SECTION 4.12
Transportation

This chapter analyzes the potential transportation impacts associated with the RSPU, the KP Medical Center, and the MLS Stadium to the roadway, freeway, bicycle, pedestrian, and transit systems in the study area. Construction impacts and parking are also analyzed. This chapter presents the project-specific and cumulatively considerable impacts of each of these projects and recommends mitigation measures to lessen their significance. All supporting technical calculations and additional technical information can be found in Appendix J.1 of the Draft EIR.

Introduction

The City received various transportation-related comments on the NOP. They related to the need to analyze and study various intersections and parking in West Sacramento, provide adequate bicycle parking and bicycle access to the project site, consider cumulative projects including the Streetcar, and generally evaluate traffic impacts including neighborhood impacts and additional vehicle miles of travel. This chapter addresses each of these comments.

This chapter relies on a variety of data sources and/or publicly available information to support the technical analysis. This information includes, but is not limited, to:

- Data from the 2035 City of Sacramento General Plan and the 2010 Census.
- Data from the recently adopted Sacramento Area Council of Governments (SACOG) 2036 MTP/SCS;
- Caltrans planning documents for Interstate 5 and State Route 160;
- I-5 Freeway Subregional Corridor Mitigation Program (SCMP)
- Residence zip code data of Kaiser employees and members who are expected to work at or obtain services from the KP Medical Center;
- Travel behavior data collected in 2014 at Sacramento Republic FC matches played at Bonney Field at Cal Expo;

This chapter presents a comprehensive, multi-modal analysis of the proposed project's impacts under baseline and cumulative conditions. A baseline condition is necessary to reflect the planned opening in late 2016 of several roadways within the RSP Area, which will influence travel

conditions within the study area. The cumulative scenario, which is required under CEQA, evaluates each project's contribution to any cumulatively considerable impacts.

Selection of Analysis Scenarios and Periods

Table 4.12-1 presents the various scenarios analyzed in this chapter. As shown, seven distinct analysis scenarios are quantitatively analyzed for up to three different weekday peak hours. The peak hours under study include:

- Weekday AM Peak Hour – peak 60-minutes of travel during the morning (7 to 9 AM) commute period. At most study intersections, this occurs from 7:30 to 8:30 AM.
- Weekday PM Peak Hour – peak 60-minutes of travel during the evening (4 to 6 PM) peak travel period. At most study intersections, this occurs from 4:30 to 5:30 PM.
- Weekday Pre-event Peak Hour – represents conditions from 6:30 to 7:30 PM for the one-hour prior to the start of a sold-out (25,000-person) soccer match (that begins at 7:30 PM) played at the Stadium.

TABLE 4.12-1.
ANALYSIS SCENARIOS

Scenario	Specific Condition	Weekday		
		AM Peak Hour	PM Peak Hour	Pre-event Peak Hour
Existing	Year 2016	x	x	x
Baseline	No Project	x	x	x
	RSPU	x	x	x
	KP Medical Center	x	x	
	MLS Stadium			x
Cumulative (2035)	No Project (2007 Plan)	x	x	x
	RSPU	x	x	x

NOTES: Refer to text below for rationale for scenarios and selection of peak hours of study.

SOURCE: Fehr & Peers, 2016.

The following describes why these particular scenarios were studied, while others were not:

RSPU

1. Buildout of the RSPU is analyzed under baseline conditions, as required by CEQA. The baseline scenario is nearly identical to existing conditions, but includes several pending roadway improvements that would be in place and operational before the City Council considers certification of this SEIR.

2. The cumulative 'no project' scenario assumes the RSPU is not approved, and the RSP Area is developed pursuant to the approved 2007 RSP and associated roadway system (including any amendments to the roadway system since its adoption).

3. The KP Medical Center and MLS Stadium were not individually studied under cumulative conditions because the travel demand modeling approach enables trips associated with these specific projects to be estimated at intersections and roadways throughout the study area. The model provides an accounting of those trips that allows for estimation of fair shares, project trips, contribution to delays, etc.

KP Medical Center

1. The KP Medical Center would be developed in two phases. Therefore, an analysis of buildout conditions for the KP Medical Center is provided, as well as a focused analysis of Phase 1 to determine what mitigations are necessary with Phase 1 versus buildout

2. The proposed KP Medical Center project includes the planned closure of the existing Kaiser Permanente Sacramento Medical Center located on Morse Avenue in Sacramento County. Accordingly, trips associated with the closure of this existing facility are considered (i.e., subtracted) in the analysis.

MLS Stadium

1. The analysis considers the effects of the proposed MLS Stadium during a Pre-event peak hour. A post-event peak hour was not studied for two reasons. First, the surrounding roadway network will be much less congested during the post-event peak hour than other study periods. Second, constraints within the MLS Stadium and adjacent parking garages/ lots (i.e., how quickly the stadium/lots can be emptied) would likely be limiting factors in the amount of traffic added to surrounding roadways in a given time period.

2. The analysis assumes weekday evening soccer MLS matches will start at 7:30 PM. This assumption is based on regular season 2014-2015 MLS season home game schedules for the San Jose, Los Angeles, Portland, and Seattle franchises. Of weekday games, 40 percent started at 7:30 PM, and 50 percent started at 8:00 PM. The selection of a 7:30 PM start (versus 8 PM) is conservative because it would include greater levels of background traffic on streets, meaning greater potential for project impacts.

3. Data from the west coast MLS teams indicated that 76 percent of all games were played on weekends, with the most frequent start times being a Saturday at 7:30 PM or a Sunday at 4 PM. However, neither period warranted study because existing traffic levels during each period are less than the weekday Pre-event peak hour volumes.[1]

[1] To illustrate, the volume passing through the Richards Boulevard/North 12th Street/North 16th Street intersection on Sunday, September 13, 2015 from 3 to 4 PM was 2,616 vehicles, which is 11 percent below the weekday pre-event peak hour volume. During the same Sunday hour, the Richards Boulevard/Bercut Drive intersection carried two percent less traffic than during the pre-event peak hour. Refer to Appendix J.1 for traffic counts.

