

This section presents the future year 2040 No Build conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 7-1** summarizes the future year 2040 LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**.

Table 7-1: Future Year 2040 Intersection Peak Hour LOS

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
1	Garey Ave/Monterey Ave	Signalized	18.4	B	16.7	B
2	Garey Ave/Holt Ave	Signalized	**56.9**	**E**	**70.4**	**E**
3	Palomares St/Holt Ave	Signalized	10.0	A	12.0	B
4	Towne Ave/Holt Ave	Signalized	51.5	D	**63.6**	**E**
5	San Antonio Ave/Holt Ave	Signalized	17.0	B	16.9	B
6	Reservoir St/Holt Ave	Signalized	20.8	C	22.9	C
7	Clark Ave/Holt Ave	Signalized	7.1	A	8.4	A
8	East End Ave/Holt Ave	Signalized	24.5	C	**68.1**	**E**
9	Via Del Paseo/Holt Ave	Signalized	4.9	A	7.6	A
10	Indian Hill Blvd/Holt Ave	Signalized	26.6	C	28.4	C
11	Mills Ave/Holt Blvd	Signalized	10.2	B	18.5	B
12	Amherst Ave/Holt Blvd	Signalized	6.7	A	3.4	A
13	Ramona Ave/Holt Blvd	Signalized	28.9	C	23.6	C
14	Monte Vista Ave/Holt Blvd	Signalized	22.7	C	21.9	C
15	Central Ave/Holt Blvd	Signalized	30.5	C	29.4	C
16	Vernon Ave/Holt Blvd	Signalized	9.1	A	12.9	B
17	Benson Ave/D St	Stop Control	12.3	B	11.2	B
18	Benson Ave/Holt Blvd*	Signalized	20.2	C	12.7	B
19	Benson Ave/Mission Blvd	Signalized	30.5	C	26.7	C
20	Mountain Ave/D St	Signalized	15.7	B	14.9	B
21	Mountain Ave/Holt Blvd*	Signalized	30.6	C	36.4	D
22	Mountain Ave/Mission Blvd	Signalized	**55.7**	**E**	51.2	D
23	San Antonio Ave/D St	Stop Control	15.9	C	26.8	D
24	San Antonio Ave/Holt Blvd*	Signalized	19.3	B	26.3	C

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
25	San Antonio Ave/State St	Stop Control	**> 500**	**F**	**> 500**	**F**
26	Vine Ave/D St	Stop Control	11.9	B	11.3	B
27	Vine Ave/Holt Blvd*	Signalized	13.8	B	9.2	A
28	Vine Ave/State St	Stop Control	**42.5**	**E**	24.0	C
29	Euclid Ave/D St	Signalized	13.3	B	14.1	B
30	Euclid Ave/Holt Blvd*	Signalized	54.0	D	40.4	D
31	Euclid Ave/Mission Blvd	Signalized	45.4	D	52.9	D
32	Plum Ave/Holt Blvd*	Signalized	6.8	A	4.6	A
33	Sultana Ave/D St	Stop Control	17.4	C	19.9	C
34	Sultana Ave/Holt Blvd*	Signalized	17.2	B	20.4	C
35	Sultana Ave/State St	Stop Control	21.6	C	15.6	C
36	Campus Ave/D St	Stop Control	34.4	D	**38.1**	**E**
37	Campus Ave/Holt Blvd*	Signalized	21.0	C	24.6	C
38	Campus Ave/State St	Stop Control	**273.7**	**F**	**311.8**	**F**
39	Allyn Ave/D St	Stop Control	14.3	B	13.1	B
40	Bon View Ave-Allyn Ave/Holt Blvd*	Signalized	12.1	B	16.2	B
41	Bon View Ave/State St	Stop Control	16.4	C	34.6	D
42	Grove Ave/D St	Signalized	13.9	B	7.9	A
43	Grove Ave/Holt Blvd*	Signalized	38.7	D	48.3	D
44	Grove Ave/State St	Signalized	**117.3**	**F**	**64.6**	**E**
45	County Building/Holt Blvd*	Signalized	10.4	B	9.0	A
46	Corona Ave/Holt Blvd*	Signalized	19.5	B	9.8	A
47	Vineyard Ave/D St	Signalized	20.2	C	19.1	B
48	Vineyard Ave/Holt Blvd*	Signalized	21.0	C	23.0	C
49	Vineyard Ave/Airport Dr	Signalized	26.7	C	24.6	C
50	Guasti Rd/Holt Blvd	Signalized	11.6	B	11.0	B
51	Archibald Ave/Guasti Rd	Signalized	14.7	B	19.3	B
52	Archibald Ave/Airport Dr	Signalized	26.7	C	31.9	C
53	Moore Wy/Airport Dr	Signalized	12.7	B	11.9	B
54	Terminal Wy/Airport Dr	Signalized	15.0	B	15.1	B
55	Archibald Ave/I-10 Ramps	Signalized	24.4	C	21.4	C
56	Archibald Ave/Inland Empire Blvd	Signalized	32.6	C	40.8	D
57	Hermosa Ave/Inland Empire Blvd	Signalized	25.8	C	22.7	C
58	Shelby St/Inland Empire Blvd	Signalized	9.8	A	9.5	A
59	Center Ave/Inland Empire Blvd	Signalized	6.6	A	7.5	A
60	Haven Ave/Inland Empire Blvd	Signalized	17.4	B	42.1	D
61	Porsche Wy/Inland Empire Blvd	Signalized	19.4	B	20.7	C
62	Mercedes Ln/Inland Empire Blvd	Signalized	9.4	A	8.8	A

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
63	Private Drwy/Inland Empire Blvd	Signalized	7.1	A	8.6	A
64	Mathis-Car Max/Inland Empire Blvd	Signalized	2.9	A	5.5	A
65	Ferrari Ln/Inland Empire Blvd	Signalized	8.5	A	9.8	A
66	Milliken Ave/Inland Empire Blvd	Signalized	13.6	B	16.1	B
67	Milliken Ave/Concours St	Signalized	8.9	A	15.5	B
68	Milliken Ave/4th St	Signalized	25.1	C	52.7	D
69	Milliken Ave/6th St	Signalized	17.6	B	23.2	C
70	Milliken Ave/7th St	Signalized	6.9	A	10.7	B
71	Milliken Ave/Jersey Blvd	Signalized	15.8	B	21.0	C
72	Milliken Ave/Arrow Route	Signalized	29.5	C	46.0	D
73	Milliken Ave/Millennium Ct	Signalized	5.0	A	3.9	A
74	Milliken Ave/Foothill Blvd	Signalized	23.1	C	35.1	D
75	Mayten Ave/Foothill Blvd	Signalized	6.9	A	48.6	D
76	Masi Dr/Foothill Blvd	Signalized	6.7	A	9.4	A
77	Rochester Ave/Foothill Blvd	Signalized	16.4	B	**59.6**	**E**
78	Victoria Commons/Foothill Blvd	Signalized	3.9	A	6.9	A
79	Day Creek Blvd/Foothill Blvd	Signalized	30.6	C	**102.3**	**F**
80	I-15 SB Ramps/Foothill Blvd	Signalized	15.1	B	13.2	B
81	I-15 NB Ramps/Foothill Blvd	Signalized	14.1	B	14.7	B
82	Etiwanda Ave/Foothill Blvd	Signalized	24.7	C	35.5	D
83	Cornwall Ave/Foothill Blvd	Signalized	7.2	A	5.8	A
84	East Ave/Foothill Blvd	Signalized	17.3	B	8.2	A
85	Cottonwood Ave/Foothill Blvd	Signalized	6.1	A	6.3	A
86	Mulberry Ave/Foothill Blvd	Signalized	17.1	B	14.7	B
87	Banana Ave/Foothill Blvd	Signalized	8.2	A	8.3	A
88	Cherry Ave/Foothill Blvd	Signalized	26.0	C	24.2	C
89	Redwood Ave/Foothill Blvd	Signalized	8.6	A	9.9	A
90	Hemlock Ave/Foothill Blvd	Signalized	9.9	A	11.6	B
91	Almeria Ave/Foothill Blvd	Signalized	14.2	B	10.9	B
92	Tokay Ave/Foothill Blvd	Signalized	11.7	B	9.1	A
93	Citrus Ave/Foothill Blvd	Signalized	50.1	D	**80.2**	**F**
94	Cypress Ave/Foothill Blvd	Signalized	7.9	A	8.7	A
95	Juniper Ave/Foothill Blvd	Signalized	13.9	B	26.1	C
96	Sierra Ave/Foothill Blvd	Signalized	**60.7**	**E**	**81.7**	**F**
97	Sierra Ave/Upland Ave	Signalized	10.9	B	15.7	B
98	Sierra Ave/Seville Ave	Signalized	1.5	A	3.9	A
99	Sierra Ave/Spring St	Signalized	1.6	A	4.6	A
100	Sierra Ave/Arrow Blvd	Signalized	25.2	C	43.8	D

Intersection		Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec)	LOS	Delay (sec)	LOS
101	Sierra Ave/Valencia Ave	Signalized	3.3	A	5.9	A
102	Sierra Ave/Orange Wy	Signalized	6.5	A	7.6	A
103	Sierra Ave/Ceres Ave	Signalized	5.2	A	6.3	A
104	Sierra Ave/Merrill Ave	Signalized	20.1	C	37.4	D
105	Sierra Ave/Randall Ave	Signalized	23.3	C	21.8	C
106	Sierra Ave/San Bernardino Ave	Signalized	**73.0**	**E**	52.9	D
107	Sierra Ave/Marygold Ave	Signalized	35.1	D	**67.2**	**E**
108	Juniper Ave/Marygold Ave	Signalized	12.7	B	18.6	B
109	Juniper Ave/Valley Blvd	Signalized	34.0	C	**70.5**	**E**
110	Inland Empire Ctr/Valley Blvd	Signalized	17.7	B	22.8	C
111	Sierra Ave/Valley Blvd	Signalized	52.0	D	**90.7**	**F**
112	Sierra Ave/Kaiser Permanente	Signalized	2.6	A	5.9	A
113	Haven Ave/Concours St	Signalized	18.6	B	17.4	B
114	Haven Ave/4th St	Signalized	17.5	B	30.6	C
115	Haven Ave/Trademark St	Signalized	7.9	A	13.1	B
116	Haven Ave/6th St	Signalized	24	C	33.2	C
117	Haven Ave/7th St	Signalized	4.7	A	12.2	B
118	Haven Ave/Jersey Blvd	Signalized	8.4	A	49.4	D
119	Haven Ave/Arrow Route	Signalized	38	D	**67.3**	**E**
120	Haven Ave/Civic Center Dr	Signalized	10.7	B	10.2	B
121	Haven Ave/Foothill Blvd	Signalized	29.2	C	**70.8**	**E**
122	Aspen St/Foothill Blvd	Signalized	10.5	B	18.5	B
123	Spruce Ave/Foothill Blvd	Signalized	16	B	25.8	C
124	Elm Ave/Foothill Blvd	Signalized	14	B	21.9	C
125	Day Creek Blvd/Victoria Gardens Ln	Signalized	15.3	B	23.7	C
126	Day Creek Blvd/S Main St	Signalized	2.3	A	9.1	A
127	Day Creek Blvd/N Main St	Signalized	11.1	B	18.3	B
128	Day Creek Blvd/Church St	Signalized	27.9	C	33.8	C
129	Rochester Ave/Church St	Signalized	33.2	C	37.2	D

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-1**, the following study intersections are forecast to operate at LOS E or worse in future year 2040 No Build conditions:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;

- 22. Mountain Avenue/Mission Boulevard;
- 25. San Antonio Avenue/State Street;
- 28. Vine Avenue/State Street;
- 36. Campus Avenue/D Street;
- 38. Campus Avenue/State Street;
- 44. Grove Avenue/State Street;
- 77. Rochester Avenue/Foothill Boulevard;
- 79. Day Creek Boulevard/Foothill Boulevard;
- 93. Citrus Avenue/Foothill Boulevard;
- 96. Sierra Avenue/Foothill Boulevard;
- 106. Sierra Avenue/San Bernardino Avenue;
- 107. Sierra Avenue/Marygold Avenue;
- 109. Juniper Avenue/Valley Boulevard;
- 111. Sierra Avenue/Valley Boulevard;
- 119. Haven Avenue/Arrow Route; and
- 121. Haven Avenue/Foothill Boulevard.

