Submitted by:

ITERIS

MT. SAC 2015 FACILITIES MASTER PLAN UPDATE & PHYSICAL EDUCATION PROJECTS

Traffic Impact Study

Draft Report

Submitted to:

Mt. San Antonio College

April 1, 2016

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1.0 INTRODUCTION

This traffic impact study has been prepared for the proposed 2015 Facilities Master Plan Update (FMPU) and Physical Education Projects (PEP) of Mount San Antonio College (Mt. SAC). This report provides detailed information concerning the methodology, findings, and conclusions of the traffic analysis.

1.1 PROJECT DESCRIPTION

Mt. San Antonio College is located in the City of Walnut on over 420 acres. It has an estimated 2014-2015 fall enrollment of 35,986 students (headcount). The college has proposed a 2015 Facilities Master Plan Update. The major change from the 2012 FMP is the re-design of the athletic facilities south of Temple Avenue and east of Bonita Avenue. The existing stadium will be demolished and a new stadium built on the site. Other changes for the 2015 FMPU include the relocation of the Public Transportation Center to Lot D3, and expanded Wildlife Sanctuary and Open Space area, and a pedestrian bridge across Temple Avenue connecting the Physical Education Complex to Lot F. The net increase in square footage at 2015 FMPU buildout is approximately 500,000 gross square feet. Special annual events will continue to be held on campus that include the Mt. SAC/Brooks Relays and the Mt. SAC Cross-Country Invitational (XC Invite). The District is also filing an application to host the 8-day 2020 Olympic Track & Field Trials in late July or August 2020. **Figure 1** shows the location of Mt. SAC in relation to the surrounding street network.

1.2 STUDY AREA

A total of nineteen (19) intersections were selected for analysis. The 19 intersections represent locations that may potentially be impacted by traffic due to the proposed project. The study intersections are illustrated in the previously referenced **Figure 1** and are as follows:

1. Nogales Street/Amar Road;
2. Lemon Avenue/Amar Road;
3. Grand Avenue/I-10 Westbound Ramp;
4. Grand Avenue/I-10 Eastbound Ramp;
5. Grand Avenue/Cameron Avenue;
6. Grand Avenue/Mountaineer Road;
7. Grand Avenue/San Jose Hills Road;
8. Grand Avenue/Temple Avenue;
9. Grand Avenue/La Puente Road;
10. Grand Avenue/Valley Boulevard;
11. Grand Avenue/Baker Parkway;
12. Grand Avenue/SR-60 Westbound Ramps;
13. Grand Avenue/SR-60 Eastbound Ramps;
14. Mt. SAC Way/Temple Avenue;
15. Bonita Avenue/Temple Avenue;
16. Lot F/Temple Avenue;
17. Valley Boulevard/Temple Avenue;
18. SR-57 Southbound Ramps/Temple Avenue; and
19. SR-57 Northbound Ramps/Temple Avenue.

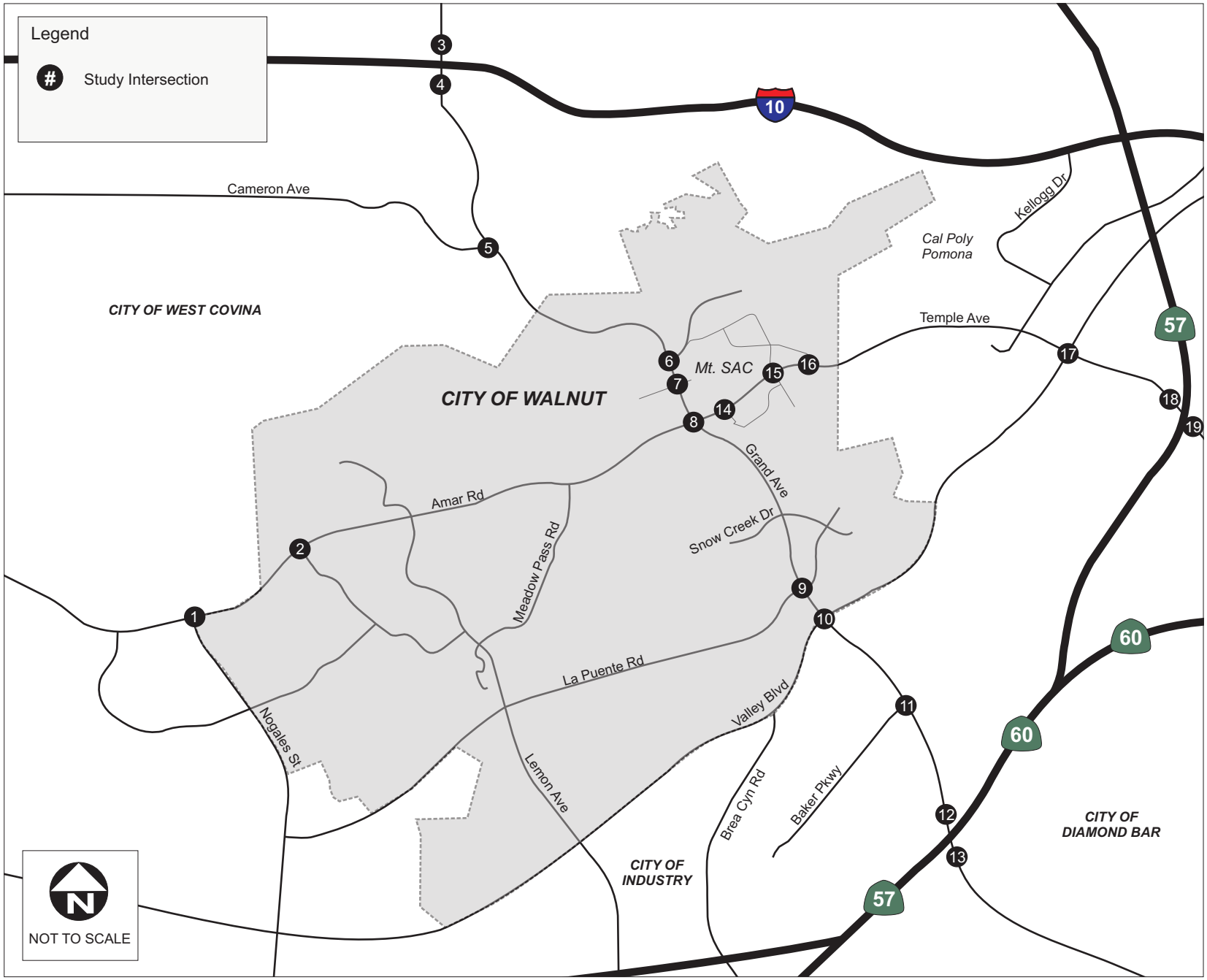

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FIGURE 1
Study Area

1.3 STUDY PERIODS

Traffic operations were evaluated for each of the following scenarios during the weekday a.m. and p.m. peak hours:

- Existing Conditions (2015);
- Existing Plus 2020 Project Conditions;
- Existing Plus 2025 Project Conditions;
- Existing Plus 2020 Cumulative Conditions;
- Existing Plus 2025 Cumulative Conditions;
- Existing Plus 2020 Cumulative Plus Project Conditions; and
- Existing Plus 2025 Cumulative Plus Project Conditions.

The official buildout date of the 2015 FMPU and of the PEP is 2020. A year 2025 scenario is included in this analysis in order to coincide with the City and County General Plans.

2.0 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.

2.1 ROADWAY CONFIGURATIONS

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

Grand Avenue oriented in a north-south direction, is a four-lane divided roadway with connection to the Interstate 10 and State Route 57/60 freeways. On-street parking is prohibited along Grand Avenue and the posted speed limit is 45 miles per hour within the study area.

Amar Road/Temple Avenue, oriented in an east-west direction, is a four-lane divided to six lane divided roadway with a raised median. On-street parking is prohibited along Amar Road/Temple Avenue and the posted speed limit is 45 miles per hour within the study area. Amar Road/Temple Avenue also provides access to State Route 57.

Lemon Avenue, oriented in a north-south direction, is a four-lane divided roadway with a raised median. On-street parking is prohibited through the study area and the posted speed limit is 45 miles per hour. Lemon Avenue mostly provides access to residential areas.

Cameron Avenue, is a four-lane undivided roadway, oriented in an east-west direction, with a posted speed limit of 45 miles per hour within the study area. Cameron Avenue terminates at Grand Avenue on the west end.

Mountaineer Road is a four-lane divided roadway, oriented in an east-west direction providing local access to residential areas and Mt. SAC. On street parking is prohibited and the posted speed limit is 35 miles per hour within the study area. Mountaineer Road terminates at Grand Avenue on the east end.

Baker Parkway is a four-lane divided roadway currently terminating at Grand Avenue on the west end. Baker Parkway would be extended east of Grand Avenue to provide direct access to the Industry Business Complex.

La Puente Road, oriented in an east-west direction, is a four-lane divided roadway, with a posted speed limit of 40 miles per hour. La Puente Road mostly provides access to residential areas.

Nogales Street is a two-lane undivided to four-lane divided roadway, oriented in a north-south direction. On street parking is prohibited and the posted speed limit is 50 miles per hour within the study area.

Valley Boulevard, oriented in an east-west direction, is a four to six-lane divided roadway with connection to the Interstate 10 and State Route 57/60 freeways. On-street parking is prohibited along Valley Boulevard within the study area.

2.2 EXISTING PUBLIC TRANSIT

Metro bus lines 190/194 travel north-south along Grand Avenue and east-west along Valley Boulevard through the study area.

Foothill Transit lines 195, 289, 480, 482, and 486 travel east-west along Amar Road/Temple Avenue through the study area.

2.3 EXISTING TRAFFIC VOLUMES

Existing traffic counts at all 19 intersections were conducted in October 2015. All counts were conducted during the a.m. peak period (7:00 – 9:00) and p.m. peak period (4:00 – 6:00). The traffic impact analysis is based on the highest single hour of traffic during each time period at each location. Detailed vehicle turning movement data are included in **Appendix A**. **Figure 2** shows the existing peak hour volumes at the study intersections.

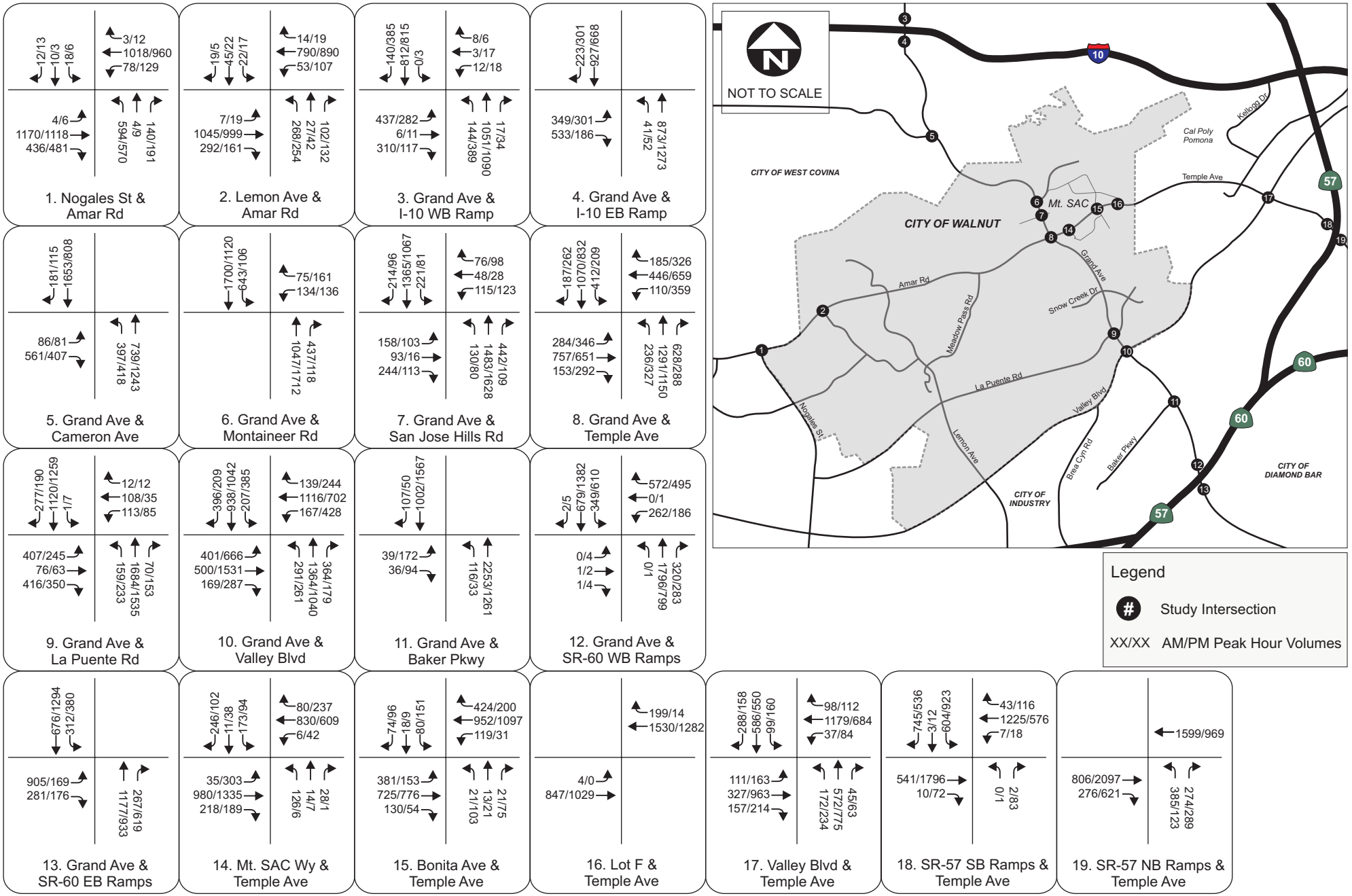

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FIGURE 2
Existing Peak Hour Intersection Volumes

3.0 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

The quality of traffic operations is characterized using the concept of level of service (LOS). Level of service 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.

In this report, analysis of traffic operations was conducted according to the Los Angeles County traffic impact analysis guidelines for non-freeway ramp intersections located within the City of Walnut and City of Pomona. Utilizing these guidelines, intersection operating conditions were quantified using the Intersection Capacity Utilization (ICU) method. Volume-to-capacity (V/C) ratios and corresponding levels of service (LOS) were calculated at study intersections during the weekday a.m. and p.m. peak hours. LOS analyses for all study intersections were conducted using TRAFFIX software. **Table 1** presents a brief description of each level of service letter grade, as well as the range of V/C ratios associated with each grade for signalized intersections.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS – ICU METHODOLOGY

Level of Service	Description	Intersection Volume to Capacity (V/C) Ratio
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	0.000-0.600
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.	>0.600-0.700
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.	>0.700-0.800
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	>0.800-0.900
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>0.900-1.000
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.	> 1.000

For intersections operated under Caltrans' jurisdiction, analysis of traffic operations were conducted utilizing the Highway Capacity Manual (HCM) methodology for evaluation of intersection operating conditions. **Table 2** presents a brief description of each level of service letter grade, as well as the range of HCM average intersection delay associated with each grade for signalized intersections.

