

TRAFFIC IMPACT ANALYSIS

Citrus Estates

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1 EXECUTIVE SUMMARY

This study analyzes the forecast traffic conditions associated with the proposed development of the Citrus Estates housing development (Project) in the City of Redlands. The Project proposes to construct 98 single-family dwelling-units on approximately 36.27 acres on the southwest quadrant of the intersection of San Bernardino Avenue and Wabash Avenue. The project is anticipated to be built out by Year 2023.

The proposed project would construct half-width improvements on San Bernardino Avenue and Wabash Lane along the project frontage. See [Section 6.3](#) for further discussion on project improvements. The project site would take access via two full access driveways: one on San Bernardino Avenue and one on Capri Way.

The Project is forecast to generate approximately 1,021 new daily trips which includes approximately 73 AM peak hour trips and 100 PM peak hour trips. See [Section 5.1](#) for further discussion on trip generation.

This study evaluates traffic conditions that include AM and PM peak hour intersection level of service (LOS) analysis for the following scenarios:

- Existing Conditions;
- Existing With Project Conditions;

Level of Service Analysis Results

This study evaluates traffic conditions that include AM and PM peak hour intersections level of service (LOS) analysis. The results of the of the level of service analysis is as follows:

Existing Conditions - The results of the Existing conditions analysis show that all study intersections currently operate at acceptable levels of service (LOS C or better) with the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour (LOS F).

Existing With Project Conditions - With the addition of project related traffic, all study intersections continue to operate at acceptable levels of service (LOS C or better) for the Existing With Project conditions the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour. This location operates at a deficient LOS under Existing Conditions without the project (LOS F), and the project does not reduce the existing level of service at this location.

Vehicle Miles Travelled

As part of the California Environmental Quality Act (CEQA) analysis, a VMT assessment was conducted for this project under separate cover. The VMT assessment shows that the Citrus Estates Project is considered to have a less than significant transportation impact and no mitigation measures are required. The VMT assessment has been included as [Appendix H](#) to this report.

2 INTRODUCTION

This study analyzes the forecast traffic conditions associated with the proposed development of the Citrus Estates housing development in the City of Redlands. The Project proposes to construct 98 single-family dwelling-units on approximately 36.27 acres on the southwest quadrant of the intersection of San Bernardino Avenue and Wabash Avenue. The project is anticipated to be built out by Year 2023.

The project site would take access via two full access driveways: one on San Bernardino Avenue and one on Capri Way.

According to the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition), the proposed project is forecast to generate approximately 1,021 new daily trips which includes approximately 73 AM peak hour trips and 100 PM peak hour trips.

Exhibit 1 shows the regional location of the project site and **Exhibit 2** shows the proposed site plan for the Citrus Estates Project.

2.1 STUDY AREA

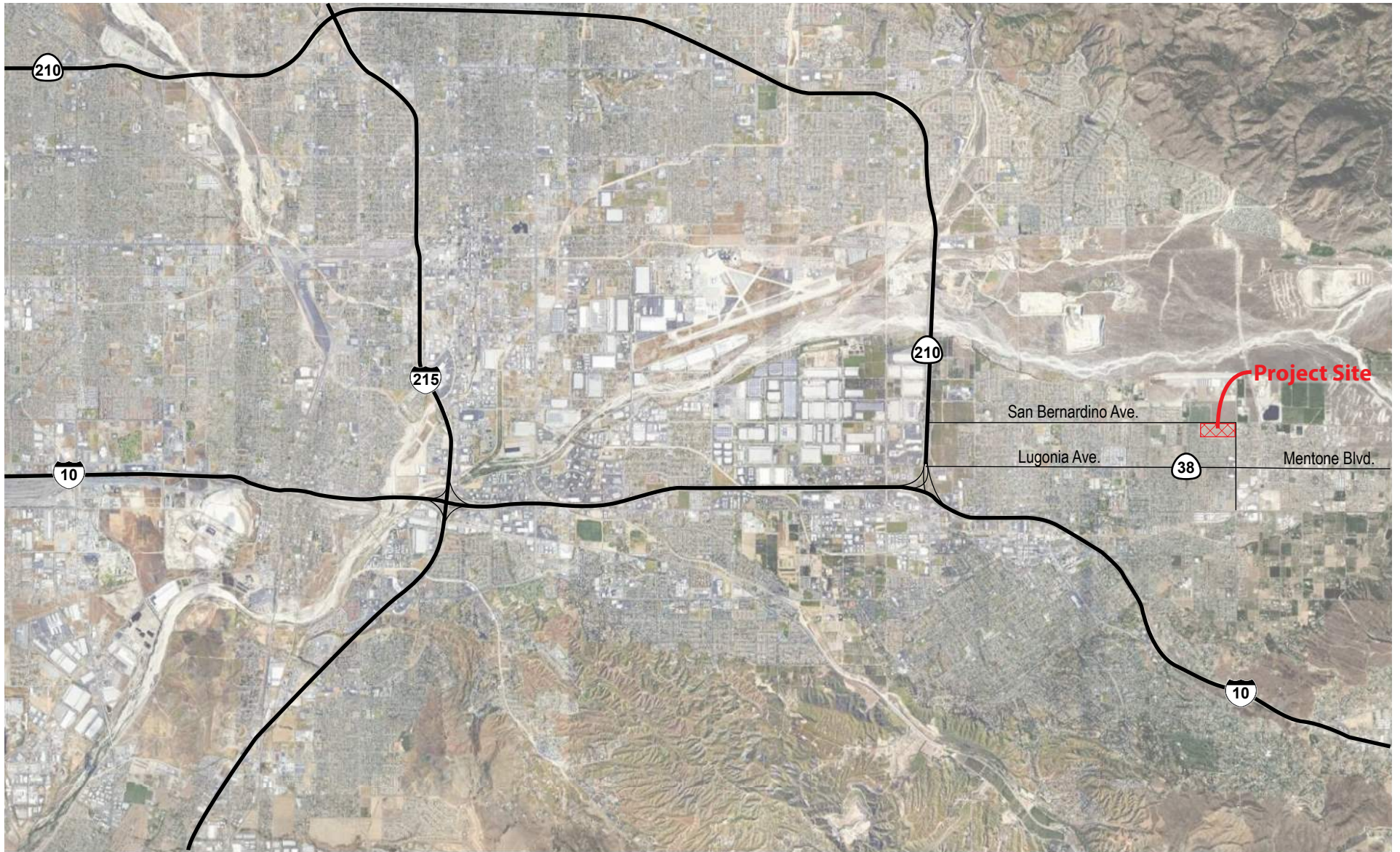
The study evaluates the following eight (8) intersections during the AM and PM peak hours in the vicinity of the project site:

1. San Bernardino Avenue / Orange Street
2. San Bernardino Avenue / Judson Street
3. San Bernardino Avenue / Dearborn Street
4. San Bernardino Avenue / Granite Street
5. San Bernardino Avenue / Wabash Avenue
6. Wabash Avenue / Capri Avenue
7. Dearborn Street / Lugonia Avenue
8. Wabash Avenue / Lugonia Avenue – Mentone Boulevard
9. San Bernardino Avenue / “B” Street (Project Driveway)
10. Capri Avenue / “A” Street (Project Driveway)

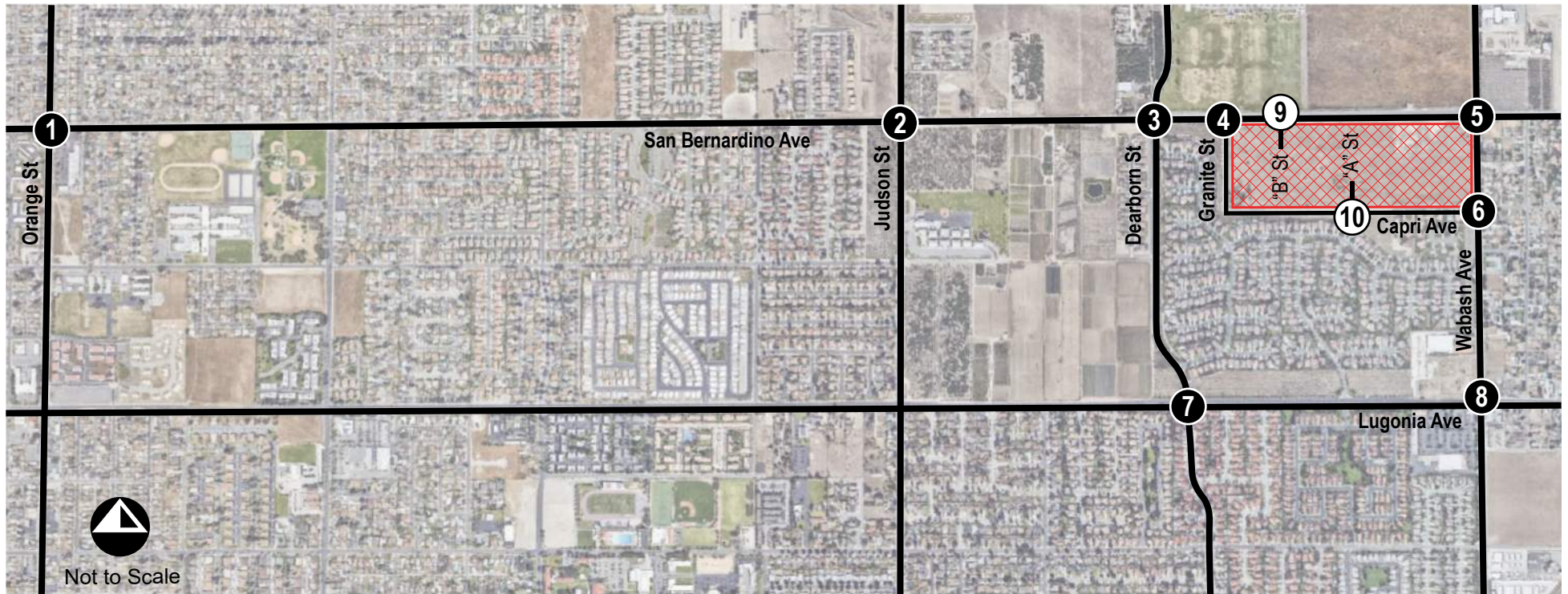
These ten (10) intersections have been identified in coordination with City staff as potential locations impacted by the proposed project as shown in **Exhibit 3**. It should be noted that Intersection 9 and Intersection 10 do not exist without the project and were not analyzed under Existing conditions. These study locations are analyzed for the following conditions in accordance with the Measure U Growth Management Initiative:

