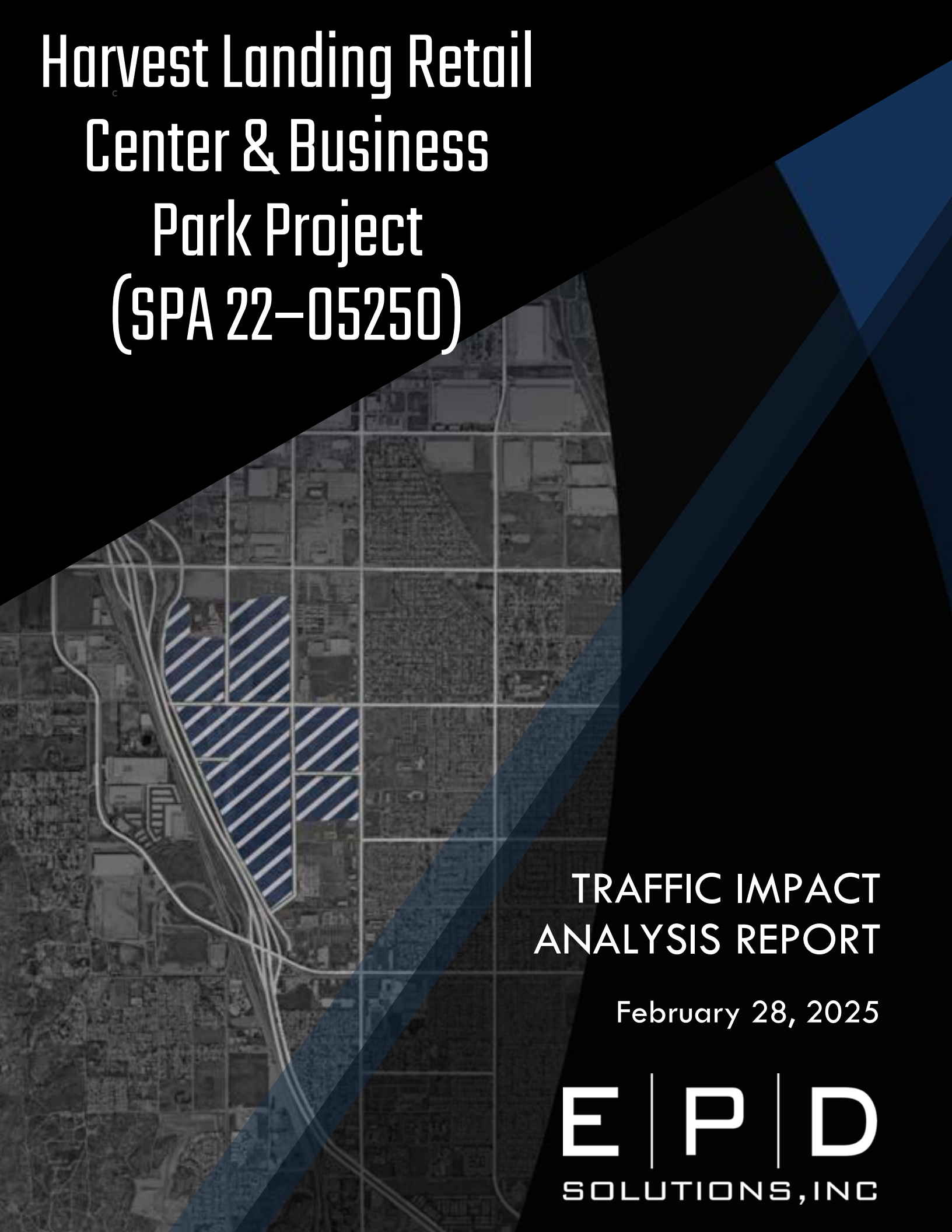


Harvest Landing Retail Center & Business Park Project (SPA 22-05250)



TRAFFIC IMPACT ANALYSIS REPORT

February 28, 2025

E | P | D
SOLUTIONS, INC

Harvest Landing Retail Center & Business Park Project

Traffic Impact Analysis

City of Perris

Prepared For

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1 EXECUTIVE SUMMARY

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the potential traffic deficiencies of the proposed Harvest Landing Retail Center & Business Park (Project) located in the western central portion of the City of Perris, southeast of the intersection of W Placentia Avenue and I-215/E Frontage Road. The Project site encompasses an area of approximately 358.28 acres. The proposed Project would consist of demolishing all existing structures and constructing the Project in two phases. The Project includes a total of 358.28 acres and consists of three components: Commercial, Business Park Phase 1, and Business Park Phase 2. The following acreages and square footage (SF) are proposed across the three components:

- The following components will be developed in Opening Year I 2026 (Phase 1):
 - The Commercial component consists of lots totaling 46.72 acres south of Orange Avenue, east of Barrett Avenue, and west of Perris Boulevard. The 423,007 SF Commercial component includes retail anchor, shopping center, supermarket, fast casual restaurant, high turnover (sit-down) restaurant, fast Food restaurant with drive through and coffee/donut shop with drive-through window, a 5,500 SF medical office building, and a gasoline/service station with 12 vehicle fueling positions.
 - Business Park Phase 1 consists of lots totaling 140.70 acres south of Orange Avenue, east of I-215 Frontage Road, and west of Barrett Avenue. Business Park Phase 1 includes general light industrial uses including: 1,207,000 SF of high-cube warehouse use, 322,079 SF of parcel hub use, and 198,500 SF of other general light industrial use
- The following components will be developed in Opening Year II 2030 (Phase 1 + Phase 2):
 - Business Park Phase 2 consists of lots totaling 112.01 acres and an overlay zone of 10.66 acres north of Orange Avenue, east of I-215 Frontage Road and west of Barrett Avenue. Business Park Phase 2 is analyzed programmatically for future multiple business uses with no detailed site plan available. Business Park Phase 2 includes 3,659,693 SF of industrial park and 348,262 SF of industrial park overlays.

The trip generation for the proposed development was analyzed using the Institute of Transportation Engineers, *Trip Generation* (11th Edition) trip generation rates. The proposed Project is estimated to generate approximately 40,321 daily trips, 2,778 AM peak hour trips, and 3,106 PM peak hour trips. When converted to passenger car equivalent (PCE) trips, the proposed Project is estimated to generate approximately 44,542 daily PCE trips, 3,091 AM peak hour PCE trips, and 3,395 PM peak hour PCE trips.

The following study area intersections were evaluated during the AM and PM peak hours, which are defined as the hours with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods.

1. Perris Blvd/Iris Ave
2. Perris Blvd/Krameria Ave
3. N Perris Blvd/Harley Knox Blvd
4. N Perris Blvd/W Markham St
5. N Perris Blvd/Ramona Expy
6. N Perris Blvd/Morgan St
7. Evans Rd/E Rider St
8. Redlands Ave/E Rider St
9. N Perris Blvd/E Rider St
10. Redlands Ave/Placentia Ave
11. N Perris Blvd/Placentia Ave
12. Barrett Ave/W Placentia Ave
13. Indian Ave/W Placentia Ave
14. I-215 Frontage Rd/W Placentia Ave
15. I-215 NB Ramps/Placentia Ave

16. I-215 SB Ramps/Placentia Ave
17. Redlands Ave/Orange Ave
18. N Perris Blvd/Orange Ave
19. Barrett Ave/Orange Ave
20. Indian Ave/Orange Ave
21. I-215 Frontage Rd/Orange Ave
22. Redlands Ave/Citrus Ave
23. N Perris Blvd/Citrus Ave
24. Murrieta Rd/E Nuevo Rd
25. Redlands Ave/E Nuevo Rd
26. N Perris Blvd/ W Nuevo Rd
27. I-215 Frontage Rd/W Nuevo Rd
28. I-215 NB Ramps/W Nuevo Rd
29. I-215 SB Ramps/W Nuevo Rd
30. Redlands Ave/Midred St
31. N Perris Blvd/Mildred St
32. N Perris Blvd/E San Jacinto Ave
33. Indian St/Ramona Expy
34. Indian St/Morgan St
35. Indian St/Rider St
36. Perris Blvd/4th St
37. Perris Blvd/Harvest Landing Way
38. Barrett Ave/Harvest Landing Way
39. Barrett Ave/I-215 Frontage Road
40. Commercial Driveway 1, 2/Harvest Landing Way
41. Commercial Driveway 3, 4/Harvest Landing Way
42. Commercial Driveway 5/N. Perris Blvd
43. Commercial Driveway 6/Barrett Ave
44. Commercial Driveway 7/N. Perris Blvd
45. Commercial Driveway 8/N. Perris Blvd
46. Commercial Driveway 9/Existing Plaza Driveway/Orange Ave
47. Commercial Driveway 10/Orange Ave
48. Building 1 Auto Driveway 1/Orange Ave
49. Building 1 Auto Driveway 2/Orange Ave
50. Building 1 Truck Driveway/I-215 Frontage Rd
51. Building 2 Auto Driveway/Orange Ave
52. Building 2 Auto Driveway 2/Orange Ave
53. Building 2 Truck Driveway/I-215 Frontage Rd
54. Building 3 Auto Driveway/I-215 Frontage Rd
55. Building 3/4 Truck Driveway/I-215 Frontage Rd
56. Building 4/5 Auto Driveway/I-215 Frontage Rd
57. Building 5 Truck Driveway/I-215 Frontage Rd
58. Building 6 Truck Driveway/I-215 Frontage Rd
59. Building 6 Auto Driveway 1/Barrett Ave
60. Building 6 Auto Driveway 2/Barrett Ave
61. Building 7 Truck Driveway/I-215 Frontage Rd
62. Building 7 Auto Driveway 1/I-215 Frontage Rd
63. Building 7 Auto Driveway 2/Barrett Ave

In addition to the study area intersections, the following study area roadway segments were evaluated:

1. Indian Ave between Placentia Ave and Orange Ave
2. Orange Ave between Indian Ave and Perris Blvd
3. Perris Blvd between Orange Ave and Citrus Ave
4. Barrett Ave between Placentia Ave and Orange Ave

5. Perris Blvd between Placentia Ave and Orange Ave
6. Perris Blvd between Rider St and Placentia Ave
7. Nuevo Rd between Perris Blvd & I-215 NB Ramps
8. I-215 Frontage Rd between Placentia Ave and Orange Ave
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd
10. Orange Ave between I-215 Frontage Rd and Indian Ave
11. Nuevo Rd between I-215 NB Ramps & I-215 SB Ramps
12. Perris Blvd between Citrus Ave and Nuevo Rd
13. Placentia Ave between I-215 NB Ramps & I-215 SB Ramps
14. Placentia Ave between I-215 NB Ramps & Indian Ave
15. Placentia Ave between Indian Ave & Perris Blvd
16. Barrett Ave between Orange Ave and Harvest Landing Way
17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
18. Harvest Landing Way between Barrett Ave and Perris Blvd
19. Indian Ave between Placentia Ave and Water Ave

AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing 2024 Traffic Conditions (Existing 2023 Counts + Ambient Growth)
- Opening Year I 2026 Without Project
- (Phase 1) Opening Year I 2026 with Project Traffic Conditions
- Opening Year II 2030 Without Project
- (Phase 1 + Phase 2) Opening Year II 2030 with Project Traffic Conditions
- General Plan 2045 Without Project
- General Plan 2045 With Project

Existing Year 2024 Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, none would operate at an unsatisfactory level of service (LOS) during the AM & PM peak hour under Existing Year 2024 condition.

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, no queueing deficiencies were observed during the AM & PM peak hour under Existing Year 2024 condition.

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, no roadway segments would operate at an unsatisfactory LOS under Existing Year 2024 condition.

Opening Year I 2026 Without Project Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, one intersection would operate at an unsatisfactory LOS under Opening Year I 2026 Without Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS E during AM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under Opening Year I 2026 Without Project condition, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour) no queueing deficiencies were observed during the AM & PM peak hour under Existing Year 2024 conditions.

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, six (6) roadway segments would operate at an unsatisfactory LOS under Opening Year I 2026 Without Project condition.

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

Opening Year II 2030 Without Project Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, six (6) intersections would operate at an unsatisfactory LOS under Opening Year II 2030 Without Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS F during AM peak hour and LOS E during PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS E during AM and PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during PM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS E during AM peak hour and LOS F during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during PM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under Opening Year II 2030 Without Project condition, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, the following seven (7) roadway segments would operate at an unsatisfactory LOS in the Opening Year II 2030 Without Project condition:

- #3. Perris Blvd between Orange Ave and Citrus Ave
- #5. Perris Blvd between Placentia Ave and Orange 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
- #13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave

General Plan 2045 Without Project Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, 14 intersections would operate at an unsatisfactory LOS under General Plan 2045 Without Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS F during AM and PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour and LOS E during PM peak hour)
- #10. Redlands Ave/Placentia Ave (LOS F during AM and PM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS F during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS E during AM peak hour)
- #22. Redlands Ave/Citrus Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during PM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under General Plan 2045 Without Project condition, for the following approaches:

- #28. I-215 Northbound Ramps/West Nuevo Road – northbound left-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – northbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, the following three (3) roadway segments would operate at an unsatisfactory LOS in the General Plan 2045 Without Project condition:

- #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

Opening Year I 2026 With Project Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, seven (7) intersections would operate at an unsatisfactory LOS under Opening Year I 2026 With Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS E during AM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM peak hour and LOS E during PM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS E during AM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS E during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS F during PM peak hour)#1. Perris Blvd/Iris Ave (LOS E during AM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under Opening Year I 2026 With Project condition, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

➤ Driveway Queuing Analysis:

Driveway queueing deficiencies were not observed under Opening Year I 2026 With Project Conditions.

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, the following eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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

Opening Year II 2030 With Project Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, 18 intersections would operate at an unsatisfactory LOS under Opening Year II 2030 With Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS F during AM and LOS E during PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS E during AM and PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS E during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #13. Indian Ave/W Placentia Ave (LOS E during AM and PM peak hour)
- #14. I-215 Frontage Rd/W Placentia Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #20. Indian Ave/Orange Ave (LOS F during AM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS F during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during AM and PM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #36. Perris Blvd/4th St (LOS F during AM and PM peak hour)
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during AM peak hour and LOS F during PM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under Opening Year II 2030 With Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

➤ Driveway Queuing Analysis:

Driveway queueing deficiencies were not observed under Opening Year II 2030 With Project Conditions.

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, the following eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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

General Plan 2045 With Project Intersection Level of Service Analysis Results

➤ Intersection Level of Service:

Among the 63 study intersections, 27 intersections would operate at an unsatisfactory LOS under General Plan 2045 With Project condition as listed below:

- #1. Perris Blvd/Iris Ave (LOS F during AM and PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour and LOS E during PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
- #10. Redlands Ave/Placentia Ave (LOS F during AM and PM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS F during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #14. I-215 Frontage Rd/W Placentia Ave (LOS F during PM peak hour)
- #15. I-215 NB Ramps/Placentia Ave (LOS F during PM peak hour)
- #17. Redlands Ave/Orange Ave (LOS E during AM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS F during PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #20. Indian Ave/Orange Ave (LOS F during AM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
- #22. Redlands Ave/Citrus Ave (LOS F during AM and PM peak hour)
- #23. N Perris Blvd/Citrus Ave (LOS E during PM peak hour)
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
- #25. Redlands Ave/E Nuevo Rd (LOS E during AM peak hour and LOS F during PM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS E during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
- #29. I-215 SB Ramps/W Nuevo Rd (LOS F during PM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS F during AM and PM peak hour)

➤ Intersection Queuing Analysis:

Among the four (4) study intersections, queueing deficiencies were observed under General Plan 2045 With Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – northbound left-turn and right-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

➤ Driveway Queuing Analysis:

Driveway queueing deficiencies were not observed under General Plan 2045 With Project Conditions.

➤ Roadway Segment Level of Service:

Among the 19 study area roadway segments, 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

Opening Year I 2026 With Project Improvements

The following improvements would improve the LOS to a satisfactory level or better than baseline in the Opening Year I 2026 Plus Project condition for 6 of the 7 intersections with an unsatisfactory LOS under Opening Year I 2026 With Project conditions:

- #1. Perris Blvd/Iris Ave
 - Change Protected WBL Phase to Protective-Permissive (Prot-Perm).
- #12. Barrett Ave/W Placentia Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #18. N Perris Blvd/Orange Ave
 - Optimize Traffic Signal
- #19. Barrett Ave/Orange Ave
 - This intersection passes all-way stop warrant. Install all-way stop.
- #26. N Perris Blvd/ W Nuevo Rd
 - Add right-turn overlap to NBR, SBR, EBR and WBR movement
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install "Keep Clear" sign at the westbound and southbound approaches.

Opening Year II 2030 With Project Improvements

The following improvements would improve the LOS to a satisfactory level in the Opening Year II 2030 Plus Project condition:

- #5. Perris Blvd/Ramona Expy
 - Right-turn overlap on SBR; Change NBR to NBTR
- #11. N Perris Blvd/Placentia Ave
 - Restripe EBL, EBT, EBT, EBR to EBL, EBL, EBT, EBR.
- #12. Barrett Ave/W Placentia Ave
 - This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL.
- #13. Indian Ave/W Placentia Ave
 - Restripe NBL, NBT, NBR to NBL, NBL, NBTR.
- #14. I-215 Frontage Rd/W Placentia Ave
 - Restripe to remove south leg shoulder and accommodate an additional NBL lane;
 - Change WBR to WBTR,
 - Remove protected phase from WBL and change to permissive.
- #18. N Perris Blvd/Orange Ave
 - Change NBL, SBL, EBL, and WBL from protected to prot-perm left-turn phasing
- #19. Barrett Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #20. Indian Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #21. I-215 Frontage Rd/Orange Ave
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #24. Murrieta Rd/E Nuevo Rd
 - Optimize Traffic Signal.
- #26. N Perris Blvd/ W Nuevo Rd
 - Add right-turn overlap to SBR and EBR movement.
 - Change NBR to NBTR.
 - Change WBR to WBTR
- #30. Redlands Ave/Midred St
 - Restripe SBL, SBT, SBTR to SBTL, SBT, SBR
- #36. Perris Blvd/4th St
 - Change protected NBL, SBL, EBL and WBL to prot-perm left-turn phasing.
- #39. Barrett Ave/I-215 Frontage Road
 - This intersection passes all-way stop warrant. Install all-way stop.
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal

No feasible improvements would result in the following intersections 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
 - Change Protected WBL Phasing to Prot-Perm Phasing.
- #2. Perris Blvd/Krameria Ave
 - Change WB and EB Split Phase to Prot-Perm Phasing.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install “Keep Clear” sign at the westbound and southbound approaches.

General Plan 2045 With Project Improvements

The following improvements would improve the LOS to a satisfactory level in the General Plan 2045 Plus Project condition:

- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
 - Add right-turn overlap phasing on SBR.
 - Change NBR to NBTR
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
 - This intersection passes signal warrant.
 - Install Traffic Signal with protected WBL and protected EBL phasing.
- #14. I-215 Frontage Rd/W Placentia Ave (LOS F during PM peak hour)
 - Restripe to remove south leg shoulder and accommodate an additional NBL lane.
 - Restripe WBL, WBT, WBT, WBT, WBR to WBTL, WBT, WBT, WBT, WBTR.
 - Remove protected phase from EBL, WBL and change to permissive.
- #15. I-215 NB Ramps/Placentia Ave (LOS F during AM and PM peak hour)
 - Change NB from Split phasing to Permissive phasing, add overlap phasing to WBR.
- #17. Redlands Ave/Orange Ave (LOS E during AM peak hour)
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #18. N Perris Blvd/Orange Ave (LOS F during PM peak hour)
 - Add right-turn overlap to NBR movement.
 - Restripe SBL, SBT, SBT, SBT, SBR to SBL, SBL, SBT, SBT, SBTR.
 - Restripe WBL, WBT, WBT, WBR to WBL, WBL, WBT, WBTR.
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
 - This intersection passes signal warrant. Install Traffic Signal.
- #20. Indian Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #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.
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
 - Optimize Traffic Signal.
- #25. Redlands Ave/E Nuevo Rd (LOS E during AM peak hour and LOS F during PM peak hour)
 - Restripe NBL, NBT, NBR to NBL, NBL, NBTR.
- #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 SBR to SBT.
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
 - Restripe an EBT lane to an EBL lane.
- #29. I-215 SB Ramps/W Nuevo Rd (LOS F during PM peak hour)
 - Optimize signal control to split phase for all approaches with cycle length of 60 seconds.
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
 - Restripe SBL to SBTL.
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
 - This intersection passes all-way stop warrant. Install all-way stop.
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.

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)
 - Change EBL and WBL from protected phasing to prot-perm phasing
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
 - Change WB and EB Split Phasing to Prot-Perm Phasing.
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
 - Add right-turn overlap phasing on WBR.
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour)
 - Change NBL and SBL from protected phasing to prot-perm phasing
- #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)
 - Restripe NBL, NBT, NBT, NBT, NBR to NBL, NBL, NBT, NBT, NBTR.
 - Restripe SBL, SBT, SBT, SBR to SBL, SBT, SBT, SBTR.
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
 - Restripe NBR to NBTR.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install "Keep Clear" sign at the westbound and southbound approaches.

2 INTRODUCTION

This Traffic Impact Analysis (TIA) has been prepared by EPD Solutions, Inc. (EPD) to analyze the proposed Harvest Landing Retail Center & Business Park Project (Project) located in the western central portion of the City of Perris, southeast of the intersection of W Placentia Avenue and I-215/E Frontage Road. The TIA was prepared based on the approved scope of work which was reviewed and approved by the City of Perris and is provided in *Appendix A*. The TIA was prepared according to the approved scope of work using methodologies and significance criteria consistent with the City of Perris LOS Standards and Traffic Criteria for Traffic Studies.

2.1 Project Description

Regional access to the Project site is provided by the I-215 freeway, south of the Project through W Nuevo Road and North of the Project at Placentia Avenue. Local access to the site is via I-215 Frontage Road, Placentia Avenue, Orange Avenue, Barrett Avenue Perris Boulevard and Nuevo Road.

The Project includes a total of 358.28 acres and consists of three components: Commercial, Business Park Phase 1, and Business Park Phase 2. The following acreages and square footage (SF) are proposed across the three components:

- The following components will be developed in Opening Year I 2026 (Phase 1):
 - The Commercial component consists of lots totaling 46.72 acres south of Orange Avenue, east of Barrett Avenue, and west of Perris Boulevard. The 423,007 SF Commercial component includes retail anchor, shopping center, supermarket, fast casual restaurant, high turnover (sit-down) restaurant, fast Food restaurant with drive through and coffee/donut shop with drive-through window, a 5,500 SF medical office building, and a gasoline/service station with 12 vehicle fueling positions.
 - Business Park Phase 1 consists of lots totaling 140.70 acres south of Orange Avenue, east of I-215 Frontage Road, and west of Barrett Avenue. Business Park Phase 1 includes general light industrial uses including: 1,207,000 SF of high-cube warehouse use, 322,079 SF of parcel hub use, and 198,500 SF of other general light industrial use.
- The following components will be developed in Opening Year II 2030 (Phase 1 + Phase 2):
 - Business Park Phase 2 consists of lots totaling 112.01 acres and an overlay zone of 10.66 acres north of Orange Avenue, east of I-215 Frontage Road and west of Barrett Avenue. Business Park Phase 2 is analyzed programmatically for future multiple business uses with no detailed site plan available. Business Park Phase 2 includes 3,659,693 SF of industrial park and 348,262 SF of industrial park overlays.
- The remaining areas of 48.17 acres within the proposed Project are dedicated to a water quality retention basin and roadways along the development of Phase 1 and Phase 2.

The site consists of 111 parcels with Assessor's Parcel Numbers (APNs) shown in Table 2.1, Parcel Exhibit. The location of the Project is shown in *Figure 2.1*, and the Project site plan is shown in *Figure 2.2*.

The Project site would provide access for trucks and automobiles through a total of 27 driveways in Phase I: nine (9) driveways along Frontage Road, six (6) along Orange Avenue, five (5) along Barrett Avenue, four (4) along Harvest Landing Way, and three (3) along Perris Boulevard. Table 2.2 shows the identifies the signal control, vehicles allowed, and ingress/egress movement allowed at all 24 Project driveways.

Table 2.1: Parcel Exhibit

Project Site APN List			
305-110-001	305-120-006	305-160-028	305-220-021
305-110-002	305-120-007	305-160-027	305-190-033
305-110-003	305-120-008	305-160-025	305-220-059
305-110-021	305-120-026	305-160-026	305-220-060
305-110-007	305-130-001	305-160-022	305-220-061
305-110-006	305-130-002	305-160-023	305-220-062
305-110-005	305-130-003	305-160-024	305-240-027
305-110-004	305-130-004	305-190-028	305-100-028
305-120-020	305-130-005	305-190-029	305-100-008
305-120-021	305-130-006	305-190-030	305-100-009
305-120-022	305-160-001	305-190-031	305-170-018
305-120-023	305-160-002	305-190-014	305-110-015
305-120-024	305-160-003	305-190-020	305-110-016
305-120-025	305-130-009	305-190-019	305-110-022
305-120-004	305-160-030	305-220-011	305-110-023
305-120-005	305-160-029	305-220-020	305-110-024
305-110-025	305-110-026	305-110-027	305-110-032
305-110-033	305-110-034	305-110-035	305-140-012
305-140-024	305-140-025	305-140-026	305-140-027
305-140-031	305-140-032	305-140-034	305-140-040
305-140-041	305-140-049	305-140-050	305-140-052
305-140-053	305-140-054	305-140-055	305-140-056
305-140-057	305-140-058	305-140-059	305-140-060
305-140-061	305-060-042	305-060-036	305-060-037
305-090-055	305-090-026	305-090-028	305-090-030
305-090-032	305-090-056	305-090-057	305-090-058
305-090-059	305-090-015	305-090-016	305-090-017
305-090-019	305-090-018	305-070-004	

Table 2.2: Project Driveway Details

Intersection #	Project Driveway	Signal Control	Type of Vehicles Allowed	Ingress/Egress Movement Allowed	Opposite Leg Exists?	Opposite Leg (Exists/Project Build-Out)
40	Commercial Driveway 1, 2 and Harvest Landing Way	TWSC	Automobiles	RI/RO	No	Harvest Landing Way (Project Build-Out)
41	Commercial Driveway 3, 4 and Harvest Landing Way	TWSC	Automobiles	Full-Access	No	Harvest Landing Way (Project Build-Out)
42	Commercial Driveway 5 and N. Perris Blvd	TWSC	Automobiles	RO	Yes	Perris Blvd (Exists)
43	Commercial Driveway 6 and Barrett Ave	TWSC	Automobiles	RI/RO	No	Barrett Ave (Project Build-Out)
44	Commercial Driveway 7 and N. Perris Blvd	TWSC	Automobiles	RI/RO	Yes	Perris Blvd (Exists)
45	Commercial Driveway 8 and N. Perris Blvd	TWSC	Automobiles	LI/RI/RO	Yes	Perris Blvd (Exists)
46	Commercial Driveway 9 and Orange Ave	TWSC	Automobiles	Full-Access	Yes	Orange Ave (Exists)
47	Commercial Driveway 10 and Orange Ave	TWSC	Automobiles	RI/RO	Yes	Orange Ave (Exists)
48	Building 1 Auto Driveway 1 and Orange Ave	TWSC	Automobiles	Full-Access	Yes	Orange Ave (Exists)
49	Building 1 Auto Driveway 2 and Orange Ave	TWSC	Automobiles	RI/RO	Yes	Orange Ave (Exists)
50	Building 1 Truck Driveway and I-215 Frontage Rd	Signal	Trucks	LI/RI/RO	Yes	I-215 Frontage Rd (Exists)
51	Building 2 Auto Driveway 1 and Orange Ave	TWSC	Automobiles	RI/RO	Yes	Orange Ave (Exists)
52	Building 2 Auto Driveway 2 and Orange Ave	TWSC	Automobiles	Full-Access	Yes	Orange Ave (Exists)
53	Building 2 Truck Driveway and I-215 Frontage Rd	TWSC	Trucks	LI/RO	Yes	I-215 Frontage Rd (Exists)
54	Building 3 Auto Driveway and I-215 Frontage Rd	TWSC	Automobiles	RI/RO	Yes	I-215 Frontage Rd (Exists)
55	Building 3/4 Truck Driveway and I-215 Frontage Rd	TWSC	Trucks	LI/RO	Yes	I-215 Frontage Rd (Exists)
56	Building 4/5 Auto Driveway and I-215 Frontage Rd	TWSC	Automobiles	Full-Access	Yes	I-215 Frontage Rd (Exists)
57	Building 5 Truck Driveway and I-215 Frontage Rd	TWSC	Trucks	LI/RO	Yes	I-215 Frontage Rd (Exists)
58	Building 6 Truck Driveway and I-215 Frontage Rd	TWSC	Trucks	LI/RO	Yes	I-215 Frontage Rd (Exists)
59	Building 6 Auto Driveway 1 and Barrett Ave	TWSC	Automobiles	Full-Access	Yes	Barrett Ave (Exists)
60	Building 6 Auto Driveway 2 and Commercial Truck Driveway and Barrett Ave	TWSC	Automobiles	Full-Access	No	Barrett Ave (Project Build-Out)
61	Building 7 Truck Driveway and I-215 Frontage Rd	TWSC	Trucks	LI/RO	Yes	I-215 Frontage Rd (Exists)
62	Building 7 Auto Driveway 1 and I-215 Frontage Rd	TWSC	Automobiles	RI/RO	Yes	I-215 Frontage Rd (Exists)
63	Building 7 Auto Driveway 2 and Barrett Ave	TWSC	Automobiles	Full-Access	Yes	Barrett Ave (Exists)

TWSC: Two-Way Stop Control

RI: Right-In

RO: Right-Out

LI: Left-In

Figure 2.1: Project Location



Figure 2.2: Project Site Plan



2.2 Study Area and Analysis Scenarios

The study area was determined by analyzing intersections to which the Project would add 50 or more peak hour trips. This TIA includes the analysis of signalized intersections, two-way stop controlled (TWSC) intersections, and all-way stop controlled (AWSC) intersections. The following 63 intersections were included in the analysis:

1. Perris Blvd/Iris Ave
2. Perris Blvd/Krameria Ave
3. N Perris Blvd/Harley Knox Blvd
4. N Perris Blvd/W Markham St
5. N Perris Blvd/Ramona Expy
6. N Perris Blvd/Morgan St
7. Evans Rd/E Rider St
8. Redlands Ave/E Rider St
9. N Perris Blvd/E Rider St
10. Redlands Ave/Placentia Ave
11. N Perris Blvd/Placentia Ave
12. Barrett Ave/W Placentia Ave
13. Indian Ave/W Placentia Ave
14. I-215 Frontage Rd/W Placentia Ave
15. I-215 NB Ramps/Placentia Ave
16. I-215 SB Ramps/Placentia Ave
17. Redlands Ave/Orange Ave
18. N Perris Blvd/Orange Ave
19. Barrett Ave/Orange Ave
20. Indian Ave/Orange Ave
21. I-215 Frontage Rd/Orange Ave
22. Redlands Ave/Citrus Ave
23. N Perris Blvd/Citrus Ave
24. Murrieta Rd/E Nuevo Rd
25. Redlands Ave/E Nuevo Rd
26. N Perris Blvd/ W Nuevo Rd
27. I-215 Frontage Rd/W Nuevo Rd
28. I-215 NB Ramps/W Nuevo Rd
29. I-215 SB Ramps/W Nuevo Rd
30. Redlands Ave/Midred St
31. N Perris Blvd/Mildred St
32. N Perris Blvd/E San Jacinto Ave
33. Indian St/Ramona Expy
34. Indian St/Morgan St
35. Indian St/Rider St
36. Perris Blvd/4th St
37. Perris Blvd/Harvest Landing Way
38. Barrett Ave/Harvest Landing Way
39. Barrett Ave/I-215 Frontage Road
40. Commercial Driveway 1, 2/Harvest Landing Way
41. Commercial Driveway 3, 4/Harvest Landing Way
42. Commercial Driveway 5/N. Perris Blvd
43. Commercial Driveway 6/Barrett Ave
44. Commercial Driveway 7/N. Perris Blvd
45. Commercial Driveway 8/N. Perris Blvd
46. Commercial Driveway 9/Existing Plaza Driveway/Orange Ave
47. Commercial Driveway 10/Existing Plaza Driveway/Orange Ave
48. Building 1 Auto Driveway 1/Orange Ave

49. Building 1 Auto Driveway 2/Orange Ave
50. Building 1 Truck Driveway/I-215 Frontage Rd
51. Building 2 Auto Driveway/Orange Ave
52. Building 2 Auto Driveway 2/Orange Ave
53. Building 2 Truck Driveway/I-215 Frontage Rd
54. Building 3 Auto Driveway/I-215 Frontage Rd
55. Building 3/4 Truck Driveway/I-215 Frontage Rd
56. Building 4/5 Auto Driveway/I-215 Frontage Rd
57. Building 5 Truck Driveway/I-215 Frontage Rd
58. Building 6 Truck Driveway/I-215 Frontage Rd
59. Building 6 Auto Driveway 1/Walmart Supercenter Driveway/Barrett Ave
60. Building 6 Auto Driveway 2/Barrett Ave
61. Building 7 Truck Driveway/I-215 Frontage Rd
62. Building 7 Auto Driveway 1/I-215 Frontage Rd
63. Building 7 Auto Driveway 2/Barrett Ave

Existing counts incorporate truck classifications (i.e., Class 1 – Passenger Vehicles, Class 2 – 2-axle work vehicles/trucks, Class 3 – 3-axle trucks, Class 4 – 4 or more axle trucks, Class 5 – recreational vehicles, and Class 6 – Busses). Passenger Car Equivalent (PCE) factors were applied to truck/bus trips to account for the fact that trucks and buses utilize more roadway capacity due to their size, reduced maneuverability and slower acceleration. The locations of the study area intersections are shown on *Figure 2.3*, and the study driveways are shown in *Figure 2.4*. Study area intersections and driveways were evaluated during the AM and PM peak hours, which are defined as the hour with the highest traffic volumes during the 7 AM to 9 AM and 4 PM to 6 PM peak commute periods. AM and PM peak hour traffic operations were evaluated for the following scenarios:

- Existing 2024 Traffic Conditions (Existing 2023 Counts + Ambient Growth)
- Opening Year I 2026 Without Project
- (Phase 1) Opening Year I 2026 with Project Traffic Conditions
- Opening Year II 2030 Without Project
- (Phase 1 + Phase 2) Opening Year II 2030 with Project Traffic Conditions
- General Plan 2045 Without Project
- General Plan 2045 With Project

EPD collected counts for most study intersections on Tuesday, May 16th, 2023. Traffic counts for intersection #39 were collected on Thursday, September 5th, 2024. Counts for three existing driveways on the north leg of intersections #46 and #47, and the east leg of intersection #59 were collected on Tuesday, July 30th, 2024. To account for the Existing 2024 traffic condition, a growth rate of three percent was applied to the counts collected in 2023. For the Opening Year I 2026 and Opening Year II 2030 traffic volumes were developed by applying an ambient growth rate of three percent per year to the counts collected and adding traffic from a nearby approved but not yet constructed developments or newly constructed developments (cumulative project) in 2024. General Plan 2045 traffic volume was forecasted by using the Riverside County travel demand forecasting model (RIVCOM), which assumes full buildout of the County of Riverside per approved General Plan of each jurisdiction within the County. All traffic volume data, RIVCOM model plots, RIVCOM volume outputs, National Cooperative Highway Research Program (NCHRP) 765 worksheets and volume adjustment worksheets are provided in Appendix B.

In addition, to the study area intersections, the following study area roadway segments were evaluated as shown on *Figure 2.3*:

1. Indian Ave between Water Ave and Orange Ave
2. Orange Ave between Indian Ave and Perris Blvd
3. Perris Blvd between Orange Ave and Citrus Ave
4. Barrett Ave between Placentia Ave and Orange Ave
5. Perris Blvd between Placentia Ave and Orange Ave
6. Perris Blvd between Rider St and Placentia Ave
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps
8. I-215 Frontage Rd between Placentia Ave and Orange Ave
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd
10. Orange Ave between I-215 Frontage Rd and Indian Ave
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
15. Placentia Ave between Indian Ave and Perris Blvd
16. Barrett Ave between Orange Ave and Harvest Landing Way
17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
18. Harvest Landing Way between Barrett Ave and Perris Blvd
19. Indian Ave between Placentia Ave and Water Ave

EPD collected 24-Hour roadway segment counts for the study area roadway segments on December 4, 2024, when school was in session. Existing 2024 Average Daily Traffic (ADT) counts have incorporated truck classifications. Passenger Car Equivalent (PCE) factors from County of Riverside TA guidelines (2020) were applied to truck/bus trips to account for the fact that trucks and buses utilize more roadway capacity due to their size, reduced maneuverability and slower acceleration. Traffic counts are provided in *Appendix B*.

In addition to the study area intersections and study area roadway segments, queueing along Placentia Avenue & Nuevo Road at the I-215 Freeway ramp were evaluated for the following intersections:

15. I-215 NB Ramps/Placentia Ave
16. I-215 SB Ramps/Placentia Ave
28. I-215 NB Ramps/W Nuevo Rd
29. I-215 SB Ramps/W Nuevo Rd

Figure 2.3: Project Study Area



Figure 2.4: Project Study Driveways



2.3 Methodology

Intersection operations are evaluated using Level of Service (LOS), which is a measure of the delay experienced by drivers on a roadway facility. LOS A indicates free-flow traffic conditions and is generally the best operating condition. LOS F is an extremely congested condition and is the worst operating condition from the driver's perspective. In this report, LOS at signalized and unsignalized intersections is calculated using the *Highway Capacity Manual* (HCM), 7th Edition methodology.

LOS at signalized intersections is defined in terms of the weighted average control delay for the intersection as a whole. Control delay is a measure of the increase in travel time that is experienced due to traffic signal control and is expressed in terms of average control delay per vehicle (in seconds). Control delay is determined based on the intersection geometry and volume, signal cycle length, phasing and coordination along the arterial corridor. *Table 2.3* shows the relationship between control delay and LOS.

Table 2.3: Relationship between Control Delay and LOS at a Signalized Intersection

LOS	Delay (Seconds per Vehicle)
A	≤ 10
B	>10 – 20
C	>20 – 35
D	>35 – 55
E	>55 – 80
F	>80

Unsignalized intersections are categorized as either all AWSC or TWSC. LOS at AWSC intersections is determined by the weighted average control delay of the overall intersection. The HCM TWSC intersection methodology calculates LOS based on the delay experienced by drivers on the minor (stop-controlled) approaches to the intersection. For TWSC intersections, LOS is determined for each minor-street movement, as well as the major-street left-turns. The relationship between delay and LOS at unsignalized intersections is shown in *Table 2.4*.

Table 2.4: Relationship between Delay and LOS an Unsignalized Intersection

LOS	Delay (seconds)
A	0-10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

Daily Roadway Segments are evaluated using roadway segment capacities to determine LOS. The capacity of a roadway is dependent on the number of lanes and the type of roadway. The roadway capacities provided in Table CE-2 of the *City of Perris General Plan Circulation Element (2022)* are for planning purposes, as capacity is affected by factors such as spacing, configuration, etc. The relationship between capacity and LOS for roadway segments is shown in Table 2.5. The current adopted minimum LOS by the City of Perris is LOS “E”.

Table 2.5: Relationship between Roadway Volume and LOS at a Roadway Segment

Roadway Classification	Number of Lanes	Maximum Two-Way Average Daily Traffic (ADT)				
		LOS A	LOS B	LOS C	LOS D	LOS E
Collector	2	7,800	9,100	10,400	11,700	13,000
Collector	4	15,540	18,130	20,700	23,300	25,900
Arterial	2	10,800	12,600	14,400	16,200	18,000
Arterial	4	21,540	25,130	28,700	32,300	35,900
Arterial	6	32,340	37,730	43,100	48,500	53,900
Expressway	4	24,540	28,630	32,700	36,800	40,900
Expressway	6	36,780	42,910	49,000	55,200	61,300
Expressway	8	49,020	57,190	65,400	73,500	81,700
Freeway	4	45,900	53,550	61,200	68,900	76,500
Freeway	6	70,500	82,250	94,000	105,800	117,500
Freeway	8	96,300	112,350	128,400	144,500	160,500
Freeway	10	120,360	140,420	160,500	180,500	200,600
V/C Ratio		0.6	0.7	0.8	0.9	1

Source: City of Perris General Plan Circulation Element (2022) Table CE-2

2.4 Significance Criteria

City of Perris

Based on the *City of Perris General Plan Policy II.A*, the following target Levels of Service are to be maintained for study intersections:

- LOS "D" along all City maintained roads (including intersections) and LOS "D" along I-215 and SR 74 (including intersections with local streets and roads). An exception to the local road standard is LOS "E", at intersections of any Arterials and Expressways with SR 74, the Ramona-Cajalco Expressway or at I-215 freeway ramps.
- LOS "E" may be allowed within the boundaries of the Downtown Specific Plan Area to the extent that it would support transit-oriented development and walkable communities. Increased congestion in this area will facilitate an increase in transit ridership and encourage development of a complementary mix of land uses within a comfortable walking distance from light rail stations.

To determine whether the addition of project-generated trips (or alternative-generated trips) results in a project traffic impact, and thus requires improvements, the analysis shall evaluate traffic impacts of the project based on the following criteria:

- A project-related traffic impact is considered direct when a study intersection operates at an acceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more and causes the intersection to operate at an unacceptable Level of Service for existing plus project conditions.
- A project-related traffic impact is considered direct when a study intersection operates at an unacceptable Level of Service for existing conditions (without the project) and the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more.
- A cumulative impact is considered direct when a study intersection is forecast to operate at an acceptable Level of Service without the project and with the addition of 50 or more a.m. or p.m. peak hour project trips causes the intersection delay to increase by 2 seconds or more and causes the intersection to operate at an unacceptable Level of Service.
- A cumulative impact is considered an indirect traffic impact when a study intersection is forecast to operate at an unacceptable Level of Service with the addition of cumulative/background traffic and the project contributes 50 or more a.m. or p.m. peak hour project trips and causes the intersection delay to increase by 2 seconds or more.

City of Moreno Valley

Based on the City of Moreno Valley Circulation Element, City recognizes that an LOS of C is optimal. However, it also allows peak hour levels of service in the LOS "D" range in certain locations. These locations include areas of high employment concentration, north/south roads in the vicinity of SR-60 or other locations in already developed areas of the City with geometric constraints that prevent LOS "C" from being achieved. *Figure 5.2-7 from the City of Moreno Valley General Plan, Final Program EIR, July 2006* depicts the LOS standards that are applicable to all segments of the Circulation Element. According to this figure, LOS "D" is the level of service standard for the two studied intersections located in the City of Moreno Valley.

According to the Transportation Impact Analysis Preparation Guide for Vehicle Miles Traveled and Level of Service Assessment, June 2020, improvements at a signalized intersection shall be identified if either of the following are met:

- Any signalized study intersection operating at acceptable LOS without project traffic in which the addition of project traffic causes the intersection to degrade to unacceptable LOS shall identify improvements to provide acceptable LOS; OR

- 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.

3 BASELINE CONDITIONS

This section discusses the baseline (without Project) conditions. Baseline conditions are those conditions that exist within the study area in the without project conditions.

3.1 Existing Transportation System and Access

The characteristics of each regional access and local access to the site Project are discussed in *Table 3.1*. The existing traffic control and intersection geometrics at study area intersections are shown in *Figure 3.2*.

Table 3.1: Characteristic of Roadway System

Road Name	From	To	Direction	Current Condition					General Plan (City of Perris and Moreno Valley)	
				Speed Limit (mph)	Number of Lanes	Parking?	Sides Walk?	Bike Lane?	Number of Lanes	Classification
Iris Ave	Indian St	Perris Blvd	East-West	40	4-Lane undivided with two-way-left-turn lane	No	North Side	Yes	4	Major Arterial
Krameria Ave	Indian St	Perris Blvd	East-West	40	2-Lane undivided with two-way-left-turn lane	No	Yes	Yes	No Info	Minor Arterial
Indian St	Walnut Ave	Interstate 215 Frontage Rd	North-South	40	From Walnut Ave to Orange Ave, the road is 2-Lane undivided with two-way-left-turn lane. From Orange Ave to Interstate 215 Frontage Rd, the road is 2-Lane Undivided.	No	Yes	Yes	4	Secondary Arterial
Perris Blvd	Placentia Ave	4th St	North-South	45	From Placentia Ave to Orange Ave, the road is 4-Lane Divided. From Orange Ave to Citrus Ave, the road is 4-Lane Undivided with two-way-left-turn lane. From Citrus Ave to Nuevo Rd, the road is 6-Lane Divided. From Nueve Rd to Jarvis St, the road is 4-Lane undivided with two-way-left-turn lane. From Jarvis St to 1th st, the road is 4-Lane Divided. From 1th St to 4th st, the road is 4-Lane undivided with two-way-left-turn lane.	No	Yes	Yes	6	Major Arterial
Kitching St	Iris Ave	Crove View Rd	North-South	35	From Iris Ave to Camino Marilena, the road is 4-Lane undivided with two-way-left-turn lane. Fom Modular Way to Crove View Rd, the road is 2-Lane undivided with two-way-left-turn lane.	No	Yes	Both Sides	No Info	Major Arterial
Evans Rd	Ramona Expy	Nueve Rd	North-South	45	From Ramona Expy to Old Evan Rd, the road is 4-Lane Divided. From Old Evan Rd to Orange Ave, the road is 2-Lane undivided with two-way-left-turn lane. From Orange Ave to Nueve Rd, the road is 6-Lane Divided.	No	Yes	Both Sides	6	Major Arterial
Knox Blvd	Indian St	Redlands Ave	East-West	45	6-Lane Divided	No	Yes	Both Sides	No Info	No Info
Markham St	Indian St	Redlands Ave	East-West	35	4-Lane Divided with two-way-left-turn lane	No	Yes	NO	4	Secondary Arterial
Redlands Ave	Ramona Expy	4th St	North-South	40-50	Between Ramona EXPY and E Morgan St, the road is 3-Lane Divided. Between E Morgan St and E Rider St, the road is 4-Lane Devided. Between E Rider st and Placentia Ave, the road is 2-Lane undivided. Between Placentia Ave and E San Jacinto Ave, the road is 4-lane undivided with two-way-left-turn-lane. Between E San Jacinto Ave and 4th st, the road is the road is 5-lane undevided with two-way-left-turn-lane.	No	Yes	NO	4	Secondary Arterial
Ramona Expy	Indian St	Redlands Ave	East-West	55	6-Lane Devided	No	North Side	Yes	6	Expressway
Morgan St	Indian St	Redlands Ave	East-West	25	4-Lane undivided with two-way-left-turn lane	No	North Side	Yes	4	Secondary Arterial
Barrett Ave	Rider St	Placentia Ave	North-South	No Sign	From Rider St to Placentia Ave, the road is 2-Lane Undivided. From Placentia Ave to Orange Ave the road is 2-Lane undivided with two-way-left-turn lane.	No	West Side	No	No Info	No Info
Rider St	Indian St	Evans Rd	East-West	45	From Indian Ave to Wilson Ave, the road is 4-Lane Divided. From Wilson Ave to Evan Rd, the road is 3-Lane Divided with two-way-left-turn lane.	No	Yes	Yes	4	Secondary Arterial
Placentia Ave	Indian Ave	Redlands Ave	East-West	40	From Indian St to N Perris Blvd, the road is 5-Lane Devided. From N Perris Blvd to Redlands Ave, the road is 4-Lane Undivided with two-way-left-turn lane	No	Yes	Yes	6	Major Arterial
Orange Ave	Indian Ave	Evans Rd	East-West	25	From Indian St to Barrett Ave, the road is 2-Lane undivided. From Barrett Ave to N Perris, the road is 4-lane divided. From N Perris to Redlands Ave, the road is 4-Lane undivided with two-way-left-turn lane.	No	North Side	No	4	Secondary Arterial
Citrus Ave	Perris Blvd	Murrieta Rd	East-West	30	Between N Perris Blvd to Redlands Ave, the road is 2-Lane Divided with two-way-left-turn lane and between Redlands Ave and Willson Ave, the road is 4-Lane Divided with two-way-left-turn lane. Between Willson Ave and Murrieta Rd, the road is 2-Lane undivided.	No	Yes	Yes	2	Collector
Nuevo Rd	Perris Blvd	Murrieta Rd	East-West	25	Between N Perris Blvd to Wison Ave, the road is 4-Lane Divided with two-way-left-turn lane and between Wilson Ave and Murrieta Rd, the road is 4-Lane Divided.	No	Yes	No	6	Major Arterial
Mildred St	Perris Blvd	Redlands Ave	East-West	25	2-Lane undivided	No	Yes	No	No Info	No Info
Murrieta Rd	Placentia Ave	San Jancinto Ave	North-South	35	From Placentia Ave to Mildrad St, the road is 2-Lane undivided. From Mildrad St to E Mez Rd, the road is 2-Lane devided with two-way-left-turn lane. From E Metz Rd to San Jancinto Ave, the road is 2-Lane undivided.	East Side	No	No	2	Collector
San Jancinto Ave	Redlands Ave	Murrieta Rd	East-West	45	2-Lane Devided with two-way-left-turn lane	No	No	No	6	Major Arterial
4th St	Perris Blvd	Redlands Ave	East-West	35	4-Lane Devided with two-way-left-turn lane	No	Yes	No	6	Major Arterial
Harvill Ave	Ramona Expy	Placentia Ave	North-South	50	4-Lane Devided with two-way-left-turn lane	No	No	No	6	Major Arterial
Interstate 215 Frontage Rd	Placentia Ave	Nuevo Rd	North-South	45	2-Lane undivided	No	No	No	2	Collector
I-215	Placentia Ave	Nuevo Rd	North-South	65	6-Lane Divided	No	No	No	6	Freeway (Per City of Perris General Plan)

Figure 3.1a: Existing Intersection Lane Configuration and Traffic Control

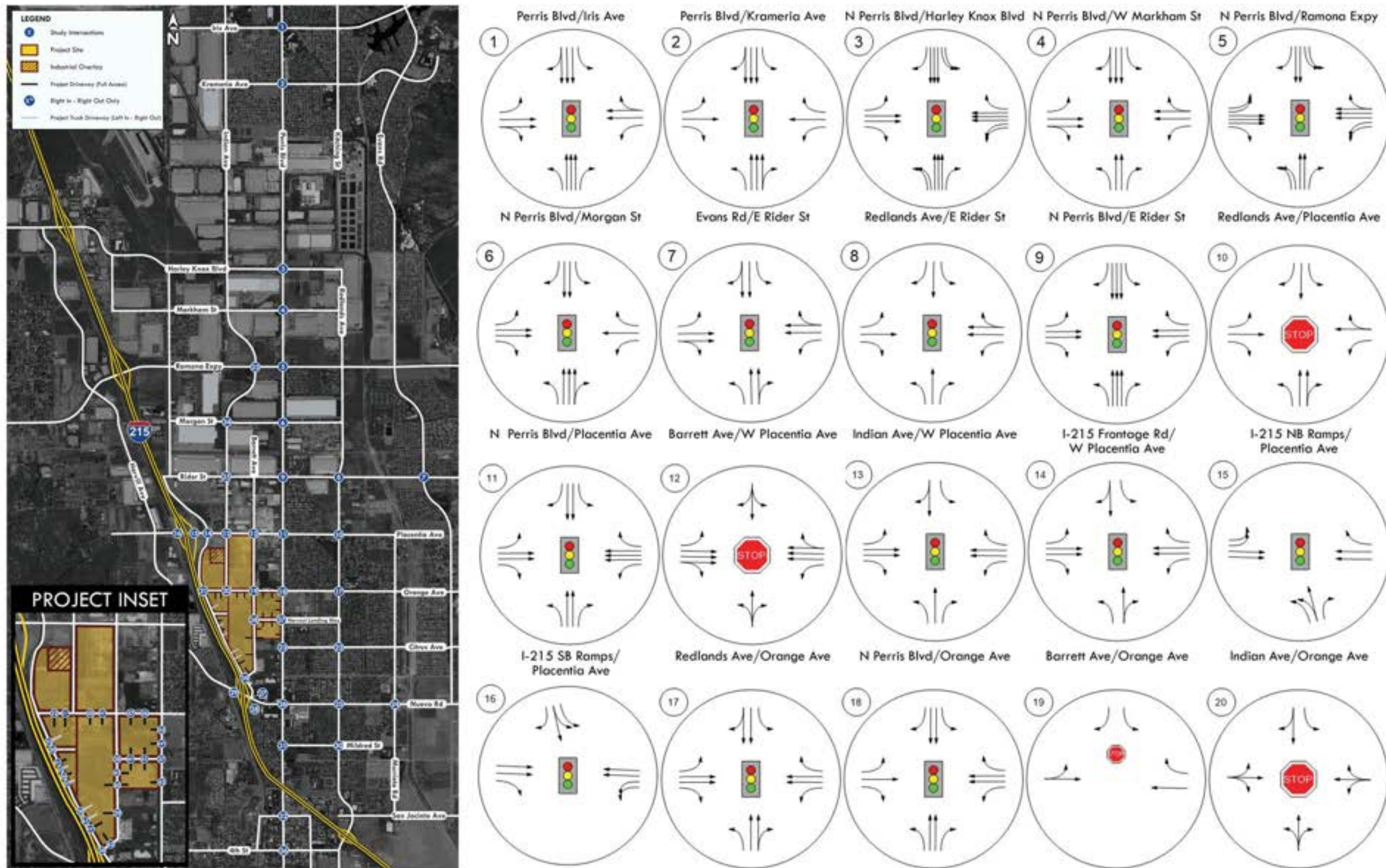


Figure 3.1b: Existing Intersection Lane Configuration and Traffic Control (Continued)



Figure 3.1c: Existing Intersection Lane Configuration and Traffic Control (Continued)

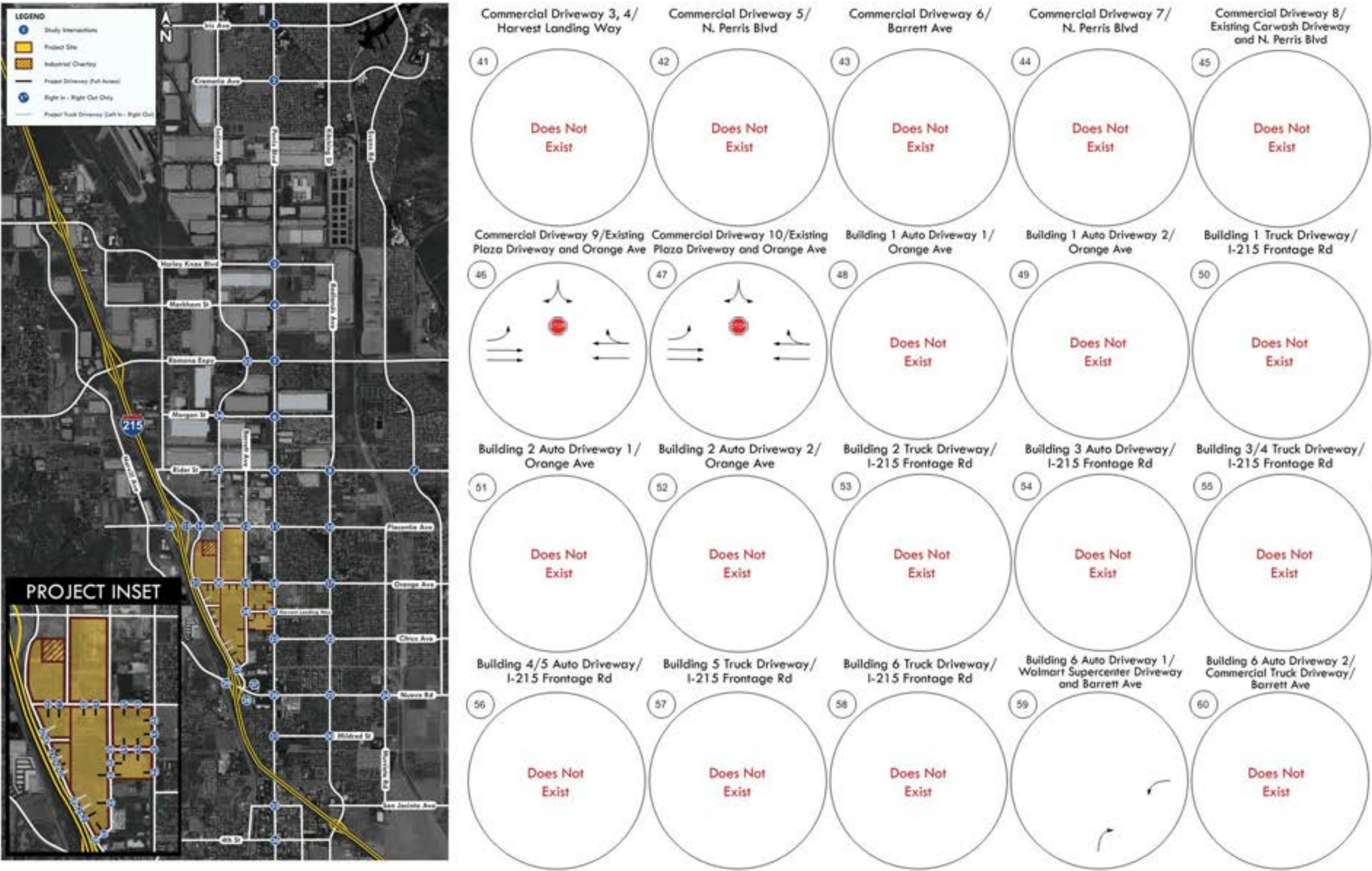


Figure 3.1d: Existing Intersection Lane Configuration and Traffic Control (Continued)



3.2 Existing 2024 Traffic Volumes and Intersection Operations

Traffic counts were collected for most study intersections on Tuesday, May 16th, 2023, while schools were in session. Traffic counts for intersection #39 were collected on Thursday, September 5th, 2024, while schools were in session. Counts for three existing driveways on the north leg of intersections #46 and #47, and the east leg of intersection #59, which belong to a commercial plaza and Walmart, were collected on Tuesday, July 30th, 2024, while schools were not in session. It is to be noted that since the driveways belong to commercial land uses, they are not affected by school trips when schools are in session, as their locations are not a part of typical routes used for school pick-up/drop-off. Additionally, the volumes for the eastbound and westbound trips at intersections #46 and #47 were determined based on volume balancing between two adjacent intersections, #18 (Barrett Ave/Orange Ave) and #19 (Perris Blvd/Orange Ave), for which traffic counts were conducted while schools were in session. Traffic count sheets are provided in *Appendix B*. The north legs of intersections #46 and #47 serve as driveways for Discount Mini Mall, located in the northwest corner of Perris Boulevard and Orange Avenue. Therefore, intersections #46 and #47 were analyzed as a three-legged intersection. The north leg does not exist for intersection #59, which has no conflicting movement and would not be analyzed under baseline conditions.