TABLE 2: INTERSECTION LEVEL OF SERVICE DEFINITIONS – HCM METHODOLOGY

Level of Service	Description	Signalized 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
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
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
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
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55 and ≤ 80
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

Source: Highway Capacity Manual 2000, Transportation Research Board, Washington, D.C., 2000.

3.1 THRESHOLDS OF SIGNIFICANCE

This analysis conservatively utilizes the Los Angeles County Public Works traffic impact review guidelines, which state that a project's traffic impact is evaluated based on ICU and is considered significant if the change in volume to capacity ratio (V/C) relative to the "without project" signalized intersection level of service (LOS) meets or exceeds the thresholds contained in **Table 3**. These guidelines are more stringent than the Los Angeles County Metropolitan Transportation Authority (LACMTA) guidelines which were used in the 2008 traffic impact analysis for the Mt. SAC Master Plan Update EIR.

TABLE 3: INTERSECTION SIGNIFICANT IMPACT CRITERIA

Intersection LOS in With Project Conditions	V/C	Project V/C Increase
C	0.701 to 0.800	0.040 or more
D	0.801 to 0.900	0.020 or more
E / F	0.901 or more	0.010 or more

In addition, a project impact is considered significant to a Caltrans facility if the project traffic results in a worsening level of service from LOS D or better to LOS E or F. In addition, a project impact is considered significant if a Caltrans facility is currently operating at LOS E or F and the project traffic results in an increase in average vehicle delay.

4.0 EXISTING CONDITIONS

A level of service analysis was conducted to evaluate existing (2015) intersection operations during the a.m. and p.m. peak hours at the study intersections. **Table 4** summarizes the existing LOS at the study intersections. LOS calculations sheets are provided in **Appendix B**. **Figure 3** summarizes the existing intersection lane configurations.

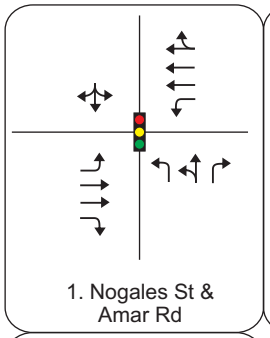
TABLE 4: EXISTING INTERSECTION PEAK HOUR LEVEL OF SERVICE

	Intersection	Control Type	AM Peak Hour			PM Peak Hour		
			Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS
1	Nogales St/Amar Rd	Signalized	-	0.760	C	-	0.725	C
2	Lemon Ave/Amar Rd	Signalized	-	0.706	C	-	0.636	B
3	Grand Ave/I-10 WB Ramp*	Signalized	23.4	-	C	24.8	-	C
4	Grand Ave/I-10 EB Ramp*	Signalized	26.3	-	C	16.7	-	B
5	Grand Ave/Cameron Ave	Signalized	-	1.084	F	-	0.659	B
6	Grand Ave/Mountaineer Rd	Signalized	-	0.666	B	-	0.721	C
7	Grand Ave/San Jose Hills Rd	Signalized	-	0.944	E	-	0.844	D
8	Grand Ave/Temple Ave	Signalized	-	0.885	D	-	0.764	C
9	Grand Ave/La Puente Rd	Signalized	-	1.065	F	-	0.950	E
10	Grand Ave/Valley Blvd	Signalized	-	0.845	D	-	0.928	E
11	Grand Ave/Baker Pkwy	Signalized	-	0.817	D	-	0.543	A
12	Grand Ave/SR-60 WB Ramps*	Signalized	22.8	-	C	22.8	-	C
13	Grand Ave/SR-60 EB Ramps*	Signalized	31.9	-	C	21.4	-	C
14	Mt. SAC Wy/Temple Ave	Signalized	-	0.724	C	-	0.700	B
15	Bonita Ave/Temple Ave	Signalized	-	0.580	A	-	0.601	B
16	Lot F/Temple Ave	Stop-control	15.3	-	C	0.0	-	A
17	Valley Blvd/Temple Ave	Signalized	-	0.751	C	-	0.763	C
18	SR-57 SB Ramps/Temple Ave*	Signalized	22.9	-	C	24.5	-	C
19	SR-57 NB Ramps/Temple Ave*	Signalized	13.6	-	B	8.8	-	A

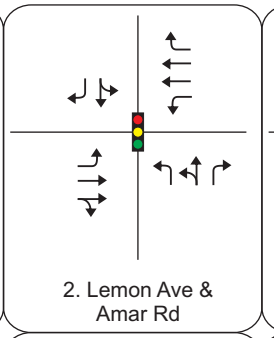
* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.
Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

As shown in **Table 4**, the following intersections are currently operating at LOS E or worse:

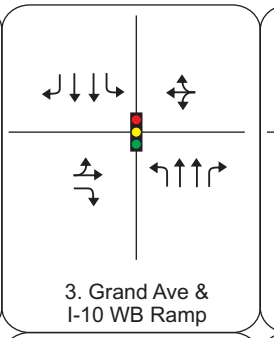
- Grand Avenue/Cameron Avenue (a.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. peak hour);
- Grand Avenue/La Puente Road (a.m. and p.m. peak hour); and
- Grand Avenue/Valley Boulevard (p.m. peak hour).



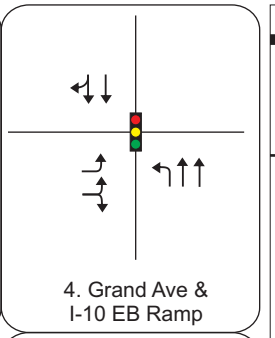
1. Nogales St & Amar Rd



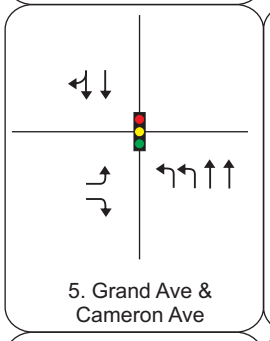
2. Lemon Ave & Amar Rd



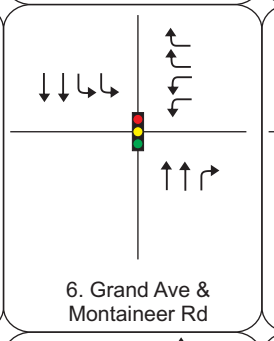
3. Grand Ave & I-10 WB Ramp



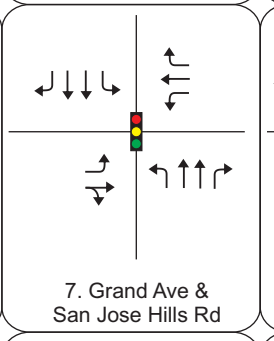
4. Grand Ave & I-10 EB Ramp



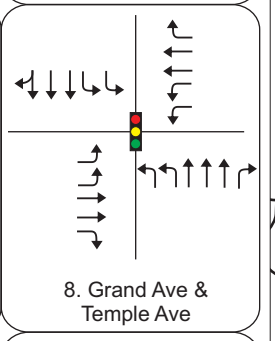
5. Grand Ave & Cameron Ave



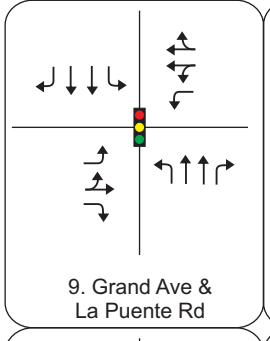
6. Grand Ave & Montaineer Rd



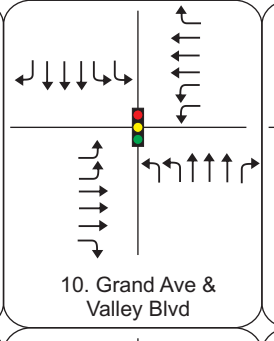
7. Grand Ave & San Jose Hills Rd



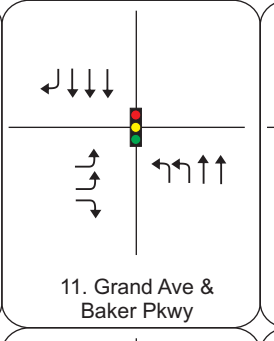
8. Grand Ave & Temple Ave



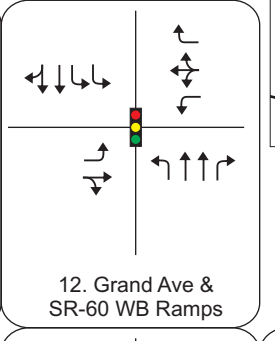
9. Grand Ave & La Puente Rd



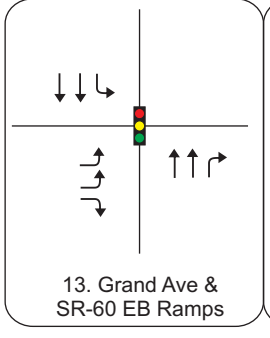
10. Grand Ave & Valley Blvd



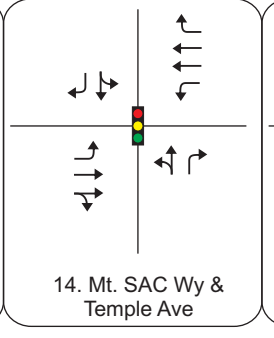
11. Grand Ave & Baker Pkwy



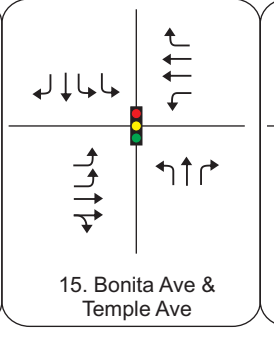
12. Grand Ave & SR-60 WB Ramps



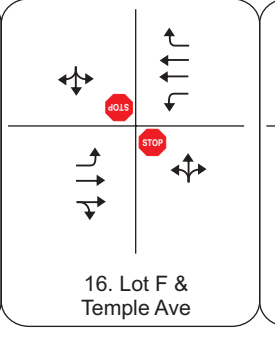
13. Grand Ave & SR-60 EB Ramps



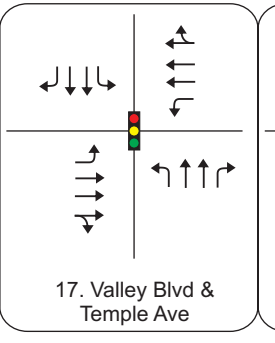
14. Mt. SAC Wy & Temple Ave



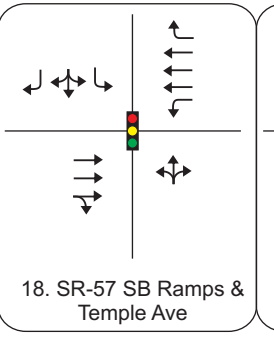
15. Bonita Ave & Temple Ave



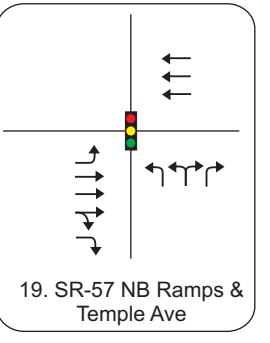
16. Lot F & Temple Ave



17. Valley Blvd & Temple Ave



18. SR-57 SB Ramps & Temple Ave



19. SR-57 NB Ramps & Temple Ave

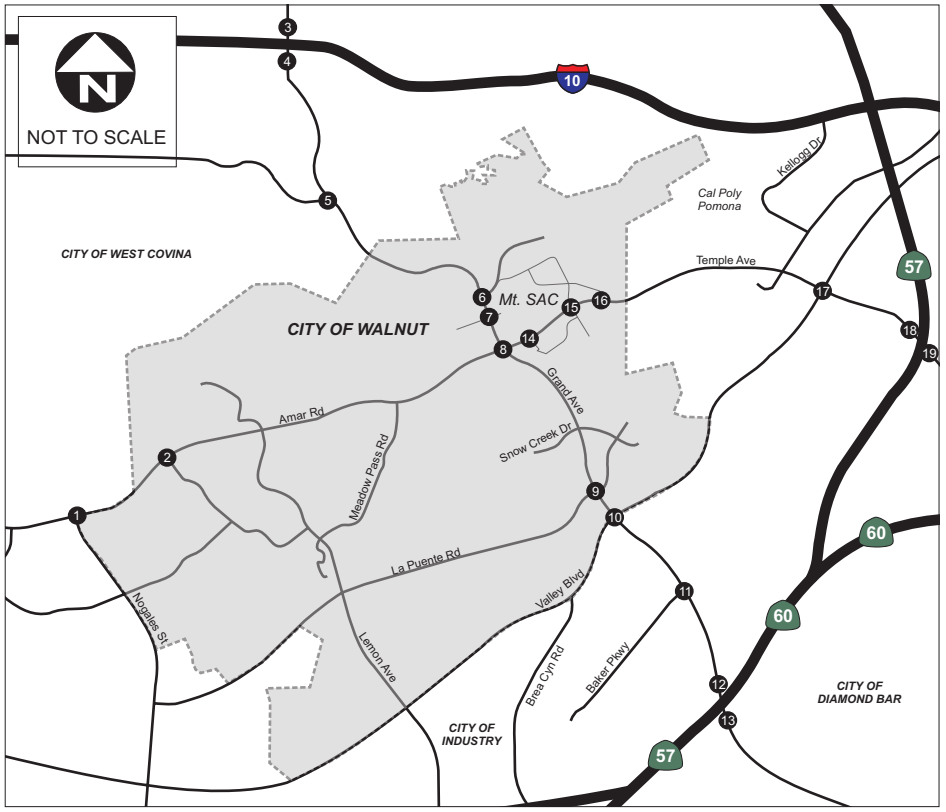


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FIGURE 3
Existing Intersection Lane Configuration

5.0 PROPOSED PROJECT TRAFFIC

This section defines the traffic generated by the proposed buildout of the Facilities Master Plan project in a three-step process including trip generation, trip distribution and trip assignment. The college has proposed a 2015 Facilities Master Plan Update. The major change from the 2012 FMP is the re-design of the athletic facilities south of Temple Avenue and east of Bonita Avenue. The existing stadium will be demolished and a new stadium built on the site. Other changes for the 2015 FMPU include the relocation of the Public Transportation Center to Lot D3, and expanded Wildlife Sanctuary and Open Space area, and a pedestrian bridge across Temple Avenue connecting the Physical Education Complex to Lot F. The net increase in square footage at 2015 FMPU buildout is approximately 500,000 gross square feet.

5.1 PROJECT TRIP GENERATION

Trip generation rates for the proposed project were calculated based on those published in the Institute *of Transportation Engineers (ITE), Trip Generation*, 9th Edition. The land use category representing the proposed project was identified as Junior/Community College. The increase in traffic is based on student headcount. In year 2020, it is anticipated that an additional 3,745 students would be enrolled at the college. In year 2025, it is anticipated that an additional 7,153 students would be enrolled at the college when compared to existing conditions. The results of this calculation are shown for 2020 and 2025 in **Tables 5** and **6**, respectively.

As shown in **Table 5**, the buildout of the 2015 FMPU project in 2020 is forecast to generate 449 new a.m. peak hour trips, 449 new p.m. peak hour trips, and 4,606 new daily trips when compared to existing conditions. As shown in **Table 6**, by 2025 the project is forecast to generate 858 new a.m. peak hour trips, 858 new p.m. peak hour trips, and 8,798 new daily trips when compared to existing conditions.