7.2 Future Year 2040 Build Alternative A LOS Analysis

This section presents the future year 2040 Build Alternative A conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 7-2** summarizes the future year 2040 plus Build Alternative A LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative A consists of proposed project buses operating in mixed-flow lanes throughout the corridor, with side-running stations only.

Table 7-2: Future Year 2040 Plus Build Alternative A Intersection Peak Hour LOS

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	18.4	B	16.7	B	19.0	B	16.8	B	0.6	0.1	No
2	Garey Ave/Holt Ave	**56.9**	**E**	**70.4**	**E**	**59.4**	**E**	**77.4**	**E**	2.5	7.0	**Yes**
3	Palomares St/Holt Ave	10.0	A	12.0	B	10.3	B	9.4	A	0.3	-2.6	No
4	Towne Ave/Holt Ave	51.5	D	**63.6**	**E**	53.1	D	**64.4**	**E**	1.6	0.8	**Yes**
5	San Antonio Ave/Holt Ave	17.0	B	16.9	B	17.1	B	17.0	B	0.1	0.1	No
6	Reservoir St/Holt Ave	20.8	C	22.9	C	21.4	C	23.2	C	0.6	0.3	No
7	Clark Ave/Holt Ave	7.1	A	8.4	A	7.0	A	8.4	A	-0.1	0.0	No
8	East End Ave/Holt Ave	24.5	C	**68.1**	**E**	24.9	C	**71.2**	**E**	0.4	3.1	**Yes**
9	Via Del Paseo/Holt Ave	4.9	A	7.6	A	5.1	A	7.8	A	0.2	0.2	No
10	Indian Hill Blvd/Holt Ave	26.6	C	28.4	C	26.2	C	28.9	C	-0.4	0.5	No
11	Mills Ave/Holt Blvd	10.2	B	18.5	B	10.3	B	18.5	B	0.1	0.0	No
12	Amherst Ave/Holt Blvd	6.7	A	3.4	A	7.6	A	3.4	A	0.9	0.0	No
13	Ramona Ave/Holt Blvd	28.9	C	23.6	C	28.0	C	22.9	C	-0.9	-0.7	No
14	Monte Vista Ave/Holt Blvd	22.7	C	21.9	C	22.7	C	22.7	C	0.0	0.8	No
15	Central Ave/Holt Blvd	30.5	C	29.4	C	30.6	C	28.8	C	0.1	-0.6	No
16	Vernon Ave/Holt Blvd	9.1	A	12.9	B	9.2	A	12.9	B	0.1	0.0	No
17	Benson Ave/D St	12.3	B	11.2	B	12.3	B	11.2	B	0.0	0.0	No
18	Benson Ave/Holt Blvd*	20.2	C	12.7	B	20.3	C	12.9	B	0.1	0.2	No
19	Benson Ave/Mission Blvd	30.5	C	26.7	C	30.5	C	26.7	C	0.0	0.0	No
20	Mountain Ave/D St	15.7	B	14.9	B	15.7	B	14.9	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	30.6	C	36.4	D	30.7	C	36.5	D	0.1	0.1	No
22	Mountain Ave/Mission Blvd	**55.7**	**E**	51.2	D	**55.7**	**E**	51.2	D	0.0	0.0	No
23	San Antonio Ave/D St	15.9	C	26.8	D	15.9	C	26.8	D	0.0	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.3	B	26.3	C	19.4	B	26.7	C	0.1	0.4	No
25	San Antonio Ave/State St	**> 500**	**F**	**> 500**	**F**	**500.0**	**F**	**500.0**	**F**	0.0	0.0	No
26	Vine Ave/D St	11.9	B	11.3	B	11.9	B	11.3	B	0.0	0.0	No
27	Vine Ave/Holt Blvd*	13.8	B	9.2	A	13.8	B	9.1	A	0.0	-0.1	No
28	Vine Ave/State St	**42.5**	**E**	24.0	C	**42.5**	**E**	24.0	C	0.0	0.0	No
29	Euclid Ave/D St	13.3	B	14.1	B	13.3	B	14.1	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	54.0	D	40.4	D	54.5	D	40.9	D	0.5	0.5	No
31	Euclid Ave/Mission Blvd	45.4	D	52.9	D	45.4	D	52.9	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	6.8	A	4.6	A	7.0	A	4.6	A	0.2	0.0	No
33	Sultana Ave/D St	17.4	C	19.9	C	17.4	C	19.9	C	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.2	B	20.4	C	17.4	C	20.8	C	0.2	0.4	No
35	Sultana Ave/State St	21.6	C	15.6	C	21.6	C	15.6	C	0.0	0.0	No
36	Campus Ave/D St	34.4	D	**38.1**	**E**	34.4	D	**38.1**	**E**	0.0	0.0	No
37	Campus Ave/Holt Blvd*	21.0	C	24.6	C	21.1	C	24.7	C	0.1	0.1	No
38	Campus Ave/State St	**273.7**	**F**	**311.8**	**F**	**273.7**	**F**	**311.8**	**F**	0.0	0.0	No
39	Allyn Ave/D St	14.3	B	13.1	B	14.3	B	13.1	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.1	B	16.2	B	12.3	B	16.2	C	0.2	0.0	No
41	Bon View Ave/State St	16.4	C	34.6	D	16.4	C	34.6	D	0.0	0.0	No
42	Grove Ave/D St	13.9	B	7.9	A	13.9	B	7.9	A	0.0	0.0	No
43	Grove Ave/Holt Blvd*	38.7	D	48.3	D	39.0	D	48.9	D	0.3	0.6	No
44	Grove Ave/State St	**117.3**	**F**	**64.6**	**E**	**117.3**	**F**	**64.6**	**E**	0.0	0.0	No
45	County Building/Holt Blvd*	10.4	B	9.0	A	10.6	B	8.9	A	0.2	-0.1	No
46	Corona Ave/Holt Blvd*	19.5	B	9.8	A	19.7	B	9.9	A	0.2	0.1	No
47	Vineyard Ave/D St	20.2	C	19.1	B	20.2	C	19.1	B	0.0	0.0	No
48	Vineyard Ave/Holt Blvd*	21.0	C	23.0	C	21.1	C	23.2	C	0.1	0.2	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	26.7	C	24.6	C	26.8	C	24.9	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	11.6	B	11.0	B	11.6	B	11.0	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	19.3	B	14.7	B	19.4	B	0.0	0.1	No
52	Archibald Ave/Airport Dr	26.7	C	31.9	C	26.9	C	32.1	C	0.2	0.2	No
53	Moore Wy/Airport Dr	12.7	B	11.9	B	12.8	B	11.9	B	0.1	0.0	No
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.6	B	15.3	B	0.6	0.2	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.5	C	0.1	0.1	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	32.9	C	41.2	D	0.3	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.8	C	22.6	C	0.0	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative A				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.7	D	30.9	C	12.6	-4.2	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	51.1	D	0.1	2.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	16.9	B	**60.7**	**E**	0.5	1.1	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.0	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	30.9	C	**105.0**	**F**	0.3	2.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-2**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative A scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;
- 77. Rochester Avenue/Foothill Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

7.3 Future Year 2040 Build Alternative B LOS Analysis

This section presents the future year 2040 Build Alternative B conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 7-3** summarizes the future year 2040 plus Build Alternative B LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative B consists of center-running bus lanes and left-turn access restrictions at several minor intersections along Holt Boulevard between Benson Avenue and Vineyard Avenue. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data.

Intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.