4. It is possible for both MLS and USL (United Soccer League) franchises to simultaneously co-exist in Sacramento. This currently occurs in New York, Montreal, Toronto, Los Angeles, Seattle, Portland, Vancouver, and Salt Lake City. However, the majority of MLS teams (particularly those in smaller markets) do not also have a USL team. Additionally, it is noted that MLS matches do not necessarily overlap with USL matches. For these reasons, this analysis does not "subtract" trips associated with a Sacramento Republic FC weekday evening match being played at Bonney Field (at Cal Expo) due to a new MLS Stadium being developed.

This study acknowledges that soccer matches at the proposed MLS Stadium could overlap with other sporting events, festivals, and large gatherings in downtown Sacramento. The "Analysis, Impacts, and Mitigation" discussion in Section 4.12.3 of this chapter describes the potential frequency of the overlapping events and the advanced planning necessary to accommodate them.

The focus of the roadway network analysis is on peak hour intersection operations. However, average daily traffic (ADT) estimates are provided for roadways within and providing access to the RSP Area for all scenarios with the exception of Baseline Plus MLS Stadium, in which ADT estimates are not useful due to the unique nature of special events. ADT is normally used to assist in the design of roadways, but is not particularly relevant for special generators such as stadiums. This chapter also includes an extensive evaluation of the Vehicle Miles of Travel (VMT) associated with the proposed projects.

To the extent possible, the analyses presented herein rely upon inputs from empirical data and are considered reasonable and reliable in the professional judgment of the experts who prepared the technical analysis. Section 4.12.3 describes these inputs and their data sources in detail. Where it was not possible to find comparable or empirical data to derive the inputs, reasonably conservative estimates were developed based on professional engineering judgment reflective of extensive experience on relevant projects in downtown Sacramento and throughout the region.

4.12.1 Environmental Setting

This section describes the environmental setting, which is the baseline scenario upon which project-specific impacts are evaluated. This section describes the existing condition of the roadway, bicycle, pedestrian, and transit networks.

Roadway Network

The roadway network includes local streets and intersections, plus State and federal highways and freeways.

Study Area

An extensive study area was developed based on collaboration between the EIR consultants, City of Sacramento staff, and input from NOP comment letters. The following factors were considered when developing the study area: project's expected travel characteristics (including number of

vehicle trips and directionality of those trips), primary travel routes to/from project vicinity, anticipated parking locations, mode split, and other considerations.

Figure 4.12-1 displays the 37 existing intersections selected for analysis. The study intersections extend from the Richards Boulevard corridor on the north to the J Street corridor on the south. They also extend into West Sacramento on the west and to 12th Street/16th Street on the east. An additional 28 intersections within the RSP Area would also be studied under various 'plus project' conditions.

The study area includes the Interstate 5 (I-5) freeway between Interstate 80 (I-80) and the US 50/W-X. This four-mile freeway segment consists of numerous on/off ramps and weaving sections that result in 11 different analysis locations. In addition, segments of SR 160 between Northgate Boulevard and Canterbury Road/Leisure Lane are also analyzed.