TABLE 5: 2020 PROJECT TRIP GENERATION

ITE Code	Land Use	Size	Unit	AM Peak Hour Rates			PM Peak Hour Rates			Daily Rates	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
				In	Out	Total	In	Out	Total		In	Out	Total	In	Out	Total	
New Project Land Use																	
540	Junior/Community College	3,745	Students	84%	16%	0.12	63%	37%	0.12	1.23	375	74	449	300	149	449	4,606
										Total	**375**	**74**	**449**	**300**	**149**	**449**	**4,606**

Source: ITE Trip Generation, 9th Edition

TABLE 6: 2025 PROJECT TRIP GENERATION

ITE Code	Land Use	Size	Unit	AM Peak Hour Rates			PM Peak Hour Rates			Daily Rates	AM Peak Hour Trips			PM Peak Hour Trips			Daily Trips
				In	Out	Total	In	Out	Total		In	Out	Total	In	Out	Total	
New Project Land Use																	
540	Junior/Community College	7,153	Students	84%	16%	0.12	63%	37%	0.12	1.23	715	143	858	572	286	858	8,798
										Total	**715**	**143**	**858**	**572**	**286**	**858**	**8,798**

Source: ITE Trip Generation, 9th Edition

5.2 PROJECT TRIP DISTRIBUTION

Trip distribution assumptions are used to determine the origin and destination of new vehicle trips associated with the project. The geographic distribution of project trips is based on the locations of local activity centers and the street system that serves the site. The trip distribution routes utilized in this analysis were determined based on the patterns of existing campus traffic and the distribution of student residences provided by Mt SAC. The distribution pattern developed for the project is shown in **Figure 4**.

5.3 PROJECT TRIP ASSIGNMENT

Trips generated by the project, as shown in **Tables 5** and **6**, were assigned to the surrounding roadway system based on the distribution patterns to estimate the project-related peak-hour traffic at each of the study intersections. The project trips were assigned based on distribution inputs to the TRAFFIX network. **Figure 5** illustrates the a.m. and p.m. peak hour 2020 project trip assignment. **Figure 6** illustrates the a.m. and p.m. peak hour 2025 project trip assignment.

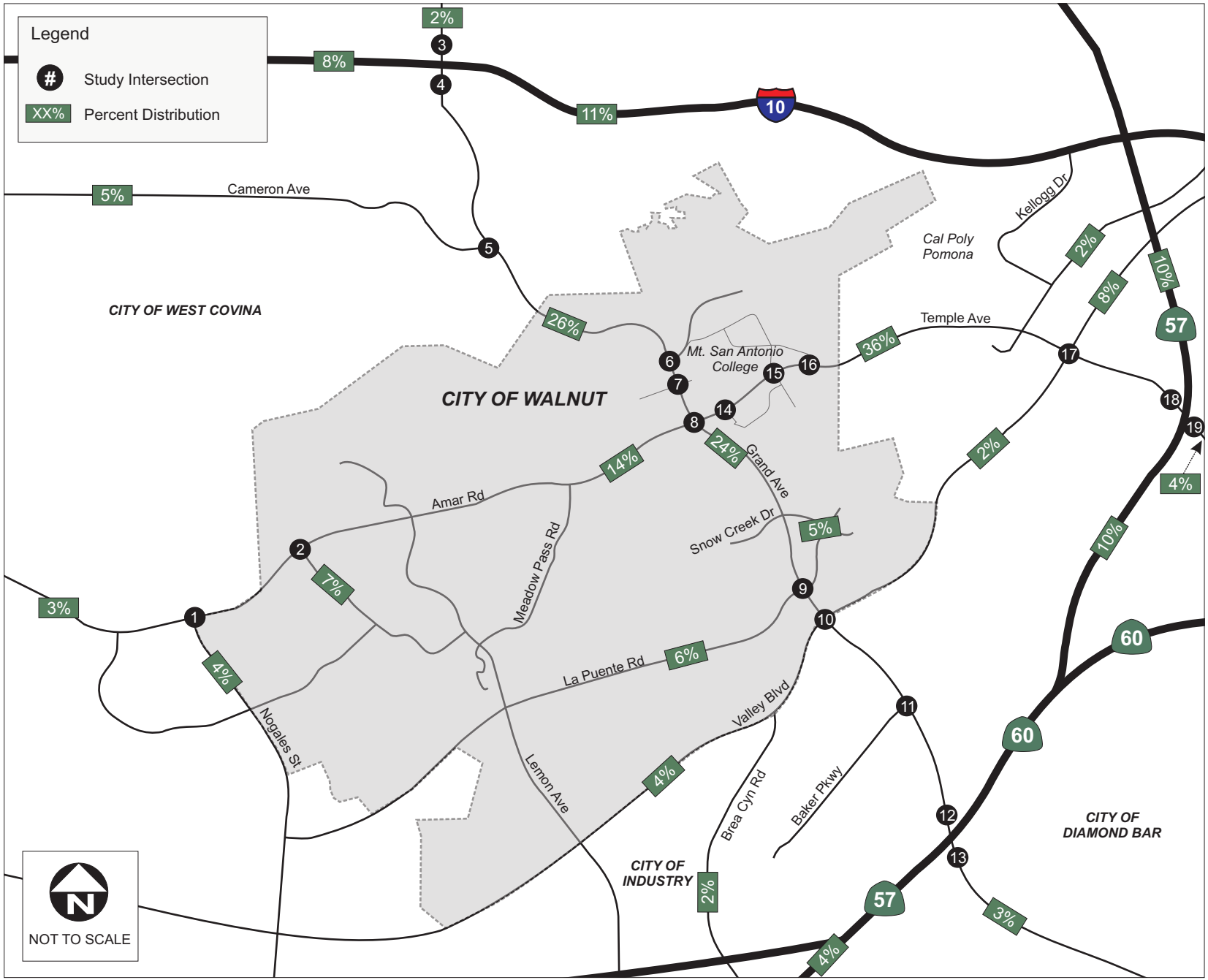

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FIGURE 4
Project Trip Distribution

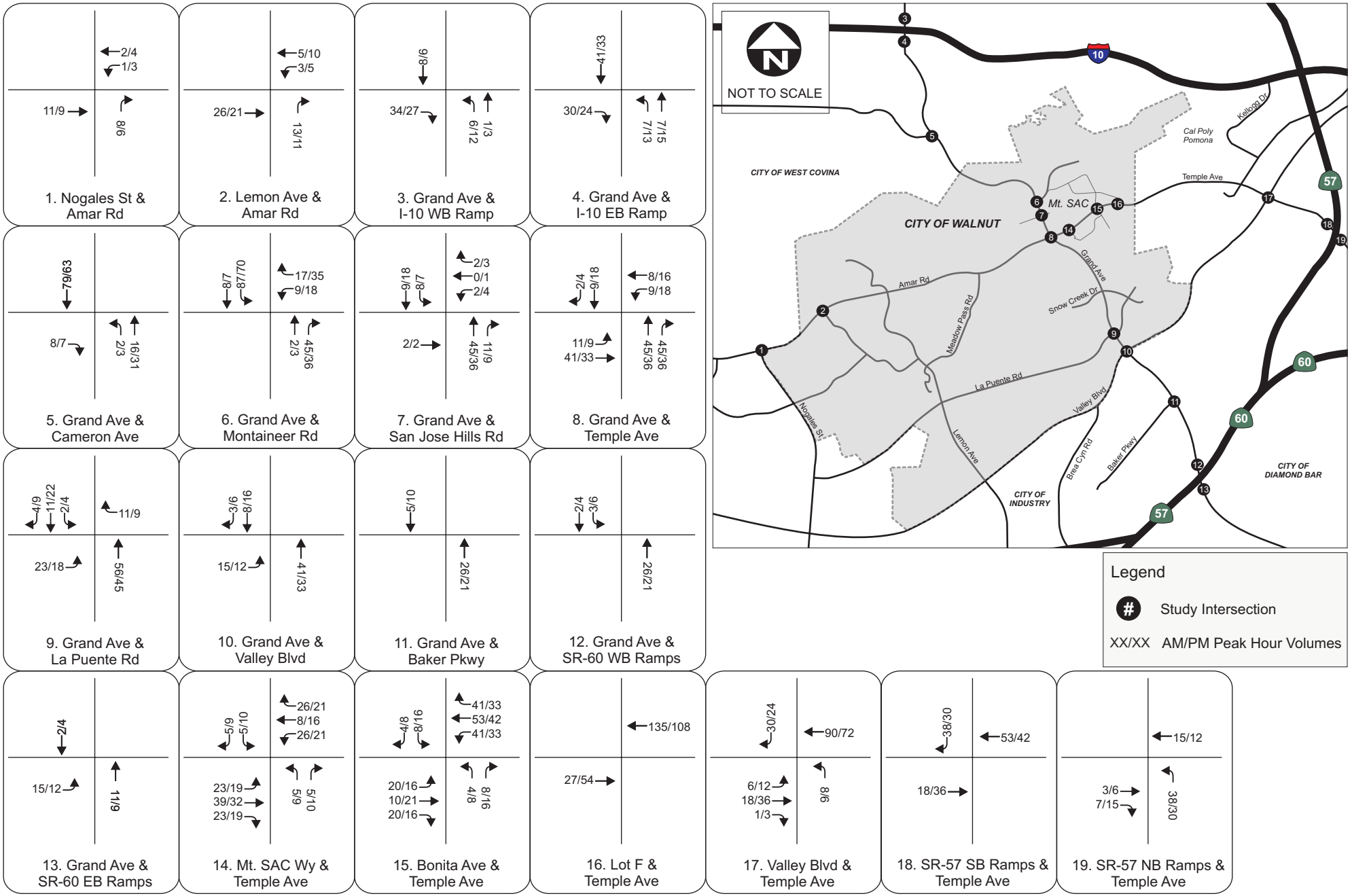

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FIGURE 5
2020 Project Trip Assignment

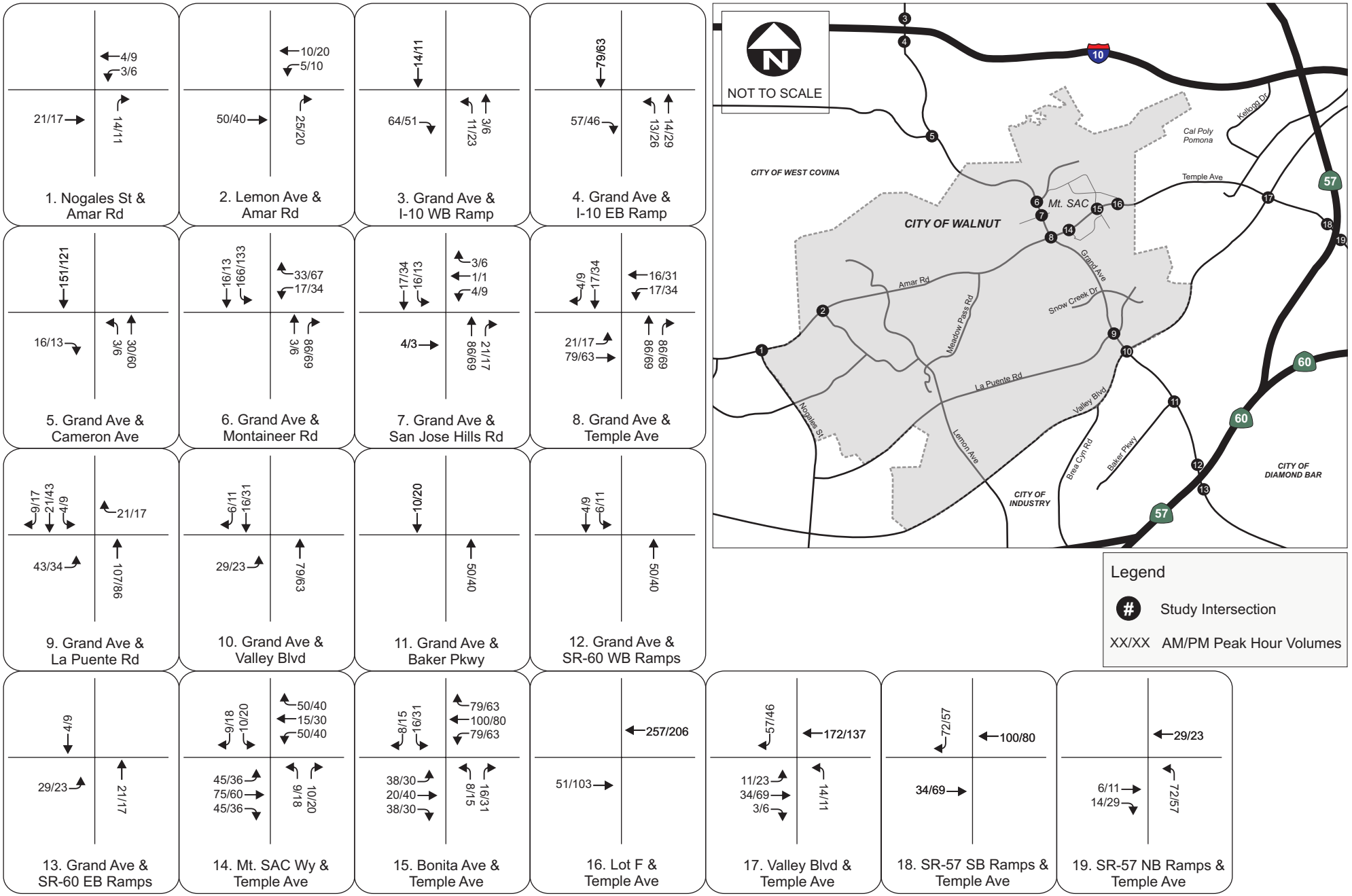

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FIGURE 6
2025 Project Trip Assignment

6.0 EXISTING PLUS 2020 PROJECT CONDITIONS

The official buildout date of the 2015 FMPU and of the PEP is 2020. Existing plus 2020 project conditions were developed by adding trips generated by the proposed 2020 project buildout to the existing volumes. **Figure 7** illustrates the existing plus 2020 project traffic volumes at the study intersections.

6.1 EXISTING PLUS 2020 PROJECT INTERSECTION LEVELS OF SERVICE

A level of service analysis was conducted to evaluate existing plus 2020 project intersection operations during the a.m. and p.m. peak hours at the study intersections. **Table 7** summarizes the existing plus 2020 project level of service at the study intersections. Level of service calculation worksheets are included in **Appendix B**.