Table 7-3: Future Year 2040 Plus Build Alternative B Intersection Peak Hour LOS

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	18.4	B	16.7	B	19.0	B	16.8	B	0.6	0.1	No
2	Garey Ave/Holt Ave	**56.9**	**E**	**70.4**	**E**	**59.4**	**E**	**77.4**	**E**	2.5	7.0	**Yes**
3	Palomares St/Holt Ave	10.0	A	12.0	B	10.3	B	9.4	A	0.3	-2.6	No
4	Towne Ave/Holt Ave	51.5	D	**63.6**	**E**	53.1	D	**64.4**	**E**	1.6	0.8	**Yes**
5	San Antonio Ave/Holt Ave	17.0	B	16.9	B	17.1	B	17.0	B	0.1	0.1	No
6	Reservoir St/Holt Avvve	20.8	C	22.9	C	21.4	C	23.2	C	0.6	0.3	No
7	Clark Ave/Holt Ave	7.1	A	8.4	A	7.0	A	8.4	A	-0.1	0.0	No
8	East End Ave/Holt Ave	24.5	C	**68.1**	**E**	24.9	C	**71.2**	**E**	0.4	3.1	**Yes**
9	Via Del Paseo/Holt Ave	4.9	A	7.6	A	5.1	A	7.8	A	0.2	0.2	No
10	Indian Hill Blvd/Holt Ave	26.6	C	28.4	C	26.2	C	28.9	C	-0.4	0.5	No
11	Mills Ave/Holt Blvd	10.2	B	18.5	B	10.3	B	18.5	B	0.1	0.0	No
12	Amherst Ave/Holt Blvd	6.7	A	3.4	A	7.6	A	3.4	A	0.9	0.0	No
13	Ramona Ave/Holt Blvd	28.9	C	23.6	C	28.0	C	22.9	C	-0.9	-0.7	No
14	Monte Vista Ave/Holt Blvd	22.7	C	21.9	C	22.7	C	22.7	C	0.0	0.8	No
15	Central Ave/Holt Blvd	30.5	C	29.4	C	30.6	C	28.8	C	0.1	-0.6	No
16	Vernon Ave/Holt Blvd	9.1	A	12.9	B	9.3	A	12.8	B	0.2	-0.1	No
17	Benson Ave/D St	12.3	B	11.2	B	12.3	B	11.2	B	0.0	0.0	No
18	Benson Ave/Holt Blvd*	20.2	C	12.7	B	21.3	C	24.7	C	1.1	12.0	No
19	Benson Ave/Mission Blvd	30.5	C	26.7	C	30.5	C	26.7	C	0.0	0.0	No
20	Mountain Ave/D St	15.7	B	14.9	B	15.7	B	14.9	B	0.0	0.0	No
21	Mountain Ave/Holt Blvd*	30.6	C	36.4	D	32.4	C	41.0	D	1.8	4.6	No
22	Mountain Ave/Mission Blvd	**55.7**	**E**	51.2	D	**55.7**	**E**	51.2	D	0.0	0.0	No
23	San Antonio Ave/D St	15.9	C	26.8	D	15.9	C	26.8	D	0.0	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.3	B	26.3	C	26.3	C	27.9	C	7.0	1.6	No
25	San Antonio Ave/State St	**> 500**	**F**	**> 500**	**F**	**500.0**	**F**	**500.0**	**F**	0.0	0.0	No
26	Vine Ave/D St	11.9	B	11.3	B	11.9	B	11.3	B	0.0	0.0	No
27	Vine Ave/Holt Blvd*	13.8	B	9.2	A	25.8	C	28.0	C	12.0	18.8	No
28	Vine Ave/State St	**42.5**	**E**	24.0	C	**42.5**	**E**	24.0	C	0.0	0.0	No
29	Euclid Ave/D St	13.3	B	14.1	B	13.3	B	14.1	B	0.0	0.0	No
30	Euclid Ave/Holt Blvd*	54.0	D	40.4	D	**75.7**	**E**	49.8	D	21.7	9.4	**Yes**
31	Euclid Ave/Mission Blvd	45.4	D	52.9	D	45.4	D	52.9	D	0.0	0.0	No
32	Plum Ave/Holt Blvd*	6.8	A	4.6	A	0.6	A	1.1	A	-6.2	-3.5	No
33	Sultana Ave/D St	17.4	C	19.9	C	17.4	C	19.9	C	0.0	0.0	No
34	Sultana Ave/Holt Blvd*	17.2	B	20.4	C	29.7	C	36.0	D	12.5	15.6	No
35	Sultana Ave/State St	21.6	C	15.6	C	21.6	C	15.6	C	0.0	0.0	No
36	Campus Ave/D St	34.4	D	**38.1**	**E**	34.4	D	**38.1**	**E**	0.0	0.0	No
37	Campus Ave/Holt Blvd*	21.0	C	24.6	C	27.6	C	41.5	D	6.6	16.9	No
38	Campus Ave/State St	**273.7**	**F**	**311.8**	**F**	**273.7**	**F**	**311.8**	**F**	0.0	0.0	No
39	Allyn Ave/D St	14.3	B	13.1	B	14.3	B	13.1	B	0.0	0.0	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.1	B	16.2	B	15.4	B	13.6	B	3.3	-2.6	No
41	Bon View Ave/State St	16.4	C	34.6	D	16.4	C	34.6	D	0.0	0.0	No
42	Grove Ave/D St	13.9	B	7.9	A	13.9	B	7.7	A	0.0	-0.2	No
43	Grove Ave/Holt Blvd*	38.7	D	48.3	D	45.9	D	50.3	D	7.2	2.0	No
44	Grove Ave/State St	**117.3**	**F**	**64.6**	**E**	**117.3**	**F**	**64.0**	**E**	0.0	-0.6	No
45	County Building/Holt Blvd*	10.4	B	9.0	A	9.9	A	2.7	A	-0.5	-6.3	No
46	Corona Ave/Holt Blvd*	19.5	B	9.8	A	17.8	B	20.8	C	-1.7	11.0	No
47	Vineyard Ave/D St	20.2	C	19.1	B	20.2	C	19.1	B	0.0	0.0	No
48	Vineyard Ave/Holt Blvd*	21.0	C	23.0	C	24.8	C	25.7	C	3.8	2.7	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	26.7	C	24.6	C	26.8	C	24.9	C	0.1	0.3	No
50	Guasti Rd/Holt Blvd	11.6	B	11.0	B	11.6	B	11.0	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	19.3	B	14.7	B	19.4	B	0.0	0.1	No
52	Archibald Ave/Airport Dr	26.7	C	31.9	C	26.9	C	32.1	C	0.2	0.2	No
53	Moore Wy/Airport Dr	12.7	B	11.9	B	12.8	B	11.9	B	0.1	0.0	No
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.6	B	15.3	B	0.6	0.2	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.5	C	0.1	0.1	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	32.9	C	41.2	D	0.3	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.8	C	22.6	C	0.0	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative B				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.7	D	30.9	C	12.6	-4.2	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	51.1	D	0.1	2.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	16.9	B	**60.7**	**E**	0.5	1.1	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.0	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	30.9	C	**105.0**	**F**	0.3	2.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-3**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative B scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Hold Avenue;
- 30. Euclid Avenue/Holt Boulevard;
- 77. Rochester Avenue/Foothill Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

7.4 Future Year 2040 Build Alternative C LOS Analysis

This section presents the future year 2040 Build Alternative C conditions traffic operations at the 84 study intersections using the methodologies described in Section 3. **Table 7-4** summarizes the future year 2040 plus Build Alternative C LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative C consists of a reduction in travel lanes, from four lanes to two lanes, along Holt Boulevard between Benson Avenue and Vineyard Avenue, as well as center-running bus lanes and left-turn access restrictions at several minor intersections in this segment. Proposed project buses would operate in mixed-flow lanes throughout the rest of the corridor. Left-turn and through movement volumes at minor streets where access would be restricted were redistributed accordingly along this segment, based on the collected traffic data.

Intersection analysis at the 13 signalized intersections between Benson Avenue and Vineyard Avenue was performed using VISSIM software, in order to consider the effects of the dedicated center-running BRT lanes. It is expected the bus movements would operate in conjunction with the eastbound and westbound Holt Boulevard through movement phases at all locations where dedicated BRT lanes are constructed. As a result, the new bus lanes would have a limited impact on the overall signal timing of each intersection as they would not require any new dedicated signal phases, which would delay mixed-flow traffic. However, incorporating the center-running BRT lane with the eastbound and westbound through movements would preclude the ability to apply lead/lag phase sequencing, also known as staggered protected left turns. Thus, eastbound and westbound protected left-turn movements would begin and end at the same time, regardless of the traffic demand of one movement versus the other.

Table 7-4: Future Year 2040 Plus Build Alternative C Intersection Peak Hour LOS

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	18.4	B	16.7	B	19.0	B	16.8	B	0.6	0.1	No
2	Garey Ave/Holt Ave	**56.9**	**E**	**70.4**	**E**	**59.4**	**E**	**77.4**	**E**	2.5	7.0	**Yes**
3	Palomares St/Holt Ave	10.0	A	12.0	B	10.3	B	9.4	A	0.3	-2.6	No
4	Towne Ave/Holt Ave	51.5	D	**63.6**	**E**	53.1	D	**64.4**	**E**	1.6	0.8	**Yes**
5	San Antonio Ave/Holt Ave	17.0	B	16.9	B	17.1	B	17.0	B	0.1	0.1	No
6	Reservoir St/Holt Ave	20.8	C	22.9	C	21.4	C	23.2	C	0.6	0.3	No
7	Clark Ave/Holt Ave	7.1	A	8.4	A	7.0	A	8.4	A	-0.1	0.0	No
8	East End Ave/Holt Ave	24.5	C	**68.1**	**E**	24.9	C	**71.2**	**E**	0.4	3.1	**Yes**
9	Via Del Paseo/Holt Ave	4.9	A	7.6	A	5.1	A	7.8	A	0.2	0.2	No
10	Indian Hill Blvd/Holt Ave	26.6	C	28.4	C	26.2	C	28.9	C	-0.4	0.5	No
11	Mills Ave/Holt Blvd	10.2	B	18.5	B	10.3	B	18.5	B	0.1	0.0	No
12	Amherst Ave/Holt Blvd	6.7	A	3.4	A	7.6	A	3.4	A	0.9	0.0	No
13	Ramona Ave/Holt Blvd	28.9	C	23.6	C	28.0	C	22.9	C	-0.9	-0.7	No
14	Monte Vista Ave/Holt Blvd	22.7	C	21.9	C	22.8	C	22.8	C	0.1	0.9	No
15	Central Ave/Holt Blvd	30.5	C	29.4	C	30.5	C	28.5	C	0.0	-0.9	No
16	Vernon Ave/Holt Blvd	9.1	A	12.9	B	9.2	A	12.7	B	0.1	-0.2	No
17	Benson Ave/D St	12.3	B	11.2	B	12.2	B	11.0	B	-0.1	-0.2	No
18	Benson Ave/Holt Blvd*	20.2	C	12.7	B	16.4	B	22.0	C	-3.8	9.3	No
19	Benson Ave/Mission Blvd	30.5	C	26.7	C	30.9	C	27.0	C	0.4	0.3	No
20	Mountain Ave/D St	15.7	B	14.9	B	16.1	B	15.3	B	0.4	0.4	No
21	Mountain Ave/Holt Blvd*	30.6	C	36.4	D	40.2	D	42.8	D	9.6	6.4	No
22	Mountain Ave/Mission Blvd	**55.7**	**E**	51.2	D	**56.1**	**E**	52.3	D	0.4	1.1	**Yes**
23	San Antonio Ave/D St	15.9	C	26.8	D	16.0	C	28.0	D	0.1	1.2	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	19.3	B	26.3	C	31.7	C	29.9	C	12.4	3.6	No
25	San Antonio Ave/State St	**> 500**	**F**	**> 500**	**F**	**500.0**	**F**	**500.0**	**F**	0.0	0.0	**Yes**
26	Vine Ave/D St	11.9	B	11.3	B	12.0	B	11.6	B	0.1	0.3	No
27	Vine Ave/Holt Blvd*	13.8	B	9.2	A	24.8	C	36.9	D	11.0	27.7	No
28	Vine Ave/State St	**42.5**	**E**	24.0	C	**46.7**	**E**	26.9	D	4.2	2.9	**Yes**
29	Euclid Ave/D St	13.3	B	14.1	B	13.8	B	15.3	B	0.5	1.2	No
30	Euclid Ave/Holt Blvd*	54.0	D	40.4	D	**81.3**	**F**	**125.3**	**F**	27.3	84.9	**Yes**
31	Euclid Ave/Mission Blvd	45.4	D	52.9	D	45.7	D	54.2	D	0.3	1.3	No
32	Plum Ave/Holt Blvd*	6.8	A	4.6	A	7.6	A	18.1	B	0.8	13.5	No
33	Sultana Ave/D St	17.4	C	19.9	C	17.5	C	22.4	C	0.1	2.5	No
34	Sultana Ave/Holt Blvd*	17.2	B	20.4	C	37.5	D	**71.2**	**E**	20.3	50.8	**Yes**
35	Sultana Ave/State St	21.6	C	15.6	C	24.1	C	17.0	C	2.5	1.4	No
36	Campus Ave/D St	34.4	D	**38.1**	**E**	**37.8**	**E**	**41.6**	**E**	3.4	3.5	**Yes**
37	Campus Ave/Holt Blvd*	21.0	C	24.6	C	50.1	D	**96.4**	**F**	29.1	71.8	**Yes**
38	Campus Ave/State St	**273.7**	**F**	**311.8**	**F**	**304.0**	**F**	**342.8**	**F**	30.3	31.0	**Yes**
39	Allyn Ave/D St	14.3	B	13.1	B	14.4	B	13.9	B	0.1	0.8	No
40	Bon View Ave-Allyn Ave/Holt Blvd*	12.1	B	16.2	B	29.6	C	**71.1**	**E**	17.5	54.9	**Yes**
41	Bon View Ave/State St	16.4	C	34.6	D	17.2	C	**35.1**	**E**	0.8	0.5	**Yes**
42	Grove Ave/D St	13.9	B	7.9	A	14.2	B	8.3	A	0.3	0.4	No
43	Grove Ave/Holt Blvd*	38.7	D	48.3	D	**70.6**	**E**	**70.1**	**E**	31.9	21.8	**Yes**
44	Grove Ave/State St	**117.3**	**F**	**64.6**	**E**	**128.2**	**F**	**72.6**	**E**	10.9	8.0	**Yes**
45	County Building/Holt Blvd*	10.4	B	9.0	A	**94.6**	**F**	6.5	A	84.2	-2.5	**Yes**
46	Corona Ave/Holt Blvd*	19.5	B	9.8	A	**67.2**	**E**	11.9	B	47.7	2.1	**Yes**
47	Vineyard Ave/D St	20.2	C	19.1	B	20.7	C	19.7	B	0.5	0.6	No
48	Vineyard Ave/Holt Blvd*	21.0	C	23.0	C	**108.5**	**F**	46.3	D	87.5	23.3	**Yes**