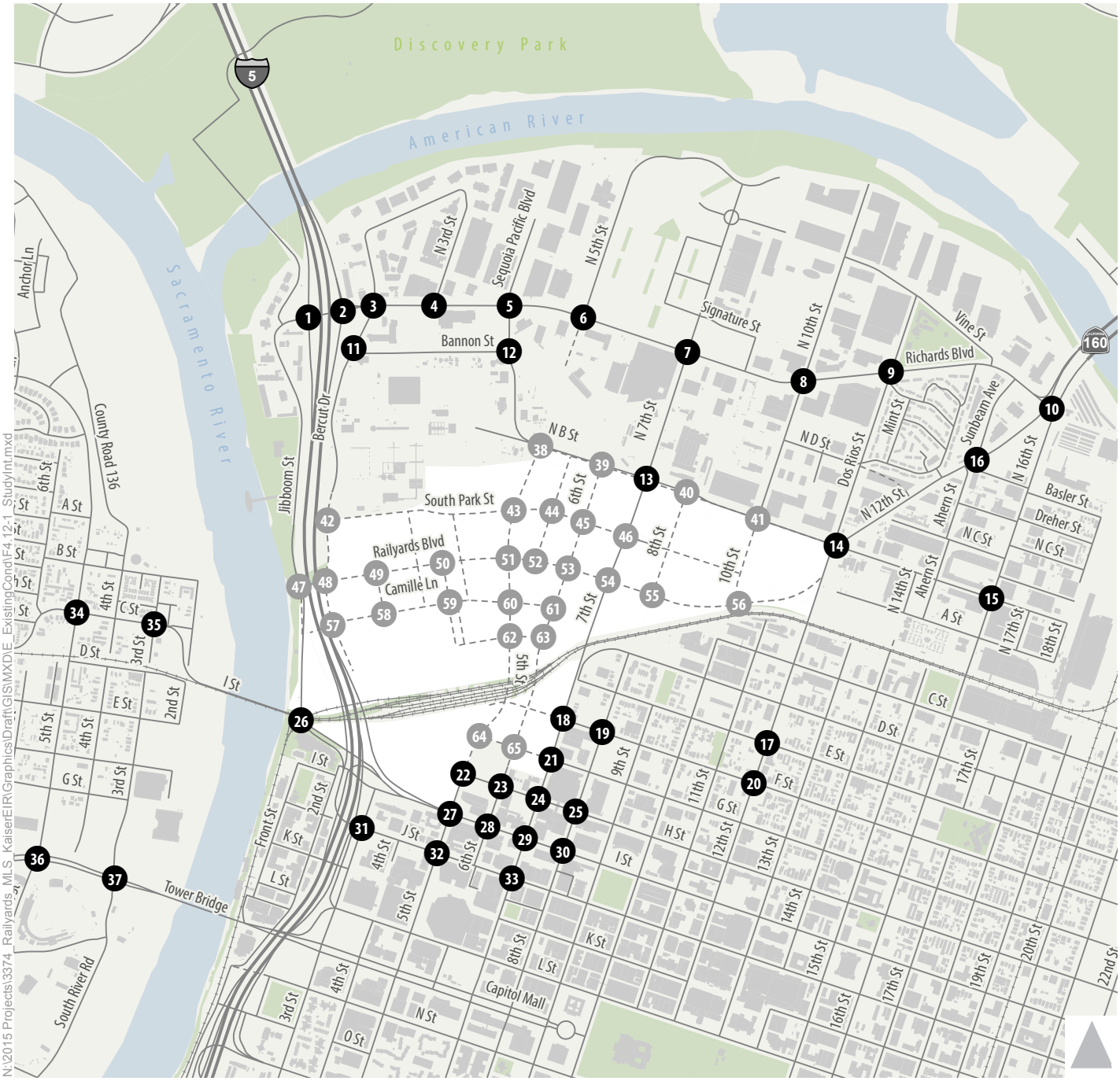
Surface Street System

Figure 4.12-2 displays the existing roadway network in the study area (including directionality and number of lanes) by functional class as well as the proposed RSPU roadway network. Key existing roadways within the study area include:

- Richards Boulevard – extends from its interchange at I-5 as a four-lane arterial, terminating at the North 12th Street/North 16th Street/SR 160 at-grade signalized intersection. This facility provides access into downtown (via 7th Street), while also serving a variety of industrial, office, and residential uses in the area. Its posted speed limit ranges from 35 to 40 mph depending on location.

- 7th Street/North 7th Street – extends northerly from the downtown grid to Richards Boulevard. North of North B Street, 7th Street is known as North 7th Street. Between G Street and North B Street, it has one lane in each direction with a posted speed limit of 35 mph. Between North B Street and Richards Boulevard, two northbound lanes and one southbound lane are present. The segment of 7th Street south of North B Street currently carries approximately 6,600 average daily trips (ADT). Light rail trains operate on this roadway between G Street and Richards Boulevard.

- North B Street – is an east-west street that begins west of North 7th Street and extends easterly to beyond 16th Street. West of 7th Street, it is a two-lane undivided street with a posted speed limit of 35 mph. East of 7th Street, it consists of two westbound lanes and one eastbound lane, widening to two undivided lanes in each direction from west of 10th Street to 12th Street. It has a posted speed limit of 35 mph and carries 3,600 ADT east of 7th Street and 2,900 ADT west of 7th Street.



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Study Intersections

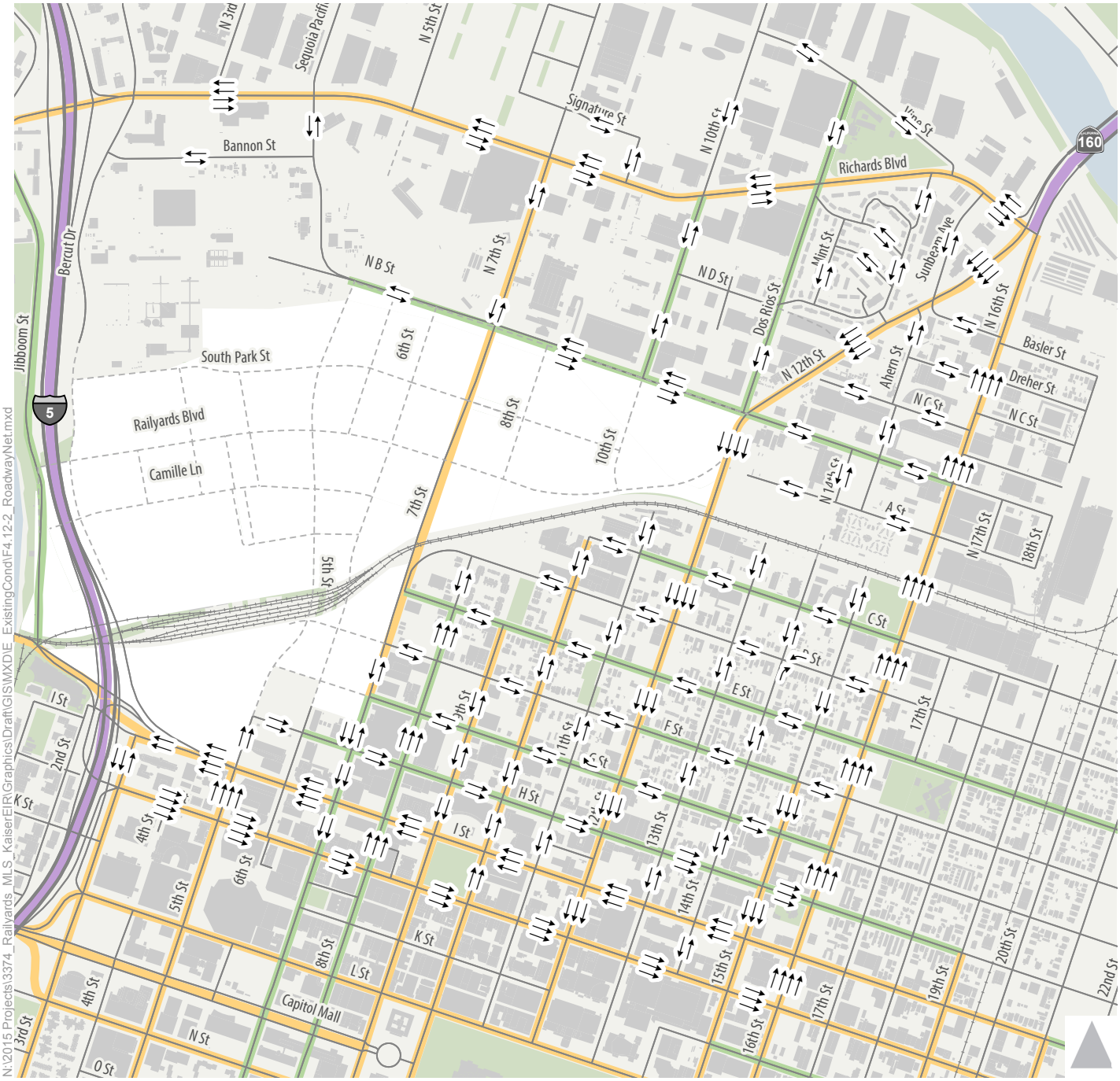
- Future Intersection within RSPU
- Existing

Future Planned Roadway (within RSPU)

Note: Cumulative scenarios include additional planned intersections, which are not shown here.