- Existing Conditions;
- Existing With Project Conditions

Michael Baker coordinated with City staff on the study assumptions such as trip generation, trip distribution, study locations, scenarios, and study methodology. This scoping letter can be found in **Appendix A**.



Not to Scale



Legend

- Study Intersection (Existing)
- ⊕ Study Intersection (Future Proj. Dwy.)
- ▨ Project Site

3 ANALYSIS METHODOLOGY

As required by City of Redlands, this traffic impact study has been prepared in accordance with the *City of Redlands CEQA Assessment VMT Analysis Guidelines* (June 2020), the *City of Redlands Measure U Growth Management Initiative*, the *County of San Bernardino Transportation Impact Study Guidelines* (July 9, 2019) and the *Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County*. The scope of this traffic study has been coordinated with the City of Redlands and the scoping memo is included as **Appendix A**.

Level of Service (LOS) is commonly used as a qualitative description of intersection operation and is based on the capacity of the intersection and the volume of traffic using the intersection. The intersection analysis conforms to the operational analysis methodology outlined the *Highway Capacity Manual (HCM 6th Edition)* and performed utilizing the *Synchro 10* traffic analysis software.

The *HCM* analysis methodology describes the operation of an intersection using a range of level of service from LOS A (free-flow conditions) to LOS F (severely congested conditions), based on the corresponding stopped delay experienced per vehicle for study intersections as shown in **Table 1**.

For signalized intersections, signal timing data and parameters such as cycle lengths, splits, clearance intervals, etc. were obtained from the current signal timing sheets provided by City staff and incorporated into the Synchro model. Synchro reports average delays for a signalized intersection, which correspond to a particular LOS, to describe the overall operation of an intersection.

Unsignalized intersection LOS for all-way stops is based on the average delay for all approaches. Delay for one-way or two-way stop-controlled intersections is based on available gaps in traffic flow on the non-controlled approach and LOS is based on the approach with the worst delay.

TABLE 1 - LEVEL OF SERVICE DESCRIPTION & DELAY RANGE

Level of Service	Control Delay (seconds/vehicle)		Description
	Signalized Intersections	Unsignalized Intersections	
A	≤ 10.0	≤ 10.0	Operates with very low delay and most vehicles do not stop.
B	> 10.0 to 20.0	> 10.0 to 15.0	Operates with good progression with some restricted movements.
C	> 21.0 to 35.0	>15.1 to 25.0	Operates with significant number of vehicles stopping with some backup and light congestion.
D	> 35.1 to 55.0	> 25.0 to 35.0	Operates with noticeable congestion, longer delays occur, and many vehicles stop.
E	>55.0 to 80.0	> 35.1 to 50.0	Operates with significant delay, extensive queuing, and unfavorable progression.
F	> 80.0	> 50.0	Operates at a level that is unacceptable to most drivers. Arrival rates exceed capacity of the intersection. Extensive queuing occurs.

Source: Highway Capacity Manual (HCM) 6th Edition.

3.1 MEASURE U

Measure U is a local growth management initiative and contains policies for traffic Levels of Service within the City of Redlands. As stated in Measure U, the City of Redlands has adopted level of service “C” or better as acceptable operating conditions for intersections during the peak hour. In accordance with the *Measure U*, the following guiding policies are used for level of service standards for traffic operations:

- 5.20a – Maintain LOS C or better as the standard at all intersections presently operating at LOS C or better
- 5.20b – Within the area identified in GP Figure 5-1, including the unincorporated County area identified on GP Figure 5-1 as the “donut hole”, maintain LOS C or better; however, accept a reduced LOS on a case-by-case basis upon approval by four-fifths (4/5ths) vote of the total authorized membership of the City Council.
- 5.20C – Where the current level of service at a location within the City of Redlands is below the Level of Service (LOS) C standard, no development project shall be approved that cannot be mitigated so that it does not reduce the existing level of service at the location except as provided in Section 5.20b.

3.2 LEVEL OF SERVICE ANALYSIS PERFORMANCE STANDARDS

In accordance with the City’s guidelines, the following thresholds would require improvements:

- *If the addition of project related traffic causes an intersection’s peak hour LOS to worsen from acceptable (LOS C or better) to unacceptable (LOS D, E, or F), the project shall identify improvements to improve operations to LOS C or better; or*
- *Where the current LOS is below the LOS C standard (LOS D, E, or F) without the project and the addition of project related traffic worsens the pre-project level of service grade, the project shall identify improvements to maintain the pre-project level of service grade.*

3.3 CALTRANS FACILITIES

Within the study area, Lugonia Avenue is identified as Caltrans facility State Route 38 (SR-38). The intersection at Lugonia Avenue and Wabash Lane is within Caltrans jurisdiction. For study purposes, the requirements for improvements established for the study locations within the City’s jurisdiction also apply to the study intersection within Caltrans jurisdiction.

4 EXISTING CONDITIONS

4.1 SURROUNDING ROADWAY NETWORK

The characteristics of the roadway system in the vicinity of the project site are described below:

San Bernardino Avenue is a two-lane undivided roadway trending in the east-west direction. Between Grove Street and Judson Street, it widens to four lanes before narrowing to a three-lane facility along the project frontage with two westbound lanes and 1 eastbound lane. San Bernardino Avenue is classified as a Major Arterial west of Orange Street and a Minor Arterial east of Orange Street per Figure 5-5 of the City of Redlands General Plan. Within the study area, there are buffered bike lanes on both sides of the street between Orange Street and Cheryl Street. Most segments have sidewalks on both sides of the street, however there are gaps to the sidewalk facilities along vacant parcels, including the project frontage. The posted speed limit is 35 MPH.

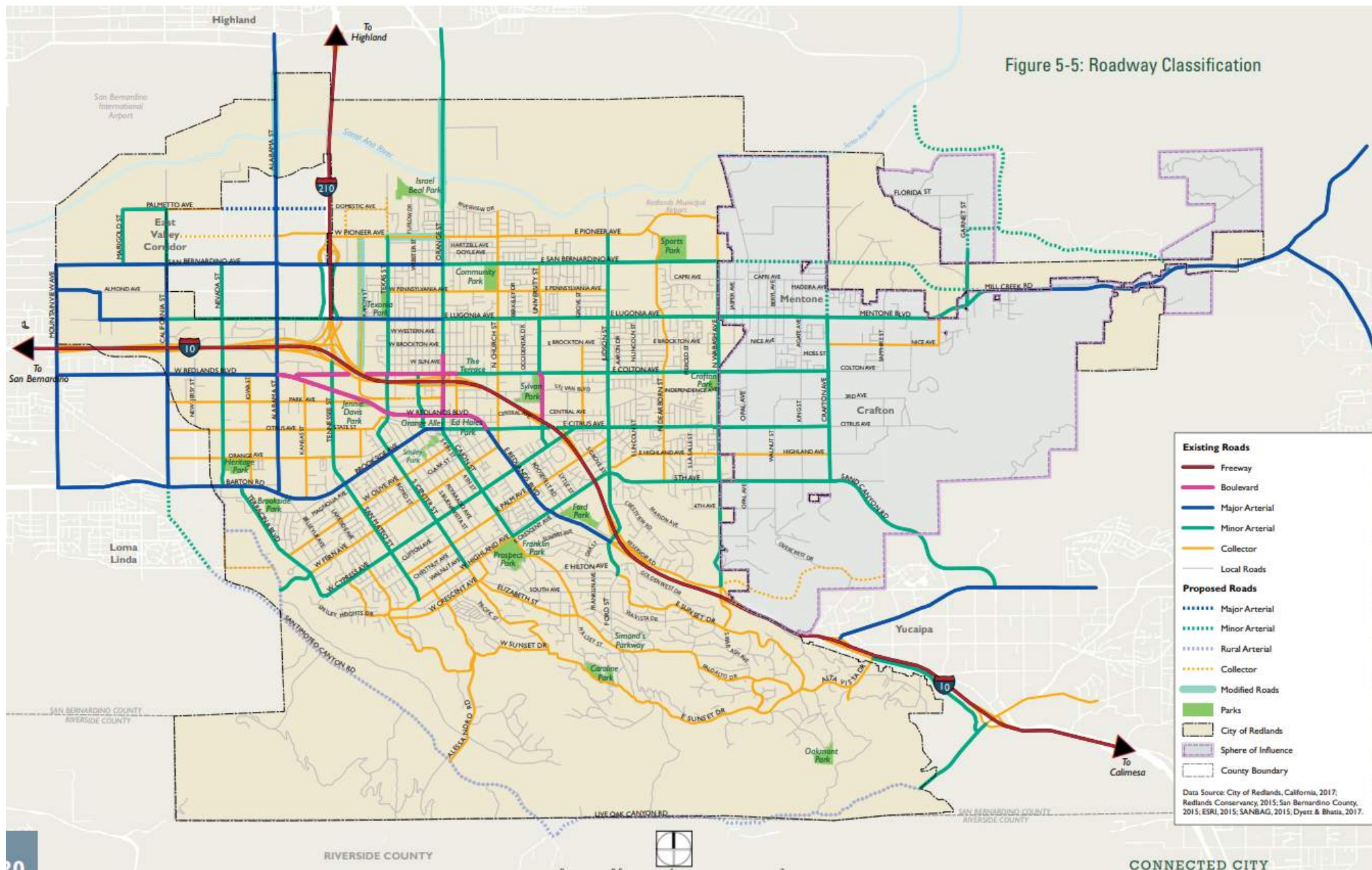
Orange Street is an undivided roadway trending in the north-south direction with intermittent turn lanes within the study area. South of San Bernardino Avenue, it is a two-lane facility that widens to four lanes between San Bernardino Avenue and El Pioneer Avenue. Within the study area, Orange Street is classified as a Minor Arterial per Figure 5-5 of the City of Redlands General Plan and transitions to a Boulevard to the south as it approaches the I-10 freeway. Sidewalks are provided on both sides of the street and there are no bicycle facilities within the study area. On-street parking is allowed intermittently, and the posted speed limit is 40 MPH.