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	26.7	C	24.6	C	30.9	C	28.3	C	4.2	3.7	No
50	Guasti Rd/Holt Blvd	11.6	B	11.0	B	11.6	B	11.0	B	0.0	0.0	No
51	Archibald Ave/Guasti Rd	14.7	B	19.3	B	14.7	B	19.4	B	0.0	0.1	No
52	Archibald Ave/Airport Dr	26.7	C	31.9	C	26.9	C	32.1	C	0.2	0.2	No
53	Moore Wy/Airport Dr	12.7	B	11.9	B	12.8	B	11.9	B	0.1	0.0	No
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.6	B	15.3	B	0.6	0.2	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.5	C	0.1	0.1	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	32.9	C	41.2	D	0.3	0.4	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.8	C	22.6	C	0.0	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative C				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.7	D	30.9	C	12.6	-4.2	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	51.1	D	0.1	2.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	16.9	B	**60.7**	**E**	0.5	1.1	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.0	A	0.0	0.1	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	30.9	C	**105.0**	**F**	0.3	2.7	**Yes**
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-4**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative C scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;
- 22. Mountain Avenue/Mission Boulevard;
- 25. San Antonio Avenue/State Street;
- 28. Vine Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 36. Campus Avenue/D Street;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 40. Bon View Avenue-Allyn Avenue/Holt Boulevard;
- 41. Bon View Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Boulevard;
- 46. Corona Avenue/Holt Boulevard;
- 48. Vineyard Avenue/Holt Boulevard;
- 77. Rochester Avenue/Foothill Boulevard; and
- 79. Day Creek Boulevard/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative A and Alternative B conditions.

7.5 Future Year 2040 Build Alternative D LOS Analysis

This section presents the future year 2040 Build Alternative D conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 7-5** summarizes

the future year 2040 plus Build Alternative D LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative D includes all design components of Alternative A, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 7-5: Future Year 2040 Plus Build Alternative D Intersection Peak Hour LOS

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative A conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.8	B	15.5	B	0.8	0.4	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.6	C	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	33.1	C	41.5	D	0.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.9	C	22.6	C	0.1	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.8	D	31.1	C	12.7	-4.0	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	52.1	D	0.1	3.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	17.0	B	**61.2**	**E**	0.6	1.6	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.1	A	0.0	0.2	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	31.5	C	**105.9**	**F**	0.9	3.6	**Yes**
80	I-15 SB Ramps/Foothill Blvd	15.1	B	13.2	B	15.0	B	13.3	B	-0.1	0.1	No
81	I-15 NB Ramps/Foothill Blvd	14.1	B	14.7	B	14.1	B	14.1	B	0.0	-0.6	No
82	Etiwanda Ave/Foothill Blvd	24.7	C	35.5	D	25.4	C	36.0	D	0.7	0.5	No
83	Cornwall Ave/Foothill Blvd	7.2	A	5.8	A	7.3	A	5.8	A	0.1	0.0	No
84	East Ave/Foothill Blvd	17.3	B	8.2	A	17.6	B	8.3	A	0.3	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.1	A	6.3	A	6.1	A	6.4	A	0.0	0.1	No
86	Mulberry Ave/Foothill Blvd	17.1	B	14.7	B	17.1	B	14.7	B	0.0	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	8.3	A	8.1	A	8.3	A	-0.1	0.0	No
88	Cherry Ave/Foothill Blvd	26.0	C	24.2	C	25.6	C	24.3	C	-0.4	0.1	No
89	Redwood Ave/Foothill Blvd	8.6	A	9.9	A	6.9	A	9.9	A	-1.7	0.0	No
90	Hemlock Ave/Foothill Blvd	9.9	A	11.6	B	11.2	B	11.6	B	1.3	0.0	No
91	Almeria Ave/Foothill Blvd	14.2	B	10.9	B	14.5	B	10.9	B	0.3	0.0	No
92	Tokay Ave/Foothill Blvd	11.7	B	9.1	A	10.9	B	9.1	A	-0.8	0.0	No
93	Citrus Ave/Foothill Blvd	50.1	D	**80.2**	**F**	50.3	D	**80.8**	**F**	0.2	0.6	**Yes**
94	Cypress Ave/Foothill Blvd	7.9	A	8.7	A	7.8	A	8.7	A	-0.1	0.0	No
95	Juniper Ave/Foothill Blvd	13.9	B	26.1	C	13.9	B	26.7	C	0.0	0.6	No
96	Sierra Ave/Foothill Blvd	**60.7**	**E**	**81.7**	**F**	41.4	D	**81.7**	**F**	-19.3	0.0	No
97	Sierra Ave/Upland Ave	10.9	B	15.7	B	10.9	B	15.7	B	0.0	0.0	No
98	Sierra Ave/Seville Ave	1.5	A	3.9	A	1.5	A	3.8	A	0.0	-0.1	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.6	A	4.6	A	1.6	A	4.7	A	0.0	0.1	No
100	Sierra Ave/Arrow Blvd	25.2	C	43.8	D	25.3	C	44.1	D	0.1	0.3	No
101	Sierra Ave/Valencia Ave	3.3	A	5.9	A	3.3	A	5.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.5	A	7.6	A	7.1	A	8.5	A	0.6	0.9	No
103	Sierra Ave/Ceres Ave	5.2	A	6.3	A	4.9	A	6.3	A	-0.3	0.0	No
104	Sierra Ave/Merrill Ave	20.1	C	37.4	D	20.1	C	37.9	D	0.0	0.5	No
105	Sierra Ave/Randall Ave	23.3	C	21.8	C	23.4	C	22.1	C	0.1	0.3	No
106	Sierra Ave/San Bernardino Ave	**73.0**	**E**	52.9	D	**74.6**	**E**	53.6	D	1.6	0.7	**Yes**
107	Sierra Ave/Marygold Ave	35.1	D	**67.2**	**E**	33.9	C	**68.6**	**E**	-1.2	1.4	**Yes**
108	Juniper Ave/Marygold Ave	12.7	B	18.6	B	13.0	B	19.0	B	0.3	0.4	No
109	Juniper Ave/Valley Blvd	34.0	C	**70.5**	**E**	34.5	C	**71.1**	**E**	0.5	0.6	**Yes**
110	Inland Empire Ctr/Valley Blvd	17.7	B	22.8	C	17.7	B	22.9	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	52.0	D	**90.7**	**F**	55.0	D	**90.3**	**F**	3.0	-0.4	No
112	Sierra Ave/Kaiser Permanente	2.6	A	5.9	A	3.0	A	6.2	A	0.4	0.3	No
113	Haven Ave/Concours St	18.6	B	17.4	B	18.6	B	17.4	B	0.0	0.0	No
114	Haven Ave/4th St	17.5	B	30.6	C	17.5	B	30.8	C	0.0	0.2	No
115	Haven Ave/Trademark St	7.9	A	13.1	B	8.0	A	13.2	B	0.1	0.1	No
116	Haven Ave/6th St	24.0	C	33.2	C	24.2	C	33.5	C	0.2	0.3	No
117	Haven Ave/7th St	4.7	A	12.2	B	4.7	A	12.2	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.4	A	49.4	D	8.3	A	50.4	D	-0.1	1.0	No
119	Haven Ave/Arrow Rte	38.0	D	**67.3**	**E**	38.3	D	**67.6**	**E**	0.3	0.3	**Yes**
120	Haven Ave/Civic Center Dr	10.7	B	10.2	B	10.7	B	10.1	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	29.2	C	**70.8**	**E**	29.2	C	**72.2**	**E**	0.0	1.4	**Yes**
122	Aspen St/Foothill Blvd	10.5	B	18.5	B	10.1	B	18.6	B	-0.4	0.1	No
123	Spruce Ave/Foothill Blvd	16.0	B	25.8	C	18.0	B	25.8	C	2.0	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative D				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.0	B	21.9	C	13.6	B	21.9	C	-0.4	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-5**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative D scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;
- 77. Rochester Avenue/Foothill Boulevard;
- 79. Day Creek Boulevard/Foothill Boulevard;
- 93. Citrus Avenue/Foothill Boulevard;
- 106. Sierra Avenue/San Bernardino Avenue;
- 107. Sierra Avenue/Marygold Avenue;
- 109. Juniper Avenue/Valley Boulevard;
- 119. Haven Avenue/Arrow Route; and
- 121. Haven Avenue/Foothill Boulevard.

7.6 Future Year 2040 Build Alternative E LOS Analysis

This section presents the future year 2040 Build Alternative E conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 7-6** summarizes the future year 2040 plus Build Alternative E LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative E includes all design components of Alternative B, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 7-6: Future Year 2040 Plus Build Alternative E Intersection Peak Hour LOS