Figure 4.12-1

Study Intersections



Number of Travel Lanes by Direction (excluding turn lanes)

Future Roadway within RSPU

Freeway

Arterial

Collector

Source: Roadway classification from City of Sacramento 2035 General Plan

Figure 4.12-2

Existing Roadway Network

- Jibboom Street – begins in Discovery Park, and then extends southerly as a two-lane bridge across the American River, connecting with Richards Boulevard just west of I-5. It extends southerly parallel to I-5, terminating at I Street east of the I Street Bridge over the Sacramento River. It has a posted speed limit of 30 mph and carries approximately 13,900 ADT between Richards Boulevard and I Street.

- I Street/J Street – are westbound-only, and eastbound-only arterials, respectively, that extend easterly from I-5 into the downtown grid. I Street provides access to both directions of I-5 as well as Old Sacramento. J Street can be accessed from the both directions of I-5 and the I Street bridge. Depending on the segment, these streets can range from three to five travel lanes, and have a posted speed limit of 30 mph.

- North 12th Street/North 16th Street – form a one-way couplet that extends into and out of downtown from SR 160. North 12th Street accommodates inbound travel, while North 16th Street accommodates outbound travel. Both streets have four travel lanes between Richards Boulevard and C Street. Light rail trains operate along 12th Street. Both streets have 35 mph speed limits within the study area.

Truck Routes

All federal and State highways within the City of Sacramento have been designated as truck routes by Caltrans and are included in the National Network for Service Transportation Assistance Act (STAA) of 1982. Within the study area, the following roadway segments are classified as City STAA routes:

- Richards Boulevard between I-5 and SR 160
- North B Street between 7th Street and 16th Street
- North 7th Street between North B Street and Richards Boulevard
- North 12th Street/North 16th Street between North B Street and Richards Boulevard

In addition, Jibboom Street between Richards Boulevard and I Street, 5th Street between H Street and J Street, and 7th Street between E Street and I Street are classified as City truck routes.
A variety of businesses that involve truck deliveries are located in the project vicinity. However, the number of trucks, as an overall percentage of the total traffic stream, is fairly modest. For example, trucks represent about four percent of AM peak hour traffic and two percent of PM peak hour traffic at the Richards Boulevard/7th Street intersection, which is known to carry some of the higher volumes of trucks in the area.

Data Collection

Traffic counts were collected at the majority of the study intersections in May 2015 and October 2015. At some locations during the AM peak hour, counts taken in 2012, and 2013 were used. These volumes were deemed reasonable by comparing traffic flows with adjacent intersections.

During the counts, which were collected on Tuesdays, Wednesdays or Thursdays, weather conditions were dry, and no unusual traffic patterns were observed. The traffic data collection also included bicycles and pedestrians. Volumes on the I-5 mainline were collected in October 2015 from the Caltrans PeMS database. Volumes at on- and off-ramps along I-5 were based on counts conducted at the Richards Boulevard and I Street/J Street interchange ramps as well as other recent studies conducted in the area. Volumes on SR 160 were obtained from counts at the Richards Boulevard / North 12th Street / 16th Street intersection.

Intersections

Each study intersection was analyzed using the concept of Level of Service (LOS). LOS is a qualitative measure of traffic operating conditions whereby a letter grade from A to F is assigned based on the average delay per vehicle. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. In general, LOS A represents free-flow conditions with no congestion, and LOS F represents severe congestion and delay under stop-and-go conditions.

Table 4.12-2 displays the delay range associated with each LOS category for signalized and unsignalized intersections. At all study intersections (signalized, side-street, and all-way stop) intersections, the reported delay and LOS is the weighted average of all vehicles passing through the intersection.

TABLE 4.12-2.
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Signalized Intersections	Unsignalized Intersections
A	0 – 10.0 secs/veh	0 – 10.0 secs/veh
B	10.1 – 20.0 secs/veh	10.1 – 15.0 secs/veh
C	20.1 – 35.0 secs/veh	15.1 – 25.0 secs/veh
D	35.1 – 55.0 secs/veh	25.1 – 35.0 secs/veh
E	55.1 – 80.0 secs/veh	35.1 – 50.0 secs/veh
F	> 80.0 secs/veh	> 50.0 secs/veh

NOTES: Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.
SOURCE: Transportation Research Board, 2000. *Highway Capacity Manual.* pp. 16-2, 17-2.

The SimTraffic micro-simulation model was used to analyze all study intersection. The use of SimTraffic is appropriate given the coordinated signal timing plans, spacing of intersections, and existing/projected levels of traffic in the study area. Its use for "plus project" conditions is particularly important given the expected amount of project-added trips and the effects of large numbers of pedestrian crossings. Per standard practice, ten SimTraffic runs were conducted with the results averaged to yield the reported condition. SimTraffic provides outputs consistent with

the *2010 Highway Capacity Manual* (HCM).[2] Per City of Sacramento Traffic Impact Study guidelines, a peak hour factor of 1.0 was used.