Existing counts incorporate truck classifications (i.e., Class 1 – Passenger Vehicles, Class 2 – 2-axle work vehicles/trucks, Class 3 – 3-axle trucks, Class 4 – 4 or more axle trucks, Class 5 – recreational vehicles, and Class 6 – Busses). Passenger Car Equivalent (PCE) factors were applied to truck/bus trips to account for the fact that trucks and buses utilize more roadway capacity due to their size, reduced maneuverability and slower acceleration. To account for the Existing 2024 traffic condition, a growth rate of three percent was applied to the counts collected in 2023. Existing 2024 AM and PM peak hour traffic volumes at the study area intersections are shown in *Figure 3.2* and *Figure 3.3* respectively. The LOS at the existing study area intersections were determined using the HCM methodology, described previously in *Section 2.3 Methodology*. The existing LOS at the study area are shown in *Table 3.2*. All LOS calculations are provided in *Appendix C*. As shown in *Table 3.2*, no intersections would operate at an unsatisfactory LOS in the Existing Year 2024 condition:

Table 3.2: Existing AM and PM Peak Hour Level of Service

Existing 2024 Conditions									
Intersection		Jurisdiction	Control Type	AM Peak		PM Peak		LOS Standard	Satisfactory?
				Delay	LOS	Delay	LOS		
1.	Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	47.0	D	37.3	D	D	Yes
2.	Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	30.8	C	27.7	C	D	Yes
3.	N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	26.8	C	27.9	C	D	Yes
4.	N Perris Blvd/W Markham St	City of Perris	Signalized	10.6	B	12.7	B	D	Yes
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	37.2	D	36.7	D	E	Yes
6.	N Perris Blvd/Morgan St	City of Perris	Signalized	11.8	B	10.4	B	D	Yes
7.	Evans Rd/E Rider St	City of Perris	Signalized	27.2	C	26.1	C	D	Yes
8.	Redlands Ave/E Rider St	City of Perris	Signalized	26.1	C	24.6	C	D	Yes
9.	N Perris Blvd/E Rider St	City of Perris	Signalized	19.1	B	22.6	C	D	Yes
10.	Redlands Ave/Placentia Ave	City of Perris	All-way stop	13.7	B	12.8	B	D	Yes
11.	N Perris Blvd/Placentia Ave	City of Perris	Signalized	20.5	C	17.5	B	D	Yes
12.	Barrett Ave/W Placentia Ave	City of Perris	All-way stop	9.7	A	8.9	A	D	Yes
13.	Indian Ave/W Placentia Ave	City of Perris	Signalized	32.4	C	26.5	C	D	Yes
14.	I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	22.1	C	20.4	C	D	Yes
15.	I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	19.3	B	19.7	B	E	Yes
16.	I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	17.3	B	17.6	B	E	Yes
17.	Redlands Ave/Orange Ave	City of Perris	Signalized	25.8	C	28.1	C	D	Yes
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	24.1	C	29.0	C	D	Yes
19.	Barrett Ave/Orange Ave	City of Perris	Two-way stop	18.6	C	15.3	C	D	Yes
20.	Indian Ave/Orange Ave	City of Perris	All-way stop	14.9	B	11.4	B	D	Yes
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Two-way stop	14.8	B	15.0	C	D	Yes
22.	Redlands Ave/Citrus Ave	City of Perris	All-way stop	11.6	B	12.5	B	D	Yes
23.	N Perris Blvd/Citrus Ave	City of Perris	Signalized	14.2	B	17.4	B	D	Yes
24.	Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	35.4	D	29.1	C	D	Yes
25.	Redlands Ave/E Nuevo Rd	City of Perris	Signalized	23.2	C	21.4	C	D	Yes
26.	N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	41.4	D	37.9	D	D	Yes
27.	I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	19.9	C	26.1	D	D	Yes
28.	I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	16.5	B	16.9	B	E	Yes
29.	I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	17.8	B	18.5	B	E	Yes
30.	Redlands Ave/Midred St	City of Perris	All-way stop	18.1	C	12.5	B	D	Yes
31.	N Perris Blvd/Mildred St	City of Perris	Signalized	11.3	B	7.2	A	D	Yes
32.	N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	21.5	C	20.0	C	D	Yes
33.	Indian Ave/Ramona Expy	City of Perris	Signalized	31.5	C	37.0	D	E	Yes
34.	Indian Ave/Morgan St	City of Perris	Signalized	20.5	C	17.1	B	D	Yes
35.	Indian Ave/Rider St	City of Perris	Signalized	20.9	C	21.8	C	D	Yes
36.	Perris Blvd/4th St	City of Perris	Signalized	32.8	C	34.0	C	E	Yes
37.	Perris Blvd/Daniela Way	City of Perris	Signalized	-	-	-	-	D	-
38.	Barrett Ave/Daniela Way	City of Perris	All-way stop	-	-	-	-	D	-
39.	Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	12.7	B	14.9	B	D	Yes
40.	Commercial Driveway 1, 2 and Daniela Way	City of Perris	Two-way stop	-	-	-	-	D	-
41.	Commercial Driveway 3, 4 and Daniela Way	City of Perris	Two-way stop	-	-	-	-	D	-
42.	Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
43.	Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
44.	Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
45.	Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
46.	Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	16.8	C	22.1	C	D	Yes
47.	Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	17.8	C	22.3	C	D	Yes
48.	Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
49.	Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
50.	Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	D	-
51.	Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
52.	Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
53.	Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
54.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
55.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
56.	Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
57.	Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
58.	Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
59.	Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
60.	Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
61.	Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
62.	Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
63.	Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-

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

Figure 3.2a: Existing AM Peak Hour PCE Traffic Volumes

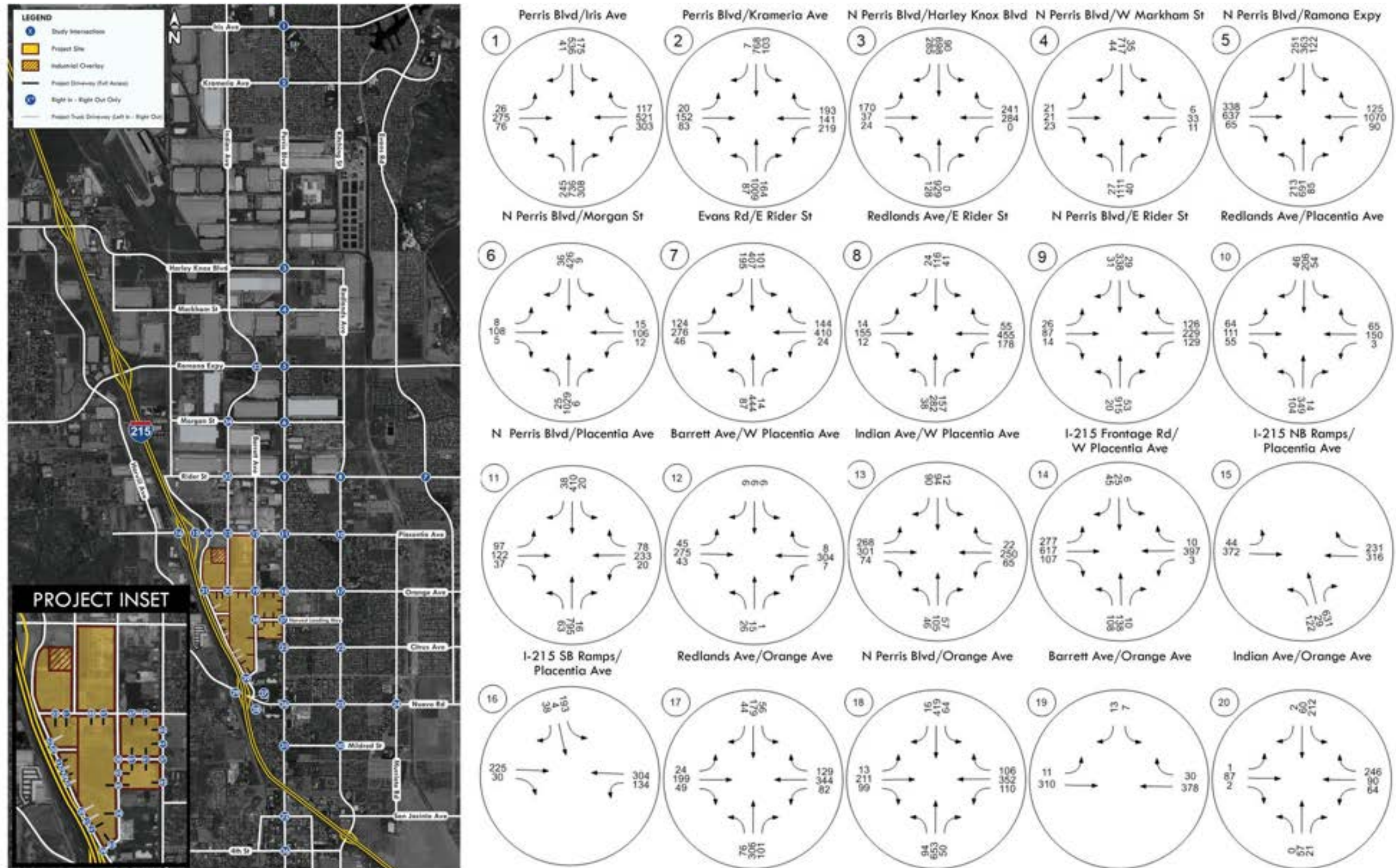


Figure 3.2b: Existing AM Peak Hour PCE Traffic Volumes (Continued)

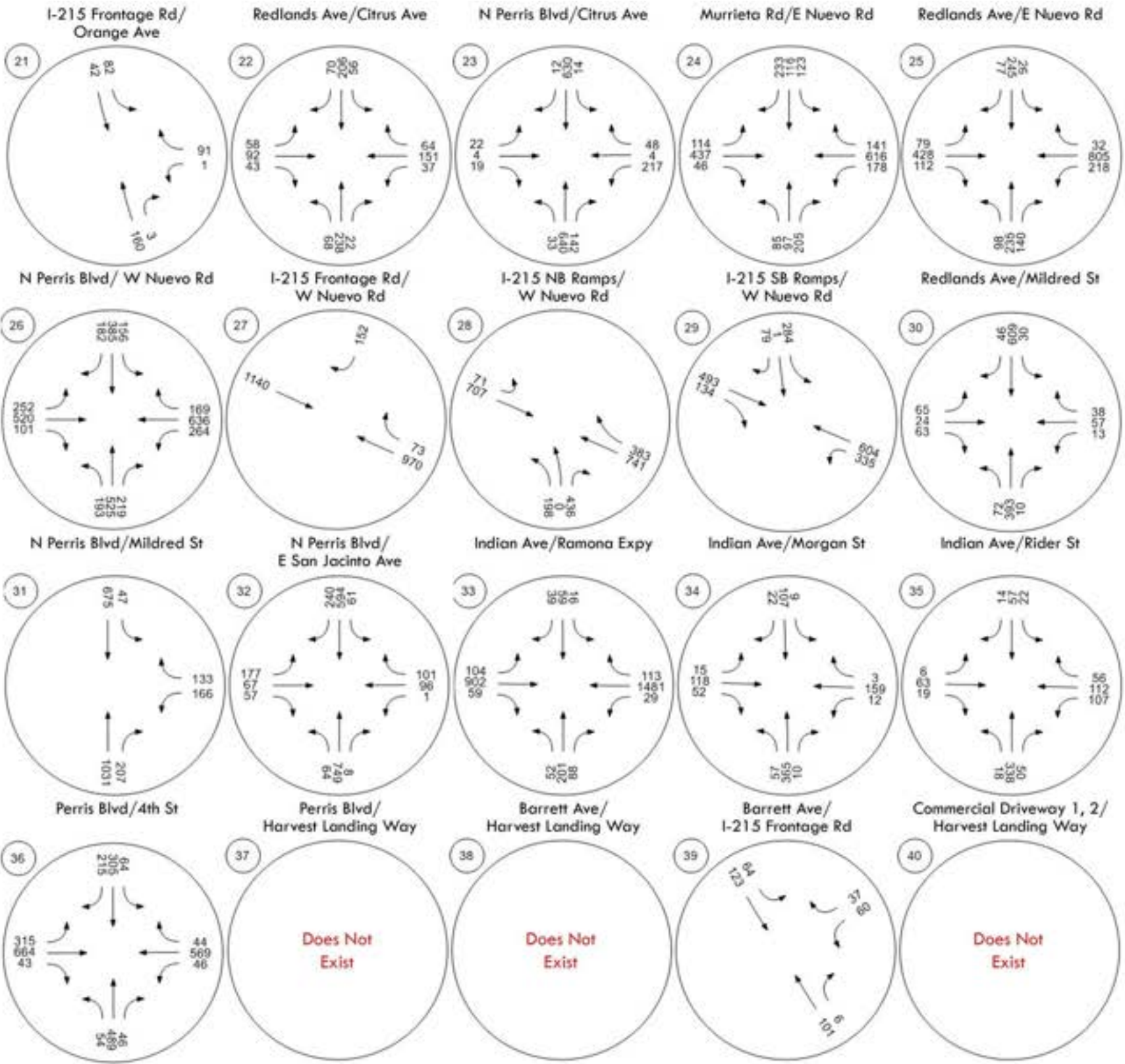


Figure 3.2c: Existing AM Peak Hour PCE Traffic Volumes (Continued)

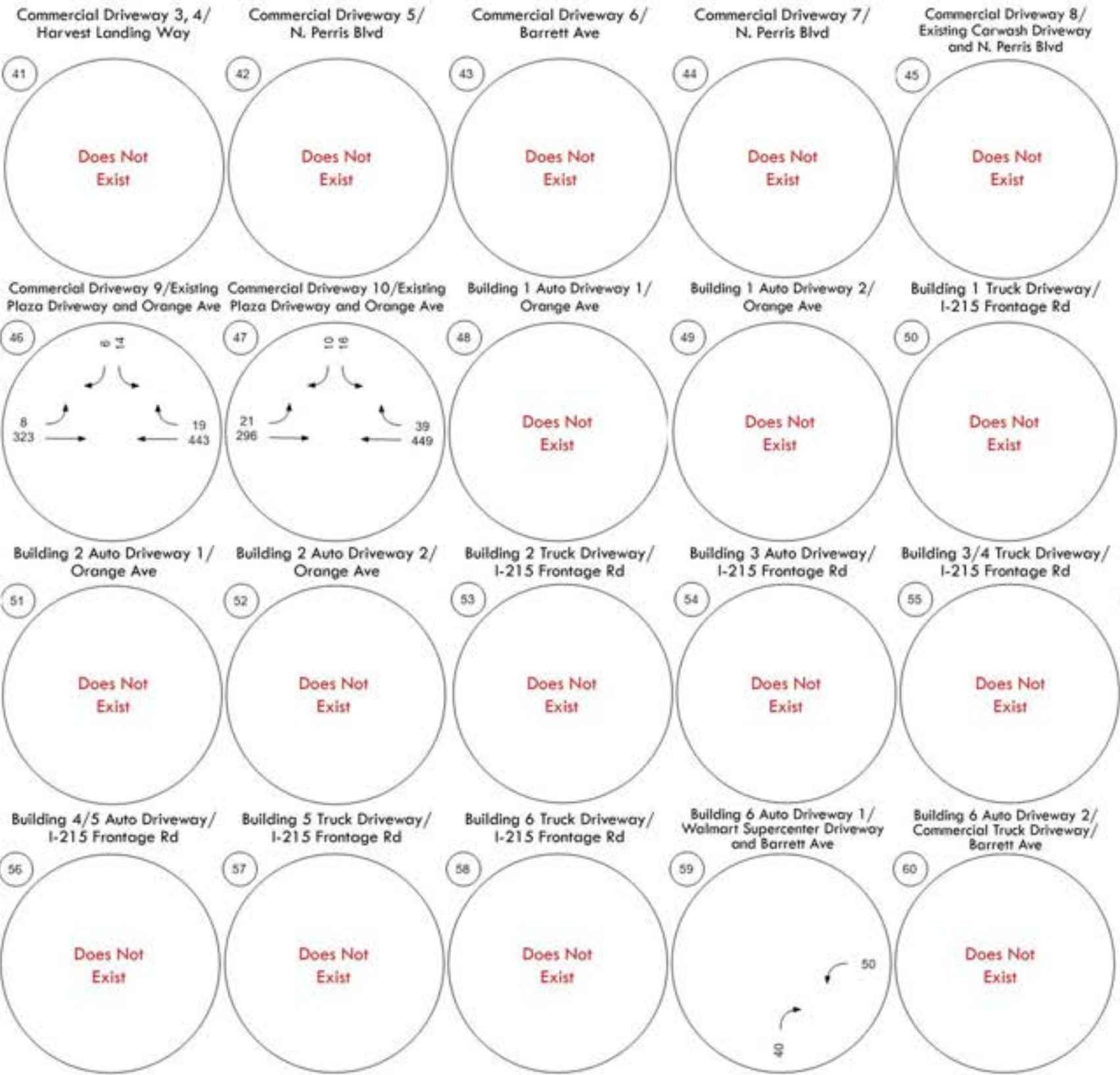


Figure 3.2d: Existing AM Peak Hour PCE Traffic Volumes (Continued)

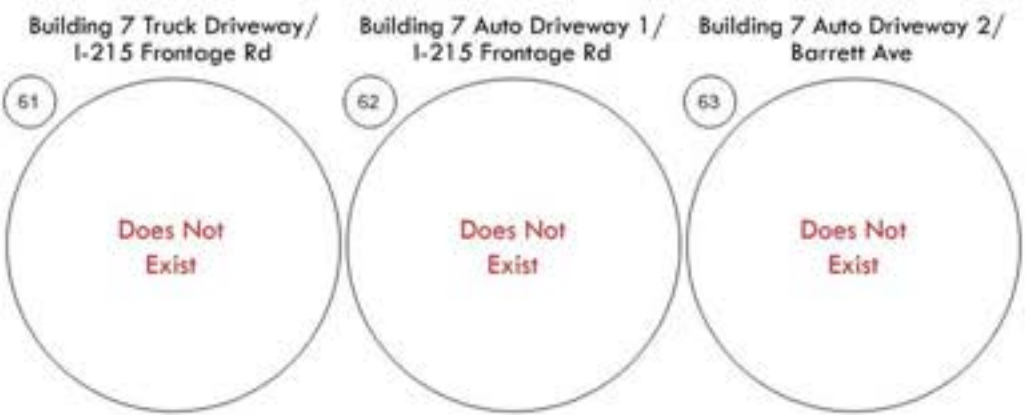


Figure 3.3a: Existing PM Peak Hour PCE Traffic Volumes

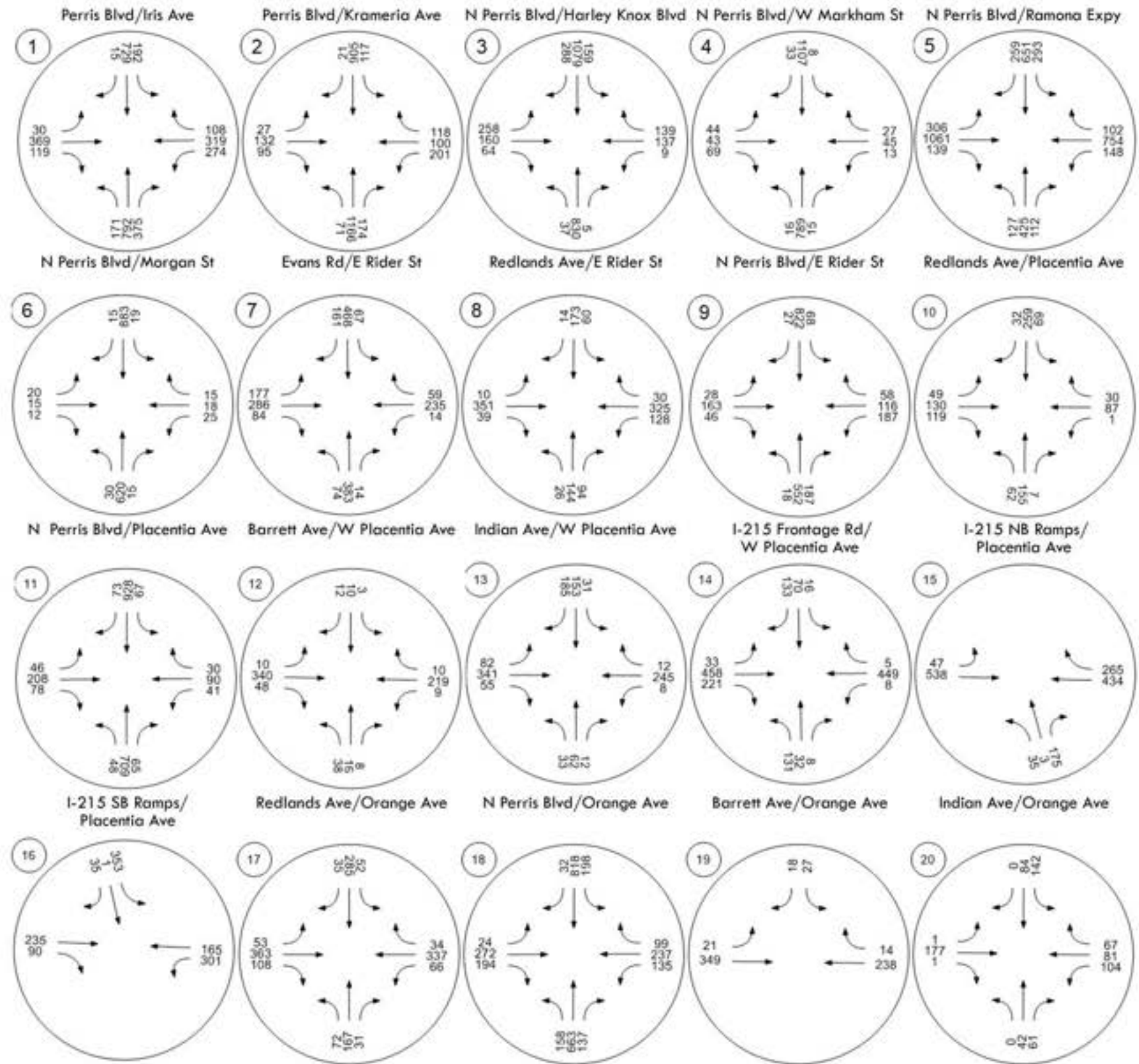


Figure 3.3b: Existing PM Peak Hour PCE Traffic Volumes (Continued)

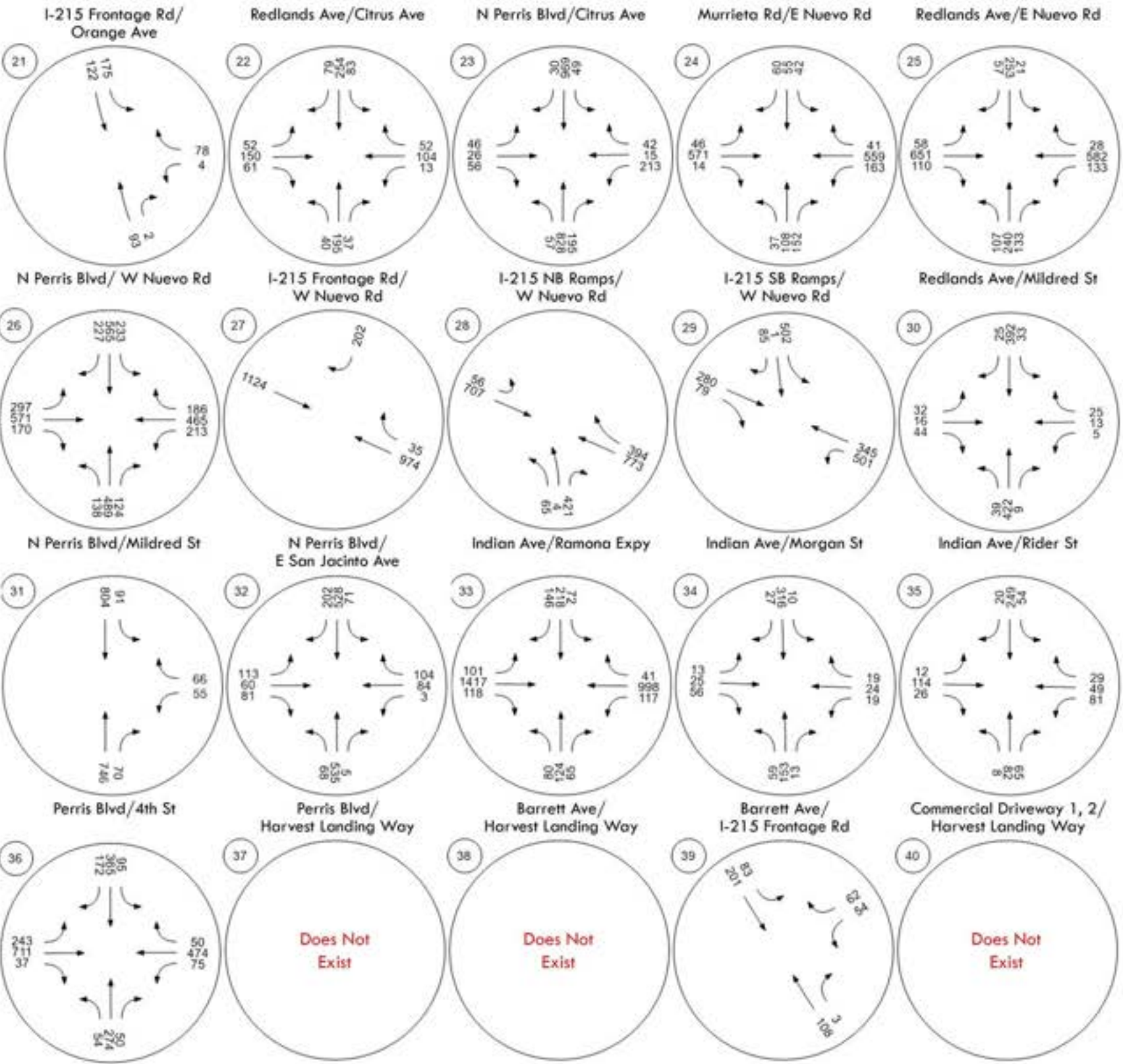


Figure 3.3c: Existing PM Peak Hour PCE Traffic Volumes (Continued)

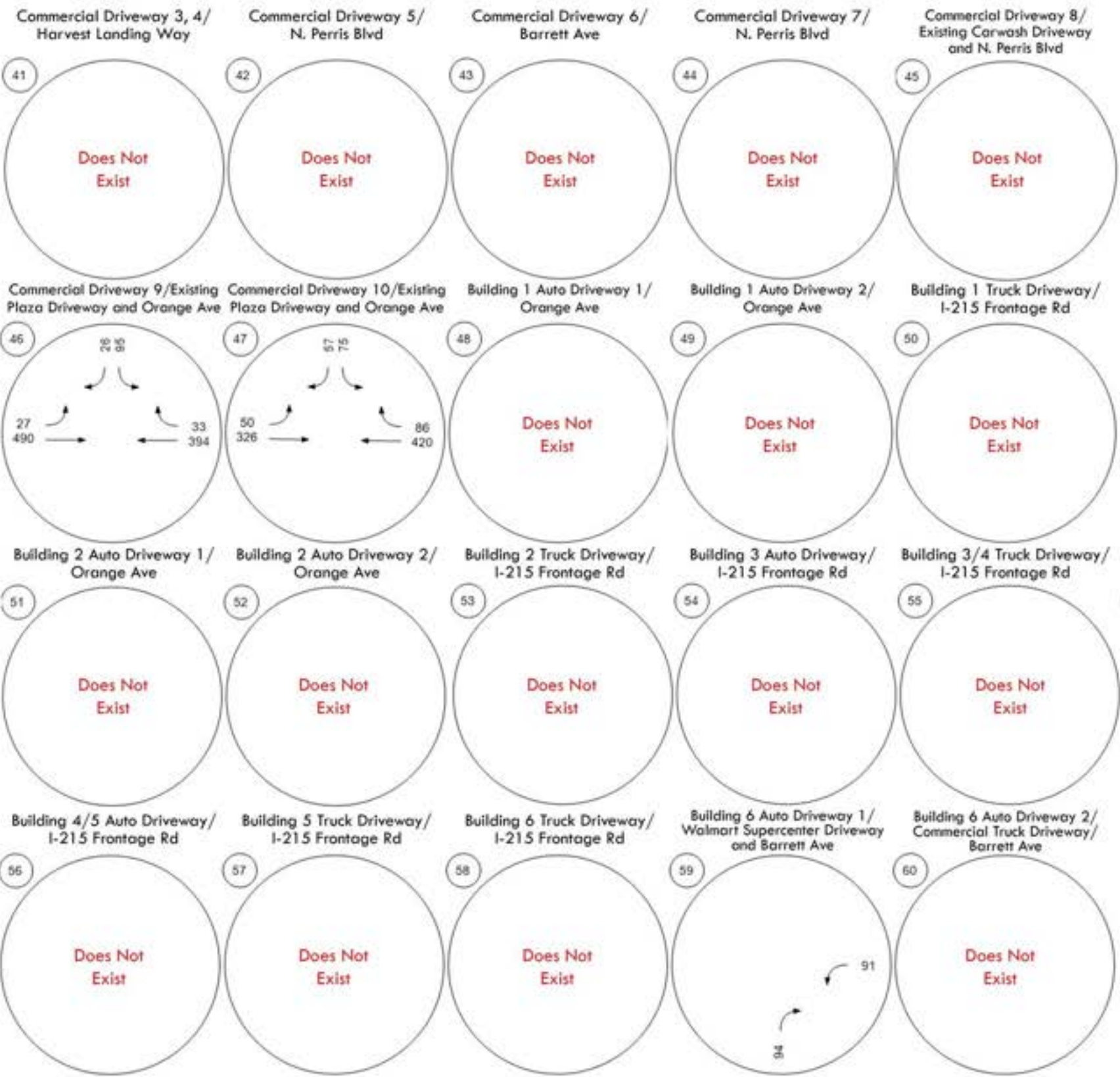
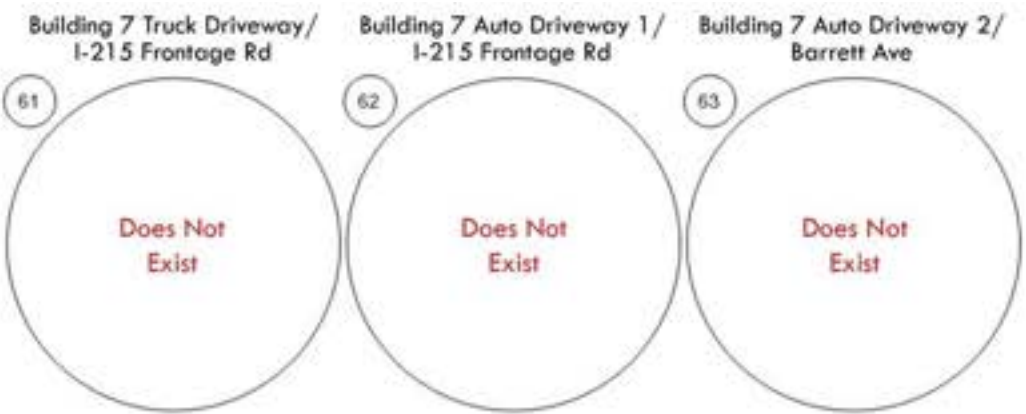


Figure 3.3d: Existing PM Peak Hour PCE Traffic Volumes (Continued)



3.2.1 Existing 2024 Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. Table 3.3 shows the queue lengths at each intersection approach. As shown in Table 3.3, no queueing deficiencies were observed under Existing 2024 conditions.

Table 3.3: Existing AM and PM Peak Hour Queueing Analysis

	Existing 2024 Conditions							
	Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT
15. I-215 NB Ramps/Placentia Ave								
Storage Length Per Lane	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	25	205	-	-	20	-	-	155
PM Queue Length Per Lane	5	40	-	-	20	-	-	145
16. I-215 SB Ramps/Placentia Ave								
Storage Length Per Lane	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	30	10	-	15	45	-
PM Queue Length Per Lane	-	-	60	10	-	40	95	-
28. I-215 NB Ramps/W Nuevo Rd								
Storage Length Per Lane	170	170	-	-	135	-	-	200
AM Queue Length Per Lane	75	60	-	-	60	-	-	175
PM Queue Length Per Lane	25	55	-	-	45	-	-	175
29. I-215 SB Ramps/W Nuevo Rd								
Storage Length Per Lane	-	-	185	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	70	30	-	220	110	-
PM Queue Length Per Lane	-	-	110	25	-	135	160	-

Notes:

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.

3.2.2 Existing 2024 Roadway Segment Analysis

Traffic counts at the existing roadway segments were collected on December 4, 2024, when school was in session. Existing counts incorporate truck classifications (i.e., Class 1 – Passenger Vehicles, Class 2 – 2-axle work vehicles/trucks, Class 3 – 3-axle trucks, Class 4 – 4 or more axle trucks, Class 5 – recreational vehicles, and Class 6 – Busses). Passenger Car Equivalent (PCE) factors from County of Riverside TA guidelines (2020) were applied to truck/bus trips to account for the fact that trucks and buses utilize more roadway capacity due to their size, reduced maneuverability and slower acceleration.

Note that following three roadway segments do not exist under baseline conditions:

- #16. Barrett Ave between Orange Ave and Harvest Landing Way
- #17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
- #18. Harvest Landing Way between Barrett Ave and Perris Blvd

It is to be noted that a portion of Segment #17 currently exists north of I-215 Frontage Rd. However, the segment only provides access to the existing commercial development between I-215 Frontage Rd and Perris Blvd and does not contribute to the traffic circulation within the City of Perris.

The LOS at the existing study roadway segments were determined using the methodology described previously in *Section 2.3 Methodology*. The existing LOS at the study roadway segments are shown in *Table 3.4*. As shown in *Table 3.4*, no roadway segments would operate at an unsatisfactory LOS in the Existing 2024 condition.

Table 3.4: Existing 2024 Roadway Segment Level of Service

Segment	Classification ²	# of Lanes	Roadway Capacity ²	Existing 2024 ADT ¹	V/C Ratio	LOS	LOS Standard ²	Unsatisfactory?
1. Indian Ave between Water Ave and Orange Ave	Collector	2	13,000	4,917	0.378	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	8,628	0.240	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	35,900	27,429	0.764	C	D	No
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,323	0.102	A	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	4	35,900	25,847	0.720	C	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	35,900	26,118	0.728	C	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	37,352	0.693	B	D	No
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Collector	2	13,000	6,192	0.476	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Collector	2	13,000	3,114	0.240	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Collector	2	13,000	3,285	0.253	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	24,642	0.686	B	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	28,706	0.533	A	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	21,803	0.607	B	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	35,900	30,128	0.839	D	D	No
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	12,602	0.234	A	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	-	-	-	-	-	-	-	-
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	-	-	-	-	-	-	-	-
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	-	-	-	-	-	-	-	-
19. Indian Ave between Placentia Ave and Water Ave	Collector	2	13,000	4,917	0.378	A	D	No

Notes:

LOS = Level of Service

1- Counts collected in December 4, 2024. All volumes are presented in PCE.

2- Classification, Roadway Capacity and LOS Standard from City of Perris General Plan Circulation Element.

3.3 Opening Year I 2026 Without Project Traffic Conditions

Opening Year I 2026 Without Project traffic volumes were developed by applying a growth rate of three percent per year to the existing condition volume and adding traffic generated by cumulative projects, which are approved and pending development or newly constructed projects in 2024 that would impact the study area. The location of the cumulative projects is shown in Figure 3.4. A two-mile radius was utilized for determining which cumulative projects will be included in the cumulative projects list. The trip generation for cumulative projects shown in Table 3.5 was generated using ITE Trip Generation Manual 11th edition rates and are based on the project list provided by the City of Perris.

The AM and PM traffic volumes generated by the cumulative projects were distributed to the study area based on engineering judgment and are shown in Figure 3.5 and Figure 3.6. The Opening Year I 2026 Without Project traffic volumes are shown in Figure 3.7 and Figure 3.8.

The Opening Year I 2026 Without Project lane geometry is the analyzed with the same intersection lane configuration post-project completion to compare the impacts accurately. Intersection lane configuration and traffic control post-project completion can be found in Figure 4.8.

The Opening Year I 2026 Without Project levels of service at the study area intersections were determined using the HCM methodology, described previously in Section 2.3 - Methodology. Table 3.6 shows the Opening Year I 2026 Without Project AM and PM peak hour levels of service at study area intersections. As shown in Table 3.6, the following intersection would operate at an unsatisfactory LOS under the Opening Year I 2026 Without Project condition:

- #1. Perris Blvd/Iris Ave (LOS E during AM peak hour)

Table 3.6: Opening Year I 2026 Without Project AM and PM Peak Hour LOS

	Intersection	Jurisdiction	Control Type	Opening Year I 2026 Conditions				LOS Standard	Satisfactory?
				AM Peak Del	AM Peak LOS	PM Peak Del	PM Peak LOS		
1.	Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	63.1	E	51.3	D	D	No
2.	Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	44.0	D	39.5	D	D	Yes
3.	N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	32.6	C	32.1	C	D	Yes
4.	N Perris Blvd/W Markham St	City of Perris	Signalized	14.1	B	15.2	B	D	Yes
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	74.3	E	48.2	D	E	Yes
6.	N Perris Blvd/Morgan St	City of Perris	Signalized	11.7	B	10.7	B	D	Yes
7.	Evans Rd/E Rider St	City of Perris	Signalized	30.4	C	28.7	C	D	Yes
8.	Redlands Ave/E Rider St	City of Perris	Signalized	30.2	C	37.0	D	D	Yes
9.	N Perris Blvd/E Rider St	City of Perris	Signalized	25.9	C	28.3	C	D	Yes
10.	Redlands Ave/Placentia Ave	City of Perris	All-way stop	17.7	C	19.0	C	D	Yes
11.	N Perris Blvd/Placentia Ave	City of Perris	Signalized	37.8	D	32.0	C	D	Yes
12.	Barrett Ave/W Placentia Ave	City of Perris	All-way stop	25.0	D	17.4	C	D	Yes
13.	Indian Ave/W Placentia Ave	City of Perris	Signalized	36.2	D	35.2	D	D	Yes
14.	I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	29.1	C	21.1	C	D	Yes
15.	I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	32.6	C	28.4	C	E	Yes
16.	I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	16.8	B	20.0	B	E	Yes
17.	Redlands Ave/Orange Ave	City of Perris	Signalized	25.9	C	28.6	C	D	Yes
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	24.1	C	32.0	C	D	Yes
19.	Barrett Ave/Orange Ave	City of Perris	Two-way stop	19.4	C	15.2	C	D	Yes
20.	Indian Ave/Orange Ave	City of Perris	All-way stop	14.0	B	11.8	B	D	Yes
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Two-way stop	14.4	B	14.8	B	D	Yes
22.	Redlands Ave/Citrus Ave	City of Perris	All-way stop	12.3	B	13.7	B	D	Yes
23.	N Perris Blvd/Citrus Ave	City of Perris	Signalized	13.3	B	18.4	B	D	Yes
24.	Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	39.3	D	31.6	C	D	Yes
25.	Redlands Ave/E Nuevo Rd	City of Perris	Signalized	23.6	C	22.7	C	D	Yes
26.	N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	43.9	D	41.6	D	D	Yes
27.	I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	21.1	C	30.3	D	D	Yes
28.	I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	18.4	B	21.3	C	E	Yes
29.	I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	18.4	B	29.0	C	E	Yes
30.	Redlands Ave/Midred St	City of Perris	All-way stop	21.6	C	13.7	B	D	Yes
31.	N Perris Blvd/Mildred St	City of Perris	Signalized	14.3	B	7.6	A	D	Yes
32.	N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	26.9	C	20.7	C	D	Yes
33.	Indian Ave/Ramona Expy	City of Perris	Signalized	32.5	C	36.6	D	E	Yes
34.	Indian Ave/Morgan St	City of Perris	Signalized	20.1	C	16.6	B	D	Yes
35.	Indian Ave/Rider St	City of Perris	Signalized	22.0	C	31.3	C	D	Yes
36.	Perris Blvd/4th St	City of Perris	Signalized	57.9	E	50.5	D	E	Yes
37.	Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	D	-
38.	Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	D	-
39.	Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	12.6	B	14.3	B	D	Yes
40.	Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-
41.	Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-
42.	Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
43.	Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
44.	Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
45.	Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
46.	Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.8	C	31.2	D	D	Yes
47.	Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	19.5	C	26.2	D	D	Yes
48.	Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
49.	Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
50.	Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	D	-
51.	Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
52.	Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
53.	Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
54.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
55.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
56.	Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
57.	Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
58.	Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
59.	Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
60.	Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
61.	Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
62.	Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
63.	Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

Figure 3.4: Location of Cumulative Projects



Table 3.5a: Cumulative Project Trip Generation - City of Perris

Land Use		Units	Daily	In	Out	Total	In	Out	Total
AM Peak Hour									
PM Peak Hour									
Trip Rates									
110 General Light Industrial ¹		1000 Sq. Ft. GFA	4.87	0.65	0.09	0.74	0.09	0.56	0.65
140 Manufacturing ²		1000 Sq. Ft. GFA	4.75	0.52	0.16	0.68	0.23	0.51	0.74
150 Warehousing ³		1000 Sq. Ft. GFA	1.71	0.13	0.04	0.17	0.05	0.13	0.18
154 High-Cube Transload and Short-Term Storage Warehouse ⁴		1000 Sq. Ft. GFA	1.40	0.06	0.02	0.08	0.03	0.07	0.10
Truck/Trailer Parking Lot ⁵		Acres	30.710	1.110	0.860	1.970	0.970	1.110	2.080
560 Church ⁶		1000 Sq. Ft. GFA	7.60	0.20	0.12	0.32	0.22	0.27	0.49
813 Free-Standing Discount Superstore ⁷		1000 Sq. Ft. GFA	50.52	1.04	0.82	1.86	2.12	2.21	4.33
821 Shopping Plaza (40-150k) ⁸		1000 Sq. Ft. GLA	94.49	2.19	1.34	3.53	4.33	4.70	9.03
932 High-Turnover (Sit-Down) Restaurant ⁹		1000 Sq. Ft. GFA	107.20	5.26	4.31	9.57	5.52	3.53	9.05
934 Fast-Food Restaurant with Drive-Through Window ¹⁰		1000 Sq. Ft. GFA	467.48	22.75	21.86	44.61	17.18	15.85	33.03
936 Coffee/Donut Shop without Drive-Through Window ¹¹		1000 Sq. Ft. GFA	0.00	47.47	45.61	93.08	16.14	16.14	32.29
945 Convenience Store/Gas Station ¹²		Vehicle Fueling Positions (GFA (5.5-10k))	345.75	15.80	15.80	31.60	14.80	14.80	29.60
310 Hotel ¹³		Rooms	7.99	0.26	0.20	0.46	0.30	0.29	0.59
948 Automated Car Wash ¹⁴		1000 Sq. Ft. GFA	0.00	0.00	0.00	0.00	7.10	7.10	14.20
Project Trip Generation									
P1. Burge Indus 2 ¹	43	1000 Sq. Ft. GFA	211	28	4	32	4	24	28
Vehicle Mix ¹⁵									
Percent									
Passenger Vehicles		72.5%	153	20	3	23	3	17	20
2-Axle Trucks		4.6%	10	1	-	1	-	1	1
3-Axle Trucks		5.7%	12	2	-	2	-	2	2
4+-Axle Trucks		17.2%	36	5	1	6	1	4	5
		100.0%	211	28	4	32	4	24	28
Proposed PCE Trip Generation ¹⁶									
PCE Factor									
Passenger Vehicles		1.0	153	20	3	23	3	17	20
2-Axle Trucks		1.5	15	2	-	2	-	2	2
3-Axle Trucks		2.0	24	4	-	4	-	4	4
4+-Axle Trucks		3.0	108	15	3	18	3	12	15
			300	41	6	47	6	35	41
P2. Burge Indus 1 ² (PCE)	18	1000 Sq. Ft. GFA	123	14	4	18	6	13	19
P3. Seefried Indus ³ (PCE)	165	1000 Sq. Ft. GFA	404	32	9	41	10	33	43
P4. Calvio Ind ³ (PCE)	43	1000 Sq. Ft. GFA	106	7	2	9	2	8	10
P5. Calvio Ind 2 ³ (PCE)	30	1000 Sq. Ft. GFA	73	6	1	7	1	6	7
P6. Pulliam Indus ³ (PCE)	16	1000 Sq. Ft. GFA	40	2	3	5	1	4	5
P7. Chartwell Ind ³ (PCE)	132	1000 Sq. Ft. GFA	323	26	7	33	9	25	34
P8. Redlands Indus ³ (PCE)	113	1000 Sq. Ft. GFA	275	23	4	27	8	20	28
P9. Rider Self Storage ³ (PCE)	70	1000 Sq. Ft. GFA	169	14	4	18	6	13	19
P10. LPC west industrial ³ (PCE)	157	1000 Sq. Ft. GFA	381	31	9	40	10	31	41
P11. Rider 4 ⁴ (PCE)	548	1000 Sq. Ft. GFA	1,093	49	15	64	23	55	78
P12. Patriot Ind ⁴ (PCE)	286	1000 Sq. Ft. GFA	570	26	7	33	10	32	42
P13. First Indus (Goodwin) ⁴ (PCE)	248	1000 Sq. Ft. GFA	495	23	5	28	9	26	35
P14. Lakecreek West ⁴ (PCE)	300	1000 Sq. Ft. GFA	598	26	8	34	10	33	43
P15. Lakecreek East ⁴ (PCE)	256	1000 Sq. Ft. GFA	510	23	5	28	9	27	36
P16. Lakecreek Placentia - Cubes ⁴ (PCE)	509	1000 Sq. Ft. GFA	1,014	47	11	58	20	53	73
P17. First Sinclair ⁴ (PCE)	423	1000 Sq. Ft. GFA	845	36	13	49	18	41	59
P18. Sinclair Indu ⁴ (PCE)	436	1000 Sq. Ft. GFA	869	40	10	50	18	46	64
P19. Orbis Indus Truck Yard ⁵ (PCE)	26	Acres	1,512	55	42	97	49	54	103
P20. Vida Church Expansion ⁶	25	1000 Sq. Ft. GFA	190	5	3	8	5	7	12

Table 3.5b: Cumulative Project Trip Generation - City of Perris (Continued)

P21. Target ⁷	151	1000 Sq. Ft. GFA	7,629	157	124	281	320	334	654
Pass By (Daily 0%, AM 0%, PM 29%)			-	-	-	-	-93	-97	-190
Total Free-Standing Discount Superstore Trip Generation			7,629	157	124	281	227	237	464
P22. Commercial Shopping Center ⁸	93	1000 Sq. Ft. GLA	8,753	203	124	327	401	435	836
Pass By (Daily 0%, AM 0%, PM 40%)			-	-	-	-	-160	-174	-334
Total Shopping Plaza (40-150k) Trip Generation			8,753	203	124	327	241	261	502
P23. Habit & QSRs ⁹	8	1000 Sq. Ft. GFA	858	42	35	77	44	28	72
Pass By (Daily 0%, AM 0%, PM 43%)			-	-	-	-	-19	-12	-31
Total High-Turnover (Sit-Down) Restaurant Trip Generation			858	42	35	77	25	16	41
P24. Pollo Campero (Fast Food) ⁹	3	1000 Sq. Ft. GFA	279	14	11	25	15	9	24
Pass By (Daily 0%, AM 0%, PM 43%)			-	-	-	-	-6	-4	-10
Total High-Turnover (Sit-Down) Restaurant Trip Generation			279	14	11	25	9	5	14
P25. Raising Canes ¹⁰	4	1000 Sq. Ft. GFA	1,791	87	84	171	66	61	127
Pass By (Daily 50%, AM 50%, PM 55%)			-895	-43	-42	-85	-36	-34	-70
Total Fast-Food Restaurant with Drive-Through Window Trip Generation			896	44	42	86	30	27	57
P26. Panera ¹⁰	4	1000 Sq. Ft. GFA	1,676	82	78	160	61	57	118
Pass By (Daily 50%, AM 50%, PM 55%)			-838	-41	-39	-80	-34	-31	-65
Total Fast-Food Restaurant with Drive-Through Window Trip Generation			838	41	39	80	27	26	53
P27. Better Buzz Coffee Shop ¹¹	2	1000 Sq. Ft. GFA	-	83	79	162	28	28	56
P28. Gas Station carwash & Hotel ¹²	8	Vehicle Fueling Positions (GFA (5.5-10k))	2,766	127	126	253	119	118	237
Pass By (Daily 75%, AM 76%, PM 75%)			-2,074	-97	-95	-192	-89	-89	-178
Total Convenience Store/Gas Station Trip Generation			692	30	31	61	30	29	59
P28. Gas Station carwash & Hotel ¹³	75	Rooms	599	20	15	35	22	22	44
P29. Beyond Market; drive-thru wash ¹⁴	9	1000 Sq. Ft. GFA	-	-	-	-	64	64	128
P30. Tommy's carwash & QSR ¹⁴	9	1000 Sq. Ft. GFA	-	-	-	-	61	60	121
P31. 7-Eleven Auto carwash ¹⁴	4	1000 Sq. Ft. GFA	-	-	-	-	29	29	58
Total Project Passenger Vehicle Trip Generation			28,995	1,058	755	1,813	1,343	1,510	2,853
Total Project Truck Trip Generation			2,090	109	37	146	45	117	162
Total Project Trip Generation (Non PCE)			31,085	1,167	792	1,959	1,388	1,627	3,015
Total Project Trip Generation (PCE)			34,241	1,341	844	2,185	1,460	1,807	3,267

Notes:

¹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 110 - General Light Industrial (Average Rate)

²Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 140 - Manufacturing (Average Rate)

³Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 150 - Warehousing (Average Rate)

⁴Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 154 - High-Cube Transload and Short-Term Storage Warehouse (Average Rate)

⁵Trip rates from Truck Trailer Parking Trip Generation Study, EPD Solutions, March 24, 2023.

⁶Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 560 - Church (Average Rate)

⁷Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 813 - Free-Standing Discount Superstore (Average Rate)

⁸Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 821 - Shopping Plaza (40-150k) (Average Rate)

⁹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 932 - High-Turnover (Sit-Down) Restaurant (Average Rate)

¹⁰Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 934 - Fast-Food Restaurant with Drive-Through Window (Average Rate)

¹¹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 936 - Coffee/Donut Shop without Drive-Through Window (Average Rate)

¹²Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 945 - Convenience Store/Gas Station (Average Rate)

¹³Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 310 - Hotel (Average Rate)

¹⁴Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 948 - Automated Car Wash (Average Rate)

¹⁵Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, July 17, 2014. Without Cold Storage

¹⁶Passenger Car Equivalent (PCE) factors for ITE rates are from San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

¹⁷Vehicle Mix from Truck Trailer Parking Trip Generation Study, EPD Solutions, March 24, 2023.

Table 3.5c: Cumulative Project Trip Generation – City of Moreno Valley

Land Use		Units	AM Peak Hour				PM Peak Hour			
			Daily	In	Out	Total	In	Out	Total	
Trip Rates										
221 Multifamily Housing (Mid-Rise) ¹		Dwelling Units	4.54	0.09	0.28	0.37	0.24	0.15	0.39	
822 Strip Retail Plaza (<40k) ²		1000 Sq. Ft. GLA	54.45	1.42	0.94	2.36	3.29	3.29	6.59	
930 Fast Casual Restaurant ³		1000 Sq. Ft. GFA	97.14	0.71	0.71	1.43	6.90	5.65	12.55	
945 Convenience Store/Gas Station ⁴		1000 Sq. Ft. GFA (VFP (16-24))	1283.38	45.67	45.67	91.35	39.48	39.48	78.95	
720 Medical-Dental Office Building ⁵		1000 Sq. Ft. GFA (Within/Near Hospital Campus)	31.86	2.17	0.51	2.68	0.71	2.13	2.84	
220 Multifamily Housing (Low-Rise) ⁶		Dwelling Units	6.74	0.10	0.30	0.40	0.32	0.19	0.51	
221 Multifamily Housing (Mid-Rise) ⁷		Dwelling Units	4.54	0.09	0.28	0.37	0.24	0.15	0.39	
821 Shopping Plaza (40-150k) ⁸		1000 Sq. Ft. GLA (No Supermarket)	67.52	1.07	0.66	1.73	2.54	2.65	5.19	
310 Hotel ⁹		Rooms	7.99	0.26	0.20	0.46	0.30	0.29	0.59	
520 Elementary School ¹⁰		Students	2.27	0.40	0.34	0.74	0.07	0.09	0.16	
522 Middle School/Junior High School ¹¹		Students	2.10	0.36	0.31	0.67	0.07	0.08	0.15	
411 Public Park ¹²		Acres	0.78	0.01	0.01	0.02	0.06	0.05	0.11	
Active Sports Park ¹³		Acres	50.000	0.640	0.640	1.280	3.530	3.530	7.060	
Project Trip Generation										
MR1. Cresta Bella ¹	376	Dwelling Units	1,707	32	107	139	90	57	147	
MR1. Cresta Bella ²	8	1000 Sq. Ft. GLA	449	11	8	19	27	27	54	
MR1. Cresta Bella ³	6	1000 Sq. Ft. GFA	583	5	4	9	41	34	75	
MR2. Beyond Food Mart and Gas Station ⁴	16	1000 Sq. Ft. GFA (VFP (16-24))	20,534	731	731	1,462	632	631	1,263	
Pass By (Daily 75%, AM 76%, PM 75%)			-15,400	-556	-555	-1,111	-474	-473	-947	
Total Convenience Store/Gas Station Trip Generation			5,134	175	176	351	158	158	316	
MR3. Kaiser Expansion Project ⁵	405	1000 Sq. Ft. GFA (Within/Near Hospital Campus)	12,903	879	206	1,085	288	862	1,150	
MR4. Aquabella Specific Plan - Multifamily Housing (Low Rise) ⁶	7,500	Dwelling Units	50,550	720	2,280	3,000	2,410	1,415	3,825	
MR4. Aquabella Specific Plan - Multifamily Housing (Mid-Rise) ⁷	7,500	Dwelling Units	34,050	638	2,137	2,775	1,784	1,141	2,925	
MR4. Aquabella Specific Plan - Shopping Center ⁸	50	1000 Sq. Ft. GLA (No Supermarket)	3,369	53	33	86	127	132	259	
Pass By (Daily 0%, AM 0%, PM 40%)			-	-	-	-	-51	-53	-104	
Total Shopping Plaza (40-150k) Trip Generation			3,369	53	33	86	76	79	155	
MR4. Aquabella Specific Plan - Hotel ⁹	300	Rooms	2,397	77	61	138	90	87	177	
MR4. Aquabella Specific Plan - Elementary School ¹⁰	3,995	Students	9,069	1,596	1,360	2,956	294	345	639	
MR4. Aquabella Specific Plan - Middle School/Junior High School ¹¹	2,049	Students	4,303	741	632	1,373	147	160	307	
MR4. Aquabella Specific Plan - Park and Lake Promenade ¹²	15	Acres	12	-	-	-	1	1	2	
MR4. Aquabella Specific Plan - Active Sports Park ¹³	25	Acres	1,250	16	16	32	88	89	177	
Total Project Trip Generation			141,176	5,499	7,575	13,074	6,019	4,981	11,000	

Notes:

¹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 221 - Multifamily Housing (Mid-Rise) (Average Rate)

²Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 822 - Strip Retail Plaza (<40k) (Average Rate)

³Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 930 - Fast Casual Restaurant (Average Rate)

⁴Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 945 - Convenience Store/Gas Station (Average Rate)

⁵Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 720 - Medical-Dental Office Building (Average Rate)

⁶Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 220 - Multifamily Housing (Low-Rise) (Average Rate)

⁷Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 221 - Multifamily Housing (Mid-Rise) (Average Rate)

⁸Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 821 - Shopping Plaza (40-150k) (Average Rate)

⁹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 310 - Hotel (Average Rate)

¹⁰Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 520 - Elementary School (Average Rate)

¹¹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 522 - Middle School/Junior High School (Average Rate)

¹²Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 411 - Public Park (Average Rate)

¹³San Diego Association of Governments (SANDAG)'s Brief Guide of Vehicular Traffic Generation Rates for San Diego Region, 2002.

Table 3.5d: Cumulative Project Trip Generation – Mead Valley

Land Use	Units	AM Peak Hour			PM Peak Hour			Total
		Daily	In	Out	Total	In	Out	
Trip Rates								
154 High-Cube Transload and Short-Term Storage Warehouse ¹	1000 Sq. Ft. GFA	1.40	0.06	0.02	0.08	0.03	0.07	0.10
310 Hotel ²	Rooms	7.99	0.26	0.20	0.46	0.30	0.29	0.59
150 Warehousing ³	1000 Sq. Ft. GFA	1.71	0.13	0.04	0.17	0.05	0.13	0.18
942 Automobile Care Center ⁴	1000 Sq. Ft. GFA	0.00	1.49	0.76	2.25	1.49	1.62	3.11
Truck/Trailer Parking Lot ⁵	Acres	30.710	1.110	0.860	1.970	0.970	1.110	2.080
Project Trip Generation								
MV1. PP23170 ¹	287 1000 Sq. Ft. GFA	402	18	5	23	8	21	29
Vehicle Mix⁶		Percent						
Passenger Vehicles		72.5%	292	13	4	17	7	14
2-Axle Trucks		4.6%	18	1	-	1	-	1
3-Axle Trucks		5.7%	23	1	-	1	-	2
4+-Axle Trucks		17.2%	69	3	1	4	1	4
		100.0%	402	18	5	23	8	29
Proposed PCE Trip Generation⁷		PCE Factor						
Passenger Vehicles		1.0	292	13	4	17	7	14
2-Axle Trucks		1.5	27	2	-	2	-	2
3-Axle Trucks		2.0	46	2	-	2	-	4
4+-Axle Trucks		3.0	207	9	3	12	3	15
			572	26	7	33	10	42
MV2. PPT220002 ¹ (PCE)	435 1000 Sq. Ft. GFA	868	40	10	50	18	42	60
MV3. TPM38337 ¹ (PCE)	591 1000 Sq. Ft. GFA	1,178	51	16	67	25	59	84
MV4. PPT180023 ¹ (PCE)	203 1000 Sq. Ft. GFA	406	18	6	24	8	20	28
MV5. PPT240005 ²	310 Rooms	2,477	80	63	143	93	90	183
MV6. PPT220047 ³ (PCE)	192 1000 Sq. Ft. GFA	470	35	13	48	15	35	50
MV7. PPT230048 ³ (PCE)	186 1000 Sq. Ft. GFA	454	35	12	47	14	34	48
MV8. PPT190032 ³ (PCE)	53 1000 Sq. Ft. GFA	130	9	5	14	5	10	15
MV9. PPT210021 ⁴	16 1000 Sq. Ft. GFA	-	24	12	36	24	26	50
MV10. PPT230028 ⁴	12 1000 Sq. Ft. GFA	-	17	9	26	17	19	36
MV8. PPT190032 ⁵ (PCE)	10 Acres	579	20	17	37	19	22	41
MV9. PPT210021 ⁵ (PCE)	11 Acres	644	24	18	42	20	24	44
MV10. PPT230028 ⁵ (PCE)	14 Acres	794	29	22	51	25	29	54
Total Project Passenger Vehicle Trip Generation		4,935	245	125	370	195	265	460
Total Project Truck Trip Generation		1,468	64	35	99	38	72	110
Total Project Trip Generation (Non PCE)		6,403	309	160	469	233	337	570
Total Project Trip Generation (PCE)		8,572	408	210	618	293	442	735

Notes:

¹Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 154 - High-Cube Transload and Short-Term Storage Warehouse (Average Rate)

²Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 310 - Hotel (Average Rate)

³Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 150 - Warehousing (Average Rate)

⁴Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021. Land Use Code 942 - Automobile Care Center (Average Rate)

⁵Trip rates from Truck Trailer Parking Trip Generation Study, EPD Solutions, March 24, 2023.

⁶Vehicle Mix from the Warehouse Truck Trip Study Data Results and Usage, July 17, 2014. Without Cold Storage

⁷Passenger Car Equivalent (PCE) factors for ITE rates are from San Bernardino County CMP, Appendix B - Guidelines for CMP Traffic Impact Analysis Reports in San Bernardino County, 2016

⁸Vehicle Mix from Truck Trailer Parking Trip Generation Study, EPD Solutions, March 24, 2023.

Figure 3.5a: Cumulative Project AM PCE Trip Assignment

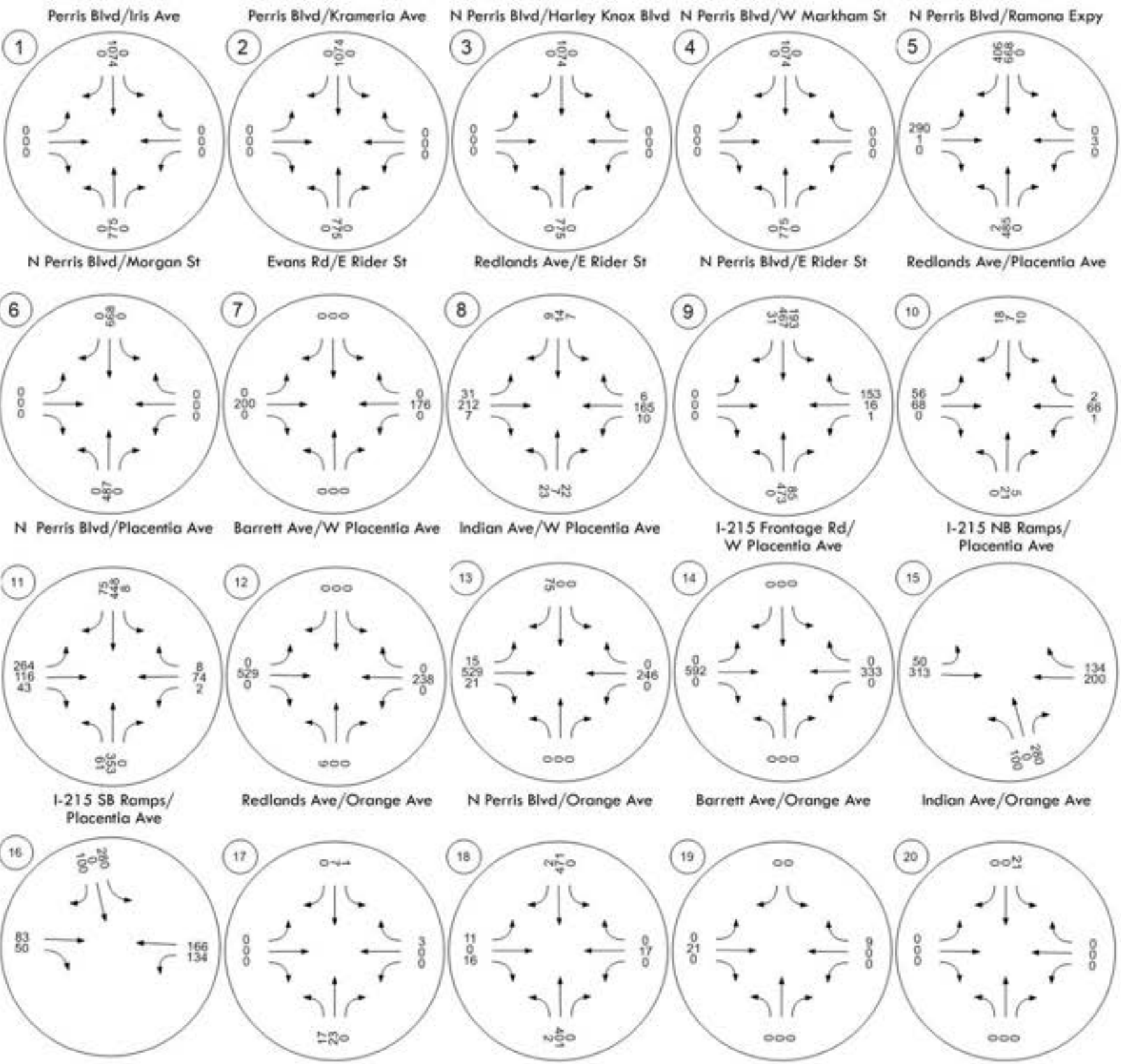


Figure 3.5b: Cumulative Project AM PCE Trip Assignment (Continued)

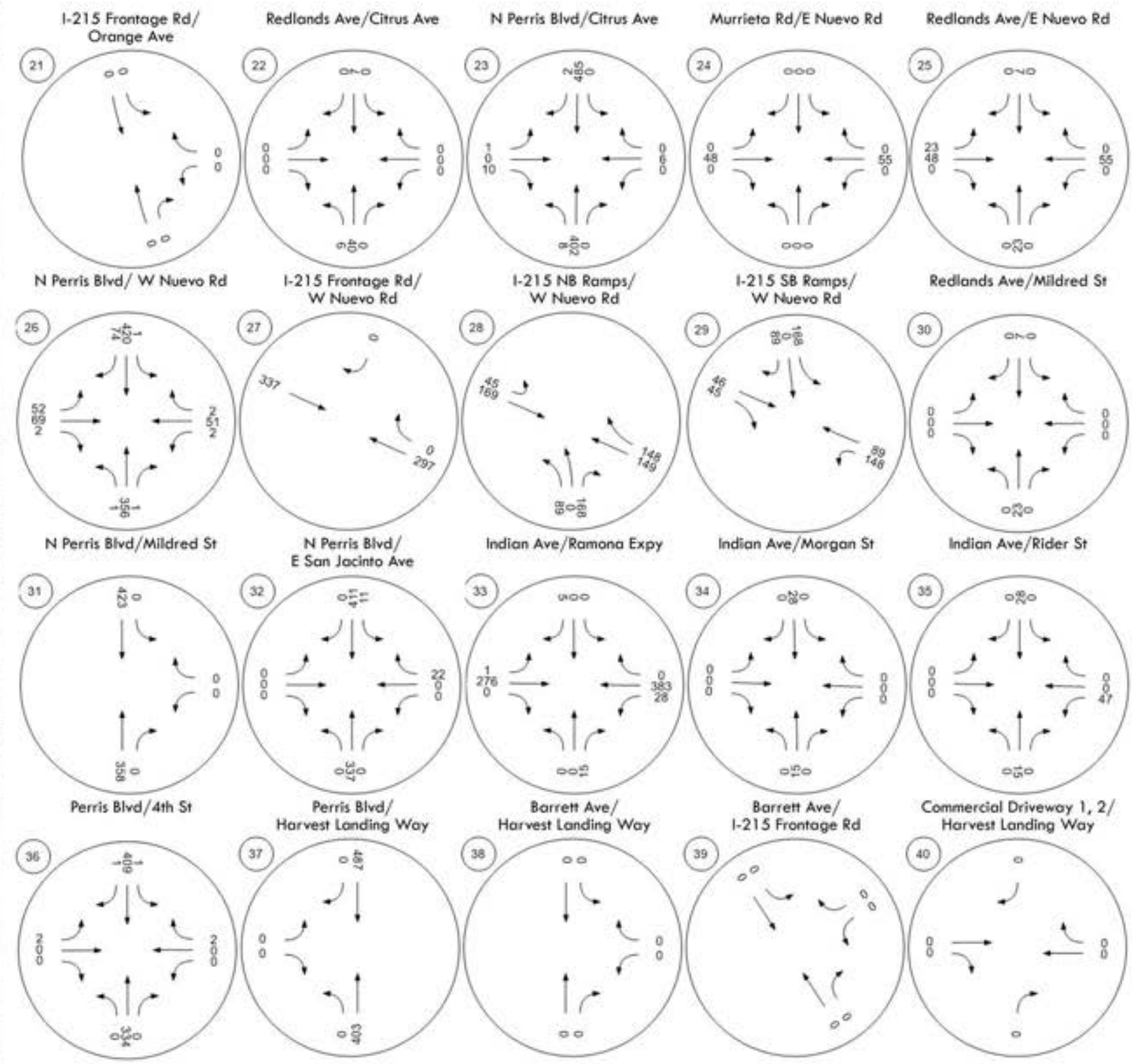


Figure 3.5c: Cumulative Project AM PCE Trip Assignment (Continued)

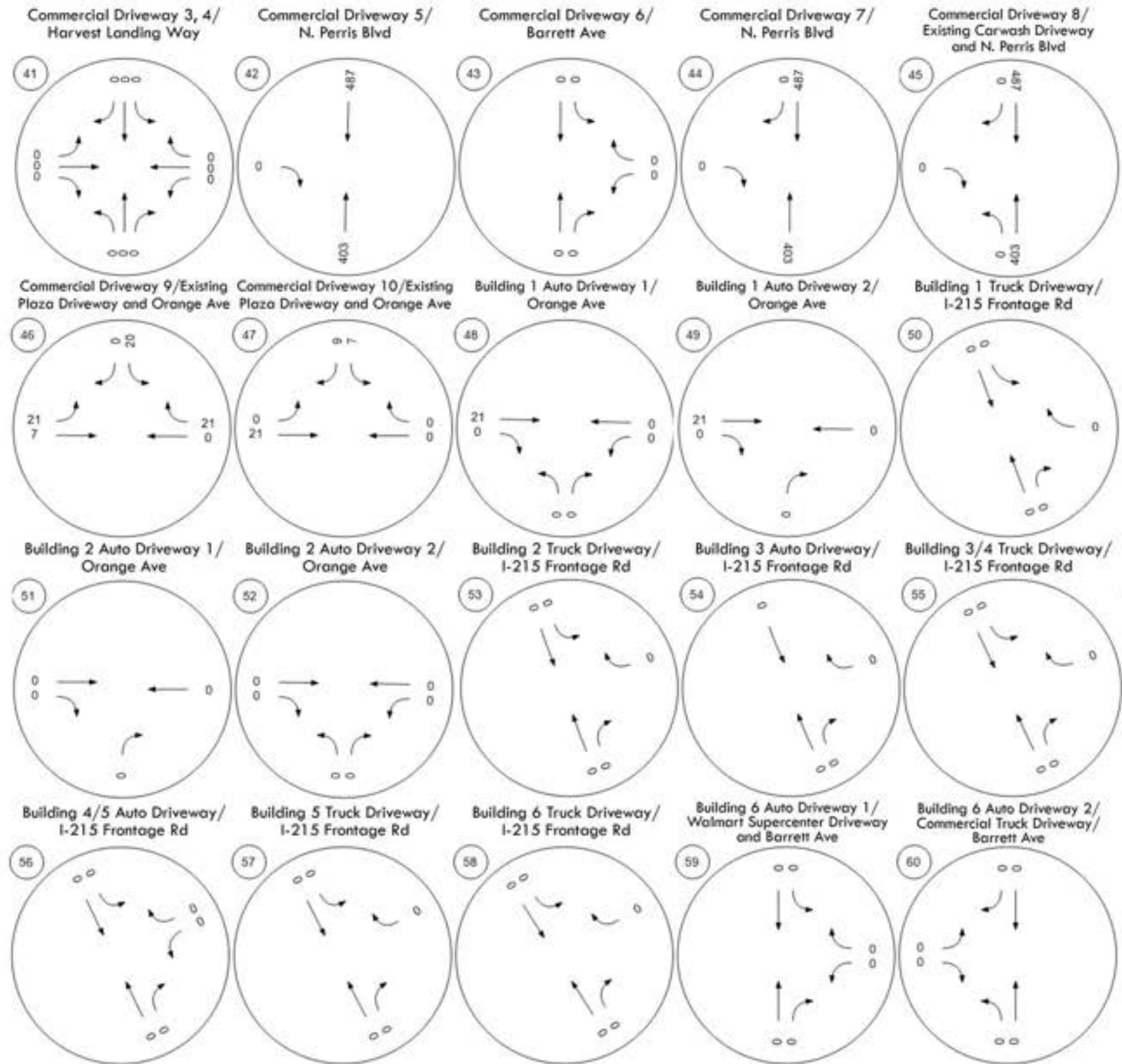




Figure 3.5d: Cumulative Project AM PCE Trip Assignment (Continued)