Judson Street is a two-lane undivided roadway trending in the north-south direction. South of San Bernardino Avenue there are intermittent turn lanes provided. There are bike facilities provided on both sides of the roadway that transition from Class II (bike lanes) to Class III (sharrows) depending on the available roadway width. Sidewalks are provided on both sides of the street and on-street parking is allowed. The posted speed limit is 35 MPH.

Dearborn Street is a two-lane undivided roadway trending in the north-south direction. South of San Bernardino Avenue, the roadway has buffered bike lanes and provides parking on both sides of the street. Sidewalks are also provided on both sides of the street with marked crosswalks at signalized intersections. Dearborn Street is classified as a Collector per Figure 5-5 of the City of Redlands General Plan. The posted speed limit is 30 MPH.

Wabash Avenue is a four-lane undivided roadway trending in the north-south direction. North of Lugonia Avenue/Mentone Boulevard, the roadway transitions to two lanes. Along the project frontage, the roadway is unimproved, however the project proposes to construct the roadway to Collector standards between Capri Avenue and San Bernardino Avenue.

Exhibit 4 shows the City of Redlands Circulation Element which show the classification and configuration of roadways with the city.



Source: City of Redlands General Plan; Connected City (Figure 5-5 Roadway Classifications)

4.2 EXISTING TRAFFIC VOLUMES

To determine the existing operations of the study intersections, peak hour intersection movement counts were collected on Wednesday, September 29th, 2021. Morning (AM) peak period counts were collected between 7:00 AM to 9:00 AM and evening (PM) peak period counts were collected from 4:00 PM – 6:00 PM. The counts used in this analysis represent the highest hour within the peak periods counted for each intersection. Detailed count data is contained in [Appendix B](#).

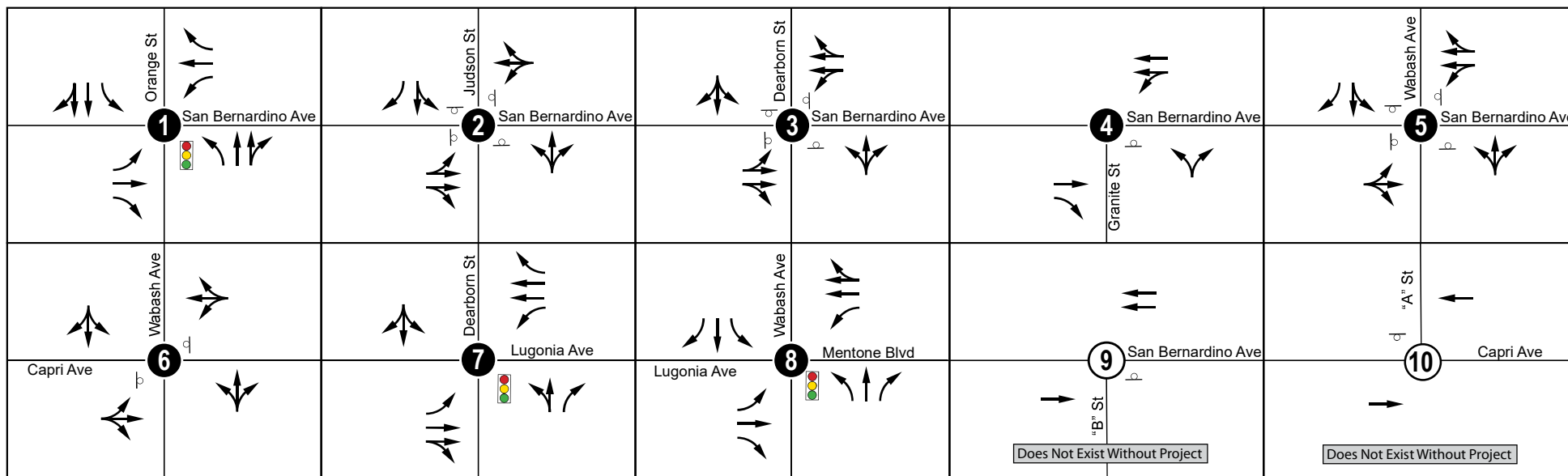
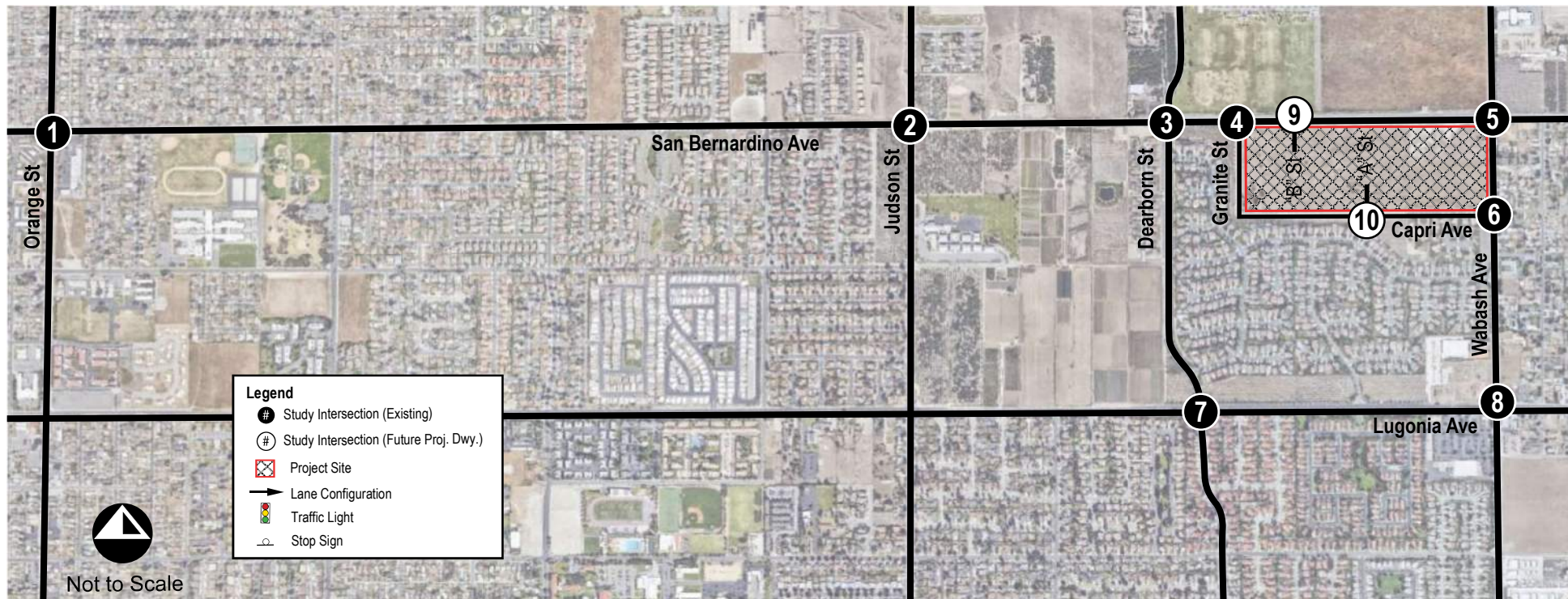
Due to COVID-19, traffic patterns have been affected by stay-at-home orders and new traffic counts may not reflect normal conditions. Historic traffic counts obtained from the *City of Redlands General Plan Update and Climate Action Plan Environmental Impact Report Appendices* were factored up from 2016 to current year 2021 to estimate non-COVID traffic conditions.