It should be noted that micro-simulation models such as SimTraffic account for the effects of queue spillbacks on upstream intersections. If traffic spills back from a congested location to a nearby upstream intersection, any delays occurring at the upstream intersection (even though they were caused by the downstream location) are attributed to the upstream intersection. So, a severely over-saturated intersection may cause LOS E or F operations at several upstream intersections, which if not for that downstream bottleneck, would otherwise operate acceptably.

In addition to LOS, the analysis of intersections includes maximum vehicle queues (both under no project and with project conditions) on the I-5 off-ramps at Richards Boulevard and J Street.

Figures 4.12-3a and **3b** display the existing AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. **Figure 4.12-4a** and **4b** shows similar information for the Pre-event peak hour.

Table 4.12-3 displays the LOS and average delay at each study intersection for each peak hour. The reported values in this table for side-street stop control (SSSC) intersections represent the side-street movement with the greatest delay.

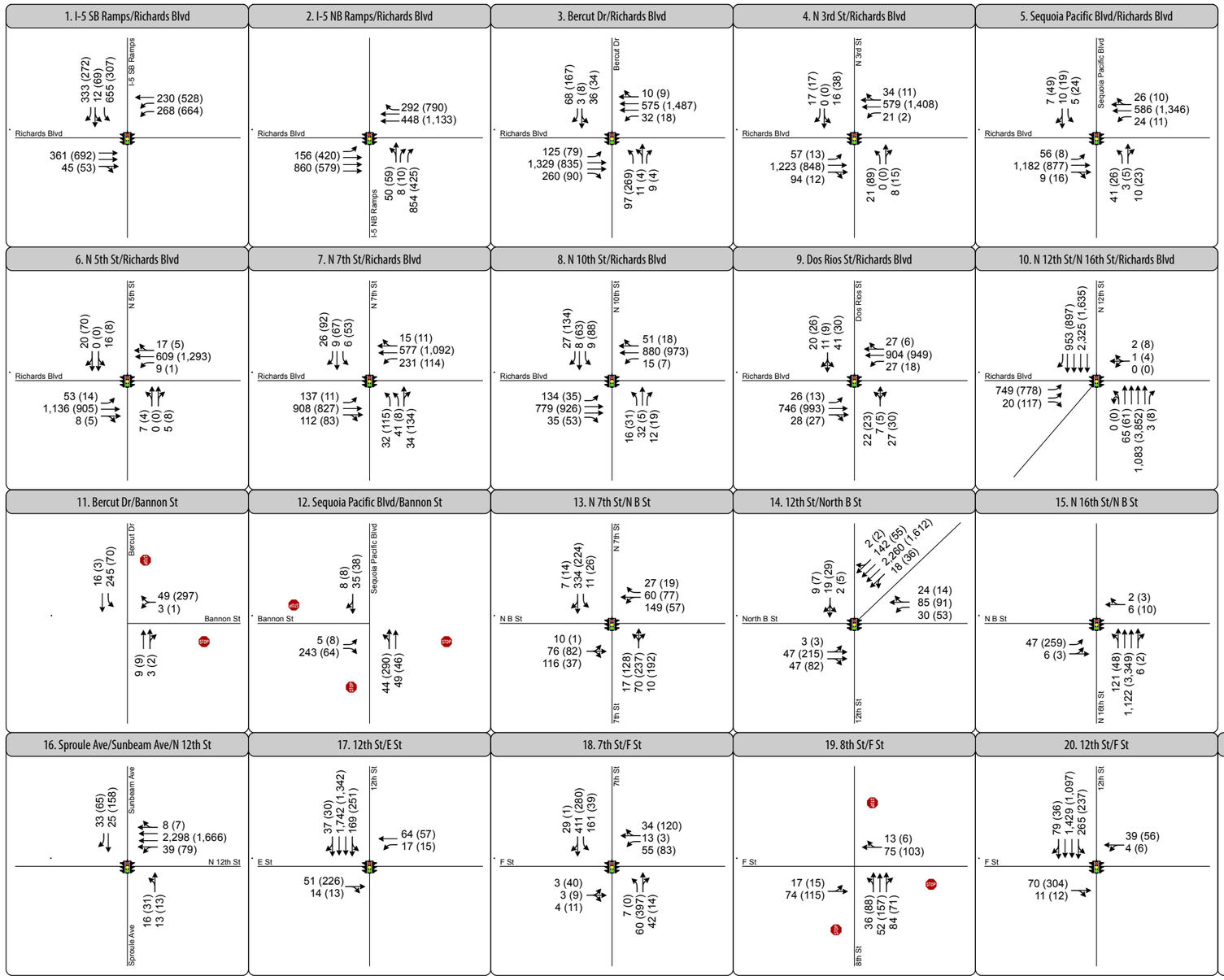
This table reveals the following operational results:

- During the AM peak hour, all intersections operate at LOS D or better with the exception of the J Street/3rd Street/I-5 Off-Ramps intersection, which operates at LOS E. This complex intersection is formed by the intersection of the I-5 southbound and northbound off-ramps with J Street. It operates as a three-phase signalized intersection and accommodates substantial amounts of traffic into downtown during the AM peak hour.

- During the PM peak hour, all intersections operate at LOS D or better with the exception of the I Street/Jibboom Street intersection. Several other intersections operate at LOS D, but at a level close to the LOS E threshold. Although operations along I Street between 5th and 8th Streets are reported in the LOS B or C range, field observations reveal queue spillbacks that occur during the busiest times of the PM peak hour. Had a PHF been applied to represent conditions during the busiest 15 minutes, reported operations would likely be worse than LOS C. However, the City's traffic impact study guidelines call for analysis of intersections over the course of the entire peak hour.

- During the Pre-event peak hour, all intersections operate at LOS C or better, and most operate at LOS A or B.

