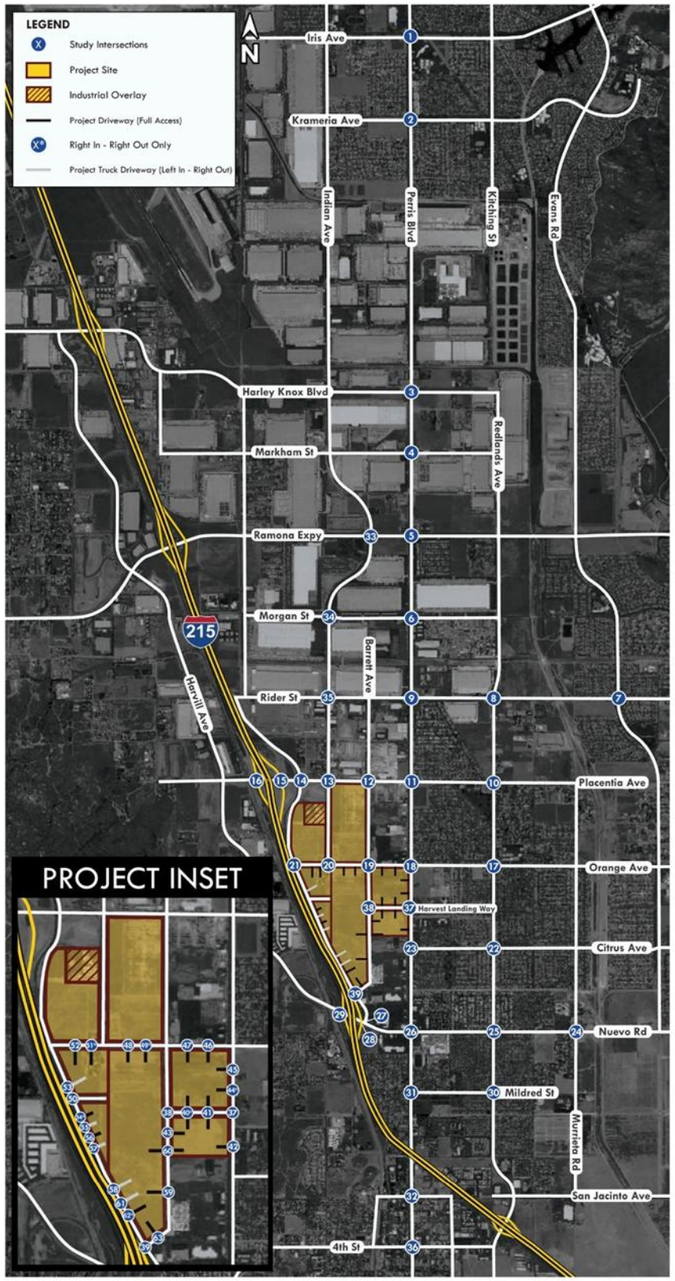
Figure 5.11c: General Plan 2045 With Project PM Peak Hour PCE Traffic Volumes (Continued)



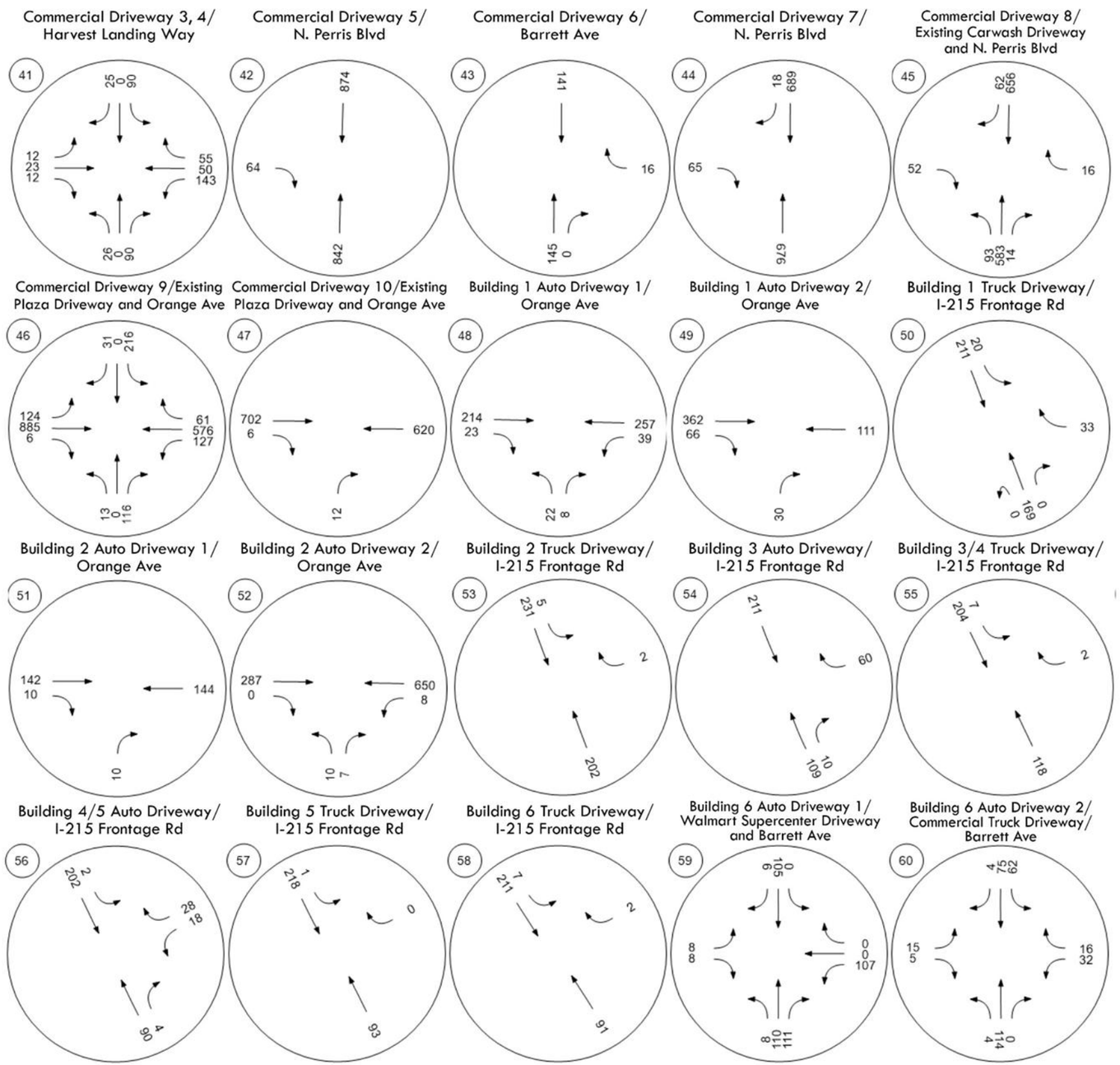
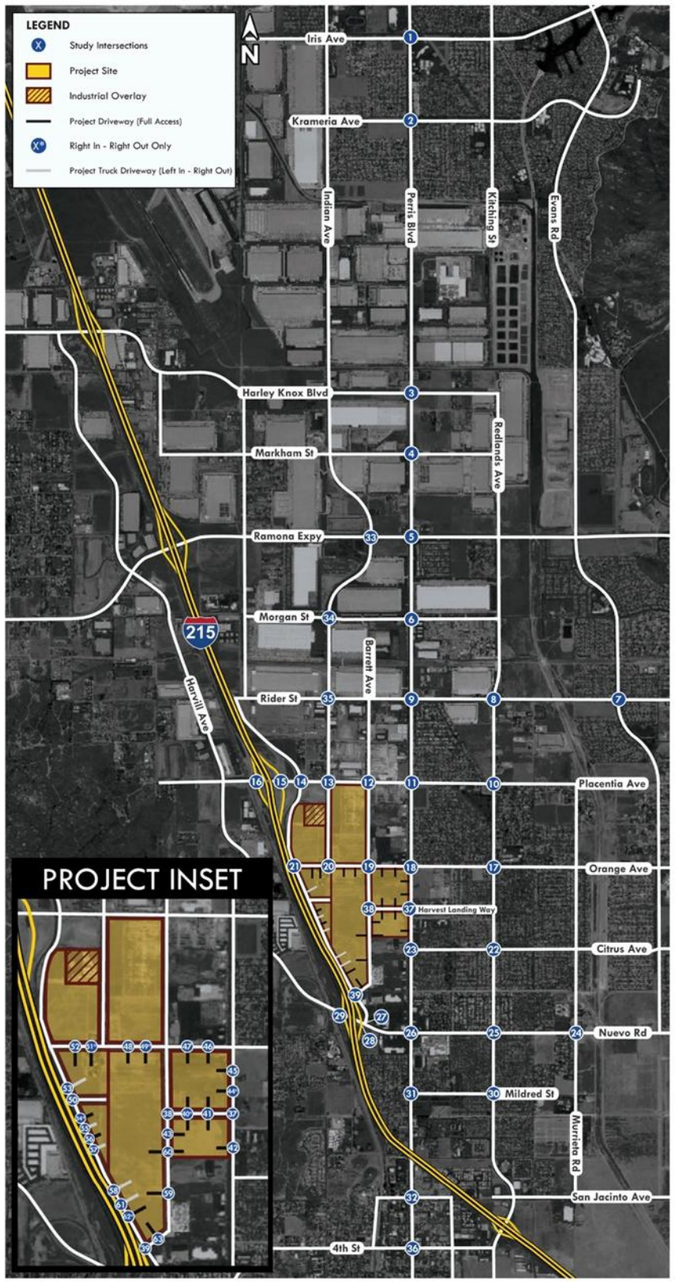
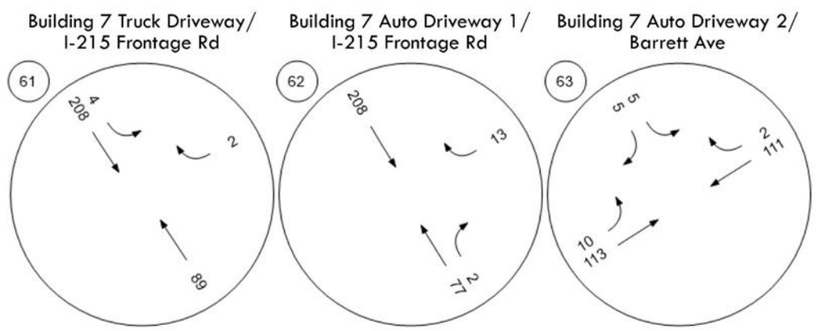


Figure 5.11d: General Plan 2045 With Project PM Peak Hour PCE Traffic Volumes (Continued)





6 PROJECT IMPROVEMENTS

6.1 Opening Year I 2026 With Project Improvements

6.1.1 Recommendation for LOS Improvement

As previously shown in Section 5.1, the addition of the Project trips to the Opening Year I 2026 Without Project volumes would result in an unsatisfactory LOS at 4 of the 63 study intersections.

The following improvements would improve the LOS to a satisfactory level or better than baseline in the Opening Year I 2026 With Project condition for 2 of the 4 intersections with an unsatisfactory LOS under Opening Year I 2026 With Project conditions, as shown in Table 6.1 and figure 6.1:

- #18. N Perris Blvd/Orange Ave
    - Add right-turn overlap to EBR movement.
        - U-turns on all approaches are already prohibited at the intersection.
- #26. N Perris Blvd/ W Nuevo Rd
    - Add right-turn overlap to NBR movement.
        - EB & WB U-turns are already prohibited at the intersection

Per the City of Moreno Valley Guidelines, any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay. For Intersection #1 Perris Blvd/Iris Ave, the Project increases the AM Peak delay by 1.9 seconds and the PM Peak delay by 2.2 seconds. Therefore, no improvements are recommended for Intersection #1 Perris Blvd/Iris Ave.

For Intersection #27 I-215 Frontage Rd/W Nuevo Rd, the intersection passes signal warrant. However, the intersection is approximately 200 feet from the I-215 NB Ramps/W Nuevo Road intersection to the west and around 330 feet from the existing Perris Plaza/W Nuevo Road intersection to the east. A queuing study between these intersections is conducted using SimTraffic to evaluate the feasibility of a traffic signal at this location. Based on the results from the study, a traffic signal is not feasible at this location. No feasible improvements would result in the intersection operating with satisfactory LOS. Future improvements to the Nuevo Road/I-215 interchange may help improve at this intersection.