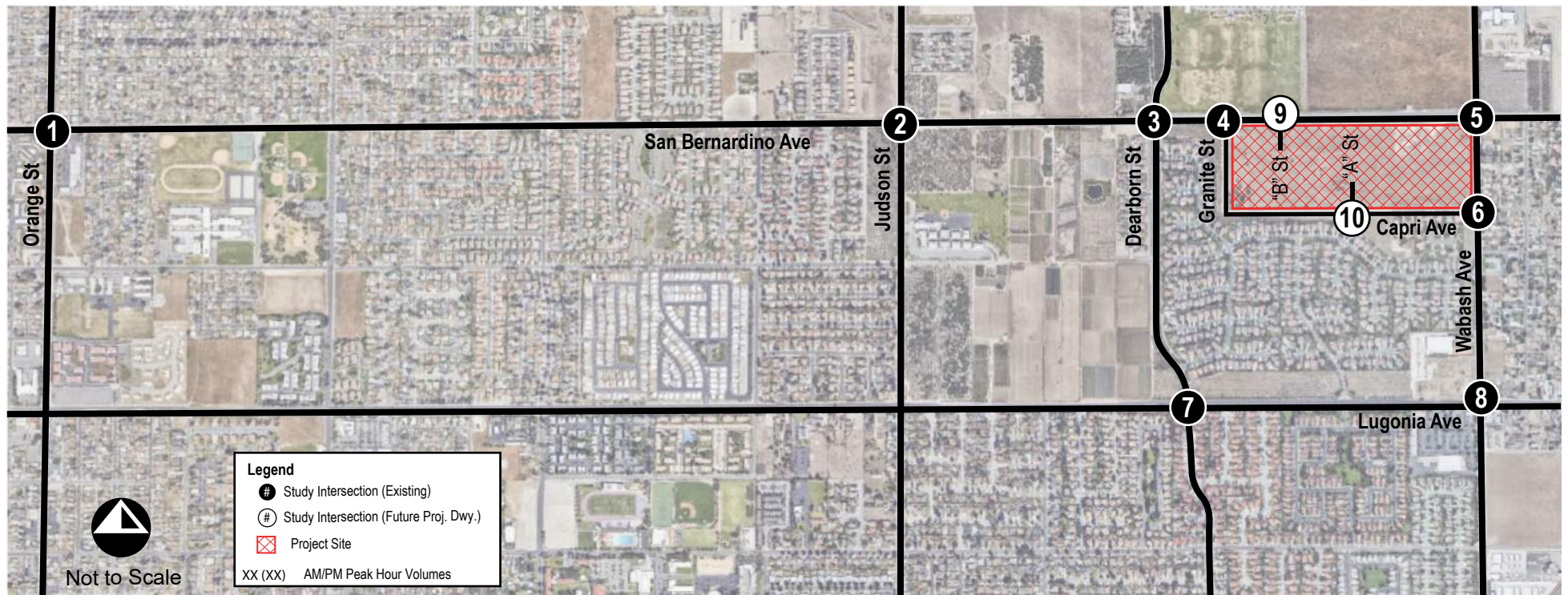
While a comparison of individual intersections varied and some movements/approaches showed lower projected volumes compared to actual counts, this analysis conservatively applies the following factors to the traffic counts:

- AM Peak Hour – 25% increase
- PM Peak Hour 15% increase

[Exhibit 5](#) shows the Existing study intersection lane geometry.

[Exhibit 6](#) shows the AM and PM peak hour volumes at the study intersections.





<p>Orange St</p> <p>100 (53) 550 (469) 183 (178)</p> <p>1</p> <p>San Bernardino Ave</p> <p>120 (100) 568 (294) 54 (49)</p>	<p>Judson St</p> <p>21 (17) 128 (89) 40 (33)</p> <p>2</p> <p>San Bernardino Ave</p> <p>16 (20) 288 (204) 9 (8)</p>	<p>Dearborn St</p> <p>4 (18) 8 (67) 31 (55)</p> <p>3</p> <p>San Bernardino Ave</p> <p>21 (39) 235 (143) 3 (0)</p>	<p>Granite St</p> <p>265 (183) 0 (0)</p> <p>4</p> <p>San Bernardino Ave</p> <p>241 (331) 8 (10)</p>	<p>Wabash Ave</p> <p>3 (8) 25 (45) 6 (22)</p> <p>5</p> <p>San Bernardino Ave</p> <p>9 (6) 134 (64) 20 (13)</p>
<p>Wabash Ave</p> <p>0 (0) 226 (267) 1 (1)</p> <p>6</p> <p>Capri Ave</p> <p>1 (0) 0 (0) 9 (12)</p>	<p>Dearborn St</p> <p>68 (45) 55 (75) 28 (32)</p> <p>7</p> <p>Lugonia Ave</p> <p>14 (79) 664 (1052) 45 (75)</p>	<p>Wabash Ave</p> <p>31 (32) 218 (253) 143 (227)</p> <p>8</p> <p>Lugonia Ave</p> <p>9 (22) 371 (676) 153 (146)</p>	<p>Wabash Ave</p> <p>66 (92) 944 (472) 85 (58)</p> <p>9</p> <p>San Bernardino Ave</p> <p>241 (331)</p>	<p>"A" St</p> <p>265 (183)</p> <p>10</p> <p>Capri Ave</p> <p>1 (1)</p>
<p>Does Not Exist Without Project</p>		<p>Does Not Exist Without Project</p>		

4.3 EXISTING PEAK HOUR STUDY INTERSECTION LOS

Table 2 summarizes existing conditions AM/PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix C**.

TABLE 2 – EXISTING AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Traffic Control	Existing Conditions	
		AM	PM
		Delay ¹ - LOS	Delay ¹ - LOS
1 - San Bernardino Ave. / Orange St.	Signal	21.3 - C	18.1 - B
2 - San Bernardino Ave. / Judson St.	AWSC	58.3 - F	13.0 - B
3 - San Bernardino Ave. / Dearborn St.	AWSC	10.5 - B	12.7 - B
4 - San Bernardino Ave. / Granite St.	OWSC	10.9 - B	12.0 - B
5 - San Bernardino Ave. / Wabash Ave.	AWSC	12.1 - B	11.5 - B
6 - Wabash Ave. / Capri Ave.	TWSC	13.7 - B	12.4 - B
7 - Dearborn St. / Lugonia Ave.	Signal	10.2 - B	14.5 - B
8 - Wabash Ave. / Lugonia Ave. / Mentone Blvd.	Signal	29.2 - C	34.7 - C
9 - San Bernardino Ave. / "B" Street	Does Not Exist Without Project		
10 - Capri Ave. / "A" Street	Does Not Exist Without Project		

Note: Deficient intersection operation indicated in **bold**.

¹ Average seconds of delay per vehicle.

LOS = level of service.

TWSC = Two-Way Stop Control

OWSC = One-Way Stop Control

As shown in **Table 2**, all study intersections are currently operating at an acceptable level of service for Existing conditions with the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour which is shown to operate at LOS F. It should be noted that Intersection 9 and Intersection 10 do not exist without the project and were not analyzed under Existing conditions.

5 PROPOSED PROJECT

The Project proposes to construct 98 single-family dwelling-units on approximately 36.27 acres on the southwest quadrant of the intersection of San Bernardino Avenue and Wabash Avenue. The project is anticipated to be built out by Year 2023.

The project site would take access via two full access driveways: one on San Bernardino Avenue and one on Capri Way. **Exhibit 3** shows the proposed project draft site plan.

5.1 PROJECT FORECAST TRIP GENERATION

In order to calculate vehicle trips forecast to be generated by the proposed projects, the *Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition)* was used to calculate the trip generation rates as summarized in **Table 3** utilizing the fitted curve equations which are based on the proposed land use quantity. The trip generation utilizes the fitted curve equations for single-family detached housing (Land Use Code 210).

Table 4 summarizes the vehicular trip generation forecast to be generated by the project using the rates shown in **Table 3**. As shown, the proposed project is forecast to generate approximately 1,021 daily trips with 73 AM peak hour trips (18 in / 55 out) and 100 PM peak hour trips (63 in / 37 out).

TABLE 3 - ITE TRIP GENERATION RATES

Land Use	ITE Code ¹	Daily Trip Rate	AM Peak Hour Rate		PM Peak Hour Rate	
			Total	In : Out	Total	In : Out
Single-Family Detached Housing	210	10.42 /DU	0.74 /DU	25% : 75%	1.02 /DU	63% : 37%

¹ Source: ITE Trip Generation Manual, 10th Edition. Rates shown are based on fitted curve equation.