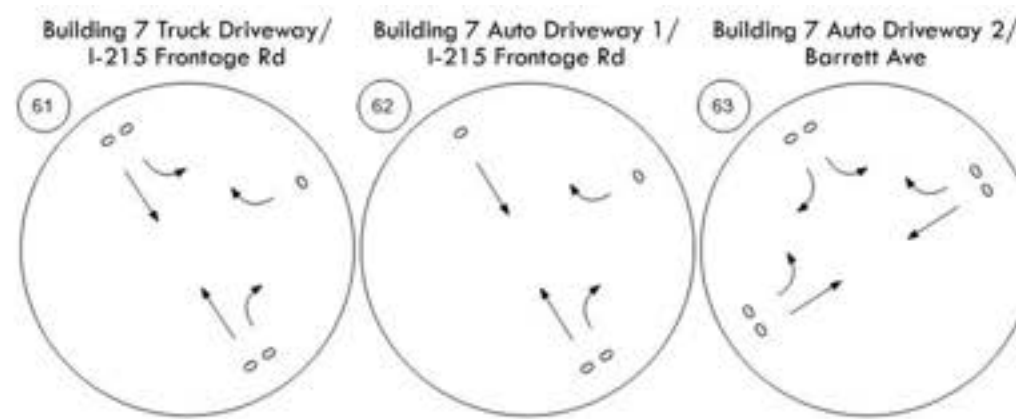
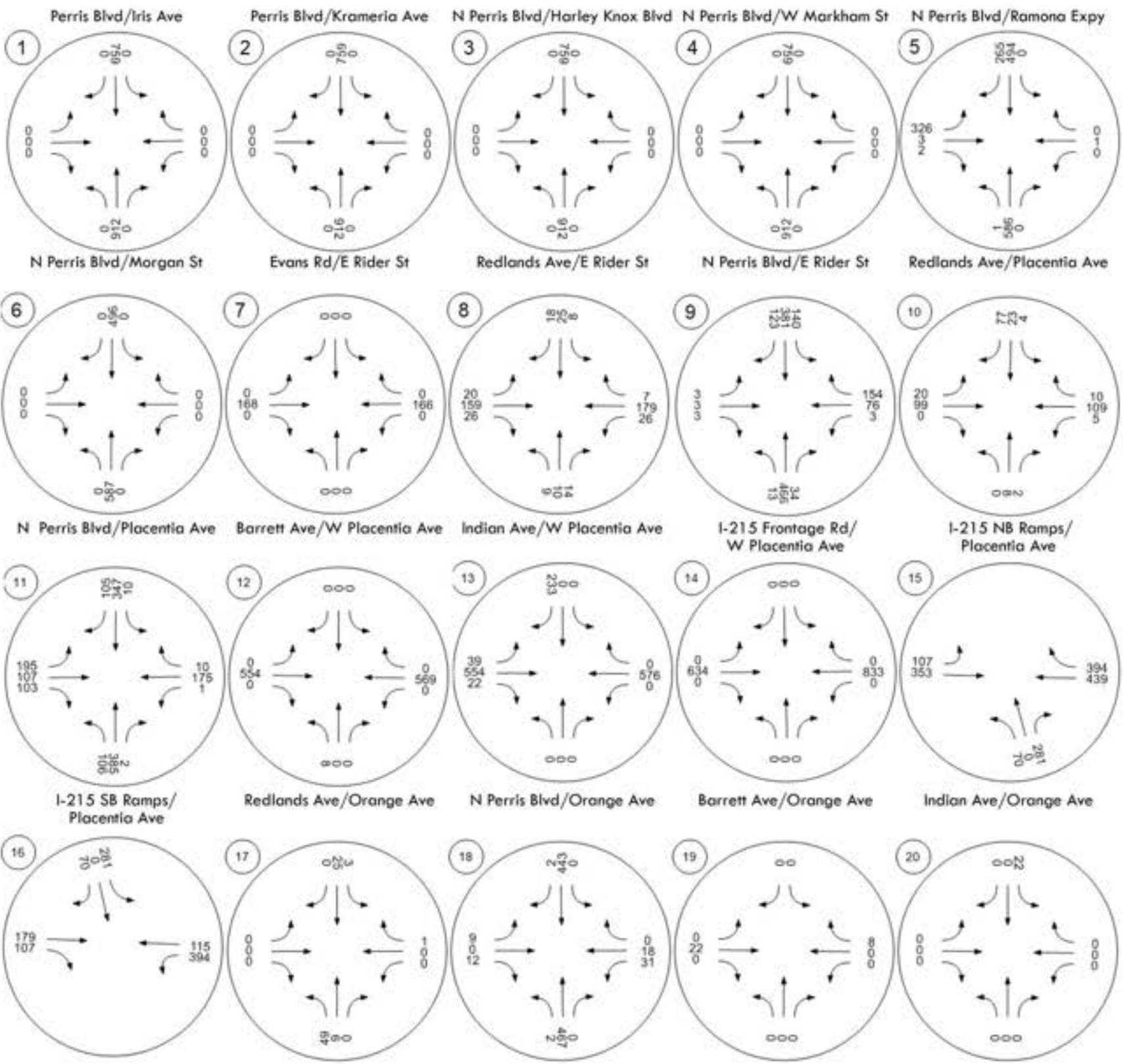


Figure 3.6a: Cumulative Project PM PCE Trip Assignment



21 I-215 Frontage Rd/ Orange Ave	22 Redlands Ave/Citrus Ave	23 N Perris Blvd/Citrus Ave	24 Murrieta Rd/E Nuevo Rd	25 Redlands Ave/E Nuevo Rd
26 N Perris Blvd/ W Nuevo Rd	27 I-215 Frontage Rd/ W Nuevo Rd	28 I-215 NB Ramps/ W Nuevo Rd	29 I-215 SB Ramps/ W Nuevo Rd	30 Redlands Ave/Mildred St
31 N Perris Blvd/Mildred St	32 N Perris Blvd/ E San Jacinto Ave	33 Indian Ave/Ramona Expy	34 Indian Ave/Morgan St	35 Indian Ave/Rider St
36 Perris Blvd/4th St	37 Perris Blvd/ Harvest Landing Way	38 Barrett Ave/ Harvest Landing Way	39 Barrett Ave/ I-215 Frontage Rd	40 Commercial Driveway 1, 2/ Harvest Landing Way



Figure 3.6c: Cumulative Project PM PCE Trip Assignment (Continued)

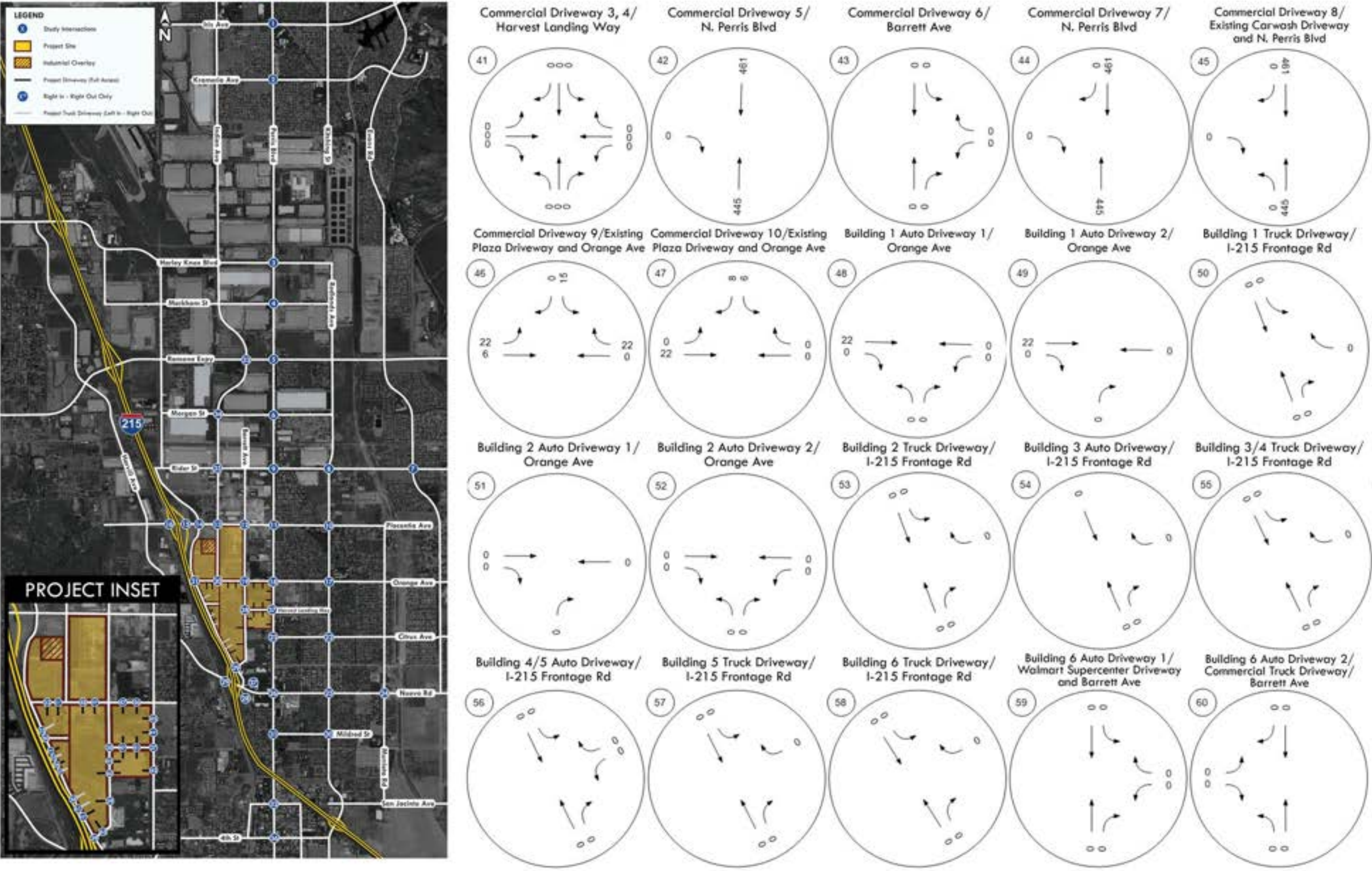


Figure 3.6d: Cumulative Project PM PCE Trip Assignment (Continued)

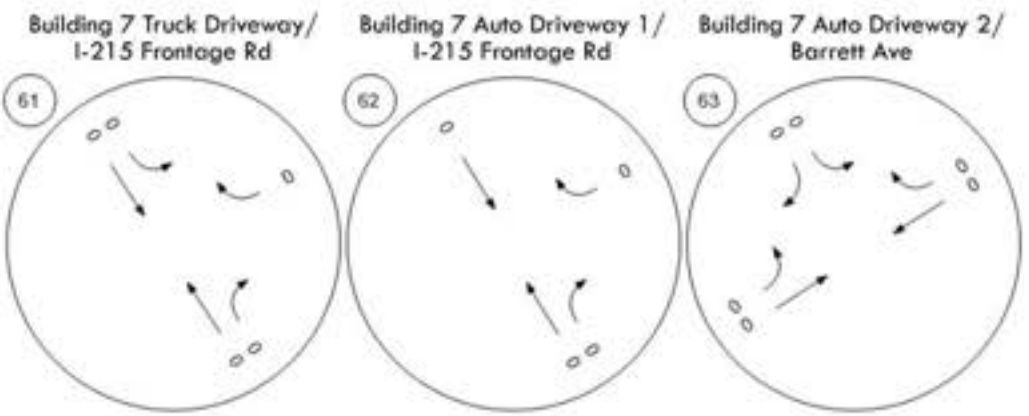


Figure 3.7a: Opening Year I 2026 Without Project AM Peak Hour PCE Traffic Volumes

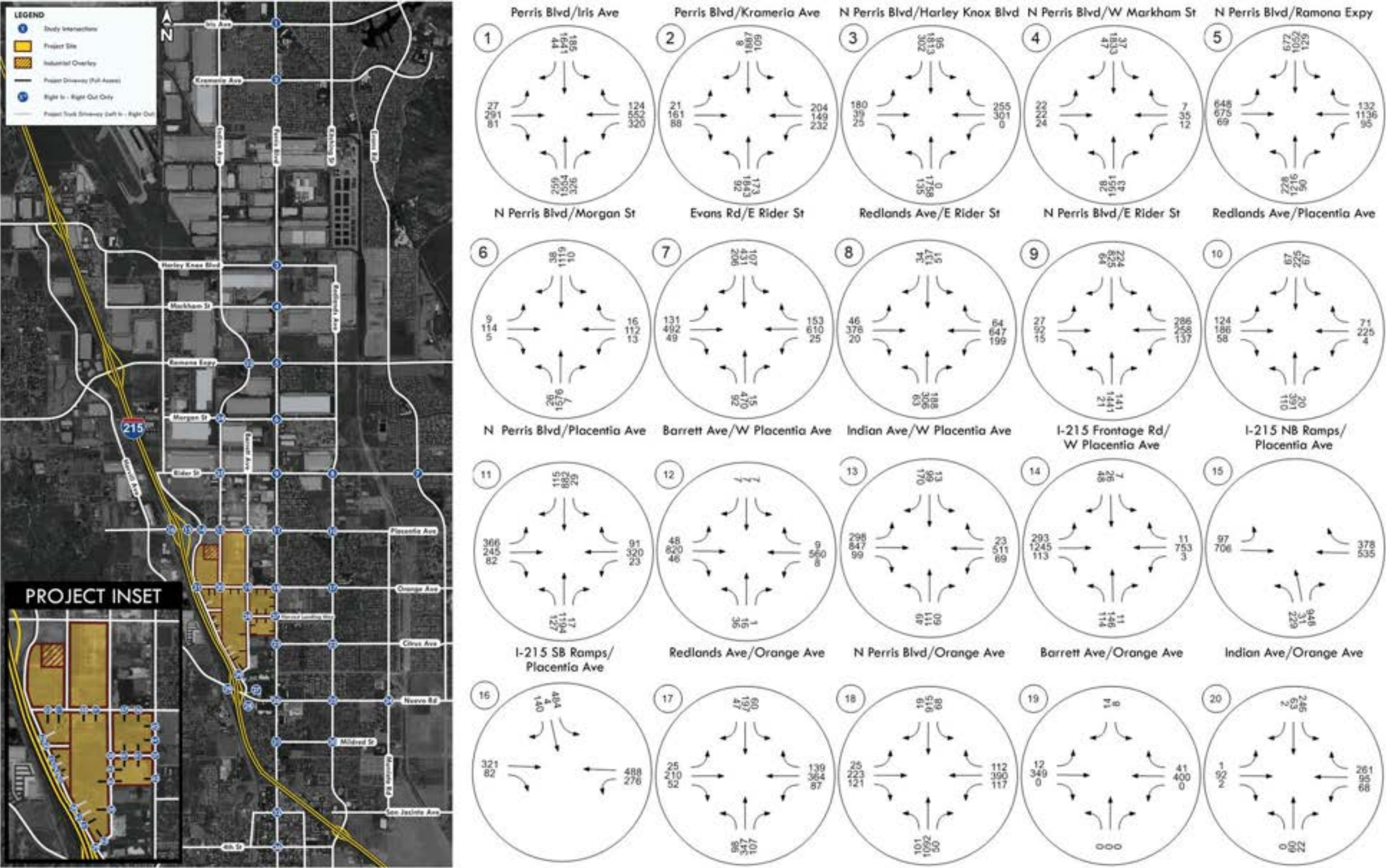


Figure 3.7b: Opening Year I 2026 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

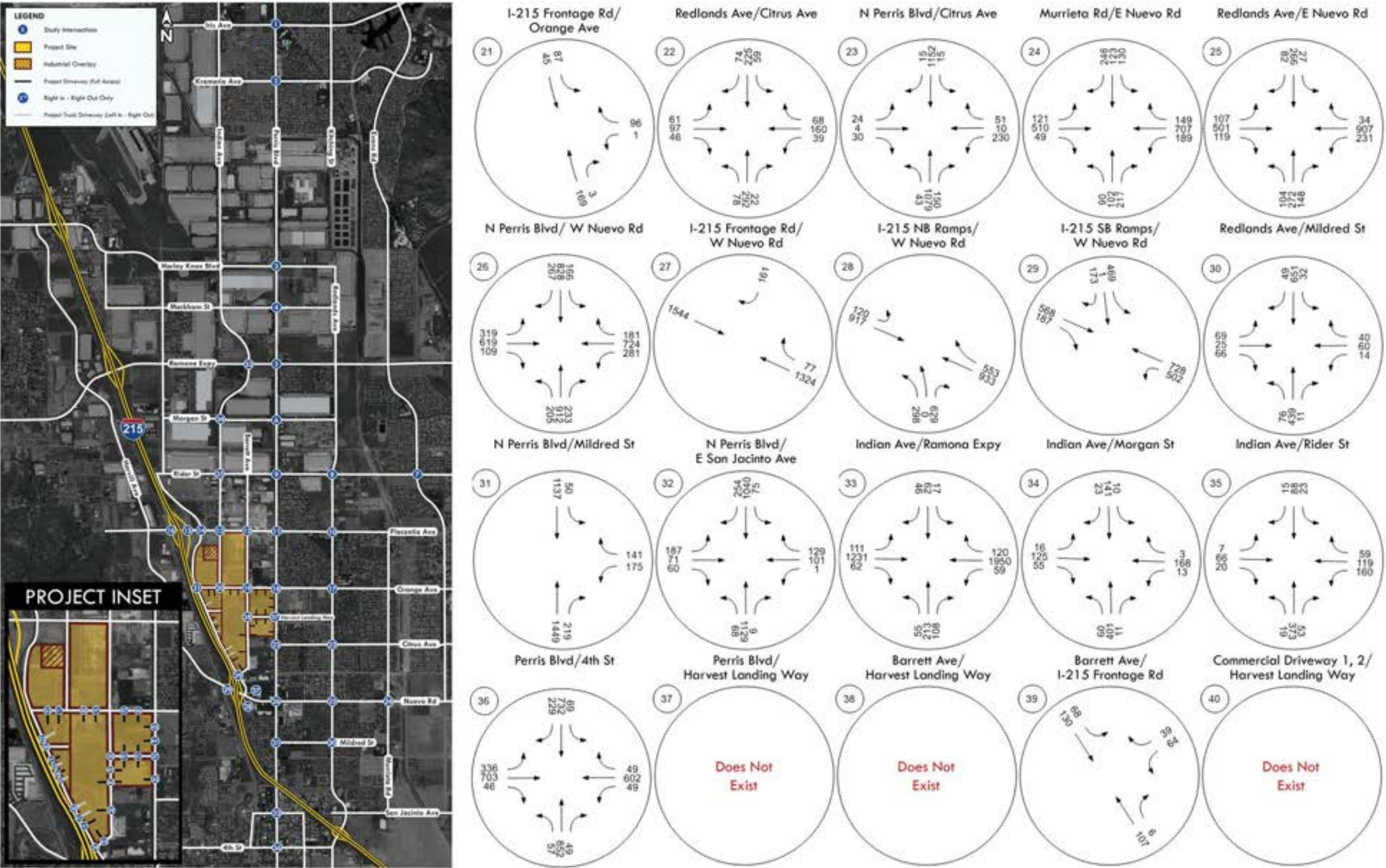


Figure 3.7c: Opening Year I 2026 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

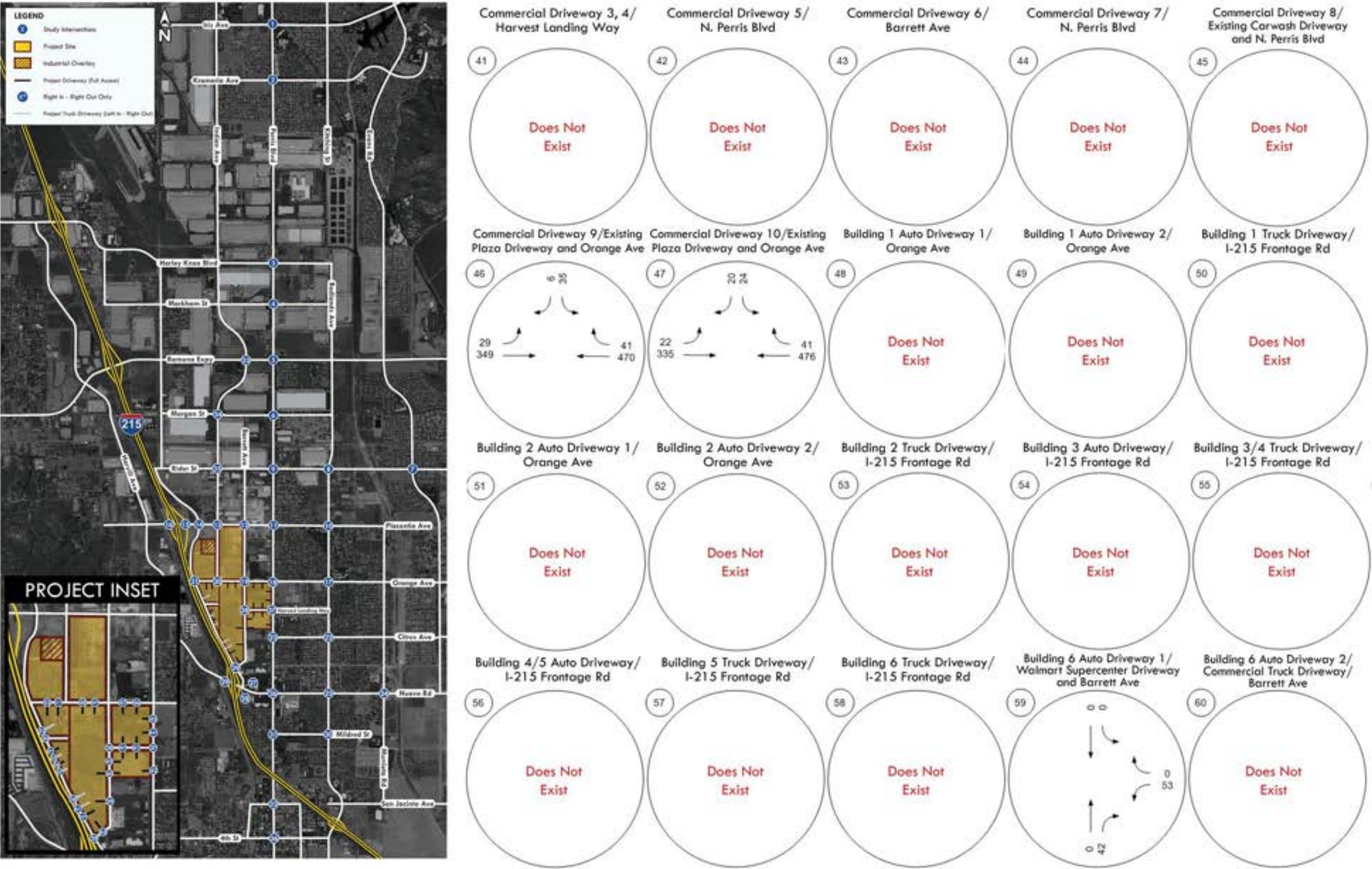


Figure 3.7d: Opening Year I 2026 Without Project AM Peak Hour PCE Traffic Volumes (Continued)



Figure 3.8a: Opening Year I 2026 Without Project PM Peak Hour PCE Traffic Volumes

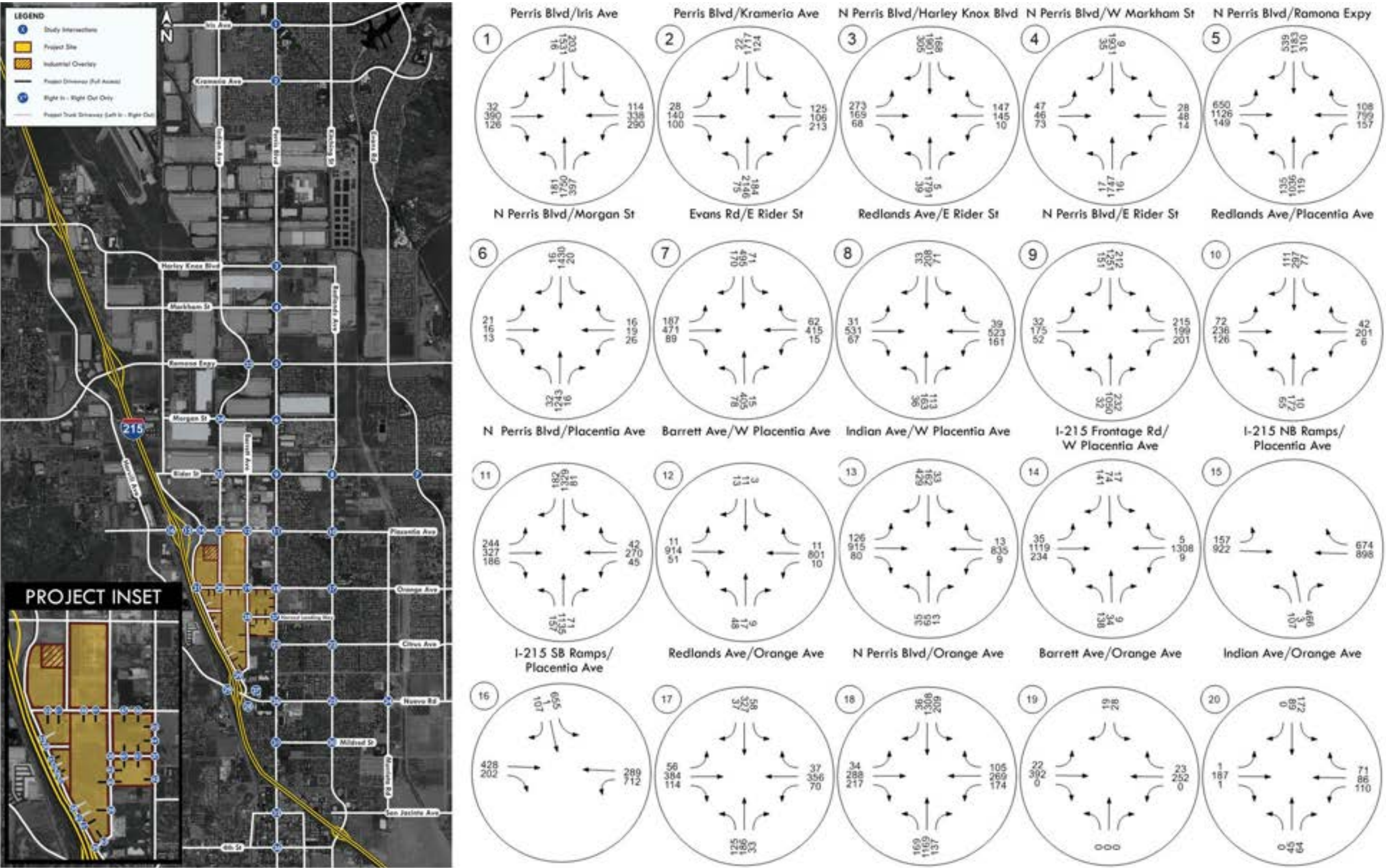


Figure 3.8b: Opening Year I 2026 Without Project PM Peak Hour PCE Traffic Volumes (Continued)

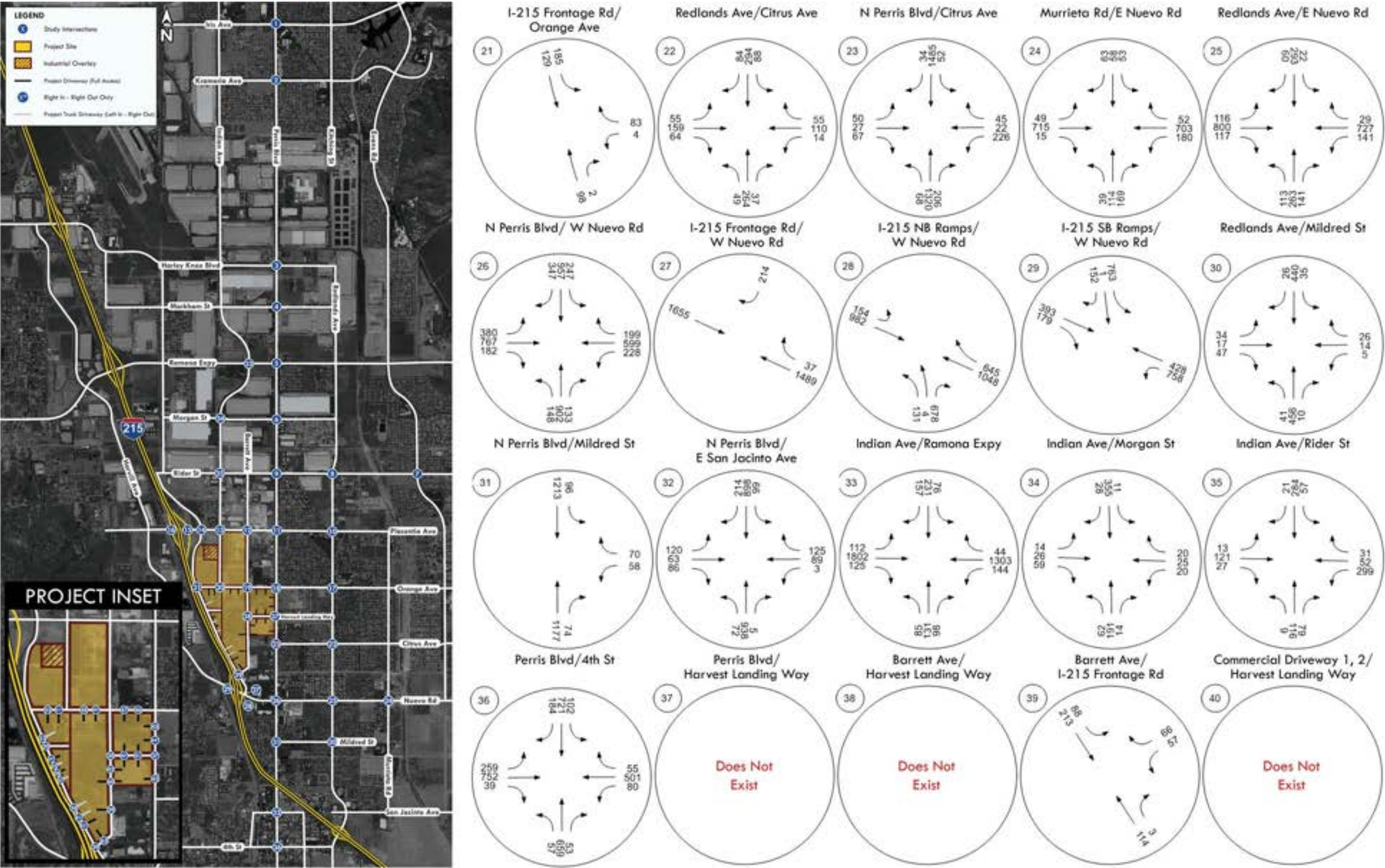


Figure 3.8c: Opening Year I 2026 Without Project PM Peak Hour PCE Traffic Volumes (Continued)

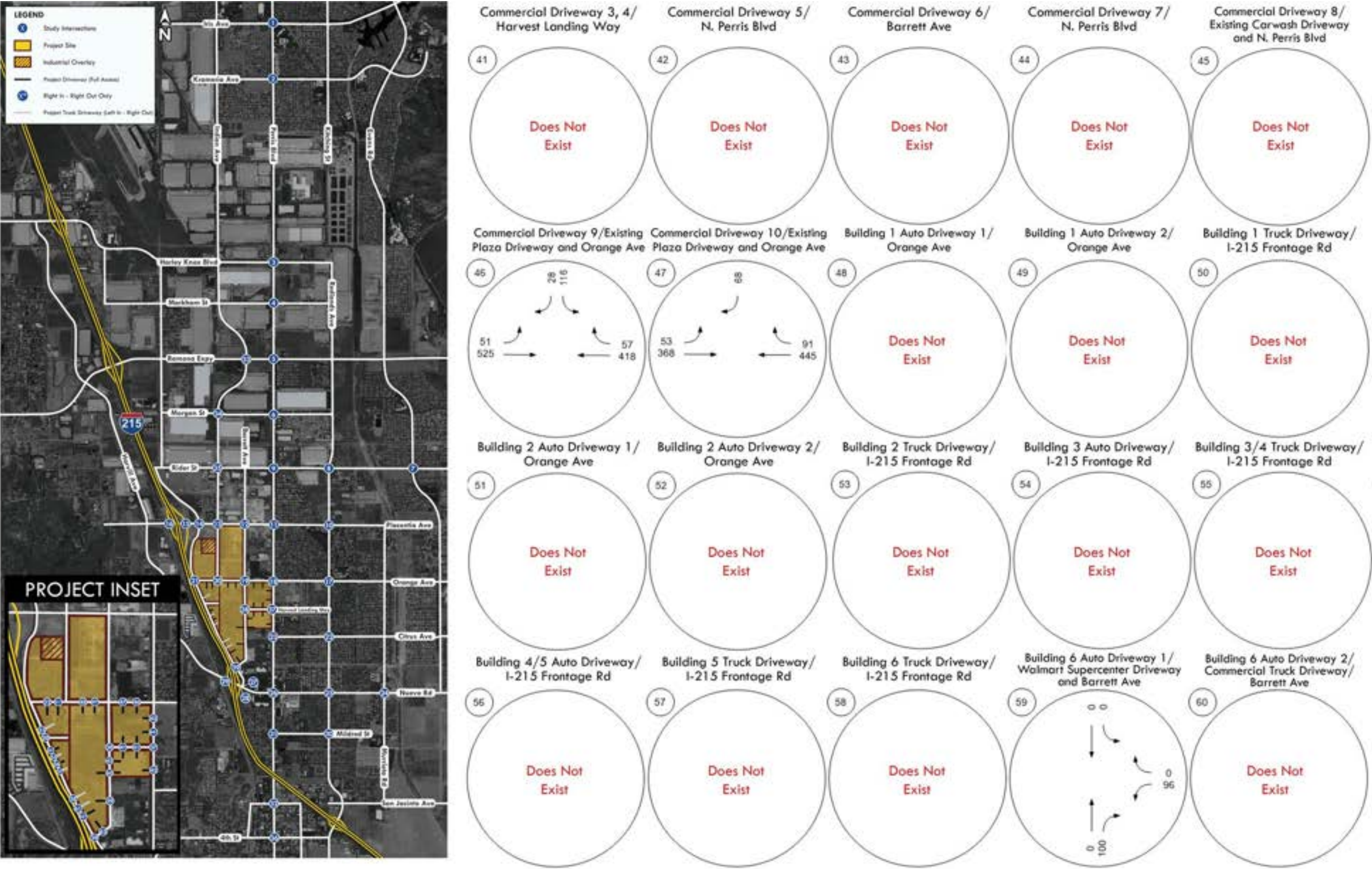


Figure 3.8d: Opening Year I 2026 Without Project PM Peak Hour PCE Traffic Volumes (Continued)



3.3.1 Opening Year I 2026 Without Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 3.7* shows the queue lengths at each intersection approach. As shown in *Table 3.7*, queueing deficiencies were observed under Opening Year I 2026 Without Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

Even though the queue length for the northbound right (NBR) and northbound left (NBL) at intersection #28 exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes. Similarly, an additional 360 feet of storage is provided for the southbound left (SBL) at intersection #29, ensuring that the queue can also be safely accommodated there.

Table 3.7: Opening Year I 2026 AM and PM Peak Hour Queueing Analysis

	Opening Year I 2026 Conditions							
	Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT
15. I-215 NB Ramps/Placentia Ave								
Storage Length Per Lane	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	80	350	-	-	85	-	-	430
PM Queue Length Per Lane	45	260	-	-	125	-	-	570
16. I-215 SB Ramps/Placentia Ave								
Storage Length Per Lane	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	90	35	-	40	90	-
PM Queue Length Per Lane	-	-	190	40	-	90	205	-
28. I-215 NB Ramps/W Nuevo Rd								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	185	140	-	-	120	-	-	275
PM Queue Length Per Lane	90	190	-	-	200	-	-	365
29. I-215 SB Ramps/W Nuevo Rd								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	170	85	-	245	155	-
PM Queue Length Per Lane	-	-	325	90	-	300	335	-

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.

* There is an additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

** There is an additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

3.3.2 Opening Year I 2026 Without Project Roadway Segment Analysis

Opening Year I 2026 Without Project roadway segments volumes were developed by applying a growth rate of three percent per year to the roadway segments counts collected on December 4, 2024, when school was in session, and by adding traffic generated by cumulative projects, which are approved and pending development that would impact the study area.

The following three roadway segments do not exist under baseline conditions:

- #16. Barrett Ave between Orange Ave and Harvest Landing Way
- #17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
- #18. Harvest Landing Way between Barrett Ave and Perris Blvd

The LOS at the Opening Year I 2026 study roadway segments were determined using the methodology described previously in *Section 2.3 Methodology*. The Opening Year I 2026 LOS at the study roadway segments are shown in *Table 3.8*. As shown in *Table 3.8*, the following six (6) roadway segments would operate at an unsatisfactory LOS in the Opening Year I 2026 Without Project condition:

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

Table 3.8: Opening Year I 2026 Roadway Segment Level of Service

Segment	Classification ²	# of Lanes	Roadway Capacity ²	Opening Year I 2026 ADT ¹	V/C Ratio	LOS	LOS Standard ²	Unsatisfactory?
1. Indian Ave between Water Ave and Orange Ave	Collector	2	13,000	5,427	0.417	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	9,576	0.267	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	35,900	39,830	1.109	F	D	Yes
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,510	0.116	A	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	4	35,900	38,198	1.064	F	D	Yes
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	35,900	40,500	1.128	F	D	Yes
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	45,744	0.849	D	D	No
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	2	18,000	6,564	0.365	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	2	18,000	3,301	0.183	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	2	18,000	3,482	0.193	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	32,415	0.903	E	D	Yes
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	41,341	0.767	C	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	33,931	0.945	E	D	Yes
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	35,900	48,150	1.341	F	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	26,457	0.491	A	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	-	-	-	-	-	-	-	-
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	-	-	-	-	-	-	-	-
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	-	-	-	-	-	-	-	-
19. Indian Ave between Placentia Ave and Water Ave	Collector	2	13,000	5,427	0.417	A	D	No

Notes:

LOS = Level of Service

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

3.4 Opening Year II 2030 Without Project Traffic Conditions

Opening Year II 2030 Without Project traffic volumes were developed by applying a growth rate of three percent per year to the existing condition volumes and adding traffic generated by cumulative projects, which are approved and pending development or newly constructed projects in 2024 that would impact the study area. The Opening Year II 2030 Without Project volumes are shown in Figure 3.9 and Figure 3.10.

The Opening Year II 2030 Without Project lane geometry is the analyzed with the same intersection lane configuration post-project completion to compare the impacts accurately. Intersection lane configuration and traffic control post-project completion can be found in Figure 4.8.

The Opening Year II 2030 Without Project levels of service at the study area intersections were determined using the HCM methodology, described previously in Section 2.3 - Methodology. Table 3.9 shows the Opening Year II 2030 Without Project AM and PM peak hour levels of service at study area intersections. As shown in Table 3.9, the following six (6) intersections would operate at an unsatisfactory LOS under the Opening Year II 2030 Without Project condition:

- #1. Perris Blvd/Iris Ave (LOS F during AM peak hour and LOS E during PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS E during AM and PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during PM peak hour)

Table 3.9: Opening Year II 2030 Without Project AM and PM Peak Hour LOS

Opening Year II 2030 Conditions									LOS Standard	Satisfactory?
Intersection	Jurisdiction	Control Type	AM Peak		PM Peak					
			Delay	LOS	Delay	LOS				
1. Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	84.3	F	61.5	E	D	No		
2. Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	64.6	E	57.7	E	D	No		
3. N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	37.4	D	38.6	D	D	Yes		
4. N Perris Blvd/W Markham St	City of Perris	Signalized	17.2	B	16.8	B	D	Yes		
5. N Perris Blvd/Ramona Expy	City of Perris	Signalized	92.4	F	59.3	E	E	No		
6. N Perris Blvd/Morgan St	City of Perris	Signalized	12.6	B	11.5	B	D	Yes		
7. Evans Rd/E Rider St	City of Perris	Signalized	35.8	D	29.8	C	D	Yes		
8. Redlands Ave/E Rider St	City of Perris	Signalized	31.0	C	38.7	D	D	Yes		
9. N Perris Blvd/E Rider St	City of Perris	Signalized	30.2	C	29.7	C	D	Yes		
10. Redlands Ave/Placentia Ave	City of Perris	All-way stop	20.6	C	22.8	C	D	Yes		
11. N Perris Blvd/Placentia Ave	City of Perris	Signalized	41.5	D	34.2	C	D	Yes		
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	30.9	D	19.6	C	D	Yes		
13. Indian Ave/W Placentia Ave	City of Perris	Signalized	40.0	D	39.6	D	D	Yes		
14. I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	29.4	C	21.1	C	D	Yes		
15. I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	15.3	B	28.2	C	E	Yes		
16. I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	17.0	B	22.8	C	E	Yes		
17. Redlands Ave/Orange Ave	City of Perris	Signalized	26.4	C	29.1	C	D	Yes		
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	26.1	C	39.2	D	D	Yes		
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	21.8	C	19.4	C	D	Yes		
20. Indian Ave/Orange Ave	City of Perris	All-way stop	14.8	B	11.7	B	D	Yes		
21. I-215 Frontage Rd/Orange Ave	City of Perris	Two-way stop	15.5	C	54.9	F	D	No		
22. Redlands Ave/Citrus Ave	City of Perris	All-way stop	13.0	B	14.9	B	D	Yes		
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	14.5	B	20.7	C	D	Yes		
24. Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	42.2	D	32.1	C	D	Yes		
25. Redlands Ave/E Nuevo Rd	City of Perris	Signalized	23.8	C	23.3	C	D	Yes		
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	48.7	D	44.9	D	D	Yes		
27. I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	24.5	C	39.3	F	D	No		
28. I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	21.1	C	23.0	C	E	Yes		
29. I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	19.5	B	30.1	C	E	Yes		
30. Redlands Ave/Midred St	City of Perris	All-way stop	32.5	D	15.9	C	D	Yes		
31. N Perris Blvd/Mildred St	City of Perris	Signalized	18.3	B	8.4	A	D	Yes		
32. N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	29.9	C	22.1	C	D	Yes		
33. Indian Ave/Ramona Expy	City of Perris	Signalized	36.7	D	42.9	D	E	Yes		
34. Indian Ave/Morgan St	City of Perris	Signalized	20.5	C	16.8	B	D	Yes		
35. Indian Ave/Rider St	City of Perris	Signalized	22.4	C	29.2	C	D	Yes		
36. Perris Blvd/4th St	City of Perris	Signalized	72.1	E	63.8	E	E	Yes		
37. Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	D	-		
38. Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	D	-		
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	D	Yes		
40. Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-		
41. Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-		
42. Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-		
43. Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
44. Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-		
45. Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-		
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	23.9	C	43.6	E	D	No		
47. Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	22.4	C	34.3	D	D	Yes		
48. Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
49. Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
50. Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	D	-		
51. Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
52. Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
53. Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
54. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
55. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
56. Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
57. Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
58. Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
59. Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
60. Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-		
61. Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
62. Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-		
63. Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-		

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

3.4.1 Opening Year II 2030 Without Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. Table 3.10 shows the queue lengths at each intersection approach. As shown in Table 3.10, queueing deficiencies were observed under Opening Year II 2030 Without Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)

Even though the queue length for the NBR and NBL at intersection #28 exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes. Similarly, an additional 360 feet of storage is provided for the SBL at intersection #29, ensuring that the queue can also be safely accommodated there.

Table 3.10: Opening Year II 2030 AM and PM Peak Hour Queueing Analysis

	Opening Year II 2030 Conditions							
	Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT
15. I-215 NB Ramps/Placentia Ave								
Storage Length Per Lane	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	60	270	-	-	40	-	-	205
PM Queue Length Per Lane	50	275	-	-	135	-	-	595
16. I-215 SB Ramps/Placentia Ave								
Storage Length Per Lane	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	95	40	-	40	95	-
PM Queue Length Per Lane	-	-	225	45	-	120	250	-
28. I-215 NB Ramps/W Nuevo Rd								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	225	185	-	-	155	-	-	350
PM Queue Length Per Lane	110	230	-	-	225	-	-	410
29. I-215 SB Ramps/W Nuevo Rd								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	215	100	-	260	165	-
PM Queue Length Per Lane	-	-	390	95	-	285	310	-

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.

* There is an additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

** There is an additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

3.4.2 Opening Year II 2030 Without Project Roadway Segment Analysis

Opening Year II 2030 Without Project roadway segments volumes were developed by applying a growth rate of three percent per year to the roadway segments counts collected on December 4, 2024, when school was in session, and by adding traffic generated by cumulative projects, which are approved and pending development that would impact the study area.

The following three roadway segments does not exist under baseline conditions:

- #16. Barrett Ave between Orange Ave and Harvest Landing Way
- #17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
- #18. Harvest Landing Way between Barrett Ave and Perris Blvd

The LOS at the Opening Year II 2030 study roadway segments were determined using the methodology described previously in *Section 2.3 Methodology*. The Opening Year II 2030 LOS at the study roadway segments are shown in *Table 3.11*. As shown in *Table 3.11*, the following seven (7) roadway segments would operate at an unsatisfactory LOS in the Opening Year II 2030 Without Project condition:

- #3. Perris Blvd between Orange Ave and Citrus Ave
- #5. Perris Blvd between Placentia Ave and Orange 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
- #13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave

Table 3.11: Opening Year II 2030 Roadway Segment Level of Service

Segment	Classification ²	# of Lanes	Roadway Capacity ²	Opening Year II 2030 ADT ¹	V/C Ratio	LOS	LOS Standard	Unsatisfactory?
1. Indian Ave between Water Ave and Orange Ave	Arterial	2	18,000	6,017	0.334	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	10,611	0.296	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	35,900	43,121	1.201	F	D	Yes
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,669	0.128	A	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	4	35,900	41,300	1.150	F	D	Yes
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	35,900	43,634	1.215	F	D	Yes
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	50,226	0.932	E	D	Yes
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	2	18,000	7,307	0.406	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	2	18,000	3,675	0.204	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	2	18,000	3,876	0.215	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	35,372	0.985	E	D	Yes
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	44,786	0.831	D	D	No
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	36,547	1.018	F	D	Yes
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	35,900	51,765	1.442	F	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	27,969	0.519	A	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	-	-	-	-	-	-	-	-
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	-	-	-	-	-	-	-	-
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	-	-	-	-	-	-	-	-
19. Indian Ave between Placentia Ave and Water Ave	Collector	2	13,000	-	0.000	A	D	No

Notes:

LOS = Level of Service

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

Figure 3.9a: Opening Year II 2030 Without Project AM Peak Hour PCE Traffic Volumes

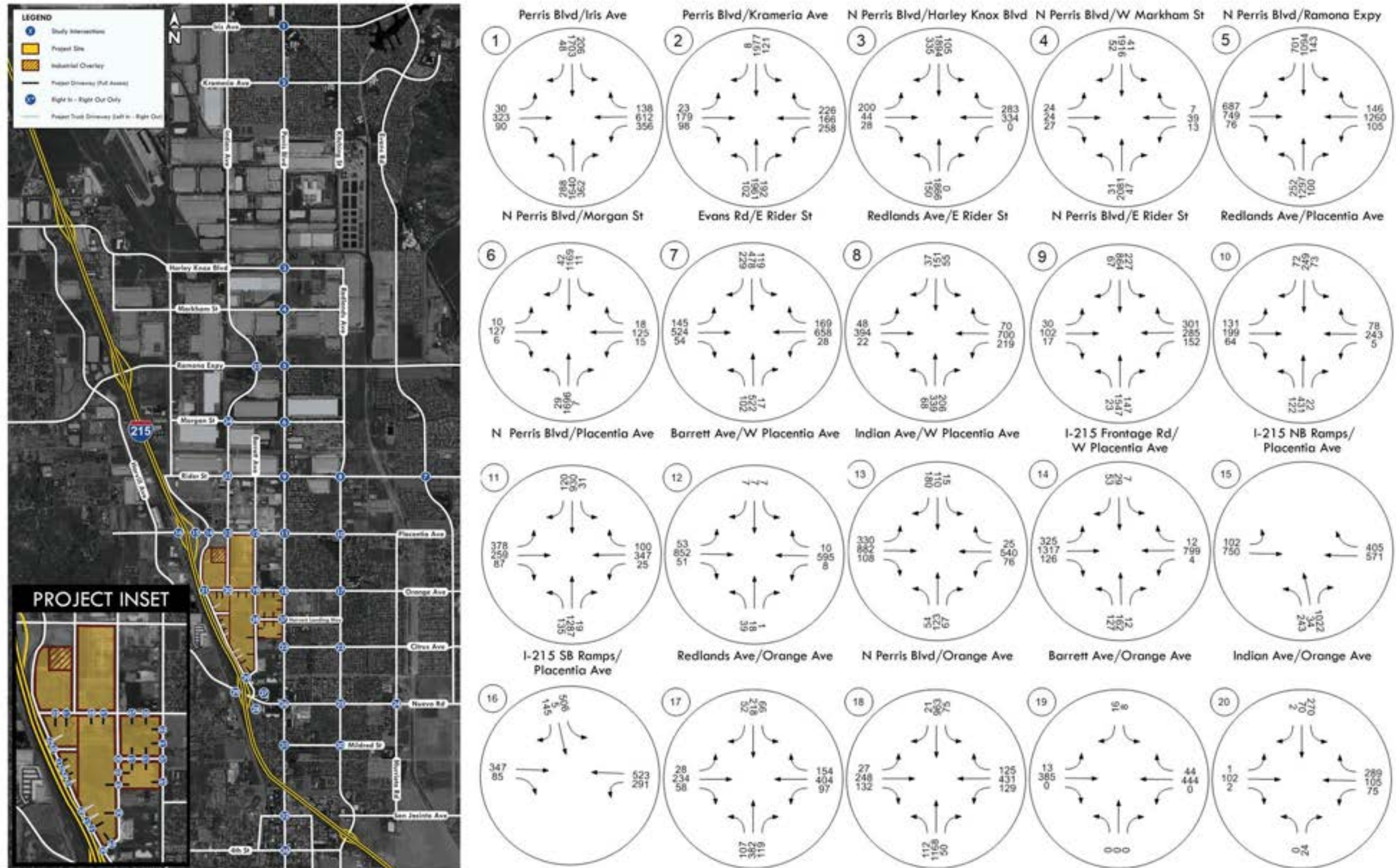


Figure 3.9b: Opening Year II 2030 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

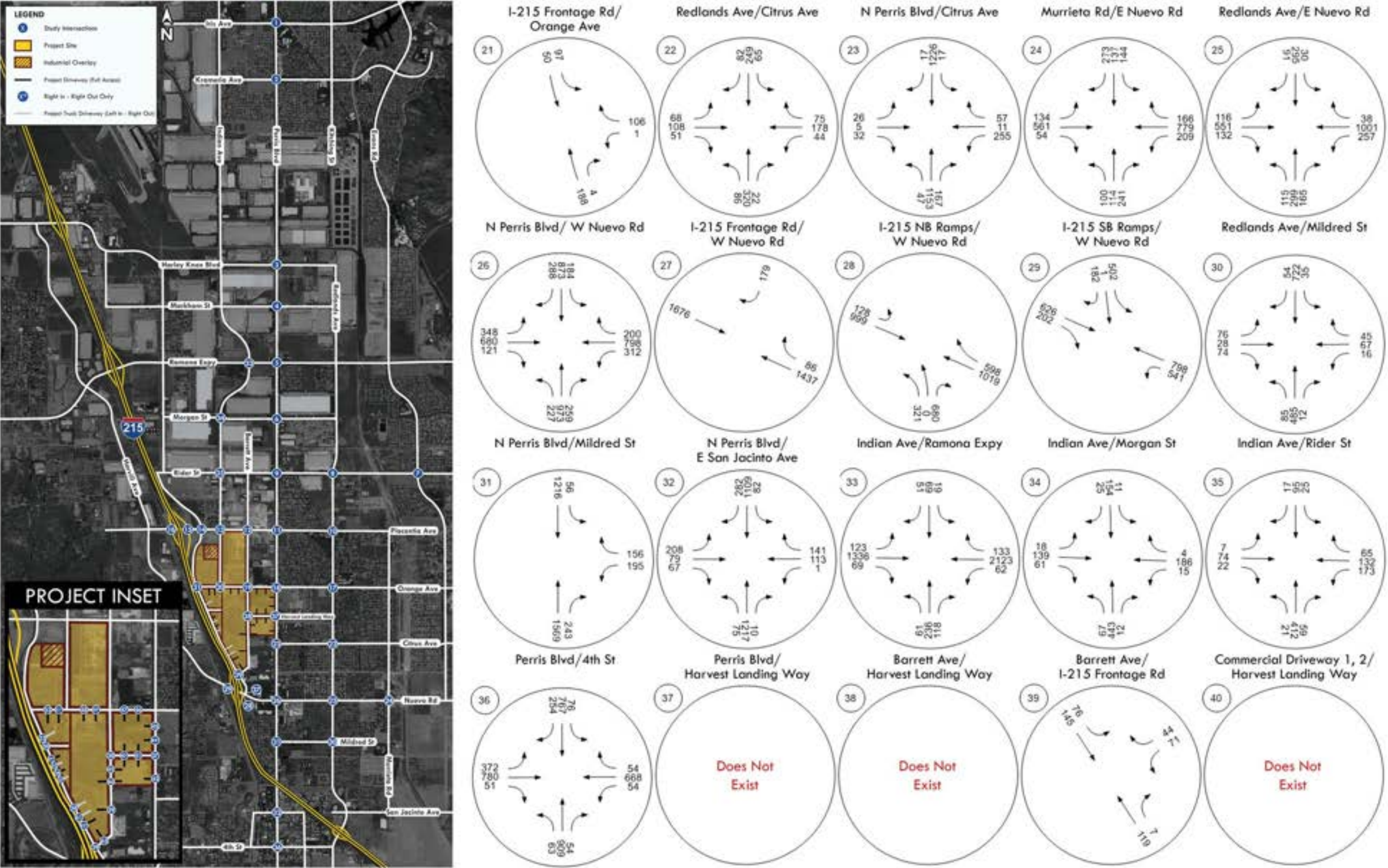


Figure 3.9c: Opening Year II 2030 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

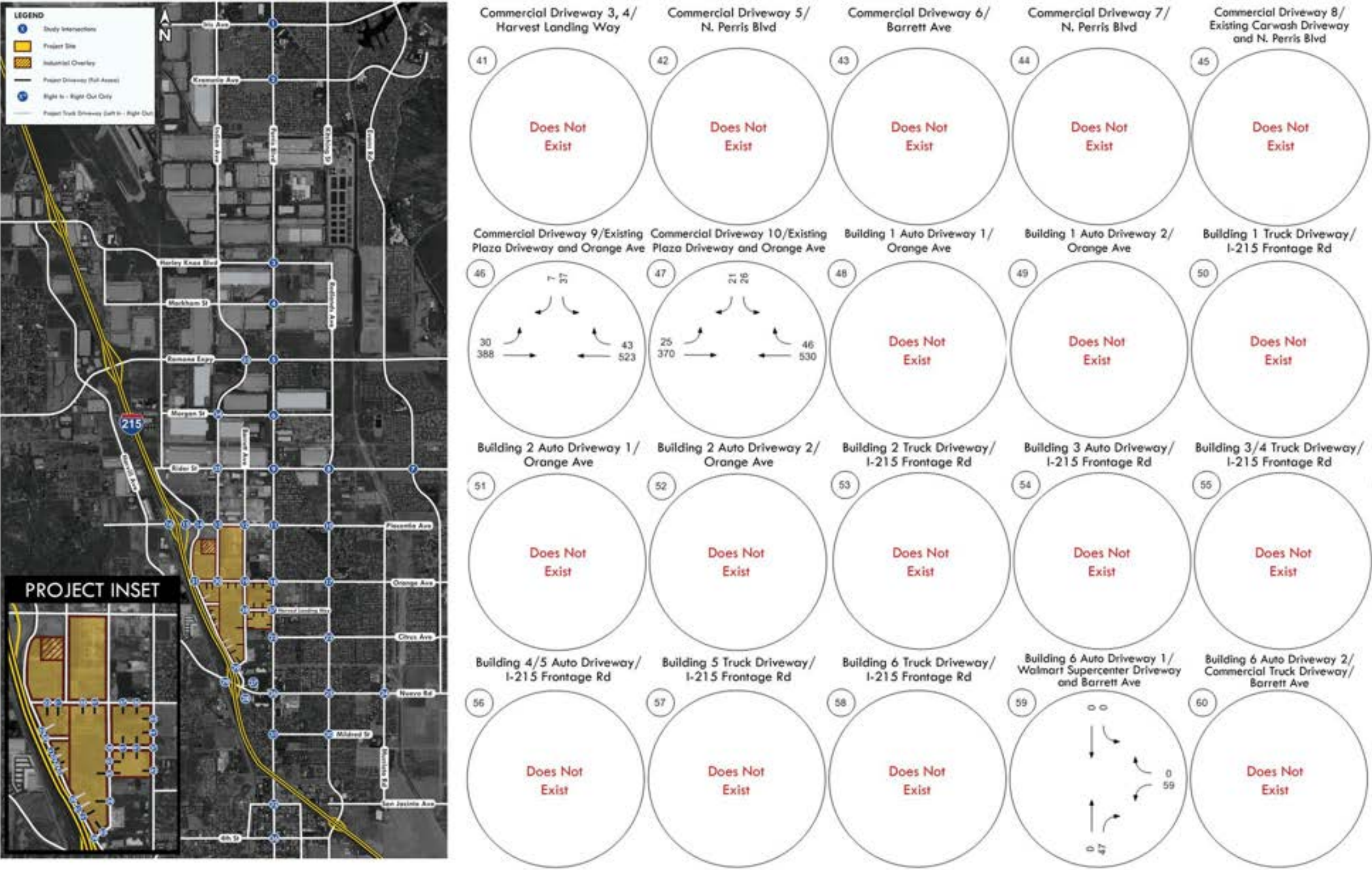


Figure 3.9d: Opening Year II 2030 Without Project AM Peak Hour PCE Traffic Volumes (Continued)



Figure 3.10a: Opening Year II 2030 Without Project PM Peak Hour PCE Traffic Volumes

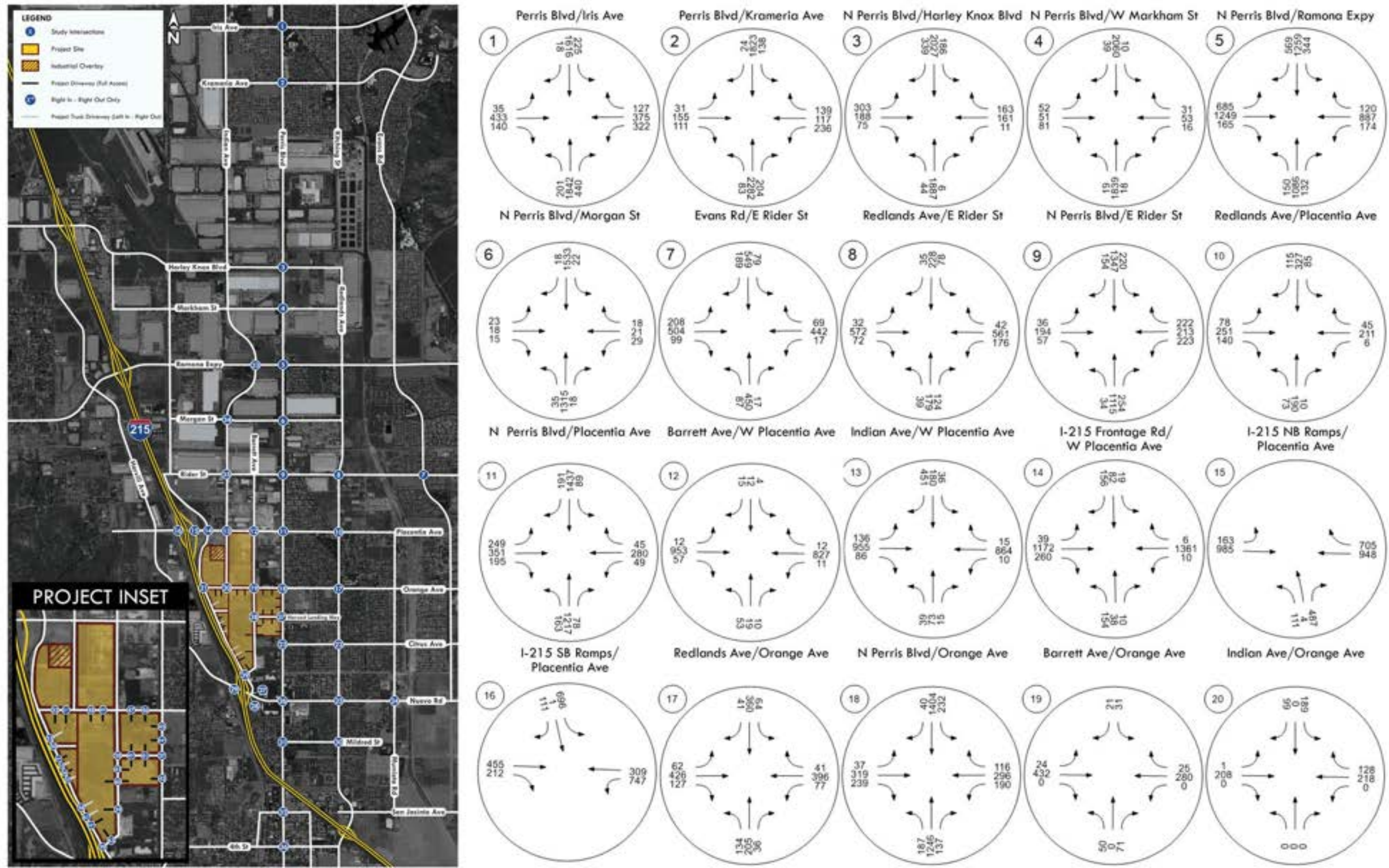


Figure 3.10b: Opening Year II 2030 Without Project PM Peak Hour PCE Traffic Volumes (Continued)

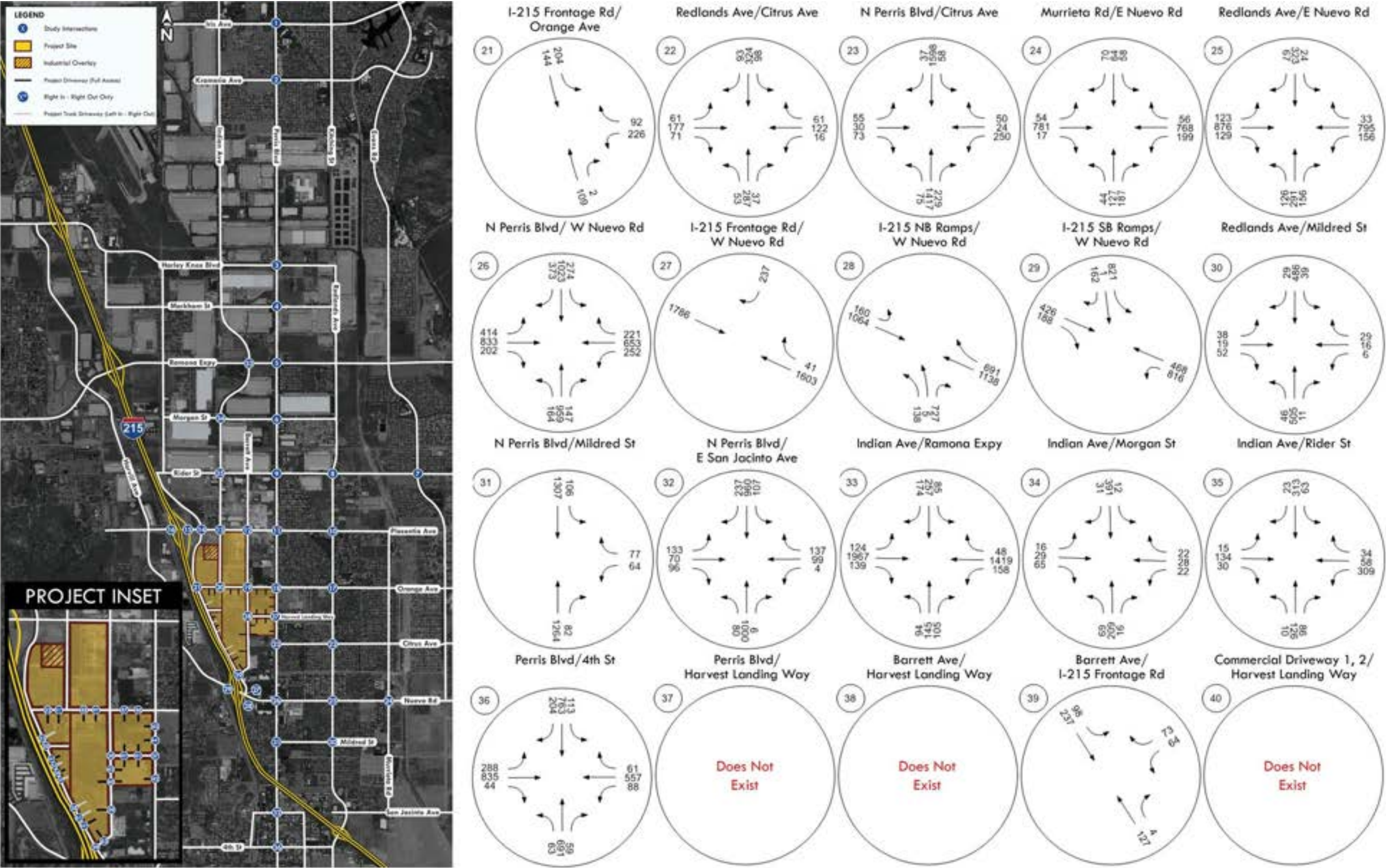


Figure 3.10c: Opening Year II 2030 Without Project PM Peak Hour PCE Traffic Volumes (Continued)

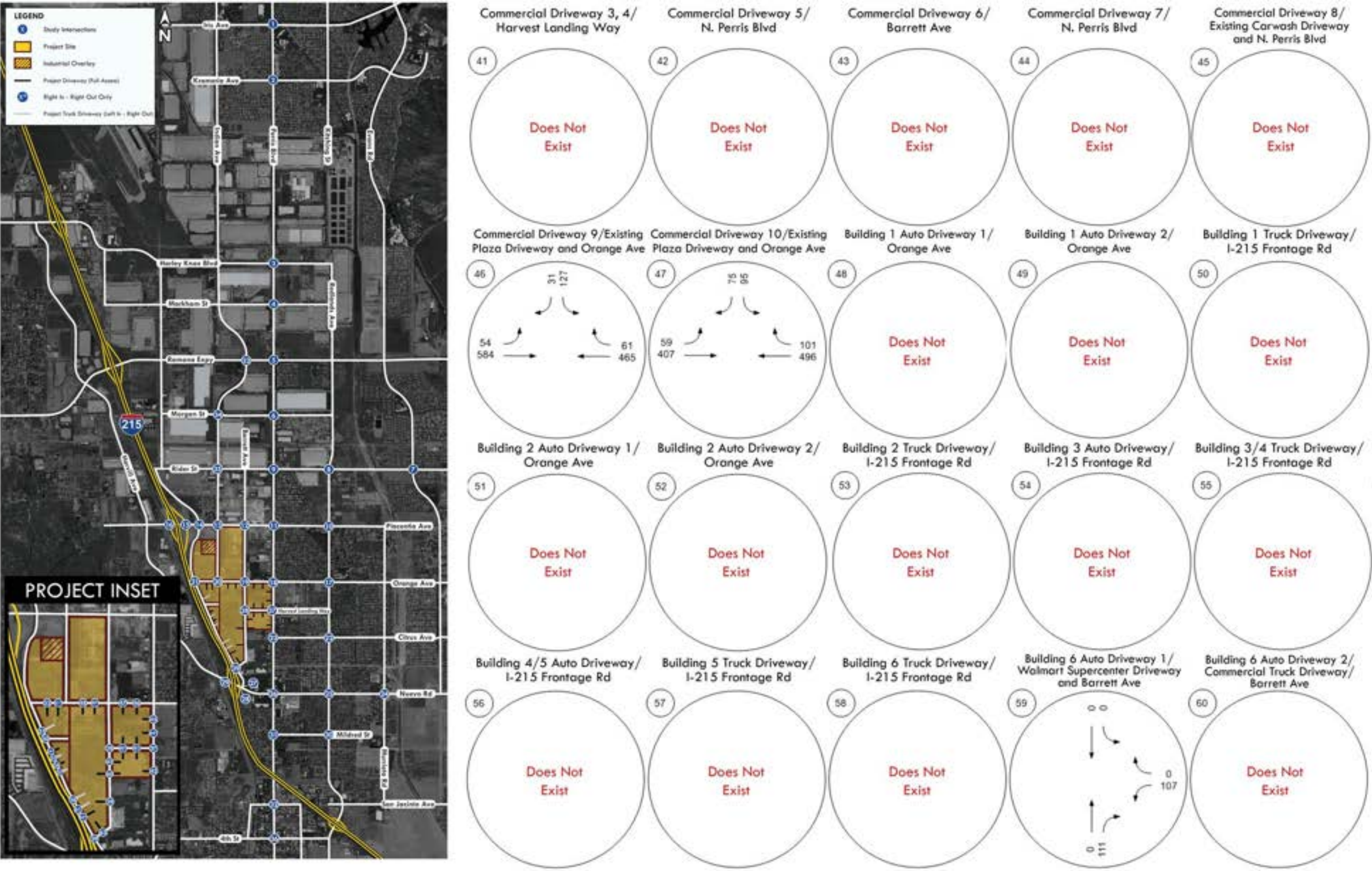


Figure 3.10d: Opening Year II 2030 Without Project PM Peak Hour PCE Traffic Volumes (Continued)



3.5 General Plan 2045 Without Project Traffic Conditions

In accordance with the approved scope of work by the City of Perris, the General Plan 2045 conditions were forecasted using RIVCOM traffic model, which assumes full buildout of the County of Riverside per approved General Plan of each jurisdiction within the County. Link volumes growth rate were obtained from RIVCOM. The growth rates were then post-processed to compute intersection turning movement volumes using the Iterative Directional Volume Estimation Methodology from NCHRP Report 765, based on methodology outlined in NCHRP Report 255.