2 Transportation Research Board. 2010. *Highway Capacity Manual*.



1 Study Intersection for Given Scenario

Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-3A

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

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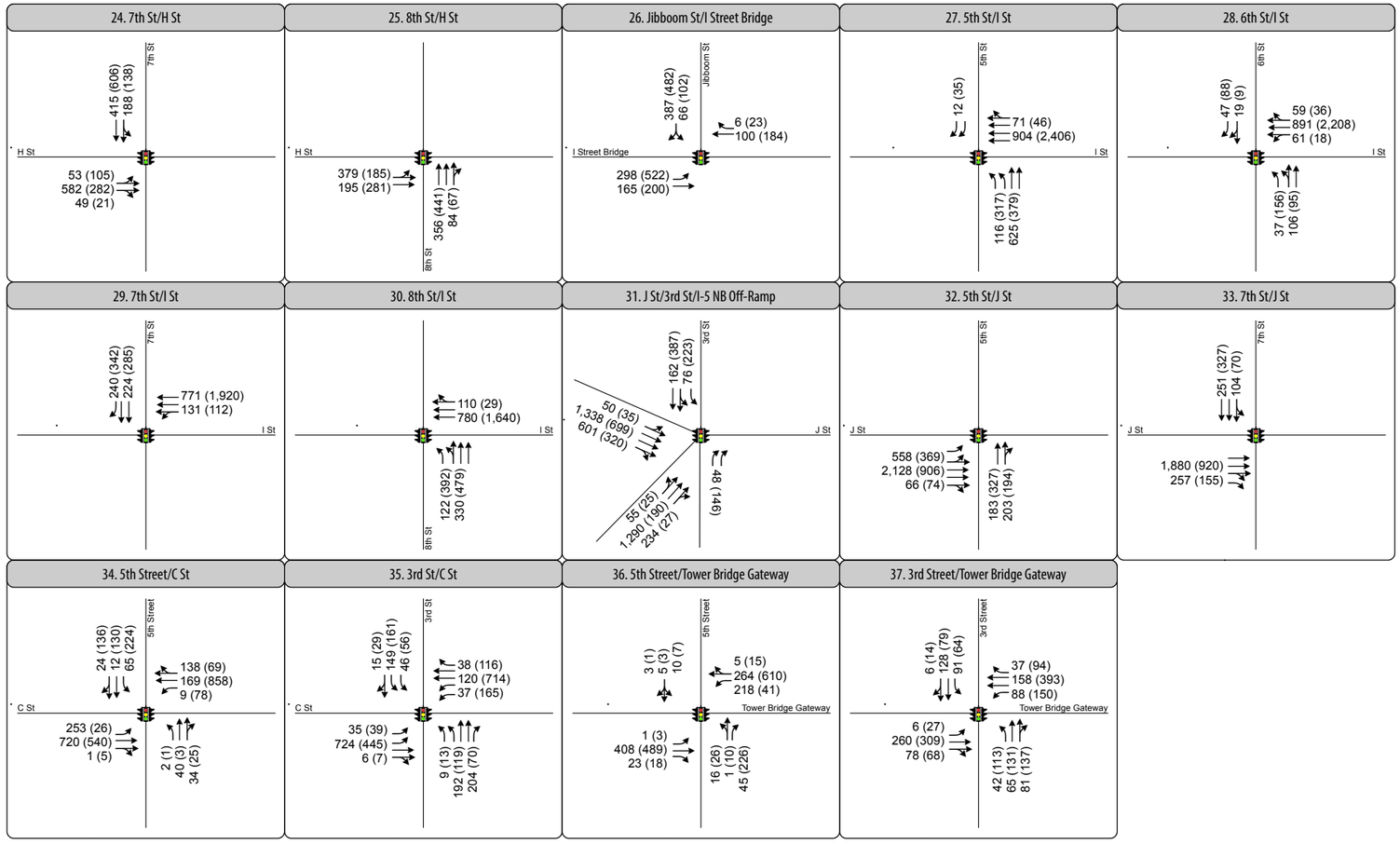

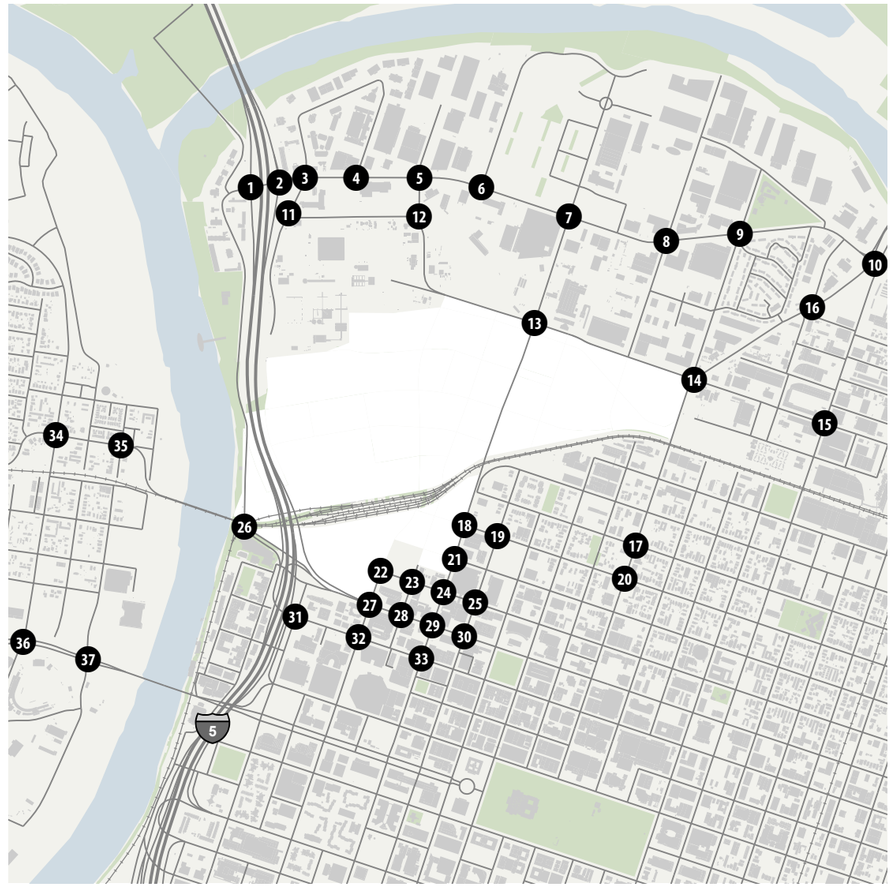

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1 Study Intersection for Given Scenario