TABLE 4 - PROPOSED PROJECT TRIP GENERATION

Land Use	Intensity	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
			Total	In : Out	Total	In : Out
Single-Family Detached Housing	98 DU	1,021	73	18 : 55	100	63 : 37

Notes:

DU = Dwelling Unit

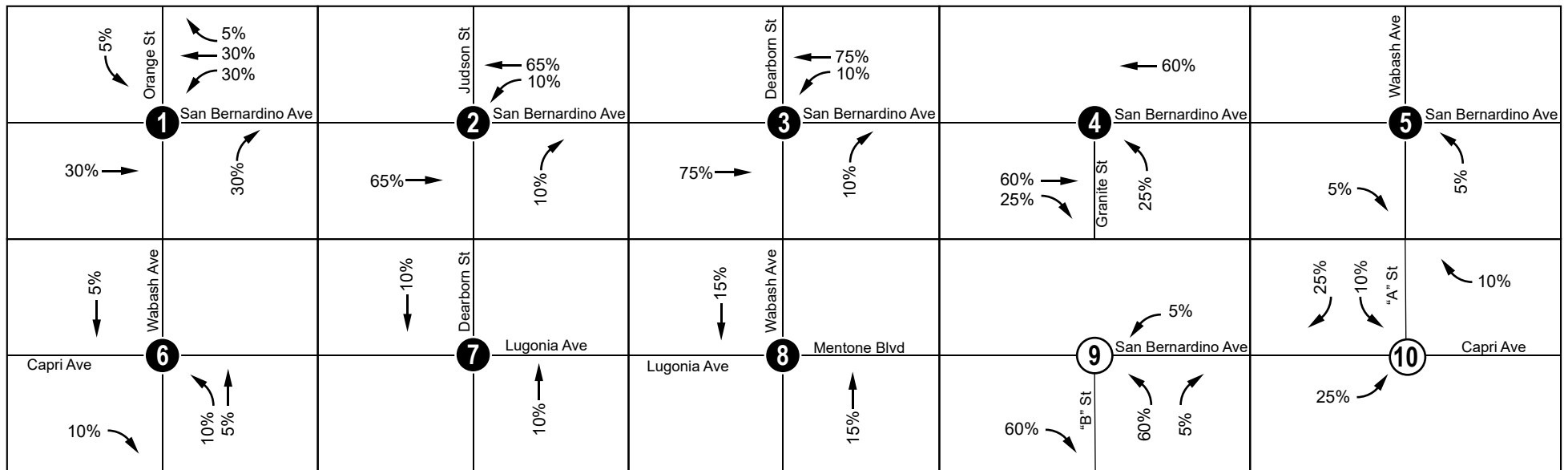
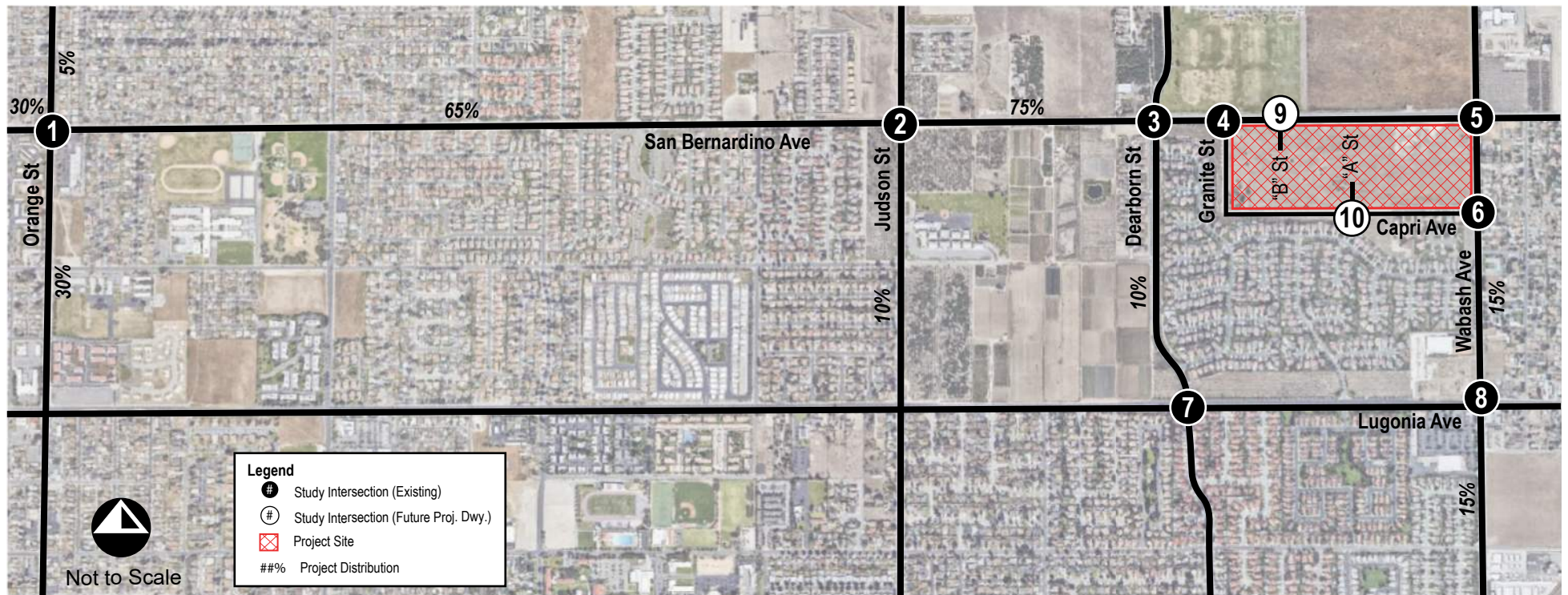
It should be noted after the initial scoping process with city staff, *ITE* published the 11th Edition Trip Generation Manual with updated rates. Based on a review of the 11th Edition rates, the proposed 98 DU's would be forecasted to generate fewer trips utilizing the updated rates than what is shown in **Table 4**. Therefore, the results of this traffic study provide a more conservative assessment utilizing the 10th Edition rates.

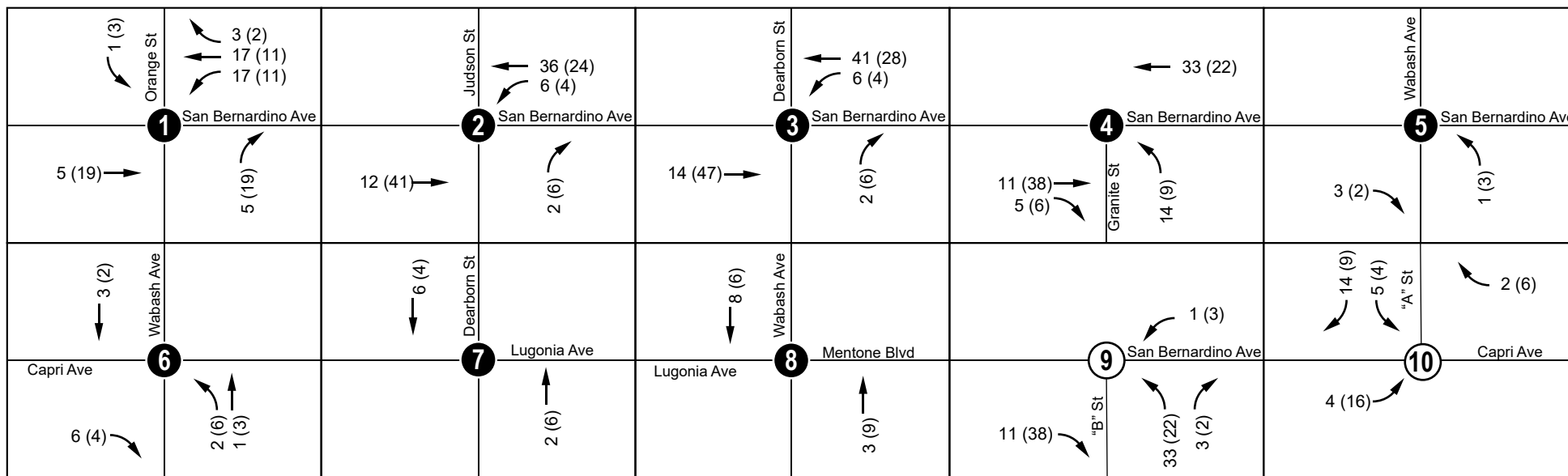
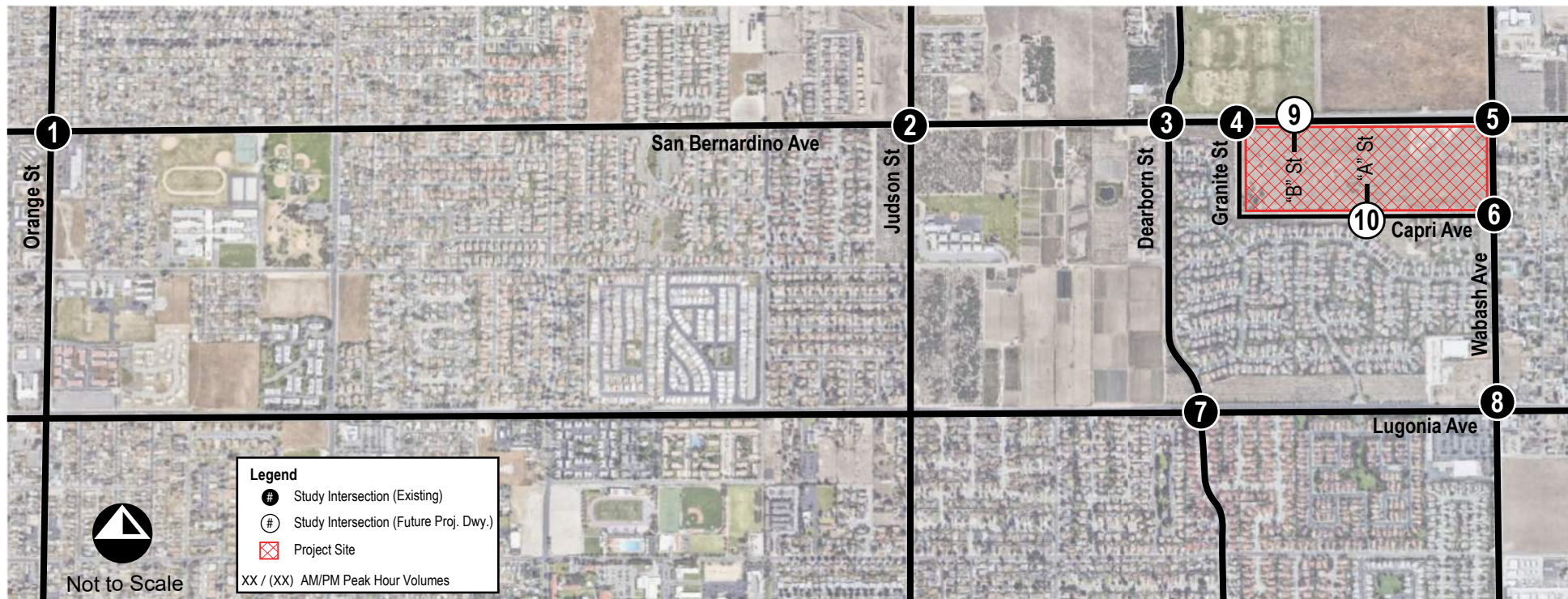
5.2 TRIP DISTRIBUTION AND TRIP ASSIGNMENT OF PROPOSED PROJECT