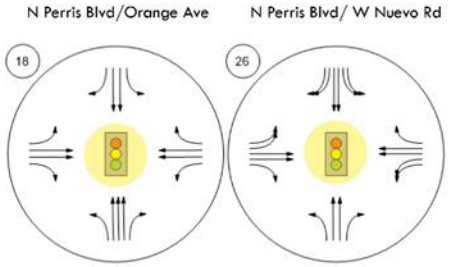
Traffic signal warrant sheets are provided in *Appendix D*. SimTraffic outputs are provided in *Appendix G*.

Table 6.1: Opening Year I 2026 With Project Plus Improvements Peak Hour LOS

	Intersection	Jurisdiction	Control Type	Opening Year I 2026 Conditions				Opening Year I 2026 Plus Project Conditions				Difference		LOS Standard	Satisfactory?	Improvement	Opening Year I 2026 Plus Project Conditions with Improvements				Difference	
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak				AM Peak		PM Peak		AM Peak	PM Peak
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	Delay				Delay	LOS	Delay	LOS	Delay	Delay
1.	Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	63.1	E	51.3	D	65.0	E	53.5	D	1.9	2.2	D	No	No improvements are recommended.[1]	65.0	E	53.5	D	1.9	2.2
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	24.2	C	32.2	C	46.9	D	57.7	E	22.7	25.5	D	No	Add right-turn overlap to EBR movement. U-turns on all approaches are already prohibited at the intersection.	46.2	D	52.5	D	22.0	20.3
26.	N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	43.4	D	40.9	D	70.6	E	66.9	E	27.2	26	D	No	Add right-turn overlap to NBR movement. EB & WB U-turns are already prohibited at the intersection.	54.9	D	49.7	D	11.5	8.8
27.	I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	21.1	C	30.3	D	27.5	D	62.1	F	6.4	31.8	D	No	There are no feasible improvements for intersection #27.	27.5	D	62.1	F	6.4	31.8

Notes: Delay Reported in Seconds per Vehicle
LOS = Level of Service
Unsatisfactory Level of Service

Figure 6.1: Opening Year I 2026 With Project Plus Improvements Lane Configuration and Traffic Control



6.1.2 Recommendations for Queueing Improvements

As previously discussed in Section 5.1.1, the addition of Project trips to the Opening Year I 2026 Without Project volumes would result in queuing deficiencies at intersection #29. Although a deficiency was noted at intersection #28, this deficiency existed in the Opening Year 2026 Without Project. The Project would either not contribute to this deficiency or would add less than one car length (25 feet); therefore, the project is not required to provide improvement for this intersection.

The following improvement would result in satisfactory queueing as shown in Table 6.2 for the Opening Year I 2026 With Project condition:

- #29. I-215 SB Ramps/W Nuevo Rd
    - Change WB and EB Protected Phasing to Split Phasing.

Table 6.2: Opening Year I 2026 With Project Plus Improvements Queueing Deficiency

	Opening Year I 2026 Conditions		Opening Year I 2026 Plus Project Conditions		Difference		Recommended Improvements	Opening Year I 2026 Plus Project Conditions with Improvement		Difference		Delay	LOS	LOS Standard
	Westbound		Westbound		Westbound			Westbound		Westbound				
	LT	RT	LT	RT	LT	RT		LT	RT	LT	RT			
29. I-215 SB Ramps/W Nuevo Rd														
Storage Length Per Lane	315	-	315	-	315	-	Change WB and EB Protected Phasing to Split Phasing.	315	-	315	-			E
AM Queue Length Per Lane	155	-	195	-	40	-		220	-	65	-	27.4	C	
PM Queue Length Per Lane	255	-	400	-	145	-		295	-	40	-	33.1	C	

Notes:
Queueing Impacts
LT = Left-turn Lane, RT = Right-turn Lane
Queue length reported in feet for the AM(PM) peak periods and are rounded up to the nearest increment of 5 feet.

6.1.3 Recommendations for Segment Improvements

As previously discussed in Section 5.1.2, the following seven (7) roadway segments would operate at an unsatisfactory LOS in the Opening Year I 2026 With Project condition.

- #3. Perris Blvd between Orange Ave and Citrus Ave
- #6. Perris Blvd between Rider St and Placentia Ave
- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps
- #11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps
- #12. Perris Blvd between Citrus Ave and Nuevo Rd
- #13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave

Based on City of Perris staff's recommendation, peak hour directional roadway segment analysis is conducted for roadway segments that have an unsatisfactory daily LOS. If the boundary intersections are forecast to operate at an acceptable LOS, a peak hour directional roadway segment analysis can be completed to verify that the peak hour roadway volumes are adequate.

- As previously discussed in Section 6.1.1, all boundary intersections for segments #3, #6, #7, #11, #12, #13 and #14 would operate at a satisfactory LOS with recommended improvements.

For this peak hour directional analysis, peak hour roadway capacity is set at 10% of the daily roadway capacity. As shown in Table 6.3a through 6.3d, all roadway segments would operate at satisfactory LOS during the AM and PM peak hours in the Opening Year I 2026 With Project condition.

Table 6.3a: Opening Year I 2026 With Project Peak hour Directional Roadway Segment Analysis (NB/EB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year I 2026 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year I 2026 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	1,768	0.493	A	5	4,490	2,086	0.465	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	2,139	0.596	A	4	3,590	2,204	0.614	B	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,730	0.321	A	6	5,390	1,917	0.356	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,300	0.362	A	4	3,590	1,325	0.369	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,759	0.326	A	6	5,390	2,046	0.380	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,198	0.334	A	4	3,590	1,467	0.409	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,227	0.620	B	4	3,590	2,570	0.716	C	D	No

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.3b: Opening Year I 2026 With Project Peak hour Directional Roadway Segment Analysis (SB/WB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year I 2026 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year I 2026 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	1,483	0.413	A	5	4,490	1,718	0.383	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	1,661	0.463	A	4	3,590	1,756	0.489	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,660	0.308	A	6	5,390	1,831	0.340	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,465	0.408	A	4	3,590	1,614	0.449	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,689	0.313	A	6	5,390	1,903	0.353	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,689	0.470	A	4	3,590	1,746	0.486	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	1,832	0.510	A	4	3,590	2,025	0.564	A	D	No

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.3c: Opening Year I 2026 With Project Peak hour Directional Roadway Segment Analysis (NB/EB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year I 2026 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year I 2026 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	1,981	0.552	A	5	4,490	2,364	0.526	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	1,898	0.529	A	4	3,590	2,000	0.557	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,049	0.380	A	6	5,390	2,279	0.423	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,576	0.439	A	4	3,590	1,607	0.448	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,023	0.375	A	6	5,390	2,372	0.440	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,907	0.531	A	4	3,590	2,134	0.595	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,702	0.753	C	4	3,590	2,978	0.830	D	D	No

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.3d: Opening Year I 2026 With Project Peak hour Directional Roadway Segment Analysis (SB/WB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year I 2026 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year I 2026 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	2,101	0.585	A	5	4,490	2,456	0.547	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	2,262	0.630	B	4	3,590	2,356	0.656	B	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,145	0.398	A	6	5,390	2,403	0.446	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,660	0.462	A	4	3,590	1,886	0.525	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,163	0.401	A	6	5,390	2,487	0.461	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,887	0.526	A	4	3,590	1,971	0.549	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,685	0.748	C	4	3,590	2,971	0.828	D	D	No

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

6.1.4 Project Fair Share

The Project's fair share percentage for each recommended improvement for LOS and queueing is identified in Table 6.4 below. The percentage of Project fair share at affected intersections was calculated using the total trips generated by the Project divided by the total "new" traffic, which is the net increase in traffic volume under the Opening Year I 2026 as a result of all other proposed projects using the formula below:

- Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%

In addition to the fair share contributions, the Project would do the following to ensure that these improvements are implemented:

- The Project would explore funding options for the required Improvements and available funding opportunities, including existing funding programs and others that can be utilized to fund the improvements are identified in the TIA. Additional funding information can be found in Appendix H.

Table 6.4: Opening Year I 2026 Project Fair Share

Intersection	Opening Year I 2026 Improvements	Type of Project Impact	Opening Year I 2026 Fair Share Percentage[1]		Project Fair Share
		(Direct/Indirect)	AM	PM	
1. Perris Blvd/Iris Ave	No improvements are recommended.[2]	Indirect	N/A	**N/A**	**0.00%**
18. N Perris Blvd/Orange Ave	Add right-turn overlap to EBR movement. U-turns on all approaches are already prohibited at the intersection.	Direct	**Project will pay 100%**		
26. N Perris Blvd/ W Nuevo Rd	Add right-turn overlap to NBR movement. EB & WB U-turns are already prohibited at the intersection.	Direct	26.02%	**31.05%**	**31.05%**
27. I-215 Frontage Rd/W Nuevo Rd	There are no feasible improvements for Intersection #27.	Direct	**Project will pay 100%**		
29. I-215 SB Ramps/W Nuevo Rd	Change WB and EB Protected Phasing to Split Phasing.	Direct	17.65%	**20.25%**	**20.25%**

[1]Fair share contribution percentage for improvements where the project is not directly responsible is calculated by the formula:
Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%
[2]Per the City of Moreno Valley Guidelines, any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall identify improvements to offset the increase in delay.

6.2 Opening Year II 2030 With Project Improvements

6.2.1 Recommendation for LOS Improvement

As previously shown in Section 5.2, the addition of the Project trips to the Opening Year II 2030 Without Project volumes would result in an unsatisfactory LOS at 13 of the 63 study intersections.

The following improvements would improve the LOS to a satisfactory level in the Opening Year II 2030 With Project condition, as shown in Table 6.5 and Figure 6.2:

- #2. Perris Blvd/Krameria Ave
  - Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL.
    - The speed limit on the west leg (Krameria Ave) is 25 mph.
- #5. Perris Blvd/Ramona Expy
  - Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR
- #11. N Perris Blvd/Placentia Ave
  - Add right-turn overlap to SBR movement.
    - EB U-turn is already prohibited at the intersection.
- #13. Indian Ave/W Placentia Ave
  - Change NB and SB Protected Left-turn Phasing to Prot-Perm Left-turn Phasing.
    - The speed limit on the north leg and south leg (Indian Ave) is 35 mph.
- #14. I-215 Frontage Rd/W Placentia Ave
  - Change NB and SB approach to split phasing.
  - Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR,
  - Restripe WB approach from WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR,
  - Widen West leg of Placentia Ave to accommodate an additional receiving lane
  - Add right-turn overlap to EBR movement
    - NB & SB U-turn will be restricted at the intersection.
      - No existing AM and PM peak hour U-turn movements are observed at Intersection #14.
- #18. N Perris Blvd/Orange Ave
  - Add right-turn overlap to NBR, SBR, EBR and WBR movement.
    - U-turns on all approaches are already prohibited at the intersection.
- #21. I-215 Frontage Rd/Orange Ave
  - Restripe SBL/SBT/SBT to SBL/SBL/SBT.
    - As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.
- #24. Murrieta Rd/E Nuevo Rd
  - Add right-turn overlap to WBR movement.
    - NB & SB U-turn are already prohibited at the intersection.
- #26. N Perris Blvd/ W Nuevo Rd
  - Add right-turn overlap to NBR, EBR and WBR movement.
  - NB & SB U-turn would be restricted at the intersection.
    - The existing U-turn movements are added to the following intersection turning movements as a result of U-turns being restricted at Intersection #26:
      - SB U-turns
        - SBL at Intersection #26, EB U-turn at Intersection # 25, and WBR at Intersection #26
      - NB U-turns
        - NBL at Intersection #26 and WBL at the intersection of Perris Plaza/W Nuevo Road
  - EB & WB U-turns are already restricted at the intersection.

    - Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR
- #30. Redlands Ave/Midred St
    - This intersection passes signal warrant. Install Traffic Signal.
- #36. Perris Blvd/4th St
    - Restripe SBL/SBT/SBR to SBL/SBT/SBTR.

No feasible improvements would result in the following intersection operating with satisfactory LOS. However, the following improvement will improve the intersection to a lower delay and a better LOS as compared to the Opening Year II 2030 Without Project condition:

- #1. Perris Blvd/Iris Ave
    - Add right-turn overlap to NBR movement.
        - WB & EB U-turn are already prohibited at the intersection.