	Intersection	Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative B conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.8	B	15.5	B	0.8	0.4	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.6	C	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	33.1	C	41.5	D	0.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.9	C	22.6	C	0.1	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.8	D	31.1	C	12.7	-4.0	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	52.1	D	0.1	3.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	17.0	B	**61.2**	**E**	0.6	1.6	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.1	A	0.0	0.2	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	31.5	C	**105.9**	**F**	0.9	3.6	**Yes**
80	I-15 SB Ramps/Foothill Blvd	15.1	B	13.2	B	15.0	B	13.3	B	-0.1	0.1	No
81	I-15 NB Ramps/Foothill Blvd	14.1	B	14.7	B	14.1	B	14.1	B	0.0	-0.6	No
82	Etiwanda Ave/Foothill Blvd	24.7	C	35.5	D	25.4	C	36.0	D	0.7	0.5	No
83	Cornwall Ave/Foothill Blvd	7.2	A	5.8	A	7.3	A	5.8	A	0.1	0.0	No
84	East Ave/Foothill Blvd	17.3	B	8.2	A	17.6	B	8.3	A	0.3	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.1	A	6.3	A	6.1	A	6.4	A	0.0	0.1	No
86	Mulberry Ave/Foothill Blvd	17.1	B	14.7	B	17.1	B	14.7	B	0.0	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	8.3	A	8.1	A	8.3	A	-0.1	0.0	No
88	Cherry Ave/Foothill Blvd	26.0	C	24.2	C	25.6	C	24.3	C	-0.4	0.1	No
89	Redwood Ave/Foothill Blvd	8.6	A	9.9	A	6.9	A	9.9	A	-1.7	0.0	No
90	Hemlock Ave/Foothill Blvd	9.9	A	11.6	B	11.2	B	11.6	B	1.3	0.0	No
91	Almeria Ave/Foothill Blvd	14.2	B	10.9	B	14.5	B	10.9	B	0.3	0.0	No
92	Tokay Ave/Foothill Blvd	11.7	B	9.1	A	10.9	B	9.1	A	-0.8	0.0	No
93	Citrus Ave/Foothill Blvd	50.1	D	**80.2**	**F**	50.3	D	**80.8**	**F**	0.2	0.6	**Yes**
94	Cypress Ave/Foothill Blvd	7.9	A	8.7	A	7.8	A	8.7	A	-0.1	0.0	No
95	Juniper Ave/Foothill Blvd	13.9	B	26.1	C	13.9	B	26.7	C	0.0	0.6	No
96	Sierra Ave/Foothill Blvd	**60.7**	**E**	**81.7**	**F**	41.4	D	**81.7**	**F**	-19.3	0.0	No
97	Sierra Ave/Upland Ave	10.9	B	15.7	B	10.9	B	15.7	B	0.0	0.0	No
98	Sierra Ave/Seville Ave	1.5	A	3.9	A	1.5	A	3.8	A	0.0	-0.1	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.6	A	4.6	A	1.6	A	4.7	A	0.0	0.1	No
100	Sierra Ave/Arrow Blvd	25.2	C	43.8	D	25.3	C	44.1	D	0.1	0.3	No
101	Sierra Ave/Valencia Ave	3.3	A	5.9	A	3.3	A	5.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.5	A	7.6	A	7.1	A	8.5	A	0.6	0.9	No
103	Sierra Ave/Ceres Ave	5.2	A	6.3	A	4.9	A	6.3	A	-0.3	0.0	No
104	Sierra Ave/Merrill Ave	20.1	C	37.4	D	20.1	C	37.9	D	0.0	0.5	No
105	Sierra Ave/Randall Ave	23.3	C	21.8	C	23.4	C	22.1	C	0.1	0.3	No
106	Sierra Ave/San Bernardino Ave	**73.0**	**E**	52.9	D	**74.6**	**E**	53.6	D	1.6	0.7	**Yes**
107	Sierra Ave/Marygold Ave	35.1	D	**67.2**	**E**	33.9	C	**68.6**	**E**	-1.2	1.4	**Yes**
108	Juniper Ave/Marygold Ave	12.7	B	18.6	B	13.0	B	19.0	B	0.3	0.4	No
109	Juniper Ave/Valley Blvd	34.0	C	**70.5**	**E**	34.5	C	**71.1**	**E**	0.5	0.6	**Yes**
110	Inland Empire Ctr/Valley Blvd	17.7	B	22.8	C	17.7	B	22.9	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	52.0	D	**90.7**	**F**	55.0	D	**90.3**	**F**	3.0	-0.4	No
112	Sierra Ave/Kaiser Permanente	2.6	A	5.9	A	3.0	A	6.2	A	0.4	0.3	No
113	Haven Ave/Concours St	18.6	B	17.4	B	18.6	B	17.4	B	0.0	0.0	No
114	Haven Ave/4th St	17.5	B	30.6	C	17.5	B	30.8	C	0.0	0.2	No
115	Haven Ave/Trademark St	7.9	A	13.1	B	8.0	A	13.2	B	0.1	0.1	No
116	Haven Ave/6th St	24.0	C	33.2	C	24.2	C	33.5	C	0.2	0.3	No
117	Haven Ave/7th St	4.7	A	12.2	B	4.7	A	12.2	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.4	A	49.4	D	8.3	A	50.4	D	-0.1	1.0	No
119	Haven Ave/Arrow Rte	38.0	D	**67.3**	**E**	38.3	D	**67.6**	**E**	0.3	0.3	**Yes**
120	Haven Ave/Civic Center Dr	10.7	B	10.2	B	10.7	B	10.1	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	29.2	C	**70.8**	**E**	29.2	C	**72.2**	**E**	0.0	1.4	**Yes**
122	Aspen St/Foothill Blvd	10.5	B	18.5	B	10.1	B	18.6	B	-0.4	0.1	No
123	Spruce Ave/Foothill Blvd	16.0	B	25.8	C	18.0	B	25.8	C	2.0	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative E				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.0	B	21.9	C	13.6	B	21.9	C	-0.4	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-6**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative E scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;
- 30. Euclid Avenue/Holt Boulevard;
- 77. Rochester Avenue/Foothill Boulevard;
- 79. Day Creek Boulevard/Foothill Boulevard;
- 93. Citrus Avenue/Foothill Boulevard;
- 106. Sierra Avenue/San Bernardino Avenue;
- 107. Sierra Avenue/Marygold Avenue;
- 109. Juniper Avenue/Valley Boulevard;
- 119. Haven Avenue/Arrow Route; and
- 121. Haven Avenue/Foothill Boulevard.

7.7 Future Year 2040 Build Alternative F LOS Analysis

This section presents the future year 2040 Build Alternative F conditions traffic operations at the 129 study intersections using the methodologies described in Section 3. **Table 7-7** summarizes the future year 2040 plus Build Alternative F LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. As described earlier, Build Alternative F includes all design components of Alternative C, but with the addition of Alignment 2 along Haven Avenue, Foothill Boulevard, Day Creek Boulevard, Church Street, and Rochester Avenue as shown in **Figure 1-1**. Along Alignment 2, buses would operate within mixed-flow lanes, stopping at side-running stations only.

Table 7-7: Future Year 2040 Plus Build Alternative F Intersection Peak Hour LOS

	Intersection	Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
1	Garey Ave/Monterey Ave	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
2	Garey Ave/Holt Ave											
3	Palomares St/Holt Ave											
4	Towne Ave/Holt Ave											
5	San Antonio Ave/Holt Ave											
6	Reservoir St/Holt Ave											
7	Clark Ave/Holt Ave											
8	East End Ave/Holt Ave											
9	Via Del Paseo/Holt Ave											
10	Indian Hill Blvd/Holt Ave											
11	Mills Ave/Holt Blvd											
12	Amherst Ave/Holt Blvd											
13	Ramona Ave/Holt Blvd											
14	Monte Vista Ave/Holt Blvd											
15	Central Ave/Holt Blvd											
16	Vernon Ave/Holt Blvd											
17	Benson Ave/D St											
18	Benson Ave/Holt Blvd*											
19	Benson Ave/Mission Blvd											
20	Mountain Ave/D St											
21	Mountain Ave/Holt Blvd*											
22	Mountain Ave/Mission Blvd											
23	San Antonio Ave/D St											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
24	San Antonio Ave/Holt Blvd*	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
25	San Antonio Ave/State St											
26	Vine Ave/D St											
27	Vine Ave/Holt Blvd*											
28	Vine Ave/State St											
29	Euclid Ave/D St											
30	Euclid Ave/Holt Blvd*											
31	Euclid Ave/Mission Blvd											
32	Plum Ave/Holt Blvd*											
33	Sultana Ave/D St											
34	Sultana Ave/Holt Blvd*											
35	Sultana Ave/State St											
36	Campus Ave/D St											
37	Campus Ave/Holt Blvd*											
38	Campus Ave/State St											
39	Allyn Ave/D St											
40	Bon View Ave-Allyn Ave/Holt Blvd*											
41	Bon View Ave/State St											
42	Grove Ave/D St											
43	Grove Ave/Holt Blvd*											
44	Grove Ave/State St											
45	County Building/Holt Blvd*											
46	Corona Ave/Holt Blvd*											
47	Vineyard Ave/D St											
48	Vineyard Ave/Holt Blvd*											