Project trips were assigned onto the surrounding roadway network based on the location of the Project relative to the area transportation network and nearby attractions.

Exhibit 7 shows the forecast trip percent distribution of the proposed project within the study area. As shown, 85% of the trips are expected to travel west on San Bernardino Avenue and 15% are expected to travel south on Wabash Avenue.

Exhibit 8 shows the corresponding forecast assignment of AM and PM peak hour project-generated trips assuming the trip percent distribution shown in **Exhibit 7**.





6 EXISTING WITH PROJECT

6.1 EXISTING WITH PROJECT TRAFFIC VOLUMES

Existing With Project traffic volumes are derived by adding trips forecast to be generated by the proposed project to existing traffic volumes.

Exhibit 9 shows the forecast Existing With Project AM and PM peak hour volumes at study intersections.

Exhibit 10 shows the assumed lane configurations which include the widening of San Bernardino Avenue and Wabash Lane along the project frontage. Refer to **Section 6.3**.

6.2 EXISTING WITH PROJECT PEAK HOUR STUDY INTERSECTION LOS

Table 5 summarizes Existing With Project AM and PM peak hour level of service for all study intersections. Detailed analysis sheets are contained in **Appendix D**.

TABLE 5 - EXISTING WITH PROJECT AM/PM PEAK HOUR INTERSECTION LOS

Study Intersection	Existing Conditions		Existing With Project Conditions		Change in Delay (sec.)		Adverse Effect?	
	AM	PM	AM	PM	AM	PM	AM	PM
	Delay ¹ - LOS	Delay ¹ - LOS	Delay ¹ - LOS	Delay ¹ - LOS				
1 - San Bernardino Ave. / Orange St.	21.3 - C	18.1 - B	22.1 - C	18.6 - B	0.8	0.5	No	No
2 - San Bernardino Ave. / Judson St.	58.3 - F	13.0 - B	71.3 - F	14.2 - B	13.0	1.2	No ²	No
3 - San Bernardino Ave. / Dearborn St.	10.5 - B	12.7 - B	10.9 - B	13.9 - B	0.4	1.2	No	No
4 - San Bernardino Ave. / Granite St.	10.9 - B	12.0 - B	13.1 - B	13.3 - B	2.2	1.3	No	No
5 - San Bernardino Ave. / Wabash Ave.	12.1 - B	11.5 - B	10.7 - B	9.8 - A	-1.4	-1.7	No	No
6 - Wabash Ave. / Capri Ave.	13.7 - B	12.4 - B	12.2 - B	11.3 - B	-1.5	-1.1	No	No
7 - Dearborn St. / Lugonia Ave.	10.2 - B	14.5 - B	10.3 - B	14.7 - B	0.1	0.2	No	No
8 - Wabash Ave. / Lugonia Ave. / Mentone Blvd.	29.2 - C	34.7 - C	29.4 - C	34.9 - C	0.2	0.2	No	No
9 - San Bernardino Ave. / "B" Street	Does Not Exist Without Project		12.0 - B	12.2 - B	12.0	12.2	No	No
10 - Capri Ave. / "A" Street	Does Not Exist Without Project		8.5 - A	8.5 - A	8.5	8.5	No	No

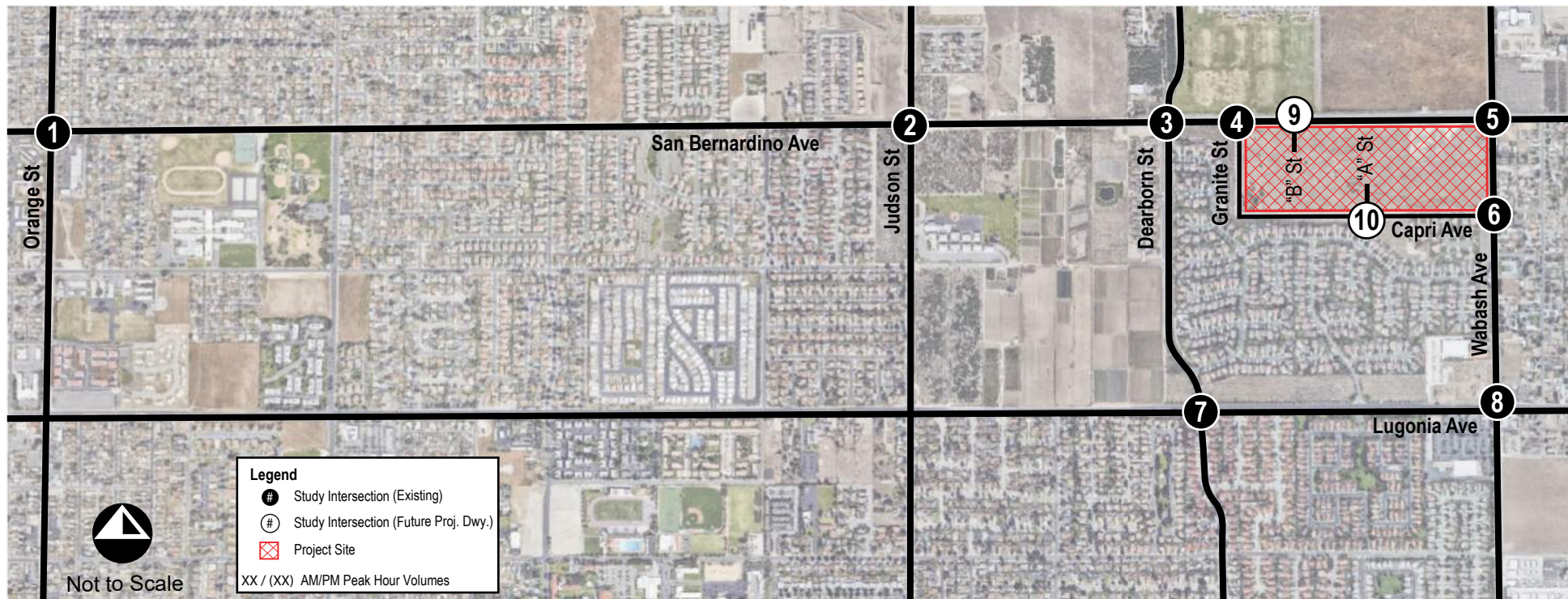
Note: Deficient intersection operation indicated in **bold**.

¹ Seconds of delay per vehicle.