Some of the post-processed General Plan 2045 turning movement volumes were observed to be lower than the corresponding Opening Year II 2030 volumes at certain intersections. In such cases, the General Plan 2045 turning movement volumes were adjusted by holding the volumes to Opening Year II 2030 turning movement volumes, so that no General Plan 2045 volumes are lower than the corresponding Opening Year II 2030 volumes. The General Plan 2045 Without Project traffic volumes are shown in Figure 3.11 and Figure 3.12. All traffic counts, RIVCOM model plots, RIVCOM volume outputs, NCHRP 765 worksheets and volume adjustment worksheets are provided in Appendix B.

The General Plan 2045 Without Project lane geometry is analyzed with the same intersection lane configuration as post-project completion to compare the impacts accurately. Intersection lane configuration and traffic control post-project completion can be found in Figure 4.8.

The General Plan 2045 Without Project condition levels of service at the study area intersections were determined using the HCM methodology, described previously in Section 2.3 - Methodology. Table 3.12 shows the General Plan 2045 Without Project AM and PM peak hour levels of service at study area intersections. As shown in Table 3.12, the following 14 intersections would operate at an unsatisfactory LOS under the General Plan 2045 Without Project condition:

- #1. Perris Blvd/Iris Ave (LOS F during AM and PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour and LOS E during PM peak hour)
- #10. Redlands Ave/Placentia Ave (LOS F during AM and PM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS F during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS E during AM peak hour)
- #22. Redlands Ave/Citrus Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during PM peak hour)

Table 3.12: General Plan 2045 Without Project AM and PM Peak Hour LOS

			General Plan 2045 Conditions				LOS Standard	Satisfactory?
Intersection	Jurisdiction	Control Type	AM Peak		PM Peak			
			Delay	LOS	Delay	LOS		
1. Perris Blvd/Iris Ave	City of Moreno Valley	Signalized	350.3	F	131.8	F	D	No
2. Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	317.5	F	207.5	F	D	No
3. N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	39.5	D	238.0	F	D	No
4. N Perris Blvd/W Markham St	City of Perris	Signalized	133.0	F	57.4	E	D	No
5. N Perris Blvd/Ramona Expy	City of Perris	Signalized	74.5	E	57.2	E	E	Yes
6. N Perris Blvd/Morgan St	City of Perris	Signalized	30.9	C	16.8	B	D	Yes
7. Evans Rd/E Rider St	City of Perris	Signalized	43.8	D	32.3	C	D	Yes
8. Redlands Ave/E Rider St	City of Perris	Signalized	32.7	C	42.9	D	D	Yes
9. N Perris Blvd/E Rider St	City of Perris	Signalized	31.5	C	31.8	C	D	Yes
10. Redlands Ave/Placentia Ave	City of Perris	All-way stop	109.6	F	390.6	F	D	No
11. N Perris Blvd/Placentia Ave	City of Perris	Signalized	37.1	D	209.6	F	D	No
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	53.6	F	69.2	F	D	No
13. Indian Ave/W Placentia Ave	City of Perris	Signalized	50.6	D	31.6	C	D	Yes
14. I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	27.4	C	29.0	C	D	Yes
15. I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	21.8	C	16.2	B	E	Yes
16. I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	16.1	B	19.9	B	E	Yes
17. Redlands Ave/Orange Ave	City of Perris	Signalized	45.4	D	34.1	C	D	Yes
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	35.9	D	51.3	D	D	Yes
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	49.2	E	24.9	C	D	No
20. Indian Ave/Orange Ave	City of Perris	All-way stop	21.8	C	15.1	C	D	Yes
21. I-215 Frontage Rd/Orange Ave	City of Perris	Two-way stop	15.5	C	16.1	C	D	Yes
22. Redlands Ave/Citrus Ave	City of Perris	All-way stop	40.4	E	54.4	F	D	No
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	33.6	C	45.4	D	D	Yes
24. Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	46.5	D	32.7	C	D	Yes
25. Redlands Ave/E Nuevo Rd	City of Perris	Signalized	53.0	D	26.1	C	D	Yes
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	47.7	D	47.1	D	D	Yes
27. I-215 Frontage Rd/W Nuevo Rd	City of Perris	Two-way stop	21.9	C	50.5	F	D	No
28. I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	85.2	F	16.1	B	E	No
29. I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	17.5	B	41.3	D	E	Yes
30. Redlands Ave/Midred St	City of Perris	All-way stop	44.0	E	16.5	C	D	No
31. N Perris Blvd/Mildred St	City of Perris	Signalized	11.3	B	6.9	A	D	Yes
32. N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	117.6	F	103.0	F	D	No
33. Indian Ave/Ramona Expy	City of Perris	Signalized	48.8	D	47.7	D	E	Yes
34. Indian Ave/Morgan St	City of Perris	Signalized	26.5	C	27.2	C	D	Yes
35. Indian Ave/Rider St	City of Perris	Signalized	23.1	C	31.9	C	D	Yes
36. Perris Blvd/4th St	City of Perris	Signalized	49.5	D	39.8	D	E	Yes
37. Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	D	-
38. Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	D	-
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	D	Yes
40. Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-
41. Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	D	-
42. Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
43. Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
44. Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
45. Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	D	-
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.3	C	39.8	E	D	No
47. Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	19.3	C	31.1	D	D	Yes
48. Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
49. Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
50. Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	D	-
51. Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
52. Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	D	-
53. Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
54. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
55. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
56. Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
57. Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
58. Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
59. Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
60. Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-
61. Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
62. Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	D	-
63. Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	D	-

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

3.5.1 General Plan 2045 Without Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. Table 3.13 shows the queue lengths at each intersection approach. As shown in Table 3.13, queueing deficiencies were observed under General Plan 2045 Without Project conditions, for the following approaches:

- #28. I-215 Northbound Ramps/West Nuevo Road – northbound left-turn and right-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

Table 3.13: General Plan 2045 AM and PM Peak Hour Queueing Analysis

	General Plan 2045 Conditions							
	Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	LT	RT	LT	RT
15. I-215 NB Ramps/Placentia Ave								
Storage Length Per Lane	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	65	295	-	-	55	-	-	345
PM Queue Length Per Lane	30	180	-	-	55	-	-	380
16. I-215 SB Ramps/Placentia Ave								
Storage Length Per Lane	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	75	25	-	35	85	-
PM Queue Length Per Lane	-	-	205	35	-	100	210	-
28. I-215 NB Ramps/W Nuevo Rd								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	655	520	-	-	1715	-	-	890
PM Queue Length Per Lane	85	200	-	-	120	-	-	270
29. I-215 SB Ramps/W Nuevo Rd								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	115	60	-	170	155	-
PM Queue Length Per Lane	-	-	585	150	-	530	475	-

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.

*There is an additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

** There is an additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

3.5.2 General Plan 2045 Without Project Roadway Segment Analysis

General Plan 2045 Without Project roadway segments volumes were developed by was forecasted by applying the growth rates from RIVCOM travel demand forecasting model to the roadway segments counts collected on December 4, 2024, when school was in session. Roadways were assumed to be built out to their full capacity as stated in the *City of Perris General Plan Circulation Element (2022)*.

The following three roadway segments do not exist under baseline conditions:

- #16. Barrett Ave between Orange Ave and Harvest Landing Way
- #17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd
- #18. Harvest Landing Way between Barrett Ave and Perris Blvd

The LOS at the General Plan 2045 study roadway segments were determined using the methodology described previously in *Section 2.3 Methodology*. The General Plan 2045 LOS at the study roadway segments are shown in *Table 3.14*. As shown in *Table 3.14*, the following three (3) roadway segments would operate at an unsatisfactory LOS in the General Plan 2045 Without Project condition:

- #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

Table 3.14: General Plan 2045 Roadway Segment Level of Service

Segment	Classification ²	# of Lanes	Roadway Capacity ²	General Plan 2045 ADT ¹	V/C Ratio	LOS	LOS Standard	Unsatisfactory?
1. Indian Ave between Water Ave and Orange Ave	Arterial	4	35,900	9,880	0.275	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	10,611	0.296	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	53,900	43,121	0.800	D	D	No
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,710	0.132	A	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	6	53,900	41,300	0.766	C	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	6	53,900	43,634	0.810	D	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	50,226	0.932	E	D	Yes
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	4	35,900	10,093	0.281	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	4	35,900	5,076	0.141	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	4	35,900	5,355	0.149	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	6	53,900	35,372	0.656	B	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	49,397	0.916	E	D	Yes
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	6	53,900	36,547	0.678	B	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	53,900	51,765	0.960	E	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	27,969	0.519	A	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	-	-	-	-	-	-	-	-
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	-	-	-	-	-	-	-	-
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	-	-	-	-	-	-	-	-
19. Indian Ave between Placentia Ave and Water Ave	Arterial	4	35,900	9,880	0.275	A	D	No

Notes:

LOS = Level of Service

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

Figure 3.11a: General Plan 2045 Without Project AM Peak Hour PCE Traffic Volumes

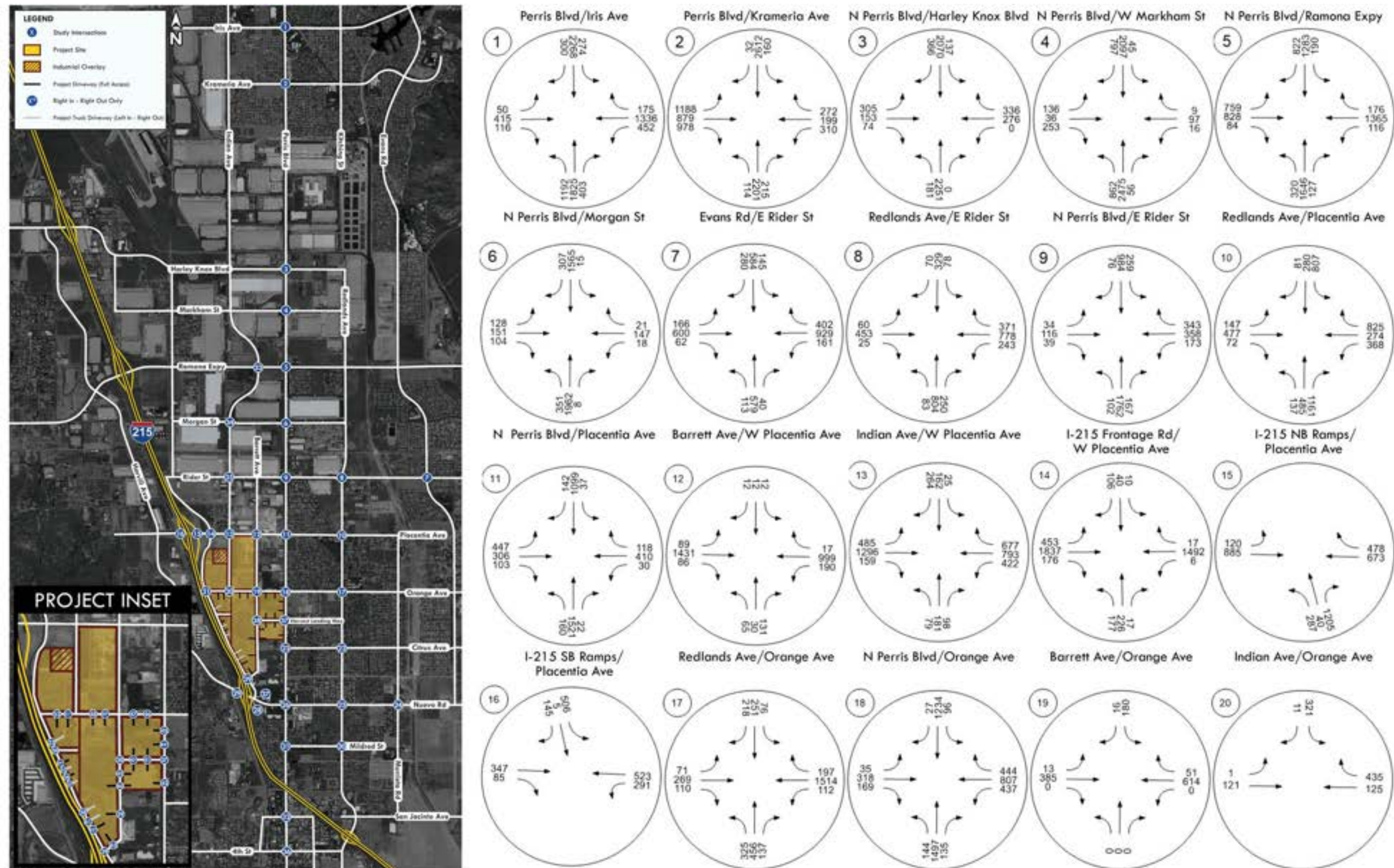


Figure 3.11b: General Plan 2045 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

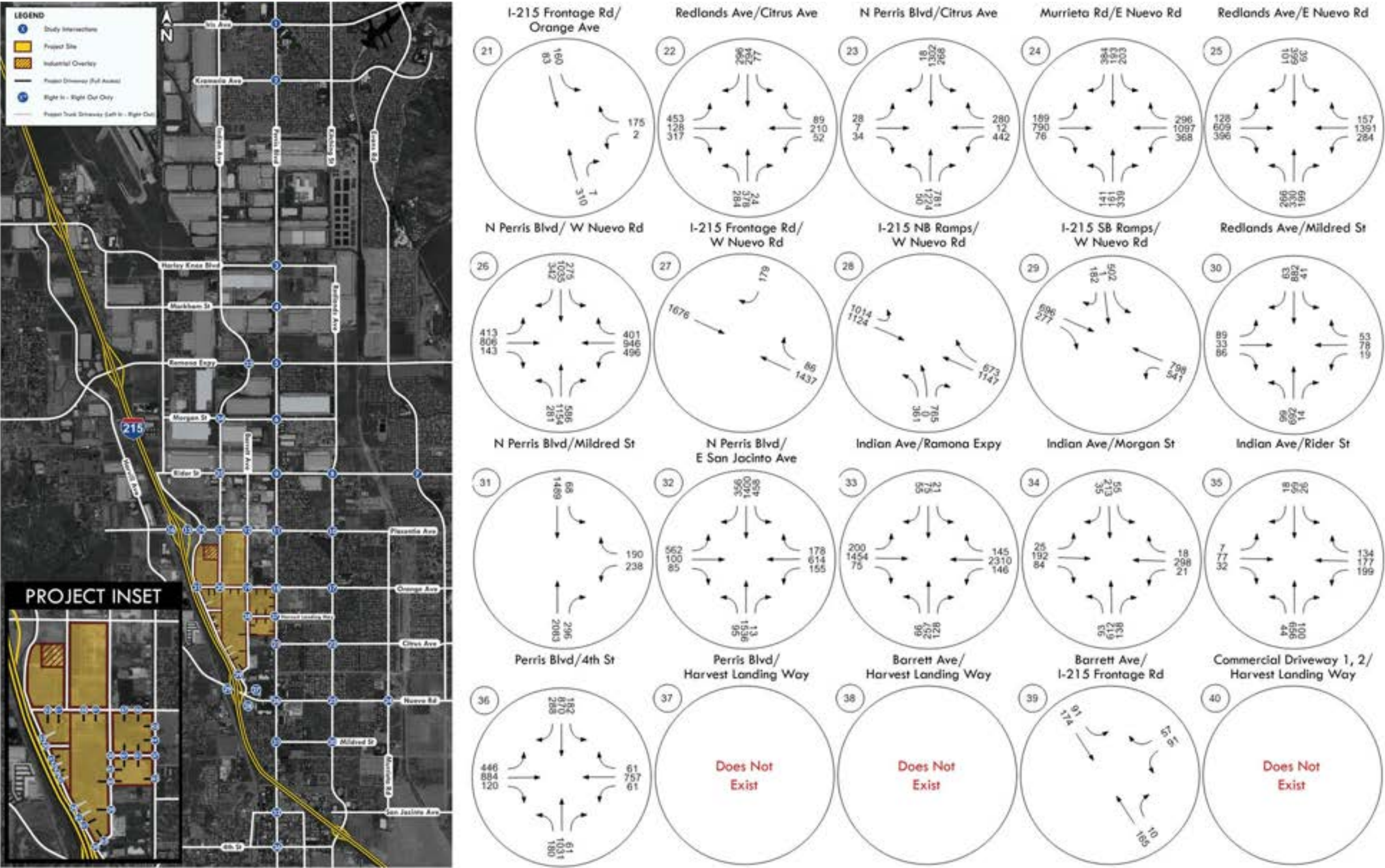


Figure 3.11c: General Plan 2045 Without Project AM Peak Hour PCE Traffic Volumes (Continued)

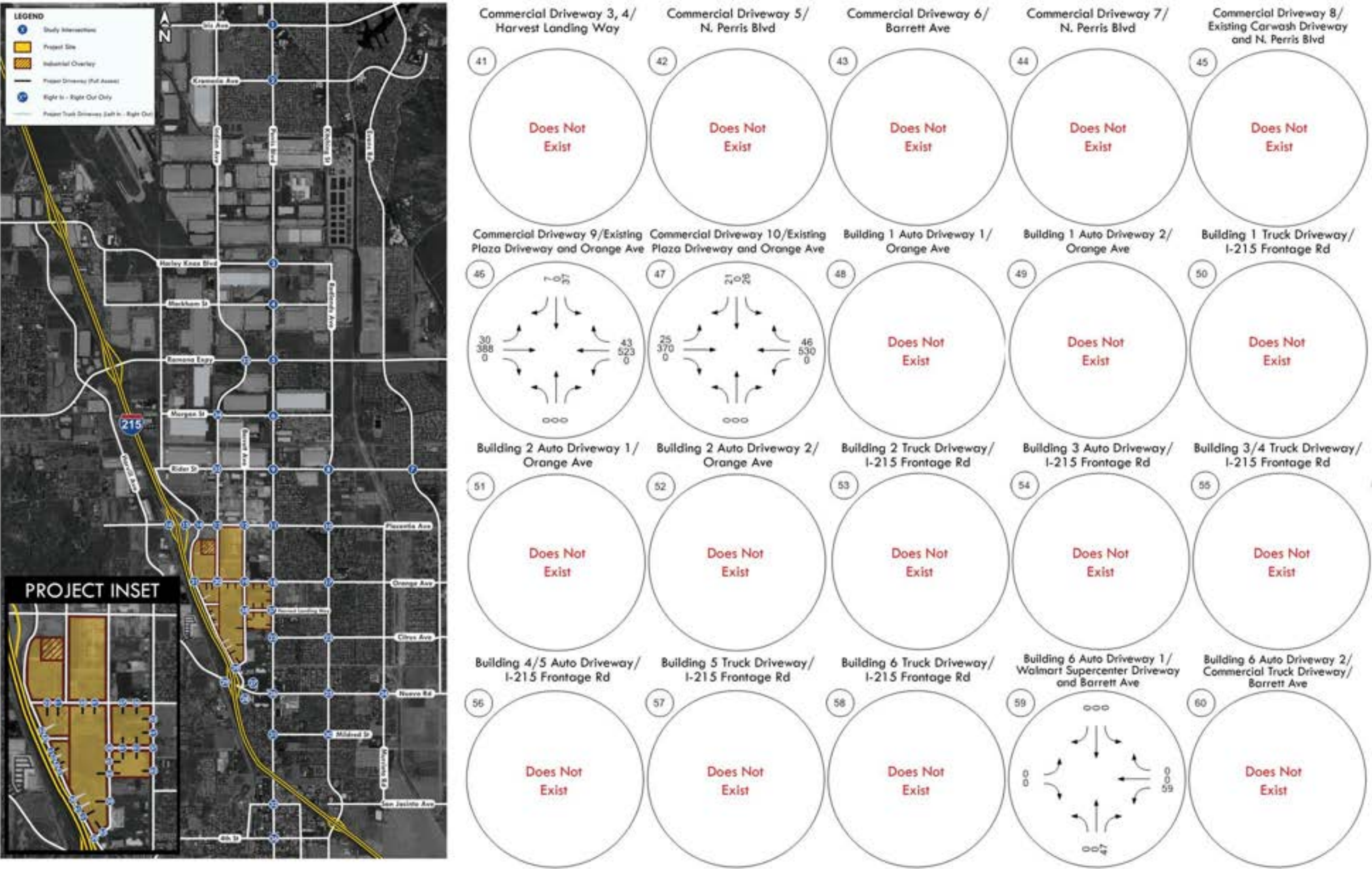


Figure 3.11d: General Plan 2045 Without Project AM Peak Hour PCE Traffic Volumes (Continued)



Figure 3.12a: General Plan 2045 Without Project PM Peak Hour PCE Traffic Volumes

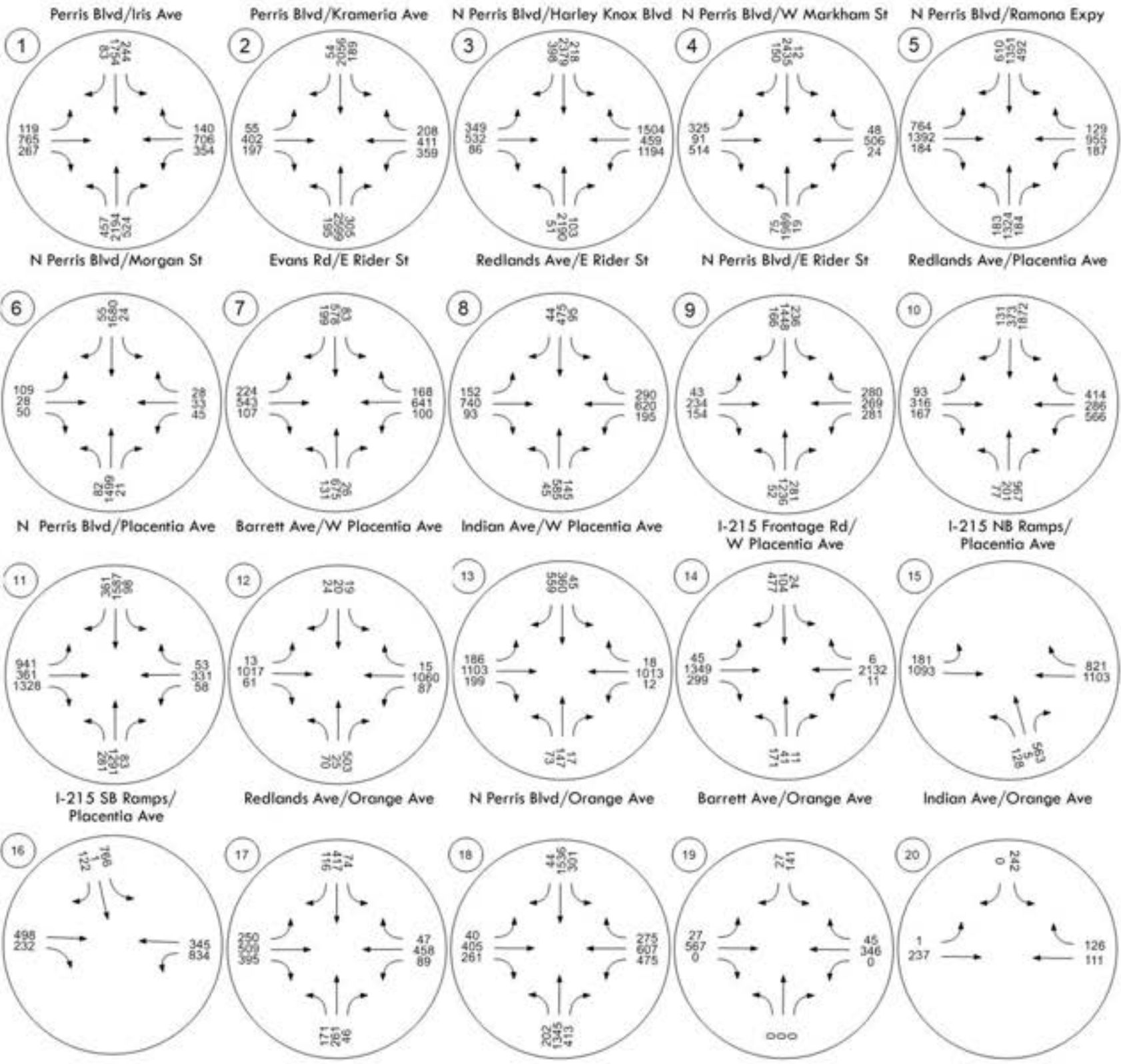


Figure 3.12b: General Plan 2045 Without Project PM Peak Hour PCE Traffic Volumes (Continued)

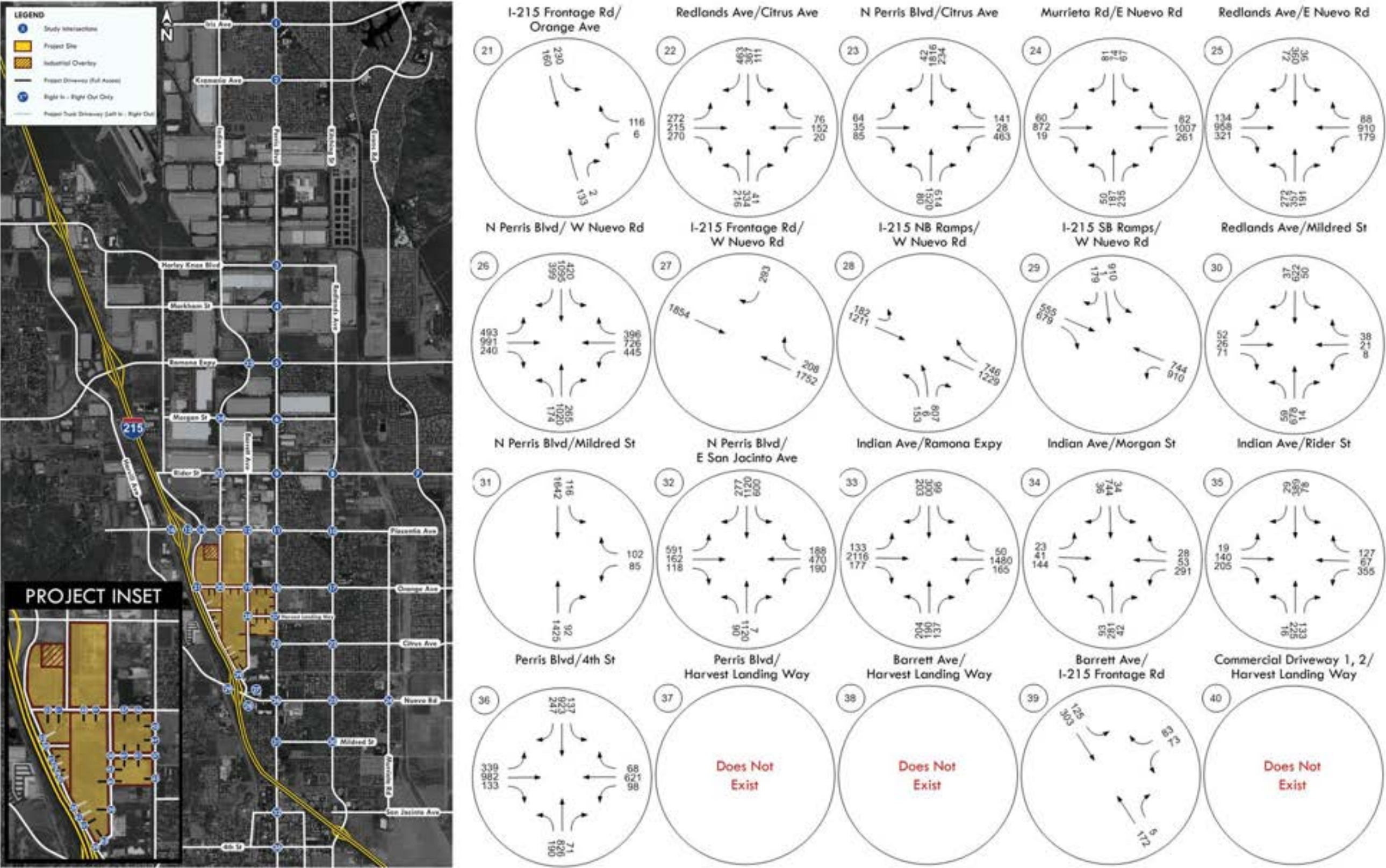


Figure 3.12c: General Plan 2045 Without Project PM Peak Hour PCE Traffic Volume (Continued)

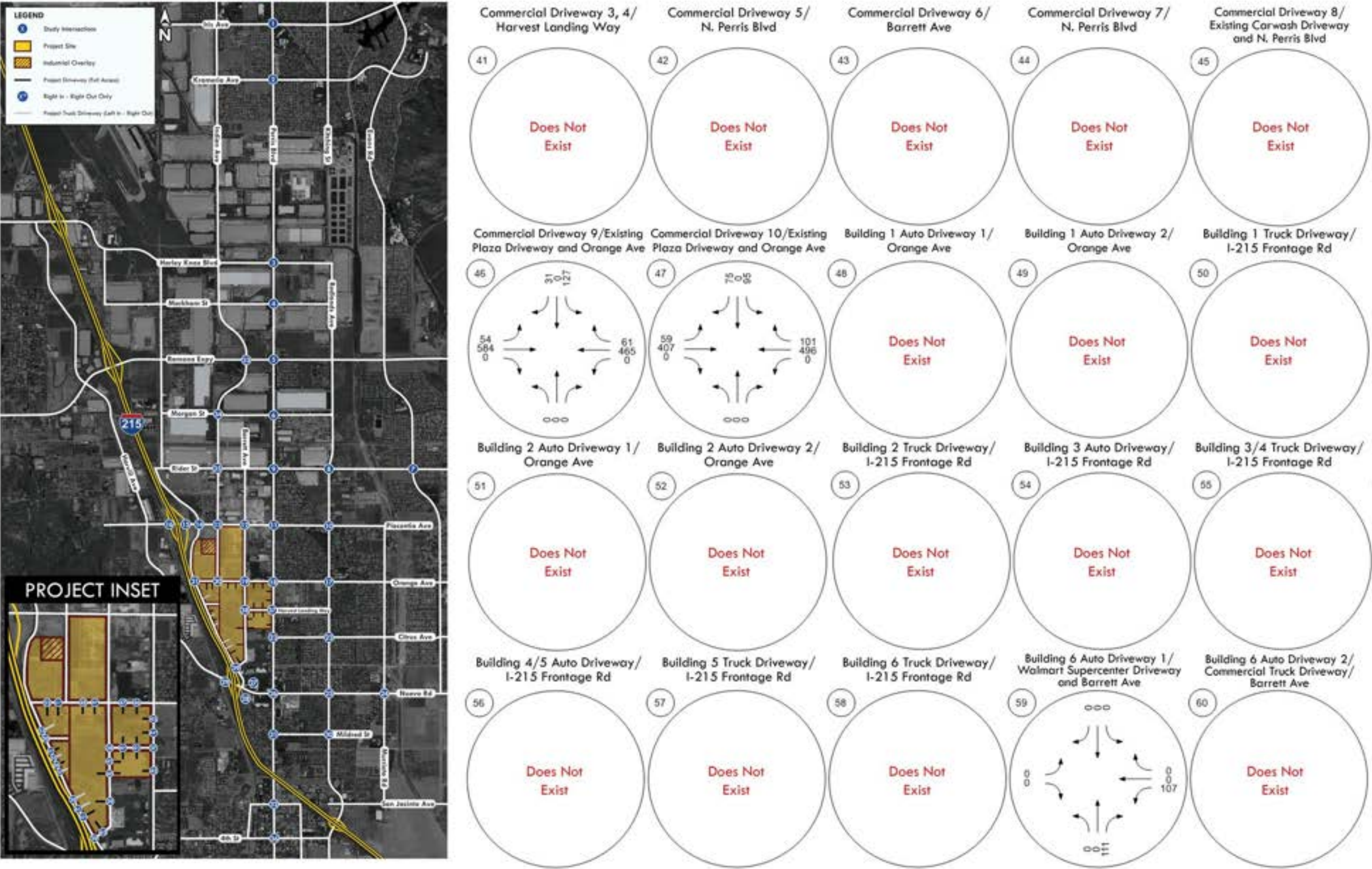


Figure 3.12d: General Plan 2045 Without Project PM Peak Hour PCE Traffic Volume (Continued)



4 PROPOSED PROJECT

4.1 Project Trip Generation

The vehicle trips were generated for the proposed development as described in Section 2, using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (11th Edition, 2021) and the *Transportation Uniform Mitigation Fee (TUMF) High-Cube Warehouse Trip Generation Study* by Fehr & Peers (2023). The Project trip generation is shown in Table 4.1.

As shown in Table 4.1, the proposed Project is estimated to generate approximately 40,321 daily trips, 2,778 AM peak hour trips, and 3,106 PM peak hour trips. Passenger Car Equivalent (PCE) factors were added to truck trips to account for the fact that trucks and utilize more roadway capacity due to their size, reduced maneuverability and slower acceleration. When converted to PCE, the proposed Project is estimated to generate approximately 44,542 daily PCE trips, 3,091 AM peak hour PCE trips, and 3,395 PM peak hour PCE trips.

4.2 Project Trips

The Project proposes to remove 2,700 feet of Indian Avenue between Orange Avenue and I-215 Frontage Road South. The Project would also construct the planned segment of Barrett Ave south of Orange Avenue from Orange Avenue to the existing southern portion of Barrett Avenue that connects to I-215 Frontage Road. The proposed realignment is shown in Figure 4.1. Project trips were distributed to the study area intersections based on the location of the Project and logical routes of travel to and from the site and approved by City staff. Truck trip distribution for Opening Year I 2026 and Opening Year II 2030 are shown in Figure 4.2 and Figure 4.3 respectively. Industrial automobile inbound and outbound trip distribution are shown in Figure 4.4 and Figure 4.5 respectively. Commercial automobile inbound and outbound trip distribution are shown in Figure 4.6 and Figure 4.7 respectively. Project trips were assigned to the study area intersections by multiplying the proposed Project trip generation by the trip distribution percentage at each location.

4.3 Project Site Access and General Recommendations

As previously mentioned in Section 2.1, the Project site would provide access for trucks and automobiles through a total of 27 driveways in Phase I: nine (9) driveways along Frontage Road, six (6) along Orange Avenue, five (5) along Barrett Avenue, four (4) along Harvest Landing Way, and three (3) along Perris Boulevard Street. A queueing analysis is conducted under the With Project conditions in Section 5 for all Project driveways, to ensure that no queueing deficiencies or safety concerns occur at any Project driveways, and no alternative access configurations are needed. Intersection lane configuration and traffic control post-project completion is shown in Figure 4.8.

As shown in Figure 4.8, the traffic control for the following existing intersection would be modified post-project completion:

- #45. Commercial Driveway 8/N. Perris Blvd
 - The east leg of the intersection, which is the driveway for the existing carwash, would be modified from full access to RI/RO, due to a median being installed on Perris Boulevard. The RI/RO east leg would have no impact on the LOS of the intersection. Therefore, the analysis did not include the carwash driveway as part of the TIA.
- #47. Commercial Driveway 10/Existing Plaza Driveway and Orange Ave
 - The north leg of the intersection, which is the driveway for the existing plaza would be modified from full access to RI/RO. The left-in and left-out trips would be utilizing Intersection #46, which would be realigned with the cross street on the opposite side.

No detailed site plan is available for Phase II of the Project at the time of this analysis. The Project will be conditioned to conduct a Trip Generation Comparison Assessment and Site Access Analysis for the Phase 2 industrial parcels once detailed site plans are prepared. Additionally, the project would be conditioned to perform on-site queuing analyses for all proposed drive-through pads and gas station operations once tenants are identified.

Truck turning templates for all Phase I truck driveways and driveway access spacing measurements for all Phase I driveways in accordance with Riverside County Standard Plan No. 114 are attached in the Appendix F.

Table 4.1a: Project Trip Generation

Land Use	Units	AM Peak Hour				PM Peak Hour				
		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 (Building 2, 6, and 7)	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 (Building 1)	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

Table 4.1b: Project Trip Generation (Continued)

General Light Industrial (Building 3, 4, and 5)	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 Light Industrial PCE Trip Generation				1,104	138	19	157	19	118	137
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	

Table 4.1c: Project Trip Generation (Continued)

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	12	VFP	2,064	62	62	123	83	83	167
Internal Capture ¹⁶ (OP 1 Retail)			-289	-14	-12	-25	-22	-15	-37
Retail Trip Generation with internal capture			1,775	48	50	98	62	68	130
Pass By (57% Daily, 63% AM, 57% PM)			-1,012	-30	-31	-62	-35	-39	-74
Total Retail Trip Generation			763	18	18	36	27	29	56
COMMERCIAL TOTAL	428,507	KSF	22,254	505	433	938	622	642	1,264
Phase 1 Total Project Passenger Car Trip Generation			26,272	801	565	1,366	819	891	1,709
Phase 1 Total Project Truck Trip Generation (Non PCE)			545	32	18	49	17	16	34
Phase 1 Total Project Trip Generation (Non PCE)			26,817	832	583	1,415	836	907	1,743
Phase 1 Total Project Trip Generation (PCE)			27,631	879	610	1,489	863	932	1,793

PHASE 2 Total Vehicle Trip Generation

Industrial Park	3,659,693	TSF	12,333	1,008	236	1,244	274	971	1,244
Vehicle Mix¹⁴		Percent							
	AM	PM	Daily						
Passenger Vehicles	88.24%	88.24%	83.10%	10,249	889	209	1,098	242	856
2-Axle Trucks	2.58%	2.58%	3.70%	456	26	6	32	7	25
3-Axle Trucks	2.08%	2.08%	2.99%	369	21	5	26	6	20
4+-Axle Trucks	7.09%	7.09%	10.19%	1,257	72	17	88	19	69
	100%	100%	100%	12,331	1,008	236	1,244	274	970
PCE Trip Generation¹⁵			PCE Factor						
Passenger Vehicles			1.0	10,249	889	209	1,098	242	856
2-Axle Trucks			1.5	685	39	9	48	11	38
3-Axle Trucks			2.0	738	42	10	52	11	40
4+-Axle Trucks			3.0	3,771	215	50	265	58	207
Total Industrial PCE Trip Generation				15,442	1,185	278	1,463	322	1,141
Industrial Park (Overlay)	348,262	TSF	1,174	96	22	118	26	92	118
Vehicle Mix¹⁴		Percent							
	AM	PM	Daily						
Passenger Vehicles	88.24%	88.24%	83.10%	975	85	20	104	23	81
2-Axle Trucks	2.58%	2.58%	3.70%	43	2	1	3	1	2
3-Axle Trucks	2.08%	2.08%	2.99%	35	2	0	2	1	2
4+-Axle Trucks	7.09%	7.09%	10.19%	120	7	2	8	2	7
	100%	100%	100%	1,173	96	22	118	26	92
PCE Trip Generation¹⁵			PCE Factor						
Passenger Vehicles			1.0	975	85	20	104	23	81
2-Axle Trucks			1.5	65	4	1	5	1	4
3-Axle Trucks			2.0	70	4	1	5	1	4
4+-Axle Trucks			3.0	359	20	5	25	6	20
Total Industrial PCE Trip Generation				1,469	113	26	139	31	109

Table 4.1d: Project Trip Generation (Continued)

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	37,496	1,775	793	2,568	1,084	1,829	2,912
Total Project Truck Trip Generation (Non PCE)	2,825	161	48	210	53	141	194
Total Project Trip Generation (Non PCE)	40,321	1,936	842	2,778	1,136	1,970	3,106
Total Project Trip Generation (PCE)	44,542	2,177	914	3,091	1,215	2,181	3,395

Notes:

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 Manufacturing truck% used from the Institute of Transportation Engineers, Trip Generation, 11th Edition, 2021.

Figure 4.1: Proposed Realignment of Indian Avenue and Barrett Avenue



Figure 4.2: Truck Trip Distribution Opening Year I 2026



Figure 4.3: Truck Trip Distribution Opening Year II 2030



Figure 4.4: Industrial Automobile Inbound Trip Distribution



Figure 4.5: Industrial Automobile Outbound Trip Distribution



Figure 4.6: Commercial Automobile Inbound Trip Distribution



Figure 4.7: Commercial Automobile Outbound Trip Distribution



Figure 4.8a: Post-Project Completion Intersection Lane Configuration and Traffic Control

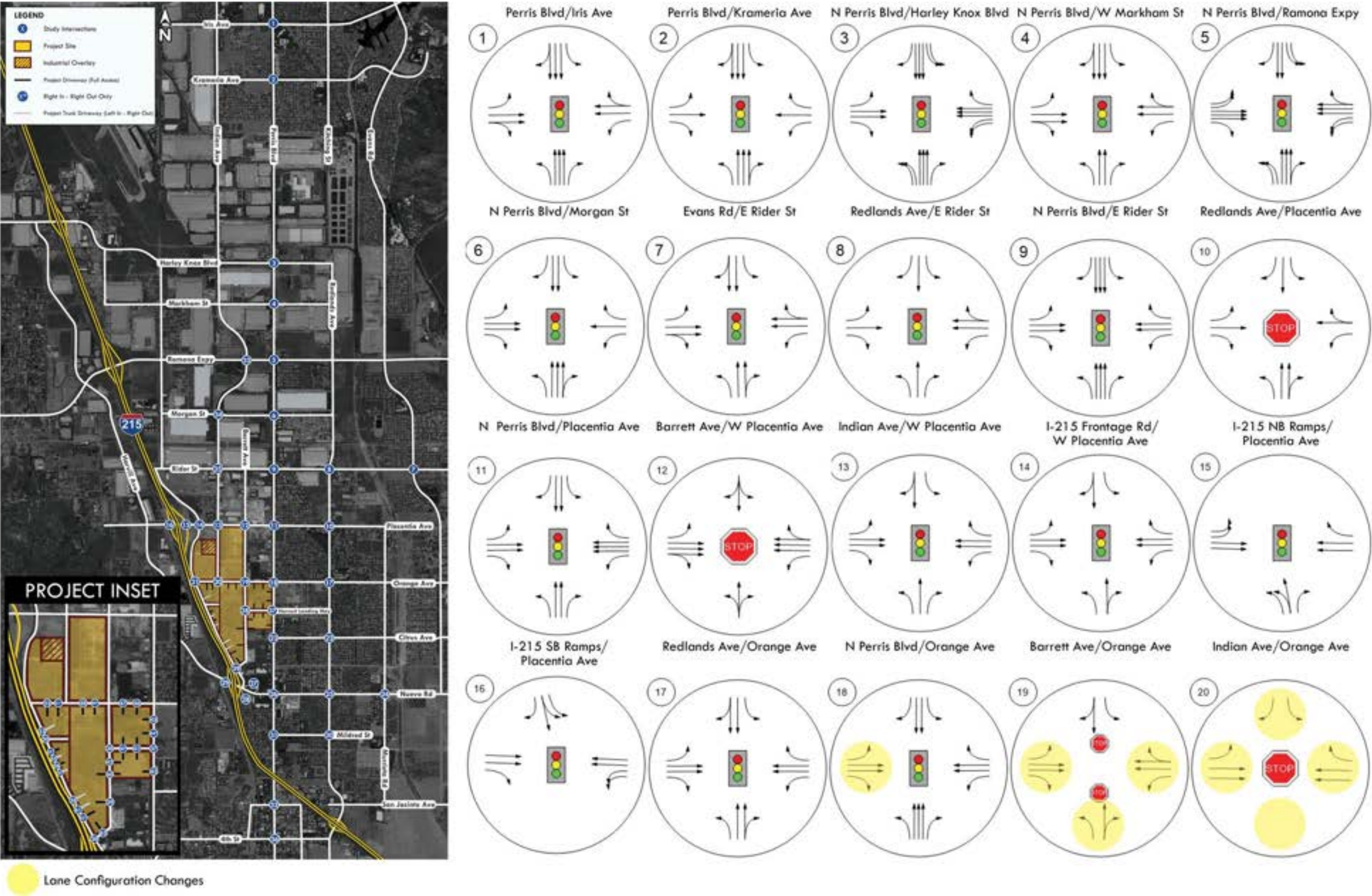


Figure 4.8b: Post-Project Completion Intersection Lane Configuration and Traffic Control (Continued)



Figure 4.8c: Post-Project Completion Intersection Lane Configuration and Traffic Control (Continued)

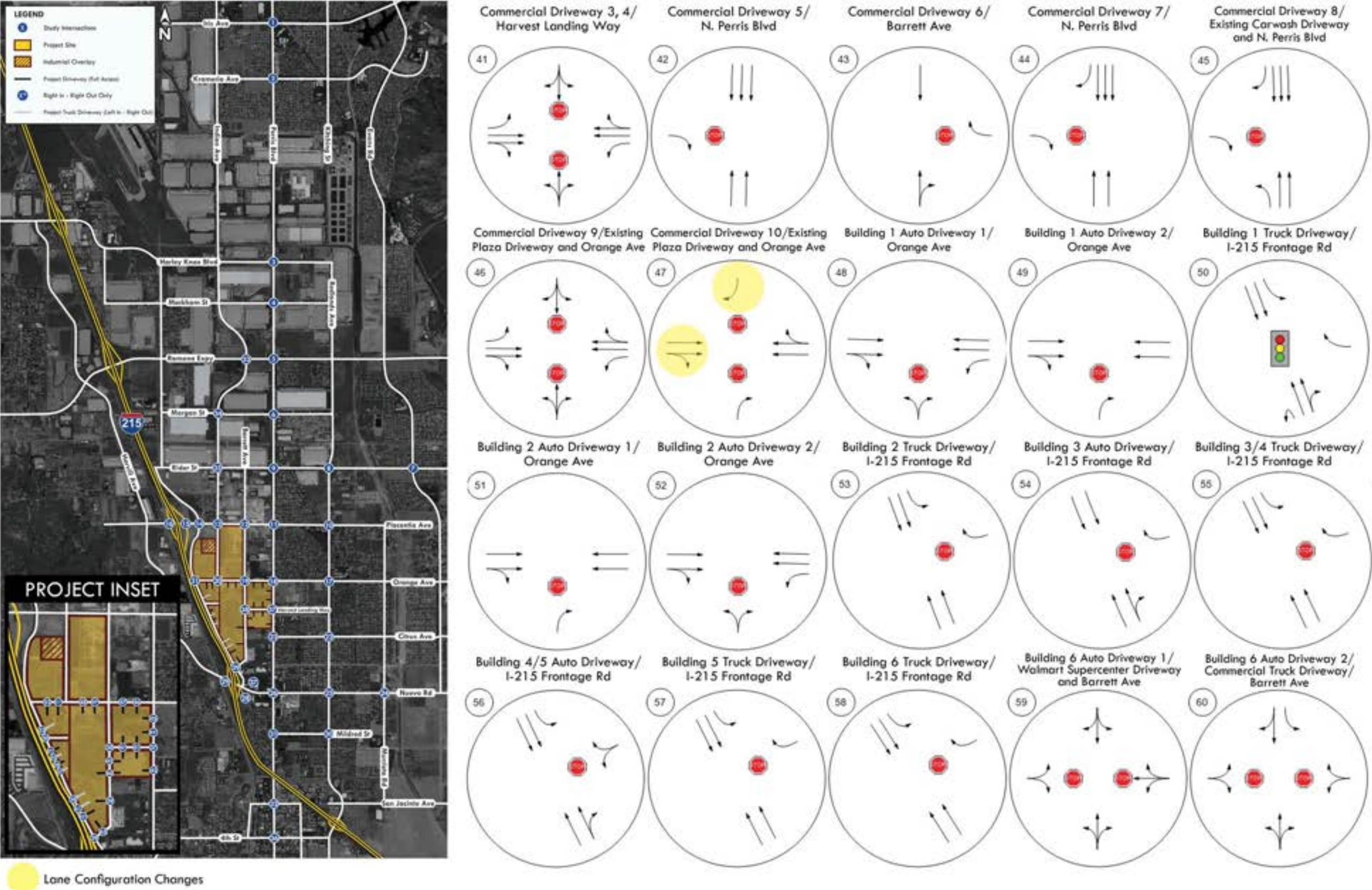


Figure 4.8d: Post-Project Completion Intersection Lane Configuration and Traffic Control (Continued)



5 WITH PROJECT CONDITIONS

5.1 Opening Year I 2026 With Project Traffic Conditions

Opening Year I 2026 With Project Traffic were determined by adding the Project trips to the Opening Year 2026 I Without Project traffic volumes. The Opening Year I 2026 With Project AM and PM peak hour traffic volumes at the study area intersections are shown in Figure 5.1 and Figure 5.2 respectively. The Opening Year I 2026 Project trip assignments for the AM and PM peak hours are shown in Figure 5-3 and Figure 5-4, respectively.

The Project proposes to remove 2,700 feet of Indian Avenue between Orange Avenue and I-215 Frontage Road South. The Project would also construct the planned segment of Barrett Ave south of Orange Avenue from Orange Avenue to the existing southern portion of Barrett Avenue that connects to I-215 Frontage Road. As part of the analysis for this scenario, the inbound trips to Indian Avenue at intersection #20 (Indian Avenue/Orange Avenue) were redirected to intersection #21 (I-215 Frontage Rd/Orange Ave) and ultimately to intersection #39 (Barrett Ave/I-215 Frontage Road). Additionally, the outbound trips originating from Indian Avenue were rerouted from intersection #39 (Barrett Ave/I-215 Frontage Road) to intersection #19 (Barrett Ave/Orange Ave), and finally to intersection #20 (Indian Avenue/Orange Ave) as a westbound right-turn.

An intersection operations analysis was conducted for the study area to evaluate the Opening Year I 2026 With Project AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously in Section 2.3 - Methodology. Table 5.1 provides a comparison between the Opening Year I 2026 Without and With-Project scenarios.

As shown in Table 5.1, the following seven (7) intersections would operate at an unsatisfactory LOS under the Opening Year I 2026 With Project conditions:

- #1. Perris Blvd/Iris Ave (LOS E during AM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM peak hour and LOS E during PM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS E during AM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS E during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS F during PM peak hour)

Recommended improvements for the significantly deficient intersections can be found in Section 6

Table 5.1: Opening Year I 2026 With Project AM and PM Peak Hour LOS

Intersection			Jurisdiction			Control Type			Opening Year I 2026				Opening Year I 2026 Plus				Difference		LOS			
									Conditions		Project Conditions		AM Peak		PM Peak		AM Peak		PM Peak		Standard	Satisfactory?
									Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS		
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							
2.	Perris Blvd/Krameria Ave	City of Moreno Valley	Signalized	44	D	39.5	D	48.2	D	44.3	D	4.2	4.8	D	Yes							
3.	N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	32.6	C	32.1	C	32.7	C	32.3	C	0.1	0.2	D	Yes							
4.	N Perris Blvd/W Markham St	City of Perris	Signalized	14.1	B	15.2	B	14.6	B	15.7	B	0.5	0.5	D	Yes							
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	74.3	E	48.2	D	78.1	E	52.4	D	3.8	4.2	E	Yes							
6.	N Perris Blvd/Morgan St	City of Perris	Signalized	11.7	B	10.7	B	11.9	B	10.8	B	0.2	0.1	D	Yes							
7.	Evans Rd/E Rider St	City of Perris	Signalized	30.4	C	28.7	C	31.0	C	29.9	C	0.6	1.2	D	Yes							
8.	Redlands Ave/E Rider St	City of Perris	Signalized	30.2	C	37	D	30.4	C	37.2	D	0.2	0.2	D	Yes							
9.	N Perris Blvd/E Rider St	City of Perris	Signalized	25.9	C	28.3	C	27.5	C	29.3	C	1.6	1	D	Yes							
10.	Redlands Ave/Placentia Ave	City of Perris	All-way stop	17.7	C	19	C	18.6	C	20.7	C	0.9	1.7	D	Yes							
11.	N Perris Blvd/Placentia Ave	City of Perris	Signalized	37.8	D	32	C	41.0	D	35.8	D	3.2	3.8	D	Yes							
12.	Barrett Ave/W Placentia Ave	City of Perris	All-way stop	25	D	17.4	C	83.0	F	49.0	E	58.0	31.6	D	No							
13.	Indian Ave/W Placentia Ave	City of Perris	Signalized	36.2	D	35.2	D	49.3	D	39.8	D	13.1	4.6	D	Yes							
14.	I-215 Frontage Rd/W Placentia Ave	City of Perris	Signalized	29.1	C	21.1	C	28.7	C	23.1	C	-0.4	2	D	Yes							
15.	I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	32.6	C	28.4	C	37.4	D	27.7	C	4.8	-0.7	E	Yes							
16.	I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	16.8	B	20	B	16.9	B	23.3	C	0.1	3.3	E	Yes							
17.	Redlands Ave/Orange Ave	City of Perris	Signalized	25.9	C	28.6	C	26.7	C	30.3	C	0.8	1.7	D	Yes							
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	24.1	C	32	C	46.7	D	57.3	E	22.6	25.3	D	No							
19.	Barrett Ave/Orange Ave	City of Perris	Two-way stop	19.4	C	15.2	C	85.5	F	78.3	F	66.1	63.1	D	No							
20.	Indian Ave/Orange Ave	City of Perris	All-way stop	14.0	B	11.8	B	20.2	C	12.9	B	6.2	1.1	D	Yes							
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	14.4	B	14.8	B	10.8	B	11.7	B	-3.6	-3.1	D	No							
22.	Redlands Ave/Citrus Ave	City of Perris	All-way stop	12.3	B	13.7	B	12.9	B	14.8	B	0.6	1.1	D	Yes							
23.	N Perris Blvd/Citrus Ave	City of Perris	Signalized	13.3	B	18.4	B	13.4	B	21.2	C	0.1	2.8	D	Yes							
24.	Murrieta Rd/E Nuevo Rd	City of Perris	Signalized	39.3	D	31.6	C	40.2	D	32.1	C	0.9	0.5	D	Yes							
25.	Redlands Ave/E Nuevo Rd	City of Perris	Signalized	23.6	C	22.7	C	23.7	C	22.9	C	0.1	0.2	D	Yes							
26.	N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	43.9	D	41.6	D	71.3	E	67.8	E	27.4	26.2	D	No							
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							
28.	I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	18.4	B	21.3	C	18.8	B	22.1	C	0.4	0.8	E	Yes							
29.	I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	18.4	B	29	C	20.3	C	33.8	C	1.9	4.8	E	Yes							
30.	Redlands Ave/Midred St	City of Perris	All-way stop	21.6	C	13.7	B	23.0	C	14.4	B	1.4	0.7	D	Yes							
31.	N Perris Blvd/Mildred St	City of Perris	Signalized	14.3	B	7.6	A	15.8	B	8.3	A	1.5	0.7	D	Yes							
32.	N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	26.9	C	20.7	C	28.8	C	21.9	C	1.9	1.2	D	Yes							
33.	Indian Ave/Ramona Expy	City of Perris	Signalized	32.5	C	36.6	D	32.8	C	37.3	D	0.3	0.7	E	Yes							
34.	Indian Ave/Morgan St	City of Perris	Signalized	20.1	C	16.6	B	19.6	B	16.0	B	-0.5	-0.6	D	Yes							
35.	Indian Ave/Rider St	City of Perris	Signalized	22.0	C	31.3	C	21.5	C	30.6	C	-0.5	-0.7	D	Yes							
36.	Perris Blvd/4th St	City of Perris	Signalized	57.9	E	50.5	D	69.7	E	64.7	E	11.8	14.2	E	Yes							
37.	Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	10.6	B	13.4	B	-	-	D	Yes							
38.	Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	7.9	A	8.1	A	-	-	D	Yes							
39.	Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	12.6	B	14.3	B	16.9	C	16.2	C	4.3	1.9	D	Yes							
40.	Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.6	A	-	-	D	Yes							
41.	Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	12.7	B	15.1	C	-	-	D	Yes							
42.	Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.9	B	12.6	B	-	-	D	Yes							
43.	Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.6	A	-	-	D	Yes							
44.	Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.3	B	11.6	B	-	-	D	Yes							
45.	Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.6	B	11.9	B	-	-	D	Yes							
46.	Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.8	C	31.2	D	119.9	F	1438.7	F	99.1	1407.5	D	No							
47.	Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	19.5	C	26.2	D	11.0	B	11.5	B	-8.5	-14.7	D	Yes							
48.	Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	10.5	B	10.0	B	-	-	D	Yes							
49.	Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.7	A	8.7	A	-	-	D	Yes							
50.	Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	5.5	A	5.1	A	-	-	D	Yes							
51.	Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.5	A	-	-	D	Yes							
52.	Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	9.2	A	9.1	A	-	-	D	Yes							
53.	Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.6	A	8.7	A	-	-	D	Yes							
54.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.7	A	-	-	D	Yes							
55.	Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.4	A	8.5	A	-	-	D	Yes							
56.	Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	9.0	A	9.0	A	-	-	D	Yes							
57.	Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	7.3	A	7.3	A	-	-	D	Yes							
58.	Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.4	A	8.4	A	-	-	D	Yes							
59.	Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	9.6	A	10.2	B	-	-	D	Yes							
60.	Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	9.9	A	10.3	B	-	-	D	Yes							
61.	Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.4	A	8.4	A	-	-	D	Yes							
62.	Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.4	A	8.4	A	-	-	D	Yes							
63.	Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	9.1	A	9.2	A	-	-	D	Yes							

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

5.1.1 Opening Year I 2026 With Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 5.2* shows the queue lengths at each intersection approach. As shown in *Table 5.2*, queueing deficiencies were observed under Opening Year I 2026 With Project Conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

Even though the queue length for the NBR and NBL at intersection #28 exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes. Similarly, an additional 360 feet of storage is provided for the SBL at intersection #29, ensuring that the queue can also be safely accommodated there.