TABLE 7: EXISTING PLUS 2020 PROJECT INTERSECTION PEAK HOUR LEVEL OF SERVICE

	Intersection	Existing Conditions						Existing Plus 2020 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
1	Nogales St/ Amar Rd	-	0.760	C		0.725	C		0.764	C		0.730	C	0.004	0.005	No
2	Lemon Ave/ Amar Rd	-	0.706	C		0.636	B		0.716	C		0.646	B	0.010	0.010	No
3	Grand Ave/ I-10 WB Ramp*	23.4		C	24.8		C	23.5		C	25.1		C	0.1	0.3	No
4	Grand Ave/ I-10 EB Ramp*	26.3		C	16.7		B	28.0		C	18.0		B	1.7	1.3	No
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		1.116	F		0.685	B	0.032	0.026	**Yes**
6	Grand Ave/ Mountaineer Rd	-	0.666	B		0.721	C		0.698	B		0.751	C	0.032	0.030	No
7	Grand Ave/ San Jose Hills Rd	-	0.944	E		0.844	D		0.967	E		0.865	D	0.023	0.021	**Yes**
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.928	E		0.785	C	0.043	0.021	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.089	F		0.960	E	0.024	0.010	**Yes**
10	Grand Ave/ Valley Blvd	-	0.845	D		0.928	E		0.859	D		0.935	E	0.014	0.007	No
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		0.826	D		0.550	A	0.009	0.007	No
12	Grand Ave/ SR-60 WB Ramps*	22.8		C	22.8		C	23.1		C	22.9		C	0.3	0.1	No
13	Grand Ave/ SR-60 EB Ramps*	31.9		C	21.4		C	32.4		C	21.4		C	0.5	0	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.752	C		0.741	C	0.028	0.041	**Yes**
15	Bonita Ave/ Temple Ave	-	0.580	A		0.601	B		0.618	B		0.635	B	0.038	0.034	No
16	Lot F/ Temple Ave	15.3		C	0.0		A	16.7		C	0.0		A	1.4	0.0	No

Intersection		Existing Conditions						Existing Plus 2020 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
17	Valley Blvd/ Temple Ave	-	0.751	C		0.763	C		0.796	C		0.772	C	0.045	0.009	**Yes**
18	SR-57 SB Ramps/ Temple Ave*	22.9		C	24.5		C	23.6		C	25.2		C	0.7	0.7	No
19	SR-57 NB Ramps/ Temple Ave*	13.6		B	8.8		A	14.3		B	9.1		A	0.7	0.3	No

* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.
Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

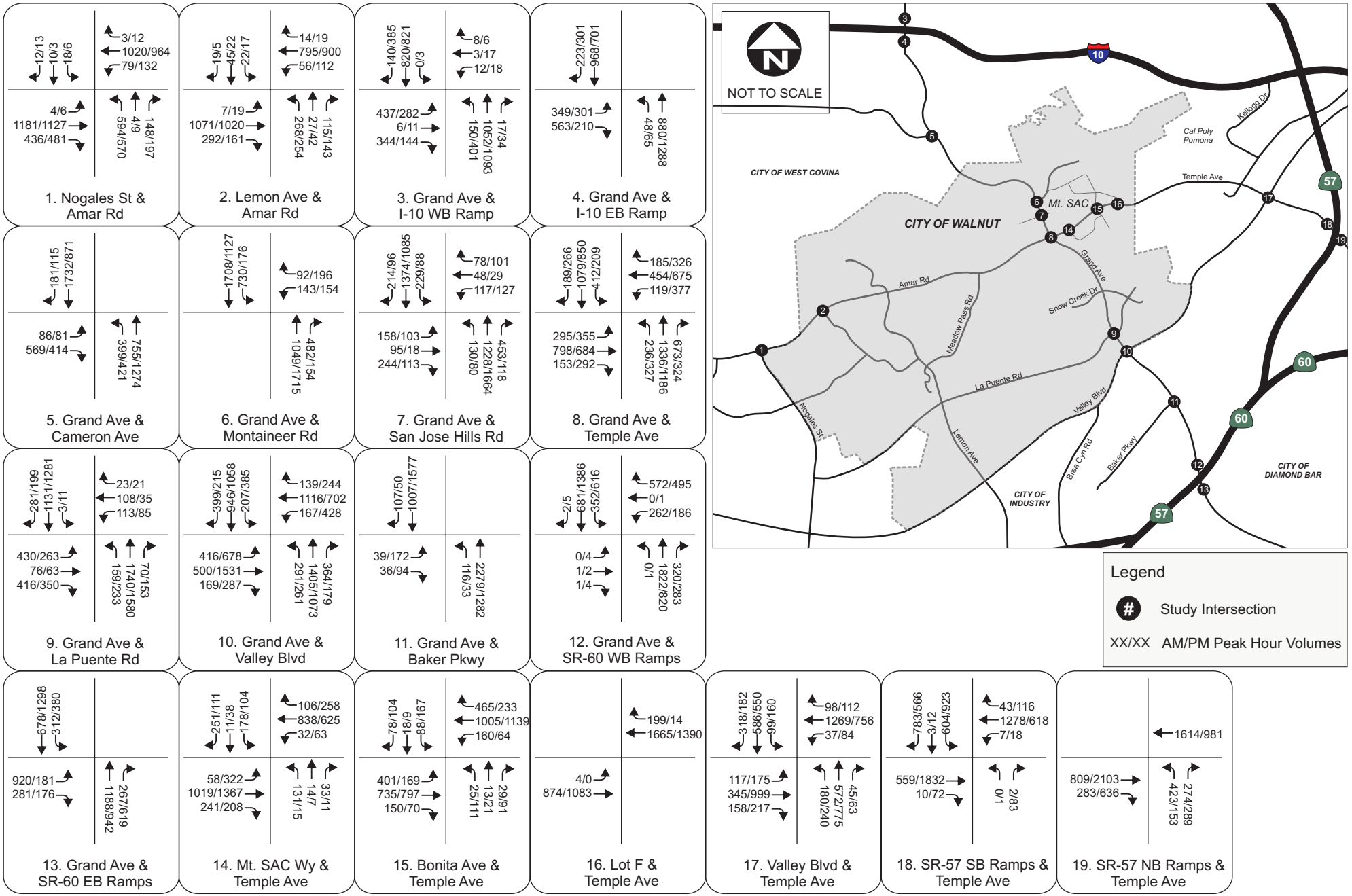

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FIGURE 7
Existing Plus 2020 Project
Peak Hour Intersection Volumes

As shown in **Table 7**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the proposed 2020 project traffic:

- Grand Avenue/Cameron Avenue (a.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. and p.m. peak hour);
- Grand Avenue/Temple Avenue (a.m. peak hour);
- Grand Avenue/La Puente Road (a.m. peak hour);
- Mt. SAC Way/Temple Avenue (p.m. peak hour); and
- Valley Boulevard/Temple Avenue (a.m. peak hour).

6.2 Existing Plus 2020 Project Mitigation Measures

In order to reduce significant traffic impacts to a level considered less than significant in existing plus 2020 project conditions, a list of mitigation measures have been developed. The following mitigation measures would be required to reduce the level of impact:

- **Grand Avenue/Cameron Avenue** – Add a second eastbound right-turn lane.
- **Grand Avenue/San Jose Hills Road** – A second eastbound right-turn lane is required to mitigate the project impact at this intersection. However, sufficient ROW is not available due to adjacent land uses at the southwest and northwest corners of the intersection. As a result, improvements needed to mitigate this intersection are not considered feasible. A statement of overriding considerations is required.
- **Grand Avenue/Temple Avenue** – Convert the existing eastbound right-turn lane to a through/right-turn lane.
- **Grand Avenue/La Puente Road** – Modify the traffic signal to include an eastbound right-turn overlap phase.
- **Mt. SAC Way/Temple Avenue** – Restripe the eastbound approach to include a dedicated right-turn lane.
- **Valley Boulevard/Temple Avenue** – Improvements needed to mitigate this intersection are not considered feasible due to the ROW constraints near the adjacent railroad. A statement of overriding considerations is required.

At the locations where mitigation measures are deemed feasible, if it is determined by the lead agency that the necessary right-of-way is not available and the proposed lane additions cannot be developed within the available right-of-way, then the impacts may not be mitigated. **Table 8** summarizes the LOS results at the impacted intersections with implementation of the proposed mitigation measures that were determined to be feasible.

TABLE 8: MITIGATED EXISTING PLUS 2020 PROJECT INTERSECTION PEAK HOUR LEVEL OF SERVICE

Intersection		Existing Conditions						Mitigated Existing Plus 2020 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact with Mitigation?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		0.924	E		0.603	B	0.160	0.056	No
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.873	D		0.775	C	0.012	0.011	No
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		0.974	E		0.833	D	0.091	0.117	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.674	B		0.675	B	0.050	0.025	No

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

As shown in **Table 8**, at locations where improvements were considered feasible, project impacts are reduced to less than significant at four intersections.

7.0 EXISTING PLUS 2025 PROJECT CONDITIONS

A year 2025 scenario is included in this analysis in order to coincide with the City and County General Plans. Existing plus 2025 project conditions were developed by adding trips generated by the proposed 2025 project to the existing volumes. **Figure 8** illustrates the existing plus 2025 project traffic volumes at the study intersections.

7.1 EXISTING PLUS 2025 PROJECT INTERSECTION LEVELS OF SERVICE

A level of service analysis was conducted to evaluate existing plus 2025 project intersection operations during the a.m. and p.m. peak hours at the study intersections. **Table 9** summarizes the existing plus 2025 project level of service at the study intersections. Level of service calculation worksheets are included in **Appendix B**.

TABLE 9: EXISTING PLUS 2025 PROJECT INTERSECTION PEAK HOUR LEVEL OF SERVICE

	Intersection	Existing Conditions						Existing Plus 2025 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
1	Nogales St/ Amar Rd	-	0.760	C		0.725	C		0.769	C		0.735	C	0.009	0.010	No
2	Lemon Ave/ Amar Rd	-	0.706	C		0.636	B		0.726	C		0.657	B	0.020	0.021	No
3	Grand Ave/ I-10 WB Ramp*	23.4		C	24.8		C	23.7		C	25.5		C	0.3	0.7	No
4	Grand Ave/ I-10 EB Ramp*	26.3		C	16.7		B	29.9		C	19.2		B	3.6	2.5	No
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		1.146	F		0.708	C	0.062	0.049	**Yes**
6	Grand Ave/ Mountaineer Rd	-	0.666	B		0.721	C		0.726	C		0.777	C	0.060	0.056	**Yes**
7	Grand Ave/ San Jose Hills Rd	-	0.944	E		0.844	D		0.989	E		0.883	D	0.045	0.039	**Yes**
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.967	E		0.804	D	0.082	0.040	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.111	F		0.968	E	0.046	0.018	**Yes**
10	Grand Ave/ Valley Blvd	-	0.845	D		0.928	E		0.872	D		0.942	E	0.027	0.014	**Yes**
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		0.854	D		0.576	A	0.037	0.033	**Yes**
12	Grand Ave/ SR-60 WB Ramps*	22.8		C	22.8		C	23.5		C	23.0		C	0.7	0.2	No
13	Grand Ave/ SR-60 EB Ramps*	31.9		C	21.4		C	32.8		C	21.5		C	0.9	0.1	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.790	C		0.779	C	0.066	0.079	**Yes**
15	Bonita Ave/ Temple Ave	-	0.580	A		0.601	B		0.647	B		0.666	B	0.067	0.065	No
16	Lot F/ Temple Ave	15.3		C	0.0		A	18.1		C	0.0		A	2.8	0.0	No

Intersection		Existing Conditions						Existing Plus 2025 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
17	Valley Blvd/ Temple Ave	-	0.751	C		0.763	C		0.838	D		0.776	C	0.087	0.013	**Yes**
18	SR-57 SB Ramps/ Temple Ave*	22.9		C	24.5		C	24.4		C	25.8		C	1.5	1.3	No
19	SR-57 NB Ramps/ Temple Ave*	13.6		B	8.8		A	14.8		B	9.4		A	1.2	0.6	No

* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.

Notes:

V/C = Volume to Capacity Ratio, LOS = Level of Service.

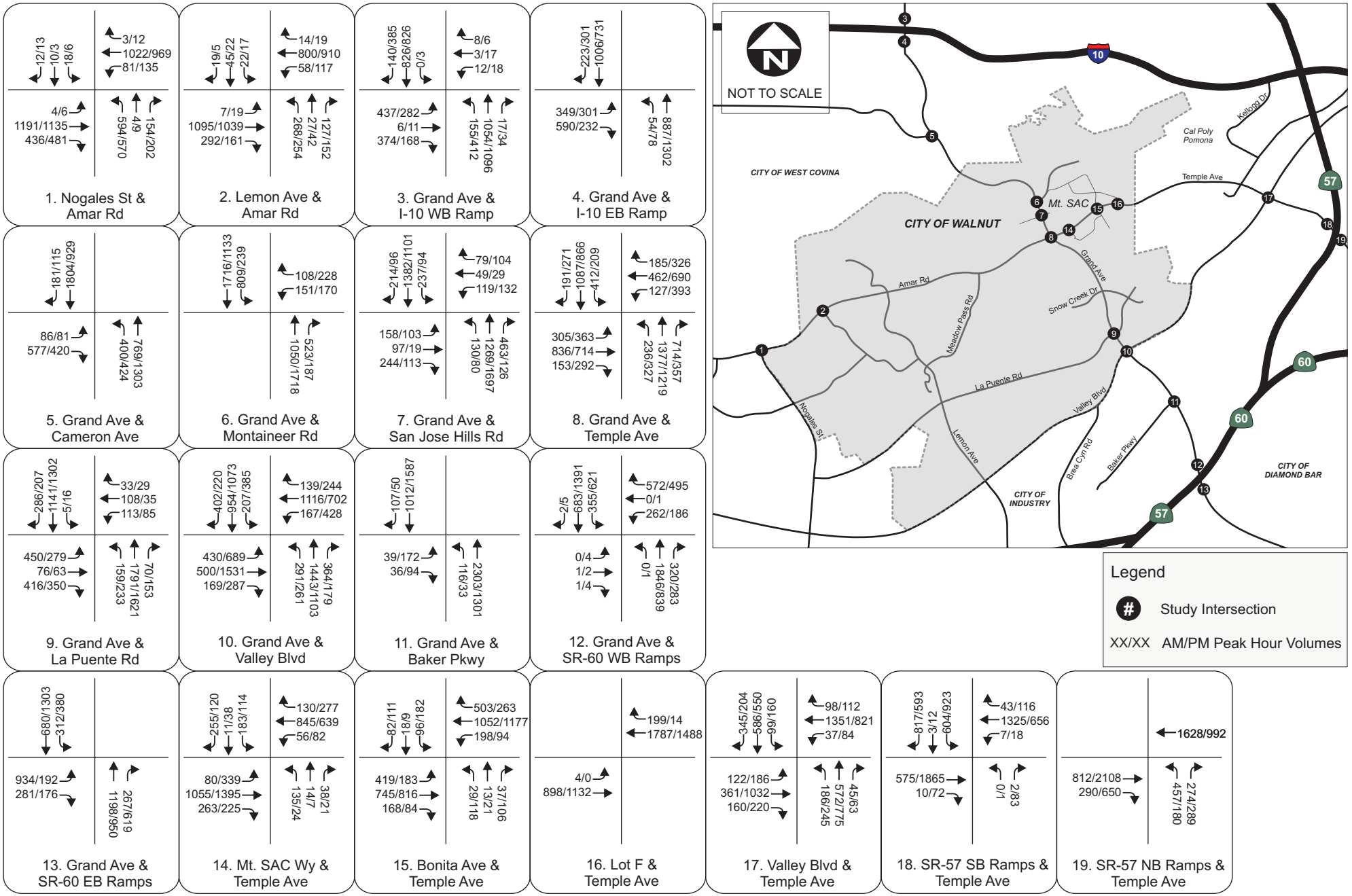

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FIGURE 8
Existing Plus 2025 Project
Peak Hour Intersection Volumes

As shown in **Table 9**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the proposed 2025 project traffic:

- Grand Avenue/Cameron Avenue (a.m. and p.m. peak hour);
- Grand Avenue/Mountaineer Road (a.m. and p.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. and p.m. peak hour);
- Grand Avenue/Temple Avenue (a.m. and p.m. peak hour);
- Grand Avenue/La Puente Road (a.m. and p.m. peak hour);
- Grand Avenue/Valley Boulevard (a.m. and p.m. peak hour);
- Grand Avenue/Baker Parkway (a.m. peak hour);
- Mt. SAC Way/Temple Avenue (a.m. and p.m. peak hour); and
- Valley Boulevard/Temple Avenue (a.m. peak hour).