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
49	Vineyard Ave/Airport Dr	Intersection Delay, LOS, and Impacts same as Build Alternative C conditions										
50	Guasti Rd/Holt Blvd											
51	Archibald Ave/Guasti Rd											
52	Archibald Ave/Airport Dr											
53	Moore Wy/Airport Dr											
54	Terminal Wy/Airport Dr	15.0	B	15.1	B	15.8	B	15.5	B	0.8	0.4	No
55	Archibald Ave/I-10 Ramps	24.4	C	21.4	C	24.5	C	21.6	C	0.1	0.2	No
56	Archibald Ave/Inland Empire Blvd	32.6	C	40.8	D	33.1	C	41.5	D	0.5	0.7	No
57	Hermosa Ave/Inland Empire Blvd	25.8	C	22.7	C	25.9	C	22.6	C	0.1	-0.1	No
58	Shelby St/Inland Empire Blvd	9.8	A	9.5	A	9.9	A	9.4	A	0.1	-0.1	No
59	Center Ave/Inland Empire Blvd	6.6	A	7.5	A	6.6	A	7.5	A	0.0	0.0	No
60	Haven Ave/Inland Empire Blvd	17.4	B	42.1	D	20.0	C	43.2	D	2.6	1.1	No
61	Porsche Wy/Inland Empire Blvd	19.4	B	20.7	C	19.2	B	20.6	C	-0.2	-0.1	No
62	Mercedes Ln/Inland Empire Blvd	9.4	A	8.8	A	9.4	A	8.7	A	0.0	-0.1	No
63	Private Drwy/Inland Empire Blvd	7.1	A	8.6	A	7.1	A	8.5	A	0.0	-0.1	No
64	Mathis-Car Max/Inland Empire Blvd	2.9	A	5.5	A	3.0	A	5.5	A	0.1	0.0	No
65	Ferrari Ln/Inland Empire Blvd	8.5	A	9.8	A	8.7	A	9.6	A	0.2	-0.2	No
66	Milliken Ave/Inland Empire Blvd	13.6	B	16.1	B	14.0	B	16.8	B	0.4	0.7	No
67	Milliken Ave/Concours St	8.9	A	15.5	B	8.8	A	15.4	B	-0.1	-0.1	No
68	Milliken Ave/4th St	25.1	C	52.7	D	25.5	C	53.7	D	0.4	1.0	No
69	Milliken Ave/6th St	17.6	B	23.2	C	16.9	B	22.5	C	-0.7	-0.7	No
70	Milliken Ave/7th St	6.9	A	10.7	B	8.0	A	11.8	B	1.1	1.1	No
71	Milliken Ave/Jersey Blvd	15.8	B	21.0	C	16.0	B	20.3	C	0.2	-0.7	No
72	Milliken Ave/Arrow Route	29.5	C	46.0	D	29.6	C	47.4	D	0.1	1.4	No
73	Milliken Ave/Millennium Ct	5.0	A	3.9	A	5.2	A	3.9	A	0.2	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
74	Milliken Ave/Foothill Blvd	23.1	C	35.1	D	35.8	D	31.1	C	12.7	-4.0	No
75	Mayten Ave/Foothill Blvd	6.9	A	48.6	D	7.0	A	52.1	D	0.1	3.5	No
76	Masi Dr/Foothill Blvd	6.7	A	9.4	A	7.2	A	9.2	A	0.5	-0.2	No
77	Rochester Ave/Foothill Blvd	16.4	B	**59.6**	**E**	17.0	B	**61.2**	**E**	0.6	1.6	**Yes**
78	Victoria Commons/Foothill Blvd	3.9	A	6.9	A	3.9	A	7.1	A	0.0	0.2	No
79	Day Creek Blvd/Foothill Blvd	30.6	C	**102.3**	**F**	31.5	C	**105.9**	**F**	0.9	3.6	**Yes**
80	I-15 SB Ramps/Foothill Blvd	15.1	B	13.2	B	15.0	B	13.3	B	-0.1	0.1	No
81	I-15 NB Ramps/Foothill Blvd	14.1	B	14.7	B	14.1	B	14.1	B	0.0	-0.6	No
82	Etiwanda Ave/Foothill Blvd	24.7	C	35.5	D	25.4	C	36.0	D	0.7	0.5	No
83	Cornwall Ave/Foothill Blvd	7.2	A	5.8	A	7.3	A	5.8	A	0.1	0.0	No
84	East Ave/Foothill Blvd	17.3	B	8.2	A	17.6	B	8.3	A	0.3	0.1	No
85	Cottonwood Ave/Foothill Blvd	6.1	A	6.3	A	6.1	A	6.4	A	0.0	0.1	No
86	Mulberry Ave/Foothill Blvd	17.1	B	14.7	B	17.1	B	14.7	B	0.0	0.0	No
87	Banana Ave/Foothill Blvd	8.2	A	8.3	A	8.1	A	8.3	A	-0.1	0.0	No
88	Cherry Ave/Foothill Blvd	26.0	C	24.2	C	25.6	C	24.3	C	-0.4	0.1	No
89	Redwood Ave/Foothill Blvd	8.6	A	9.9	A	6.9	A	9.9	A	-1.7	0.0	No
90	Hemlock Ave/Foothill Blvd	9.9	A	11.6	B	11.2	B	11.6	B	1.3	0.0	No
91	Almeria Ave/Foothill Blvd	14.2	B	10.9	B	14.5	B	10.9	B	0.3	0.0	No
92	Tokay Ave/Foothill Blvd	11.7	B	9.1	A	10.9	B	9.1	A	-0.8	0.0	No
93	Citrus Ave/Foothill Blvd	50.1	D	**80.2**	**F**	50.3	D	**80.8**	**F**	0.2	0.6	**Yes**
94	Cypress Ave/Foothill Blvd	7.9	A	8.7	A	7.8	A	8.7	A	-0.1	0.0	No
95	Juniper Ave/Foothill Blvd	13.9	B	26.1	C	13.9	B	26.7	C	0.0	0.6	No
96	Sierra Ave/Foothill Blvd	**60.7**	**E**	**81.7**	**F**	41.4	D	**81.7**	**F**	-19.3	0.0	No
97	Sierra Ave/Upland Ave	10.9	B	15.7	B	10.9	B	15.7	B	0.0	0.0	No
98	Sierra Ave/Seville Ave	1.5	A	3.9	A	1.5	A	3.8	A	0.0	-0.1	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
99	Sierra Ave/Spring St	1.6	A	4.6	A	1.6	A	4.7	A	0.0	0.1	No
100	Sierra Ave/Arrow Blvd	25.2	C	43.8	D	25.3	C	44.1	D	0.1	0.3	No
101	Sierra Ave/Valencia Ave	3.3	A	5.9	A	3.3	A	5.9	A	0.0	0.0	No
102	Sierra Ave/Orange Wy	6.5	A	7.6	A	7.1	A	8.5	A	0.6	0.9	No
103	Sierra Ave/Ceres Ave	5.2	A	6.3	A	4.9	A	6.3	A	-0.3	0.0	No
104	Sierra Ave/Merrill Ave	20.1	C	37.4	D	20.1	C	37.9	D	0.0	0.5	No
105	Sierra Ave/Randall Ave	23.3	C	21.8	C	23.4	C	22.1	C	0.1	0.3	No
106	Sierra Ave/San Bernardino Ave	**73.0**	**E**	52.9	D	**74.6**	**E**	53.6	D	1.6	0.7	**Yes**
107	Sierra Ave/Marygold Ave	35.1	D	**67.2**	**E**	33.9	C	**68.6**	**E**	-1.2	1.4	**Yes**
108	Juniper Ave/Marygold Ave	12.7	B	18.6	B	13.0	B	19.0	B	0.3	0.4	No
109	Juniper Ave/Valley Blvd	34.0	C	**70.5**	**E**	34.5	C	**71.1**	**E**	0.5	0.6	**Yes**
110	Inland Empire Ctr/Valley Blvd	17.7	B	22.8	C	17.7	B	22.9	C	0.0	0.1	No
111	Sierra Ave/Valley Blvd	52.0	D	**90.7**	**F**	55.0	D	**90.3**	**F**	3.0	-0.4	No
112	Sierra Ave/Kaiser Permanente	2.6	A	5.9	A	3.0	A	6.2	A	0.4	0.3	No
113	Haven Ave/Concours St	18.6	B	17.4	B	18.6	B	17.4	B	0.0	0.0	No
114	Haven Ave/4th St	17.5	B	30.6	C	17.5	B	30.8	C	0.0	0.2	No
115	Haven Ave/Trademark St	7.9	A	13.1	B	8.0	A	13.2	B	0.1	0.1	No
116	Haven Ave/6th St	24.0	C	33.2	C	24.2	C	33.5	C	0.2	0.3	No
117	Haven Ave/7th St	4.7	A	12.2	B	4.7	A	12.2	B	0.0	0.0	No
118	Haven Ave/Jersey Blvd	8.4	A	49.4	D	8.3	A	50.4	D	-0.1	1.0	No
119	Haven Ave/Arrow Rte	38.0	D	**67.3**	**E**	38.3	D	**67.6**	**E**	0.3	0.3	**Yes**
120	Haven Ave/Civic Center Dr	10.7	B	10.2	B	10.7	B	10.1	B	0.0	-0.1	No
121	Haven Ave/Foothill Blvd	29.2	C	**70.8**	**E**	29.2	C	**72.2**	**E**	0.0	1.4	**Yes**
122	Aspen St/Foothill Blvd	10.5	B	18.5	B	10.1	B	18.6	B	-0.4	0.1	No
123	Spruce Ave/Foothill Blvd	16.0	B	25.8	C	18.0	B	25.8	C	2.0	0.0	No

Intersection		Future Year 2040 No Build				Future Year 2040 Build Alternative F				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
124	Elm Ave/Foothill Blvd	14.0	B	21.9	C	13.6	B	21.9	C	-0.4	0.0	No
125	Day Creek Blvd/Victoria Gardens Ln	15.3	B	23.7	C	15.3	B	23.7	C	0.0	0.0	No
126	Day Creek Blvd/S Main St	2.3	A	9.1	A	2.3	A	9.1	A	0.0	0.0	No
127	Day Creek Blvd/N Main St	11.1	B	18.3	B	11.0	B	18.3	B	-0.1	0.0	No
128	Day Creek Blvd/Church St	27.9	C	33.8	C	28.3	C	34.3	C	0.4	0.5	No
129	Rochester Ave/Church St	33.2	C	37.2	D	33.1	C	38.8	D	-0.1	1.6	No

* Intersection analysis performed using VISSIM software as described in Section 3.
Note: LOS = Level of Service

As shown in **Table 7-7**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the Build Alternative F scenario in future year 2040:

- 2. Garey Avenue/Holt Avenue;
- 4. Towne Avenue/Holt Avenue;
- 8. East End Avenue/Holt Avenue;
- 22. Mountain Avenue/Mission Boulevard;
- 25. San Antonio Avenue/State Street;
- 28. Vine Avenue/State Street;
- 30. Euclid Avenue/Holt Boulevard;
- 34. Sultana Avenue/Holt Boulevard;
- 36. Campus Avenue/D Street;
- 37. Campus Avenue/Holt Boulevard;
- 38. Campus Avenue/State Street;
- 40. Bon View Avenue-Allyn Avenue/Holt Boulevard;
- 41. Bon View Avenue/State Street;
- 43. Grove Avenue/Holt Boulevard;
- 44. Grove Avenue/State Street;
- 45. County Building/Holt Boulevard;
- 46. Corona Avenue/Holt Boulevard;
- 48. Vineyard Avenue/Holt Boulevard;
- 77. Rochester Avenue/Foothill Boulevard;
- 79. Day Creek Boulevard/Foothill Boulevard;
- 93. Citrus Avenue/Foothill Boulevard;
- 106. Sierra Avenue/San Bernardino Avenue;
- 107. Sierra Avenue/Marygold Avenue;
- 109. Juniper Avenue/Valley Boulevard;
- 119. Haven Avenue/Arrow Route; and
- 121. Haven Avenue/Foothill Boulevard.

As shown, with the reduction of one through lane along Holt Boulevard between Benson Avenue and Vineyard Avenue, the study area intersection levels of service are forecast degrade to less than acceptable conditions and result in significant traffic impacts at several intersections when compared to Build Alternative D and Alternative E conditions.

8.0 INTERSECTION QUEUE ANALYSIS

This section provides an assessment of the forecast intersection queue lengths along Holt Boulevard in future year 2040, for Build Alternatives B and E and Build Alternatives C and F. The resulting build alternative queue lengths are compared to the no build conditions at the intersections which would include the center-running BRT lane as part of the signal. **Table 8-1** summarizes the future year 2040 Build Alternatives B and E queue lengths for the eastbound and westbound left-turn movements. The queue length results along this portion of Holt Boulevard were derived using the VISSIM analysis.

Table 8-1: Future Year 2040 Build Alternatives B and E - Peak Hour Queue Length Comparison

Intersection	Time Period	Future Year 2040 No Build		Future Year 2040 Build Alternatives B and E	
		EB Left Queue (ft)	WB Left Queue (ft)	EB Left Queue (ft)	WB Left Queue (ft)
21. Mountain Ave/Holt Blvd	AM Peak	290	170	350	180
	PM Peak	400	400	540	390
24. San Antonio Ave/Holt Blvd	AM Peak	220	130	230	180
	PM Peak	250	250	540	390
34. Sultana Ave/Holt Blvd	AM Peak	450	180	510	270
	PM Peak	180	360	430	540
37. Campus Ave/Holt Blvd	AM Peak	120	150	190	200
	PM Peak	170	210	380	350
40. Bon View Ave/Holt Blvd	AM Peak	160	130	240	150
	PM Peak	320	100	130	110
43. Grove Ave/Holt Blvd	AM Peak	240	810	250	900
	PM Peak	580	590	640	520

Note: Queue analysis performed using VISSIM software, which reports maximum queue length.

As shown in **Table 8-1**, the maximum peak hour left-turn queue lengths in Build Alternatives B and E are forecast to show the largest increases at the San Antonio Avenue/Holt Boulevard and Sultana Avenue/Holt Boulevard intersections, when compared to the no build queue lengths.

Table 8-2 summarizes the future year 2040 Build Alternatives C and F queue lengths for the eastbound and westbound left-turn movements.

Table 8-2: Future Year 2040 Build Alternatives C and F - Peak Hour Queue Length Comparison

Intersection	Time Period	Future Year 2040 No Build		Future Year 2040 Build Alternative C and F	
		EB Left Queue (ft)	WB Left Queue (ft)	EB Left Queue (ft)	WB Left Queue (ft)
21. Mountain Ave/Holt Blvd	AM Peak	290	170	670	230
	PM Peak	400	400	1,380	540
24. San Antonio Ave/Holt Blvd	AM Peak	220	130	290	130
	PM Peak	250	250	300	200
34. Sultana Ave/Holt Blvd	AM Peak	450	180	670	420
	PM Peak	180	360	670	1,150
37. Campus Ave/Holt Blvd	AM Peak	120	150	430	430
	PM Peak	170	210	1,470	1,290
40. Bon View Ave/Holt Blvd	AM Peak	160	130	520	780
	PM Peak	320	100	1,270	1,060
43. Grove Ave/Holt Blvd	AM Peak	240	810	520	1,670
	PM Peak	580	590	1,670	1,580

Note: Queue analysis performed using VISSIM software, which reports maximum queue length.

As shown in **Table 8-2**, the maximum peak hour left-turn queue lengths in Build Alternatives C and F are forecast to increase substantially at the Mountain Avenue/Holt Boulevard, Sultana Avenue/Holt Boulevard, and Grove Avenue/Holt Boulevard intersections. The large increases are a result of additional intersection vehicle delay caused by the reduction in mixed-flow lanes on Holt Boulevard.