No improvements are recommend for Intersection #25 Redlands Ave/E Nuevo Rd, as the intersection operates with satisfactory LOS. However, the LOS at the intersection is being affected by the recommended improvement for Intersection #26 N Perris Blvd/W Nuevo Rd. SB U-turns from Intersection #26 are being redirected to Intersection #25 EBL movement due to the proposed U turn restriction below for Intersection #26.

For Intersection #27 I-215 Frontage Rd/W Nuevo Rd, the intersection passes signal warrant. However, the intersection is approximately 200 feet from the I-215 NB Ramps/W Nuevo Road intersection to the west and around 330 feet from the existing Perris Plaza/W Nuevo Road intersection to the east. A queuing study between these intersections is conducted using SimTraffic to evaluate the feasibility of a traffic signal at this location. Based on the results from the study, a traffic signal is not feasible at this location. No feasible improvements would result in the intersection operating with satisfactory LOS. Future improvements to the Nuevo Road/I-215 interchange may help improve at this intersection.

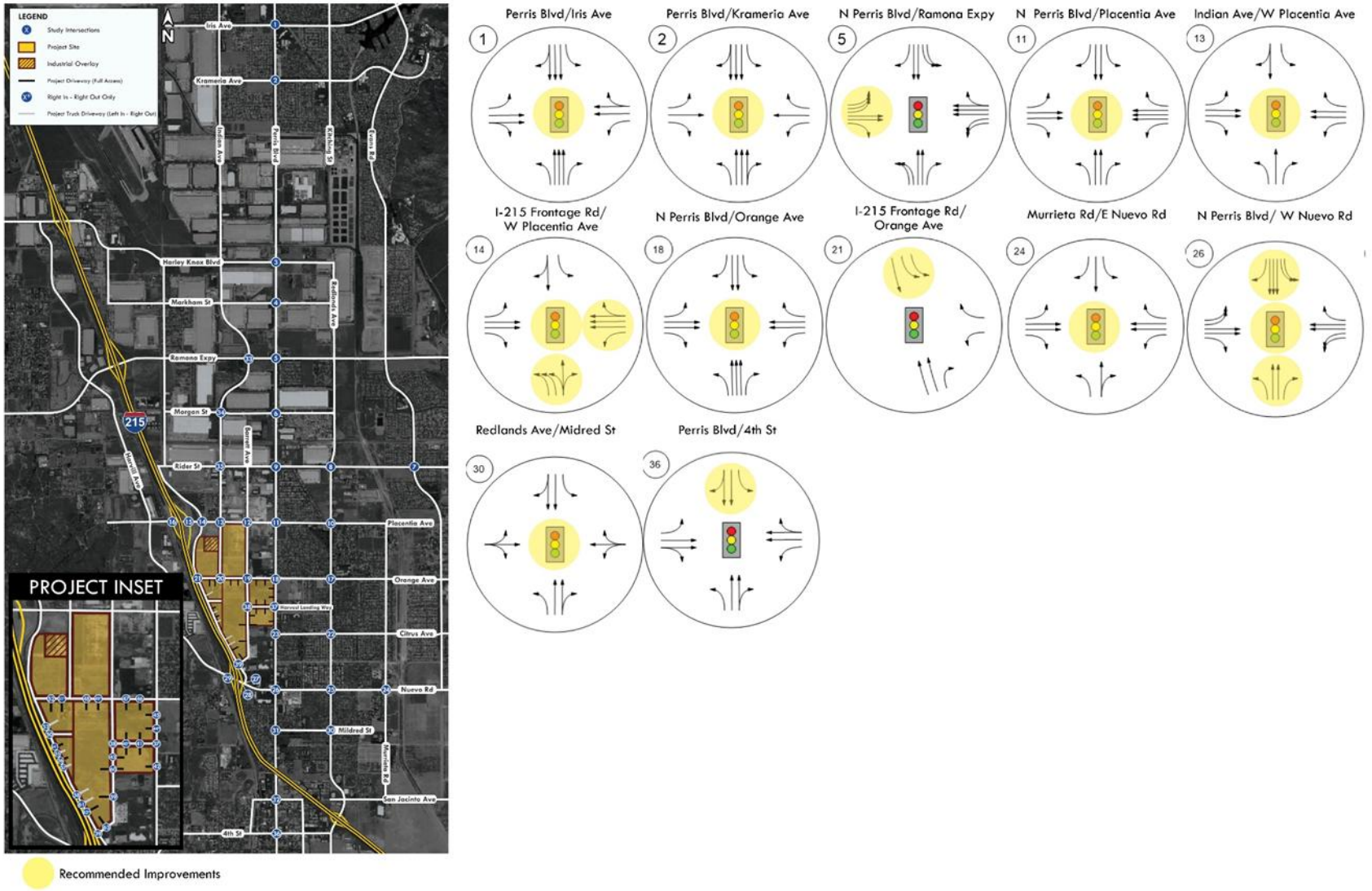
Traffic signal warrant sheets are provided in *Appendix D*. SimTraffic outputs are provided in *Appendix G*.

Table 6.5: Opening Year II 2030 With Project Plus Improvements Peak Hour LOS

	Intersection	Jurisdiction	Control Type	Opening Year II 2030 Conditions				Opening Year II 2030 Plus Project Conditions				Difference		LOS Standard	Satisfactory?	Improvements	Opening Year II 2030 Plus Project Conditions with Improvements				Difference	
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak				AM Peak		PM Peak		AM Peak	PM Peak
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	Delay				Delay	LOS	Delay	LOS	Delay	Delay
1.	Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	84.3	F	61.5	E	92.3	F	65.9	E	8.0	4.4	D	No	Add right-turn overlap to NBR movement. WB & EB U-turn are already prohibited at the intersection.	83.3	F	60.3	E	-1.0	-1.2
2.	Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	64.6	E	57.7	E	76.7	E	70.1	E	12.1	12.4	D	No	Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL. The speed limit on the west leg (Krameria Ave) is 25 mph.	49.5	D	44.0	D	-15.1	-13.7
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	92.4	F	59.3	E	104.3	F	73.7	E	11.9	14.4	E	No	Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR	79.8	E	77.4	E	-12.6	18.1
11.	N Perris Blvd/Placentia Ave	City of Perris	Signalized	41.5	D	34.2	C	52.7	D	59.3	E	11.2	25.1	D	No	Add right-turn overlap to SBR movement. EB U-turn is already prohibited at the intersection.	51.7	D	52.8	D	10.2	18.6
13.	Indian Ave/W Placentia Ave	City of Perris	Signalized	41.3	D	39	D	59.0	E	61.9	E	17.7	22.9	D	No	Change NB and SB Protected Left-turn Phasing to Prot-Perm Left-turn Phasing. The speed limit on the north leg and south leg (Indian Ave) is 35 mph. Change NB and SB approach to split phasing. Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR	47.5	D	44.8	D	6.2	5.8
14.	I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	29.4	C	21.1	C	76.2	E	245.9	F	46.8	224.8	D	No	Restripe WB approach from WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR, Widen West leg of Placentia Ave to accommodate an additional receiving lane Add right-turn overlap to EBR movement, NB & SB U-turn will be restricted at the intersection.	47.7	D	39.8	D	18.3	18.7
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	26.1	C	39.4	D	60.5	E	125.9	F	34.4	86.5	D	No	Add right-turn overlap to NBR, SBR, EBR and WBR movement. U-turns on all approaches are already prohibited at the intersection.	42.0	D	54.9	D	15.9	15.5
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	16.1	C	111.7	F	166.0	F	96.2	149.9	D	No	Restripe SBL/SBT/SBT to SBL/SBL/SBT. As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.	40.0	D	35.0	D	24.5	18.9
24.	Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	42.2	D	32.1	C	57.9	E	32.7	C	15.7	0.6	D	No	Add right-turn overlap to WBR movement. NB & SB U-turn are already prohibited at the intersection.	50.8	D	34.0	C	8.6	1.9
25.	Redlands Ave/E Nuevo Rd	City of Perris	Signalized	23.8	C	23.3	C	27.5	C	48.2	D	3.7	24.9	D	No	No improvements are proposed for intersection #25. SB U-turns from intersection #26 are being redirected to intersection #25 EBL movement due to the proposed U turn restriction below for intersection #26.	27.9	C	48.3	D	4.1	25.0
26.	N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	48.1	D	44.2	D	84.0	F	82.6	F	35.9	38.4	D	No	Add right-turn overlap to NBR, EBR and WBR movement. NB & SB U-turn would be restricted at the intersection. WB U-turns are already restricted at the intersection. Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.	54.6	D	54.0	D	6.5	9.84
27.	I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	24.5	C	39.3	F	40.5	F	169.4	F	16.0	130.1	D	No	There are no feasible improvements for intersection #27.	40.5	F	169.4	F	16.0	130.1
30.	Redlands Ave/Midred St	City of Perris	All-way stop	32.5	D	15.9	C	37.4	E	17.7	C	4.9	1.8	D	No	This intersection passes signal warrant. Install Traffic Signal.	11.9	B	11.5	B	-20.6	-4.4
36.	Perris Blvd/4th St	Caltrans/City of Perris	Signalized	72.1	E	63.8	E	93.2	F	91.4	F	21.1	27.6	E	No	Restripe SBL/SBT/SBR to SBL/SBT/SBTR.	75.3	E	74.7	E	3.2	10.9

Notes: Delay Reported in Seconds per Vehicle
LOS = Level of Service
Unsatisfactory Level of Service

Figure 6.2: Opening Year II 2030 With Project Plus Improvements Lane Configuration and Traffic Control



6.2.2 Recommendations for Queueing Improvements

As previously discussed in Section 5.2.1, the addition of project trips to the Opening Year II 2030 Without Project volumes would result in queuing deficiencies at intersections #15 and #29. Although a deficiency was noted at intersection #28, this deficiency existed in the Opening Year II 2030 Without Project. The project would either not contribute to this deficiency or would add less than one car length (25 feet); therefore, the project is not required to provide improvement for this intersection.

The following improvements would result in satisfactory queueing as shown in Table 6.6 for the Opening Year II 2030 With Project condition:

- #29. I-215 SB Ramps/W Nuevo Rd
    - Change WB and EB Protected Phasing to Split Phasing.

No feasible improvements would result in the following intersections operating with satisfactory queueing. However, the following improvements will improve the intersection to a lower queue length compared to the Opening Year II 2030 Without Project condition:

- #15. I-215 NB Ramps/Placentia Ave
    - Restripe WBT, WBT, WBR to WBT, WBTR, WBR.

Table 6.6: Opening Year II 2030 With Project Plus Improvements Queueing Deficiency

	Opening Year II 2030 Conditions				Opening Year II 2030 Plus Project Conditions				Difference				Recommended Improvements	Opening Year II 2030 Plus Project Conditions with Improvement				Difference				Delay	LOS	LOS Standard
	Southbound		Westbound		Southbound		Westbound		Southbound		Westbound			Southbound		Westbound		Southbound		Westbound				
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT		LT	RT	LT	RT	LT	RT	LT	RT			
15. I-215 NB Ramps/Placentia Ave																								
Storage Length Per Lane	-	-	-	390	-	-	-	390	-	-	-	390	Restripe WBT, WBT, WBR to WBT, WBTR, WBR.	-	-	-	390	-	-	-	390			E
AM Queue Length Per Lane	-	-	-	205	-	-	-	230	-	-	-	25		-	-	-	160	-	-	-	-45	13.9	B	
PM Queue Length Per Lane	-	-	-	595	-	-	-	1160	-	-	-	565		-	-	-	450	-	-	-	-145	15.3	B	
29. I-215 SB Ramps/W Nuevo Rd																								
Storage Length Per Lane	185**	185	315	-	185**	185	315	-	185**	185	315	-	Change WB and EB Protected Phasing to Split Phasing.	185**	185	315	-	185**	185	315	-			E
AM Queue Length Per Lane	215	100	165	-	365	120	205	-	150	20	40	-		275	120	240	-	60	20	75	-	30.4	C	
PM Queue Length Per Lane	390	95	310	-	960	120	380	-	570	25	70	-		435	75	315	-	45	-20	5	-	63.3	E	

Notes:

Queueing Impacts

LT = Left-turn Lane, RT = Right-turn Lane

Queue length reported in feet for the AM(PM) peak periods and are rounded up to the nearest increment of 5 feet.