7.2 Existing Plus 2025 Project Mitigation Measures

In order to reduce significant traffic impacts to a level considered less than significant in existing plus 2025 project conditions, a list of mitigation measures have been developed. The following additional mitigation measures would be required in 2025 to reduce the level of impact beyond those required in 2020:

- **Grand Avenue/Mountaineer Road** – A third northbound through lane is required to mitigate the project impact at this intersection. However, sufficient ROW is not available within the current curb width. As a result, improvements needed to mitigate this intersection are not considered feasible. A statement of overriding considerations is required.
- **Grand Avenue/Valley Boulevard** – This intersection is considered to be fully built out since it currently consists of dual left-turn lanes at all approaches and dedicated free right-turn lanes at three approaches. In addition, no improvements at this intersection are considered feasible due to ROW constraints. A statement of overriding considerations is required.
- **Grand Avenue/Baker Parkway** – Restripe the northbound approach to include a third through lane.

At the locations where mitigation measures are deemed feasible, if it is determined by the lead agency that the necessary right-of-way is not available and the proposed lane additions cannot be developed within the available right-of-way, then the impacts may not be mitigated. **Table 10** summarizes the LOS results at the impacted intersections with implementation of the proposed mitigation measures that were determined to be feasible.

TABLE 10: MITIGATED EXISTING PLUS 2025 PROJECT INTERSECTION PEAK HOUR LEVEL OF SERVICE

Intersection		Existing Conditions						Mitigated Existing Plus 2025 Project Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact with Mitigation?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		0.949	E		0.624	B	0.135	0.035	No
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.903	E		0.790	C	0.018	0.026	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.001	F		0.847	D	0.064	0.103	No
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		0.600	B		0.505	A	0.217	0.038	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.704	C		0.708	C	0.020	0.008	No

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

As shown in **Table 10**, at locations where improvements were considered feasible, project impacts are reduced to less than significant at four intersections.

8.0 CUMULATIVE PROJECT CONDITIONS

This section summarizes the forecast increase in traffic due to specific, known development projects in the area surrounding the study locations that may affect traffic circulation. The projected buildout year of the FMPU is 2020 and the County General Plan buildout is 2025. Therefore, year 2020 and 2025 cumulative traffic conditions are assessed.

8.1 CUMULATIVE PROJECT GROWTH

A list of cumulative projects within the region, expected to be built by 2020, was provided by the Cities of Walnut, Pomona, Diamond Bar, and Industry, as shown in **Table 11**. An additional list of 2025 added cumulative projects within the region is shown in **Table 12**. Detailed trip generation data for these 54 cumulative projects within the vicinity of the project site is provided in **Appendix C**. The general location of each of the cumulative projects is shown in **Figure 9**. The peak hour vehicle trips expected to be generated by these developments within the study area in year 2020 are shown in **Figure 10**. The peak hour vehicle trips expected to be generated by these developments within the study area in year 2025 are shown in **Figure 11**. Trip distribution for the cumulative projects were assigned depending on the type of development, residential or non-residential, and location with respect to freeways and major arterials.

TABLE 11: 2020 CUMULATIVE DEVELOPMENT PROJECTS

#	Agency	Project Title	Location	Description
1	**Walnut**	Shea Homes Project	North of Valley Blvd between Pierre Rd and Suzanne Rd	37 single-family detached homes and 61 single-family townhomes
2		Salamone Subdivision	Off of Meadowpass Rd	6 residential lots
3		Gregorian Subdivision	1521 Meadowpass Rd	7 single-family residential lots
4		The Olsen Company Project	650 Camino De Rosa	8 single-family residences
5	**Pomona**	22122 W. Valley Blvd.	22122 W. Valley Blvd.	Warehouse - 141,000 SF
6		2001 W. Mission Blvd.	2001 W. Mission Blvd.	Warehouse - 432,843 SF
7		2-16 Village Loop Rd.	2-16 Village Loop Rd.	Single Family Detached – 124 DU and Retail - 6,000 SF
8		92 Rio Rancho Rd.	92 Rio Rancho Rd.	Condominium/Townhome - 56 DU
9		1943 S. Towne Ave.	1943 S. Towne Ave.	Single Family Detached - 48,000 DU
10		715 E. Phillips Rd.	715 E. Phillips Rd.	Condominium/Townhome - 4 DU
11		1041 S. White Ave.	1041 S. White Ave.	Single Family Detached - 20 DU
12		701 S. Garey Ave.	701 S. Garey Ave.	Retail - 37,000 SF

13		1439 S. Palomares St.	1439 S. Palomares St.	Condominium/Townhome - 6 DU
14		1390 S. Palomares St.	1390 S. Palomares St.	Condominium/Townhome - 12 DU
15		Rio Rancho Towne Center Phase II	Rio Rancho Towne Center	Retail - 64,717 SF
16		600 Dudley Ave.	600 Dudley Ave.	Senior Housing - 84 DU
17		855 E. Phillips Blvd.	855 E. Phillips Blvd.	Single Family Detached - 37 DU
18		675 E. Mission Blvd.	675 E. Mission Blvd.	Condominium/Townhome - 38 DU
19		22 Rio Rancho Rd.	22 Rio Rancho Rd.	Automobile Sales - 5,750 SF
20		888 W. Mission Blvd.	888 W. Mission Blvd.	Retail - 20,239 SF
21		1368 W. Mission Blvd.	1368 W. Mission Blvd.	Condominium/Townhome - 36 DU
22		1932/1936 S. Garey Ave.	1932/1936 S. Garey Ave.	Condominium/Townhome - 17 DU
23		1300 W. Mission Blvd.	1300 W. Mission Blvd.	Condominium/Townhome - 33 DU
24		1365/1367 S. Garey Ave.	1365/1367 S. Garey Ave.	Condominium/Townhome - 2 DU
25		1940 S. Garey Ave.	1940 S. Garey Ave.	Condominium/Townhome - 10 DU
26		424-446 W. Commercial St.	424-446 W. Commercial St.	Senior Housing - 61 DU
27		952 E. Ninth St.	952 E. Ninth St.	Condominium/Townhome - 11 DU
28		1344 W. Grand Ave.	1344 W. Grand Ave.	Condominium/Townhome - 7 DU
29		1363 S. Buena Vista Ave.	1363 S. Buena Vista Ave.	Condominium/Townhome - 3 DU
30		1480 W. Mission Blvd.	1480 W. Mission Blvd.	Condominium/Townhome - 24 DU
31		1455 S. White Ave.	1455 S. White Ave.	Condominium/Townhome - 2 DU
32		1302 Hansen Ave.	1302 Hansen Ave.	Single Family Detached - 2 DU
33		Rio Rancho Towne Center Hotel (White & Rancho Valley)	White & Rancho Valley	Hotel - 149 Rooms
34		1145 W. 10th St.	1145 W. 10th St.	Religious Facility - 6,019 SF
35		40 Rio Rancho Rd.	40 Rio Rancho Rd.	Restaurant - 1,608 SF
36		1491 E. Ninth St.	1491 E. Ninth St.	Warehouse/Office - 193,500 SF
37	**Diamond Bar**	TR 63623	Larkstone Drive south of Southpointe Middle School	99 detached condominium units
38		TR 72295	Brea Canyon Road and Diamond Bar Blvd	47 single-family lots, 73 detached condominiums, 62 attached condominiums
39	**Industry**	15000 Nelson	15000 Nelson	125,344 sf industrial building
40		489 & 499 Parriott Plce	489 & 499 Parriott Plce	130,170 sf industrial building
41		SE Corner of Azusa and Chestnut	SE Corner of Azusa and Chestnut	614,597 sf industrial building
42		18421 Railroad Ave.	18421 Railroad Ave.	8,850 sf industrial building
43		12851 Crossroads Parkway South	12851 Crossroads Parkway South	77,250 sf office building

44		3718 Capitol Ave.	3718 Capitol Ave.	36,666 sf warehouse
45		Echelon	Echelon	326,700 sf building
46		14700 Nelson	14700 Nelson	232,450 sf building
47		19782 Walnut Drive North	19782 Walnut Drive North	2,662 sf Carl's Jr. restaurant with drive-thru
48		1552 Azusa Ave.	1552 Azusa Ave.	20,621 sf retail building
49		1722 Arenth Avenue	1722 Arenth Avenue	6,760 sf Union Pacific railroad maintenance building
50		Castleton	Castleton	2,492 sf fast-food with drive-thru
51		16801 Gale Ave.	16801 Gale Ave.	39,150 sf warehouse building
52	**California State Polytechnic University, Pomona**	Future Enrollment Increase (2020)	3801 W Temple Ave, Pomona, CA 91768	4,089 students by 2020

Notes:
tsf = thousand square feet
du = dwelling unit

TABLE 12: 2025 ADDITIONAL CUMULATIVE DEVELOPMENT PROJECTS

#	Agency	Project Title	Location	Description
53	**Industry**	Industry Business Center East	Southeast corner of Grand Ave. and Baker Pkwy.	Warehousing and Distribution
54		Industry Business Center West	Southwest corner of Grand Ave. and Baker Pkwy.	Warehousing and Distribution
52 (revised)	**California State Polytechnic University, Pomona**	Future Enrollment Increase (2025)	3801 W Temple Ave, Pomona, CA 91768	8,889 students by 2025

Notes:
tsf = thousand square feet

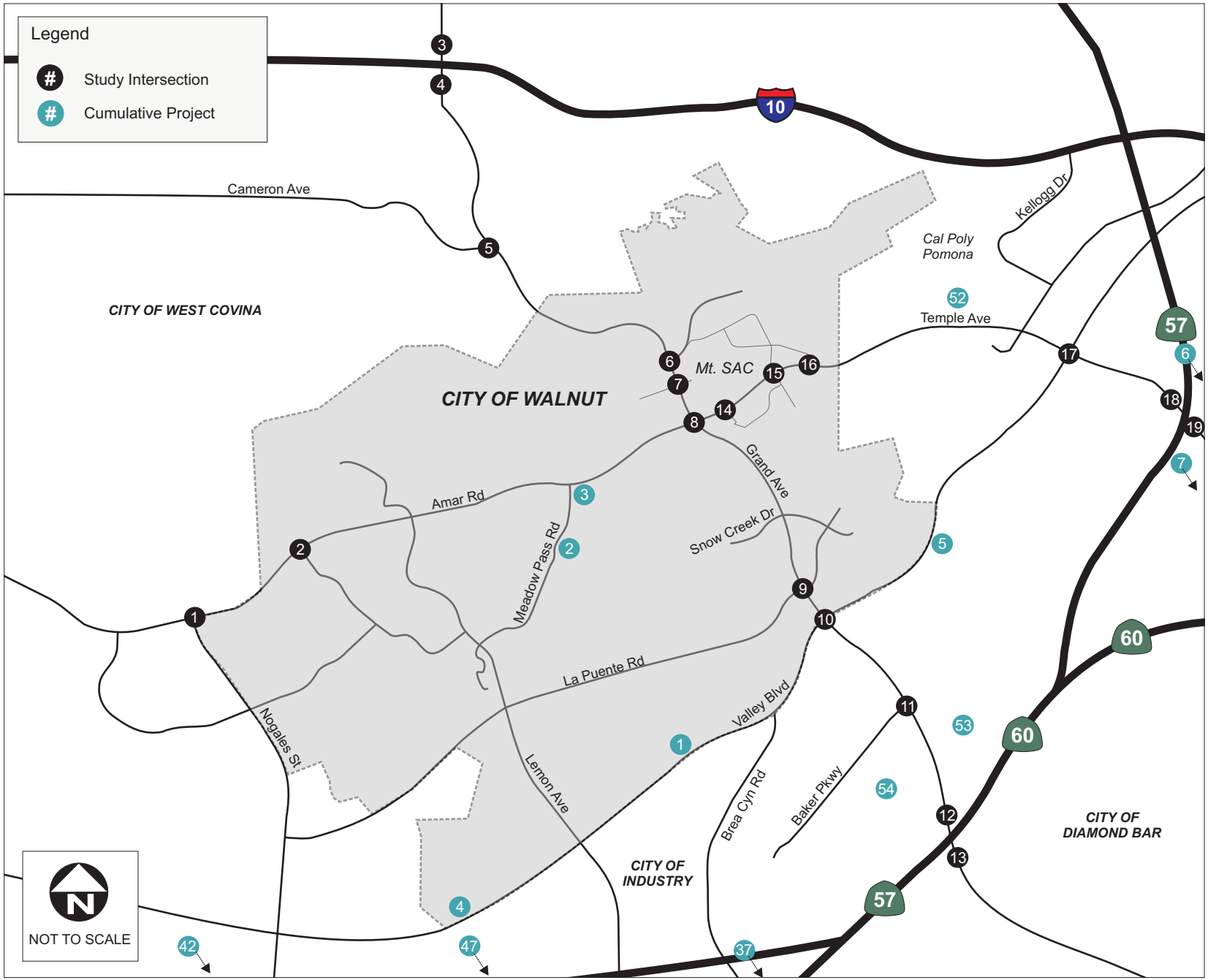

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FIGURE 9
Location of Cumulative Development Projects