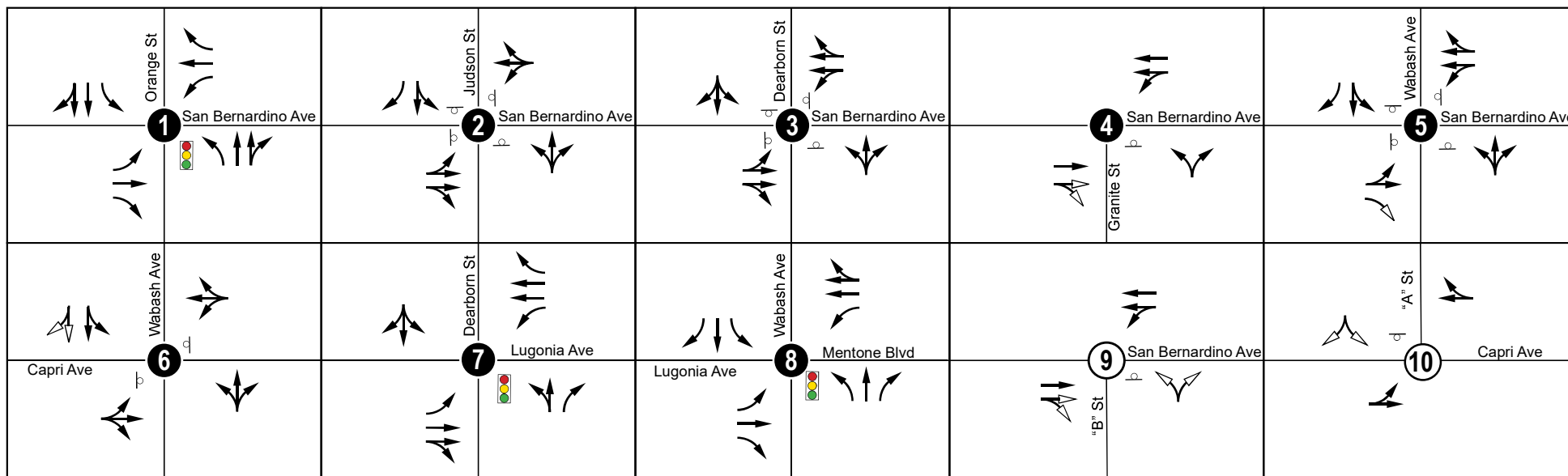
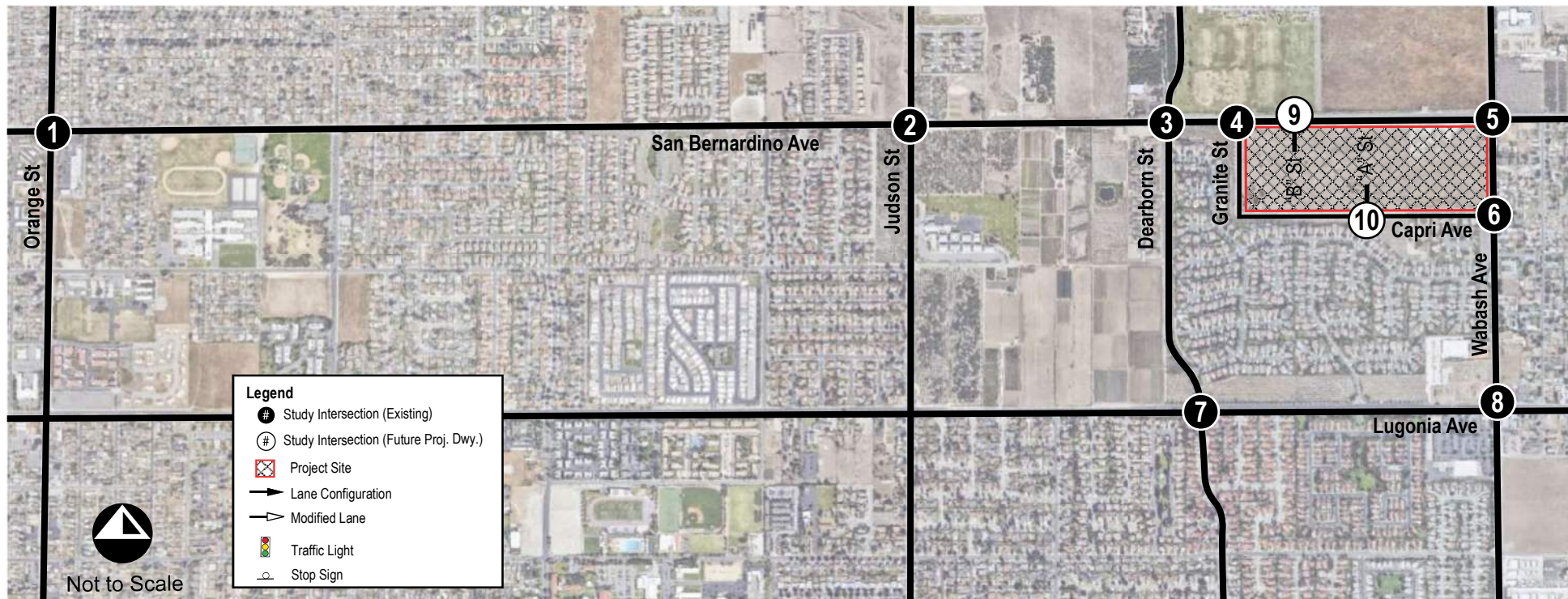
LOS = level of service.

² This location is shown to operation at deficient LOS without and with the project.

As shown in **Table 5**, all study intersections are forecast to operate at an acceptable level of service (LOS C or better) during the peak hour with the addition of project-related traffic to existing traffic volumes with the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour which is shown to operate at LOS. This location operates at LOS F under Existing Conditions without the project, and the project contributes to the existing deficiency.



<p>100 (53) 550 (469) 184 (181)</p> <p>Orange St</p> <p>1</p> <p>San Bernardino Ave</p> <p>123 (102) 585 (305) 71 (60)</p>	<p>21 (17) 128 (89) 40 (33)</p> <p>Judson St</p> <p>2</p> <p>San Bernardino Ave</p> <p>16 (20) 324 (228) 15 (12)</p>	<p>4 (18) 8 (67) 31 (55)</p> <p>Dearborn St</p> <p>3</p> <p>San Bernardino Ave</p> <p>21 (39) 276 (171) 9 (4)</p>	<p>298 (205) 0 (0)</p> <p>Granite St</p> <p>4</p> <p>San Bernardino Ave</p> <p>19 (15) 0 (0)</p>	<p>3 (8) 25 (45) 6 (22)</p> <p>Wabash Ave</p> <p>5</p> <p>San Bernardino Ave</p> <p>9 (6) 134 (64) 20 (13)</p>
<p>55 (116) 258 (540) 90 (102)</p> <p>Wabash Ave</p> <p>6</p> <p>Capri Ave</p> <p>156 (70) 286 (401) 45 (85)</p>	<p>14 (25) 208 (372) 88 (62)</p> <p>Dearborn St</p> <p>7</p> <p>Lugonia Ave</p> <p>103 (39) 116 (46) 47 (51)</p>	<p>1 (83) 219 (324) 80 (68)</p> <p>Wabash Ave</p> <p>8</p> <p>Lugonia Ave</p> <p>125 (59) 23 (101) 6 (21)</p>	<p>252 (369) 13 (26)</p> <p>Granite St</p> <p>9</p> <p>San Bernardino Ave</p> <p>265 (183) 1 (3)</p>	<p>5 (7) 55 (109) 182 (193)</p> <p>Wabash Ave</p> <p>10</p> <p>Capri Ave</p> <p>142 (119) 40 (32) 11 (21)</p>
<p>0 (0) 229 (269) 1 (1)</p> <p>Wabash Ave</p> <p>6</p> <p>Capri Ave</p> <p>1 (0) 0 (0) 15 (16)</p>	<p>68 (45) 61 (79) 28 (32)</p> <p>Dearborn St</p> <p>7</p> <p>Lugonia Ave</p> <p>44 (36) 1188 (666) 48 (30)</p>	<p>31 (32) 226 (259) 143 (227)</p> <p>Wabash Ave</p> <p>8</p> <p>Lugonia Ave</p> <p>66 (92) 944 (472) 85 (58)</p>	<p>241 (331) 11 (38)</p> <p>Granite St</p> <p>9</p> <p>San Bernardino Ave</p> <p>33 (22) 3 (2)</p>	<p>14 (9) 5 (4)</p> <p>"A" St</p> <p>10</p> <p>Capri Ave</p> <p>2 (6) 4 (5)</p>
<p>1 (0) 0 (0) 15 (16)</p> <p>Wabash Ave</p> <p>6</p> <p>Capri Ave</p> <p>5 (7) 190 (182) 5 (13)</p>	<p>14 (79) 664 (1052) 45 (75)</p> <p>Dearborn St</p> <p>7</p> <p>Lugonia Ave</p> <p>65 (55) 53 (90) 48 (49)</p>	<p>9 (22) 371 (676) 153 (146)</p> <p>Wabash Ave</p> <p>8</p> <p>Lugonia Ave</p> <p>206 (141) 196 (179) 68 (102)</p>	<p>241 (331) 11 (38)</p> <p>Granite St</p> <p>9</p> <p>San Bernardino Ave</p> <p>33 (22) 3 (2)</p>	<p>4 (16) 1 (1)</p> <p>"B" St</p> <p>10</p> <p>Capri Ave</p> <p>4 (16) 1 (1)</p>



6.3 PROJECT RELATED IMPROVEMENTS

The proposed project would construct half-width improvements along the project frontage including:

- Widen San Bernardino Avenue to provide 2 eastbound lanes
- Widen Wabash Lane to provide 2 southbound lanes
- Widen the south-west corner of the intersection of San Bernardino Avenue and Wabash Lane to provide dedicated eastbound right-turn-lane.
- Construct one-way stop-controlled driveway at the intersection of Capri Avenue and “A” Street
- Construct one-way stop-controlled driveway at the intersection of San Bernardino Avenue and “B” Street