**Even though the queue length exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

6.2.3 Recommendations for Segment Improvements

As previously discussed in Section 5.2.2, the following seven (7) roadway segments would operate at an unsatisfactory LOS in the Opening Year II 2030 With Project condition.

- #3. Perris Blvd between Orange Ave and Citrus Ave
- #6. Perris Blvd between Rider St and Placentia Ave
- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps
- #11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps
- #12. Perris Blvd between Citrus Ave and Nuevo Rd
- #13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave

As previously mentioned in Section 6.1.3, peak hour directional roadway segment analysis is conducted for roadway segments that have an unsatisfactory daily LOS. If the boundary intersections are forecast to operate at an acceptable LOS, a peak hour directional roadway segment analysis can be completed to verify that the peak hour roadway volumes are adequate.

- As previously discussed in Section 6.2.1, all boundary intersections for segments #3, #6, #7, #11, #12, #13 and #14 would operate at a satisfactory LOS with recommended improvements.

For this peak hour directional analysis, peak hour roadway capacity is set at 10% of the daily roadway capacity. As shown in Table 6.7a through 6.7d, all roadway segments would operate at satisfactory LOS during the AM and PM peak hours in the Opening Year II 2030 With Project condition besides the following Segment:

- #14. Placentia Ave between I-215 NB Ramps and Indian Ave
  - EB: LOS E during AM and PM peak hour
  - WB: LOS F during PM peak hour

The unsatisfactory LOS at Segment #14 is a result of the Phase II development of the Project. As noted in Section 4.3, future projects within Phase II must prepare a project level traffic impact analysis. That analysis must identify this impact and require widening Segment 14 of Placentia Avenue between I-215 northbound ramps and Indian Avenue to six lanes when project specifics are known.

Table 6.7a: Opening Year II 2030 With Project Peak hour Directional Roadway Segment Analysis (NB/EB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year II 2030 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year II 2030 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	1,868	0.520	A	5	4,490	2,236	0.498	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	2,258	0.629	B	4	3,590	2,352	0.655	B	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,879	0.349	A	6	5,390	2,066	0.383	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,397	0.389	A	4	3,590	1,422	0.396	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,857	0.344	A	6	5,390	2,174	0.403	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,259	0.351	A	4	3,590	2,014	0.561	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,375	0.662	B	4	3,590	3,578	0.997	E	D	Yes

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.7b: Opening Year II 2030 With Project Peak hour Directional Roadway Segment Analysis (SB/WB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year II 2030 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year II 2030 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	1,551	0.432	A	5	4,490	1,815	0.404	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	1,726	0.481	A	4	3,590	1,947	0.542	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,801	0.334	A	6	5,390	2,020	0.375	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,580	0.440	A	4	3,590	1,747	0.487	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,778	0.330	A	6	5,390	2,017	0.374	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,806	0.503	A	4	3,590	1,932	0.538	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	1,935	0.539	A	4	3,590	2,312	0.644	B	D	No

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.7c: Opening Year II 2030 With Project Peak hour Directional Roadway Segment Analysis (NB/EB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year II 2030 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year II 2030 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	2,103	0.586	A	5	4,490	2,500	0.557	A	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	2,003	0.558	A	4	3,590	2,227	0.620	B	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,204	0.409	A	6	5,390	2,434	0.452	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,684	0.469	A	4	3,590	1,715	0.478	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,148	0.399	A	6	5,390	2,505	0.465	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	2,014	0.561	A	4	3,590	2,374	0.661	B	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,843	0.792	C	4	3,590	3,353	0.934	E	D	Yes

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.7d: Opening Year II 2030 With Project Peak hour Directional Roadway Segment Analysis (SB/WB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	Opening Year II 2030 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	Opening Year II 2030 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	3,590	2,237	0.623	B	5	4,490	2,713	0.604	B	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	3,590	2,408	0.671	B	4	3,590	2,536	0.706	C	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,311	0.429	A	6	5,390	2,644	0.491	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,778	0.495	A	4	3,590	2,079	0.579	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,305	0.428	A	6	5,390	2,732	0.507	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	3,590	1,991	0.555	A	4	3,590	2,359	0.657	B	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	3,590	2,824	0.787	C	4	3,590	3,863	1.076	F	D	Yes

Notes:
1- Opening year ADT is calculated based on an ambient growth rate of 3% per year. All volumes are presented in PCE.
2 - Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

6.2.4 Project Fair Share

The Project's fair share percentage for each recommended improvement is identified in Table 6.8 below. The percentage of Project fair share at affected intersections was calculated using the total trips generated by the Project divided by the total "new" traffic, which is the net increase in traffic volume under the Opening Year II 2030 as a result of all other proposed projects using the formula below:

- Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%

In addition to the fair share contributions, the Project would do the following to ensure that these improvements are implemented:

- The Project would explore funding options for the required Improvements and available funding opportunities, including existing funding programs and others that can be utilized to fund the improvements are identified in the TIA. Additional funding information can be found in Appendix H.

Table 6.8: Opening Year II 2030 Project Fair Share

Intersection	Opening Year I 2026 Improvements	Opening Year II 2030 Improvements	Type of Project Impact	Opening Year I 2026 Fair Share Percentage[1]		Opening Year II 2030 Fair Share Percentage[1]		**Project Fair Share**
			(Direct/Indirect)	AM	PM	AM	PM	
1. Perris Blvd/Iris Ave	Improvements not required.	Add right-turn overlap to NBR movement. WB & EB U-turn are already prohibited at the intersection.	Indirect	N/A	N/A	2.98%	3.85%	**3.85%**
2. Perris Blvd/Krameria Ave	Improvements not required.	Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL. The speed limit on the west leg (Krameria Ave) is 25 mph.	Indirect	N/A	N/A	4.54%	5.90%	**5.90%**
5. N Perris Blvd/Ramona Expy	Improvements not required.	Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR	Indirect	N/A	N/A	8.34%	9.91%	**9.91%**
11. N Perris Blvd/Placentia Ave	Improvements not required.	Add right-turn overlap to SBR movement. EB U-turn is already prohibited at the intersection.	Direct	**Project will pay 100%**				
13. Indian Ave/W Placentia Ave	Improvements not required.	Change NB and SB Protected Left-turn Phasing to Prot-Perm Left-turn Phasing. The speed limit on the north leg and south leg (Indian Ave) is 35 mph.	Direct	**Project will pay 100%**				
14. I-215 Frontage Rd/W Placentia Ave	Improvements not required.	Change NB and SB approach to split phasing. Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR Restripe WB approach from WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR, Widen West leg of Placentia Ave to accommodate an additional receiving lane Add right-turn overlap to EBR movement, NB & SB U-turn will be restricted at the intersection.	Direct	**Project will pay 100%**				

15. I-215 NB Ramps/Placentia Ave	Improvements not required.	Restripe WBT, WBT, WBR to WBT, WBTR, WBR.	Indirect	**Project will pay 100%**				
18. N Perris Blvd/Orange Ave	Add right-turn overlap to EBR movement. U-turns on all approaches are already prohibited at the intersection.	Add right-turn overlap to NBR, SBR, EBR and WBR movement. U-turns on all approaches are already prohibited at the intersection.	Direct	**Project will pay 100%**				
21. I-215 Frontage Rd/Orange Ave	Improvements not required.	Restripe SBL/SBT/SBT to SBL/SBL/SBT. As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.	Direct	**Project will pay 100%**				
24. Murrieta Rd/E Nuevo Rd	Improvements not required.	Add right-turn overlap to WBR movement. NB & SB U-turn are already prohibited at the intersection.	Direct	N/A	N/A	17.58%	20.25%	**20.25%**
26. N Perris Blvd/ W Nuevo Rd	Add right-turn overlap to NBR movement. EB & WB U-turns are already prohibited at the intersection.	Add right-turn overlap to NBR, EBR and WBR movement. NB & SB U-turn would be restricted at the intersection. WB U-turns are already restricted at the intersection. Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.	Direct	26.02%	31.05%	24.90%	29.23%	**31.05%**
27. I-215 Frontage Rd/W Nuevo Rd	There are no feasible improvements for Intersection #27.	There are no feasible improvements for Intersection #27.	Indirect	**Project will pay 100%**				

29. I-215 SB Ramps/W Nuevo Rd	Change WB and EB Protected Phasing to Split Phasing.	Change WB and EB Protected Phasing to Split Phasing.	Direct	17.65%	20.25%	15.14%	20.89%	**20.89%**
30. Redlands Ave/Midred St	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Direct	N/A	N/A	13.51%	16.11%	**16.11%**
36. Perris Blvd/4th St	Improvements not required.	Restripe SBL/SBT/SBR to SBL/SBT/SBTR.	Direct	N/A	N/A	16.52%	18.86%	**18.86%**

Roadway Segment	Opening Year I 2026 Improvements	Opening Year II 2030 Improvements	Type of Project Impact	Opening Year II 2030 Fair Share Percentage[1]				Funding Source	**Project Fair Share**
			(Direct/Indirect)	EB AM	EB PM	WB AM	WB PM		
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Improvements not required.	Widen Segment 14 of Placentia Avenue between I 215 northbound ramps and Indian Avenue to six lanes	Direct	51.36%	23.38%	26.01%	38.38%	Measure A (RCTC) TUMF Arterials Program	**51.36%**

[1]Fair share contribution percentage for improvements where the project is not directly responsible is calculated by the formula:
Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%
•The Phase II development project would be required to widen Segment #14 Placentia Ave between I-215 NB Ramps and Indian Ave to six lanes, when project specific are known.

6.3 General Plan 2045 With Project Improvements

6.3.1 Recommendation for LOS Improvement

As previously shown in Section 5.3, the addition of the Project trips to the General Plan 2045 Without Project volumes would result in an unsatisfactory LOS at 21 of the 63 study intersections.

The following improvements would improve the LOS to a satisfactory level in the General Plan 2045 With Project condition, as shown in Table 6.9 and Figure 6.3:

- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
    - Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR.
- #14. I-215 Frontage Rd/W Placentia Ave (LOS F during PM peak hour)
    - Change NB and SB approach to split phasing
    - Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR
    - Restripe WB approach from WBL/WBT/WBT/WBT/WBR to WBL/WBT/WBT/WBT/WBTR
    - Widen West leg of Placentia Ave to accommodate an additional receiving lane.
    - Add right-turn overlap to EBR movement
        - NB & SB U-turn will be restricted at the intersection.
            - No existing AM and PM peak hour U-turn movements are observed at Intersection #14.
- #17. Redlands Ave/Orange Ave (LOS E during AM peak hour)
    - Widen NBL/NBT/NBTR to NBL/NBL/NBT/NBTR.
- #18. N Perris Blvd/Orange Ave (LOS F during PM peak hour)
    - Add right-turn overlap to NBR movement.
        - U-turns on all approaches are already prohibited at the intersection.
    - Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR.
    - Restripe WBL/WBT/WBT/WBR to WBL/WBL/WBT/WBTR.
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
    - Restripe SBL/SBT/SBT to SBL/SBL/SBT.
        - As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.
- #22. Redlands Ave/Citrus Ave (LOS F during AM and PM peak hour)
    - This intersection passes signal warrant. Install Traffic Signal.
- #23. N Perris Blvd/Citrus Ave (LOS E during PM peak hour)
    - Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR.
    - Widen NBL/NBT/NBT/NBTR to NBL/NBT/NBT/NBT/NBR
    - Change WB and EB Split Phase to Protected WBL and Permissive EBL.
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
    - Add right-turn overlap to WBR movement.
        - NB & SB U-turn are already prohibited at the intersection.
- #25. Redlands Ave/E Nuevo Rd (LOS E during AM peak hour and PM peak hour)
    - Restripe WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR.
    - Restripe EBL/EBT/EBT/EBR to EBL/EBT/EBT/EBTR.
- #26. N Perris Blvd/ W Nuevo Rd (LOS E during AM and PM peak hour)
    - Restripe EBL/EBL/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBTR.
    - Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
    - Restripe EBL/EBT/EBT/EBT to EBL/EBL/EBT/EBT.
- #29. I-215 SB Ramps/W Nuevo Rd (LOS F during PM peak hour)
    - Change WB and EB Protected Phasing to Split Phasing.
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
    - This intersection passes signal warrant. Install Traffic Signal.

Traffic signal warrant sheets are provided in *Appendix D*.