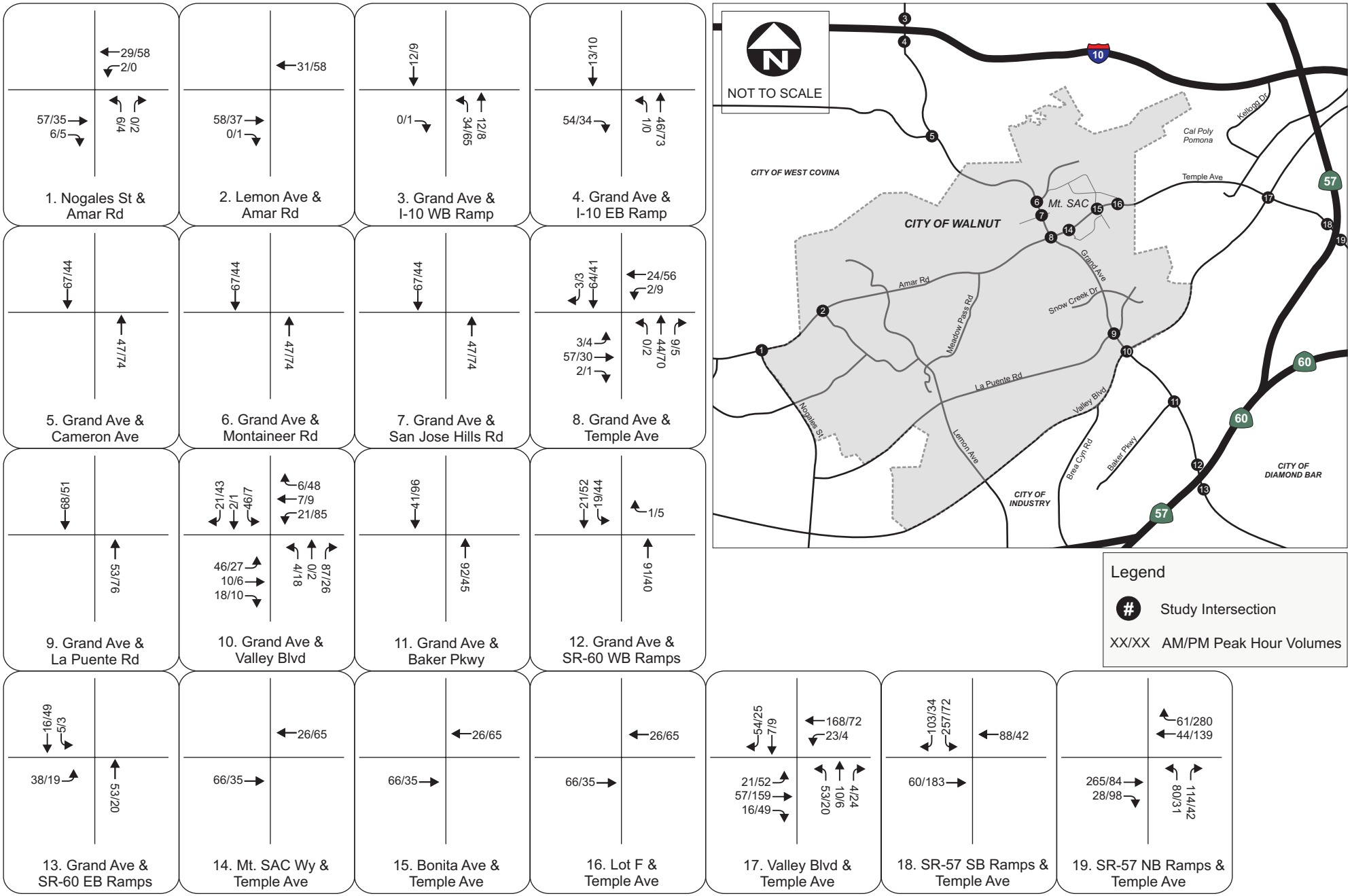

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FIGURE 10
2020 Cumulative Development Projects
Trip Generation

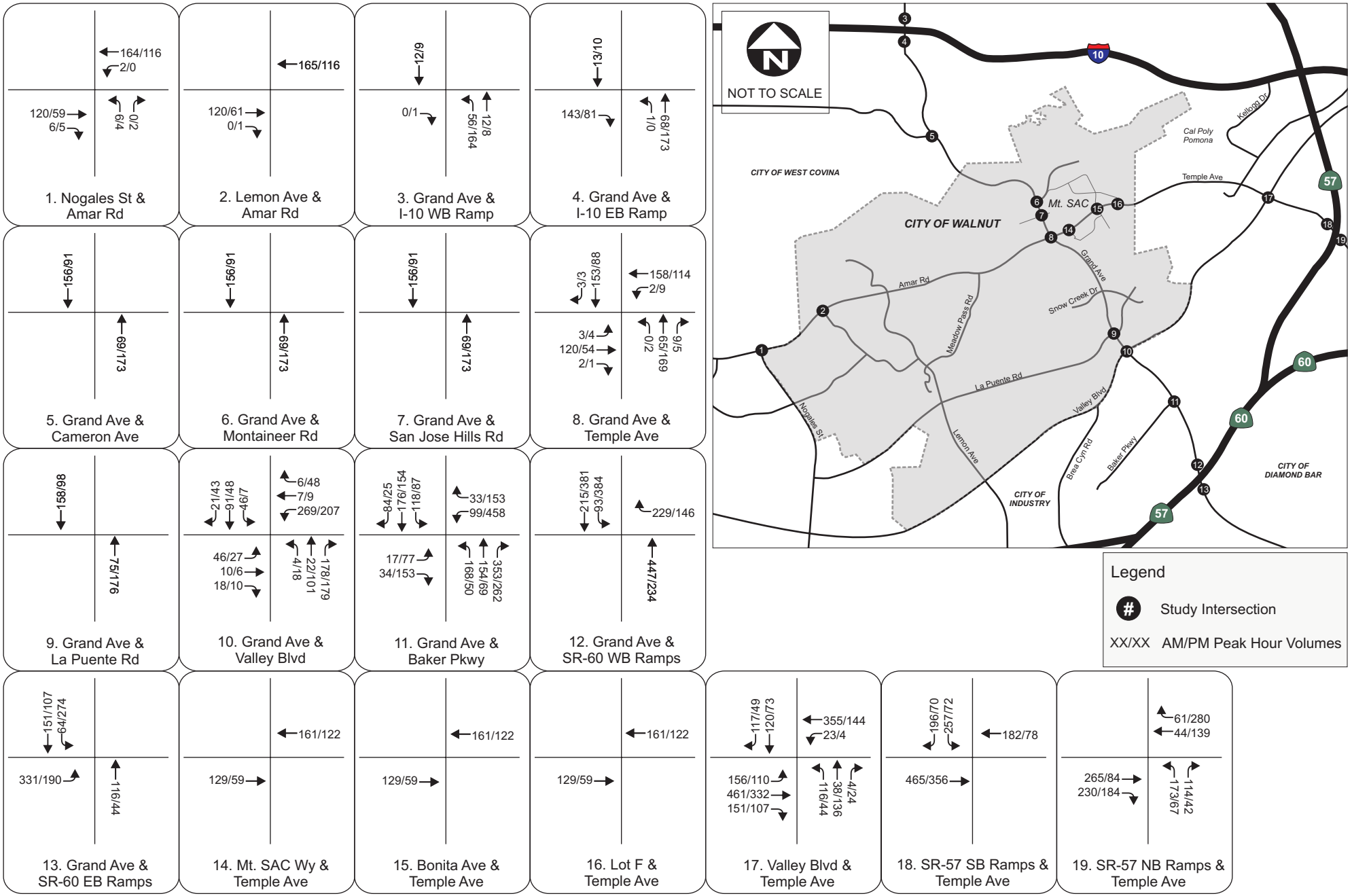

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FIGURE 11
2025 Cumulative Development Projects
Trip Generation

Using the trip generation and trip distribution for each cumulative project, a summary of the total cumulative project trips in the study area is presented and compared to the total 2015 FMPU trips forecast to be generated in 2020 and 2025. **Table 13** summarizes the p.m. peak hour and daily cumulative trip totals for each lead agency and shows the share of total trip growth in the area that the 2015 FMPU accounts for.

TABLE 13: SUMMARY OF FUTURE TRIP GROWTH WITHIN STUDY AREA

Lead Agency	Trip Growth Within Study Area			
	2020 PM Peak Hour Trips	2020 ADT Peak Hour Trips	2025 PM Peak Hour Trips	2025 ADT Peak Hour Trips
Walnut	87	888	87	888
Industry[1]	96	1,383	1,561	14,982
Pomona	703	5,436	703	5,436
Diamond Bar	51	575	51	575
Cal Poly	695	6,992	1,511	15,200
Sub Total	*1,632*	*15,274*	*3,913*	*37,081*
2015 FMPU	449	4,606	858	8,798
TOTAL	**2,081**	**19,880**	**4,771**	**45,879**
2015 FMPU Percent of Total Growth	21.6%	23.2%	18.0%	19.2%

1 = Includes Industry Business Complex (IBC) partial buildout in 2025 only (20 percent of 4,779,000 gsf and 67,993 daily trip buildout total).

As shown in **Table 13**, the 2015 FMPU trips are forecast to account for approximately 22% of the overall p.m. peak hour traffic growth in the study in year 2020. In year 2025, the FMPU trips are forecast to account for approximately 18% of the overall p.m. peak hour traffic growth in the study area.

9.0 EXISTING PLUS 2020 CUMULATIVE CONDITIONS

The official FMPU buildout year is 2020, therefore 2020 conditions are assessed assuming cumulative traffic growth. Existing plus 2020 cumulative volumes were developed by adding the 2020 cumulative trips generated by the cumulative development projects as described in Section 8, to existing volumes. It should be noted that this scenario was used only to develop traffic volumes, not for LOS analysis, as traffic impacts are measured against existing LOS operations. **Figure 12** shows the existing plus 2020 cumulative peak hour volumes at the study intersections.

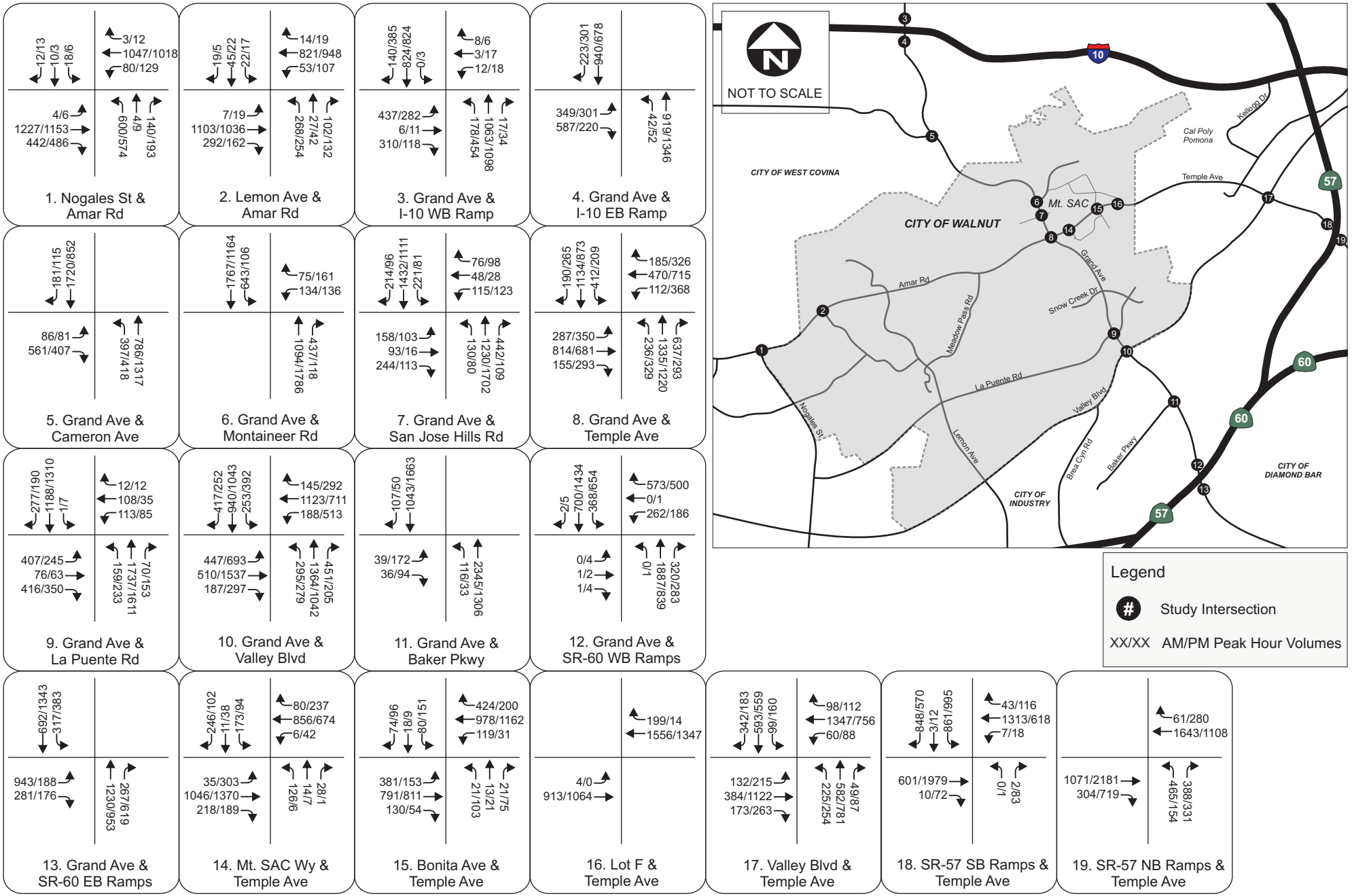

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FIGURE 12
Existing Plus 2020 Cumulative Trips
Peak Hour Intersection Volumes

10.0 EXISTING PLUS 2020 PROJECT PLUS CUMULATIVE CONDITIONS

Existing plus 2020 project plus cumulative volumes were developed by adding the trips generated by proposed 2020 project, as described in Section 5, to existing plus 2020 cumulative volumes (without project), as described in Section 9. **Figure 13** shows the existing plus 2020 project plus cumulative peak hour volumes at the study intersections.

10.1 EXISTING PLUS 2020 PROJECT PLUS CUMULATIVE INTERSECTION LEVELS OF SERVICE

A level of service analysis was conducted to evaluate existing plus 2020 project plus cumulative intersection operations during the a.m. and p.m. peak hours. **Table 14** summarizes the existing plus 2020 project plus cumulative levels of service at the study intersections. Level of service calculation worksheets are included in **Appendix B**.