Turn Lane

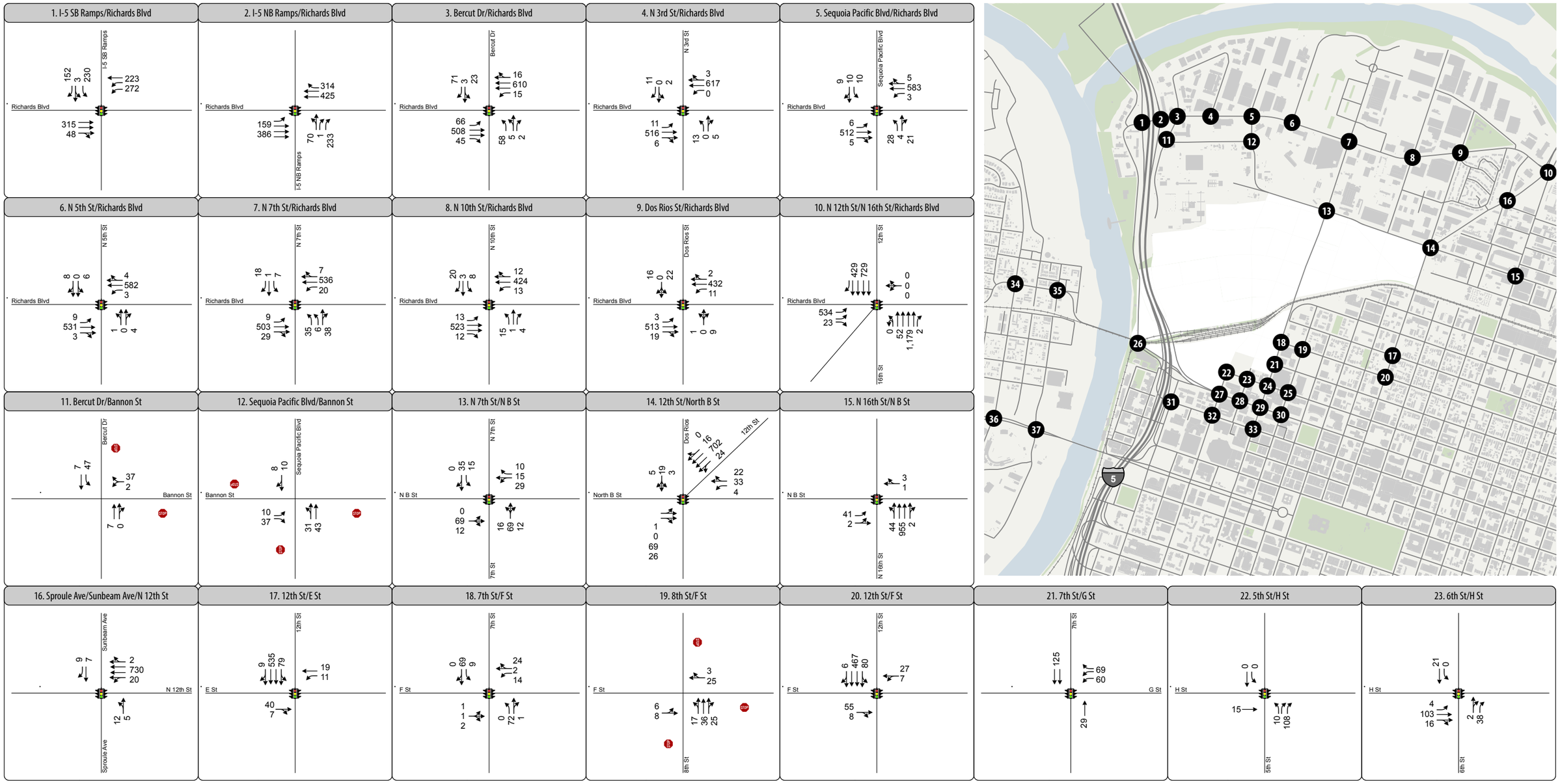
AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-3B