No feasible improvements would result in the following intersections operating with satisfactory LOS. However, the following improvements to the intersection will result in a lower delay and a better LOS as compared to the General Plan 2045 Without Project condition:

- #1.Perris Blvd/Iris Ave (LOS F during AM and PM peak hour)
    - Add right-turn overlap to NBR movement.
        - WB & EB U-turn are already prohibited at the intersection.
- #2.Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
    - Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL.
        - The speed limit on the west leg (Krameria Ave) is 25 mph..
- #3.N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
    - Restripe WBL/WBL/WBT/WBT/WBT/WBR to WBL/WBL/WBT/WBT/WBR/WBR.
        - The thru movement queueing can be accommodated with 2 thru lanes.
- #4.N Perris Blvd/W Markham St (LOS F during AM peak hour)
    - Change Protected WBL and EBL Phase to Prot-Perm.
        - The speed limit on Markham St is 35 mph.
    - Restripe NBL/NBT/NBT/NBR to NBL/NBT/NBT/NBTR
    - Restripe EBL/EBT/EBTR to EBL/EBT/EBR
- #10. Redlands Ave/Placentia Ave (LOS F during AM and PM peak hour)
    - This intersection passes signal warrant. Install Traffic Signal.
    - Restripe SBL, SBT, SBT, SBR to SBL, SBL, SBT, SBR.
- #11. N Perris Blvd/Placentia Ave (LOS F during PM peak hour)
    - Add right-turn overlap to SBR movement.
        - EB U-turn is already prohibited at the intersection.
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
    - Change Protected WBL and EBL Phase to Prot-Perm.
        - The speed limit on San Jacinto Ave is 35 mph.

For Intersection #27 I-215 Frontage Rd/W Nuevo Rd, the intersection passes signal warrant. However, the intersection is approximately 200 feet from the I-215 NB Ramps/W Nuevo Road intersection to the west and around 330 feet from the existing Perris Plaza/W Nuevo Road intersection to the east. A queuing study between these intersections is conducted using SimTraffic to evaluate the feasibility of a traffic signal at this location. Based on the results from the study, a traffic signal is not feasible at this location. No feasible improvements would result in the intersection operating with satisfactory LOS. Future improvements to the Nuevo Road/I-215 interchange may help improve at this intersection.

Traffic signal warrant sheets are provided in *Appendix D*. SimTraffic outputs are provided in *Appendix G*.

Table 6.9a: General Plan 2045 With Project Plus Improvements Peak Hour LOS

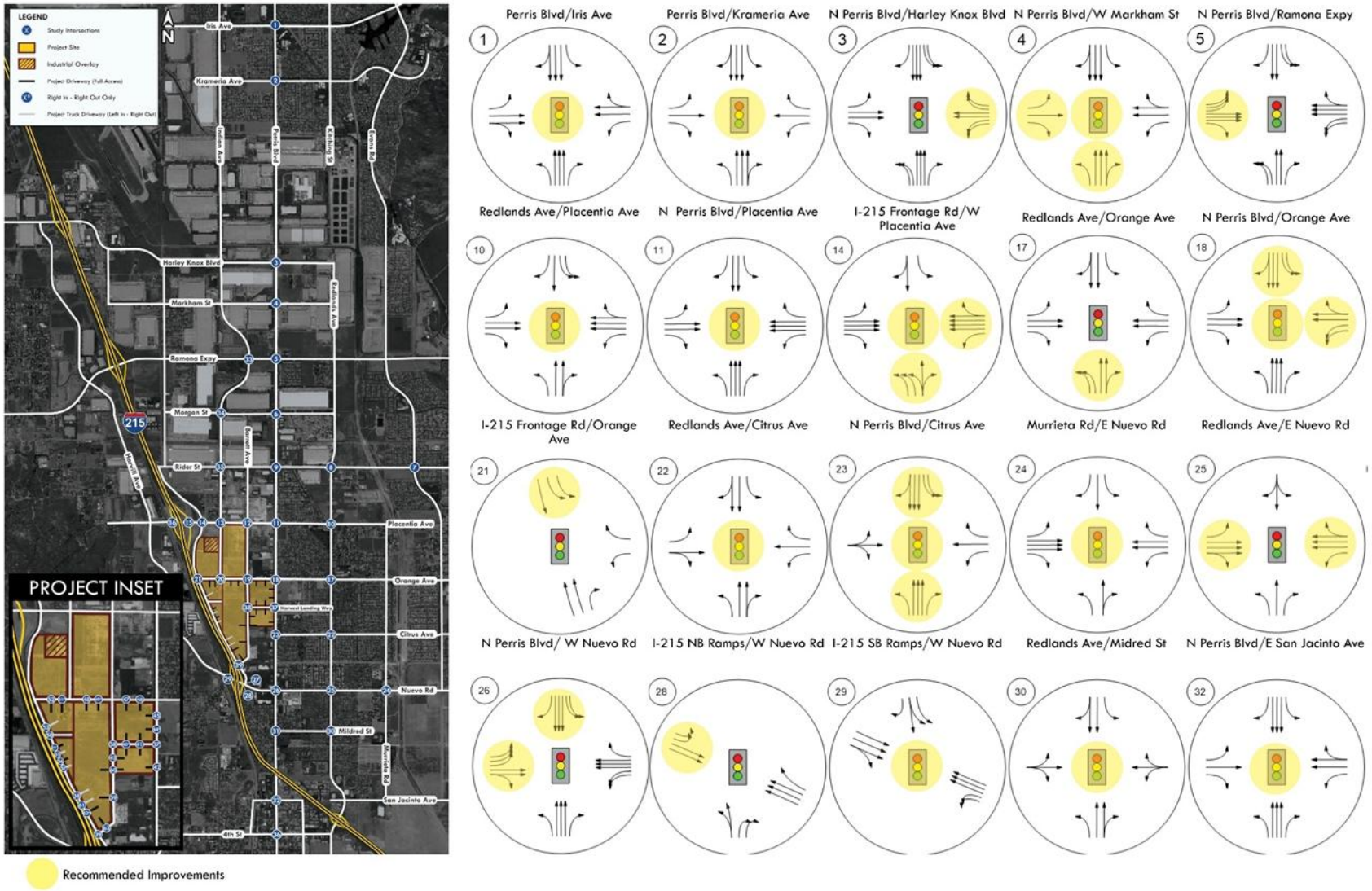
	Intersection	Jurisdiction	Control Type	General Plan 2045 Conditions				General Plan 2045 Plus Project Conditions				Difference		LOS Standard	Satisfactory?	Improvements	General Plan 2045 Plus Project Conditions with Improvements				Difference	
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak				AM Peak		PM Peak		AM Peak	PM Peak
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	Delay				Delay	LOS	Delay	LOS	Delay	Delay
1.	Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	350.3	F	131.8	F	358.2	F	139.4	F	7.9	7.6	D	No	Add right-turn overlap to NBR movement. WB & EB U-turn are already prohibited at the intersection.	279.1	F	130.2	F	-71.2	-1.6
2.	Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	317.5	F	207.5	F	331.2	F	226.2	F	13.7	18.7	D	No	Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL. The speed limit on the west leg (Krameria Ave) is 25 mph.	286.9	F	127.4	F	-30.6	-80.1
3.	N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	39.5	D	238.0	F	41.1	D	251.1	F	1.6	13.1	D	No	Restripe WBL/WBL/WBT/WBT/WBT/WBR to WBL/WBL/WBT/WBT/WBR/WBR	33.4	C	209.8	F	-6.1	-28.2
4.	N Perris Blvd/W Markham St	City of Perris	Signalized	133.0	F	57.4	E	159.3	F	68.8	E	26.3	11.4	D	No	Change Protected WBL and EBL Phase to Prot-Perm. The speed limit on Markham St is 35 mph. Restripe NBL/NBT/NBT/NBR to NBL/NBT/NBT/NBTR Restripe EBL/EBT/EBTR to EBL/EBT/EBR	130.6	F	37.4	D	-2.4	-20.0
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	101.9	F	66.5	E	115.7	F	78.2	E	13.8	11.7	E	No	Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR	78.9	E	79.5	E	-23.0	13.0
10.	Redlands Ave/Placentia Ave	City of Perris	All-way stop	109.6	F	390.6	F	87.5	F	362.2	F	-22.1	-28.4	D	No	This intersection passes signal warrant. Install Traffic Signal. Restripe SBL/SBT/SBT/SBR to SBL/SBL/SBT/SBR.	43.5	D	178.3	F	-66.1	-212.3
11.	N Perris Blvd/Placentia Ave	City of Perris	Signalized	37.1	D	209.6	F	43.2	D	242.1	F	6.1	32.5	D	No	Add right-turn overlap to SBR movement. EB U-turn is already prohibited at the intersection.	42.3	D	193.8	F	5.2	-15.8
14.	I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	27.4	C	29.0	C	44.0	D	283.2	F	16.6	254.2	D	No	Change NB and SB approach to split phasing. Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR Restripe WB approach from WBL/WBT/WBT/WBT/WBR to WBL/WBT/WBT/WBT/WBTR, Widen West leg of Placentia Ave to accomendate an additional receiving lane. Add right-turn overlap to EBR movement, NB & SB U-turn will be restrcited at the intersection.	44.8	D	48.8	D	17.4	19.8
17.	Redlands Ave/Orange Ave	City of Perris	Signalized	45.4	D	34.1	C	59.6	E	37.2	D	14.2	3.1	D	No	Widen NBL/NBT/NBTR to NBL/NBL/NBT/NBTR	43.8	D	34.3	C	-1.6	0.2
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	35.9	D	51.4	D	54.9	D	116.6	F	19.0	65.2	D	No	Add right-turn overlap to NBR movement. U-turns on all approaches are already prohibited at the intersection. Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR. Restripe WBL/WBT/WBT/WBR to WBL/WBL/WBT/WBTR. Restripe SBL/SBT/SBT to SBL/SBL/SBT.	49.9	D	54.3	D	14.0	2.9
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	16.1	C	135.1	F	317.4	F	119.6	301.3	D	No	As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.	27.3	C	24.2	C	11.8	8.1
22.	Redlands Ave/Citrus Ave	City of Perris	All-way stop	40.4	E	54.4	F	98.9	F	94.2	F	58.5	39.8	D	No	This intersection passes signal warrant. Install Traffic Signal.	20.0	C	13.3	B	-20.4	-41.1

Table 6.9b: General Plan 2045 With Project Plus Improvements Peak Hour LOS (Continued)

Intersection	Jurisdiction	Control Type	General Plan 2045 Conditions				General Plan 2045 Plus Project Conditions				Difference		LOS Standard	Satisfactory?	Improvements	General Plan 2045 Plus Project Conditions with Improvements				Difference	
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak				AM Peak		PM Peak		AM Peak	PM Peak
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	Delay				Delay	LOS	Delay	LOS	Delay	Delay
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	45.8	D	59.5	E	61.1	E	95.0	F	15.3	35.5	D	No	Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR. Widen NBL/NBT/NBT/NBTR to NBL/NBT/NBT/NBT/NBR Change WB and EB Split Phase to Protected WBL and Permissive EBL.	34.1	C	45.2	D	-11.7	-14.3
24. Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	46.5	D	32.7	C	60.9	E	33.0	C	14.4	0.3	D	No	Add right-turn overlap to WBR movement. NB & SB U-turn are already prohibited at the intersection.	46.6	D	33.2	C	0.1	0.5
25. Redlands Ave/E Nuevo Rd	City of Perris	Signalized	53.0	D	26.1	C	66.6	E	69.3	E	13.6	43.2	D	No	Restripe WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR. Restripe EBL/EBT/EBT/EBR to EBL/EBT/EBT/EBTR.	47.8	D	52.2	D	-5.2	26.1
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	47.7	D	47.1	D	75.3	E	68.4	E	27.6	21.3	D	No	Restripe EBL/EBL/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBTR. Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.	53.5	D	54.6	D	5.8	7.5
27. I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	21.9	C	50.5	F	31.9	D	190.4	F	10.0	139.9	D	No	There are no feasible improvements for intersection #27.	31.9	D	190.4	F	10.0	139.9
28. I-215 NB Ramps/W Nuevo Rd	Caltrans/City of Perris	Signalized	85.2	F	16.1	B	101.4	F	26.4	C	16.2	10.3	E	No	Restripe EBL/EBT/EBT/EBT to EBL/EBL/EBT/EBT.	51.2	D	20.1	C	-34.0	4.0
29. I-215 SB Ramps/W Nuevo Rd	Caltrans/City of Perris	Signalized	17.5	B	41.3	D	17.8	B	86.6	F	0.3	45.3	E	No	Change WB and EB Protected Phasing to Split Phasing.	21.0	C	77.3	E	3.5	36.0
30. Redlands Ave/Midred St	City of Perris	All-way stop	44.0	E	16.5	C	48.8	E	18.0	C	4.8	1.5	D	No	This intersection passes signal warrant. Install Traffic Signal.	11.7	B	11.1	B	-32.3	-5.0
32. N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	117.6	F	103.0	F	135.8	F	111.6	F	18.2	8.6	D	No	Change Protected WBL and EBL Phase to Prot-Perm. The speed limit on San Jacinto Ave is 35 mph.	105.4	F	87.2	F	-12.2	-15.8

Notes: Delay Reported in Seconds per Vehicle
LOS = Level of Service
Unsatisfactory Level of Service

Figure 6.3a: General Plan 2045 With Project Plus Improvements Lane Configuration and Traffic Control



6.3.2 Recommendations for Queueing Improvements

As previously discussed in Section 5.3.1, the addition of project trips to the General Plan 2045 Without Project volumes would result in queuing deficiencies at intersections #15, #28 and #29.