TABLE 14: EXISTING PLUS 2020 PROJECT PLUS CUMULATIVE INTERSECTION PEAK HOUR LEVEL OF SERVICE

Intersection		Existing Conditions						Existing Plus 2020 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
1	Nogales St/ Amar Rd	-	0.760	C		0.725	C		0.788	C		0.743	C	0.028	0.018	No
2	Lemon Ave/ Amar Rd	-	0.706	C		0.636	B		0.736	C		0.658	B	0.030	0.022	No
3	Grand Ave/ I-10 WB Ramp*	23.4		C	24.8		C	24.0		C	26.6		C	0.6	1.8	No
4	Grand Ave/ I-10 EB Ramp*	26.3		C	16.7		B	30.7		C	18.9		B	4.4	2.2	No
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		1.139	F		0.700	B	0.055	0.041	**Yes**
6	Grand Ave/ Mountaineer Rd	-	0.666	B		0.721	C		0.713	C		0.775	C	0.047	0.054	**Yes**
7	Grand Ave/ San Jose Hills Rd	-	0.944	E		0.844	D		0.983	E		0.889	D	0.039	0.045	**Yes**
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.952	E		0.804	D	0.067	0.040	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.108	F		0.977	E	0.043	0.027	**Yes**
10	Grand Ave/ Valley Blvd	-	0.845	D		0.928	E		0.891	D		0.967	E	0.046	0.039	**Yes**
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		0.856	D		0.565	A	0.039	0.022	**Yes**
12	Grand Ave/ SR-60 WB Ramps*	22.8		C	22.8		C	24.8		C	23.4		C	2.0	0.6	No
13	Grand Ave/ SR-60 EB Ramps*	31.9		C	21.4		C	34.5		C	21.5		C	2.6	0.1	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.774	C		0.752	C	0.050	0.052	**Yes**
15	Bonita Ave/ Temple Ave	-	0.580	A		0.601	B		0.626	B		0.656	B	0.046	0.055	No
16	Lot F/ Temple Ave	15.3		C	0.0		A	16.7		C	0.0		A	1.400	0.000	No

Intersection		Existing Conditions						Existing Plus 2020 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
17	Valley Blvd/ Temple Ave	-	0.751	C		0.763	C		0.915	E		0.814	D	0.164	0.051	**Yes**
18	SR-57 SB Ramps/ Temple Ave*	22.9		C	24.5		C	32.1		C	29.9		C	9.2	5.4	No
19	SR-57 NB Ramps/ Temple Ave*	13.6		B	8.8		A	16.1		B	9.8		A	2.5	1.0	No

* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.
Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

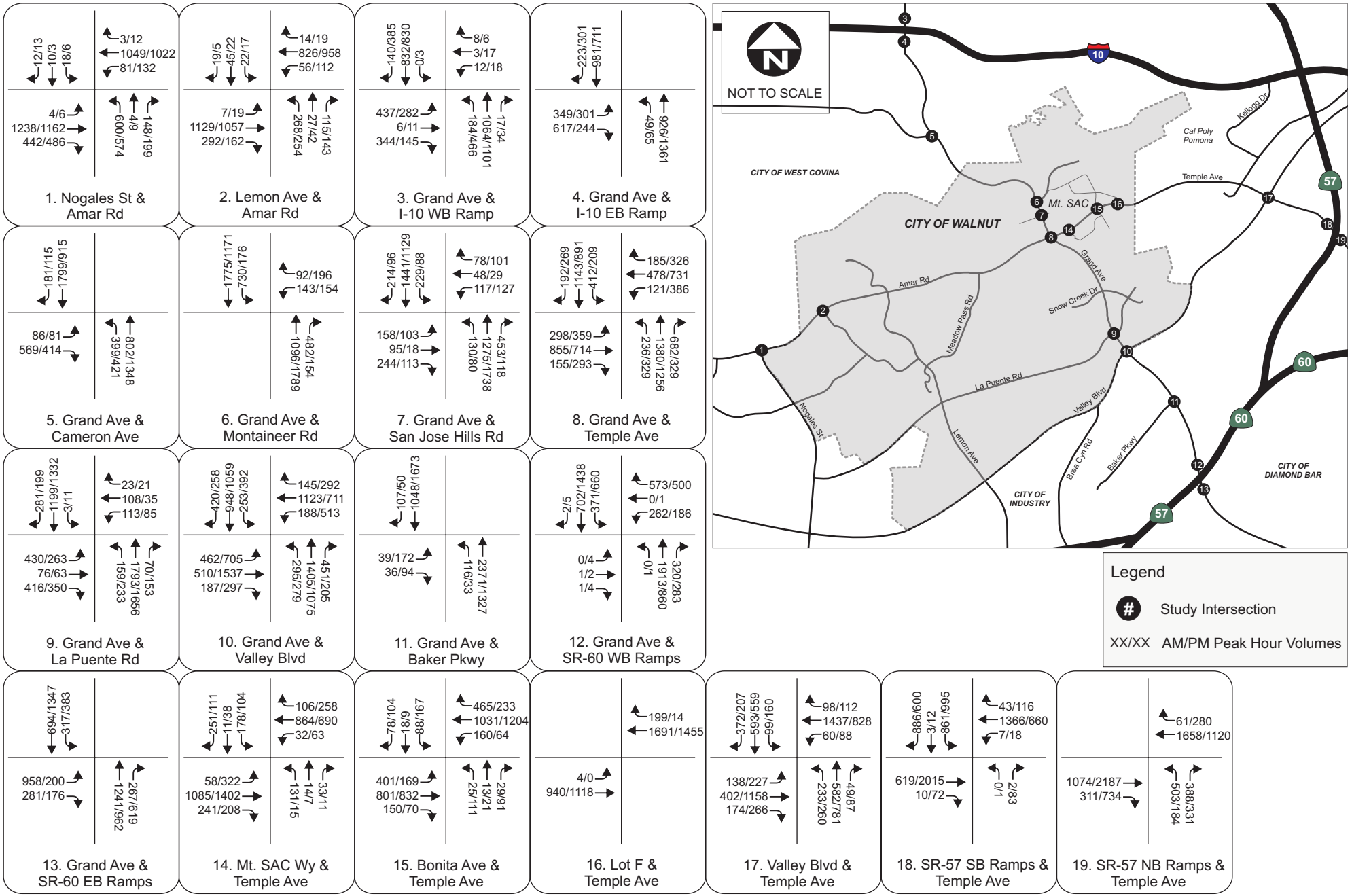

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FIGURE 13
Existing Plus 2020 Project Plus Cumulative
Peak Hour Intersection Volumes

As shown in **Table 14**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the proposed 2020 project traffic plus cumulative conditions:

- Grand Avenue/Cameron Avenue (a.m. peak hour);
- Grand Avenue/Mountaineer Avenue (a.m. and p.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. and p.m. peak hour);
- Grand Avenue/Temple Avenue (a.m. and p.m. peak hour);
- Grand Avenue/La Puente Road (a.m. and p.m. peak hour);
- Grand Avenue/Valley Boulevard (a.m. and p.m. peak hour);
- Grand Avenue/Baker Parkway (a.m. peak hour);
- Mt. SAC Way/Temple Avenue (a.m. and p.m. peak hour); and
- Valley Boulevard/Temple Avenue (a.m. and p.m. peak hour).

10.2 Existing Plus 2020 Project Plus Cumulative Mitigation Measures

In order to reduce significant traffic impacts to a level considered less than significant in existing plus 2020 project plus cumulative conditions, a list of mitigation measures have been developed. The following mitigation measures would be required to reduce the level of impact:

- **Grand Avenue/Cameron Avenue** – Add a second eastbound right-turn lane.
- **Grand Avenue/Mountaineer Road** – A third northbound through lane is required to mitigate the project impact at this intersection. However, sufficient ROW is not available within the current curb width. As a result, improvements needed to mitigate this intersection are not considered feasible. A statement of overriding considerations is required.
- **Grand Avenue/San Jose Hills Road** – A second eastbound right-turn lane is required to mitigate the project impact at this intersection. However, sufficient ROW is not available due to adjacent land uses at the southwest and northwest corners of the intersection. As a result, improvements needed to mitigate this intersection are not considered feasible. A statement of overriding considerations is required.
- **Grand Avenue/Temple Avenue** – Convert the existing eastbound right-turn lane to a through/right-turn lane.
- **Grand Avenue/La Puente Road** – Modify the traffic signal to include an eastbound right-turn overlap phase.
- **Grand Avenue/Valley Boulevard** – This intersection is considered to be fully built out since it currently consists of dual left-turn lanes at all approaches and dedicated free right-turn lanes at three approaches. In addition, no improvements at this intersection are considered feasible due to ROW constraints. A statement of overriding considerations is required.
- **Grand Avenue/Baker Parkway** – Restripe the northbound approach to include a third through lane.
- **Mt. SAC Way/Temple Avenue** – Restripe the eastbound approach to include a dedicated right-turn lane.
- **Valley Boulevard/Temple Avenue** – Improvements needed to mitigate this intersection are not considered feasible due to the ROW constraints near the adjacent railroad. A statement of overriding considerations is required.

At the locations where mitigation measures are deemed feasible, if it is determined by the lead agency that the necessary right-of-way is not available and the proposed lane additions cannot be developed within the available right-of-way, then the impacts may not be mitigated. **Table 15** summarizes the LOS results at the impacted intersections with implementation of the proposed mitigation measures that were determined to be feasible. It should be noted that project conditions with cumulative growth are compared to existing conditions, for significant impact determination, for the purposes of California Environmental Quality Act (CEQA) clearance.

TABLE 15: MITIGATED EXISTING PLUS 2020 PROJECT PLUS CUMULATIVE INTERSECTION PEAK HOUR LEVEL OF SERVICE

Intersection		Existing Conditions						Mitigated Existing Plus 2020 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact with Mitigation?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		0.947	F		0.618	B	0.137	0.041	No
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.893	E		0.804	C	0.008	0.040	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		0.993	F		0.850	E	0.072	0.100	No
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		0.856	D		0.565	A	0.039	0.022	**Yes**
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.696	B		0.686	B	0.028	0.014	No

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

As shown in **Table 15**, at locations where improvements were considered feasible, project impacts are reduced to less than significant at three intersections.

11.0 EXISTING PLUS 2025 CUMULATIVE CONDITIONS

For consistency with the County General Plan, the project's level of impact in year 2025 is assessed assuming cumulative traffic growth. Similar to existing plus 2020 cumulative conditions, existing plus 2025 cumulative traffic volumes were developed by considering traffic increases due to specific planned or approved development projects in the study area, without consideration of the proposed project. It should be noted that this scenario was used only to develop traffic volumes, not for LOS analysis, as traffic impacts are measured against existing LOS operations. **Figure 14** shows the existing plus 2025 cumulative peak hour volumes at the study intersections.

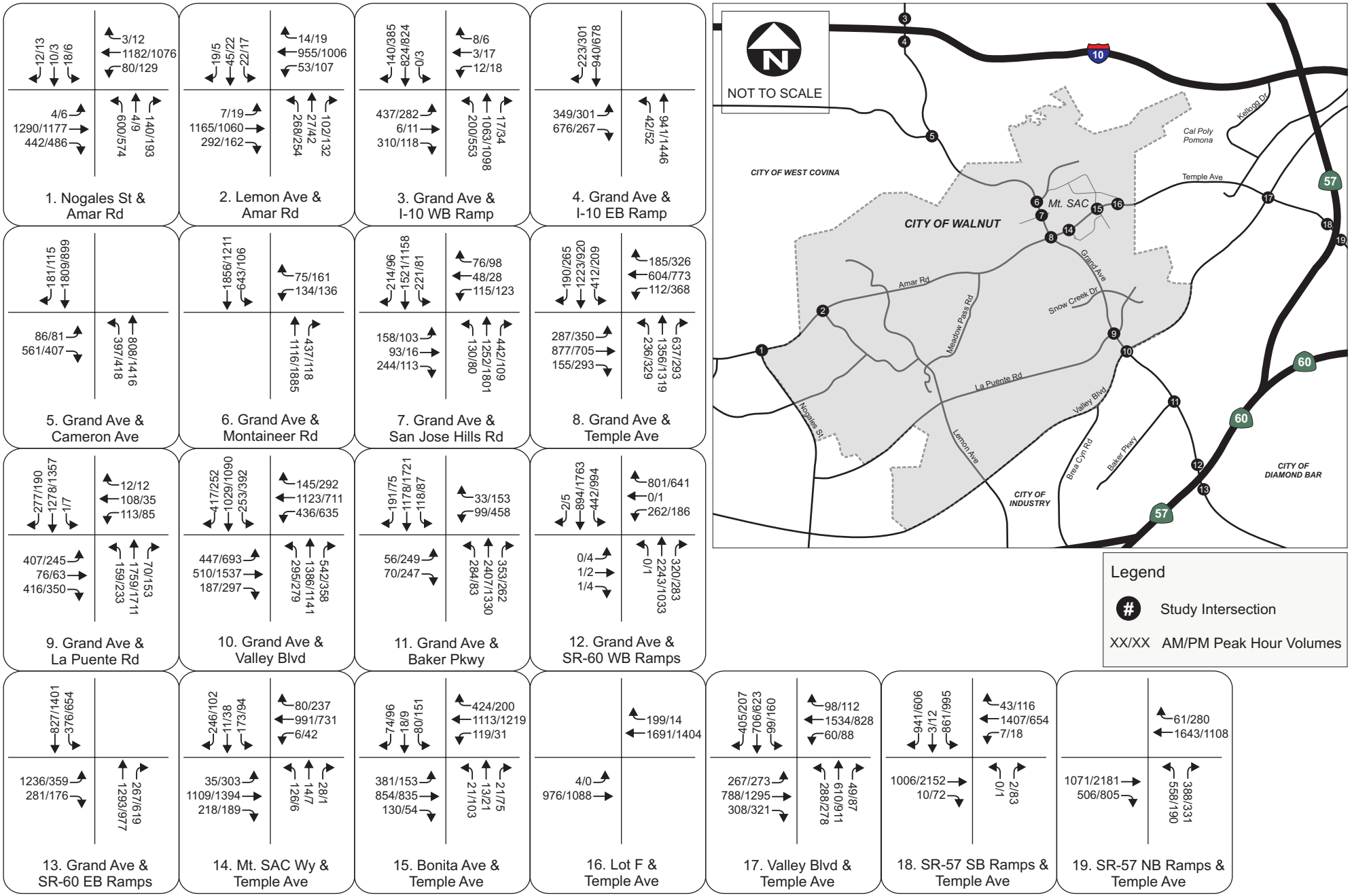

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FIGURE 14
Existing Plus 2025 Cumulative Trips
Peak Hour Intersection Volumes

12.0 EXISTING PLUS 2025 PROJECT PLUS CUMULATIVE CONDITIONS

Existing plus 2025 project plus cumulative volumes were developed by adding the trips generated by proposed 2025 project as described in Section 5, to existing plus 2025 cumulative (without project) volumes, as described in Section 11. **Figure 15** shows the existing plus 2025 project plus cumulative peak hour volumes at the study intersections.

12.1 EXISTING PLUS 2025 PROJECT PLUS CUMULATIVE INTERSECTION LEVELS OF SERVICE

A level of service analysis was conducted to evaluate existing plus 2025 project plus cumulative intersection operations during the a.m. and p.m. peak hours. **Table 16** summarizes the existing plus 2025 project plus cumulative levels of service at the study intersections. Level of service calculation worksheets are included in **Appendix B**.