9.0 HOLT BOULEVARD ON STREET PARKING ANALYSIS

This section presents the assessment of the West Valley Connector project's potential impact to on-street parking in the study area. In the Build Alternative B and Build Alternative E condition, on-street parking along Holt Boulevard is proposed to be eliminated along the four mile segment of Benson Avenue to Vineyard Avenue. Currently, on-street, non-metered, parking is provided along this segment.

In order to describe the effect of the parking removal, existing parking data was collected during a five hour period on a typical weekday in July 2016. Existing parking count data is provided in **Appendix A**. **Table 9-1** summarizes hourly on-street parking count results along the south side (eastbound direction) of Holt Boulevard (from west to east). Since on-street parking is unmarked along the segment, parking space capacity was estimated based on the length of available curb, assuming an average vehicle length of 20 feet.

Table 9-1: South Side (Eastbound) Holt Boulevard Parking Capacity

From	To	Available Parking Length (ft)	Estimated Available Parking Spaces*	Parked Vehicles Per Hour				
				10 a.m. – 11 a.m.	11 a.m. – 12 p.m.	12 p.m. – 1 p.m.	1 p.m. – 2 p.m.	2 p.m. – 3 p.m.
Benson Ave	Oaks Ave	925	46	3	3	3	2	2
Oaks Ave	Mountain Ave	600	30	6	6	5	6	7
Mountain Ave	Granite Ave	416	20	0	3	2	2	3
Granite Ave	Brooks St	NP	0	0	0	0	0	0
Brooks St	Cypress Ave	80	4	0	0	0	0	0
Cypress Ave	San Antonio Ave	135	6	0	0	0	0	0
San Antonio Ave	Vine Ave	704	35	3	2	0	0	0
Vine Ave	Fern Ave	70	3	0	0	0	0	0
Fern Ave	Palm Ave	110	5	0	0	0	0	0
Palm Ave	Laurel Ave	250	12	4	5	0	2	5
Laurel Ave	Euclid Ave	85	4	0	0	3	1	0
Euclid Ave	Lemon Ave	NP	0	0	0	0	0	0
Lemon Ave	Plum Ave	NP	0	0	0	0	0	0
Plum Ave	Sultana Ave	NP	0	0	0	0	0	0
Sultana Ave	Pleasant Ave	NP	0	0	0	0	0	0
Pleasant Pl	Melrose Ave	380	19	0	0	0	0	1
Melrose Ave	Malcolm Ave	227	11	4	0	5	6	4
Malcolm Ave	Campus Ave	NP	0	0	4	0	0	2
Campus Ave	Bon View Ave	267	13	1	4	2	3	2
Bon View Ave	Cucamonga Ave	213	10	0	0	0	0	0
Cucamonga Ave	Grove Ave	420	21	0	0	0	1	0
Grove Ave	Walker Ave	1,575	78	8	6	7	6	5
Walker Ave	County Building	977	48	0	0	0	0	0
County Building	Corona Ave	510	25	0	0	0	0	0
Corona Ave	Vineyard Ave	NP	0	0	0	0	0	0
Total Spaces and Parked Vehicles			390	29	33	27	29	31
Total Parking Utilization				7%	8%	7%	7%	8%

*Assumed parking length of 20 ft.
NP = No Parking Any Time

As shown in **Table 9-1**, along the full length of the segment, on-street parking is not heavily utilized along the south side of the street. A peak utilization of 8% occurs during the 11:00 a.m. to 12:00 p.m. and 2:00 to 3:00 p.m. hours. On-street parking spaces are generally more utilized on the western side of the corridor, between Benson Avenue and Euclid Avenue. Along the south side of the street, parking is prohibited between Euclid Avenue and Pleasant Avenue.

Table 9-2 summarizes hourly on-street parking count results along the north side (westbound direction) of Holt Boulevard (from east to west).

Table 9-2: North Side (Westbound) Holt Boulevard Parking Capacity

From	To	Available Parking Length (ft)	Estimated Available Parking Spaces*	Parked Vehicles Per Hour				
				10 a.m. – 11 a.m.	11 a.m. – 12 p.m.	12 p.m. – 1 p.m.	1 p.m. – 2 p.m.	2 p.m. – 3 p.m.
Vineyard Ave	Corona Ave	NP	0	0	0	0	0	0
Corona Ave	County Building	NP	0	0	0	0	0	0
County Building	Imperial Ave	1,080	54	0	0	0	0	0
Imperial Ave	Grove Ave	754	37	2	2	1	1	1
Grove Ave	Virginia Ave	480	24	0	0	0	0	0
Virginia Ave	Bon View Ave	865	43	0	0	0	0	0
Bon View Ave	Campus Ave	540	27	0	0	0	1	0
Campus Ave	Miramonte Ave	50	2	0	1	2	0	0
Miramonte Ave	Monterey Ave	100	5	0	0	0	1	0
Monterey Ave	Pleasant Ave	240	12	0	0	1	0	0
Pleasant Ave	Sultana Ave	NP	0	1	0	0	0	1
Sultana Ave	Plum Ave	NP	0	0	0	0	0	0
Plum Ave	Lemon Ave	NP	0	0	0	1	0	0
Lemon Ave	Euclid Ave	NP	0	0	0	0	0	0
Euclid Ave	Laurel Ave	100	5	3	2	1	2	0
Laurel Ave	Palm Ave	175	8	1	2	1	1	0
Palm Ave	Fern Ave	90	4	1	1	1	0	1
Fern Ave	Vine Ave	140	7	3	2	3	3	2
Vine Ave	Bonita Ct	235	11	0	0	0	0	0
Bonita Ct	San Antonio Ave	NP	0	0	0	0	0	0
San Antonio Ave	Boulder Ave	610	30	3	6	7	5	5
Boulder Ave	Mountain Ave	585	29	18	18	20	17	20
Mountain Ave	Benson Ave	1,110	55	6	1	1	2	2
Total Spaces and Parked Vehicles			353	38	35	39	33	32
Total Parking Utilization				11%	10%	11%	9%	9%

*Assumed parking length of 20 ft.
NP = No Parking Any Time

As shown in **Table 9-2**, along the full length of the segment, on-street parking is slightly more utilized along the north side of the street than the south side. A peak utilization of 11% occurs during the 10:00 to 11:00 a.m. and 12:00 p.m. to 1:00 p.m. hours. On-street parking spaces are generally more utilized on the western side of the corridor, specifically along the segment between Boulder Avenue and Mountain Avenue. This segment consists of auto-related sales and service type businesses. Similar to the south side, parking is prohibited between Pleasant Avenue and Euclid Avenue along the north side of the street.

Considering the low utilization of on-street parking demand during a typical weekday as well as the presence of off-street parking lots provided by most businesses, it is not likely that the

removal on-street parking to accommodate the proposed project Build Alternative B and E configuration would have an adverse effect on parking conditions.

10.0 POTENTIAL MITIGATION MEASURES

This section presents potential mitigation measure recommendations to alleviate the significant traffic impacts forecast to result upon implementation of the proposed project. The following potential mitigation measures have been identified:

- 2. Garey Avenue/Holt Avenue – The project impact can be fully mitigated by re-striping the eastbound Holt Avenue approach to add a dedicated right-turn lane.
- 4. Towne Avenue/Holt Avenue – The project impact can be fully mitigated by modifying the traffic signal to include protected plus permitted left-turn phasing at the northbound and southbound Towne Avenue approaches.
- 8. East End Avenue/Holt Avenue – The project impact can be fully mitigated by re-striping the eastbound Holt Avenue right-turn lane to a shared through/right-turn lane.
- 22. Mountain Avenue/Mission Boulevard – The project impact, occurring in Build Alternatives C and F only, can be fully mitigated by re-striping the northbound Mountain Avenue approach to add a dedicated right-turn lane.
- 25. San Antonio Avenue/State Street – The project impact, occurring in Build Alternatives C and F only, at the stop-controlled intersection can be fully mitigated by the installation of a traffic signal. Peak hour traffic volumes are forecast to meet MUTCD minimum peak hour signal warrant thresholds.
- 28. Vine Avenue/State Street – The project impact, occurring in Build Alternatives C and F only, at the stop-controlled intersection can be fully mitigated by the installation of a traffic signal. However, peak hour traffic volumes are not large enough to meet MUTCD minimum peak hour signal warrant thresholds. As a result, this impact would be considered significant and unavoidable.
- 30. Euclid Avenue/Holt Boulevard – Due to right-of-way constraints and the location of this intersection within the Downtown area, no feasible mitigation measures are recommended. As a result, the project impact would be considered significant and unavoidable.
- 31. Euclid Avenue/Mission Boulevard – The project impact, occurring in Build Alternatives C and F only, can be fully mitigated by re-striping either the eastbound or westbound Mission Boulevard approach to include a dedicated right-turn lane. Re-striping the approach would likely require a reduction in the lane widths of the two through lanes.
- 34. Sultana Avenue/Holt Boulevard – The project impact, occurring in Build Alternatives C and F only. Due to right-of-way constraints, no feasible mitigation

measures are recommended. As a result, the project impact would be considered significant and unavoidable.

- 36. Campus Avenue/D Street – The project impact, occurring in Build Alternatives C and F only, at the stop-controlled intersection can be fully mitigated by the installation of a traffic signal. However, peak hour traffic volumes are not large enough to meet MUTCD minimum peak hour signal warrant thresholds. As a result, this impact would be considered significant and unavoidable.
- 37. Campus Avenue/Holt Boulevard – The signal currently allows for permitted phasing in the eastbound and westbound directions. The project impact is caused by the reduction in travel lanes as well as the removal of the eastbound and westbound permitted left-turn phases as a result of the center-running BRT lane. No feasible mitigation measures are recommended to alleviate this impact. As a result, the project impact, occurring in Build Alternative C and F only, would be considered significant and unavoidable.
- 38. Campus Avenue/State Street – The project impact, occurring in Build Alternatives C and F only, at the stop-controlled intersection can be fully mitigated by the installation of a traffic signal. Peak hour traffic volumes are forecast to meet MUTCD minimum peak hour signal warrant thresholds.
- 40. Bon View Avenue-Allyn Avenue/Holt Boulevard – Due to right-of-way constraints, no feasible mitigation measures are recommended. As a result, the project impact would be considered significant and unavoidable.
- 41. Bon View Avenue/State Street – The project impact, occurring in Build Alternatives C and F only, at the stop-controlled intersection can be fully mitigated by the installation of a traffic signal. Peak hour traffic volumes are forecast to meet MUTCD minimum peak hour signal warrant thresholds.
- 43. Grove Avenue/Holt Boulevard – The project impact, occurring in Build Alternative C and F only, can be fully mitigated by widening Grove Avenue to include a third northbound and third southbound through lane.
- 44. Grove Avenue/State Street – The project impact, occurring in Build Alternatives C and F only, can be fully mitigated by re-striping the southbound Grove Avenue right-turn lane to a shared through/right-turn lane.
- 45. County Building/Holt Boulevard –The project impact is caused by the reduction in travel lanes as a result of the center-running BRT lane. No feasible mitigation measures are recommended to alleviate this impact. As a result, the project impact, occurring in Build Alternative C and F only, would be considered significant and unavoidable.