Table 5.2: Opening Year I 2026 With Project AM and PM Peak Hour Queueing Analysis

	Opening Year I 2026 Conditions								Opening Year I 2026 Plus Project								Difference							
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	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	570	570	-	-	280	-	-	390	570	570	-	-	280	-	-	390	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	80	350	-	-	85	-	-	430	90	425	-	-	85	-	-	660	10	75	-	-	0	-	-	230
PM Queue Length Per Lane	45	260	-	-	125	-	-	570	55	320	-	-	125	-	-	795	10	60	-	-	0	-	-	225
16. I-215 SB Ramps/Placentia Ave																								
Storage Length Per Lane	-	-	340	340	-	320	315	-	-	-	340	340	-	320	315	-	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	90	35	-	40	90	-	-	-	145	40	-	40	100	-	-	-	55	5	-	0	10	-
PM Queue Length Per Lane	-	-	190	40	-	90	205	-	-	-	290	40	-	90	215	-	-	-	100	0	-	0	10	-
28. I-215 NB Ramps/W Nuevo Rd																								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	185	140	-	-	120	-	-	275	190	195	-	-	120	-	-	280	5	55	-	-	0	-	-	5
PM Queue Length Per Lane	90	190	-	-	200	-	-	365	95	265	-	-	200	-	-	375	5	75	-	-	0	-	-	10
29. I-215 SB Ramps/W Nuevo Rd																								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-	-	-	185**	185	-	N/A	315	-	-	-	185*	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	170	85	-	245	155	-	-	-	220	100	-	245	195	-	-	-	50	15	-	0	40	-
PM Queue Length Per Lane	-	-	325	90	-	300	335	-	-	-	435	105	-	300	400	-	-	-	110	15	-	0	65	-

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 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

**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.

5.1.2 Opening Year I 2026 With Project Driveways Queueing Analysis

A full queueing analysis was conducted at all the Project driveways under the Opening Year I 2026 With Project Conditions to ensure that queueing remains within acceptable storage limits. Driveway access spacing is in accordance with Riverside County Standard Plan No. 114, and the driveway spacing measurements have been provided in Appendix F.

The required queuing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 5.3* shows the queue lengths at each Project driveway approach. As shown in *Table 5.3*, queueing deficiencies were not observed under Opening Year I 2026 With Project Conditions. Therefore, no alternative access configurations are needed, as the driveway queueing analysis indicates no queueing deficiencies or safety concerns at any Project driveways.

Table 5.3: Opening Year I 2026 With Project AM and PM Peak Hour Project Driveways Queueing Analysis

	Opening Year II 2030 Plus Project Conditions																											
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound					
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT				
	40. Commercial Driveway 1, 2 and Harvest Landing Way								48. Building 1 Auto Driveway 1 and Orange Ave								56. Building 4/5 Auto Driveway and I-215 Frontage Rd											
Storage Length Per Lane (ft)	N/A	225	N/A	216	N/A	424	N/A	224	304	304	N/A	N/A	N/A	N/A	160	N/A	N/A	219	120	N/A	N/A	N/A	35	35				
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5				
PM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5				
	41. Commercial Driveway 3, 4 and Harvest Landing Way								49. Building 1 Auto Driveway 2 and Orange Ave								57. Building 5 Truck Driveway and I-215 Frontage Rd											
Storage Length Per Lane (ft)	224	224	244	244	160	245	160	343	N/A	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	379	120	N/A	N/A	N/A	N/A	25			
AM Queue Length Per Lane (ft)	10	10	15	15	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0			
PM Queue Length Per Lane (ft)	15	15	25	25	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0			
	42. Commercial Driveway 5 and N. Perris Blvd								50. Building 1 Truck Driveway and I-215 Frontage Rd								58. Building 6 Truck Driveway and I-215 Frontage Rd											
Storage Length Per Lane (ft)	N/A	N/A	N/A	507	N/A	109	N/A	N/A	N/A	165	200	N/A	N/A	N/A	N/A	300+	N/A	328	200	N/A	N/A	N/A	N/A	840				
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	10	N/A	0	5	N/A	N/A	N/A	N/A	5				
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	N/A	N/A	15	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	10	N/A	0	5	N/A	N/A	N/A	N/A	5				
	43. Commercial Driveway 6 and Barrett Ave								51. Building 2 Auto Driveway 1 and Orange Ave								59. Building 6 Auto Driveway 1 and Barrett Ave											
Storage Length Per Lane (ft)	N/A	526	N/A	N/A	N/A	N/A	N/A	70	N/A	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	707	200	692	41	41	100	100			
AM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	5	5	0	0	5	5	10	0			
PM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	5	5	0	0	5	5	15	0			
	44. Commercial Driveway 7 and N. Perris Blvd								52. Building 2 Auto Driveway 2 and Orange Ave								60. Building 6 Auto Driveway 2 and Barrett Ave											
Storage Length Per Lane (ft)	N/A	N/A	N/A	100	N/A	138	N/A	N/A	39	39	N/A	N/A	N/A	N/A	100	N/A	N/A	0	N/A	160	N/A	39	39	246	246			
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	N/A	5	0	5	0	5	5	5	5			
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	N/A	5	0	5	0	5	5	10	10			
	45. Commercial Driveway 8 and N. Perris Blvd								53. Building 2 Truck Driveway and I-215 Frontage Rd								61. Building 7 Truck Driveway and I-215 Frontage Rd											
Storage Length Per Lane (ft)	160	N/A	N/A	100	N/A	150	N/A	N/A	N/A	531	200	N/A	N/A	N/A	N/A	410	N/A	493	200	N/A	N/A	255	N/A	N/A				
AM Queue Length Per Lane (ft)	15	N/A	N/A	0	N/A	5	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	0	5	N/A	N/A	5	N/A	N/A				
PM Queue Length Per Lane (ft)	20	N/A	N/A	0	N/A	10	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	0	5	N/A	N/A	5	N/A	N/A				
	46. Commercial Driveway 9 and Orange Ave								54. Building 3 Auto Driveway and I-215 Frontage Rd								62. Building 7 Auto Driveway 1 and I-215 Frontage Rd											
Storage Length Per Lane (ft)	224	224	100	100	206	206	147	147	N/A	254	N/A	N/A	N/A	N/A	N/A	49	N/A	44	N/A	N/A	N/A	N/A	N/A	354				
AM Queue Length Per Lane (ft)	30	30	145	145	10	0	15	0	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5				
PM Queue Length Per Lane (ft)	100	100	750	750	15	0	20	0	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5				
	47. Commercial Driveway 10 and Orange Ave								55. Building 3/4 Truck Driveway and I-215 Frontage Rd								63. Building 7 Auto Driveway 2 and Barrett Ave											
Storage Length Per Lane (ft)	N/A	201	N/A	100	N/A	413	N/A	400	N/A	204	200	N/A	N/A	N/A	N/A	176	N/A	N/A	44	44	N/A	N/A	N/A	950				
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0				
PM Queue Length Per Lane (ft)	N/A	5	N/A	15	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0				

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.

5.1.3 Opening Year I 2026 With Project Roadway Segment Analysis

With the addition of the Project, segment of Indian Avenue between Orange Ave and I-215 Frontage Road South would not be utilized and would be removed. As part of the analysis for this scenario, which considers the removal of this street, the Without Project roadway segments volumes on northbound Indian Avenue between Orange Ave and I-215 Frontage Road¹ are added to Barrett Ave, which includes the following segments:

- #16. Barrett Ave between Orange Ave and Harvest Landing Way
- #17. Barrett Ave between Harvest Landing Way and I-215 Frontage Rd

The southbound Without Project roadway segments volumes on Indian Avenue between Orange Ave and I-215 Frontage Road are already accounted for on segment #9. I-215 Frontage Rd between Orange Ave and Nuevo Rd and would not require any volume adjustment.

Opening Year I 2026 With Project roadway segments volumes were developed by adding the Project trips to the Opening Year 2026 I Without Project roadway segments volumes, with the adjustments noted above.

The LOS at the Opening Year I 2026 With Project study roadway segments were determined using the methodology described previously in *Section 2.3 Methodology*. The Opening Year I 2026 With Project LOS at the study roadway segments are shown in *Table 5.4*. As shown in *Table 5.4*, the following eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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

¹ Counts were not taken for roadway segments volumes on Indian Avenue between Orange Ave and I-215 Frontage Road. Only peak hour turning movement counts are available for the intersection of Indian Ave/Orange Ave (Int #20). The northbound ADT volume is estimated as 10*PM peak hour northbound volume at the intersection of Indian Ave/Orange Ave. Traffic counts are provided in *Appendix B*.

Table 5.4: Opening Year I 2026 With Project Roadway Segment Level of Service

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 ?
1. Indian Ave between Water Ave and Orange Ave	Collector	2	13,000	5,427	0.417	A	2	13,000	6,166	0.474	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	9,576	0.267	A	4	35,900	16,427	0.458	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	35,900	39,830	1.109	F	5	44,900	52,439	1.168	F	D	Yes
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,510	0.116	A	2	13,000	6,804	0.523	A	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	4	35,900	38,198	1.064	F	5	44,900	41,532	0.925	E	D	Yes
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	35,900	40,500	1.128	F	4	35,900	43,460	1.211	F	D	Yes
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	45,744	0.849	D	6	53,900	54,139	1.004	F	D	Yes
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	2	18,000	6,564	0.365	A	4	35,900	9,351	0.260	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	2	18,000	3,301	0.183	A	4	35,900	5,843	0.163	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	4	35,900	3,482	0.097	A	4	35,900	4,304	0.120	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	32,415	0.903	E	4	35,900	36,693	1.022	F	D	Yes
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	41,341	0.767	C	6	53,900	52,866	0.981	E	D	Yes
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	33,931	0.945	E	4	35,900	38,497	1.072	F	D	Yes
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	35,900	48,150	1.341	F	4	35,900	56,007	1.560	F	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	26,457	0.491	A	6	53,900	31,574	0.586	A	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	Collector	2	13,000	-	-	-	2	13,000	5,639	0.434	A	D	No
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	Collector	2	13,000	-	-	-	2	13,000	7,940	0.611	B	D	No
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	Collector	4	25,900	-	-	-	4	25,900	7,855	0.303	A	D	No
19. Indian Ave between Placentia Ave and Water Ave	Collector	2	13,000	5,427	0.417	A	2	13,000	6,166	0.474	A	D	No

Notes:

LOS = Level of Service

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

Figure 5.1a: Opening Year I 2026 Project AM Peak Hour PCE Trip Assignment

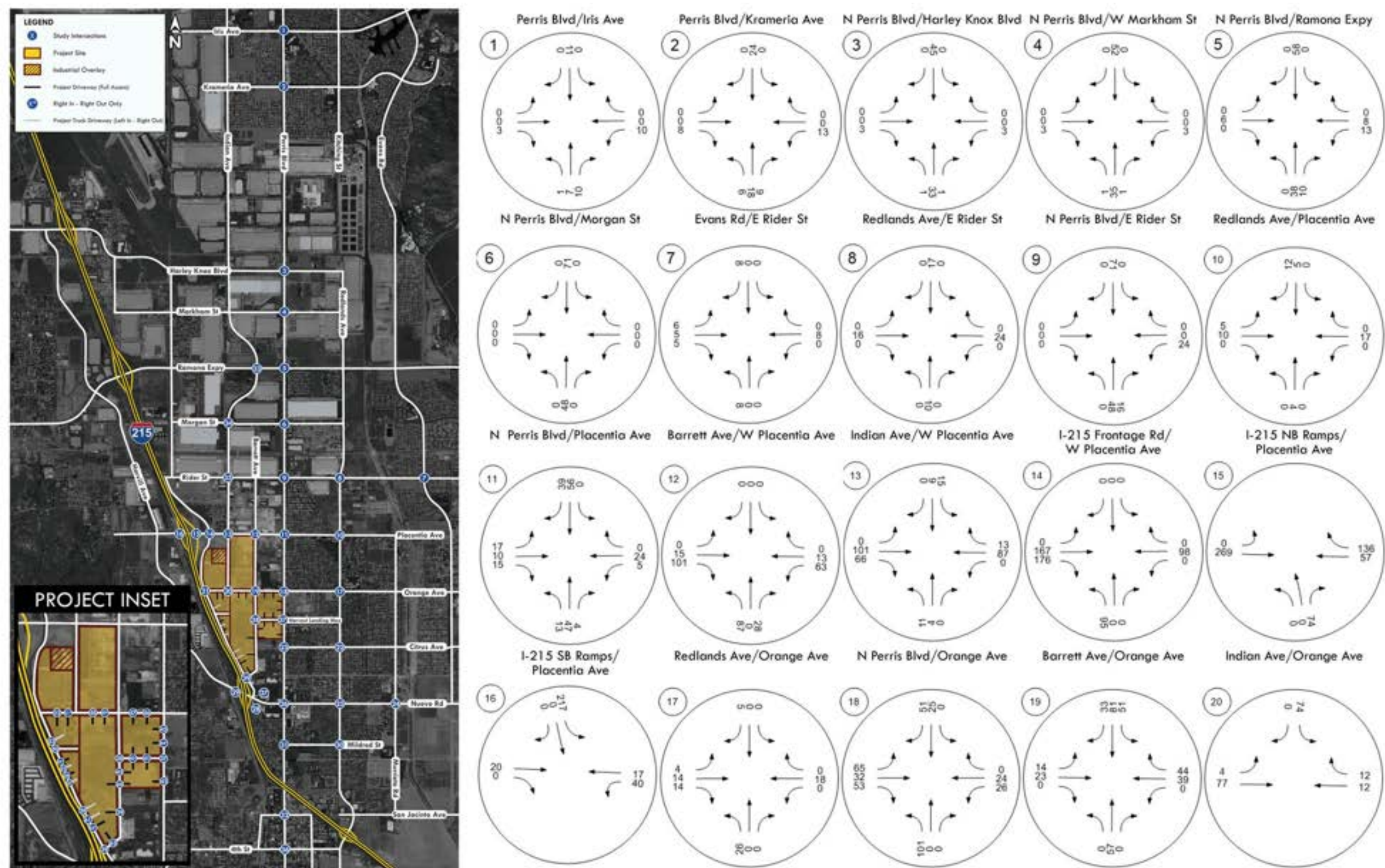


Figure 5.1b: Opening Year I 2026 Project AM Peak Hour PCE Trip Assignment (Continued)

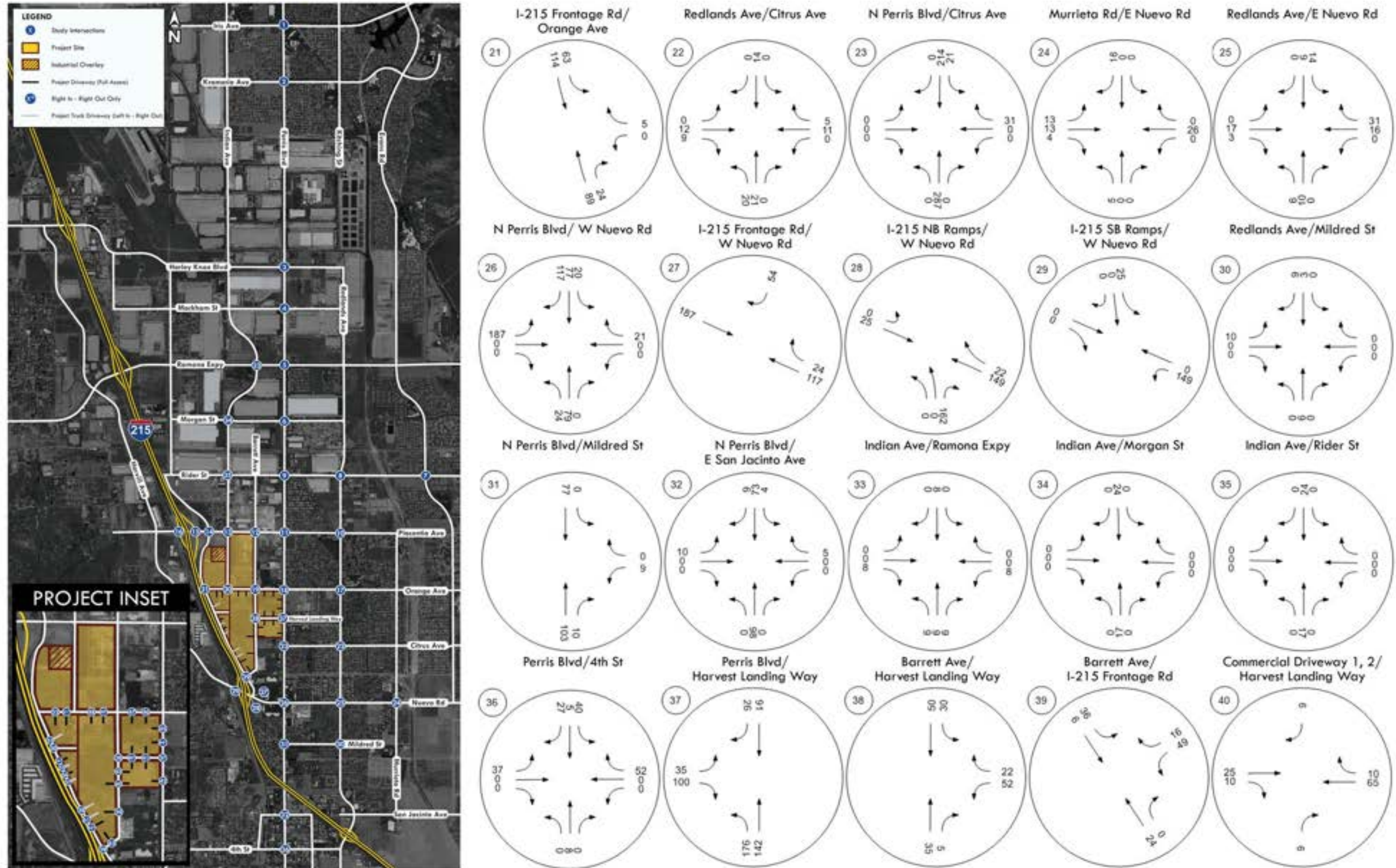


Figure 5.1c: Opening Year I 2026 Project AM Peak Hour PCE Trip Assignment (Continued)

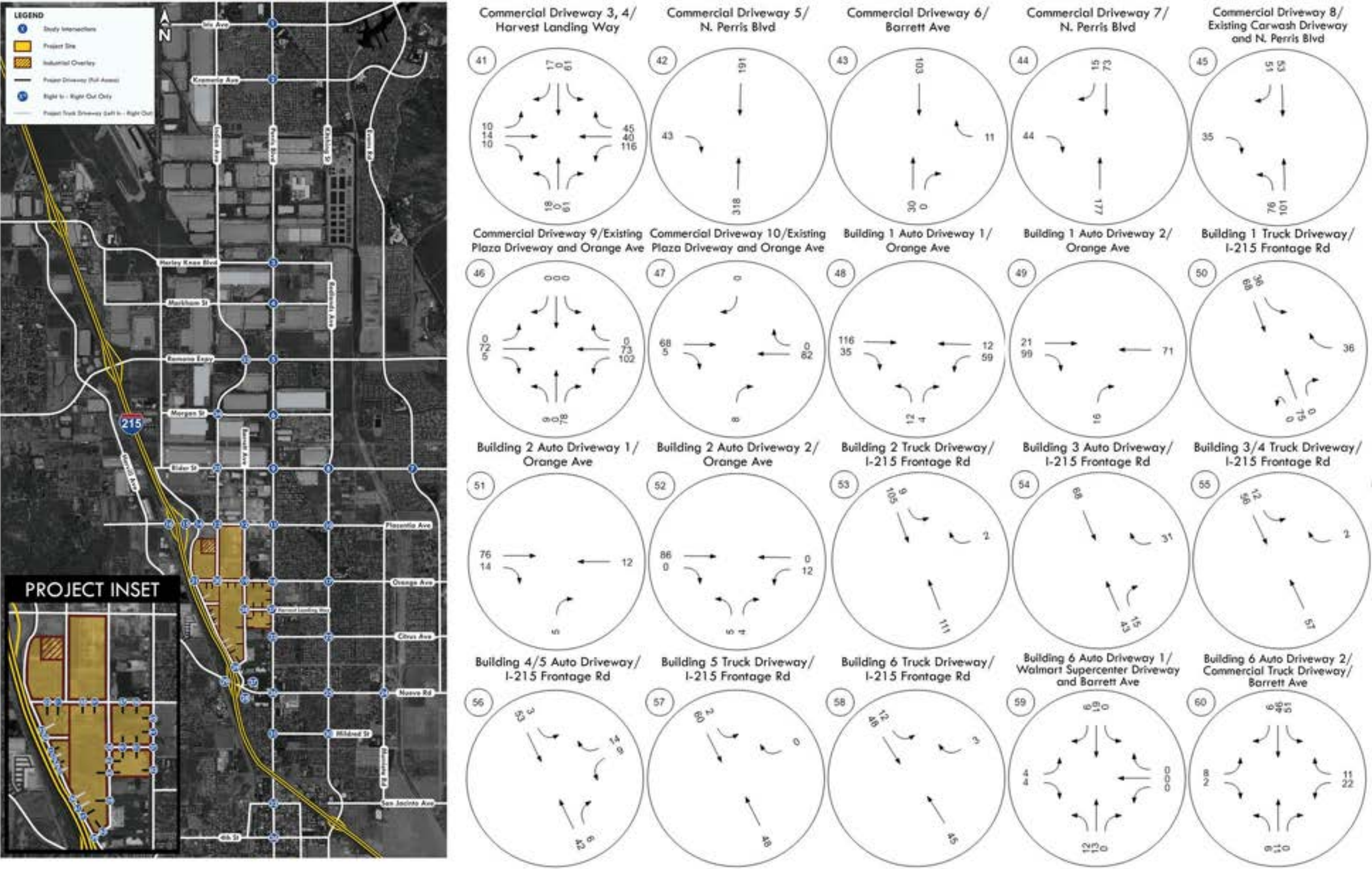


Figure 5.1d: Opening Year I 2026 Project AM Peak Hour PCE Trip Assignment (Continued)

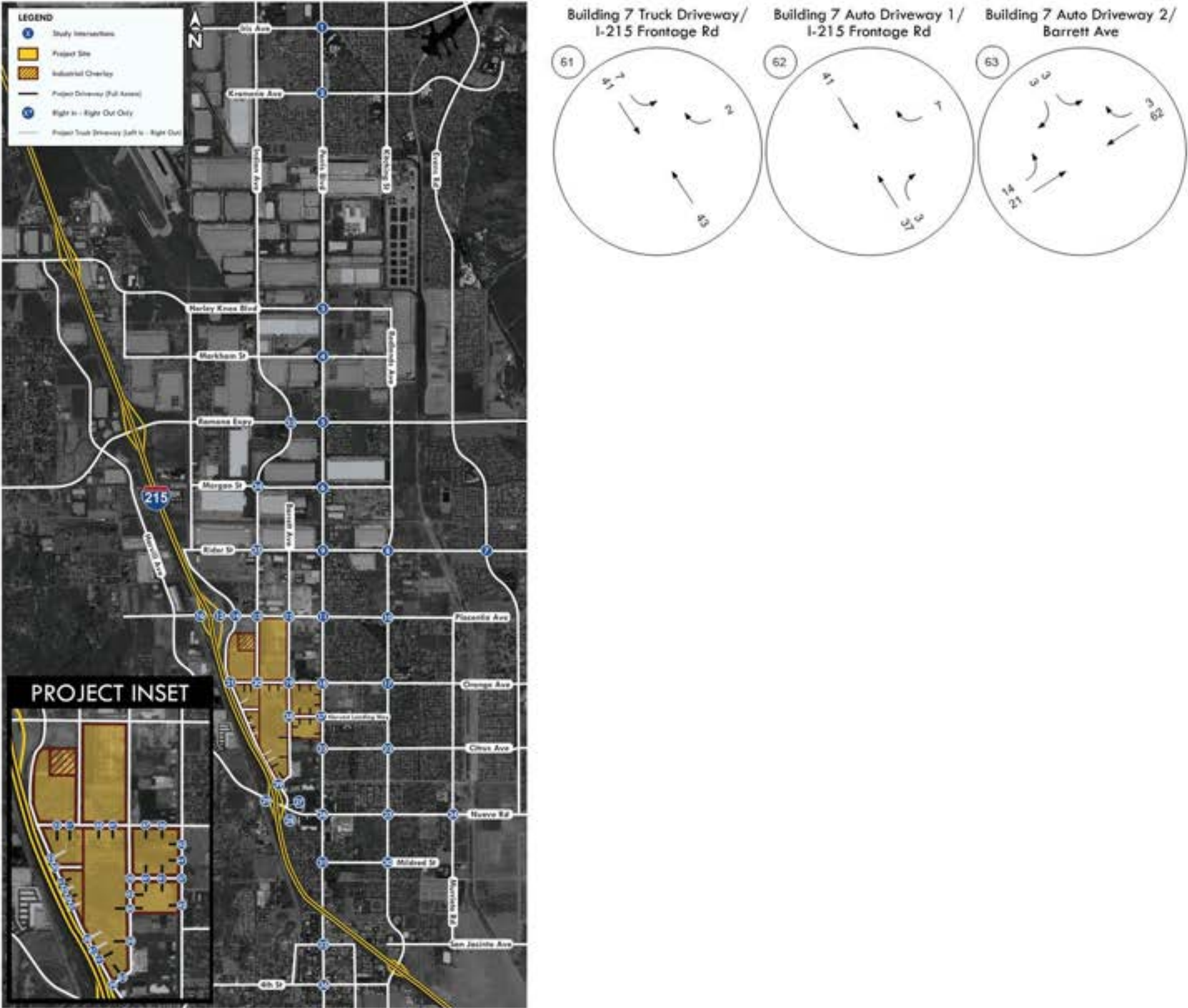


Figure 5.2a: Opening Year I 2026 PM Peak Hour PCE Project Trip Assignment

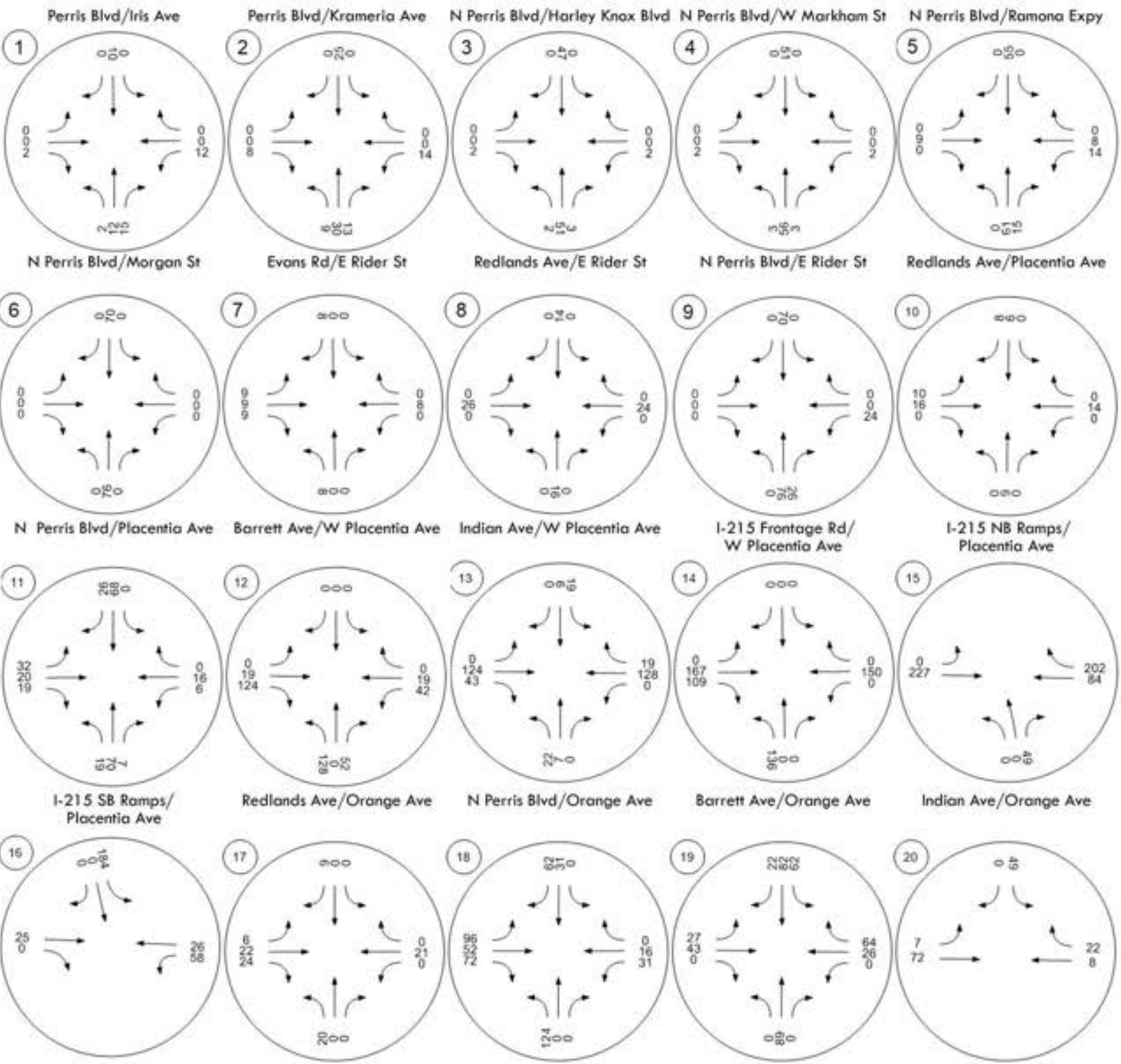


Figure 5.2b: Opening Year I 2026 PM Peak Hour PCE Project Trip Assignment (Continued)

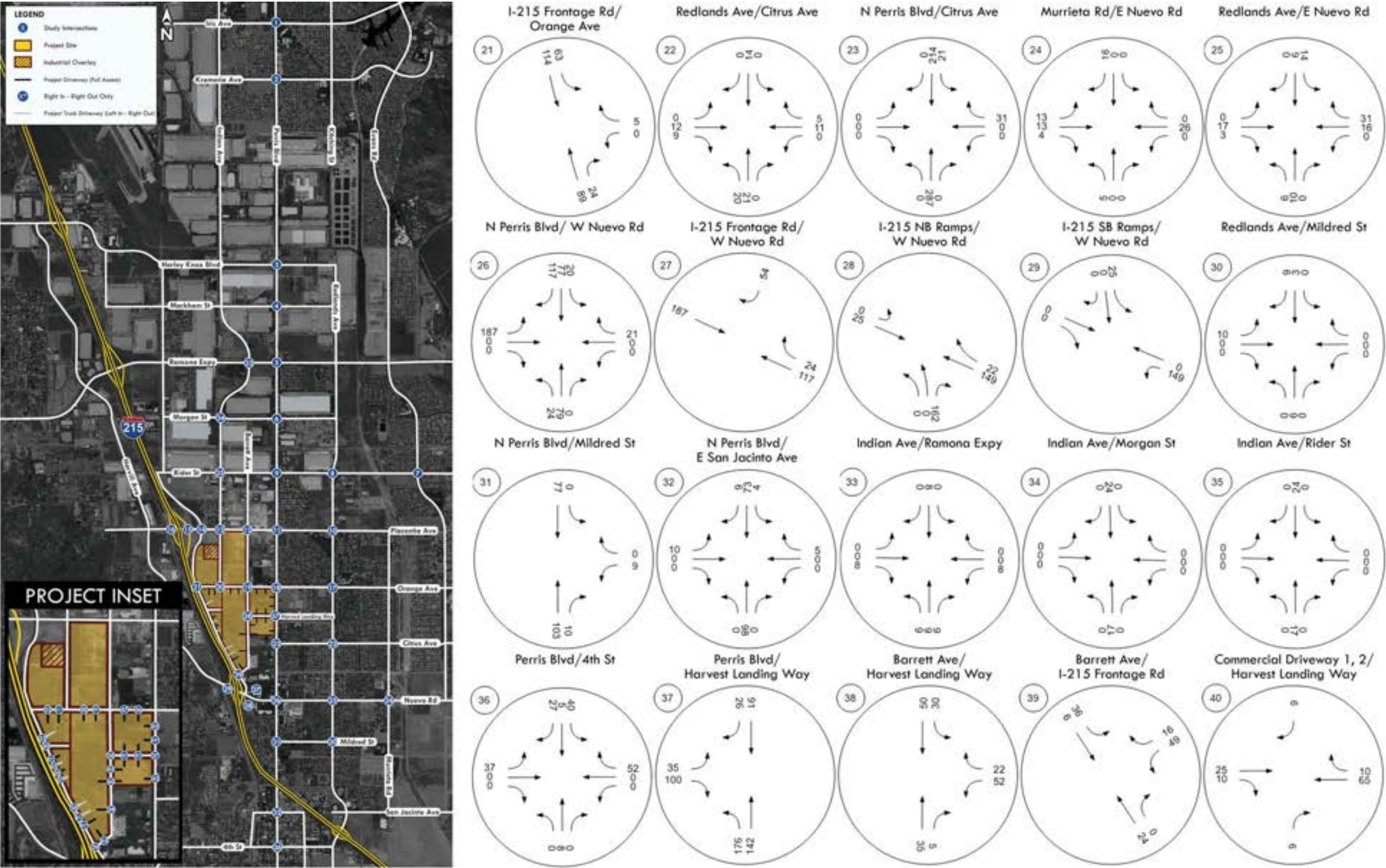


Figure 5.2c: Opening Year I 2026 PM Peak Hour PCE Project Trip Assignment (Continued)

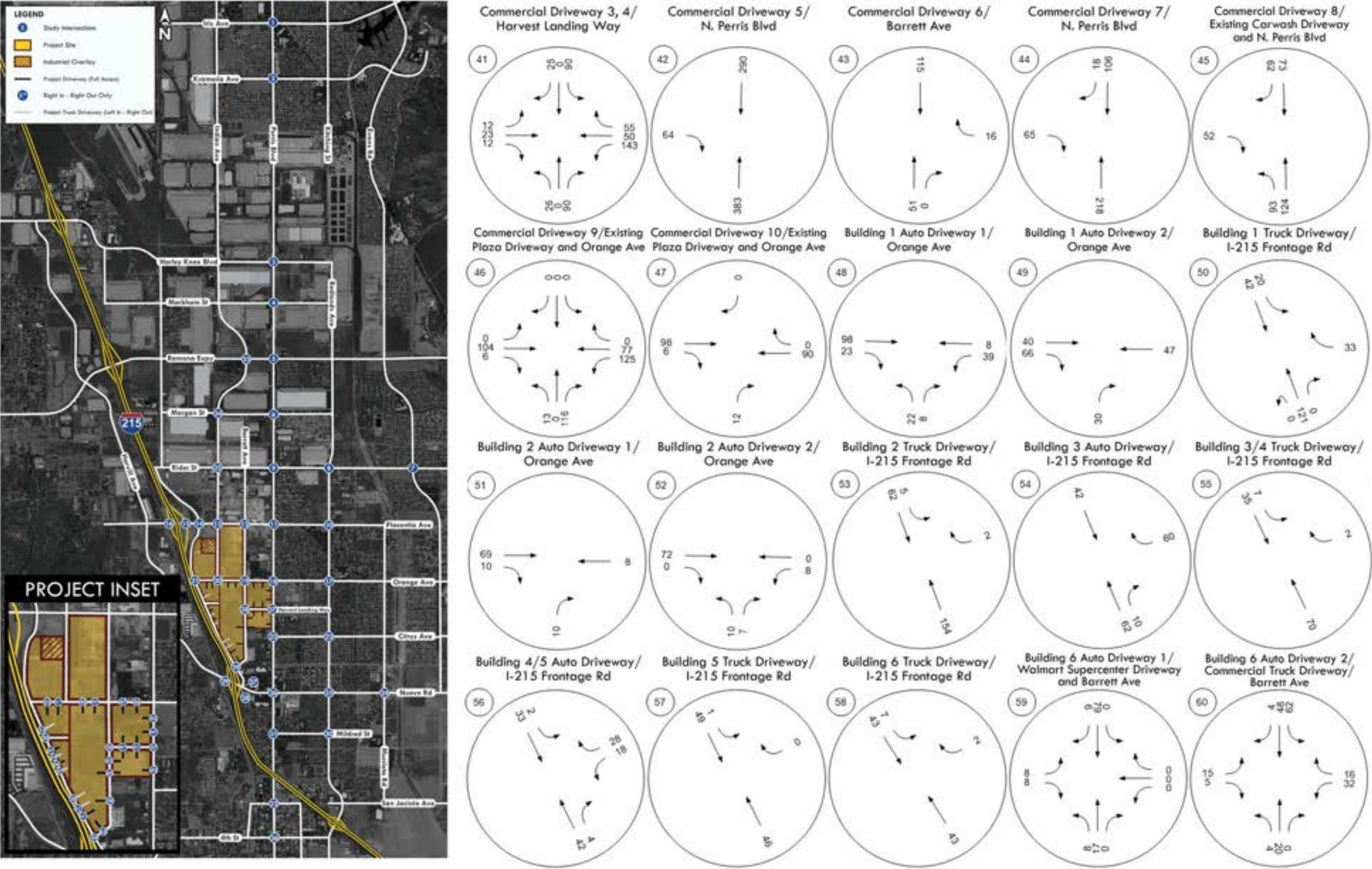


Figure 5.2d: Opening Year I 2026 PM Peak Hour PCE Project Trip Assignment (Continued)

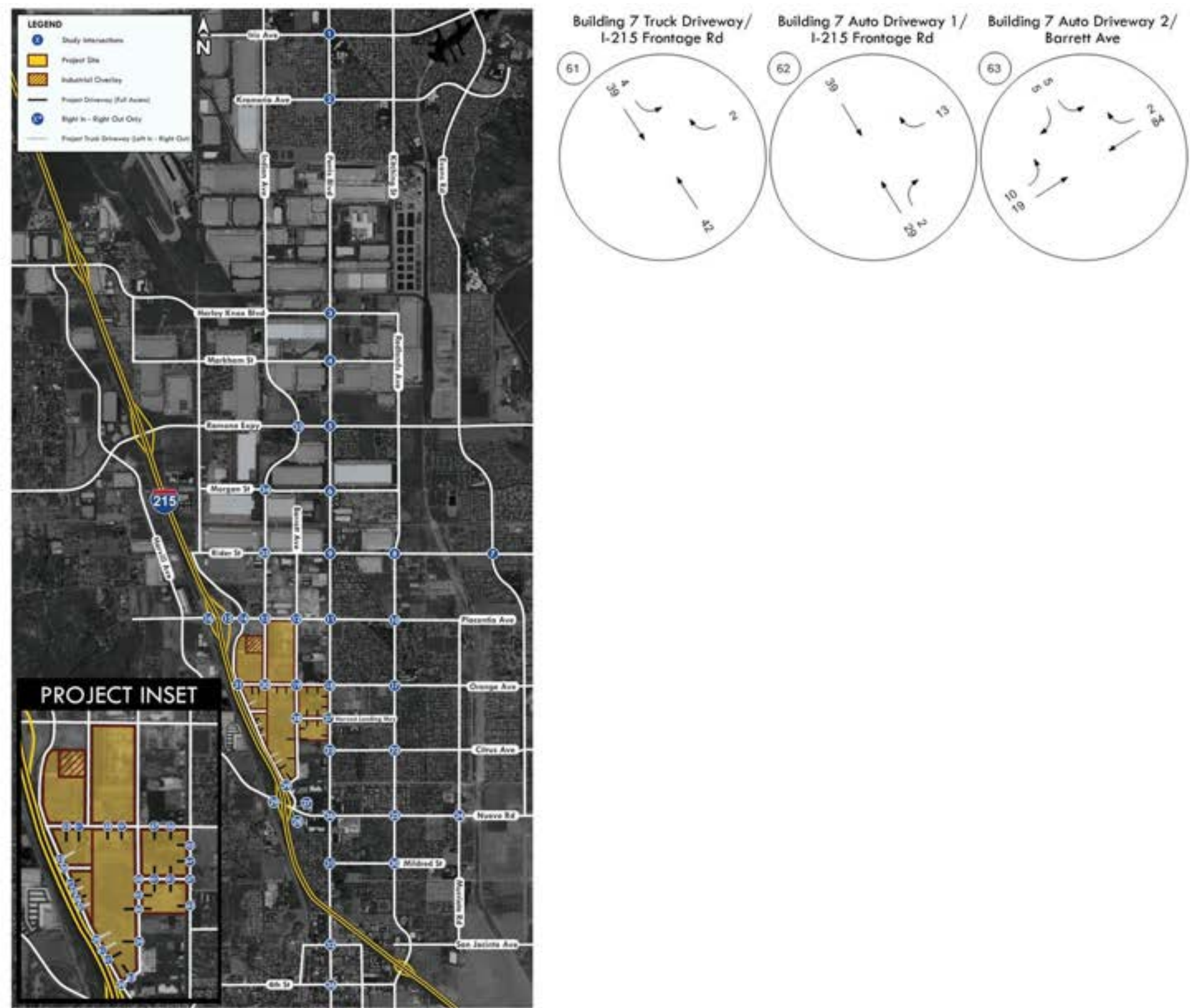


Figure 5.3a: Opening Year I 2026 With Project AM Peak Hour PCE Traffic Volumes

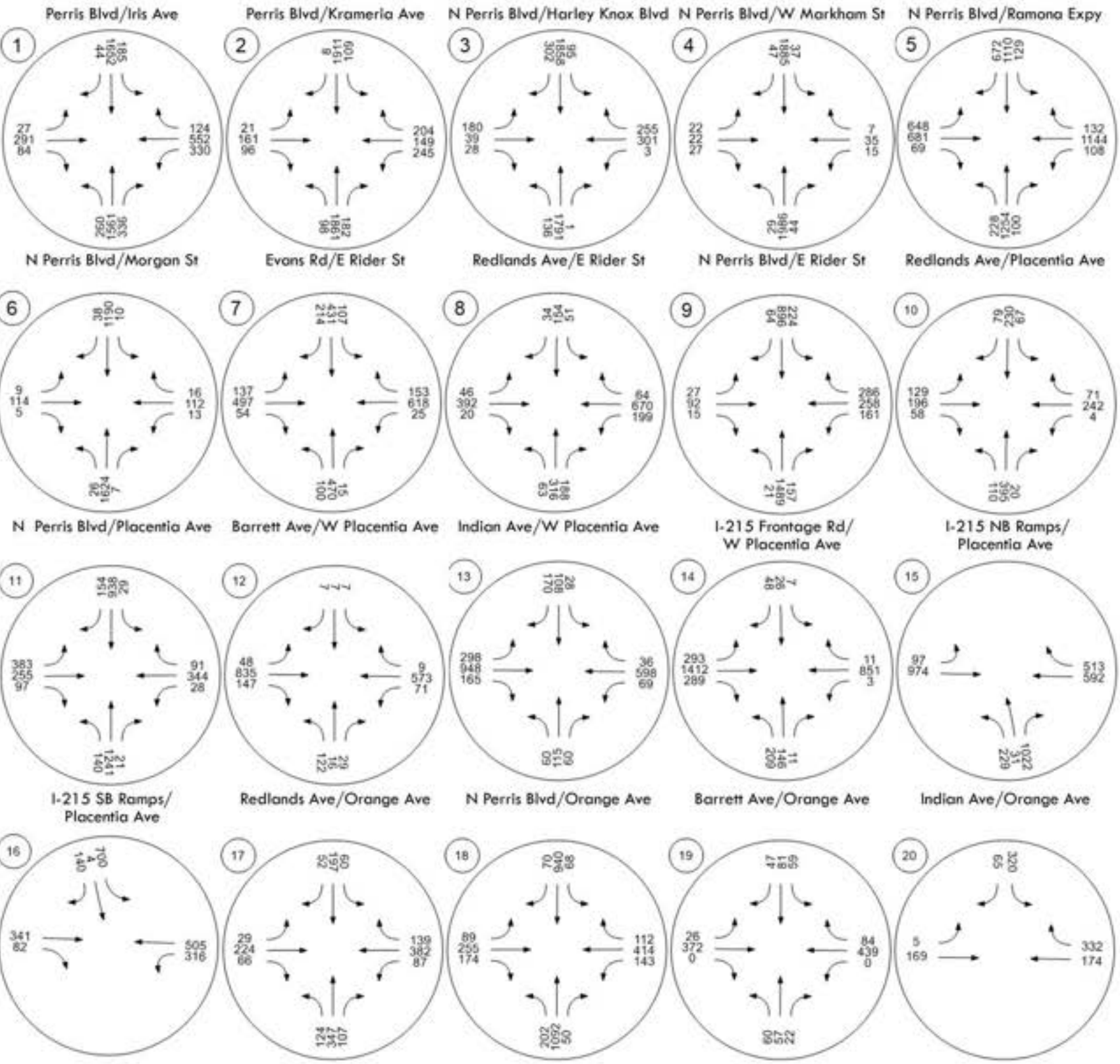


Figure 5.3b: Opening Year I 2026 With Project AM Peak Hour PCE Traffic Volumes (Continued)

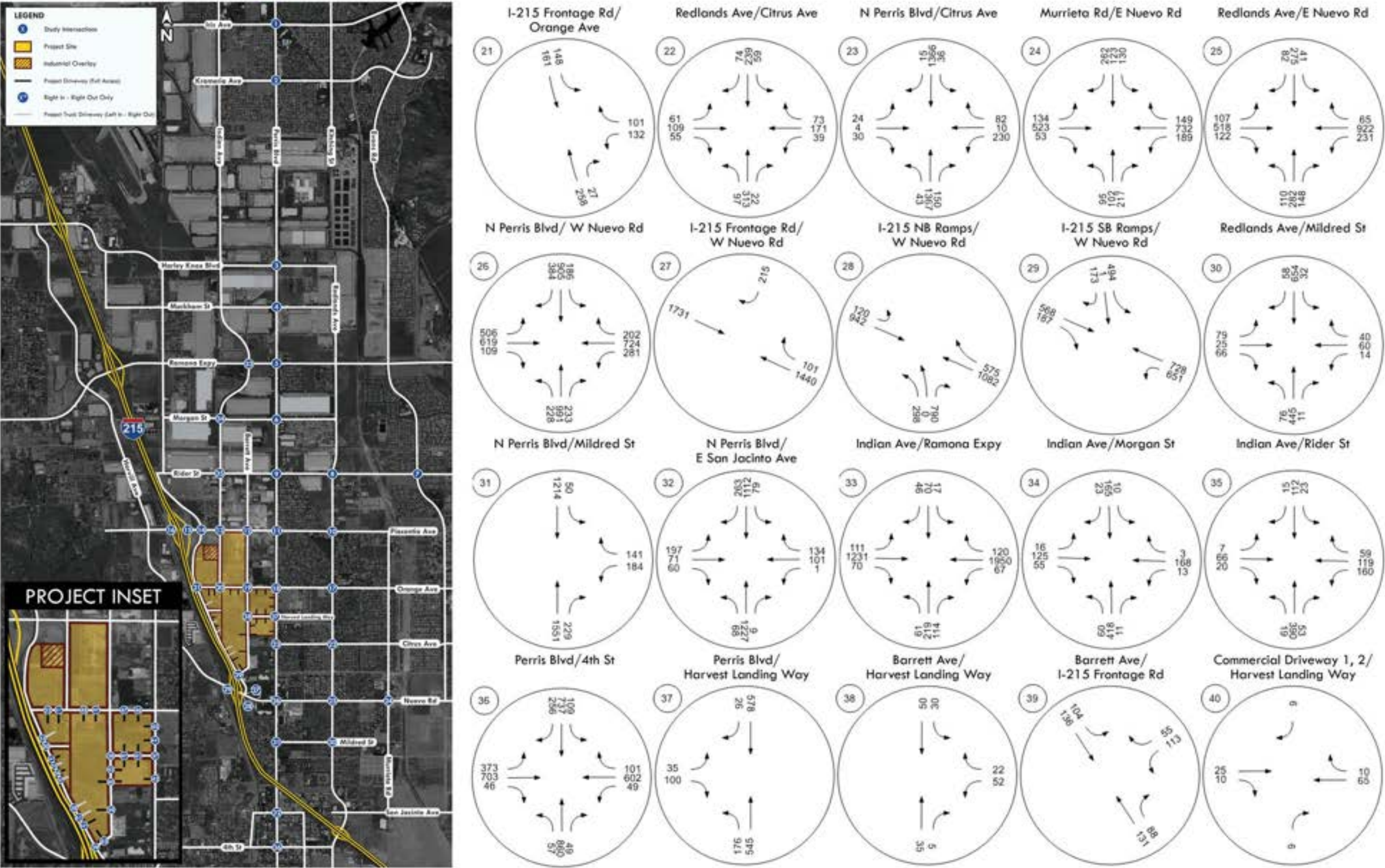


Figure 5.3c: Opening Year I 2026 With Project AM Peak Hour PCE Traffic Volumes (Continued)

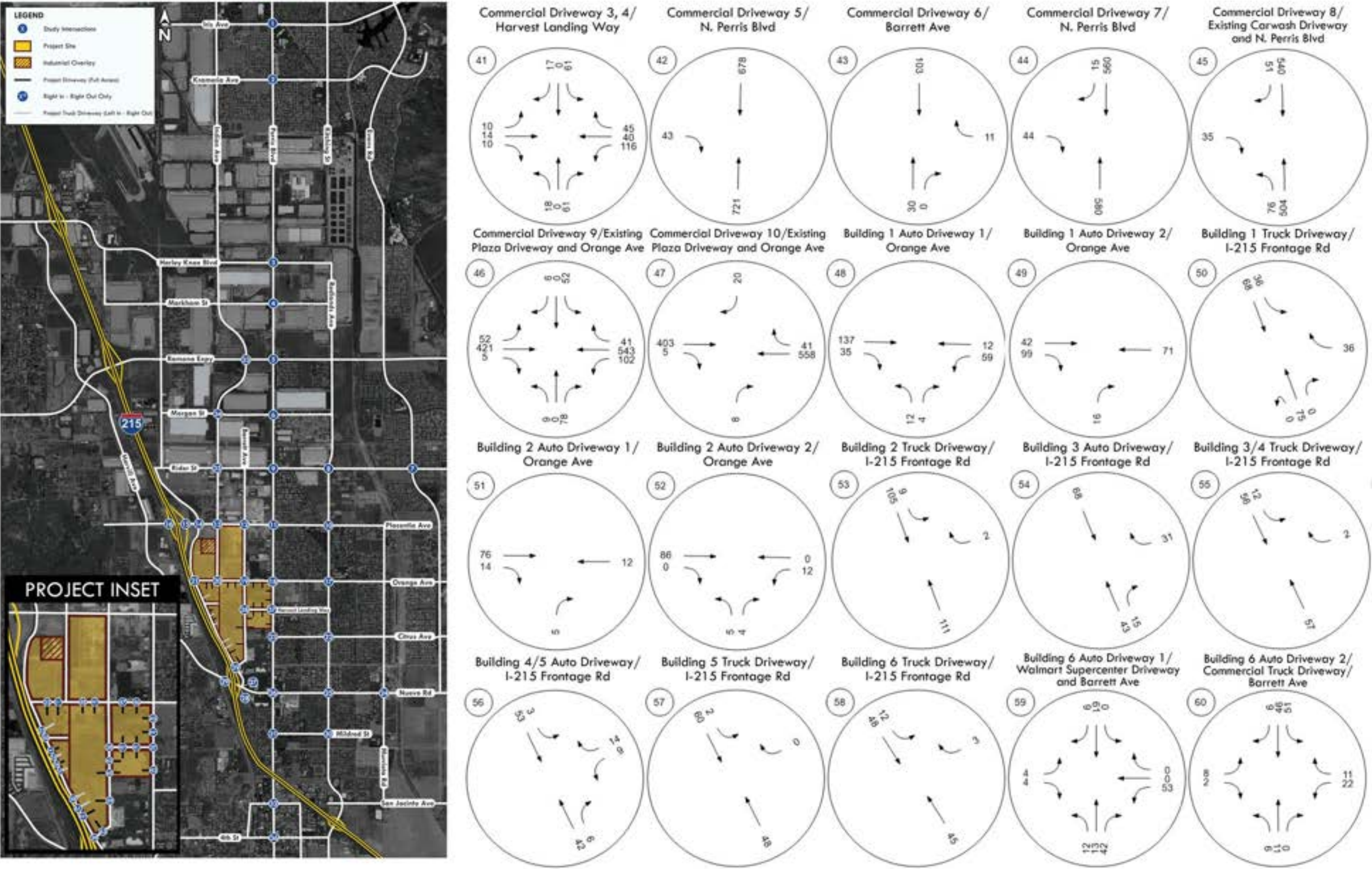


Figure 5.3d: Opening Year I 2026 With Project AM Peak Hour PCE Traffic Volumes (Continued)

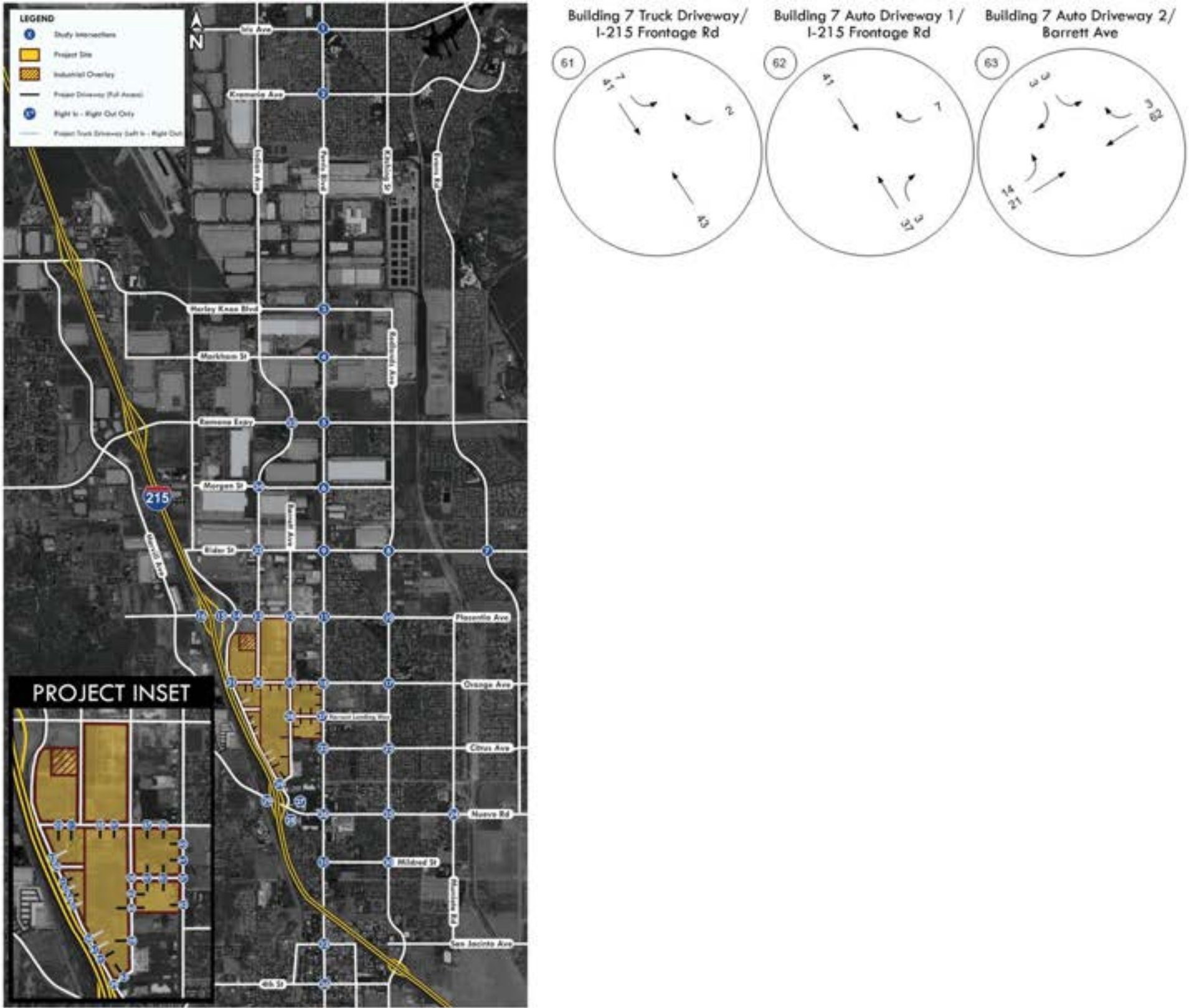


Figure 5.4a: Opening Year I 2026 With Project PM Peak Hour PCE Traffic Volumes

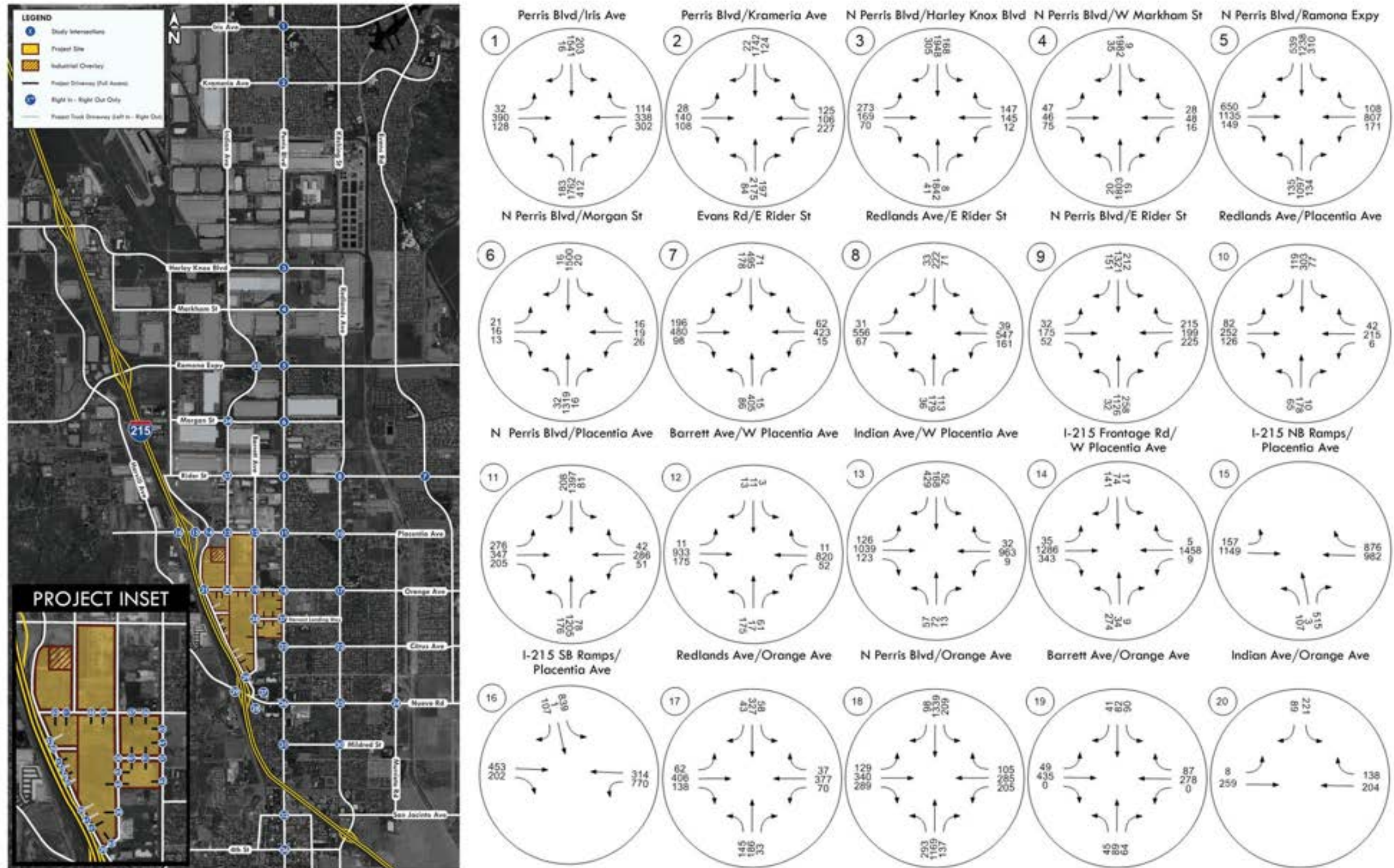


Figure 5.4b: Opening Year I 2026 With Project PM Peak Hour PCE Traffic Volumes (Continued)

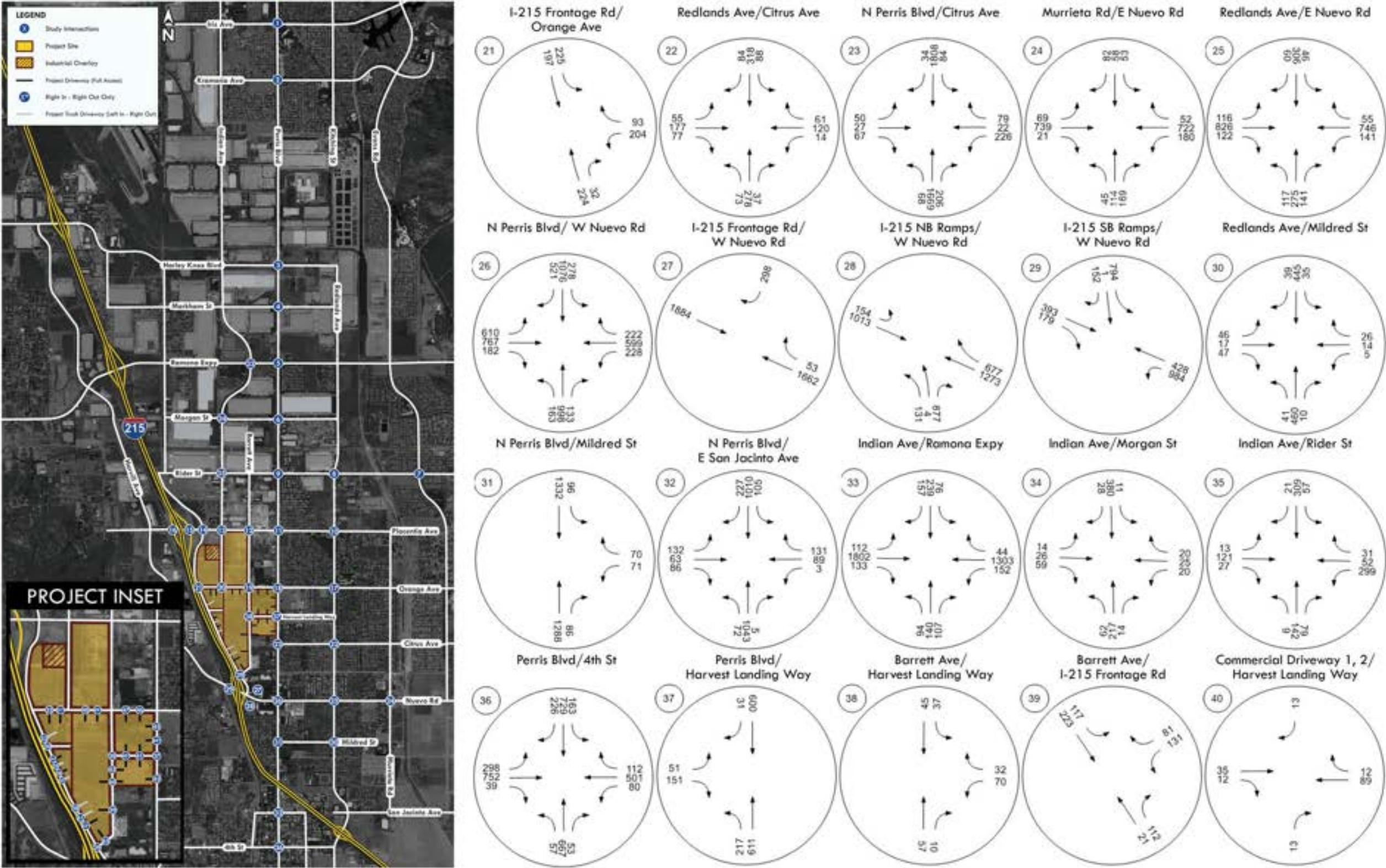


Figure 5.4c: Opening Year I 2026 With Project PM Peak Hour PCE Traffic Volumes (Continued)

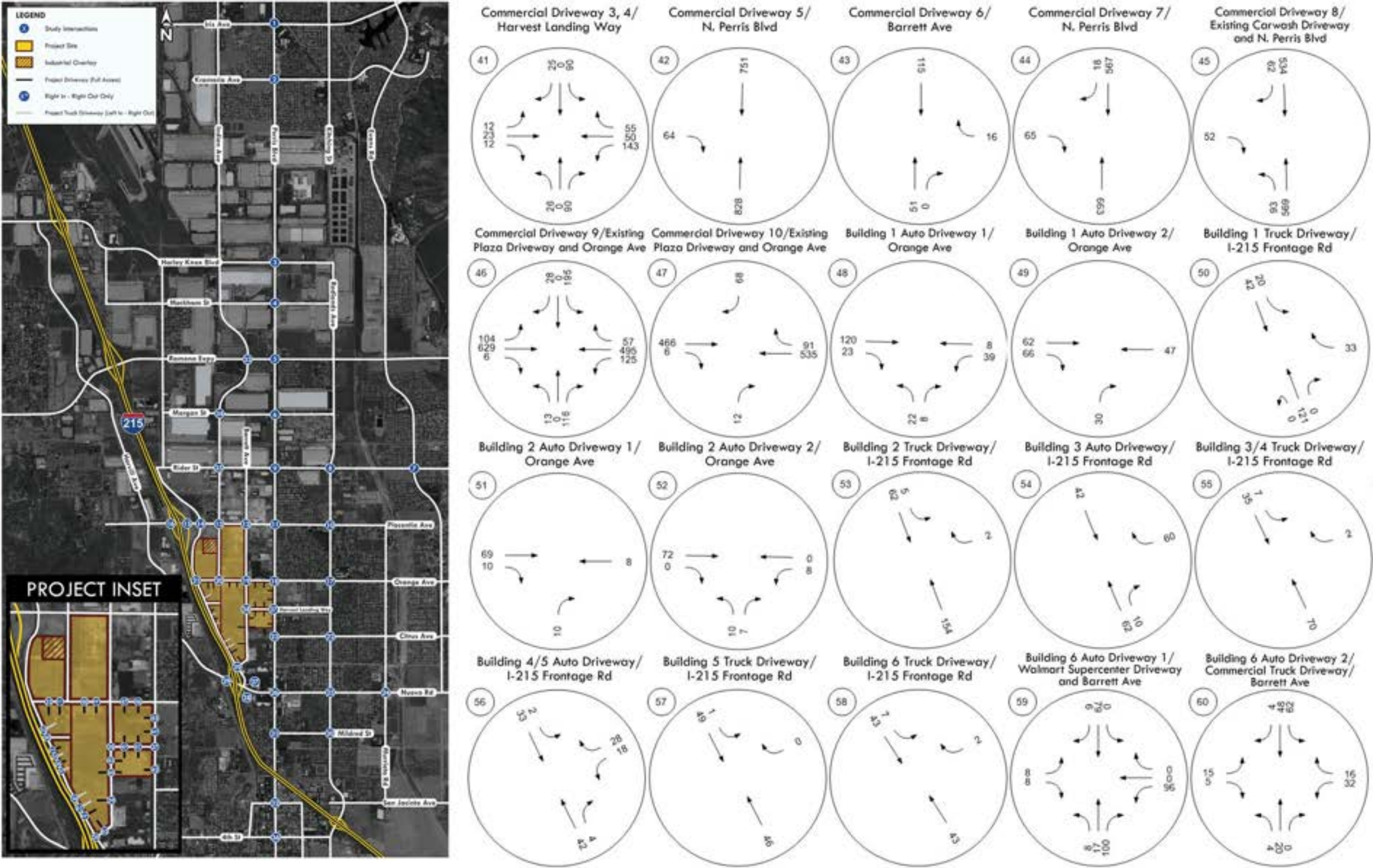
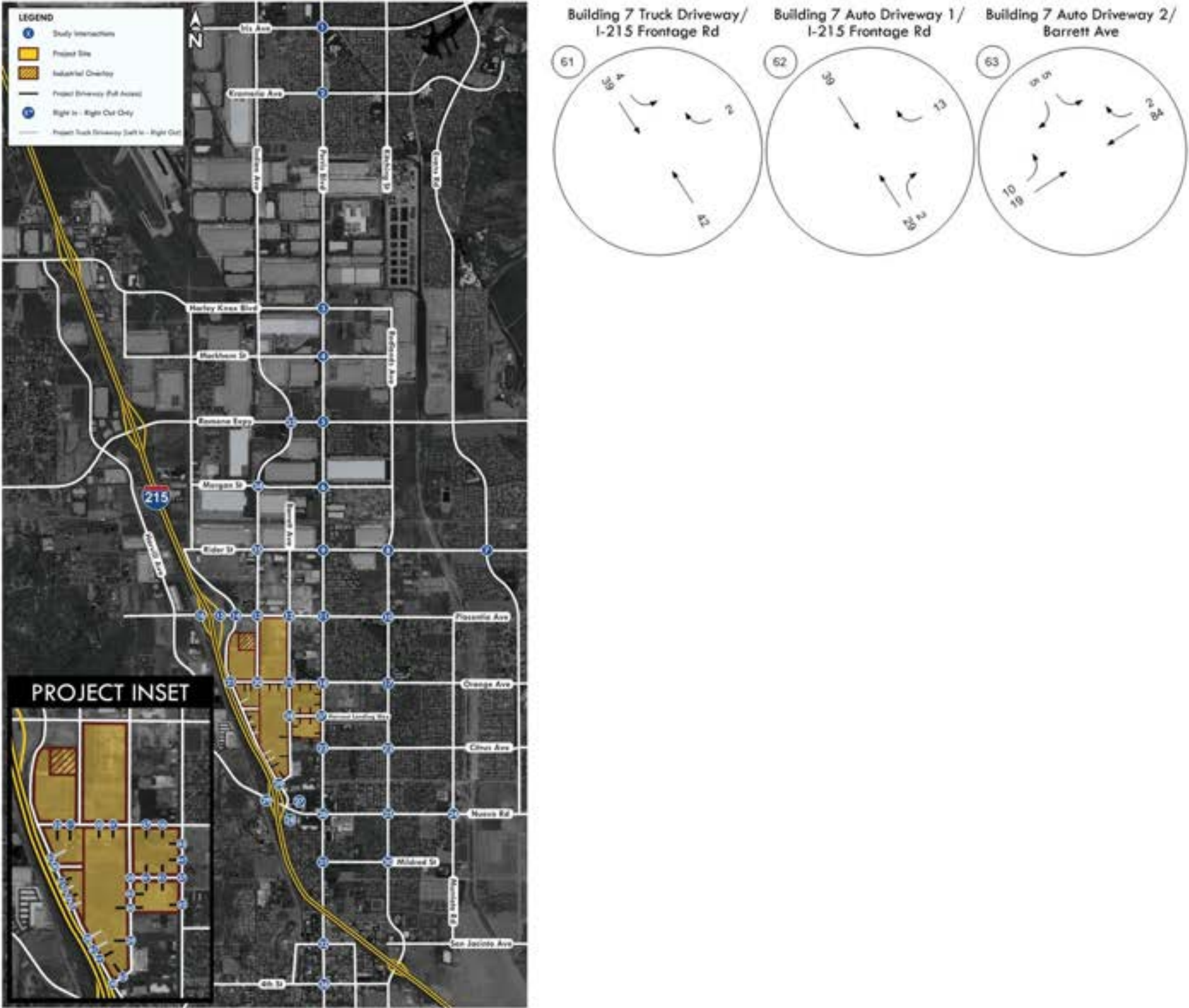


Figure 5.4d: Opening Year I 2026 With Project PM Peak Hour PCE Traffic Volumes (Continued)



5.2 Opening Year II 2030 with Project Traffic Conditions

Opening Year II 2030 With Project traffic volumes were determined by adding the Project trips to the Opening Year II 2030 Without Project traffic volumes. The Opening Year II 2030 With Project AM and PM peak hour traffic volumes at the study area intersections are shown in Figure 5.7 and Figure 5.8 respectively. The Opening Year II 2030 Project trip assignments for the AM and PM peak hour are shown in Figure 5.5 and Figure 5.6, respectively.