TABLE 16: EXISTING PLUS 2025 PROJECT PLUS CUMULATIVE INTERSECTION PEAK HOUR LEVEL OF SERVICE

Intersection		Existing Conditions						Existing Plus 2025 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
1	Nogales St/ Amar Rd	-	0.760	C		0.725	C		0.813	D		0.755	C	0.053	0.030	**Yes**
2	Lemon Ave/ Amar Rd	-	0.706	C		0.636	B		0.766	C		0.677	B	0.060	0.041	**Yes**
3	Grand Ave/ I-10 WB Ramp*	23.4		C	24.8		C	24.6		C	30.2		C	1.2	5.4	No
4	Grand Ave/ I-10 EB Ramp*	26.3		C	16.7		B	41.3		D	21.5		C	15.0	4.8	No
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		1.199	F		0.739	C	0.115	0.080	**Yes**
6	Grand Ave/ Mountaineer Rd	-	0.666	B		0.721	C		0.748	C		0.834	D	0.082	0.113	**Yes**
7	Grand Ave/ San Jose Hills Rd	-	0.944	E		0.844	D		1.012	F		0.939	E	0.068	0.095	**Yes**
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		1.011	F		0.844	D	0.126	0.080	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.138	F		1.001	F	0.073	0.051	**Yes**
10	Grand Ave/ Valley Blvd	-	0.845	D		0.928	E		0.909	E		1.035	F	0.064	0.107	**Yes**
11	Grand Ave/ Baker Pkwy	-	0.817	D		0.543	A		1.035	F		0.908	E	0.218	0.365	**Yes**
12	Grand Ave/ SR-60 WB Ramps*	22.8		C	22.8		C	54.9		D	40.4		D	32.1	17.6	No
13	Grand Ave/ SR-60 EB Ramps*	31.9		C	21.4		C	60.3		E	40.5		D	28.4	19.1	**Yes**
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.832	D		0.798	C	0.108	0.098	**Yes**
15	Bonita Ave/ Temple Ave	-	0.580	A		0.601	B		0.701	C		0.706	C	0.121	0.105	**Yes**
16	Lot F/ Temple Ave	15.3		C	0.0		A	20.2		C	0.0		A	4.9	0.0	No

Intersection		Existing Conditions						Existing Plus 2025 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
17	Valley Blvd/ Temple Ave	-	0.751	C		0.763	C		1.168	F		0.922	E	0.417	0.159	**Yes**
18	SR-57 SB Ramps/ Temple Ave*	22.9		C	24.5		C	43.7		D	38.3		D	20.8	13.8	No
19	SR-57 NB Ramps/ Temple Ave*	13.6		B	8.8		A	18.0		B	10.4		B	4.4	1.6	No

* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.
Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service.

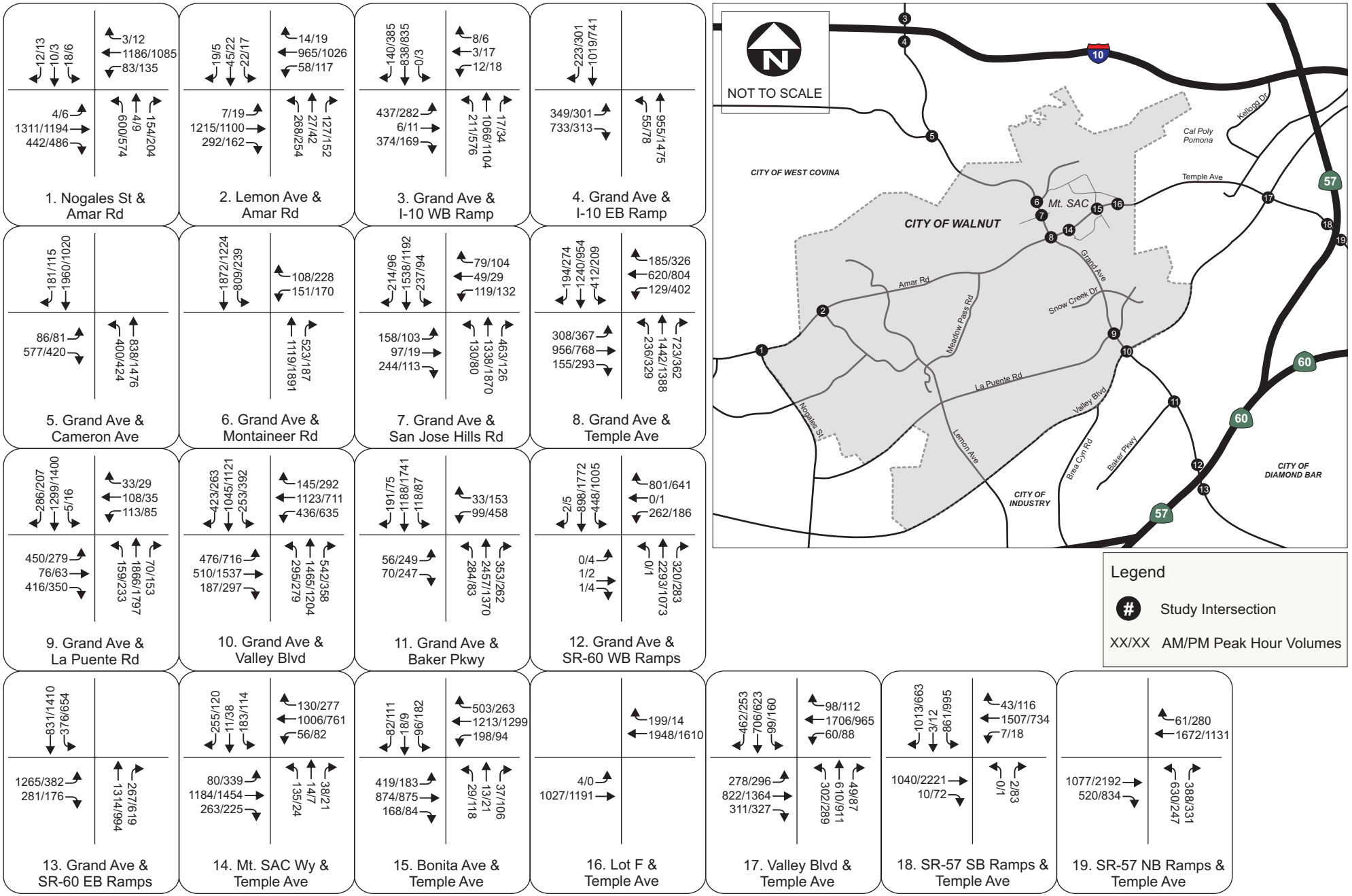

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FIGURE 15
Existing Plus 2025 Project Plus Cumulative
Peak Hour Intersection Volumes

As shown in **Table 16**, based on the thresholds of significance described in Section 3.1, the following intersections are forecast to be significantly impacted by the proposed 2025 project traffic plus cumulative conditions:

- Nogales Street/Amar Road (a.m. peak hour);
- Lemon Avenue/Amar Road (a.m. peak hour);
- Grand Avenue/Cameron Avenue (a.m. and p.m. peak hour);
- Grand Avenue/Mountaineer Road (a.m. and p.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. and p.m. peak hour);
- Grand Avenue/Temple Avenue (a.m. and p.m. peak hour);
- Grand Avenue/La Puente Road (a.m. and p.m. peak hour);
- Grand Avenue/Valley Boulevard (a.m. and p.m. peak hour);
- Grand Avenue/Baker Parkway (a.m. and p.m. peak hour);
- Grand Avenue/SR-60 Eastbound Ramps (a.m. peak hour);
- Mt. SAC Way/Temple Avenue (a.m. and p.m. peak hour);
- Bonita Avenue/Temple Avenue (a.m. and p.m. peak hour); and
- Valley Boulevard/Temple Avenue (a.m. and p.m. peak hour).

12.2 Existing Plus 2025 Project Plus Cumulative Mitigation Measures

In order to reduce significant traffic impacts to a level considered less than significant in existing plus 2025 project plus cumulative conditions, a list of mitigation measures have been developed. The following additional mitigation measures would be required in 2025 to reduce the level of impact beyond those required in 2020:

- **Nogales Street/Amar Road** – Convert the existing eastbound right-turn lane to a through/right-turn lane. There is sufficient roadway width at the intersection departure in the eastbound direction to accommodate the third through lane.
- **Lemon Avenue/Amar Road** – Restripe the eastbound approach to include a dedicated right-turn lane.
- **Grand Avenue/SR-60 Eastbound Ramps** – Convert the existing northbound right-turn lane to a shared through/right-turn lane. There is sufficient roadway width at the intersection departure in the northbound direction to accommodate the third through lane.
- **Bonita Avenue/Temple Avenue** – Modify the traffic signal to include a northbound right-turn overlap phase.

At the locations where mitigation measures are deemed feasible, if it is determined by the lead agency that the necessary right-of-way is not available and the proposed lane additions cannot be developed within the available right-of-way, then the impacts may not be mitigated. **Table 17** summarizes the LOS results at the impacted intersections with implementation of the proposed mitigation measures that were determined to be feasible. As mentioned earlier, project conditions with cumulative growth are compared to existing conditions, for significant impact determination, for the purposes of CEQA clearance.

TABLE 17: MITIGATED EXISTING PLUS 2025 PROJECT PLUS CUMULATIVE INTERSECTION PEAK HOUR LEVEL OF SERVICE

	Intersection	Existing Conditions						Mitigated Existing Plus 2025 Project Plus Cumulative Conditions						Change in AM V/C or Delay	Change in PM V/C or Delay	Significant Impact with Mitigation?
		AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour					
		Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS	Delay (s)	V/C or ICU	LOS			
1	Nogales St/ Amar Rd	-	0.760	C		0.725	C		0.765	C		0.731	C	0.005	0.006	No
2	Lemon Ave/ Amar Rd	-	0.706	C		0.636	B		0.668	B		0.626	B	0.038	0.010	No
5	Grand Ave/ Cameron Ave	-	1.084	F		0.659	B		1.002	F		0.654	B	0.082	0.005	No
8	Grand Ave/ Temple Ave	-	0.885	D		0.764	C		0.961	E		0.845	D	0.076	0.081	**Yes**
9	Grand Ave/ La Puente Rd	-	1.065	F		0.950	E		1.028	F		0.880	D	0.037	0.070	No
11	Grand Ave/ Baker Pkwy	-	0.828	D		0.543	A		0.842	D		0.813	D	0.025	0.270	**Yes**
13	Grand Ave/ SR-60 EB Ramps*	31.9		C	21.4		C	49.5		D	38.6		D	17.6	17.2	No
14	Mt. SAC Wy/ Temple Ave	-	0.724	C		0.700	B		0.747	C		0.727	C	0.023	0.027	No
15	Bonita Ave/ Temple Ave	-	0.580	A		0.601	B		0.685	B		0.660	B	0.105	0.059	No

* Caltrans intersection, utilizing HCM delay-based methodology to evaluate intersection operations.

Notes:

V/C = Volume to Capacity Ratio, LOS = Level of Service.

As shown in **Table 17**, at locations where improvements were considered feasible, project impacts are reduced to less than significant at seven intersections.

12.3 Fair Share Contribution

It is anticipated that the proposed project would pay a fair share towards the cost of the mitigation measures described for the cumulative scenarios. The project fair share is equal to the total project trips at an impacted intersection divided by the total growth at an intersection, which includes both FMPU project trips and cumulative project trips. **Table 18** summarizes the calculation of the proposed project's fair share at each of the impacted intersections for 2020 and 2025 project conditions during the a.m. and p.m. peak hours. Detailed fair-share calculations are provided in **Appendix D**.

Table 18: Project Fair Share Contribution

Intersection		Fair Share Contribution (%)			
		Existing Plus 2020 Project Plus Cumulative		Existing Plus 2025 Project Plus Cumulative	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1	Nogales St/Amar Rd	N/I	N/I	12%	N/I
2	Lemon Ave/Amar Rd	N/I	N/I	24%	N/I
5	Grand Ave/Cameron Ave	48%	N/I	47%	43%
6	Grand Ave/Mountaineer Rd	60%	59%	59%	55%
7	Grand Ave/San Jose Hills Rd	41%	40%	40%	37%
8	Grand Ave/Temple Ave	45%	43%	39%	42%
9	Grand Ave/La Puente Rd	47%	46%	47%	43%
10	Grand Ave/Valley Blvd	20%	19%	15%	15%
11	Grand Ave/Baker Pkwy	19%	N/I	5%	4%
12	Grand Ave/SR-60 WB Ramps	N/I	N/I	6%	N/I
14	Mt. SAC Wy/Temple Ave	64%	62%	52%	64%
15	Bonita Ave/Temple Ave	N/I	N/I	58%	69%
17	Valley Blvd/Temple Ave	27%	27%	16%	22%

N/I = Not impacted during this time period

13.0 CONGESTION MANAGEMENT PROGRAM ANALYSIS (CMP)

The Congestion Management Program (CMP) was created statewide as a result of Proposition 111 and has been implemented locally by the Los Angeles County Metropolitan Transportation Authority (Metro). The CMP for Los Angeles County requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways plus all freeways comprise the CMP system. A total of 164 intersections are identified for monitoring on the system in Los Angeles County. This section describes the analysis of project-related impacts on the CMP system. The analysis has been conducted according to the guidelines set forth in the 2004 Congestion Management Program for Los Angeles County.

According to the CMP Traffic Impact Analysis (TIA) Guidelines developed by Metro, a CMP traffic impact analysis is required given the following conditions:

- CMP arterial monitoring intersections, including freeway on- or off-ramps, where the proposed project would add 50 or more trips during either the a.m. or p.m. weekday peak hours.
- CMP freeway monitoring locations where the proposed project would add 150 or more trips, in either direction, during either the a.m. or p.m. weekday peak hours.

The nearest freeway segments are the I-10, SR-60, and SR-57. Based on the project trip generation estimates, the proposed project would add less than 150 new peak hour trips in either direction at the three freeway segments. Therefore, no CMP mainline freeway segment analysis was conducted in this report.

14.0 CONCLUSIONS

Mt. SAC has proposed a 2015 Facilities Master Plan Update, for which the major change from the 2012 FMP is the re-design of the athletic facilities south of Temple Avenue and east of Bonita Avenue. The existing stadium will be demolished and a new stadium built on the site. Other changes for the 2015 FMPU include the relocation of the Public Transportation Center to Lot D3, and expanded Wildlife Sanctuary and Open Space area, and a pedestrian bridge across Temple Avenue connecting the Physical Education Complex to Lot F. The net increase in square footage at 2015 FMPU buildout is approximately 500,000 gross square feet.

Traffic operations were assessed for existing conditions, 2020 conditions, and 2025 conditions. Under existing conditions, the following four intersections are operating at LOS E or worse:

- Grand Avenue/Cameron Avenue (a.m. peak hour);
- Grand Avenue/San Jose Hills Road (a.m. peak hour);
- Grand Avenue/La Puente Road (a.m. and p.m. peak hour); and
- Grand Avenue/Valley Boulevard (p.m. peak hour).

The buildout of the 2015 FMPU project in 2020 is forecast to generate 449 new a.m. peak hour trips, 449 new p.m. peak hour trips, and 4,606 new daily trips when compared to existing conditions. By 2025 the project is forecast to generate 858 new a.m. peak hour trips, 858 new p.m. peak hour trips, and 8,798 new daily trips when compared to existing conditions.

The 2015 FMPU trips are forecast to account for approximately 22% of the overall p.m. peak hour traffic growth in the study in year 2020, when considering other cumulative project developments. In year 2025, the FMPU trips are forecast to account for approximately 18% of the overall p.m. peak hour traffic growth in the study area.

In order to reduce significant traffic impacts to a level considered less than significant, a list of feasible mitigation measures were developed. At locations where mitigation measures were not considered feasible, a statement of overriding considerations is required. **Table 19** summarizes the overall number of impacted study intersections per scenario.

TABLE 19: SUMMARY OF SIGNIFICANT IMPACTS PER SCENARIO

Scenario		Number of Locations with Significant Impacts	Less than Significant with Mitigation
1	Existing Plus 2020 Project	6	No
2	Existing Plus 2025 Project	9	No
3	Existing Plus 2020 Project Plus Cumulative	9	No
4	Existing Plus 2025 Project Plus Cumulative	13	No