The following improvements would result in satisfactory queueing approach as shown in Table 6.10 for General Plan 2045 With Project condition:

- #15. I-215 NB Ramps/Placentia Ave
    - Restripe WBT/WBT/WBT/WBR to WBT/WBT/WBR/WBR.

No feasible improvements would result in the following intersections operating with satisfactory queueing. However, the following improvements will improve the intersection to a lower queue length compared to the General Plan 2045 Without Project condition:

- #28. I-215 NB Ramps/W Nuevo Rd
    - Restripe EBL/EBT/EBT/EBT to EBL/EBL/EBT/EBT.
- #29. I-215 SB Ramps/W Nuevo Rd
    - Change WB and EB Protected Phasing to Split Phasing.

Table 6.10: General Plan 2045 With Project Plus Improvements Queueing Deficiency

	General Plan 2045 Conditions				General Plan 2045 Plus Project Conditions				Difference				Recommended Improvements	General Plan 2045 Plus Project Conditions with Improvement				Difference				Delay	LOS	LOS Standard
	Southbound		Westbound		Southbound		Westbound		Southbound		Westbound			Southbound		Westbound		Southbound		Westbound				
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT		LT	RT	LT	RT	LT	RT	LT	RT			
15. I-215 NB Ramps/Placentia Ave																								
Storage Length Per Lane	-	-	-	390	-	-	-	390	-	-	-	390	Restripe WBT/WBT/WBT/WBR to WBT/WBT/WBR/WBR.	-	-	-	390	-	-	-	390			E
AM Queue Length Per Lane	-	-	-	345	-	-	-	590	-	-	-	245		-	-	-	190	-	-	-	-155	19.0	B	
PM Queue Length Per Lane	-	-	-	380	-	-	-	830	-	-	-	450		-	-	-	370	-	-	-	-10	18.9	B	
28. I-215 NB Ramps/W Nuevo Rd																								
Storage Length Per Lane	-	-	-	200			-	200	-	200	-	200	Restripe EBL/EBT/EBT/EBT to EBL/EBL/EBT/EBT.	-	-	-	200	-	200	-	200			E
AM Queue Length Per Lane	-	-	-	890	-	-	-	955	-	-	-	65		-	-	-	505	-	-	-	-385	51.2	D	
PM Queue Length Per Lane	-	-	-	270	-	-	-	270	-	-	-	0		-	-	-	255	-	-	-	-15	20.1	C	
29. I-215 SB Ramps/W Nuevo Rd																								
Storage Length Per Lane	185**	185	315	-	185**	185	315	-	185**	185	315	-	Change WB and EB Protected Phasing to Split Phasing.	185**	185	315	-	185**	185	315	-			E
AM Queue Length Per Lane	115	60	155	-	135	65	190	-	20	5	35	-		140	65	185	-	25	5	30	-	21.0	C	
PM Queue Length Per Lane	585	150	475	-	1130	180	580	-	545	30	105	-		540	75	285	-	-45	-75	-190	-	77.3	E	

Notes:
Queueing Impacts
LT = Left-turn Lane, RT = Right-turn Lane
Queue length reported in feet for the AM(PM) peak periods and are rounded up to the nearest increment of 5 feet.
**Even though the queue length exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

6.3.3 Recommendations for Segment Improvements

As previously discussed in Section 5.3.2, the following four (4) roadway segments would operate at an unsatisfactory LOS in the General Plan 2045 With Project condition.

- #3. Perris Blvd between Orange Ave and Citrus Ave
- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps
- #12. Perris Blvd between Citrus Ave and Nuevo Rd
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave

As previously mentioned in Section 6.1.3, peak hour directional roadway segment analysis is conducted for roadway segments that have an unsatisfactory daily LOS. If the boundary intersections are forecast to operate at an acceptable LOS, a peak hour directional roadway segment analysis can be completed to verify that the peak hour roadway volumes are adequate.

- As previously discussed in Section 6.3.1, all boundary intersections for segments #3, #7, #12 and #14 would operate at a satisfactory LOS with recommended improvements.

For this peak hour directional analysis, peak hour roadway capacity is set at 10% of the daily roadway capacity. As shown in Table 6.11a through 6.11d, all roadway segments would operate at satisfactory LOS during the AM and PM peak hours in the General Plan 2045 With Project condition.

Table 6.11a: General Plan 2045 With Project Peak hour Directional Roadway Segment Analysis (NB/EB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	General Plan 2045 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	General Plan 2045 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	5,390	1,868	0.347	A	6	5,390	2,236	0.415	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,879	0.349	A	6	5,390	2,066	0.383	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,857	0.344	A	6	5,390	2,174	0.403	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	5,390	2,375	0.441	A	6	5,390	3,578	0.664	B	D	No

Notes:
1- General Plan 2045 ADT is calculated based on RIVCOM growth rates. All volumes are presented in PCE.
2 - Classification, Number of Lanes under General Plan 2045 conditions, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.11b: General Plan 2045 With Project Peak hour Directional Roadway Segment Analysis (SB/WB AM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	General Plan 2045 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	General Plan 2045 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	5,390	1,551	0.288	A	6	5,390	1,815	0.337	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	1,801	0.334	A	6	5,390	2,020	0.375	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	1,778	0.330	A	6	5,390	2,017	0.374	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	5,390	1,935	0.359	A	6	5,390	2,312	0.429	A	D	No

Notes:
1- General Plan 2045 ADT is calculated based on RIVCOM growth rates. All volumes are presented in PCE.
2 - Classification, Number of Lanes under General Plan 2045 conditions, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.11c: General Plan 2045 With Project Peak hour Directional Roadway Segment Analysis (NB/EB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	General Plan 2045 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	General Plan 2045 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	5,390	2,103	0.390	A	6	5,390	2,500	0.464	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,204	0.409	A	6	5,390	2,434	0.452	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,148	0.399	A	6	5,390	2,505	0.465	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	5,390	2,843	0.527	A	6	5,390	3,353	0.622	B	D	No

Notes:
1- General Plan 2045 ADT is calculated based on RIVCOM growth rates. All volumes are presented in PCE.
2 - Classification, Number of Lanes under General Plan 2045 conditions, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

Table 6.11d: General Plan 2045 With Project Peak hour Directional Roadway Segment Analysis (SB/WB PM)

Segment	Classification[2]	# of Lanes Without Project	Roadway Capacity Without Project[2]	General Plan 2045 ADT[1]	V/C Ratio	LOS	# of Lanes Plus Project	Roadway Capacity Plus Project[2]	General Plan 2045 Plus Project ADT[1]	V/C Ratio	LOS	LOS Standard[2]	Unsatisfactory ?
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	5,390	2,237	0.415	A	6	5,390	2,713	0.503	A	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	5,390	2,311	0.429	A	6	5,390	2,644	0.491	A	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	5,390	2,305	0.428	A	6	5,390	2,732	0.507	A	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	5,390	2,824	0.524	A	6	5,390	3,863	0.717	C	D	No

Notes:
1- General Plan 2045 ADT is calculated based on RIVCOM growth rates. All volumes are presented in PCE.
2 - Classification, Number of Lanes under General Plan 2045 conditions, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.
Unsatisfactory Level of Service

6.3.4 Project Fair Share

The Project's fair share percentage for each recommended improvement is identified in Table 6.12 below. The percentage of Project fair share at affected intersections was calculated using the total trips generated by the Project divided by the total "new" traffic, which is the net increase in traffic volume under the General Plan 2045 as a result of all other proposed projects using the formula below:

- Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%

In addition to the fair share contributions, the Project would do the following to ensure that these improvements are implemented:

- The Project would explore funding options for the required Improvements and available funding opportunities, including existing funding programs and others that can be utilized to fund the improvements are identified in the TIA. Additional funding information can be found in Appendix H.

Table 6.12: General Plan 2045 Project Fair Share

Intersection	Opening Year I 2026 Improvements	Opening Year II 2030 Improvements	General Plan 2045 Improvements	Type of Project Impact	Opening Year I 2026 Fair Share		Opening Year II 2030 Fair Share		General Plan 2045 Fair Share		Project
				(Direct/Indirect)	AM	PM	AM	PM	AM	PM	**Fair Share**
1. Perris Blvd/Iris Ave	No improvements are recommended.2	Add right-turn overlap to NBR movement. WB & EB U-turn are already prohibited at the intersection.	Add right-turn overlap to NBR movement. WB & EB U-turn are already prohibited at the intersection.	Indirect	N/A	N/A	2.98%	3.85%	1.96%	2.79%	**3.85%**
2. Perris Blvd/Krameria Ave	Improvements not required.	Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL. The speed limit on the west leg (Krameria Ave) is 25 mph.	Change WB and EB Split Phase to Prot-Perm WBL and Protected EBL. The speed limit on the west leg (Krameria Ave) is 25 mph.	Indirect	N/A	N/A	4.54%	5.90%	2.54%	4.51%	**5.90%**
3. N Perris Blvd/Harley Knox Blvd	Improvements not required.	Improvements not required.	Restripe WBL/WBL/WBT/WBT/WBT/WBR to WBL/WBL/WBT/WBT/WBR/WBR	Indirect	N/A	N/A	N/A	N/A	5.80%	3.43%	**5.80%**
4. N Perris Blvd/W Markham St	Improvements not required.	Improvements not required.	Change Protected WBL and EBL Phase to Prot-Perm. The speed limit on Markham St is 35 mph. Restripe NBL/NBT/NBT/NBR to NBL/NBT/NBT/NBTR Restripe EBL/EBT/EBTR to EBL/EBT/EBR	Indirect	N/A	N/A	N/A	N/A	4.66%	6.22%	**6.22%**
5. N Perris Blvd/Ramona Expy	Improvements not required.	Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR	Restripe EBL/EBL/EBT/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBT/EBR	Indirect	N/A	N/A	8.34%	9.91%	8.37%	9.61%	**9.91%**
10. Redlands Ave/Placentia Ave	Improvements not required.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal. Restripe SBL/SBT/SBT/SBR to SBL/SBL/SBT/SBR.	Indirect	N/A	N/A	N/A	N/A	3.83%	3.57%	**3.83%**
11. N Perris Blvd/Placentia Ave	Improvements not required.	Add right-turn overlap to SBR movement. EB U-turn is already prohibited at the intersection.	Add right-turn overlap to SBR movement. EB U-turn is already prohibited at the intersection.	Indirect	**Project will pay 100%**						
14. I-215 Frontage Rd/W Placentia Ave	Improvements not required.	Change NB and SB approach to split phasing. Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR Restripe WB approach from	Change NB and SB approach to split phasing. Restripe to remove south leg shoulder and accommodate an additional NBL lane, then restripe NB approach from NBL/NBTR to NBL/NBL/NBLTR Restripe WB approach from WBL/WBT/WBT/WBT/WBR to	Direct	**Project will pay 100%**						
15. I-215 NB Ramps/Placentia Ave	Improvements not required.	Restripe WBT, WBT, WBR to WBT, WBTR, WBR.	Restripe WBT/WBT/WBT/WBR to WBT/WBT/WBR/WBR.	Direct	**Project will pay 100%**						
17. Redlands Ave/Orange Ave	Improvements not required.	Improvements not required.	Widen NBL/NBT/NBTR to NBL/NBL/NBT/NBTR	Direct	**Project will pay 100%**						
18. N Perris Blvd/Orange Ave	Add right-turn overlap to EBR movement. U-turns on all approaches are already prohibited at the intersection.	Add right-turn overlap to NBR, SBR, EBR and WBR movement. U-turns on all approaches are already prohibited at the intersection.	Add right-turn overlap to NBR movement. U-turns on all approaches are already prohibited at the intersection. Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR. Restripe WBL/WBT/WBT/WBR to WBL/WBL/WBT/WBTR.	Direct	**Project will pay 100%**						
21. I-215 Frontage Rd/Orange Ave	Improvements not required.	Restripe SBL/SBT/SBT to SBL/SBL/SBT. As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.	Restripe SBL/SBT/SBT to SBL/SBL/SBT. As part of the development of the Project, I-215 Frontage Rd is being widened to 4-lane from Placentia Avenue to Nuevo Road.	Direct	**Project will pay 100%**						
22. Redlands Ave/Citrus Ave	Improvements not required.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Indirect	N/A	N/A	N/A	N/A	13.39%	15.17%	**15.17%**