The Project proposes to remove 2,700 feet of Indian Avenue between Orange Avenue and I-215 Frontage Road South. The Project would also construct the planned segment of Barrett Ave south of Orange Avenue from Orange Avenue to the existing southern portion of Barrett Avenue that connects to I-215 Frontage Road. As part of the analysis for this scenario, the inbound trips to Indian Avenue at intersection #20 (Indian Avenue/Orange Avenue) were redirected to intersection #21 (I-215 Frontage Rd/Orange Ave) and ultimately to intersection #39 (Barrett Ave/I-215 Frontage Road). Additionally, the outbound trips originating from Indian Avenue were rerouted from intersection #39 (Barrett Ave/I-215 Frontage Road) to intersection #19 (Barrett Ave/Orange Ave), and finally to intersection #20 (Indian Avenue/Orange Ave) as a westbound right-turn.

An intersection operations analysis was conducted for the study area to evaluate the Opening Year II 2030 With Project AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously in Section 2.3 - Methodology. Table 5.5 provides a comparison between the Opening Year II 2030 Without and With-Project scenarios.

As shown in Table 5.5, the following 18 intersections would operate at an unsatisfactory LOS under the Opening Year II 2030 With Project conditions:

- #1. Perris Blvd/Iris Ave (LOS F during AM and LOS E during PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS E during AM and PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS E during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #13. Indian Ave/W Placentia Ave (LOS E during AM and PM peak hour)
- #14. I-215 Frontage Rd/W Placentia Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS E during AM peak hour and LOS F during PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #20. Indian Ave/Orange Ave (LOS F during AM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS F during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during AM and PM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #36. Perris Blvd/4th St (LOS F during AM and PM peak hour)
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS E during AM peak hour and LOS F during PM peak hour)

Recommended improvements for the intersections with an unsatisfactory LOS can be found in Section 6.

Table 5.5: Opening Year II 2030 With Project AM and PM Peak Hour LOS

Intersection	Jurisdiction	Control Type	Opening Year II 2030 Conditions				Opening Year II 2030 Plus Project Conditions				Difference		LOS Standard	Satisfactory?
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak		
			Delay	LOS	Delay	LOS	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
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
3. N Perris Blvd/Harley Knox Blvd	City of Perris	Signalized	37.4	D	38.6	D	37.8	D	39.2	D	0.4	0.6	D	Yes
4. N Perris Blvd/W Markham St	City of Perris	Signalized	17.2	B	16.8	B	20.1	C	18.2	B	2.9	1.4	D	Yes
5. N Perris Blvd/Ramona Expy	City of Perris	Signalized	92.4	F	59.3	E	104.3	F	56.1	E	11.9	-3.2	E	No
6. N Perris Blvd/Morgan St	City of Perris	Signalized	12.6	B	11.5	B	13.1	B	11.7	B	0.5	0.2	D	Yes
7. Evans Rd/E Rider St	City of Perris	Signalized	35.8	D	29.8	C	36.9	D	33.0	C	1.1	3.2	D	Yes
8. Redlands Ave/E Rider St	City of Perris	Signalized	31	C	38.7	D	31.7	C	40.3	D	0.7	1.6	D	Yes
9. N Perris Blvd/E Rider St	City of Perris	Signalized	30.2	C	29.7	C	31.0	C	32.3	C	0.8	2.6	D	Yes
10. Redlands Ave/Placentia Ave	City of Perris	All-way stop	20.6	C	22.8	C	23.9	C	33.2	D	3.3	10.4	D	Yes
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
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	30.9	D	19.6	C	138.6	F	99.9	F	107.7	80.3	D	No
13. Indian Ave/W Placentia Ave	City of Perris	Signalized	40	D	39.6	D	56.9	E	70.0	E	16.9	30.4	D	No
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
15. I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	15.3	B	28.2	C	14.2	B	23.4	C	-1.1	-4.8	E	Yes
16. I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	17	B	22.8	C	22.1	C	71.2	E	5.1	48.4	E	Yes
17. Redlands Ave/Orange Ave	City of Perris	Signalized	26.4	C	29.1	C	43.0	D	32.4	C	16.6	3.3	D	Yes
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	26.1	C	39.2	D	60.3	E	125.8	F	34.2	86.6	D	No
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	21.8	C	19.4	C	10000.0	F	664.6	F	9978.2	645.2	D	No
20. Indian Ave/Orange Ave	City of Perris	All-way stop	14.8	B	11.7	B	55.0	F	19.8	C	40.2	8.1	D	No
21. I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	54.9	F	87.4	F	163.6	F	71.9	108.7	D	No
22. Redlands Ave/Citrus Ave	City of Perris	All-way stop	13	B	14.9	B	14.9	B	18.8	C	1.9	3.9	D	Yes
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	14.5	B	20.7	C	14.9	B	27.3	C	0.4	6.6	D	Yes
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
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	Yes
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	48.7	D	44.9	D	84.7	F	83.6	F	36.0	38.7	D	No
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
28. I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	21.1	C	23	C	21.6	C	24.1	C	0.5	1.1	E	Yes
29. I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	19.5	B	30.1	C	29.4	C	76.6	E	9.9	46.5	E	Yes
30. Redlands Ave/Mildred 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
31. N Perris Blvd/Mildred St	City of Perris	Signalized	18.3	B	8.4	A	23.8	C	9.8	A	5.5	1.4	D	Yes
32. N Perris Blvd/E San Jacinto Ave	City of Perris	Signalized	29.9	C	22.1	C	40.5	D	24.1	C	10.6	2.0	D	Yes
33. Indian Ave/Ramona Expy	City of Perris	Signalized	36.7	D	42.9	D	37.3	D	44.5	D	0.6	1.6	E	Yes
34. Indian Ave/Morgan St	City of Perris	Signalized	20.5	C	16.8	B	19.7	B	16.0	B	-0.8	-0.8	D	Yes
35. Indian Ave/Rider St	City of Perris	Signalized	22.4	C	29.2	C	21.6	C	28.3	C	-0.8	-0.9	D	Yes
36. Perris Blvd/4th St	City of Perris	Signalized	72.1	E	63.8	E	93.2	F	91.4	F	21.1	27.6	E	No
37. Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	10.3	B	12.9	B	-	-	D	Yes
38. Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	8.4	A	8.6	A	-	-	D	Yes
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	27.7	D	42.2	E	14.3	26.7	D	No
40. Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.6	A	-	-	D	Yes
41. Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	12.7	B	15.1	C	-	-	D	Yes
42. Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	12.1	B	13.5	B	-	-	D	Yes
43. Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	8.6	A	9.0	A	-	-	D	Yes
44. Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.4	B	12.3	B	-	-	D	Yes
45. Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.9	B	13.0	B	-	-	D	Yes
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	23.92	C	43.57	E	365.9	F	3225.1	F	342.0	3181.5	D	No
47. Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	22.41	C	34.3	D	12.2	B	12.2	B	-10.2	-22.1	D	Yes
48. Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	13.2	B	12.0	B	-	-	D	Yes
49. Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.9	A	9.7	A	-	-	D	Yes
50. Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	3.2	A	3.0	A	-	-	D	Yes
51. Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.7	A	-	-	D	Yes
52. Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	19.9	C	13.9	B	-	-	D	Yes
53. Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	9.1	A	8.8	A	-	-	D	Yes
54. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	9.1	A	8.8	A	-	-	D	Yes
55. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.6	A	-	-	D	Yes
56. Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	10.3	B	9.8	A	-	-	D	Yes
57. Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	7.7	A	7.4	A	-	-	D	Yes
58. Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
59. Building 6 Auto Driveway 1/Walmart Supercenter Driveway and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	10.6	B	11.6	B	-	-	D	Yes
60. Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	10.9	B	11.4	B	-	-	D	Yes
61. Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
62. Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
63. Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	9.8	A	9.9	A	-	-	D	Yes

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

5.2.1 Opening Year II 2030 With Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 5.6* shows the queue lengths at each intersection approach. As shown in *Table 5.6*, queueing deficiencies were observed under Opening Year II 2030 With Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

Even though the queue length for the NBR at intersection #15 exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 100 feet of storage provided beyond the striped storage lane that extends past the NBR lane. Similarly, an additional 260 feet of storage is provided beyond the NBR and NBL at intersection #28, an additional 360 feet of storage is provided for the SBL at intersection #29, as well as an additional 600 feet beyond the SBL at intersection #16, ensuring that the additional queue can also be safely accommodated.

Table 5.6: Opening Year II 2030 With Project AM and PM Peak Hour Queueing Analysis

	Opening Year II 2030 Conditions								Opening Year II 2030 Plus Project Conditions								Difference							
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	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	570	570***	-	-	280	-	-	390	570	570***	-	-	280	-	-	390	570	570***	-	-	280	-	-	390
AM Queue Length Per Lane	60	270	-	-	40	-	-	205	105	575	-	-	40	-	-	230	45	305	-	-	0	-	-	25
PM Queue Length Per Lane	50	275	-	-	135	-	-	595	100	605	-	-	125	-	-	1160	50	330	-	-	-10	-	-	565
16. I-215 SB Ramps/Placentia Ave																								
Storage Length Per Lane	-	-	340****	340	-	320	315	-	-	-	340****	340	-	320	315	-	-	-	340****	340	-	320	315	-
AM Queue Length Per Lane	-	-	95	40	-	40	95	-	-	-	350	40	-	40	125	-	-	-	255	0	-	0	30	-
PM Queue Length Per Lane	-	-	225	45	-	120	250	-	-	-	940	60	-	115	310	-	-	-	715	15	-	-5	60	-
28. I-215 NB Ramps/W Nuevo Rd																								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	225	185	-	-	155	-	-	350	235	240	-	-	155	-	-	355	10	55	-	-	0	-	-	5
PM Queue Length Per Lane	110	230	-	-	225	-	-	410	115	320	-	-	225	-	-	415	5	90	-	-	0	-	-	5
29. I-215 SB Ramps/W Nuevo Rd																								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-	-	-	185**	185	-	N/A	315	-	-	-	185**	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	215	100	-	260	165	-	-	-	365	120	-	260	205	-	-	-	150	20	-	0	40	-
PM Queue Length Per Lane	-	-	390	95	-	285	310	-	-	-	960	120	-	285	380	-	-	-	570	25	-	0	70	-

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.

* There is an additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

** There is an additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

*** There is an additional 100 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR lanes.

**** There is an additional 600 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

5.2.2 Opening Year II 2030 With Project Driveways Queueing Analysis

A full queueing analysis was conducted at all the Project driveways under the Opening Year II 2030 With Project Conditions to ensure that queueing remains within acceptable storage limits. Driveway access spacing is in accordance with Riverside County Standard Plan No. 114, and the driveway spacing measurements have been provided in Appendix F.

The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 5.7* shows the queue lengths at each Project driveway approach. As shown in *Table 5.7*, queueing deficiencies were not observed under Opening Year I 2026 With Project Conditions. Therefore, no alternative access configurations are needed, as the driveway queueing analysis indicates no queueing deficiencies or safety concerns at any Project driveways.

Table 5.7: Opening Year II 2030 With Project AM and PM Peak Hour Project Driveways Queueing Analysis

	Opening Year II 2030 Plus Project Conditions																								
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	
	40. Commercial Driveway 1, 2 and Harvest Landing Way								48. Building 1 Auto Driveway 1 and Orange Ave								56. Building 4/5 Auto Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	N/A	225	N/A	216	N/A	424	N/A	224	304	304	N/A	N/A	N/A	N/A	160	N/A	N/A	219	120	N/A	N/A	N/A	35	35	
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5	
PM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5	
	41. Commercial Driveway 3, 4 and Harvest Landing Way								49. Building 1 Auto Driveway 2 and Orange Ave								57. Building 5 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	224	224	244	244	160	245	160	343	N/A	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	379	120	N/A	N/A	N/A	N/A	25
AM Queue Length Per Lane (ft)	10	10	15	15	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0
PM Queue Length Per Lane (ft)	15	15	25	25	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0
	42. Commercial Driveway 5 and N. Perris Blvd								50. Building 1 Truck Driveway and I-215 Frontage Rd								58. Building 6 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	N/A	N/A	N/A	507	N/A	109	N/A	N/A	N/A	165	200	N/A	N/A	N/A	N/A	N/A	300+	N/A	328	200	N/A	N/A	N/A	N/A	840
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	N/A	10	N/A	0	5	N/A	N/A	N/A	N/A	5
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	N/A	N/A	15	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	N/A	10	N/A	0	5	N/A	N/A	N/A	N/A	5
	43. Commercial Driveway 6 and Barrett Ave								51. Building 2 Auto Driveway 1 and Orange Ave								59. Building 6 Auto Driveway 1 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	526	N/A	N/A	N/A	N/A	N/A	N/A	70	N/A	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	707	200	692	41	41	100	100
AM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	5	5	0	0	5	5	10	0
PM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	5	5	0	0	5	5	15	0
	44. Commercial Driveway 7 and N. Perris Blvd								52. Building 2 Auto Driveway 2 and Orange Ave								60. Building 6 Auto Driveway 2 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	N/A	N/A	100	N/A	138	N/A	N/A	39	39	N/A	N/A	N/A	N/A	100	N/A	N/A	0	N/A	160	N/A	39	39	246	246
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	N/A	5	0	5	0	5	5	5	5
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	N/A	5	0	5	0	5	5	10	10
	45. Commercial Driveway 8 and N. Perris Blvd								53. Building 2 Truck Driveway and I-215 Frontage Rd								61. Building 7 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	160	N/A	N/A	100	N/A	150	N/A	N/A	N/A	531	200	N/A	N/A	N/A	N/A	410	N/A	N/A	493	200	N/A	N/A	255	N/A	N/A
AM Queue Length Per Lane (ft)	15	N/A	N/A	0	N/A	5	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	0	5	N/A	N/A	5	N/A	N/A
PM Queue Length Per Lane (ft)	20	N/A	N/A	0	N/A	10	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	0	5	N/A	N/A	5	N/A	N/A
	46. Commercial Driveway 9 and Orange Ave								54. Building 3 Auto Driveway and I-215 Frontage Rd								62. Building 7 Auto Driveway 1 and I-215 Frontage Rd								
Storage Length Per Lane (ft)	224	224	100	100	206	206	147	147	N/A	254	N/A	N/A	N/A	N/A	N/A	N/A	49	N/A	44	N/A	N/A	N/A	N/A	N/A	354
AM Queue Length Per Lane (ft)	30	30	145	145	10	0	15	0	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5
PM Queue Length Per Lane (ft)	100	100	750	750	15	0	20	0	N/A	0	N/A	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5
	47. Commercial Driveway 10 and Orange Ave								55. Building 3/4 Truck Driveway and I-215 Frontage Rd								63. Building 7 Auto Driveway 2 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	201	N/A	100	N/A	413	N/A	400	N/A	204	200	N/A	N/A	N/A	N/A	N/A	176	N/A	N/A	44	44	N/A	N/A	N/A	950
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0
PM Queue Length Per Lane (ft)	N/A	5	N/A	15	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0

Notes:

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.

5.2.3 Opening Year II 2030 With Project Roadway Segment Analysis

Opening Year II 2030 With Project Without Project roadway segments volumes were developed by adding the Project trips to the Opening Year II 2030 Without Project roadway segments volumes, with the adjustments noted in Section 5.1.2.

The LOS at the Opening Year II 2030 With Project study roadway segments were determined using the methodology described previously in Section 2.3 Methodology. The Opening Year II 2030 With Project LOS at the study roadway segments are shown in Table 5.8. As shown in Table 5.8, the following eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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

Table 5.8: Opening Year II 2030 With Project Roadway Segment Level of Service

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 ?
1. Indian Ave between Water Ave and Orange Ave	Arterial	2	18,000	6,017	0.334	A	4	35,900	7,884	0.220	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	10,611	0.296	A	4	35,900	19,376	0.540	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	4	35,900	43,121	1.201	F	5	44,900	56,749	1.264	F	D	Yes
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,669	0.128	A	2	13,000	9,313	0.716	C	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	4	35,900	41,300	1.150	F	5	44,900	44,634	0.994	E	D	Yes
6. Perris Blvd between Rider St and Placentia Ave	Arterial	4	35,900	43,634	1.215	F	4	35,900	48,043	1.338	F	D	Yes
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	50,226	0.932	E	6	53,900	59,070	1.096	F	D	Yes
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	2	18,000	7,307	0.406	A	4	35,900	20,714	0.577	A	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	2	18,000	3,675	0.204	A	4	35,900	8,237	0.229	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	4	35,900	3,876	0.108	A	4	35,900	13,926	0.388	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	35,372	0.985	E	4	35,900	40,099	1.117	F	D	Yes
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	44,786	0.831	D	6	53,900	57,101	1.059	F	D	Yes
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	4	35,900	36,547	1.018	F	4	35,900	46,594	1.298	F	D	Yes
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	4	35,900	51,765	1.442	F	4	35,900	71,034	1.979	F	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	27,969	0.519	A	6	53,900	33,086	0.614	B	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	Collector	2	13,000	-	-	-	2	13,000	7,102	0.546	A	D	No
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	Collector	2	13,000	-	-	-	2	13,000	9,653	0.743	C	D	No
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	Collector	4	25,900	-	-	-	4	25,900	7,855	0.303	A	D	No
19. Indian Ave between Placentia Ave and Water Ave	Collector	2	13,000	-	0.000	A	2	13,000	7,884	0.606	B	D	No

Notes:

LOS = Level of Service

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

Figure 5.5a: Opening Year II 2030 Project AM Peak Hour PCE Trip Assignment

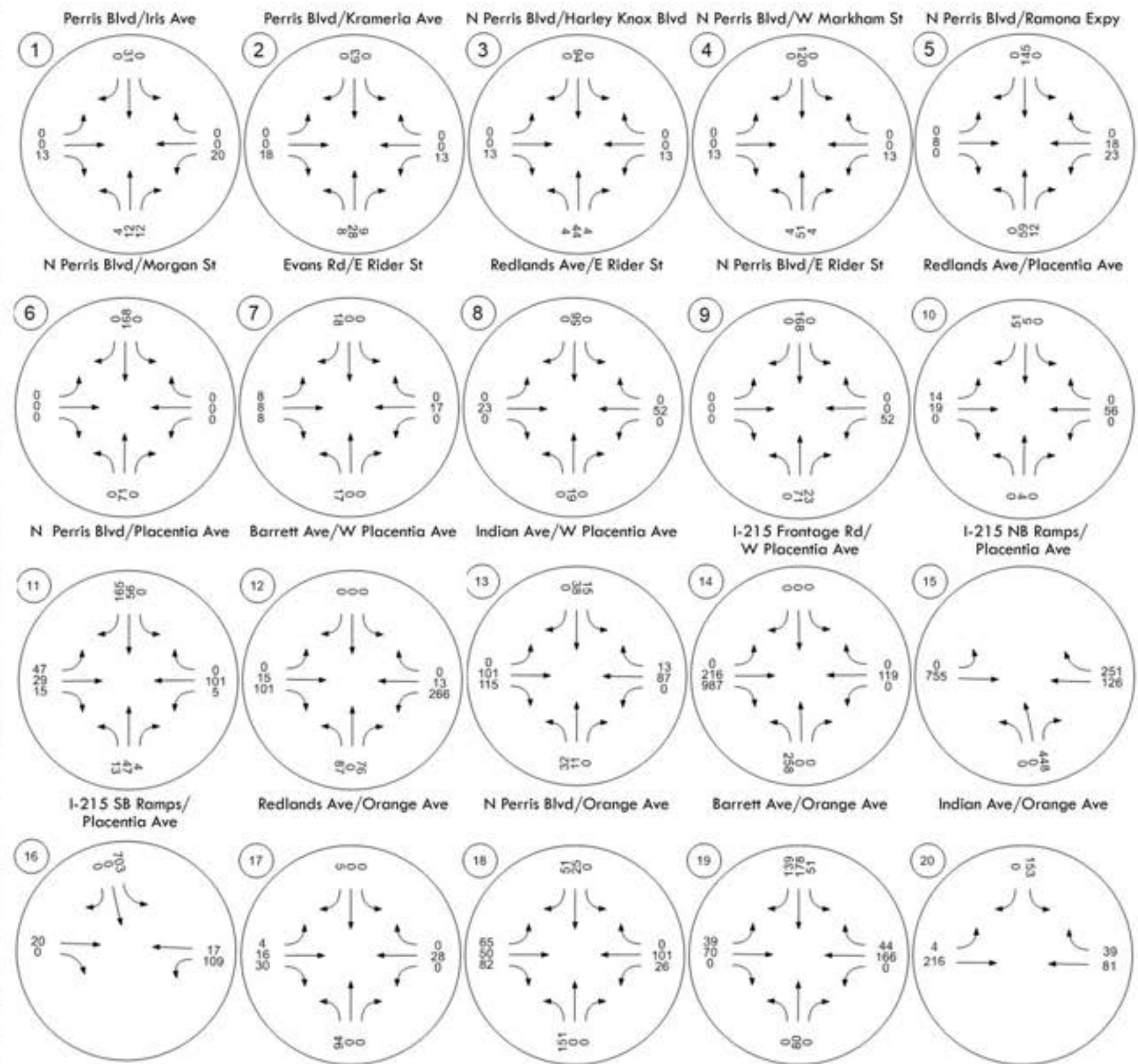


Figure 5.5b: Opening Year II 2030 Project AM Peak Hour PCE Trip Assignment (Continued)

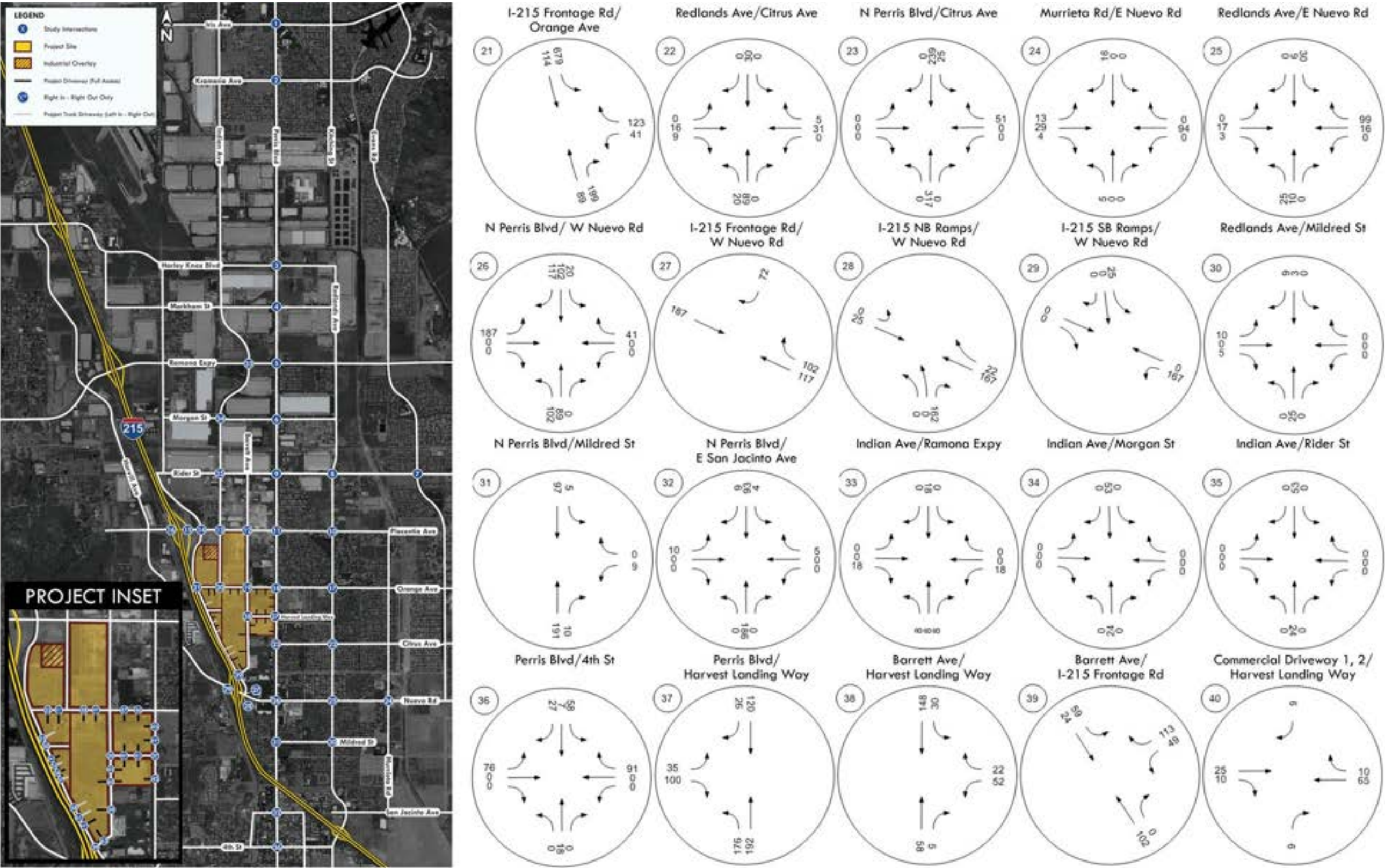


Figure 5.5c: Opening Year II 2030 Project AM Peak Hour PCE Trip Assignment (Continued)

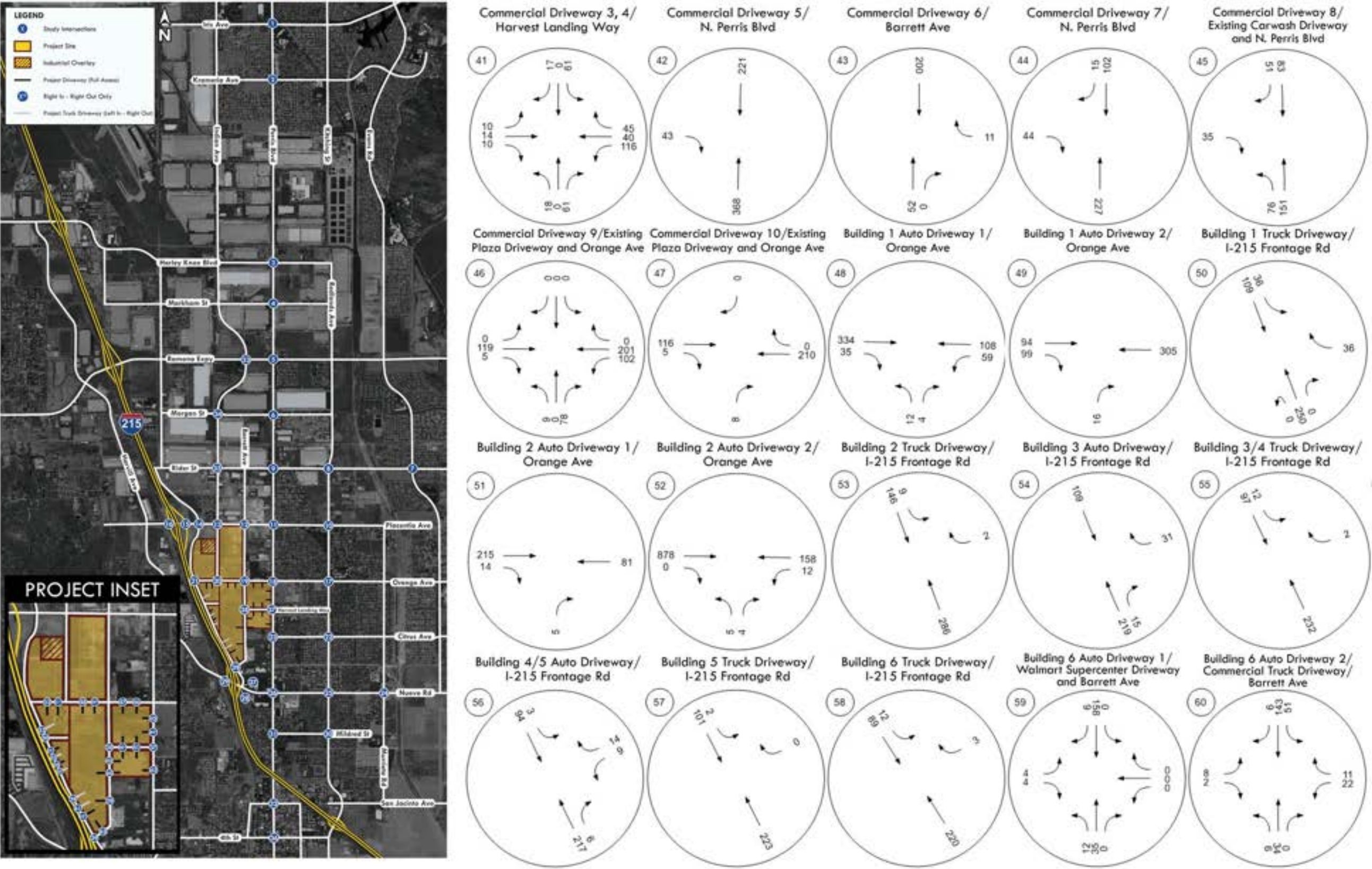


Figure 5.5d: Opening Year II 2030 Project AM Peak Hour PCE Trip Assignment (Continued)

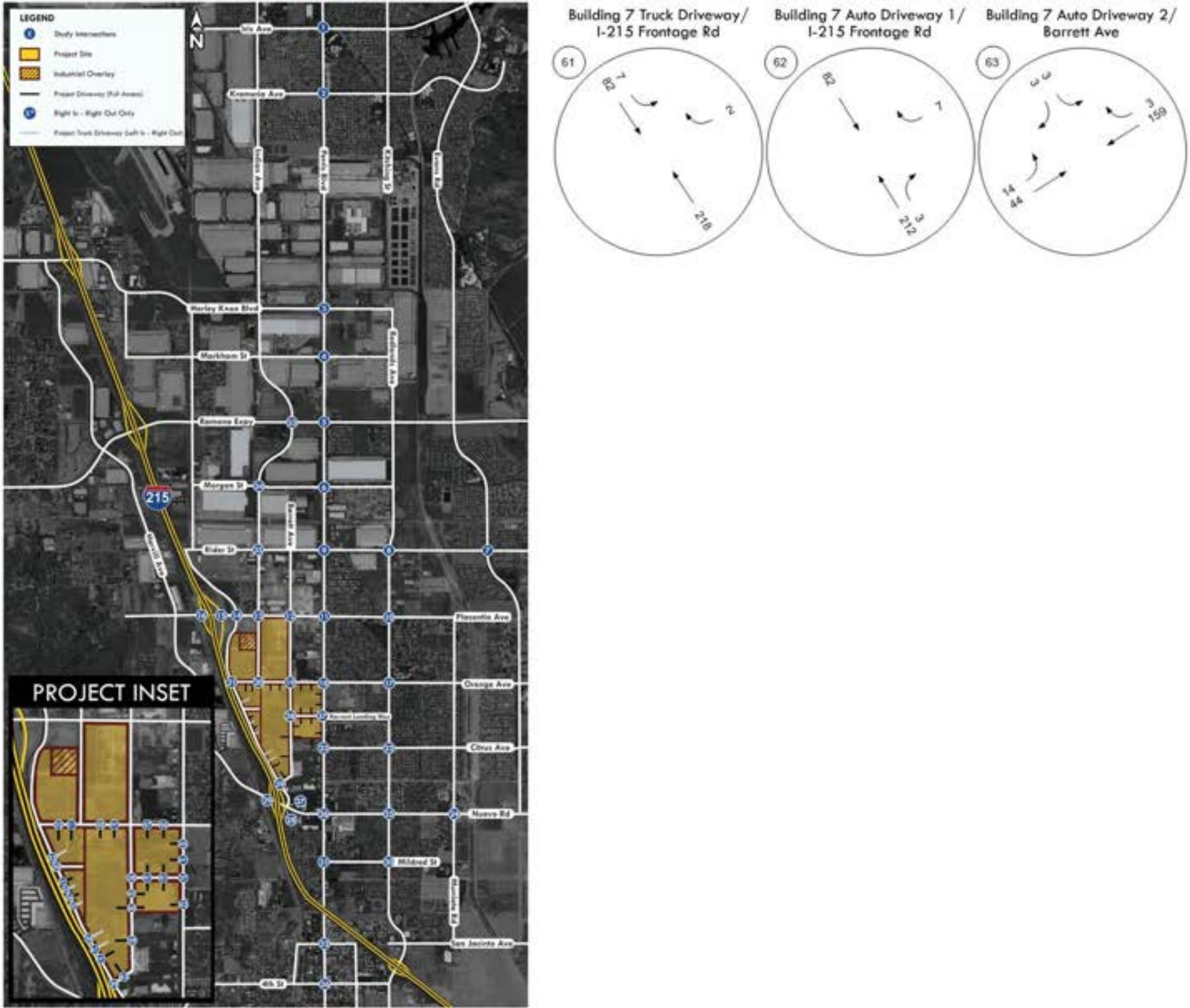


Figure 5.6a: Opening Year II 2030 PM Peak Hour PCE Project Trip Assignment

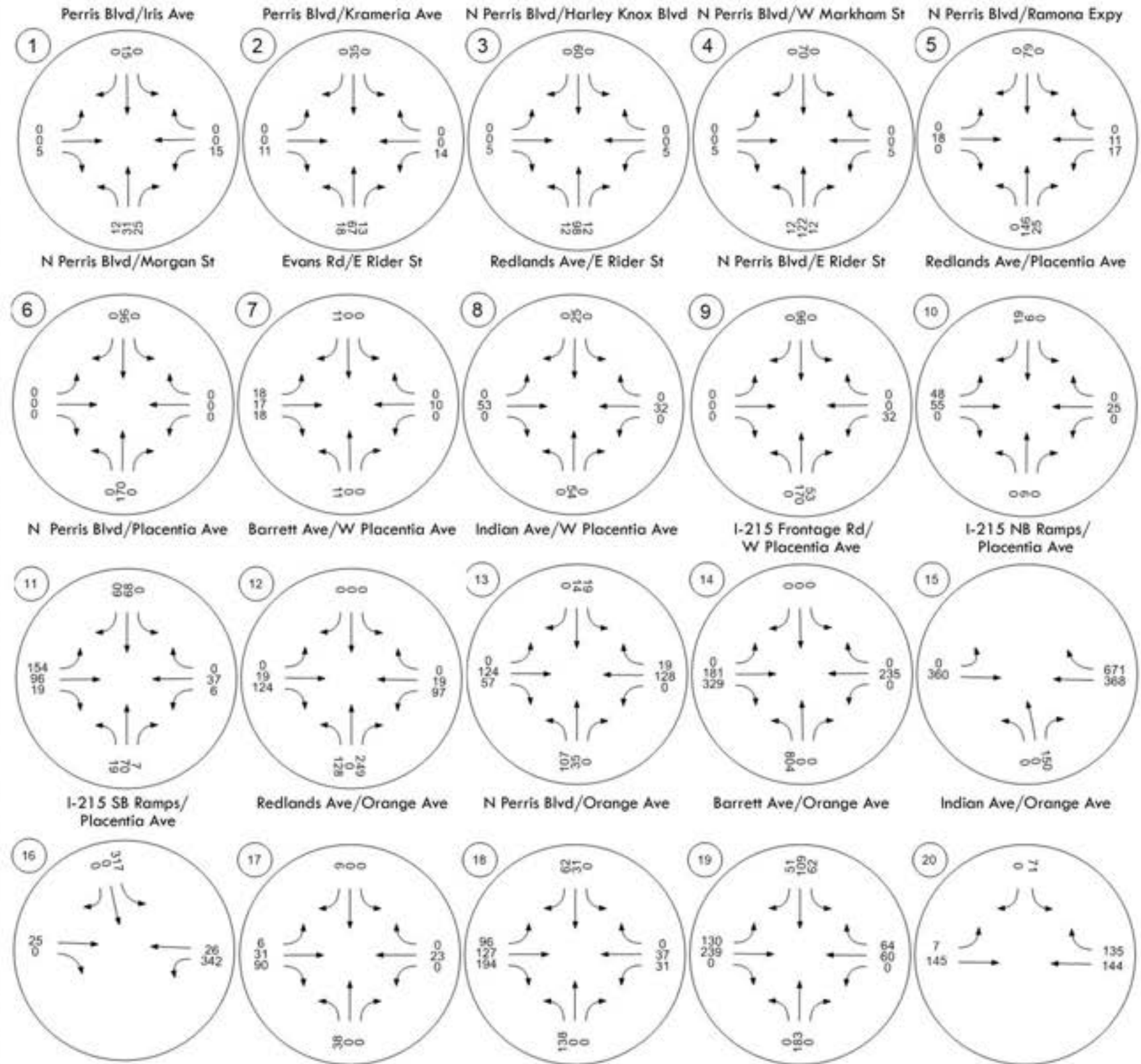


Figure 5.6b: Opening Year II 2030 PM Peak Hour PCE Project Trip Assignment (Continued)

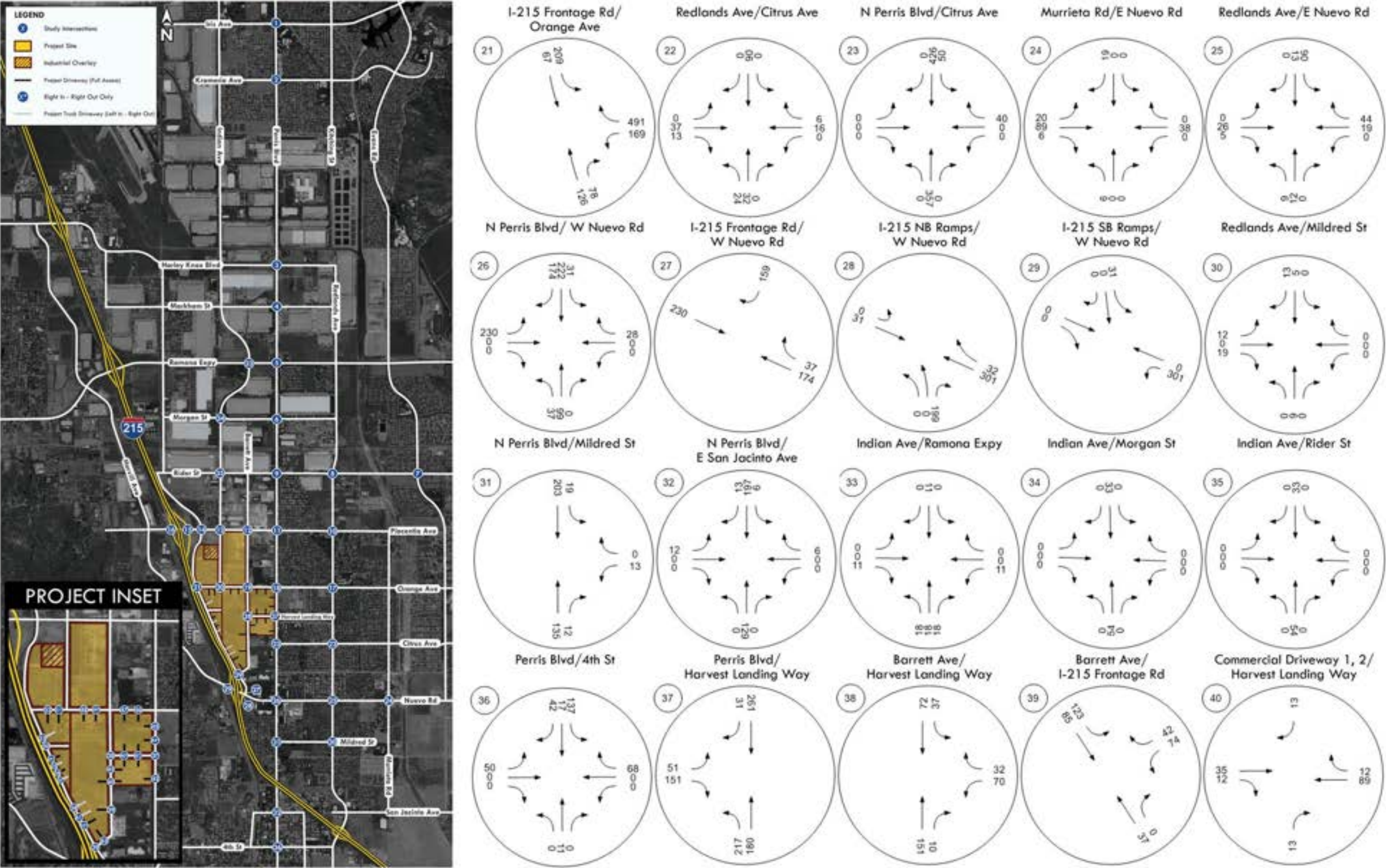


Figure 5.6c: Opening Year II 2030 PM Peak Hour Project PCE Trip Assignment (Continued)

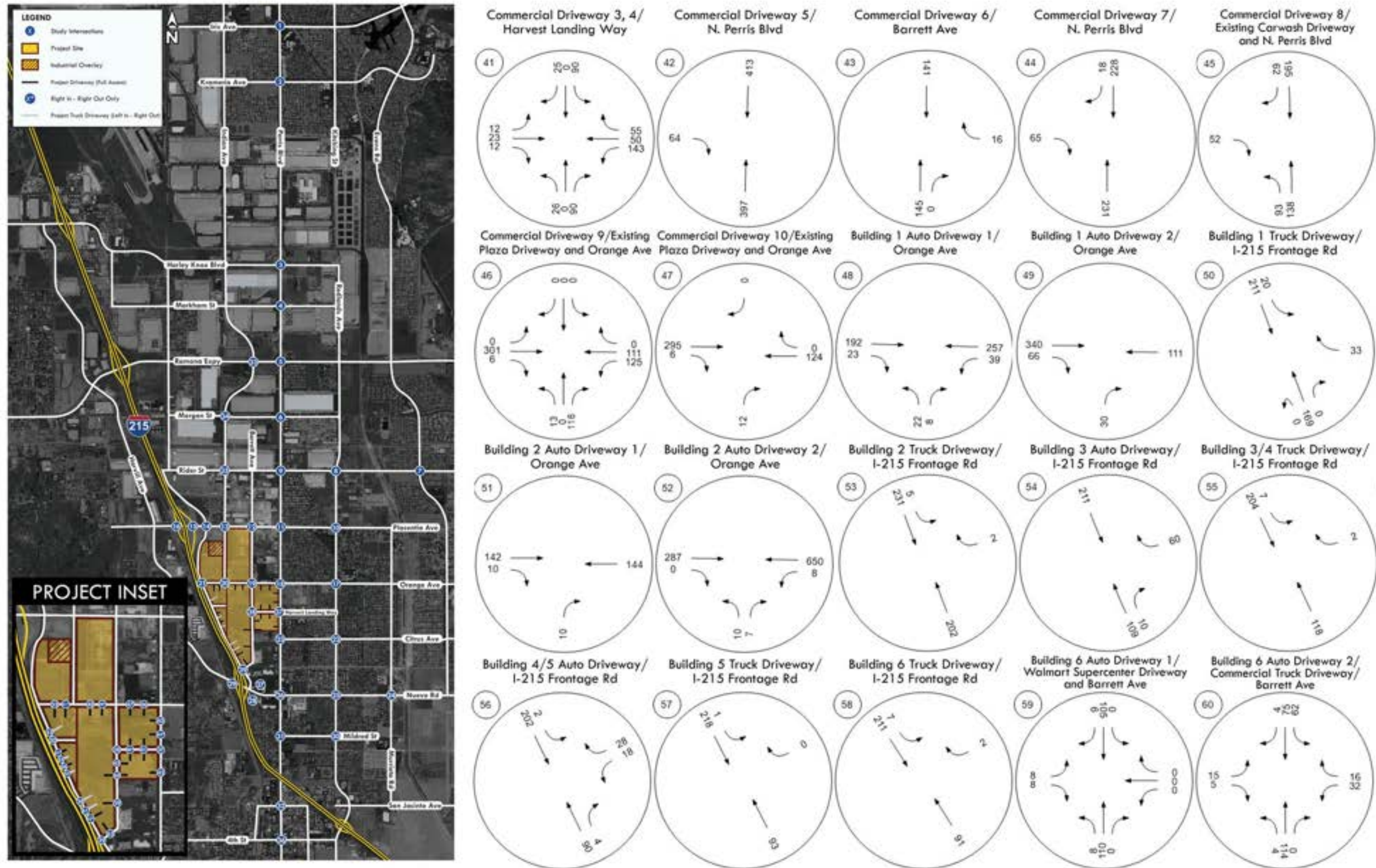


Figure 5.6d: Opening Year II 2030 PM Peak Hour PCE Project Trip Assignment (Continued)

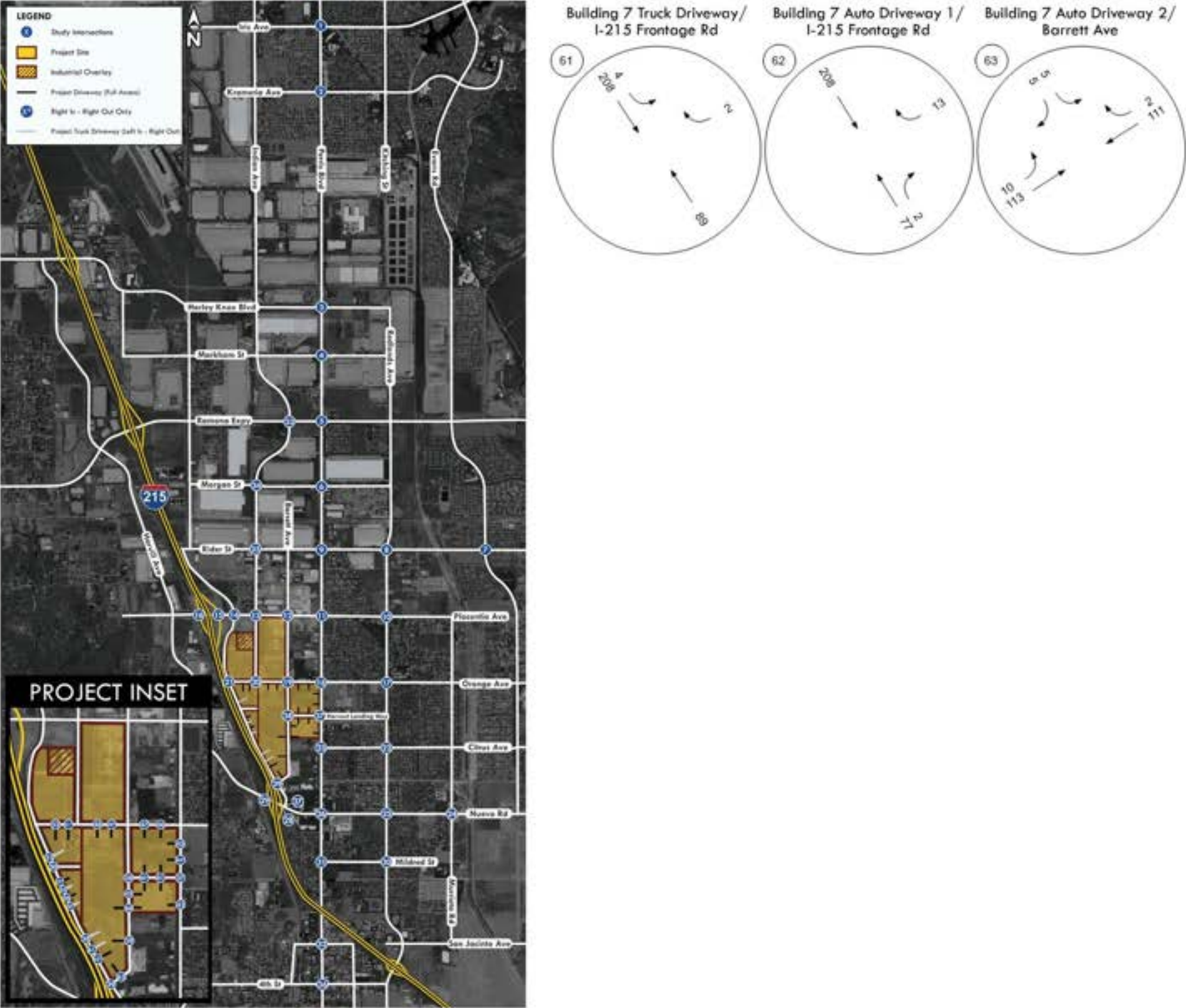


Figure 5.7a: Opening Year II 2030 With Project AM Peak Hour PCE Traffic Volumes

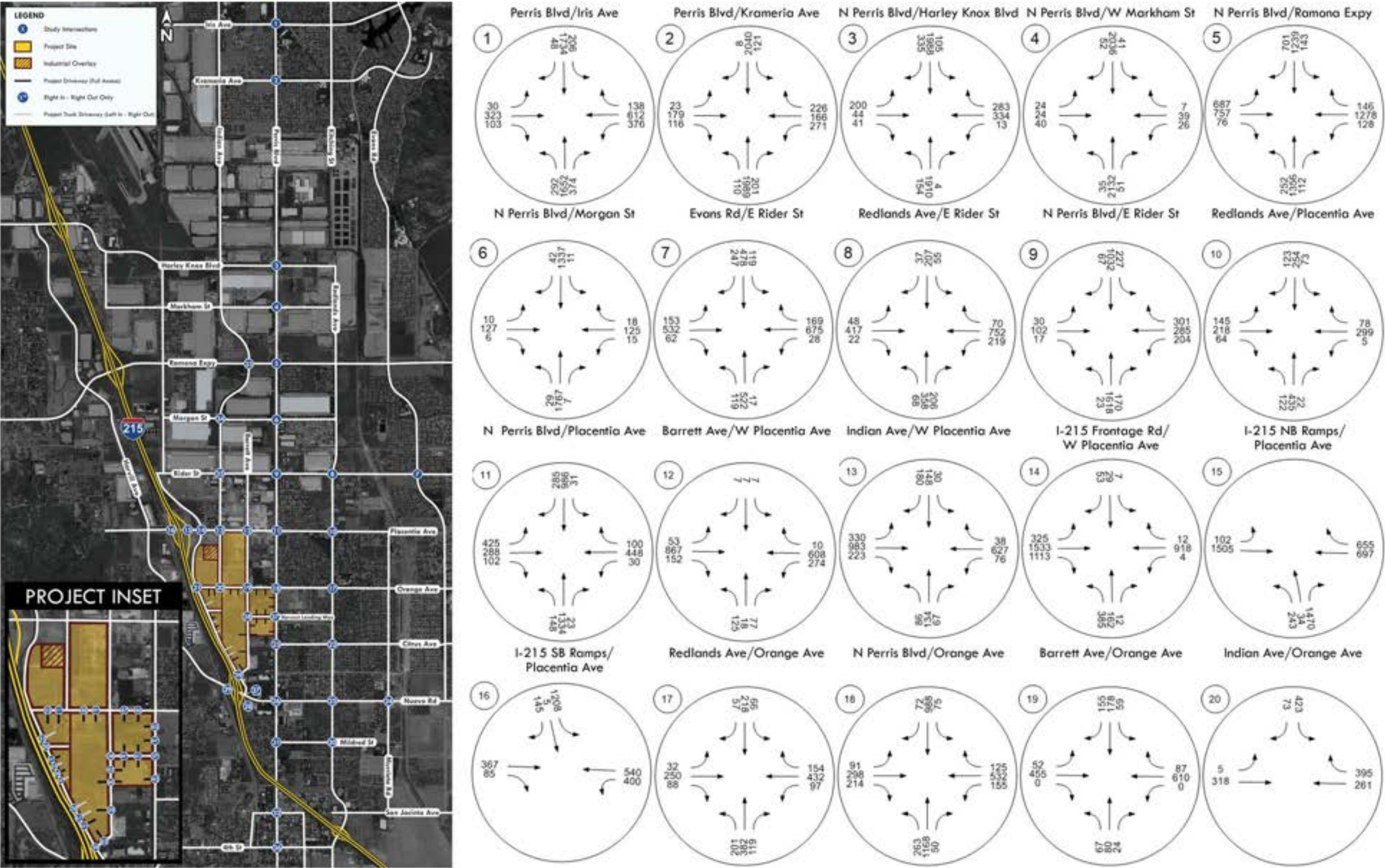


Figure 5.7b: Opening Year II 2030 With Project AM Peak Hour PCE Traffic Volumes (Continued)

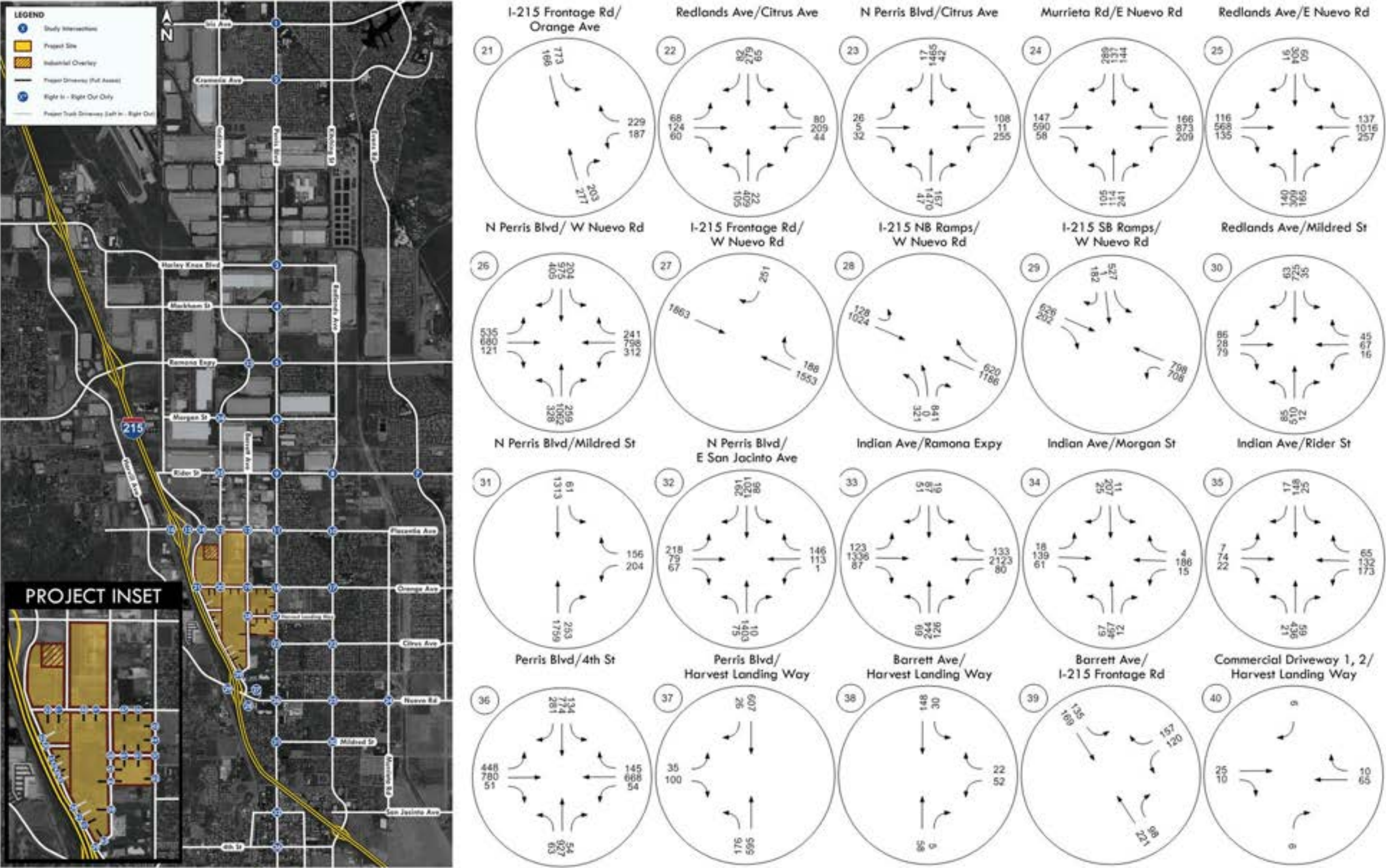


Figure 5.7c: Opening Year II 2030 With Project AM Peak Hour PCE Traffic Volumes (Continued)