- 46. Corona Avenue/Holt Boulevard – The project impact is caused by the reduction in travel lanes as a result of the center-running BRT lane. No feasible mitigation measures are recommended to alleviate this impact. As a result, the project impact, occurring in Build Alternative C and F only, would be considered significant and unavoidable.
- 48. Vineyard Avenue/Holt Boulevard – The project impact occurs in Build Alternatives C and F only. Due to right-of-way constraints, no feasible mitigation measures are recommended. As a result, the project impact would be considered significant and unavoidable.
- 77. Rochester Avenue/Foothill Boulevard – The project impact could potentially be fully mitigated by widening the northbound Rochester Avenue approach to add a dedicated right-turn lane. However, due to right-of-way constraints and the high cost of utility relocation, this mitigation would not be considered feasible. As a result, the project impact would be considered significant and unavoidable.
- 79. Day Creek Boulevard/Foothill Boulevard – The project impact can be fully mitigated by re-striping the third northbound through lane to a shared through/right-turn lane.
- 93. Citrus Avenue/Foothill Boulevard – The project impact could potentially be fully mitigated by widening the northbound Citrus Avenue approach to add a dedicated right-turn lane. However, due to right-of-way constraints and the high cost of utility relocation, this mitigation would not be considered feasible. As a result, the project impact would be considered significant and unavoidable.
- 96. Sierra Avenue/Foothill Boulevard – The project impact can be fully mitigated by modifying the traffic signal to include protected plus permitted left-turn phasing at the eastbound and westbound San Foothill Boulevard approaches.
- 106. Sierra Avenue/San Bernardino Avenue – The project impact can be fully mitigated by modifying the traffic signal to include protected plus permitted left-turn phasing at the eastbound and westbound San Bernardino Avenue approaches.
- 107. Sierra Avenue/Marygold Avenue – The project impact can be fully mitigated by re-striping the eastbound Marygold Avenue shared through/right lane to a right-turn lane with a dedicated eastbound through lane.
- 109. Juniper Avenue/Valley Boulevard – The project impact can be fully mitigated by re-striping the westbound Valley Boulevard approach to add a dedicated right-turn lane. The current approach width is approximately 50 feet which should be adequate to provide four approach lanes (one left-turn lane, two through lanes, and one right-turn lane).

- 119. Haven Avenue/Arrow Route – The project impact could potentially be fully mitigated by widening the westbound Arrow Route approach to add a dedicated right-turn lane. However, due to right-of-way constraints and the high cost of utility relocation, this mitigation would not be considered feasible. As a result, the project impact would be considered significant and unavoidable.
- 121. Haven Avenue/Foothill Boulevard – The project impact could potentially be fully mitigated by widening the northbound Haven Avenue approach to add a dedicated right-turn lane. However, due to right-of-way constraints and the high cost of utility relocation, this mitigation would not be considered feasible. As a result, the project impact would be considered significant and unavoidable.

Table 10-1 presents a summary of the improvement measures (avoidance measures) and the level of significance after implementation of the measure.

Table 10-1: Summary of Improvements Measures

Intersection	Alternative	Proposed Avoidance Measure (Improvement)	Level of Significance (after Avoidance Measure)
2. Garey Ave/Holt Ave	Alt A, B, C, D, E, F	Re-stripe the EB Holt Ave approach to add a dedicated right-turn lane (2023, 2040)	Not Significant
4. Town Ave/Holt Ave	Alt A, B, C, D, E, F	Modify the traffic signal to include protected plus permitted phasing at the NB and SB Towne Ave approaches (2040)	Not Significant
8. East End Ave/Holt Ave	Alt A, B, C, D, E, F	Re-stripe the EB Holt Ave right-turn lane to a shared through/right-turn lane (2040)	Not Significant
22. Mountain Ave/ Mission Blvd	Alt C, F	Re-stripe the NB Mountain Ave approach to add a dedicated right-turn lane (2040)	Not Significant
25. San Antonio Ave/State St	Alt C, F	Install a traffic signal (2040)	Not Significant
28. Vine Ave/State St	Alt C, F	No recommended measure (2040)	Significant
30. Euclid Ave/Holt Blvd	Alt B, C, E, F	No recommended measure (Exiting, 2023, 2040)	Significant
31. Euclid Ave/Mission Blvd	Alt C, F	Re-stripe either the EB or WB Mission Blvd approach to include a dedicated right-turn lane (2023)	Not Significant
34. Sultana Ave/Holt Blvd	Alt C, F	No recommended measure (Existing, 2023, 2040)	Significant
36. Campus Ave/D St	Alt C, F	No recommended measure (2040)	Significant
37. Campus Ave/Holt Blvd	Alt C, F	No recommended measure (Existing, 2023, 2040)	Significant
38. Campus Ave/State St	Alt C, F	Install a traffic signal (Existing, 2023, 2040)	Not Significant
40. Bon View Ave/Holt Blvd	Alt C, F	No recommended measure (2040)	Significant
41. Bon View Ave/State St	Alt C, F	Install a traffic signal (2040)	Not Significant
43. Grove Ave/Holt Blvd	Alt C, F	Widen Grove Ave to include a third NB and third SB through lane (Existing, 2023, 2040)	Not Significant
44. Grove Ave/State St	Alt C, F	Re-stripe the SB Grove AVE right-turn lane to a shared through/right-turn lane (Existing, 2023, 2040)	Not Significant
45. County Building/ Holt Blvd	Alt C, F	No recommended measure (Existing, 2023, 2040)	Significant

Intersection	Alternative	Proposed Avoidance Measure (Improvement)	Level of Significance (after Avoidance Measure)
46. Corona Ave/Holt Blvd	Alt C, F	No recommended measure (2040)	Significant
48. Vineyard Ave/Holt Blvd	Alt C, F	No recommended measure (2040)	Significant
77. Rochester Ave/Foothill Blvd	Alt A, B, C, D, E, F	No recommended measure (2040)	Significant
79. Day Creek Blvd/Foothill Blvd	Alt A, B, C, D, E, F	Re-stripe the third NB through lane to a shared through/right-turn lane (Existing, 2023, 2040)	Not Significant
93. Citrus Ave/Foothill Blvd	Alt D, E, F	No recommended measure (2040)	Significant
96. Sierra Ave/Foothill Blvd	Alt D, E, F	Modify the traffic signal to include protected plus permitted phasing at the EB and WB San Foothill Blvd approaches (2023)	Not Significant
106. Sierra Ave/San Bernardino Ave	Alt D, E, F	Modify the traffic signal to include protected plus permitted phasing at the EB and WB San Bernardino Ave approaches (2040)	Not Significant
107. Sierra Ave/Marygold Ave	Alt D, E, F	Re-stripe the EB Marygold Ave shared through/right lane to a right-turn lane with a dedicated EB through lane (2040)	Not Significant
109. Juniper Ave/Valley Blvd	Alt D, E, F	Re-stripe the WB Valley Blvd approach to add a dedicated right-turn lane (2040)	Not Significant
119. Haven Ave/Arrow Rte	Alt D, E, F	No recommended measure (2040)	Significant
121. Haven Ave/Foothill Blvd	Alt D, E, F	No recommended measure (2040)	Significant

Tables 10-2 through **10-4** show the level of service improvement with the feasible mitigation measures listed for existing, opening year, and future conditions, respectively. As shown, the proposed feasible avoidance measures would reduce the impacts to a level considered less than significant.

Table 10-2: Existing Conditions With Mitigation Measures

Intersection	Existing (2016) No Build				Existing (2016) Plus Alternative				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
79. Day Creek Blvd/ Foothill Blvd	23.5	C	**57.3**	**E**	23.1	C	53.7	D	-0.4	-3.6	No

Table 10-3: Opening Year 2023 Conditions With Mitigation Measures

Intersection	Opening Year 2023 No Build				Opening Year 2023 Plus Alternative				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
2. Garey Ave/Holt Ave	39.7	D	51.4	D	39.8	D	49.0	D	0.1	-2.4	No
79. Day Creek Blvd/ Foothill Blvd	23.3	C	**63.4**	**E**	23.7	C	**62.7**	**E**	0.4	-0.7	No
96. Sierra Ave/ Foothill Blvd	32.4	C	**59.8**	**E**	30.3	C	47.7	D	-2.1	-12.1	No

Table 10-4: Future Year 2040 Conditions With Mitigation Measures

Intersection	Future Year 2040 No Build				Future Year 2040 Plus Alternative				Change in AM Delay (sec)	Change in PM Delay (sec)	Significant Impact?
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour				
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS			
2. Garey Ave /Holt Ave	**56.9**	**E**	**70.4**	**E**	**55.6**	**E**	**64.0**	**E**	-1.3	-6.4	No
4. Towne Ave/ Holt Ave	51.5	D	**63.6**	**E**	43.6	D	53.8	D	-7.9	-9.8	No
8. East End Ave/ Holt Ave	24.5	C	**68.1**	**E**	23.4	C	44.6	D	-1.1	-23.5	No
79. Day Creek Blvd/ Foothill Blvd	30.6	C	**102.3**	**F**	31.5	C	**93.6**	**F**	0.9	-8.7	No
106. Sierra Ave/ San Bernardino Ave	**73.0**	**E**	52.9	D	52.9	D	39.3	D	-20.1	-13.6	No
107. Sierra Ave/ Marygold Ave	35.1	D	**67.2**	**E**	32.4	C	49.6	D	-2.7	-17.6	No
109. Juniper Ave/ Valley Blvd	34.0	C	**70.5**	**E**	33.0	C	**56.9**	**E**	-1.0	-13.6	No

11.0 SUMMARY AND CONCLUSIONS

The West Valley Connector BRT Project is a 25-mile-long BRT line that will provide speed and quality improvements to the public transit system within the corridor, and increase ridership. The West Valley Connector line would primarily run along Holt Avenue/Boulevard, Milliken Avenue, Foothill Boulevard, and Sierra Avenue through these cities. The six build alternatives are proposed for analysis in this study. In each build alternative, the proposed West Valley Connector BRT line is anticipated to consist limited stop service on 10-minute peak and 15-minute off-peak headways with 14 service hours per day on weekdays.

Table 11-1 summarizes the number of intersections significantly impacted by the proposed project's six build alternatives in each of the scenario years.

Table 11-1: Significant Traffic Impact Summary Per Alternative/Scenario

Build Alternative	Intersections Analyzed	Significantly Impacted Intersections		
		Existing	Opening Year 2023	Future Year 2040
Build Alternative A	84	1	2	5
Build Alternative B	84	2	3	6
Build Alternative C	84	9	11	20
Build Alternative D	129	1	3	11
Build Alternative E	129	2	4	12
Build Alternative F	129	9	12	26

The proposed project's Build Alternative C (Phase 1 Alignment) is forecast to result in a total of 20 significantly impacted intersections during the three analysis scenario years (Existing, 2023, and 2040). Build Alternatives A and B are forecast to be considerably less impactful.

With the additional Phase 2 alignment, the proposed project's Build Alternative F is forecast to result in a total of 26 significantly impacted intersections during the three analysis scenario years (Existing, 2023, and 2040). Build Alternatives D and E are forecast to be considerably less impactful.

In addition, maximum peak hour queue lengths at the eastbound and westbound left-turn movements at several intersections along Holt Boulevard between Benson Avenue and Vineyard Avenue are much longer in Alternatives C and F when compared to Alternatives B and E. These queue lengths would exceed the current available storage at the majority of intersections along this segment.

In addition to potential traffic impacts at intersections, an assessment of potential parking impacts was conducted. As part of Build Alternatives B and E, on-street parking along Holt Boulevard is proposed to be eliminated along the four mile segment of Benson Avenue to Vineyard Avenue Considering the low utilization of on-street parking demand during a typical weekday as well as the presence of off-street parking lots provided by most businesses, it is not likely that the removal on-street parking to accommodate the proposed project Build Alternative B and E configuration would have an adverse effect on parking conditions.