23. N Perris Blvd/Citrus Ave	Improvements not required.	Improvements not required.	Restripe SBL/SBT/SBT/SBT/SBR to SBL/SBL/SBT/SBT/SBTR. Widen NBL/NBT/NBT/NBTR to NBL/NBT/NBT/NBT/NBR Change WB and EB Split Phase to Protected WBL and Permissive EBL.	Indirect	**Project will pay 100%**						
24. Murrieta Rd/E Nuevo Rd	Improvements not required.	Add right-turn overlap to WBR movement. NB & SB U-turn are already prohibited at the intersection.	Add right-turn overlap to WBR movement. NB & SB U-turn are already prohibited at the intersection.	Direct	N/A	N/A	17.58%	20.25%	16.56%	19.47%	**20.25%**
25. Redlands Ave/E Nuevo Rd	Improvements not required.	Improvements not required.	Restripe WBL/WBT/WBT/WBR to WBL/WBT/WBT/WBTR.	Direct	N/A	N/A	N/A	N/A	12.97%	16.55%	**16.55%**
26. N Perris Blvd/ W Nuevo Rd	Add right-turn overlap to NBR movement. EB & WB U-turns are already prohibited at the intersection.	Add right-turn overlap to NBR, EBR and WBR movement. NB & SB U-turn would be restricted at the intersection. WB U-turns are already restricted at the intersection. Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.	Restripe EBL/EBL/EBT/EBT/EBR to EBL/EBL/EBL/EBT/EBTR. Restripe SBL/SBL/SBT/SBT/SBR/SBR to SBL/SBL/SBT/SBT/SBT/SBR.	Direct	**Project will pay 100%**						
27. I-215 Frontage Rd/W Nuevo Rd	There are no feasible improvements for Intersection #27.	There are no feasible improvements for Intersection #27.	There are no feasible improvements for Intersection #27.	Indirect	**Project will pay 100%**						
28. I-215 NB Ramps/W Nuevo Rd	Improvements not required.	Improvements not required.	Restripe EBL/EBT/EBT/EBT to EBL/EBL/EBT/EBT.	Indirect	N/A	N/A	N/A	N/A	15.47%	28.15%	**28.15%**
29. I-215 SB Ramps/W Nuevo Rd	Change WB and EB Protected Phasing to Split Phasing.	Change WB and EB Protected Phasing to Split Phasing.	Change WB and EB Protected Phasing to Split Phasing.	Direct	17.65%	20.25%	15.14%	20.89%	23.65%	16.12%	**23.65%**
30. Redlands Ave/Midred St	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	This intersection passes signal warrant. Install Traffic Signal.	Indirect	N/A	N/A	13.51%	16.11%	9.59%	15.38%	**16.11%**
32. N Perris Blvd/E San Jacinto Ave	Improvements not required.	Improvements not required.	Change Protected WBL and EBL Phase to Prot-Perm. The speed limit on San Jacinto Ave is 35	Indirect	N/A	N/A	N/A	N/A	10.13%	11.81%	**11.81%**
36. Perris Blvd/4th St	Improvements not required.	Restripe SBL/SBT/SBR to SBL/SBT/SBTR.	Improvements not required.	Indirect	N/A	N/A	16.52%	18.86%	N/A	N/A	**18.86%**

[1]Fair share contribution percentage for improvements where the project is not directly responsible is calculated by the formula:
Fair share percentage = Project Trips/(Total Trips with Project-Existing Trips)*100%

APPENDIX A – TRAFFIC STUDY SCOPING AGREEMENT

SCOPING AGREEMENT FOR TRAFFIC IMPACT STUDY

This letter acknowledges the City of Perris requirements for traffic impact analysis of the following project.

Case No. SPA22-05250
Related Cases -
SP No.
EIR No.
GPA No.
CZ No.
Project Name: Harvest Landing Specific Plan
Project Address: East of I-215 Between Placentia Ave and Nuevo Rd
Project Description: Please see project description in Attachment A, overall site plan in Figure 1, and detailed site plan in Attachment B.

	Consultant	Developer
Name:	EPD Solutions	Howard Industrial Partners
Address:	3333 Michelson Drive, #Suite 500 Irvine, CA 92612	1944 North Tustin Street, Ste. 122
Telephone:	949-794-1180	Orange, CA 92865
Fax:		

A. Trip Generation Source: Trip rates from the Institute of Transportation Engineers, Trip Generation manual,11th Edition, 2021. Please see attached Trip Generation in Table 1.

Current GP Land Use: Harvest Landing SP
Current Zoning: Harvest Landing SP (Amended)
Proposed Land Use: Harvest Landing SP
Proposed Zoning Harvest Landing SP (Amended)

Passenger vehicles

Non-PCE Proposed Trip Generation

	In	Out	Total	Daily Total:
AM	1,772	790	2,562	
PM	1,079	1,824	2,902	37,369

Trucks

	In	Out	Total	Daily Total:
AM	161	48	210	
PM	53	141	194	2,825

Passenger Car Equivalents(PCE)

PCE Proposed Trip Generation

	In	Out	Total	Daily Total:
AM	2,174	911	3,085	
PM	1,211	2,176	3,386	44,415

Internal Trip & Pass-By Trip Allowance X Yes No Please see Table 1 for % trip discount.

Please see Attachment C for NCHRP Report 684 internal capture worksheets .

B. Trip Geographic Distribution

Project truck and automobile trip distributions are shown in Figures 4 to 9. Industrial auto and commercial auto trip distribution is based on RIVCOM model forecast with minor adjustments based on engineering judgment as shown in Figures 10, 11 and 12. Truck trip distribution is based on the city of Perris truck routes with engineering judgment.

C. Background Traffic

Project buildout Year:
Phase 1: 2026
Phase 1 + Phase 2:2030

Annual Ambient Growth Rate: 3%

Other area projects to be analyzed: Please find the list of cumulative projects provided to EPD by the city of Perris on 06/25/2024 in Attachment D.

Model forecast methodology: RIVCOM

Study Scenarios (7 scenarios to be analyzed):

-Existing Traffic Conditions(Existing 2023 Counts + Ambient Growth)

-Opening Year I 2026 Without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions

-(Phase 1) Opening Year I 2026 with Project Traffic Conditions

-Opening Year II 2030 Without Project (Existing + Ambient Growth + Cumulative Projects) Traffic Conditions

-(Phase 1 + Phase 2) Opening Year II 2030 with Project Traffic Conditions

-General Plan 2045 Without Project

-General Plan 2045 With Project

D. Study Intersections: Note: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.

Please see Table 3 for study intersections and Figure 2 - Project Study Area , Figure 3 - Project Study Driveways

Please see Figure 13 for PCE trip assignment at each study intersection based on the peak hour with the highest trip generation.

E. Study Roadway Segments: Note: Subject to revision after other projects, trip generation and distribution are determined, or comments from other agencies.

Please see Table 4 for study roadway segments and Figure 2 - Project Study Area

F. Other Jurisdictional Impacts

Is the project within a City's sphere of influence or one-mile radius of City boundaries? Yes X No

If so, name of City or Jurisdiction County of Riverside

G. Site Plan Please see Figure 1 - Site Plan.

H. Specific Issues to be addressed in the Study (in addition of the standard analysis described in the Guidelines) - To be filled out by transportation department. Note: If the traffic study states that a "traffic signal is warranted" or "a traffic signal appears to be warranted" , or similar statement, at an existing unsignalized intersection, under existing conditions, 8-hour approach traffic volume information must be submitted in addition to the peak hourly turning movement counts for that intersection. Please see Table 2 below.

	Table 2. Specific Issues to be Addressed in the Study
1	Truck turning templates at all truck driveways.
2	Queuing analysis along Placentia Avenue & Nuevo Road at the I-215 Freeway ramp intersections.
3	Traffic signal warrants at unsignalized intersections where deficiencies are determined.
4	Driveway access spacing based upon Riverside County Standard Plan No. 114.
5	Driveway access spacing of the easternmost driveway serving Building 2 along Orange Avenue (with respect to its location to Indian Avenue).
6	Driveway access spacing of the easternmost driveway serving Building 1 along Orange Avenue (with respect to its location to Barrett Avenue).
7	Text and/or exhibits that explain the proposed access (full or restricted) for each project driveway, and whether each driveway is designated for truck or passenger car traffic.
8	Justify the deletion of Indian Avenue south of Orange Avenue in buildout analysis of the project's study area.
9	On-site queuing for all proposed drive-through gas station pads.

I. Existing Conditions

Traffic count data must be new or recent. Provide traffic count dates if using other than new counts.

In 2023, while schools were in session, new counts were collected at the study intersections and roadway segments which include truck classifications.

2023 Counts would be escalated by a 3% Annual Ambient Growth Rate for Existing 2024 conditions.

Note: Traffic Study Submittal Form and appropriate fee must be submitted with, or prior to submittal of this form. Transportation Department staff will not process the Scoping Agreement prior to the fee.

Recommended by:

Meghan Macias, TE

Consultant's Representative

4/4/2024

Date

Approved by:

Transportation Department

Date

Scoping agreement submitted on: 4/4/2024

Scoping agreement revised on: 7/25/2024

Figure 1: Project Site Plan

LAND USE AREAS

MBU (MULTIPLE BUSINESS USE)	=	252.73 AC
COMM (COMMERCIAL)	=	46.72 AC
WATER QUALITY BASIN	=	13.08 AC
ROADS	=	35.09 AC
TOTAL SPA	=	**347.62 AC**
OVERLAY	=	10.66 AC
TOTAL WITH OVERLAY	=	**358.28 AC**

0' 100' 200' 300' 400' 500' 600'

N

HARVEST LANDING RETAIL CENTER & BUSINESS PARK

PERRIS, CA

CONCEPTUAL MASTER PLAN

Architecture. Design. Relationships.