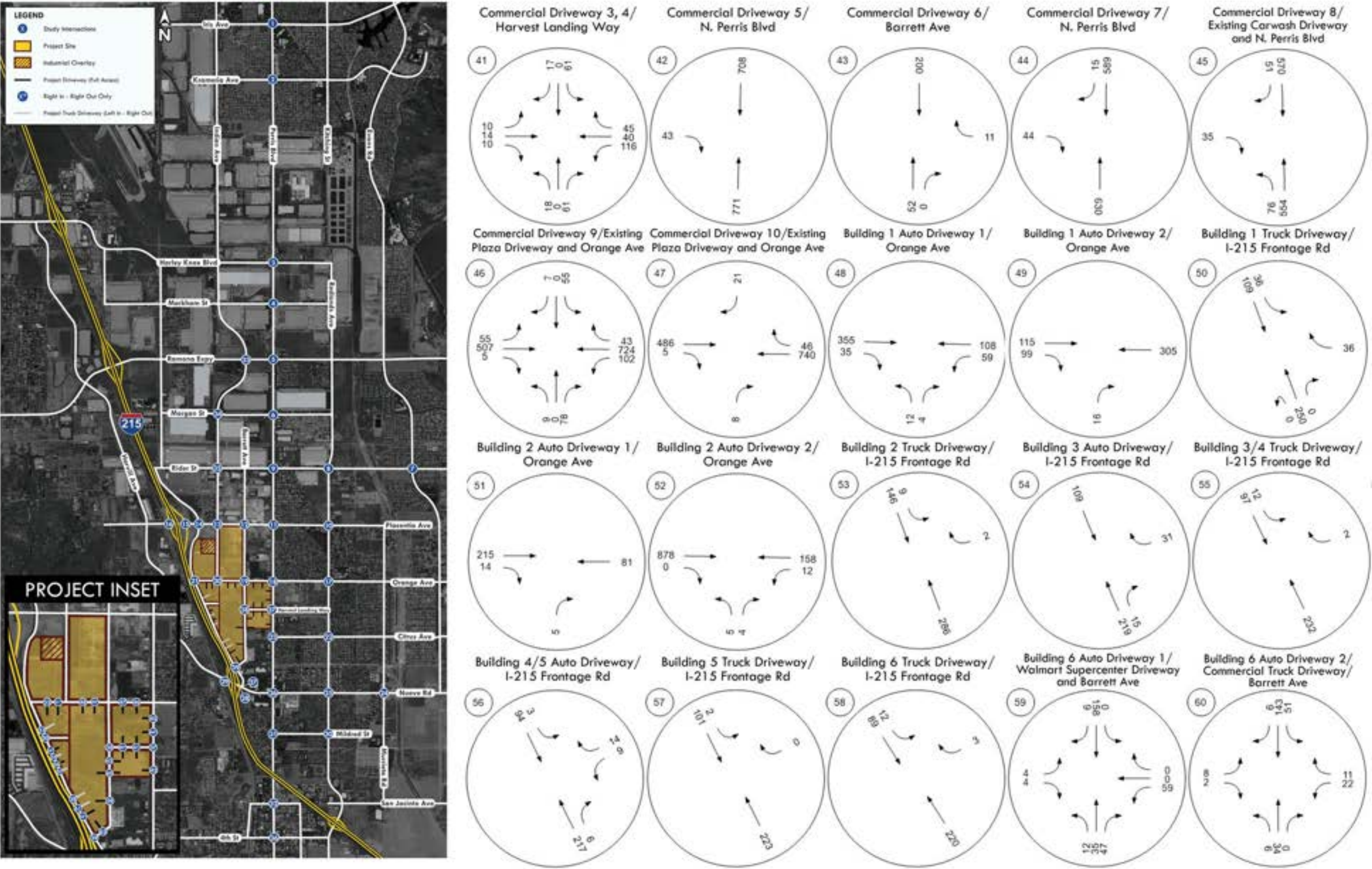


Figure 5.7d: Opening Year II 2030 With Project AM Peak Hour PCE Traffic Volumes (Continued)

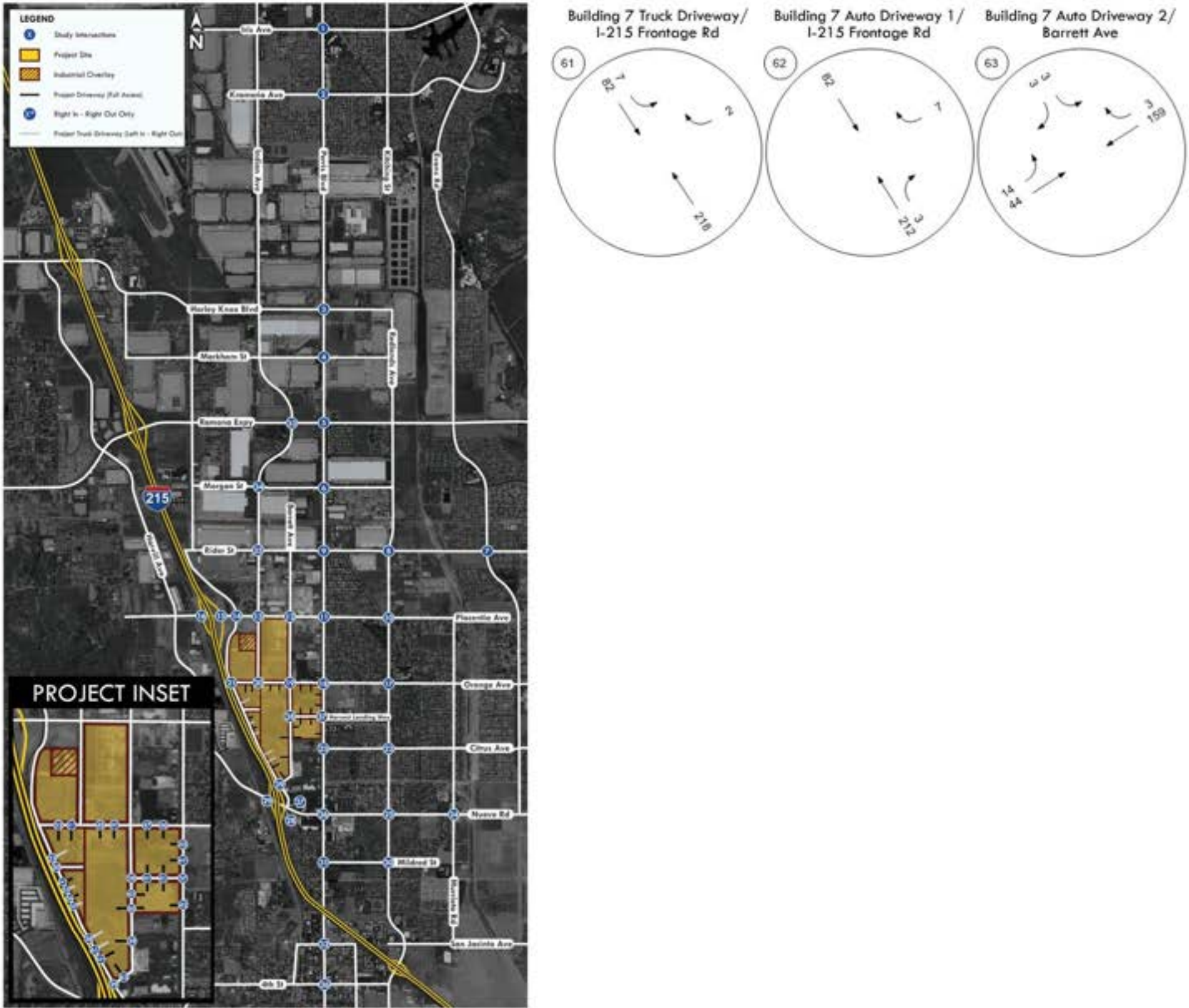


Figure 5.8a: Opening Year II 2030 With Project PM Peak Hour PCE Traffic Volumes

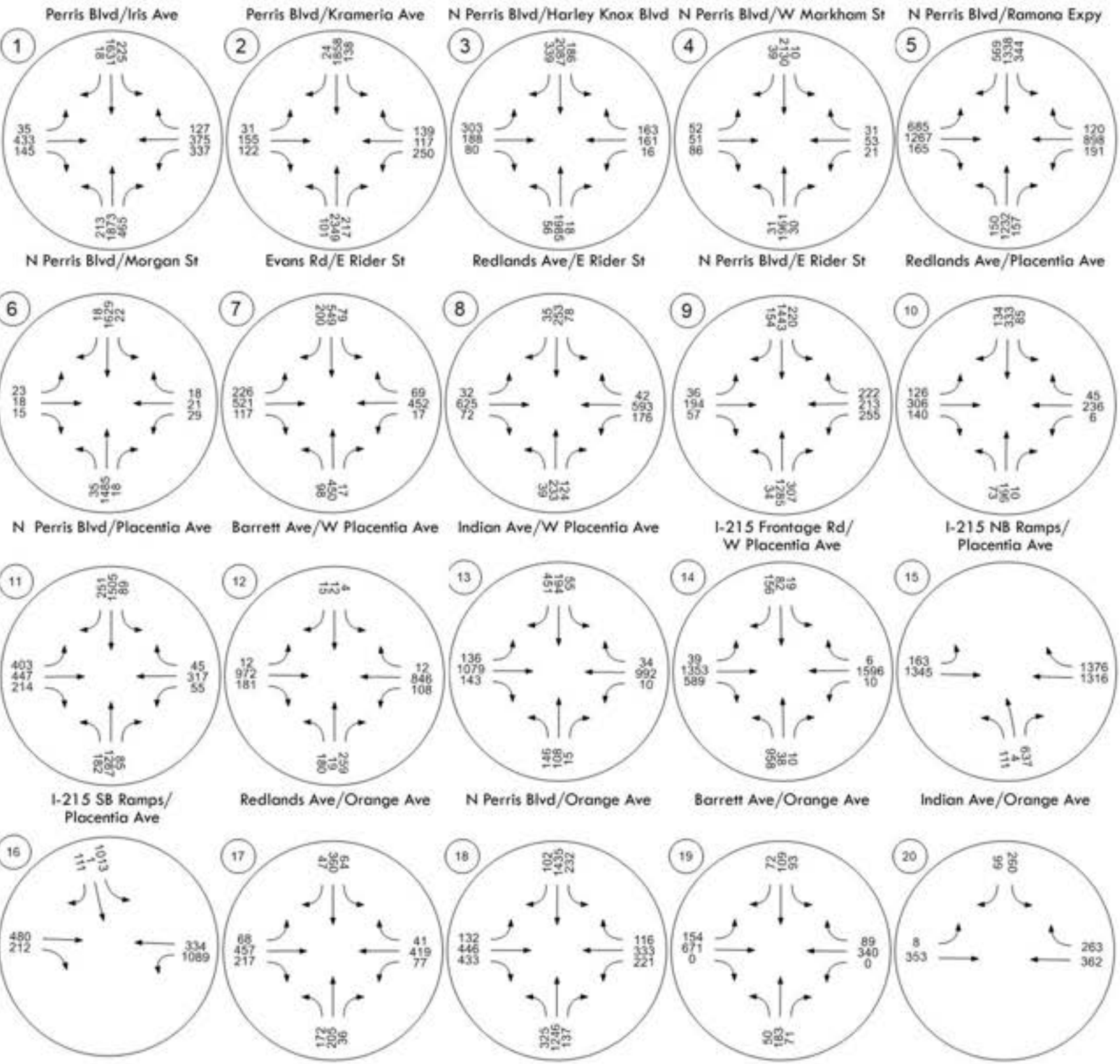


Figure 5.8b: Opening Year II 2030 With Project PM Peak Hour PCE Traffic Volumes (Continued)

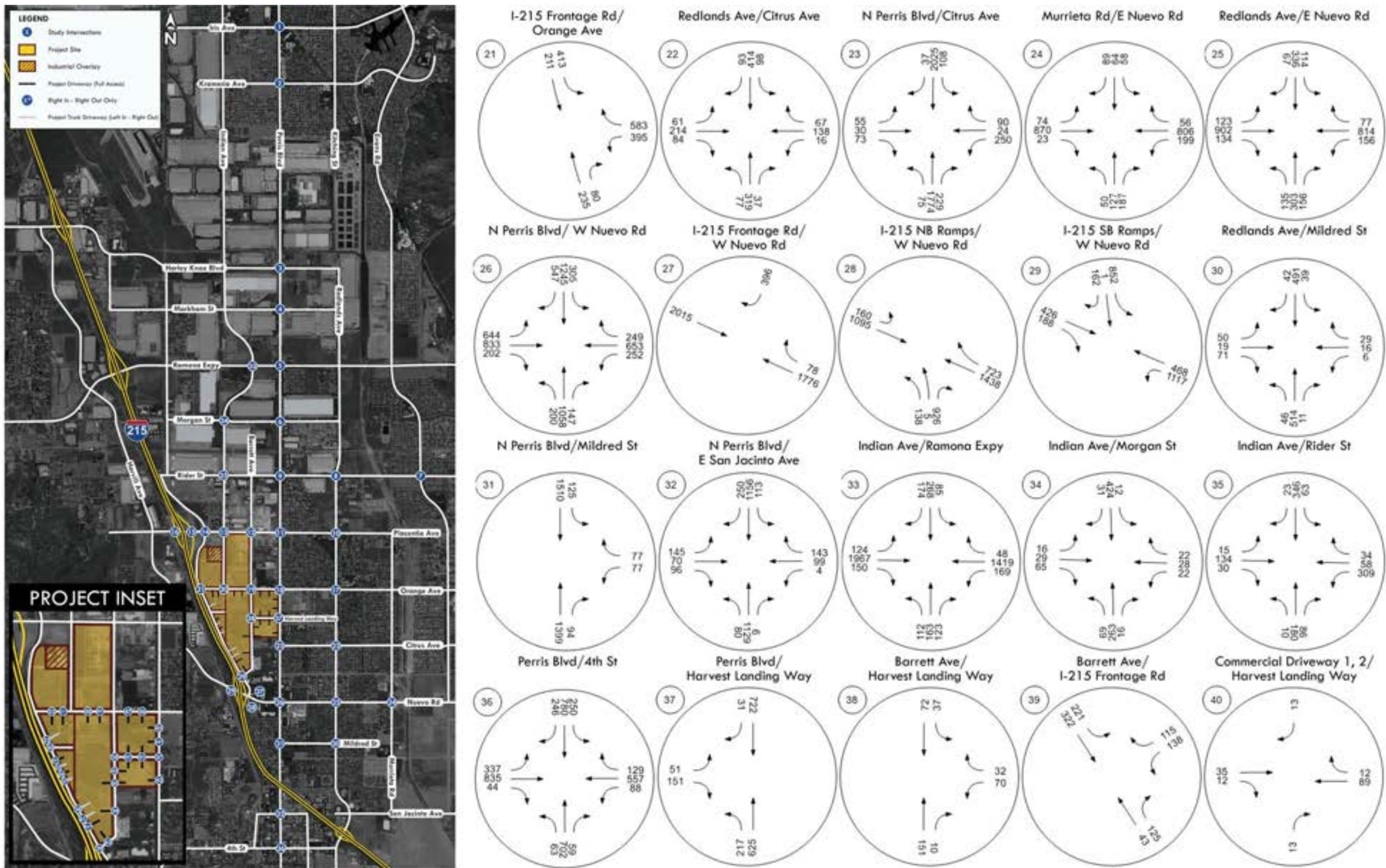


Figure 5.8c: Opening Year II 2030 With Project PM Peak Hour PCE Traffic Volumes (Continued)

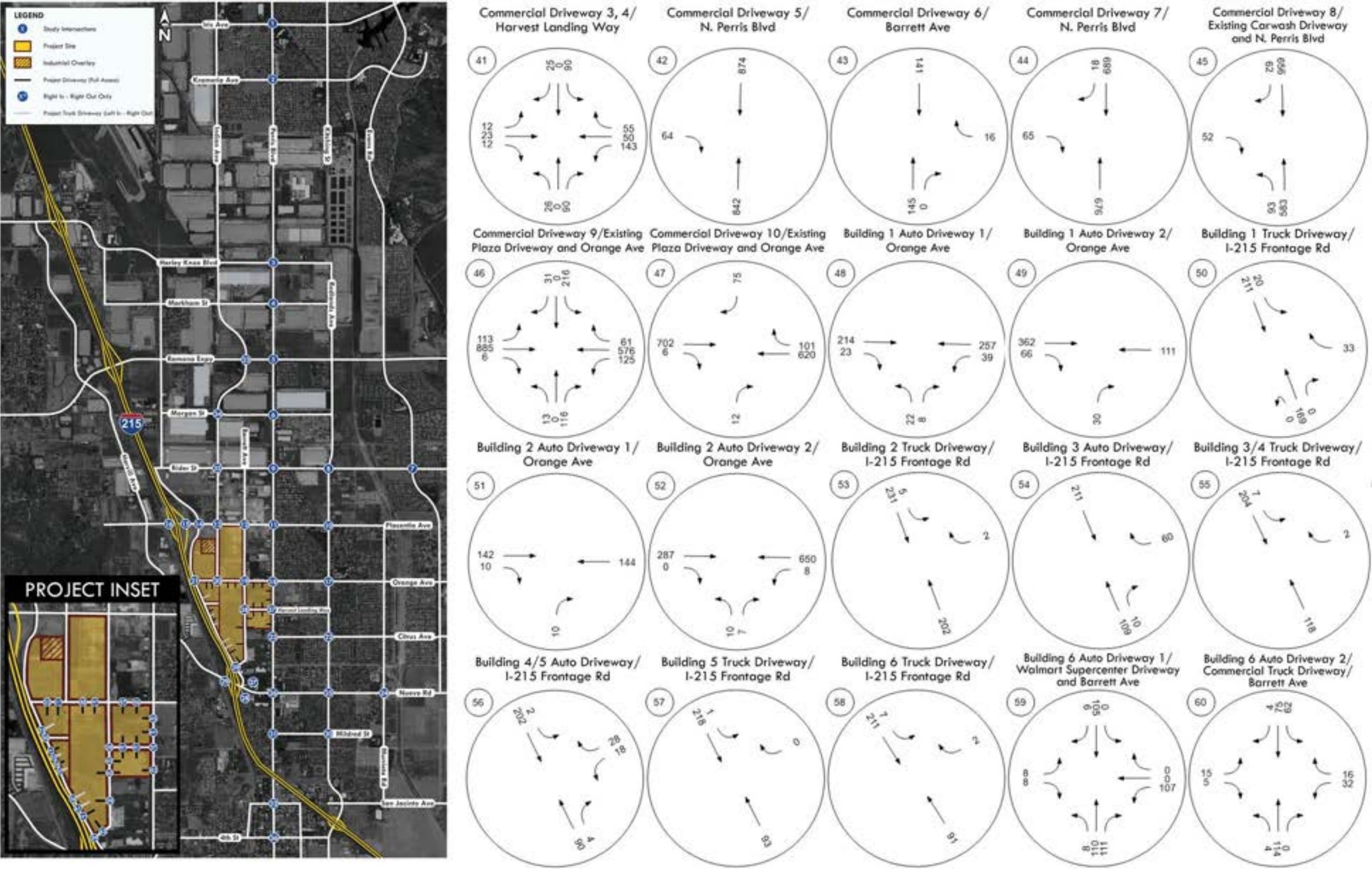
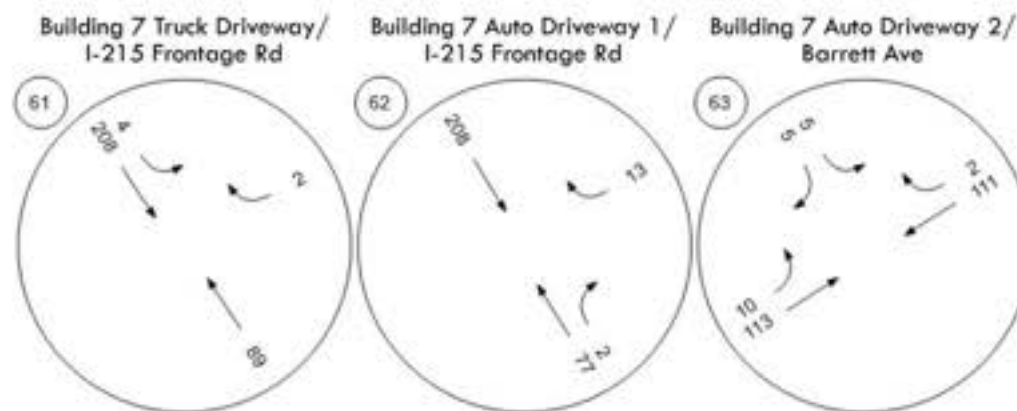


Figure 5.8d: Opening Year II 2030 With Project PM Peak Hour PCE Traffic Volumes (Continued)



5.3 General Plan 2045 With Project Traffic Conditions

General Plan 2045 With Project traffic volumes were determined by adding the Project trips to the General Plan 2045 Without Project traffic volumes. Intersection lane configuration and traffic control under General Plan 2045 is shown in Figure 5.9. The General Plan 2045 With Project AM and PM peak hour traffic volumes at the study area intersections are shown in Figure 5.10 and Figure 5.11 respectively.

The Project proposes to remove 2,700 feet of Indian Avenue between Orange Avenue and I-215 Frontage Road South. The Project would also construct the planned segment of Barrett Ave south of Orange Avenue from Orange Avenue to the existing southern portion of Barrett Avenue that connects to I-215 Frontage Road. As part of the analysis for this scenario, the inbound trips to Indian Avenue at intersection #20 (Indian Avenue/Orange Avenue) were redirected to intersection #21 (I-215 Frontage Rd/Orange Ave) and ultimately to intersection #39 (Barrett Ave/I-215 Frontage Road). Additionally, the outbound trips originating from Indian Avenue were rerouted from intersection #39 (Barrett Ave/I-215 Frontage Road) to intersection #19 (Barrett Ave/Orange Ave), and finally to intersection #20 (Indian Avenue/Orange Ave) as a westbound right-turn.

An intersection operations analysis was conducted for the study area to evaluate the General Plan 2045 With Project AM and PM peak hour conditions. Intersection operations were calculated using the LOS methodology described previously in Section 2.3 - Methodology. Table 5.9 provides a comparison between the General Plan 2045 Without and With-Project scenarios. As shown in Table 5.9, the following 27 intersections would operate at an unsatisfactory LOS under the General Plan 2045 With Project condition:

- #1. Perris Blvd/Iris Ave (LOS F during AM and PM peak hour)
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour and LOS E during PM peak hour)
- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
- #10. Redlands Ave/Placentia Ave (LOS F during AM and PM peak hour)
- #11. N Perris Blvd/Placentia Ave (LOS F during PM peak hour)
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
- #14. I-215 Frontage Rd/W Placentia Ave (LOS F during PM peak hour)
- #15. I-215 NB Ramps/Placentia Ave (LOS F during PM peak hour)
- #17. Redlands Ave/Orange Ave (LOS E during AM peak hour)
- #18. N Perris Blvd/Orange Ave (LOS F during PM peak hour)
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
- #20. Indian Ave/Orange Ave (LOS F during AM peak hour)
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
- #22. Redlands Ave/Citrus Ave (LOS F during AM and PM peak hour)
- #23. N Perris Blvd/Citrus Ave (LOS E during PM peak hour)
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
- #25. Redlands Ave/E Nuevo Rd (LOS E during AM peak hour and LOS F during PM peak hour)
- #26. N Perris Blvd/ W Nuevo Rd (LOS E during AM and PM peak hour)
- #27. I-215 Frontage Rd/W Nuevo Rd (LOS F during PM peak hour)
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
- #29. I-215 SB Ramps/W Nuevo Rd (LOS F during PM peak hour)
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave (LOS F during AM and PM peak hour)

Recommended improvements for the intersections with an unsatisfactory LOS can be found in Section 6.

Table 5.9: General Plan 2045 With Project AM and PM Peak Hour LOS

Intersection	Jurisdiction	Control Type	General Plan 2045 Conditions				General Plan 2045 Plus Project Conditions				Difference		LOS Standard	Satisfactory?
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak	PM Peak		
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	Delay		
1. Perris Blvd/Iris Ave	City of Moreno Valle	Signalized	350.3	F	131.8	F	358.2	F	139.4	F	7.9	7.6	D	No
2. Perris Blvd/Krameria Ave	City of Moreno Valle	Signalized	317.5	F	207.5	F	331.2	F	226.2	F	13.7	18.7	D	No
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
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
5. N Perris Blvd/Ramona Expy	City of Perris	Signalized	74.5	E	57.2	E	84.6	F	59.2	E	10.1	2.0	E	No
6. N Perris Blvd/Morgan St	City of Perris	Signalized	30.9	C	16.8	B	33.9	C	17.0	B	3.0	0.2	D	Yes
7. Evans Rd/E Rider St	City of Perris	Signalized	43.8	D	32.3	C	44.8	D	33.3	C	1.0	1.0	D	Yes
8. Redlands Ave/E Rider St	City of Perris	Signalized	32.7	C	42.9	D	33.5	C	46.8	D	0.8	3.9	D	Yes
9. N Perris Blvd/E Rider St	City of Perris	Signalized	31.5	C	31.8	C	33.3	C	33.0	C	1.8	1.2	D	Yes
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
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
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	53.6	F	69.2	F	129.7	F	214.0	F	76.1	144.8	D	No
13. Indian Ave/W Placentia Ave	City of Perris	Signalized	50.6	D	31.6	C	52.4	D	50.7	D	1.8	19.1	D	Yes
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
15. I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	21.8	C	16.2	B	24.6	C	83.3	F	2.8	67.1	E	No
16. I-215 SB Ramps/Placentia Ave	City of Perris	Signalized	16.1	B	19.9	B	18.1	B	66.6	E	2.0	46.7	E	Yes
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
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	35.9	D	51.3	D	54.8	D	116.3	F	18.9	65.0	D	No
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	49.2	E	24.9	C	1830.5	F	649.6	F	1781.3	624.7	D	No
20. Indian Ave/Orange Ave	City of Perris	All-way stop	21.8	C	15.1	C	61.0	F	21.3	C	39.2	6.2	D	No
21. I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	16.1	C	125.9	F	254.2	F	110.4	238.1	D	No
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
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	33.6	C	45.4	D	51.0	D	74.7	E	17.4	29.3	D	No
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
25. Redlands Ave/E Nuevo Rd	City of Perris	Signalized	53.0	D	26.1	C	66.6	E	85.0	F	13.6	58.9	D	No
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
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
28. I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	85.2	F	16.1	B	101.4	F	26.4	C	16.2	10.3	E	No
29. I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	17.5	B	41.3	D	17.8	B	86.6	F	0.3	45.3	E	No
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
31. N Perris Blvd/Midred St	City of Perris	Signalized	11.3	B	6.9	A	12.4	B	7.5	A	1.1	0.6	D	Yes
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
33. Indian Ave/Ramona Expy	City of Perris	Signalized	48.8	D	47.7	D	49.0	D	50.1	D	0.2	2.4	E	Yes
34. Indian Ave/Morgan St	City of Perris	Signalized	26.5	C	27.2	C	25.7	C	26.8	C	-0.8	-0.4	D	Yes
35. Indian Ave/Rider St	City of Perris	Signalized	23.1	C	31.9	C	22.5	C	31.3	C	-0.6	-0.6	D	Yes
36. Perris Blvd/4th St	City of Perris	Signalized	49.5	D	39.8	D	67.6	E	53.0	D	18.1	13.2	E	Yes
37. Perris Blvd/Harvest Landing Way	City of Perris	Signalized	-	-	-	-	10.2	B	12.8	B	-	-	D	Yes
38. Barrett Ave/Harvest Landing Way	City of Perris	All-way stop	-	-	-	-	8.4	A	8.6	A	-	-	D	Yes
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	31.4	D	42.1	E	18.0	26.6	D	No
40. Commercial Driveway 1, 2 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	8.5	A	8.6	A	-	-	D	Yes
41. Commercial Driveway 3, 4 and Harvest Landing Way	City of Perris	Two-way stop	-	-	-	-	12.7	B	15.1	C	-	-	D	Yes
42. Commercial Driveway 5 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	12.1	B	13.5	B	-	-	D	Yes
43. Commercial Driveway 6 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	8.6	A	9.0	A	-	-	D	Yes
44. Commercial Driveway 7 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.4	B	12.3	B	-	-	D	Yes
45. Commercial Driveway 8 and N. Perris Blvd	City of Perris	Two-way stop	-	-	-	-	11.9	B	13.0	B	-	-	D	Yes
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.3	C	39.8	E	105.2	F	1854.3	F	84.9	1814.5	D	No
47. Commercial Driveway 10/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	19.3	C	31.1	D	11.1	B	11.3	B	-8.2	-19.8	D	Yes
48. Building 1 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	13.2	B	12.0	B	-	-	D	Yes
49. Building 1 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.9	A	9.7	A	-	-	D	Yes
50. Building 1 Truck Driveway and I-215 Frontage Rd	City of Perris	Signalized	-	-	-	-	3.2	A	3.0	A	-	-	D	Yes
51. Building 2 Auto Driveway 1 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.7	A	-	-	D	Yes
52. Building 2 Auto Driveway 2 and Orange Ave	City of Perris	Two-way stop	-	-	-	-	19.9	C	13.9	B	-	-	D	Yes
53. Building 2 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	9.1	A	8.8	A	-	-	D	Yes
54. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	9.1	A	8.8	A	-	-	D	Yes
55. Building 3 Auto Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.6	A	-	-	D	Yes
56. Building 3/4 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	10.3	B	9.8	A	-	-	D	Yes
57. Building 5 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	7.7	A	7.4	A	-	-	D	Yes
58. Building 6 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
59. Building 6 Auto Driveway 1/Walmart Supercenter Driveway and	City of Perris	Two-way stop	-	-	-	-	10.6	B	11.6	B	-	-	D	Yes
60. Building 6 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	10.9	B	11.4	B	-	-	D	Yes
61. Building 7 Truck Driveway and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
62. Building 7 Auto Driveway 1 and I-215 Frontage Rd	City of Perris	Two-way stop	-	-	-	-	8.9	A	8.5	A	-	-	D	Yes
63. Building 7 Auto Driveway 2 and Barrett Ave	City of Perris	Two-way stop	-	-	-	-	9.8	A	9.9	A	-	-	D	Yes

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

5.3.1 General Plan 2045 With Project Intersection Queueing Analysis

A queueing analysis was conducted at four study intersections during AM and PM peak hour involving ramps along the I-215. These intersections include Intersection #15 at I-215 Northbound Ramps and Placentia Avenue, Intersection #16 at I-215 Southbound Ramps and Placentia Avenue, Intersection #28 at I-215 Northbound Ramps and West Nuevo Road, and Intersection #29 at I-215 Southbound Ramps and West Nuevo Road. The required queueing length at the study area intersections were determined using 95-percentile queue length analysis. Table 5.10 shows the queue lengths at each intersection approach. As shown in Table 5.10, queueing deficiencies were observed under General Plan 2045 With Project conditions, for the following approaches:

- #15. I-215 Northbound Ramps/Placentia Avenue – westbound right-turn lane (AM and PM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – northbound left-turn and right-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – eastbound left-turn lane (AM peak hour)
- #28. I-215 Northbound Ramps/West Nuevo Road – westbound right-turn lane (AM and PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – southbound left-turn lane (PM peak hour)
- #29. I-215 Southbound Ramps/West Nuevo Road – westbound left-turn lane (PM peak hour)

Even though the queue length for the SBL at intersection #16 exceeds the available storage length, it can still be safely accommodated. This is due to the fact that the queue falls within the additional 600 feet of storage provided beyond the striped storage lane that extends past the SBL lane. Similarly, an additional 260 feet of storage is provided beyond the NBR and NBL at intersection #28, an additional 360 feet of storage is provided for the SBL at intersection #29, ensuring that the additional queue can also be safely accommodated.

Table 5.10: General Plan 2045 With Project AM and PM Peak Hour Queueing Analysis

	General Plan 2045 Conditions								General Plan 2045 Plus Project Conditions								Difference							
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound	
	LT	RT	LT	RT	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	570	570	-	-	280	-	-	390	570	570	-	-	280	-	-	390	570	570	-	-	280	-	-	390
AM Queue Length Per Lane	65	295	-	-	55	-	-	345	80	485	-	-	55	-	-	590	15	190	-	-	0	-	-	245
PM Queue Length Per Lane	30	180	-	-	55	-	-	380	35	225	-	-	55	-	-	2550	5	45	-	-	0	-	-	2170
16. I-215 SB Ramps/Placentia Ave																								
Storage Length Per Lane	-	-	340***	340	-	320	315	-	-	-	340***	340	-	320	315	-	-	-	340	340	-	320	315	-
AM Queue Length Per Lane	-	-	75	25	-	35	85	-	-	-	260	30	-	35	115	-	-	-	185	5	-	0	30	-
PM Queue Length Per Lane	-	-	205	35	-	100	210	-	-	-	865	45	-	100	250	-	-	-	660	10	-	0	40	-
28. I-215 NB Ramps/W Nuevo Rd																								
Storage Length Per Lane	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200	170*	170*	-	-	135	-	-	200
AM Queue Length Per Lane	655	520	-	-	1715	-	-	890	655	800	-	-	1715	-	-	960	0	280	-	-	0	-	-	70
PM Queue Length Per Lane	85	200	-	-	120	-	-	270	90	420	-	-	120	-	-	270	5	220	-	-	0	-	-	0
29. I-215 SB Ramps/W Nuevo Rd																								
Storage Length Per Lane	-	-	185**	185	-	N/A	315	-	-	-	185**	185	-	N/A	315	-	-	-	185**	185	-	N/A	315	-
AM Queue Length Per Lane	-	-	115	60	-	170	155	-	-	-	135	65	-	170	190	-	-	-	20	5	-	0	35	-
PM Queue Length Per Lane	-	-	585	150	-	530	475	-	-	-	1135	180	-	540	585	-	-	-	550	30	-	10	110	-

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.

* There is an additional 260 feet of storage provided beyond the back of the striping storage pocket that extends past the NBR and NBL lanes.

** There is an additional 360 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

*** There is an additional 600 feet of storage provided beyond the back of the striping storage pocket that extends past the SBL lanes.

5.3.2 General Plan 2045 With Project Driveways Queueing Analysis

A full queueing analysis was conducted at all the Project driveways under the General Plan 2045 With Project Conditions to ensure that queueing remains within acceptable storage limits. Driveway access spacing is in accordance with Riverside County Standard Plan No. 114, and the driveway spacing measurements have been provided in Appendix F.

The required queuing length at the study area intersections were determined using 95-percentile queue length analysis. *Table 5.11* shows the queue lengths at each Project driveway approach. As shown in *Table 5.11*, queueing deficiencies were not observed under General Plan 2045 With Project Conditions. Therefore, no alternative access configurations are needed, as the driveway queueing analysis indicates no queueing deficiencies or safety concerns at any Project driveways.

Table 5.11: General Plan 2045 With Project AM and PM Peak Hour Project Driveways Queueing Analysis

	General Plan 2045 Plus Project Conditions																								
	Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		Northbound		Southbound		Eastbound		Westbound		
	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT	LT	RT			
	40. Commercial Driveway 1, 2 and Harvest Landing Way								48. Building 1 Auto Driveway 1 and Orange Ave								56. Building 4/5 Auto Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	N/A	225	N/A	216	N/A	424	N/A	224	304	304	N/A	N/A	N/A	N/A	160	N/A	N/A	219	120	N/A	N/A	N/A	35	35	
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5	
PM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	5	5	N/A	N/A	N/A	0	5	N/A	N/A	0	5	N/A	N/A	N/A	5	5	
	41. Commercial Driveway 3, 4 and Harvest Landing Way								49. Building 1 Auto Driveway 2 and Orange Ave								57. Building 5 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	224	224	244	244	160	245	160	343	N/A	258	N/A	N/A	N/A	N/A	N/A	N/A	N/A	379	120	N/A	N/A	N/A	N/A	25	
AM Queue Length Per Lane (ft)	10	10	15	15	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0	
PM Queue Length Per Lane (ft)	15	15	25	25	5	0	10	0	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	0	
	42. Commercial Driveway 5 and N. Perris Blvd								50. Building 1 Truck Driveway and I-215 Frontage Rd								58. Building 6 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	N/A	N/A	N/A	507	N/A	109	N/A	N/A	N/A	165	200	N/A	N/A	N/A	N/A	300+	N/A	328	200	N/A	N/A	N/A	N/A	840	
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	N/A	N/A	0	5	N/A	N/A	N/A	5	
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	15	N/A	N/A	N/A	N/A	5	5	N/A	N/A	N/A	N/A	10	N/A	0	5	N/A	N/A	N/A	5	
	43. Commercial Driveway 6 and Barrett Ave								51. Building 2 Auto Driveway 1 and Orange Ave								59. Building 6 Auto Driveway 1 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	526	N/A	N/A	N/A	N/A	N/A	70	N/A	39	N/A	N/A	N/A	N/A	N/A	N/A	N/A	707	200	692	41	41	100	100	
AM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	5	5	0	0	5	5	10	0
PM Queue Length Per Lane (ft)	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	5	N/A	N/A	N/A	0	N/A	N/A	N/A	5	5	0	0	5	5	15	0
	44. Commercial Driveway 7 and N. Perris Blvd								52. Building 2 Auto Driveway 2 and Orange Ave								60. Building 6 Auto Driveway 2 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	N/A	N/A	100	N/A	138	N/A	N/A	39	39	N/A	N/A	N/A	N/A	100	N/A	0	N/A	160	N/A	39	39	246	246	
AM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	5	0	5	0	5	5	5	5	
PM Queue Length Per Lane (ft)	N/A	N/A	N/A	0	N/A	10	N/A	N/A	5	5	N/A	N/A	N/A	0	5	N/A	5	0	5	0	5	5	10	10	
	45. Commercial Driveway 8 and N. Perris Blvd								53. Building 2 Truck Driveway and I-215 Frontage Rd								61. Building 7 Truck Driveway and I-215 Frontage Rd								
Storage Length Per Lane (ft)	160	N/A	N/A	100	N/A	150	N/A	N/A	N/A	531	200	N/A	N/A	N/A	N/A	410	N/A	493	200	N/A	N/A	255	N/A	N/A	
AM Queue Length Per Lane (ft)	15	N/A	N/A	0	N/A	5	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	0	5	N/A	N/A	5	N/A	N/A	
PM Queue Length Per Lane (ft)	20	N/A	N/A	0	N/A	10	N/A	N/A	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	0	5	N/A	N/A	5	N/A	N/A	
	46. Commercial Driveway 9 and Orange Ave								54. Building 3 Auto Driveway and I-215 Frontage Rd								62. Building 7 Auto Driveway 1 and I-215 Frontage Rd								
Storage Length Per Lane (ft)	224	224	100	100	206	206	147	147	N/A	254	N/A	N/A	N/A	N/A	N/A	49	N/A	44	N/A	N/A	N/A	N/A	N/A	354	
AM Queue Length Per Lane (ft)	20	20	85	85	10	0	10	0	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5	
PM Queue Length Per Lane (ft)	65	65	695	695	15	0	15	0	N/A	0	N/A	N/A	N/A	N/A	N/A	5	N/A	0	N/A	N/A	N/A	N/A	N/A	5	
	47. Commercial Driveway 10 and Orange Ave								55. Building 3/4 Truck Driveway and I-215 Frontage Rd								63. Building 7 Auto Driveway 2 and Barrett Ave								
Storage Length Per Lane (ft)	N/A	201	N/A	100	N/A	413	N/A	400	N/A	204	200	N/A	N/A	N/A	N/A	176	N/A	N/A	44	44	N/A	N/A	N/A	950	
AM Queue Length Per Lane (ft)	N/A	5	N/A	5	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0	
PM Queue Length Per Lane (ft)	N/A	5	N/A	10	N/A	0	N/A	0	N/A	0	5	N/A	N/A	N/A	N/A	5	N/A	N/A	5	5	5	N/A	N/A	0	

Notes:

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.

5.3.3 General Plan 2045 With Project Roadway Segment Analysis

General Plan 2045 With Project Without Project roadway segments volumes were developed by adding the Project trips to the General Plan 2045 Without Project roadway segments volumes, with the adjustments noted in Section 5.1.2.

The LOS at the General Plan 2045 With Project study roadway segments were determined using the methodology described previously in Section 2.3 *Methodology*. The General Plan 2045 With Project LOS at the study roadway segments are shown in Table 5.12. As shown in Table 5.12, 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

Table 5.12: General Plan 2045 With Project Roadway Segment Level of Service

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 ?
1. Indian Ave between Water Ave and Orange Ave	Arterial	4	35,900	9,880	0.275	A	4	35,900	11,747	0.327	A	D	No
2. Orange Ave between Indian Ave and Perris Blvd	Arterial	4	35,900	10,611	0.296	A	4	35,900	19,376	0.540	A	D	No
3. Perris Blvd between Orange Ave and Citrus Ave	Arterial	6	53,900	43,121	0.800	D	6	53,900	56,749	1.053	F	D	Yes
4. Barrett Ave between Placentia Ave and Orange Ave	Collector	2	13,000	1,710	0.132	A	2	13,000	9,354	0.720	C	D	No
5. Perris Blvd between Placentia Ave and Orange Ave	Arterial	6	53,900	41,300	0.766	C	6	53,900	44,634	0.828	D	D	No
6. Perris Blvd between Rider St and Placentia Ave	Arterial	6	53,900	43,634	0.810	D	6	53,900	48,043	0.891	D	D	No
7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	Arterial	6	53,900	50,226	0.932	E	6	53,900	59,070	1.096	F	D	Yes
8. I-215 Frontage Rd between Placentia Ave and Orange Ave	Arterial	4	35,900	10,093	0.281	A	4	35,900	23,500	0.655	B	D	No
9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	Arterial	4	35,900	5,076	0.141	A	4	35,900	9,638	0.268	A	D	No
10. Orange Ave between I-215 Frontage Rd and Indian Ave	Arterial	4	35,900	5,355	0.149	A	4	35,900	15,405	0.429	A	D	No
11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	Arterial	6	53,900	35,372	0.656	B	6	53,900	40,099	0.744	C	D	No
12. Perris Blvd between Citrus Ave and Nuevo Rd	Arterial	6	53,900	49,397	0.916	E	6	53,900	61,712	1.145	F	D	Yes
13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	Arterial	6	53,900	36,547	0.678	B	6	53,900	46,594	0.864	D	D	No
14. Placentia Ave between I-215 NB Ramps and Indian Ave	Arterial	6	53,900	51,765	0.960	E	6	53,900	71,034	1.318	F	D	Yes
15. Placentia Ave between Indian Ave and Perris Blvd	Arterial	6	53,900	27,969	0.519	A	6	53,900	33,086	0.614	B	D	No
16. Barrett Ave between Orange Ave and Harvest Landing Wy	Collector	2	13,000	-	-	-	2	13,000	8,380	0.645	B	D	No
17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	Collector	2	13,000	-	-	-	2	13,000	10,931	0.841	D	D	No
18. Harvest Landing Wy between Barrett Ave and Perris Blvd	Collector	4	25,900	-	-	-	4	25,900	7,855	0.303	A	D	No
19. Indian Ave between Placentia Ave and Water Ave	Arterial	4	35,900	9,880	0.275	A	4	35,900	11,747	0.327	A	D	No

Notes:

LOS = Level of Service

1 General Plan year ADT is calculated based on RIVCOM growth rates. 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

Figure 5.9a: General Plan 2045 Intersection Lane Configuration and Traffic Control



Figure 5.9b: General Plan 2045 Intersection Lane Configuration and Traffic Control (Continued)

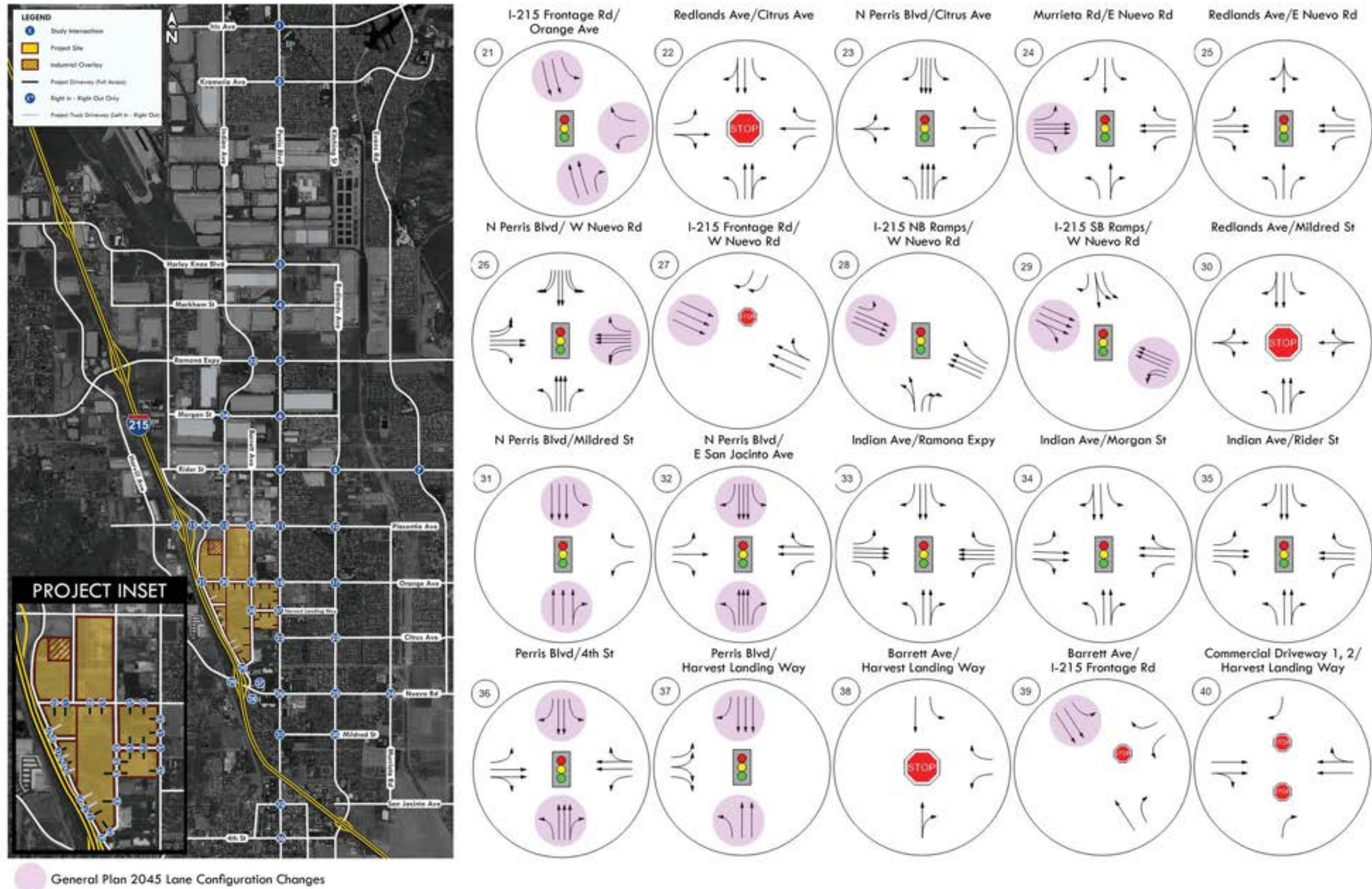


Figure 5.9c: General Plan 2045 Intersection Lane Configuration and Traffic Control (Continued)

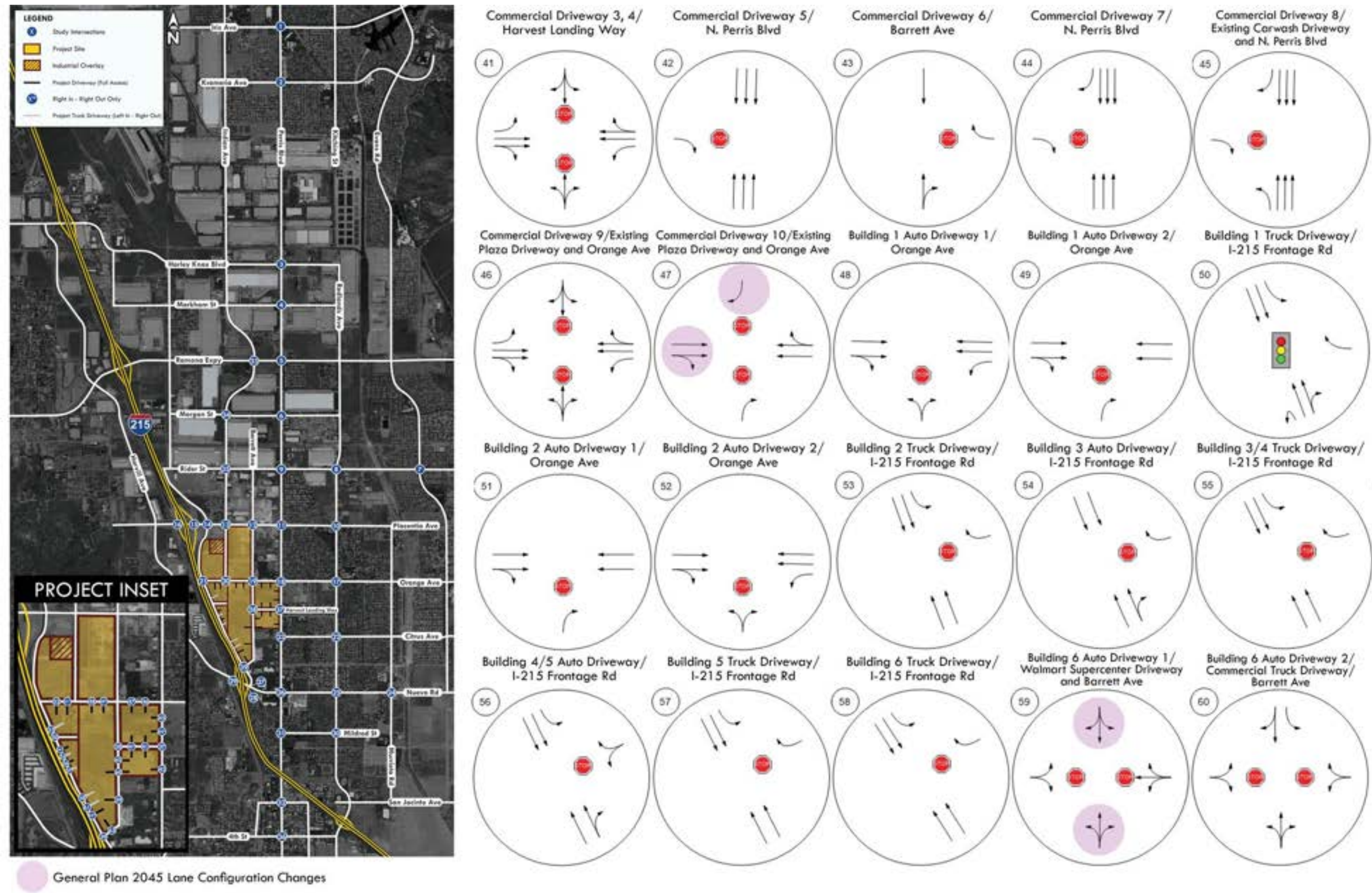


Figure 5.9d: General Plan 2045 Intersection Lane Configuration and Traffic Control (Continued)

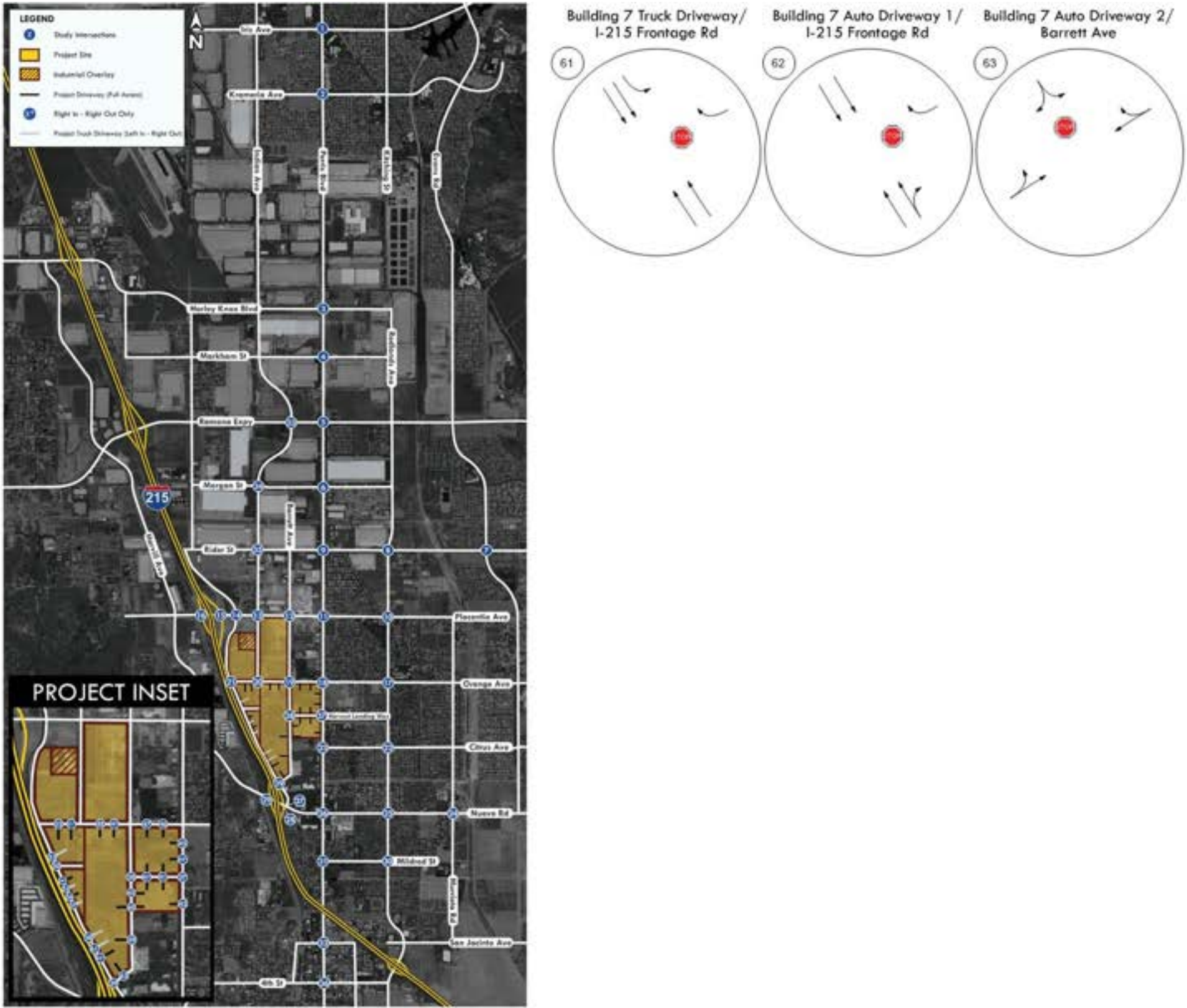


Figure 5.10a: General Plan 2045 With Project AM Peak Hour PCE Traffic Volumes

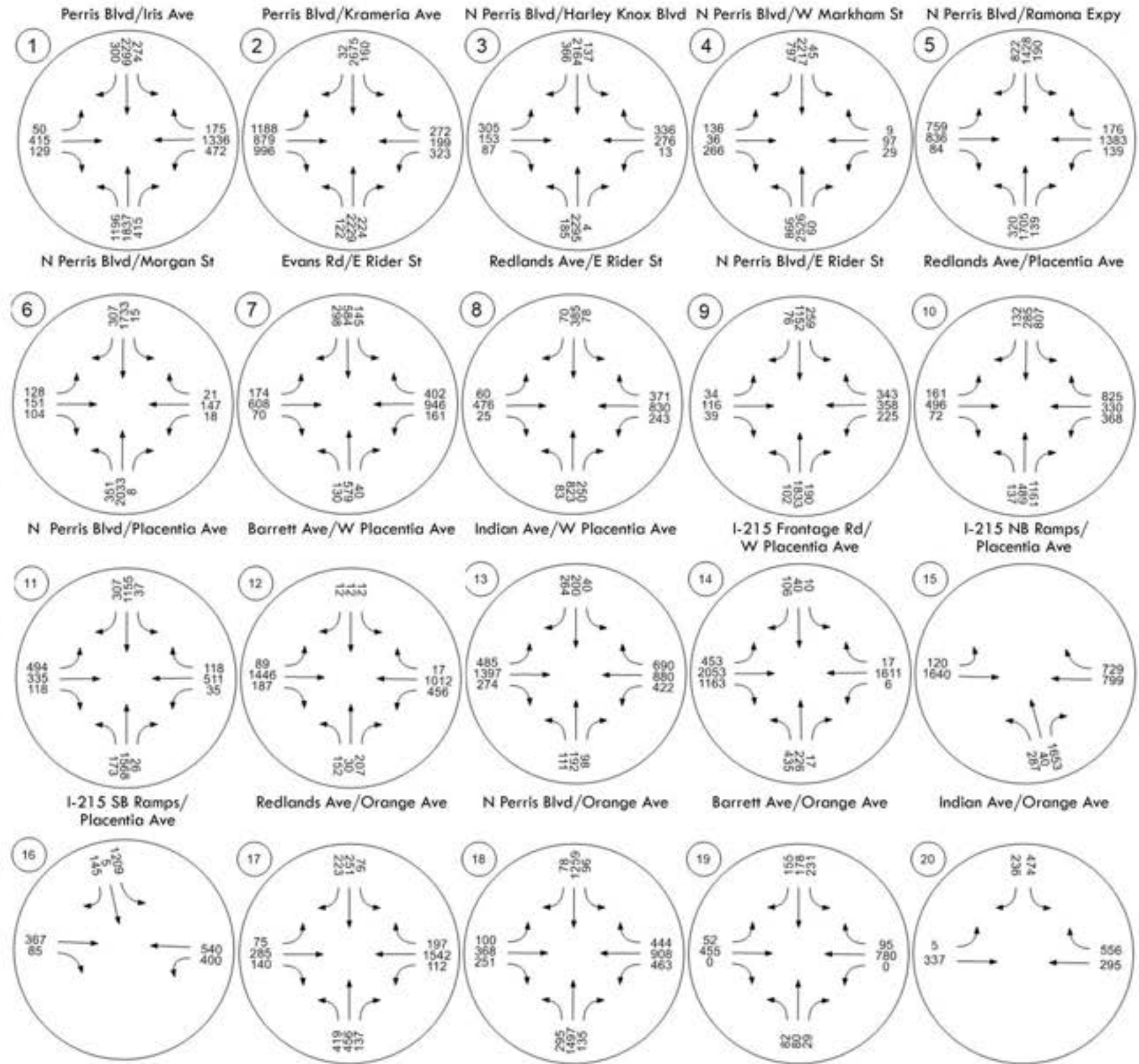


Figure 5.10b: General Plan 2045 With Project AM Peak Hour PCE Traffic Volumes (Continued)

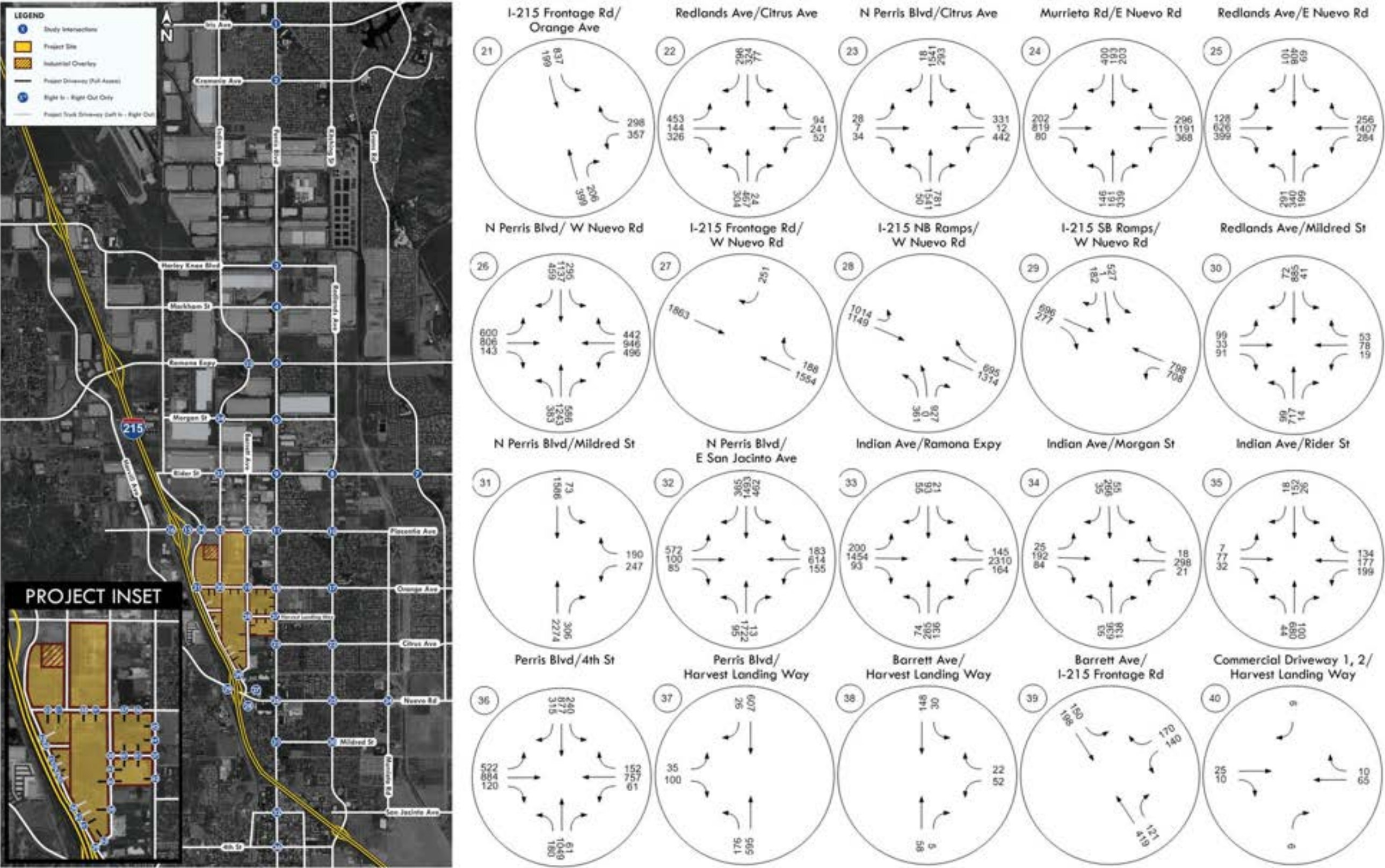


Figure 5.10c: General Plan 2045 With Project AM Peak Hour PCE Traffic Volumes (Continued)

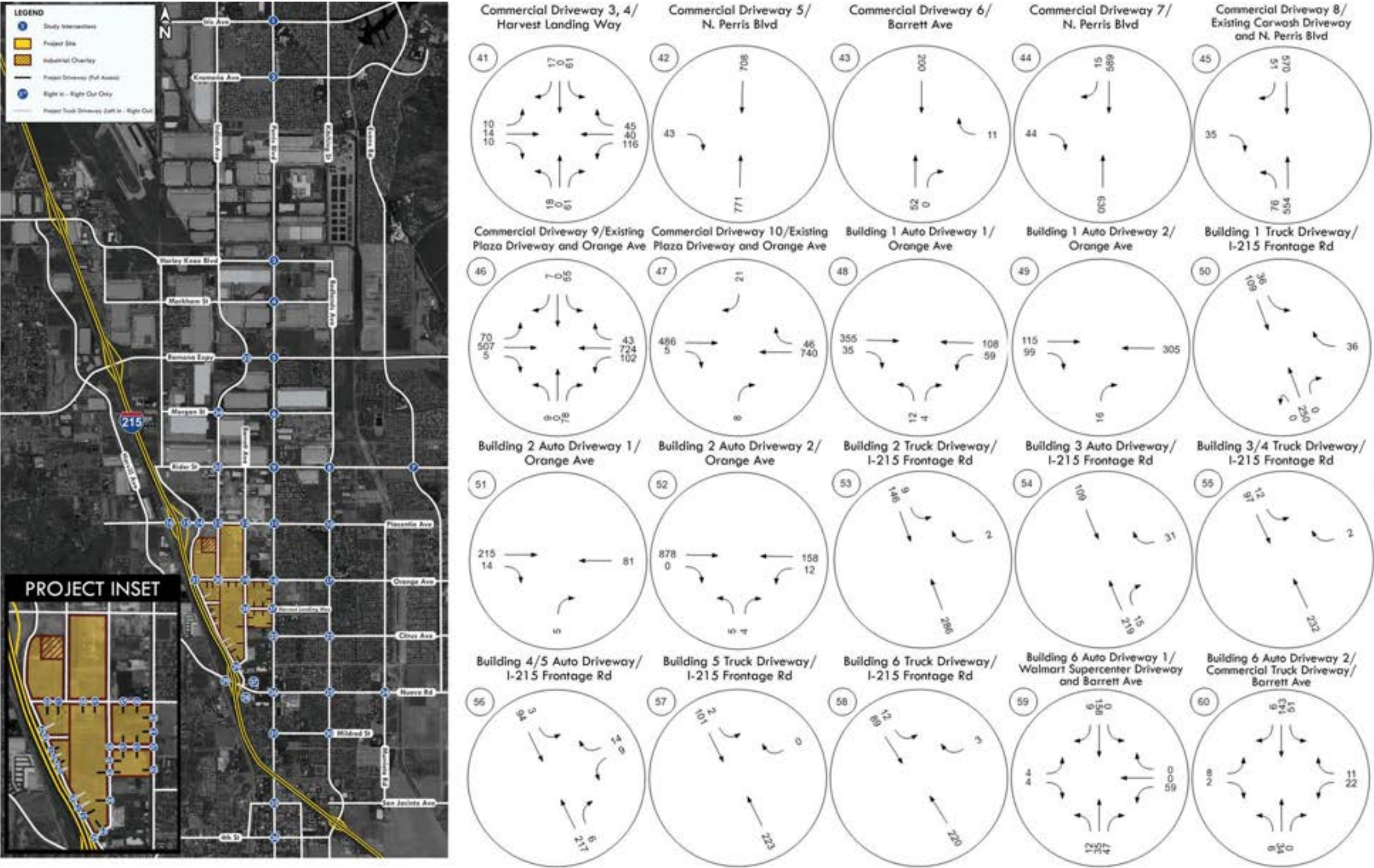


Figure 5.10d: General Plan 2045 With Project AM Peak Hour PCE Traffic Volumes (Continued)