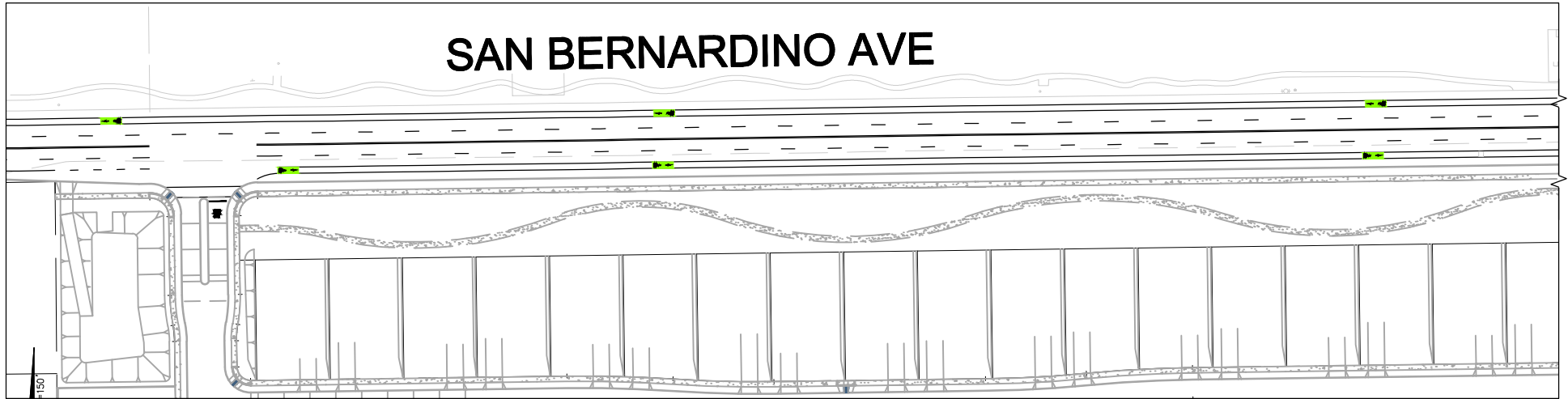
Exhibit 11 shows a conceptual striping design for San Bernardino Avenue and Wabash Lane along the project frontage.

On San Bernardino Avenue, there are currently four lanes (2 westbound & 2 eastbound) immediately west of Granite Street. Between Granite Street and the project boundary, the roadway narrows to a single lane in the eastbound direction. The project would widen San Bernardino Avenue along the project frontage to a total curb-to-curb width of 72-feet to continue the four-lane roadway all the way to Wabash Lane. Mirroring the existing north side of the street, this width could provide an 8-foot parking lane, a 6-foot bike lane, and two 11-foot eastbound travel lanes. The second eastbound lane would become a “trap lane” for vehicles turning right onto Wabash Lane.

On Wabash Lane, the project will provide half-width improvements, widening the roadway along the project frontage to a total curb-to-curb width of approximately 60-feet and striping two lanes in the southbound direction. The northbound direction would remain unimproved with a single lane. South of the project frontage, Wabash Lane is wide enough to receive the additional southbound lane with minor striping improvements which are assumed to be completed by others.

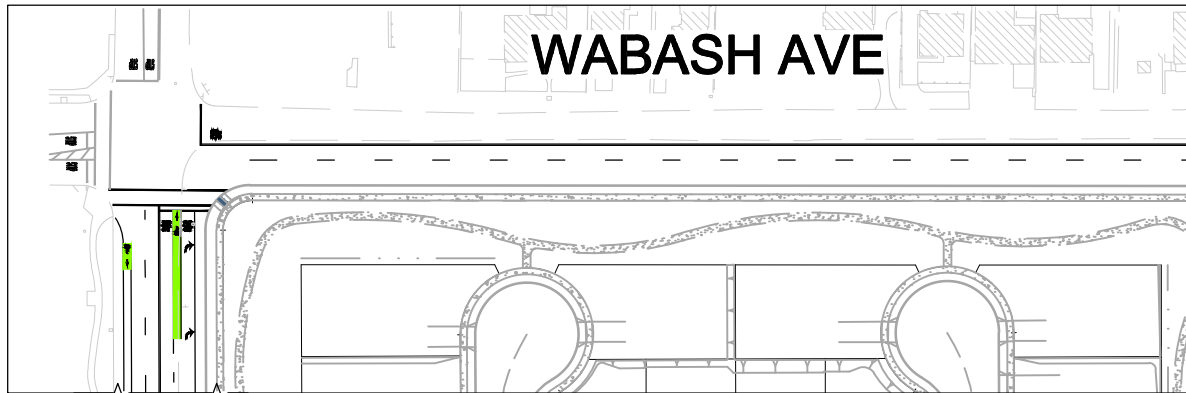
As shown in [Table 5](#), there are no adverse effects at any of the study intersections with the addition of project related traffic. Therefore, no other improvements are needed or proposed.

SAN BERNARDINO AVE



MATCHLINE - SEE BELOW

WABASH AVE



150 75 0 150
SCALE: 1"=150'

MATCHLINE - SEE ABOVE

SCALE 1"=150'

San Bernardino Avenue & Wabash Avenue Conceptual Striping

Michael Baker

INTERNATIONAL

Exhibit 11

7 VEHICLE MILES TRAVELLED

To satisfy California Environmental Quality Act (CEQA), a VMT assessment was prepared for the Citrus Estates Project under separate cover.

The findings of the VMT assessment shows that the Project meets the screening criteria for *Project Type* (less than 167 single family dwelling units) and a project specific VMT analysis is not required. As such, the project is presumed to have a less-than-significant impact and no VMT mitigation is required.

Table 6 summarizes the City's VMT Screening Criteria. **Appendix H** contains the VMT memo prepared for CEQA.

TABLE 6 – VMT SCREENING CRITERIA

Category (City Guidelines)	Description	Project Assessment	Result
Step 1: Transit Priority Area (TPA)	Is the project located within a half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor?	No. The project is located within a half mile of OmniTrans Route 8 near Lugonia Ave., and Wabash Ave. Route 8 has service intervals of 30 to 60 minutes, and thus does not meet the criteria of a 15-minute service interval for a "high-quality transit corridor." The project is not within the TPA's shown in the SBCTA VMT screening tool.	Does Not Meet Criteria
Step 2: Low VMT Area	Is the project located in a low VMT generating area (less 15% below the San Bernardino County regional average VMT per service population)	Using the SBCTA VMT screening tool, the project is not in a Low VMT Area. The project is estimated to be approximately 13.3% below the County regional average VMT per population.	Does Not Meet Criteria
Step 3: Project Type	<p>Is the project a local servicing retail project with less than 50,000 square feet, or a locally serving use including (but not limited to) the following?</p> <ul style="list-style-type: none"> Public/Community Use (school/library/park/fire station/ local government) Day Care Locally serving Bank Assisted living/senior housing <p>Or,</p> <p>Does the project generate less than 3,000 MT CO2e per year? Including projects such as:</p> <ul style="list-style-type: none"> Single Family Res. – 167 DU's or fewer Multifamily Res. (1-2 stories) – 232 DU's or fewer Multifamily Res. (3+ stories) – 299 DU's or fewer Office – 59,100 square feet or less Local Serving Retail Center – 112,400 SF or less Warehousing – 463,600 SF or less Light Industrial – 74,600 SF or less 	<p>Yes. The project proposes to construct 98 single-family dwelling units. Per the City's guidelines, Projects with less than 167 single family residential dwelling units can be presumed to have a less than significant impact on VMT.</p>	Criteria Met

8 FINDINGS AND RECOMMENDATIONS

This study analyzes the forecast traffic conditions associated with the proposed development of the Citrus Estates housing development (Project) in the City of Redlands. The Project proposes to construct 98 single-family dwelling-units on approximately 36.27 acres on the southwest quadrant of the intersection of San Bernardino Avenue and Wabash Avenue. The project is anticipated to be built out by Year 2023.

The proposed project would construct half-width improvements on San Bernardino Avenue and Wabash Lane along the project frontage. See [Section 6.3](#) for further discussion on project improvements. The project site would take access via two full access driveways: one on San Bernardino Avenue and one on Capri Way.

The Project is forecast to generate approximately 1,021 new daily trips which includes approximately 73 AM peak hour trips and 100 PM peak hour trips. See [Section 5.1](#) for further discussion on trip generation.

This study evaluates traffic conditions that include AM and PM peak hour intersection level of service (LOS) analysis for the following scenarios:

- Existing Conditions;
- Existing With Project Conditions

Level of Service Analysis Results

Existing Conditions - The results of the Existing conditions analysis show that all study intersections currently operate at acceptable levels of service (LOS C or better) with the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour (LOS F).

Existing With Project Conditions - With the addition of project related traffic, all study intersections continue to operate at acceptable levels of service (LOS C or better) for the Existing With Project conditions the exception of intersection of San Bernardino Avenue and Judson Street (Int. 2) during the AM Peak Hour. This location operates at a deficient LOS under Existing Conditions without the project (LOS F), and the project does not reduce the existing level of service at this location.

Vehicle Miles Travelled

As part of the California Environmental Quality Act (CEQA) analysis, a VMT assessment was conducted for this project in May 2021. The VMT assessment shows that the Citrus Estates Project is considered to have a less than significant transportation impact and no mitigation measures are required. The VMT assessment has been included as [Appendix H](#) to this report.