A1

Scale 1" = 200'
Job No. 2020-392
Date 2024-06-10

Table 1. Trip Generation

					AM Peak Hour			PM Peak Hour		
Land Use		**Units**	**Daily**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Trip Rates									
High-Cube Fulfilment Center[1]		TSF	1.744	0.070	0.017	0.087	0.047	0.073	0.120
High-Cube Parcel Hub[2]		TSF	4.63	0.35	0.35	0.70	0.44	0.20	0.64
General Light Industrial[3]		TSF	4.87	0.65	0.09	0.74	0.09	0.56	0.65
Free-Standing Discount Superstore[4]		TSF	50.52	1.04	0.82	1.86	2.12	2.21	4.33
Gasoline/Service Station[5]		VFP	172.01	5.14	5.14	10.28	6.96	6.96	13.91
Shopping Center[6]		TSF	37.01	0.52	0.32	0.84	1.63	1.77	3.40
Fast Food Restaurant with Drive Through[7]		TSF	467.48	22.75	21.86	44.61	7.23	6.68	13.91
High Turnover (Sit-Down) Restaurant[8]		TSF	107.20	5.26	4.31	9.57	5.52	3.53	9.05
Industrial Park[9]		TSF	3.37	0.28	0.06	0.34	0.07	0.27	0.34
Medical Office Building[10]		TSF	36.00	2.45	0.65	3.10	1.18	2.75	3.93
Supermarket[11]		TSF	93.84	1.69	1.17	2.86	4.48	4.48	8.95
Coffee/Donut Shop with Drive-Through Window[12]		TSF	533.57	43.80	42.08	85.88	19.50	19.50	38.99
Fast Casual Restaurant[13]		TSF	97.14	0.72	0.72	1.43	6.90	5.65	12.55
PHASE 1 Total Vehicle Trip Generation									
PHASE 1 Industrial									
TUMF High Cube	1,207.000	TSF	2,105	85	20	105	56	88	145
Vehicle Mix [14]	***Percent***								
	AM	***PM***	***Daily***						
Passenger Vehicles	86.70%	93.70%	87.30%	1,838	74	17	91	53	83	136
2-Axle Trucks	2.91%	1.38%	2.78%	59	2	1	3	1	1	2
3-Axle Trucks	2.35%	1.12%	2.25%	47	2	0	2	1	1	2
4+-Axle Trucks	8.02%	3.80%	7.66%	161	7	2	8	2	3	6
	100%	100%	100%	2,105	85	20	105	56	88	145
PCE Trip Generation [15]			***PCE Factor***						
Passenger Vehicles			1.0	1,838	74	17	91	53	83	136
2-Axle Trucks			1.5	88	4	1	5	1	2	3
3-Axle Trucks			2.0	95	4	1	5	1	2	3
4+-Axle Trucks			3.0	484	20	5	25	6	10	17
Total High Cube PCE Trip Generation				2,504	102	24	126	62	97	158
Parcel Hub	322.079	TSF	1,491	113	113	225	140	66	206
Vehicle Mix [14]	***Percent***								
	AM	***PM***	***Daily***						
Passenger Vehicles	87.10%	90.60%	87.50%	1,305	98	98	196	127	60	187
2-Axle Trucks	2.83%	2.06%	2.74%	41	3	3	6	3	1	4
3-Axle Trucks	2.28%	1.66%	2.21%	33	3	3	5	2	1	3
4+-Axle Trucks	7.78%	5.67%	7.54%	112	9	9	18	8	4	12
	100%	100%	100%	1,491	113	113	225	140	66	206
PCE Trip Generation [15]			***PCE Factor***						
Passenger Vehicles			1.0	1,305	98	98	196	127	60	187
2-Axle Trucks			1.5	61	5	5	10	4	2	6
3-Axle Trucks			2.0	66	5	5	10	5	2	7
4+-Axle Trucks			3.0	337	26	26	53	24	11	35
Total Parcel Hub PCE Trip Generation				1,769	134	134	269	160	75	235
General Light Industrial	198.500	TSF	967	129	18	147	18	111	129
Vehicle Mix [14]	***Percent*** [18]								
	AM	***PM***	***Daily***						
Passenger Vehicles	95.60%	95.90%	90.50%	875	124	17	140	17	106	124
2-Axle Trucks	0.96%	0.90%	2.08%	20	1	0	1	0	1	1
3-Axle Trucks	0.78%	0.73%	1.68%	16	1	0	1	0	1	1
4+-Axle Trucks	2.65%	2.47%	5.73%	55	3	0	4	0	3	3
	100%	100%	100%	967	129	18	147	18	111	129
PCE Trip Generation [15]			***PCE Factor***						
Passenger Vehicles			1.0	875	124	17	140	17	106	124
2-Axle Trucks			1.5	30	2	0	2	0	1	2
3-Axle Trucks			2.0	33	2	0	2	0	2	2
4+-Axle Trucks			3.0	166	10	1	12	1	8	10
Total Industrial PCE Trip Generation				1,104	138	19	157	19	118	137

Table 1. Trip Generation

PHASE 1 Commercial

Medical Office Building									
Total Medical Office Trip Generation	5.500	TSF	198	13	4	17	6	15	21
Large Format Retail Anchor	167.050	TSF	8,439	174	137	311	354	369	723
Internal Capture[16] (OP 1 Retail)			-1,182	-38	-26	-64	-92	-66	-159
Retail Trip Generation with internal capture			7,258	136	111	246	262	302	565
Pass By[17] (0% Daily, 0% AM, 29% PM)			*0*	*0*	*0*	*0*	*-76*	*-88*	*-164*
Total Retail Trip Generation			7,258	136	111	246	186	215	401
Shopping Center >150k	189.845	TSF	7,026	99	61	159	310	336	645
Pass By[17] (0% Daily, 0% AM, 29% PM)			*0*	*0*	*0*	*0*	*-90*	*-97*	*-187*
Total Retail Trip Generation			7,026	99	61	159	220	238	458
Supermarket	23.256	TSF	2,182	39	27	67	104	104	208
Internal Capture[16] (OP 1 Retail)			-306	-9	-5	-14	-27	-19	-46
Retail Trip Generation with internal capture			1,877	31	22	53	77	85	162
Pass By[17] (0% Daily, 0% AM, 24% PM)			*0*	*0*	*0*	*0*	*-18*	*-20*	*-39*
Total Retail Trip Generation			1,877	31	22	53	59	65	123
Fast Casual Restaurant	8.934	TSF	868	6	6	13	62	50	112
Internal Capture[16] (OP 1 Restaurant)			-148	-2	-1	-3	-19	-22	-41
Restaurant Trip Generation with internal capture			720	5	5	10	43	28	71
Total Restaurant Trip Generation			720	5	5	10	43	28	71
High Turnover (Sit-Down) Restaurant	21.122	TSF	2,264	111	91	202	117	75	191
Internal Capture[16] (OP 1 Restaurant)			-385	-29	-14	-43	-36	-33	-69
Restaurant Trip Generation with internal capture			1,879	82	77	160	80	42	122
Pass By[17] (0% Daily, 0% AM, 43% PM)			*0*	*0*	*0*	*0*	*-35*	*-18*	*-53*
Total Restaurant Trip Generation			1,879	82	77	160	46	24	70
Fast Food Restaurant with Drive Through	11.000	TSF	5,142	250	240	491	80	73	153
Internal Capture[16] (OP 1 Restaurant)			-874	-65	-36	-101	-25	-32	-57
Restaurant Trip Generation with internal capture			4,268	185	204	390	55	41	96
Pass By[17] (50% Daily, 50% AM, 55% PM)			*-2,134*	*-93*	*-102*	*-195*	*-30*	*-23*	*-53*
Total Restaurant Trip Generation			2,134	93	102	195	25	19	43
Coffee/Donut Shop with Drive-Through Window	1.800	TSF	960	79	76	155	35	35	70
Internal Capture[16] (OP 1 Restaurant)			-163	-20	-11	-32	-11	-15	-26
Restaurant Trip Generation with internal capture			797	58	64	123	24	20	44
Pass By (50% Daily, 50% AM, 55% PM)			*-399*	*-29*	*-32*	*-61*	*-13*	*-11*	*-24*
Total Restaurant Trip Generation			399	29	32	61	11	9	20
Gasoline/Service Station	10	VFP	1,720	51	51	103	70	70	139
Internal Capture[16] (OP 1 Retail)			-241	-11	-10	-21	-18	-13	-31
Retail Trip Generation with internal capture			1,479	40	42	82	51	57	108
Pass By (57% Daily, 63% AM, 57% PM)			*-843*	*-25*	*-26*	*-51*	*-29*	*-33*	*-62*
Total Retail Trip Generation			636	15	15	30	22	25	47
Phase 1 Total Project Passenger Car Trip Generation			26,145	798	562	1,360	815	886	1,700
Phase 1 Total Project Truck Trip Generation (Non PCE)			545	32	18	49	17	16	34
Phase 1 Total Project Trip Generation (Non PCE)			26,690	829	580	1,409	832	902	1,734
Phase 1 Total Project Trip Generation (PCE)			27,504	876	607	1,483	858	927	1,784

Table 1. Trip Generation

PHASE 2 Total Vehicle Trip Generation										
Industrial Park	3,659.693		TSF	12,333	1,008	236	1,244	274	971	1,244
Vehicle Mix [14]		***Percent***								
	AM	***PM***	***Daily***							
Passenger Vehicles	88.24%	88.24%	83.10%	10,249	889	209	1,098	242	856	1,098
2-Axle Trucks	2.58%	2.58%	3.70%	456	26	6	32	7	25	32
3-Axle Trucks	2.08%	2.08%	2.99%	369	21	5	26	6	20	26
4+-Axle Trucks	7.09%	7.09%	10.19%	1,257	72	17	88	19	69	88
	100%	100%	100%	12,331	1,008	236	1,244	274	970	1,244
PCE Trip Generation [15]			***PCE Factor***							
Passenger Vehicles			1.0	10,249	889	209	1,098	242	856	1,098
2-Axle Trucks			1.5	685	39	9	48	11	38	48
3-Axle Trucks			2.0	738	42	10	52	11	40	52
4+-Axle Trucks			3.0	3,771	215	50	265	58	207	265
Total Industrial PCE Trip Generation				15,442	1,185	278	1,463	322	1,141	1,463
Industrial Park (Overlay)	348.262		TSF	1,174	96	22	118	26	92	118
Vehicle Mix [14]		***Percent***								
	AM	***PM***	***Daily***							
Passenger Vehicles	88.24%	88.24%	83.10%	975	85	20	104	23	81	104
2-Axle Trucks	2.58%	2.58%	3.70%	43	2	1	3	1	2	3
3-Axle Trucks	2.08%	2.08%	2.99%	35	2	0	2	1	2	2
4+-Axle Trucks	7.09%	7.09%	10.19%	120	7	2	8	2	7	8
	100%	100%	100%	1,173	96	22	118	26	92	118
PCE Trip Generation [15]			***PCE Factor***							
Passenger Vehicles			1.0	975	85	20	104	23	81	104
2-Axle Trucks			1.5	65	4	1	5	1	4	5
3-Axle Trucks			2.0	70	4	1	5	1	4	5
4+-Axle Trucks			3.0	359	20	5	25	6	20	25
Total Industrial PCE Trip Generation				1,469	113	26	139	31	109	139
Phase 2 Total Project Passenger Car Trip Generation				11,224	974	228	1,202	265	938	1,202
Phase 2 Total Project Truck Trip Generation (Non PCE)				2,280	130	30	160	35	125	160
Phase 2 Total Project Trip Generation (Non PCE)				13,505	1,104	259	1,363	300	1,063	1,363
Phase 2 Total Project Trip Generation (PCE)				16,911	1,297	304	1,602	352	1,249	1,602
Total Project Passenger Car Trip Generation				37,369	1,772	790	2,562	1,079	1,824	2,902
Total Project Truck Trip Generation (Non PCE)				2,825	161	48	210	53	141	194
Total Project Trip Generation (Non PCE)				40,194	1,933	839	2,772	1,132	1,965	3,096
Total Project Trip Generation (PCE)				44,415	2,174	911	3,085	1,211	2,176	3,386

Table 1 Footnotes. Trip Generation

TSF = Thousand Square Feet

PCE = Passenger Car Equivalent

VFP = Vehicle Fueling Positions

[1] Trip rates from TUMF High-Cube Warehouse Trip Generation Study Update, Fehr & Peers, November 13, 2023. In/Out splits from the Institute of Transportation Engineers, Trip Generation,11th Edition, 2021. Land Use Code 155 - High-Cube Fulfillment Center Warehouse.

[2] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 156 - High-Cube Parcel hub Warehouse.

[3] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 110 - General Light Industrial.

[4] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 813 - Free-Standing Discount Superstore.

[5] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 944 - Gasoline/Service Station.

[6] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 820 - Shopping Center >150K.

[7] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 934 - Fast Food Restaurant with Drive Through.

[8] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 932 - High Turnover (Sit-Down) Restaurant.

[9] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 130 - Industrial Park.

[10] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 720 - Medical-Dental Office Building

[11] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 850 - Supermarket.

[12] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 937 - Coffee/Donut Shop with Drive-Through Window.

[13] Trip rates from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 930 - Fast Casual Restaurant

[14] Truck% from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Truck axle split from the SCAQMD Warehouse Truck Trip Study Data Results and Usage, July 17, 2014.

[15] Passenger Car Equivalent (PCE) factors from County of Riverside TA guidelines , 2020.

[16] Internal capture rates from NCHRP Report 684.

[17] Pass-by rates from the Institute of Transportation Engineers, Trip Generation Handbook,3rd Edition, 2017.

[18] Manufactuing truck% used from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021.