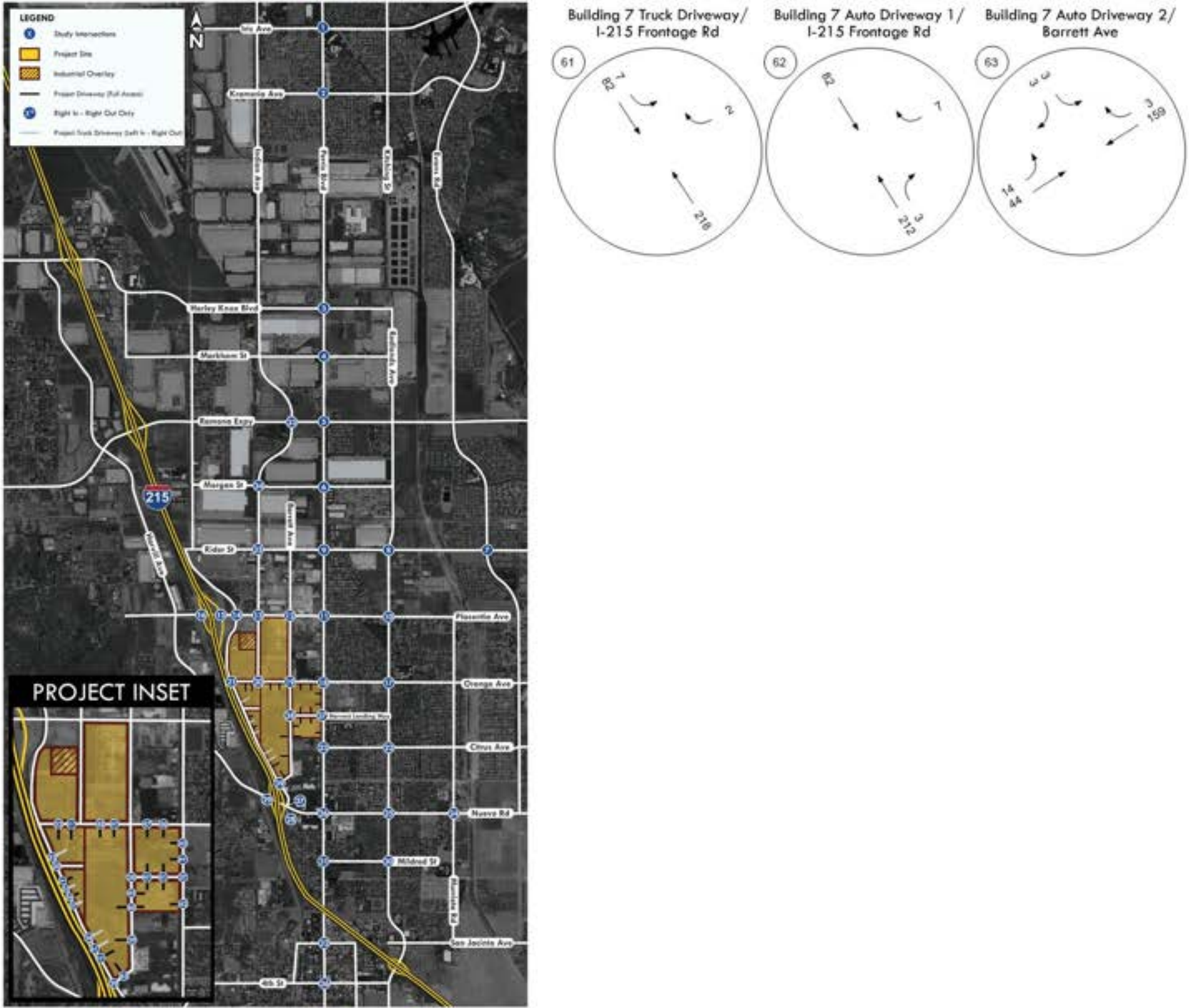


Figure 5.11a: General Plan 2045 With Project PM Peak Hour PCE Traffic Volumes



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

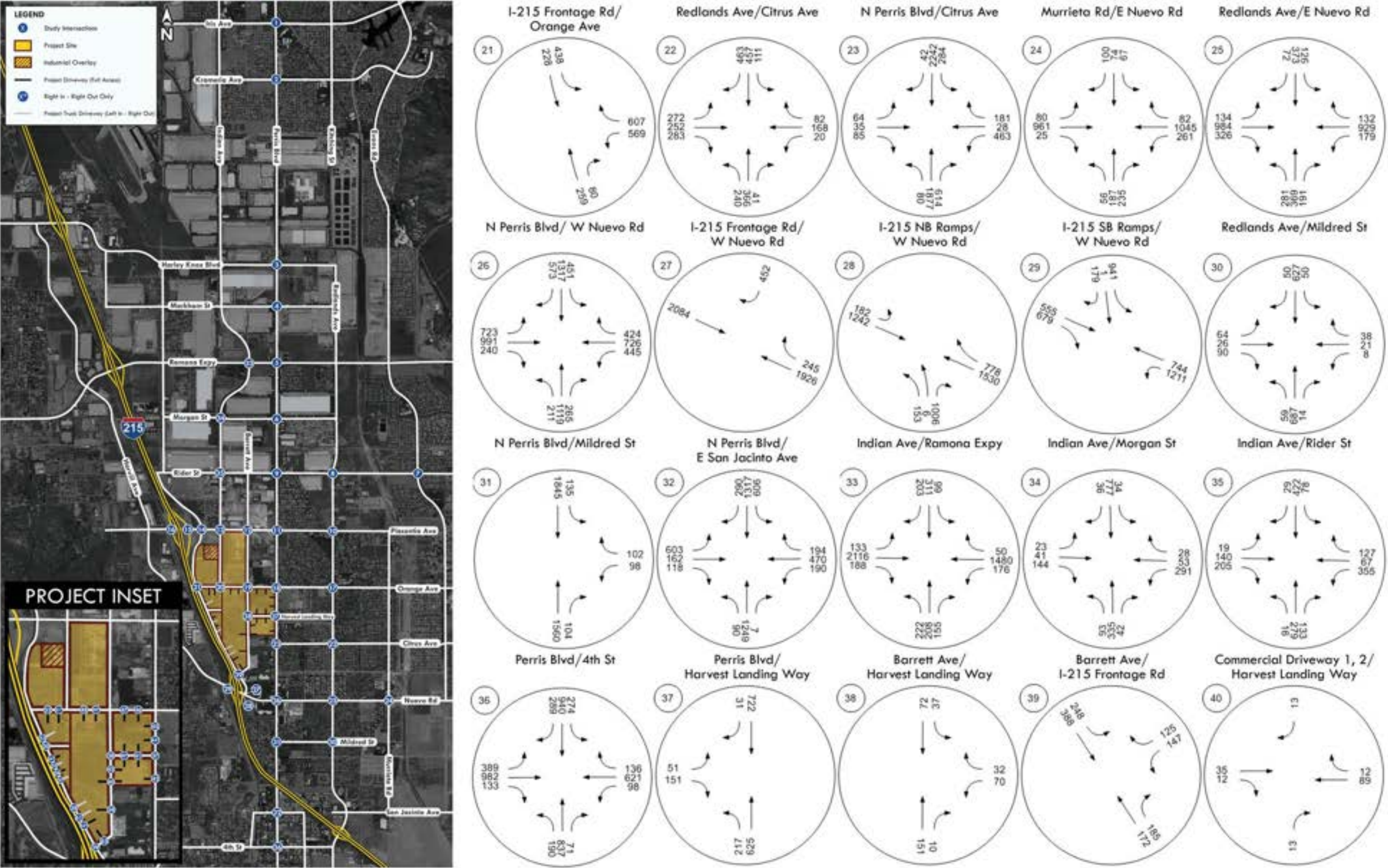


Figure 5.11c: General Plan 2045 With Project PM Peak Hour PCE Traffic Volumes (Continued)

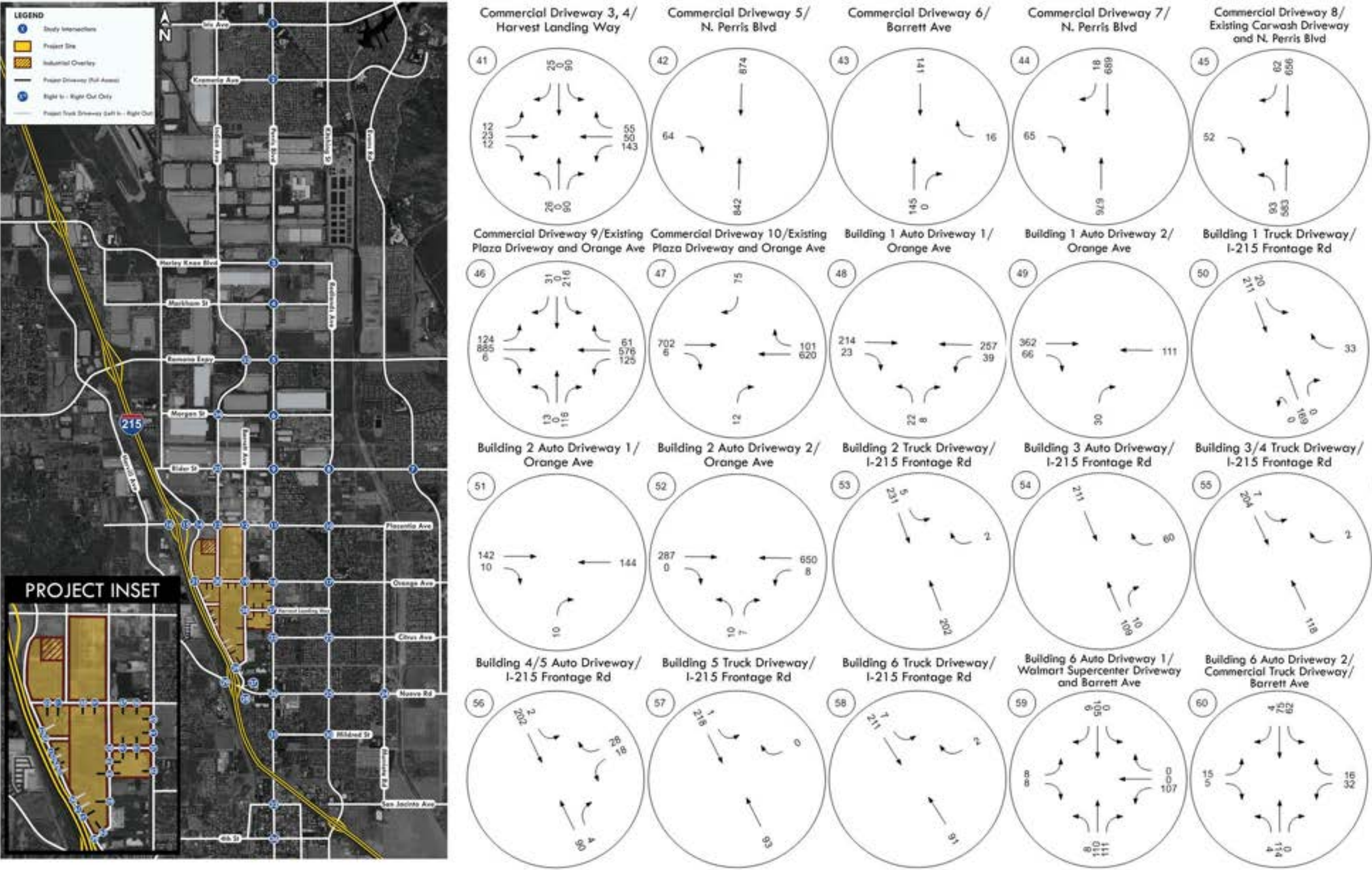
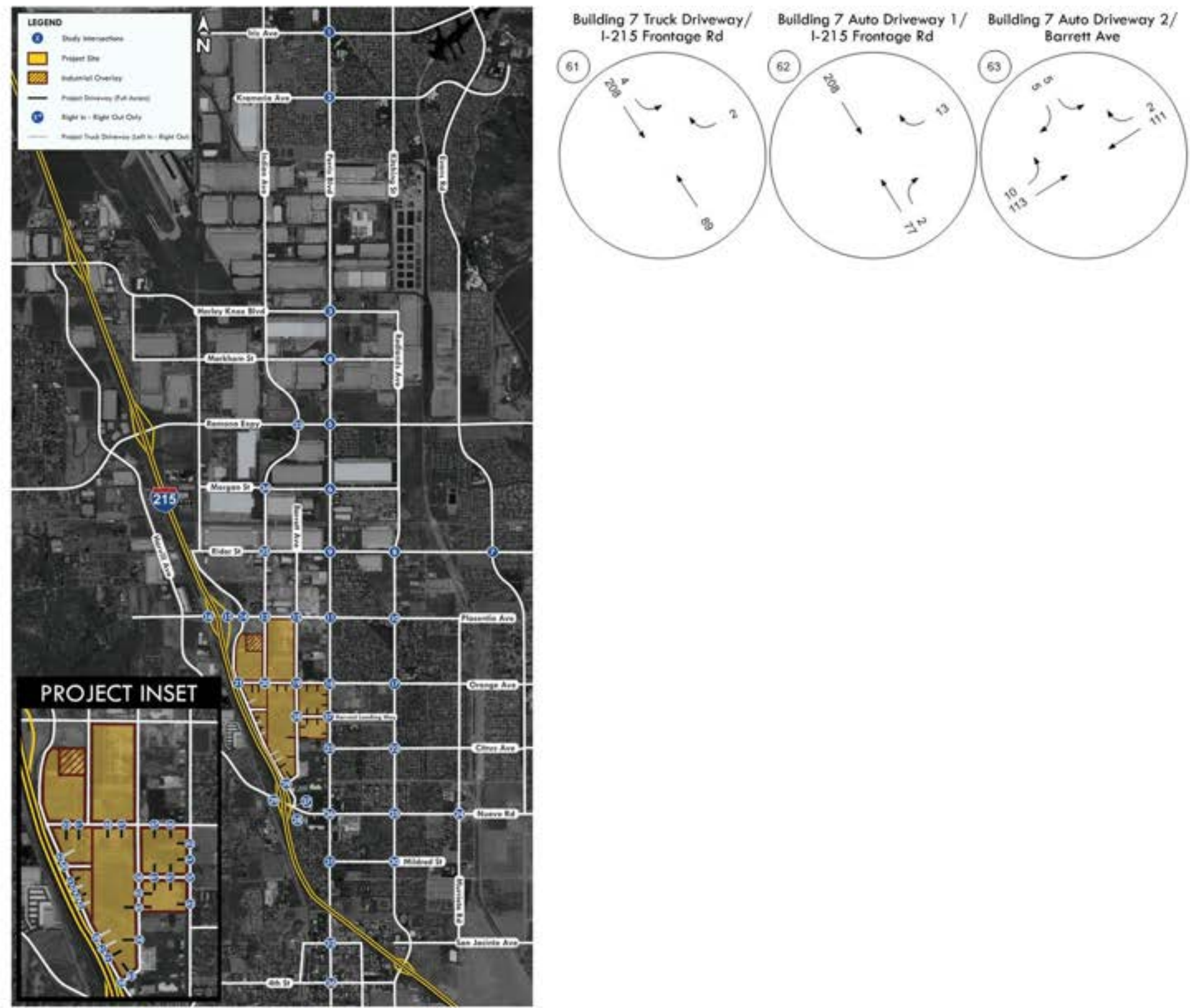


Figure 5.11d: General Plan 2045 With Project PM Peak Hour PCE Traffic Volumes (Continued)



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 7 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 Plus Project condition for 6 of the 7 intersections with an unsatisfactory LOS under Opening Year I 2026 With Project conditions, as shown in Table 6.1 and figure 6.1:

- #1. Perris Blvd/Iris Ave
 - Change Protected WBL Phase to Protective-Permissive (Prot-Perm).
- #12. Barrett Ave/W Placentia Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #18. N Perris Blvd/Orange Ave
 - Optimize Traffic Signal
- #19. Barrett Ave/Orange Ave
 - This intersection passes all-way stop warrant. Install all-way stop.
- #26. N Perris Blvd/ W Nuevo Rd
 - Add right-turn overlap to NBR, SBR, EBR and WBR movement
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install “Keep Clear” sign at the westbound and southbound approaches.

Traffic signal warrant sheets and all-way stop warrants are provided in *Appendix D*. SimTraffic outputs are provided in *Appendix G*.

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

			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	
Intersection	Jurisdiction	Control Type	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	LOS									
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	Change Protected WBL Phase to Prot-Perm.	50.7	D	38.5	D	-12.4	-12.8
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	25	D	17.4	C	83.0	F	49.0	E	58.0	31.6	D	No	This intersection passes signal warrant. Install Traffic Signal.	13.8	B	19.9	B	-11.2	2.5
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	24.1	C	32	C	46.7	D	57.3	E	22.6	25.3	D	No	Optimize Traffic Signal.	38.3	D	52.7	D	14.2	20.7
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	19.4	C	15.2	C	85.5	F	78.3	F	66.1	63.1	D	No	This intersections passes all-way stop warrant. Install all-way stop.	19.5	C	17.5	C	0.1	2.3
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	43.9	D	41.6	D	71.3	E	67.8	E	27.4	26.2	D	No	Add right-turn overlap to NBR, SBR, EBR and WBR movement.	53.8	D	48.8	D	9.9	7.2
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	Install "Keep Clear" sign at the westbound and southbound approaches.	27.5	D	62.1	F	6.4	31.8
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.83	C	31.19	D	119.9	F	1438.7	F	99.1	1408	D	No	This intersection passes signal warrant. Install Traffic Signal.	9.9	A	14.1	B	-10.9	-17.1

Notes: Delay Reported in Seconds per Vehicle

LOS = Level of Service

Unsatisfactory Level of Service

Figure 6.1: Opening Year I 2026 Plus 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 queueing deficiencies at intersections #15 and #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 improvements would result in satisfactory queueing approach as shown in Table 6.2 for the Opening Year I 2026 Plus Project condition:

- #15. I-215 NB Ramps/Placentia Ave
 - Optimize signal control with cycle length of 60 seconds.
- #29. I-215 SB Ramps/W Nuevo Rd
 - Optimize signal control to split phases for all approaches with cycle length of 60 seconds.

Table 6.2: Opening Year I 2026 Plus 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			
15. I-215 NB Ramps/Placentia Ave														
Storage Length Per Lane	-	390	-	390	-	390	Optimize signal control with cycle length of 60 seconds.	-	390	-	390			E
AM Queue Length Per Lane	-	430	-	660	-	230		-	240	-	-190	14.9	B	
PM Queue Length Per Lane	-	570	-	795	-	225		-	335	-	-235	12.6	B	
29. I-215 SB Ramps/W Nuevo Rd														
Storage Length Per Lane	315	-	315	-	315	-	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	315	-	315	-			E
AM Queue Length Per Lane	155	-	195	-	40	-		220	-	65	-	27.4	C	
PM Queue Length Per Lane	335	-	400	-	65	-		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 eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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 shown in Table 6.3, the following North-South segments on are over capacity:

- #3. Perris Blvd between Orange Ave and Citrus Ave by 12,029 ADT trips
- #5. Perris Blvd between Placentia Ave and Orange Ave by 1,122 ADT trips
- #6. Perris Blvd between Rider St and Placentia Ave by 11,150 ADT trips
- #12. Perris Blvd between Citrus Ave and Nuevo Rd by 4,356 ADT trips

In total, the North-South segment of Perris Blvd between Rider St and Nuevo Rd is over capacity by 12,029 ADT trips. These 12,029 ADT trips can be redistributed to parallel North-South roads, such as Barrett Ave and I-215 Frontage Rd, which have sufficient capacity under the following split:

- 8,269 ADT Trips would utilize I-215 Frontage Rd
- 3,760 ADT Trips would utilize Barrett Ave

Given their lower resistance, road users are likely to divert to these alternative routes.

Similarly, as shown in Table 6.3, the following East-West segments on are over capacity:

- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps by 5,629 ADT trips
- #14. Placentia Ave between I-215 NB Ramps and Indian Ave by 23,697 ADT trips

In total, the East-West segments of Nuevo Rd between Perris Blvd and I-215 NB Ramps is over capacity by 5,629 ADT trips, while the East-West segments of Placentia Ave between Indian Ave and I-215 SB Ramps is over capacity by 23,697 ADT trips. These ADT trips can be redistributed to parallel East-West roads, such as Orange Ave, under the following split:

- 23,697 ADT Trips from Placentia Ave would utilize Orange Ave between I-215 Frontage Rd and Indian Ave
- 3,760 ADT Trips from Nuevo Rd would utilize Orange Ave between Indian Ave and Perris Blvd

Given their lower resistance, road users are likely to divert to these alternative routes.

The volume on segments between I-215 SB Ramps and I-215 NB Ramps cannot be redistributed to other segments. However, as previously discussed in Section 6.1.2, there would be no deficiencies at the I-215 Ramps intersections with the recommended improvements and the traffic on these segments can be safely accommodated.

As shown in Table 6.3, after redistributing and adjusting the over-capacity ADT trips, all segments besides the segments between I-215 SB Ramps and I-215 NB Ramps are projected to operate within the acceptable level of service as per the City's threshold, with a V/C ratio of 0.9 or less.

Table 6.3: Opening Year I 2026 Plus Project Plus Improvements Roadway Segments

Impacted Roadways		# of Lanes Plus Project	Roadway Capacity Plus Project ²	Opening Year I 2026 Plus Project ADT ¹	V/C Ratio	Redistributed Volume	Opening Year I 2026 Plus Project ADT with Redistribution ¹	V/C Ratio with Redistribution
Overflowing volume on the impacted roadway in comparison to required V/C of 0.9 (LOS D)								
Divert to	1. Indian Ave between Water Ave and Orange Ave	2	13,000	6,166	0.474	0	6,166	0.474
	2. Orange Ave between Indian Ave and Perris Blvd	4	35,900	16,427	0.458	5,629	22,056	0.614
	3. Perris Blvd between Orange Ave and Citrus Ave	5	44,900	52,439	1.168	-12,029	40,410	0.900
	4. Barrett Ave between Placentia Ave and Orange Ave	2	13,000	6,804	0.523	3,760	10,565	0.813
	5. Perris Blvd between Placentia Ave and Orange Ave	5	44,900	41,532	0.925	-12,029	29,504	0.657
	6. Perris Blvd between Rider St and Placentia Ave	4	35,900	43,460	1.211	-12,029	31,431	0.876
	7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	6	53,900	54,139	1.004	-5,629	48,510	0.900
	8. I-215 Frontage Rd between Placentia Ave and Orange Ave	4	35,900	9,351	0.260	0	9,351	0.260
	9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	4	35,900	5,843	0.163	8,269	14,111	0.393
	10. Orange Ave between I-215 Frontage Rd and Indian Ave	4	35,900	4,304	0.120	23,697	28,001	0.780
	11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	4	35,900	36,693	1.022	0	36,693	1.022
	12. Perris Blvd between Citrus Ave and Nuevo Rd	6	53,900	52,866	0.981	-12,029	40,838	0.758
	13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	4	35,900	38,497	1.072	0	38,497	1.072
	14. Placentia Ave between I-215 NB Ramps and Indian Ave	4	35,900	56,007	1.560	-23,697	32,310	0.900
	15. Placentia Ave between Indian Ave and Perris Blvd	6	53,900	31,574	0.586	3,760	35,334	0.656
	16. Barrett Ave between Orange Ave and Harvest Landing Wy	2	13,000	5,639	0.434	3,760	9,400	0.723
	17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	2	13,000	7,940	0.611	3,760	11,700	0.900
	18. Harvest Landing Wy between Barrett Ave and Perris Blvd	4	25,900	7,855	0.303	0	7,855	0.303
	19. Indian Ave between Placentia Ave and Water Ave	2	13,000	6,166	0.474	0	6,166	0.474

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 = $\text{Project Trips} / (\text{Total Trips with Project-Existing Trips}) * 100\%$

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

- The Project would front the cost of the improvements and be reimbursed later for the improvements at Intersections #23 (N. Perris Blvd/Citrus Ave) and #27 (I-215 Frontage Rd/W. Nuevo Rd).
- 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	Change Protected WBL Phase to Prot-Perm.	Indirect	1.64%	2.43%	2.43%
12. Barrett Ave/W Placentia Ave	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage		
15. I-215 NB Ramps/Placentia Ave	Optimize signal control with cycle length of 60 seconds.	Indirect	29.43%	23.90%	29.43%
18. N Perris Blvd/Orange Ave	Optimize Traffic Signal.	Direct	Project Frontage		
19. Barrett Ave/Orange Ave	This intersection passes all-way stop warrant. Install all-way stop.	Direct	Project Frontage		
26. N Perris Blvd/ W Nuevo Rd	Change Protected NBL Phase to Prot-Perm.	Direct	26.02%	31.05%	31.05%
27. I-215 Frontage Rd/W Nuevo Rd	Install "Keep Clear" sign at the westbound and southbound approaches.	Direct ²	28.34%	30.02%	30.02%
29. I-215 SB Ramps/W Nuevo Rd	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	Indirect	17.65%	20.25%	20.25%
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage		

¹Fair 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%

²The Project would front the cost of the improvements and be reimbursed later for the improvements at Intersection.

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 18 of the 63 study intersections.

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

- #5. Perris Blvd/Ramona Expy
 - Right-turn overlap on SBR; Change NBR to NBTR
- #11. N Perris Blvd/Placentia Ave
 - Restripe EBL, EBT, EBT, EBR to EBL, EBL, EBT, EBR.
- #12. Barrett Ave/W Placentia Ave
 - This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL.
- #13. Indian Ave/W Placentia Ave
 - Restripe NBL, NBT, NBR to NBL, NBL, NBTR.
- #14. I-215 Frontage Rd/W Placentia Ave
 - Restripe to remove south leg shoulder and accommodate an additional NBL lane;
 - Change WBR to WBTR,
 - Remove protected phase from WBL and change to permissive.
- #18. N Perris Blvd/Orange Ave
 - Change NBL, SBL, EBL, and WBL from protected to prot-perm left-turn phasing
- #19. Barrett Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #20. Indian Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #21. I-215 Frontage Rd/Orange Ave
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #24. Murrieta Rd/E Nuevo Rd
 - Optimize Traffic Signal.
- #26. N Perris Blvd/ W Nuevo Rd
 - Add right-turn overlap to SBR and EBR movement.
 - Change NBR to NBTR.
 - Change WBR to WBTR
- #30. Redlands Ave/Midred St
 - Restripe SBL, SBT, SBTR to SBTL, SBT, SBR
- #36. Perris Blvd/4th St
 - Change protected NBL, SBL, EBL and WBL to prot-perm left-turn phasing.
- #39. Barrett Ave/I-215 Frontage Road
 - This intersection passes all-way stop warrant. Install all-way stop.
- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal

Traffic signal warrant sheets and all-way stop warrants are provided in *Appendix D*.

No feasible improvements would result in the following intersections 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
 - Change Protected WBL Phasing to Prot-Perm Phasing.
- #2. Perris Blvd/Krameria Ave
 - Change WB and EB Split Phase to Prot-Perm Phasing.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install “Keep Clear” sign at the westbound and southbound approaches.

SimTraffic outputs are provided in *Appendix G*.

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

			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	
Intersection	Jurisdiction	Control Type	AM Peak		PM Peak		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	LOS											
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	Change Protected WBL Phasing to Prot-Perm Phasing.	77.7	E	51.5	D	-6.6	-10		
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.	64.6	E	35.5	D	0.0	-22.2		
5. N Perris Blvd/Ramona Expy	City of Perris	Signalized	92.4	F	59.3	E	104.3	F	56.1	E	11.9	-3.2	E	No	Add right-turn overlap to SBR movement. Change NBR to NBTR	79.7	E	56.1	E	-12.7	-3.2		
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	Restripe EBL, EBT, EBT, EBR to EBL, EBL, EBT, EBR.	35.2	D	54.6	D	-6.3	20.4		
12. Barrett Ave/W Placentia Ave	City of Perris	All-way stop	30.9	D	19.6	C	138.6	F	99.9	F	107.7	80.3	D	No	This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL	32.2	C	27.1	C	1.3	7.5		
13. Indian Ave/W Placentia Ave	City of Perris	Signalized	40.0	D	39.6	D	56.9	E	70.0	E	16.9	30.4	D	No	Restripe NBL, NBT, NBR to NBL, NBL, NBTR.	53.5	D	51.7	D	13.5	12.1		
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 to remove south leg shoulder and accommodate an additional NBL lane, Change WBR to WBTR, Remove protected phase from WBL and change to permissive.	39.5	D	53.4	D	10.1	32.3		
18. N Perris Blvd/Orange Ave	City of Perris	Signalized	26.1	C	39.2	D	60.3	E	125.8	F	34.2	86.6	D	No	Change NBL, SBL, EBL and WBL from protected to prot-perm left-turn phasing	28.7	C	40.7	D	2.6	1.5		
19. Barrett Ave/Orange Ave	City of Perris	Two-way stop	21.8	C	19.4	C	10000.0	F	664.6	F	9978.2	645.2	D	No	This intersection passes signal warrant. Install Traffic Signal.	12.5	B	13.5	B	-9.3	-5.9		
20. Indian Ave/Orange Ave	City of Perris	All-way stop	14.8	B	11.7	B	55.0	F	19.8	C	40.2	8.1	D	No	This intersection passes signal warrant. Install Traffic Signal.	14.0	B	10.8	B	-0.8	-0.9		
21. I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	54.9	F	87.4	F	163.6	F	71.9	108.7	D	No	Restripe NBL, NBT, NBTR to NBL, NBL, NBTR ;	18.8	B	11.1	B	3.3	-43.8		
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	Optimize Traffic Signal.	51.4	D	34.1	C	9.2	2		
26. N Perris Blvd/ W Nuevo Rd	City of Perris	Signalized	48.7	D	44.9	D	84.7	F	83.6	F	36.0	38.7	D	No	Add right-turn overlap to SBR and EBR movement. Change NBR to NBTR. Change WBR to WBTR.	54.9	D	53.0	D	6.2	8.1		
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	Install "Keep Clear" sign at the westbound and southbound approaches.	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	Restripe SBL, SBT, SBTR to SBL, SBT, SBR	34.1	D	17.9	C	1.6	2		
36. Perris Blvd/4th St	City of Perris	Signalized	72.1	E	63.8	E	93.2	F	91.4	F	21.1	27.6	E	No	Change protected NBL, SBL, EBL and WBL to prot-perm left-turn phasing.	63.2	E	59.0	E	-8.9	-4.8		
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	27.7	D	42.2	E	14.3	26.7	D	No	This intersections passes all-way stop warrant. Install all-way stop.	13.6	B	13.1	B	0.2	-2.4		
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	23.9	C	43.57	E	365.9	F	3225.1	F	342.0	3181.5	D	No	This intersection passes signal warrant. Install Traffic Signal.	9.8	A	14.4	B	-14.1	-29.17		

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

Unsatisfactory Level of Service

Figure 6.2: Opening Year II 2030 Plus 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 queueing 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 Plus Project condition:

- #29. I-215 SB Ramps/W Nuevo Rd
 - Optimize signal control to split phases for all approaches with cycle length of 60 seconds.

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 Plus 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	-	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	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 eight (8) 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
- #5. Perris Blvd between Placentia Ave and Orange 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 shown in Table 6.7, the following North-South segments on are over capacity:

- #3. Perris Blvd between Orange Ave and Citrus Ave by 16,339 ADT trips
- #5. Perris Blvd between Placentia Ave and Orange Ave by 4,224 ADT trips
- #6. Perris Blvd between Rider St and Placentia Ave by 15,733 ADT trips
- #12. Perris Blvd between Citrus Ave and Nuevo Rd by 8,591 ADT trips

In total, the North-South segment of Perris Blvd between Rider St and Nuevo Rd is over capacity by 16,339 ADT trips. These 16,339 ADT trips can be redistributed to parallel North-South roads, such as Barrett Ave and I-215 Frontage Rd, which have sufficient capacity under the following split:

- 14,293 ADT Trips would utilize I-215 Frontage Rd
- 2,047 ADT Trips would utilize Barrett Ave

Given their lower resistance, road users are likely to divert to these alternative routes.

Similarly, as shown in Table 6.7, the following East-West segments on are over capacity:

- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps by 10,560 ADT trips

These ADT trips can be redistributed to parallel East-West roads, such as Orange Ave, under the following split:

- 10,560 ADT Trips from Placentia Ave would utilize Orange Ave between I-215 Frontage Rd and Perris Blvd

Given their lower resistance, road users are likely to divert to these alternative routes.

The v/c ratio on Segment #14. Placentia Ave between I-215 NB Ramps and Indian Ave is 1.979, the segment is over capacity by 35,134 ADT trips. Additional roadway capacity analysis for the Phase 2 industrial parcels once detailed site plans are prepared, to provide the appropriate recommendation for roadway segment improvements.

The volume on segments between I-215 SB Ramps and I-215 NB Ramps cannot be redistributed to other segments. However, as previously discussed in Section 6.2.2, there would be no deficiencies at the I-215 Ramps intersections with the recommended improvements and the traffic on these segments can be safely accommodated.

As shown in Table 6.7, after redistributing and adjusting the over-capacity ADT trips, all segments besides the segments between I-215 SB Ramps and I-215 NB Ramps, and Segment #14 Placentia Ave between I-215 NB Ramps and Indian Ave are projected to operate within the acceptable level of service as per the City's threshold, with a V/C ratio of 0.9 or less.

Table 6.7: Opening Year II 2030 Plus Project Plus Improvements Roadway Segments

Impacted Roadways		# of Lanes Plus Project	Roadway Capacity Plus Project ²	Opening Year II 2030 Plus Project ADT ¹	V/C Ratio	Redistributed Volume	Opening Year II 2030 Plus Project ADT with Redistribution ¹	V/C Ratio with Redistribution
Extra volume on the impacted roadway in comparison to required V/C								
Divert to	1. Indian Ave between Water Ave and Orange Ave	4	35,900	7,884	0.220	0	7,884	0.220
	2. Orange Ave between Indian Ave and Perris Blvd	4	35,900	19,376	0.540	10,560	29,936	0.834
	3. Perris Blvd between Orange Ave and Citrus Ave	5	44,900	56,749	1.264	-16,339	40,410	0.900
	4. Barrett Ave between Placentia Ave and Orange Ave	2	13,000	9,313	0.716	2,047	11,360	0.874
	5. Perris Blvd between Placentia Ave and Orange Ave	5	44,900	44,634	0.994	-16,339	28,295	0.630
	6. Perris Blvd between Rider St and Placentia Ave	4	35,900	48,043	1.338	-16,339	31,703	0.883
	7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	6	53,900	59,070	1.096	-10,560	48,510	0.900
	8. I-215 Frontage Rd between Placentia Ave and Orange Ave	4	35,900	20,714	0.577	0	20,714	0.577
	9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	4	35,900	8,237	0.229	14,293	22,529	0.628
	10. Orange Ave between I-215 Frontage Rd and Indian Ave	4	35,900	13,926	0.388	10,560	24,487	0.682
	11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	4	35,900	40,099	1.117	0	40,099	1.117
	12. Perris Blvd between Citrus Ave and Nuevo Rd	6	53,900	57,101	1.059	-16,339	40,762	0.756
	13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	4	35,900	46,594	1.298	0	46,594	1.298
	14. Placentia Ave between I-215 NB Ramps and Indian Ave	4	35,900	71,034	1.979	0	71,034	1.979
	15. Placentia Ave between Indian Ave and Perris Blvd	6	53,900	33,086	0.614	2,047	35,133	0.652
	16. Barrett Ave between Orange Ave and Harvest Landing Wy	2	13,000	7,102	0.546	2,047	9,149	0.704
	17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	2	13,000	9,653	0.743	2,047	11,700	0.900
	18. Harvest Landing Wy between Barrett Ave and Perris Blvd	4	25,900	7,855	0.303	0	7,855	0.303
	19. Indian Ave between Placentia Ave and Water Ave	2	13,000	7,884	0.606	0	7,884	0.606

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 = $\text{Project Trips} / (\text{Total Trips with Project-Existing Trips}) * 100\%$

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

- The Project would front the cost of the improvements and be reimbursed later for the improvements at Intersections #23 (N. Perris Blvd/Citrus Ave) and #27 (I-215 Frontage Rd/W. Nuevo Rd).
- 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 (Direct/Indirect)	Opening Year I 2026 Fair Share Percentage ¹		Opening Year II 2030 Fair Share Percentage ¹		Project Fair Share
				AM	PM	AM	PM	
1. Perris Blvd/Iris Ave	Change Protected WBL Phase to Prot-Perm.	Change Protected WBL Phasing to Prot-Perm Phasing.	Indirect	1.64%	2.43%	2.98%	3.85%	3.85%
2. Perris Blvd/Krameria Ave	Improvements not required.	Change WB and EB Split Phase to Prot-Perm.	Indirect	N/A	N/A	4.54%	5.90%	5.90%
5. N Perris Blvd/Ramona Expy	Improvements not required.	Add right-turn overlap to SBR movement. Change NBR to NBTR	Direct	N/A	N/A	8.34%	9.91%	9.91%
11. N Perris Blvd/Placentia Ave	Improvements not required.	Restripe EBL, EBT, EBT, EBR to EBL, EBL, EBT, EBR.	Direct	N/A	N/A	18.66%	20.64%	20.64%
12. Barrett Ave/W Placentia Ave	This intersection passes signal warrant. Install Traffic Signal.	This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL.	Direct	Project Frontage				
13. Indian Ave/W Placentia Ave	Improvements not required.	Restripe NBL, NBT, NBR to NBL, NBL, NBTR.	Direct	Project Frontage				
14. I-215 Frontage Rd/W Placentia Ave	Improvements not required.	Restripe to remove south leg shoulder and accommodate an additional NBL lane, Change WBR to WBTR, Remove protected phase from WBL and change to permissive.	Direct	Project Frontage				
15. I-215 NB Ramps/Placentia Ave	Optimize signal control with cycle length of 60 seconds.	Restripe WBT, WBT, WBR to WBT, WBTR, WBR.	Indirect	29.43%	23.90%	50.66%	44.11%	50.66%
18. N Perris Blvd/Orange Ave	Optimize Traffic Signal.	Change NBL, SBL, EBL and WBL from protected to prot-perm left-turn phasing	Direct	Project Frontage				
19. Barrett Ave/Orange Ave	This intersection passes all-way stop warrant. Install all-way stop.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage				
20. Indian Ave/Orange Ave	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage				
21. I-215 Frontage Rd/Orange Ave	Improvements not required.	Restripe NBL, NBT, NBTR to NBL, NBL, NBTR ;	Direct	Project Frontage				
24. Murrieta Rd/E Nuevo Rd	Improvements not required.	Optimize Traffic Signal.	Direct	N/A	N/A	17.58%	20.25%	20.25%

26. N Perris Blvd/ W Nuevo Rd	Change Protected NBL Phase to Prot-Perm.	Add right-turn overlap to SBR and EBR movement. Change NBR to NBTR. Change WBR to WBTR.	Direct	26.02%	31.05%	24.90%	29.23%	31.05%
27. I-215 Frontage Rd/W Nuevo Rd	Install "Keep Clear" sign at the westbound and southbound approaches.	Install "Keep Clear" sign at the westbound and southbound approaches.	Direct ²	28.34%	30.02%	27.07%	28.74%	30.02%
29. I-215 SB Ramps/W Nuevo Rd	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	Indirect	17.65%	20.25%	15.14%	20.89%	20.89%
30. Redlands Ave/Midred St	Improvements not required.	Restripe SBL, SBT, SBTR to SBTL, SBT, SBR	Direct	N/A	N/A	13.51%	16.11%	16.11%
36. Perris Blvd/4th St	Improvements not required.	Change protected NBL, SBL, EBL and WBL to prot-perm left-turn phasing.	Direct	N/A	N/A	16.52%	18.86%	18.86%
39. Barrett Ave/I-215 Frontage Road	Improvements not required.	This intersection passes all-way stop warrant. Install all-way stop.	Direct	Project Frontage				
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	This intersection passes signal warrant. Install Traffic Signal.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage				

¹Fair 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%

²The Project would front the cost of the improvements and be reimbursed later for the improvements at Intersection.

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 27 of the 63 study intersections.

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

- #5. Perris Blvd/Ramona Expy (LOS F during AM peak hour)
 - Add right-turn overlap phasing on SBR.
 - Change NBR to NBTR
- #12. Barrett Ave/W Placentia Ave (LOS F during AM and PM peak hour)
 - This intersection passes signal warrant.
 - Install Traffic Signal with protected WBL and protected EBL phasing.
- #14. I-215 Frontage Rd/W Placentia Ave (LOS F during PM peak hour)
 - Restripe to remove south leg shoulder and accommodate an additional NBL lane.
 - Restripe WBL, WBT, WBT, WBT, WBR to WBTL, WBT, WBT, WBT, WBTR.
 - Remove protected phase from EBL, WBL and change to permissive.
- #15. I-215 NB Ramps/Placentia Ave (LOS F during AM and PM peak hour)
 - Change NB from Split phasing to Permissive phasing, add overlap phasing to WBR.
- #17. Redlands Ave/Orange Ave (LOS E during AM peak hour)
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #18. N Perris Blvd/Orange Ave (LOS F during PM peak hour)
 - Add right-turn overlap to NBR movement.
 - Restripe SBL, SBT, SBT, SBT, SBR to SBL, SBL, SBT, SBT, SBTR.
 - Restripe WBL, WBT, WBT, WBR to WBL, WBL, WBT, WBTR.
- #19. Barrett Ave/Orange Ave (LOS F during AM and PM peak hour)
 - This intersection passes signal warrant. Install Traffic Signal.
- #20. Indian Ave/Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.
- #21. I-215 Frontage Rd/Orange Ave (LOS F during AM and PM peak hour)
 - Restripe NBL, NBT, NBTR to NBL, NBL, NBTR.
- #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.
- #24. Murrieta Rd/E Nuevo Rd (LOS E during AM peak hour)
 - Optimize Traffic Signal.
- #25. Redlands Ave/E Nuevo Rd (LOS E during AM peak hour and LOS F during PM peak hour)
 - Restripe NBL, NBT, NBR to NBL, NBL, NBTR.
- #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 SBR to SBT.
- #28. I-215 NB Ramps/W Nuevo Rd (LOS F during AM peak hour)
 - Restripe an EBT lane to an EBL lane.
- #29. I-215 SB Ramps/W Nuevo Rd (LOS F during PM peak hour)
 - Optimize signal control to split phase for all approaches with cycle length of 60 seconds.
- #30. Redlands Ave/Midred St (LOS E during AM peak hour)
 - Restripe SBL to SBTL.
- #39. Barrett Ave/I-215 Frontage Road (LOS E during PM peak hour)
 - This intersection passes all-way stop warrant. Install all-way stop.

- #46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave
 - This intersection passes signal warrant. Install Traffic Signal.

Traffic signal warrant sheets and all-way stop warrants 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)
 - Change EBL and WBL from protected phasing to prot-perm phasing
- #2. Perris Blvd/Krameria Ave (LOS F during AM and PM peak hour)
 - Change WB and EB Split Phasing to Prot-Perm Phasing.
- #3. N Perris Blvd/Harley Knox Blvd (LOS F during PM peak hour)
 - Add right-turn overlap phasing on WBR.
- #4. N Perris Blvd/W Markham St (LOS F during AM peak hour)
 - Change NBL and SBL from protected phasing to prot-perm phasing
- #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)
 - Restripe NBL, NBT, NBT, NBT, NBR to NBL, NBL, NBT, NBT, NBTR.
 - Restripe SBL, SBT, SBT, SBR to SBL, SBT, SBT, SBTR.
- #32. N Perris Blvd/E San Jacinto Ave (LOS F during AM and PM peak hour)
 - Restripe NBR to NBTR.

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. However, the following improvement will improve the safety at this intersection:

- #27. I-215 Frontage Rd/W Nuevo Rd
 - Install "Keep Clear" sign at the westbound and southbound approaches.

SimTraffic outputs are provided in *Appendix G*.

Table 6.9a: General Plan 2045 Plus 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	LOS				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS				Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
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	Change EBL and WBL from protected phasing to prot-perm phasing	298.7	F	94.5	F	-51.6	-37.3		
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 Phasing to Prot-Perm Phasing.	226.8	F	87.4	F	-90.7	-120.1		
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	Add right-turn overlap phaing on WBR.	31.6	C	161.2	F	-7.9	-76.8		
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 NBL and SBL from protected phasing to prot-perm phasing	118.0	F	57.4	E	-15.0	0		
5.	N Perris Blvd/Ramona Expy	City of Perris	Signalized	74.5	E	57.2	E	84.6	F	59.2	E	10.1	2.0	E	No	Add right-turn overlap phasing on SBR. Change NBR to NBTR	74.6	E	57.3	E	0.1	0.1		
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	Restripe NBL, NBT, NBT, NBT, NBR to NBL, NBL, NBT, NBT, NBTR. Restripe SBL, SBT, SBT, SBR to SBL, SBT, SBT, SBTR.	39.7	D	192.2	F	2.6	-17.4		
12.	Barrett Ave/W Placentia Ave	City of Perris	All-way stop	53.6	F	69.2	F	129.7	F	214.0	F	76.1	144.8	D	No	This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL phasing.	34.8	C	23.9	C	-18.8	-45.3		
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	Restripe to remove south leg shoulder and accommodate an additional NBL lane. Restripe WBL, WBT, WBT, WBT, WBR to WBLT, WBT,WBT, WBT, WBTR. Remove protected phase from EBL, WBL and change to permissive.	31.9	C	52.1	D	4.5	23.1		
15.	I-215 NB Ramps/Placentia Ave	City of Perris	Signalized	21.8	C	16.2	B	24.6	C	83.3	F	2.8	67.1	E	No	Change NB from Split phasing to Permissive phasing, add overlap phasing to WBR.	13.9	B	19.2	B	-7.9	3		
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	Restripe NBL, NBT, NBTR to NBL, NBL, NBTR ;	46.9	D	34.5	C	1.5	0.4		
18.	N Perris Blvd/Orange Ave	City of Perris	Signalized	35.9	D	51.3	D	54.8	D	116.3	F	18.9	65.0	D	No	Add right-turn overlap to NBR movement. Restripe SBL, SBT, SBT, SBT, SBR to SBL, SBL, SBT, SBT, SBTR. Restripe WBL, WBT, WBT, WBR to WBL, WBL, WBT, WBTR.	49.8	D	53.5	D	13.9	2.2		
19.	Barrett Ave/Orange Ave	City of Perris	Two-way stop	49.2	E	24.9	C	1830.5	F	649.6	F	1781.3	624.7	D	No	This intersection passes signal warrant. Install Traffic Signal.	17.5	B	15.2	B	-31.7	-9.7		
20.	Indian Ave/Orange Ave	City of Perris	All-way stop	14.8	B	11.7	B	61.0	F	21.3	C	46.2	9.6	D	No	This intersection passes signal warrant. Install Traffic Signal.	14.0	B	10.7	B	-0.8	-1		
21.	I-215 Frontage Rd/Orange Ave	City of Perris	Signalized	15.5	C	16.1	C	125.9	F	254.2	F	110.4	238.1	D	No	Restripe SBL, SBT, SBT to SBL, SBL, SBT Restripe WBR to WBLR.	14.3	B	31.1	C	-1.2	1.5		

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

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
23. N Perris Blvd/Citrus Ave	City of Perris	Signalized	33.6	C	45.4	D	51.0	D	74.7	E	17.4	29.3	D	No	Restripe SBL, SBT, SBT, SBR to SBL, SBL, SBT, SBT, SBTR.	30.7	C	54.8	D	-2.9	9.4
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	Optimize Traffic Signal.	47.2	D	33.3	C	0.7	0.6
25. Redlands Ave/E Nuevo Rd	City of Perris	Signalized	53.0	D	26.1	C	66.6	E	85.0	F	13.6	58.9	D	No	Change EB and WB from Protected phasing to Permissive phasing	45.5	D	31.7	C	-7.5	5.6
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, EBT,EBTR. Restripe SBR to SBT.	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	Install "Keep Clear" sign at the westbound and southbound approaches.	31.9	D	190.4	F	10.0	139.9
28. I-215 NB Ramps/W Nuevo Rd	City of Perris	Signalized	85.2	F	16.1	B	101.4	F	26.4	C	16.2	10.3	E	No	Restripe an EBT lane to an EBL lane.	51.2	D	18.3	B	-34.0	2.2
29. I-215 SB Ramps/W Nuevo Rd	City of Perris	Signalized	17.5	B	41.3	D	17.8	B	86.6	F	0.3	45.3	E	No	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	21.0	C	77.3	E	3.5	36
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	Restripe SBL to SBTL	27.2	D	16.0	C	-16.8	-0.5
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	Restripe NBR to NBTR.	100.0	F	92.0	F	-17.6	-11.0
39. Barrett Ave/I-215 Frontage Road	City of Perris	Two-way stop	13.4	B	15.5	C	31.4	D	42.1	E	18.0	26.6	D	No	This intersections passes all-way stop warrant. Install all-way stop.	12.1	B	12.9	B	-1.3	-2.63
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	City of Perris	Two-way stop	20.3	C	39.8	E	105.2	F	1854.3	F	84.9	1814.5	D	No	This intersection passes signal warrant. Install Traffic Signal.	10.2	B	11.6	B	-10.1	-28.2

Notes: Delay Reported in Seconds per Vehicle

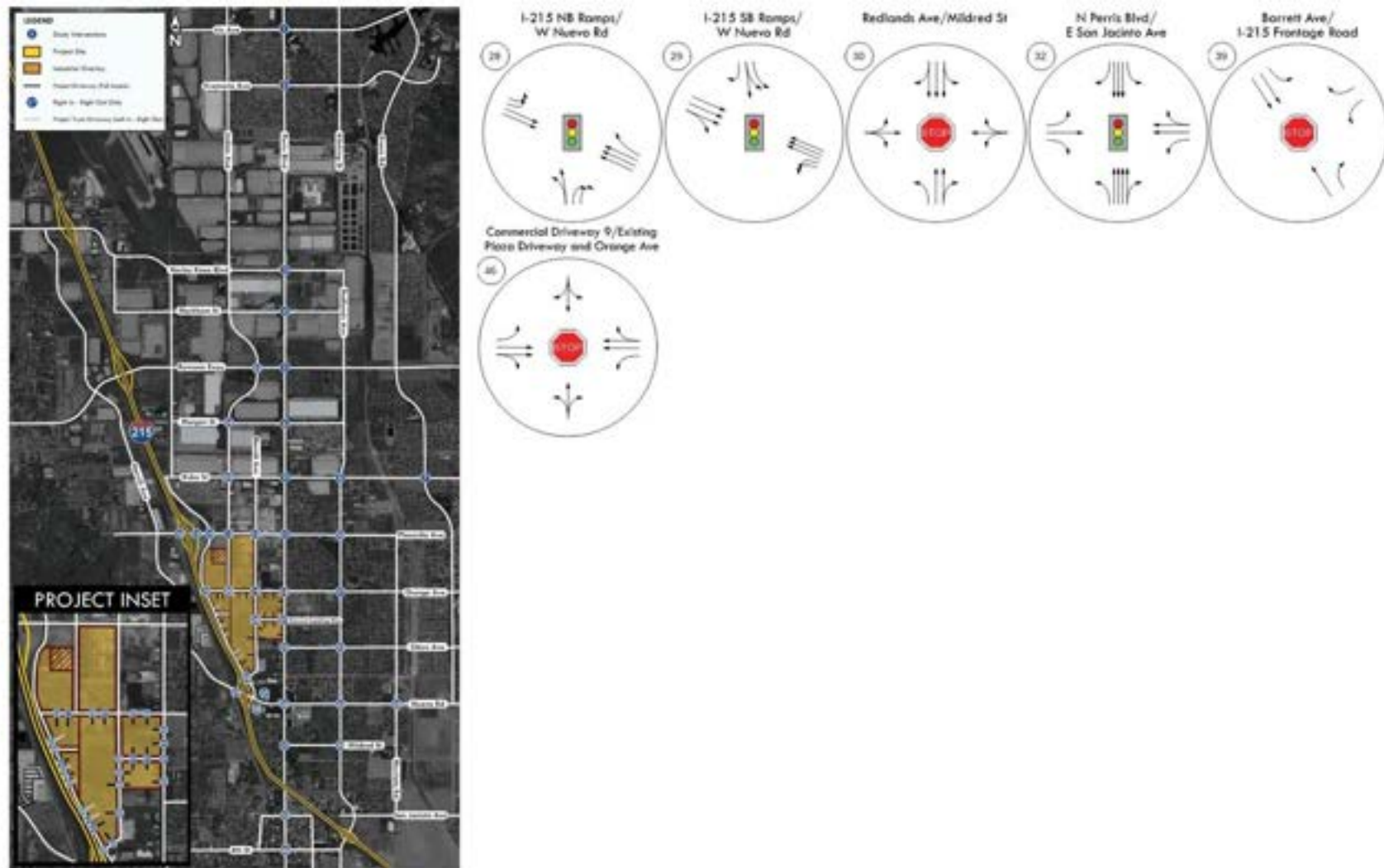
LOS = Level of Service

Unsatisfactory Level of Service

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



Figure 6.3b: General Plan 2045 Plus 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 queueing 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 Plus Project condition:

- #15. I-215 NB Ramps/Placentia Ave
 - Change NB from Split phasing to Permissive phasing, add overlap phasing to 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 an EBT lane to an EBL lane.
- #29. I-215 SB Ramps/W Nuevo Rd
 - Optimize signal control to split phases for all approaches with cycle length of 60 seconds.

Table 6.10: General Plan 2045 Plus 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	Change NB from Split phasing to Permissive phasing; Add overlap phasing to WBR.	-	-	-	390	-	-	-	390			E
AM Queue Length Per Lane	-	-	-	345	-	-	-	590	-	-	-	245		-	-	-	260	-	-	-	-85	13.9	B	
PM Queue Length Per Lane	-	-	-	380	-	-	-	2550	-	-	-	2170		-	-	-	905	-	-	-	525	20.9	C	
													28. I-215 NB Ramps/W Nuevo Rd											
Storage Length Per Lane	-	-	-	200	-	-	-	200	-	200	-	200	Restripe an EBT lane to an EBL lane.	-	-	-	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	-	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	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 shown in Table 6.11, the following North-South segments on are over capacity:

- #3. Perris Blvd between Orange Ave and Citrus Ave by 8,232 ADT trips
- #12. Perris Blvd between Citrus Ave and Nuevo Rd by 13,202 ADT trips

In total, the North-South segment of Perris Blvd between Rider St and Nuevo Rd is over capacity by 13,202 ADT trips. These 13,202 ADT trips can be redistributed to parallel North-South roads, such as Barrett Ave and I-215 Frontage Rd, which have sufficient capacity under the following split:

- 12,433 ADT Trips would utilize I-215 Frontage Rd
- 769 ADT Trips would utilize Barrett Ave

Given their lower resistance, road users are likely to divert to these alternative routes.

Similarly, as shown in Table 6.11, the following East-West segments on are over capacity:

- #7. Nuevo Rd between Perris Blvd and I-215 NB Ramps by 10,560 ADT trips

These ADT trips can be redistributed to parallel East-West roads, such as Orange Ave, under the following split:

- 10,560 ADT Trips from Placentia Ave would utilize Orange Ave between I-215 Frontage Rd and Perris Blvd

Given their lower resistance, road users are likely to divert to these alternative routes.

The v/c ratio on Segment #14. Placentia Ave between I-215 NB Ramps and Indian Ave is 1.318, the segment is over capacity by 17,134 ADT trips. Additional roadway capacity analysis for the Phase 2 industrial parcels once detailed site plans are prepared, to provide the appropriate recommendation for roadway segment improvements.

As shown in Table 6.11, after redistributing and adjusting the over-capacity ADT trips, all segments besides Segment #14 Placentia Ave between I-215 NB Ramps and Indian Ave are projected to operate within the acceptable level of service as per the City's threshold, with a V/C ratio of 0.9 or less.

Table 6.11: General Plan 2045 Plus Project Plus Improvements Roadway Segments

Impacted Roadways		# of Lanes Plus Project	Roadway Capacity Plus Project ²	General Plan 2045 Plus Project ADT1	V/C Ratio	Redistributed Volume	General Plan 2045 Plus Project ADT with Redistribution1	V/C Ratio with Redistribution
Extra volume on the impacted roadway in comparison to required V/C of 0.9 (LOS D)								
Divert to	1. Indian Ave between Water Ave and Orange Ave	4	35,900	11,747	0.327	0	11,747	0.327
	2. Orange Ave between Indian Ave and Perris Blvd	4	35,900	19,376	0.540	10,560	29,936	0.834
	3. Perris Blvd between Orange Ave and Citrus Ave	6	53,900	56,749	1.053	-13,202	43,547	0.808
	4. Barrett Ave between Placentia Ave and Orange Ave	2	13,000	9,354	0.720	2,346	11,700	0.900
	5. Perris Blvd between Placentia Ave and Orange Ave	6	53,900	44,634	0.828	-13,202	31,432	0.583
	6. Perris Blvd between Rider St and Placentia Ave	6	53,900	48,043	0.891	-13,202	34,841	0.646
	7. Nuevo Rd between Perris Blvd and I-215 NB Ramps	6	53,900	59,070	1.096	-10,560	48,510	0.900
	8. I-215 Frontage Rd between Placentia Ave and Orange Ave	4	35,900	23,500	0.655	0	23,500	0.655
	9. I-215 Frontage Rd between Orange Ave and Nuevo Rd	4	35,900	9,638	0.268	12,433	22,071	0.615
	10. Orange Ave between I-215 Frontage Rd and Indian Ave	4	35,900	15,405	0.429	10,560	25,965	0.723
	11. Nuevo Rd between I-215 NB Ramps and I-215 SB Ramps	6	53,900	40,099	0.744	0	40,099	0.744
	12. Perris Blvd between Citrus Ave and Nuevo Rd	6	53,900	61,712	1.145	-13,202	48,510	0.900
	13. Placentia Ave between I-215 NB Ramps and I-215 SB Ramps	6	53,900	46,594	0.864	0	46,594	0.864
	14. Placentia Ave between I-215 NB Ramps and Indian Ave	6	53,900	71,034	1.318	0	71,034	1.318
	15. Placentia Ave between Indian Ave and Perris Blvd	6	53,900	33,086	0.614	2,346	35,432	0.657
	16. Barrett Ave between Orange Ave and Harvest Landing Wy	2	13,000	8,380	0.645	769	9,149	0.704
	17. Barrett Ave between Harvest Landing Wy and I-215 Frontage Rd	2	13,000	10,931	0.841	769	11,700	0.900
	18. Harvest Landing Wy between Barrett Ave and Perris Blvd	4	25,900	7,855	0.303	0	7,855	0.303
	19. Indian Ave between Placentia Ave and Water Ave	4	35,900	11,747	0.327	0	11,747	0.327

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

6.3.4 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 front the cost of the improvements and be reimbursed later for the improvements at Intersections #23 (N. Perris Blvd/Citrus Ave) and #27 (I-215 Frontage Rd/W. Nuevo Rd).
- 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 Percentage ¹		Opening Year II 2030 Fair Share Percentage ¹		General Plan 2045 Fair Share Percentage ¹		Project Fair Share
				(Direct/Indirect)	AM	PM	AM	PM	AM	PM	
1. Perris Blvd/Iris Ave	Change Protected WBL Phase to Prot Perm.	Improvements not required.	Change EBL and WBL from protected phasing to prot-perm phasing	Indirect	1.64%	2.43%	2.98%	3.85%	1.96%	2.79%	3.85%
2. Perris Blvd/Krameria Ave	Improvements not required.	Improvements not required.	Change WB and EB Split Phasing to Prot-Perm Phasing.	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.	Add right-turn overlap phasing on 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 NBL and SBL from protected phasing to prot-perm phasing	Indirect	N/A	N/A	N/A	N/A	4.66%	6.22%	6.22%
5. N Perris Blvd/Ramona Expy	Improvements not required.	Improvements not required.	Add right-turn overlap phasing on SBR. Change NBR to NBR	Direct	Project Frontage						
10. Redlands Ave/Placentia Ave	Improvements not required.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal. Restripe SBL, SBT, SBR to SBL, SBL, SBT, SBR.	Indirect	Project Frontage						
11. N Perris Blvd/Placentia Ave	Improvements not required.	Improvements not required.	Restripe NBL, NBT, NBT, NBT, NBR to NBL, NBL, NBT, NBT, NBR. Restripe SBL, SBT, SBR to SBL, SBT, SBT, SBR.	Indirect	Project Frontage						
12. Barrett Ave/W Placentia Ave	This intersection passes signal warrant. Install Traffic Signal.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal with protected WBL and protected EBL phasing.	Indirect	Project Frontage						
14. I-215 Frontage Rd/W Placentia Ave	Improvements not required.	Improvements not required.	Restripe to remove south leg shoulder and accommodate an additional NBL lane. Restripe WBL, WBT, WBT, WBT, WBR to WBT, WBT, WBT, WBT, WBT. Remove protected phase from EBL, WBL and change to permissive.	Direct	Project Frontage						
15. I-215 NB Ramps/Placentia Ave	Optimize signal control with cycle length of 60 seconds.	Improvements not required.	Change NB from Split phasing to Permissive phasing; Add overlap phasing to WBR.	Direct	Project Frontage						
17. Redlands Ave/Orange Ave	Improvements not required.	Improvements not required.	Restripe NBL, NBT, NBTR to NBL, NBL, NBTR ;	Direct	Project Frontage						
18. N Perris Blvd/Orange Ave	Optimize Traffic Signal.	Improvements not required.	Add right-turn overlap to NBR movement. Restripe SBL, SBT, SBT, SBR to SBL, SBL, SBT, SBT, SBR. Restripe WBL, WBT, WBT, WBR to WBL, WBL, WBT, WBT.	Direct	Project Frontage						
19. Barrett Ave/Orange Ave	This intersection passes all-way stop warrant. Install all-way stop.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage						
20. Indian Ave/Orange Ave	Improvements not required.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage						
21. I-215 Frontage Rd/Orange Ave	Improvements not required.	Improvements not required.	Restripe SBL, SBT, SBT to SBL, SBL, SBT Restripe WBR to WBLR.	Direct	Project Frontage						
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, SBR to SBL, SBL, SBT, SBT, SBR.	Direct ²	N/A	N/A	N/A	N/A	30.41%	37.18%	37.18%
24. Murrieta Rd/E Nuevo Rd	Improvements not required.	Improvements not required.	Optimize Traffic Signal.	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.	Change EB and WB from Protected phasing to Permissive phasing	Direct	N/A	N/A	N/A	N/A	12.97%	16.55%	16.55%
26. N Perris Blvd/ W Nuevo Rd	Change Protected NBL Phase to Prot-Perm.	Improvements not required.	Restripe EBL, EBL, EBT, EBT, EBR to EBL, EBL, EBL, EBT,EBTR. Restripe SBR to SBT.	Direct	Project Frontage						
27. I-215 Frontage Rd/W Nuevo Rd	Install "Keep Clear" sign at the westbound and southbound approaches.	Improvements not required.	Install "Keep Clear" sign at the westbound and southbound approaches.	Direct ²	Project Frontage						
28. I-215 NB Ramps/W Nuevo Rd	Improvements not required.	Improvements not required.	Restripe an EBT lane to an EBL lane.	Indirect	N/A	N/A	N/A	N/A	15.47%	28.15%	28.15%
29. I-215 SB Ramps/W Nuevo Rd	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	Improvements not required.	Optimize signal control to split phase for all approaches with cycle length of 60 seconds.	Direct	17.65%	20.25%	15.14%	20.89%	23.65%	16.12%	23.65%
30. Redlands Ave/Midred St	Improvements not required.	Improvements not required.	Restripe SBL to SBTL	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.	Restripe NBR to NBTR.	Indirect	N/A	N/A	N/A	N/A	10.13%	11.81%	11.81%
39. Barrett Ave/I-215 Frontage Road	Improvements not required.	Improvements not required.	This intersections passes all-way stop warrant. Install all-way stop.	Direct	Project Frontage						
46. Commercial Driveway 9/Existing Plaza Driveway and Orange Ave	This intersection passes signal warrant. Install Traffic Signal.	Improvements not required.	This intersection passes signal warrant. Install Traffic Signal.	Direct	Project Frontage						

¹Fair 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%