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions



1 Study Intersection for Given Scenario

Turn Lane

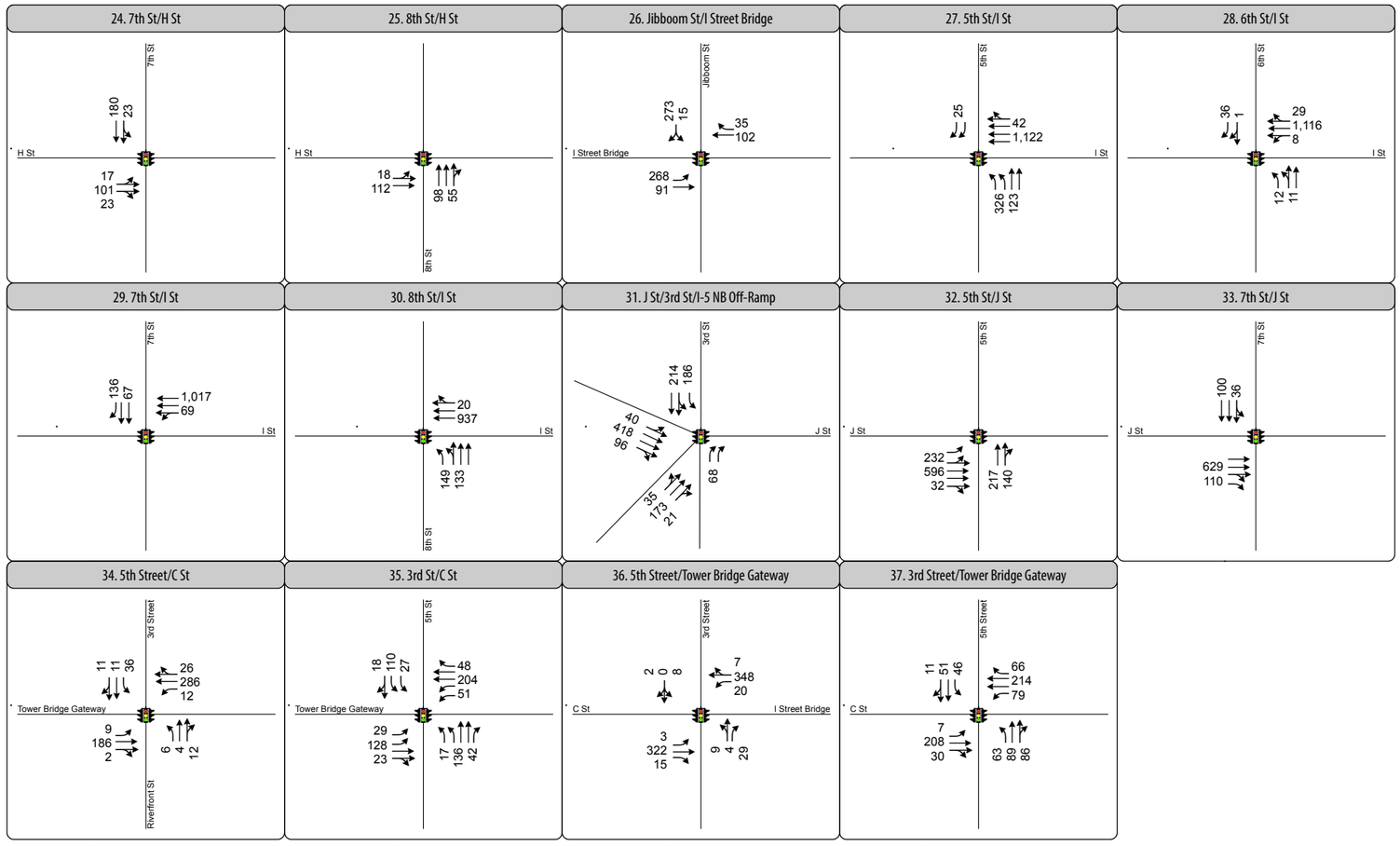
X,XXX Pre Event Peak Hour Traffic Volume

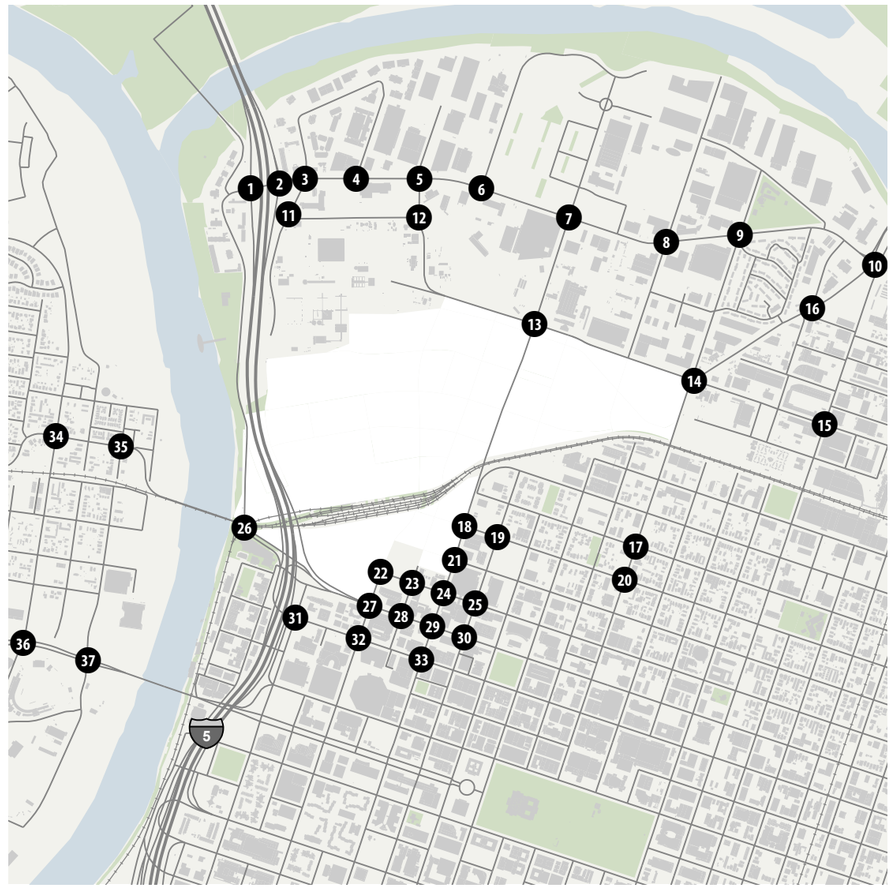
Traffic Signal

Stop Sign

Figure 4.12-4A

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions





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1 Study Intersection for Given Scenario

Turn Lane

X,XXX Pre Event Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-4B

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions

TABLE 4.12-3.
INTERSECTION OPERATIONS – EXISTING CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	17.6	B	24.8	C	17.5	B
2	Richards Blvd / I-5 NB Ramps	Signal	16.3	B	19.5	B	10.3	B
3	Richards Blvd / Bercut Dr	Signal	15.6	B	37.7	D	13.0	B
4	Richards Blvd / N 3rd St	Signal	8.3	A	31.7	C	3.1	A
5	Richards Blvd / Sequoia Pacific Blvd	Signal	9.6	A	34.3	C	4.6	A
6	Richards Blvd / N 5th St	Signal	7.6	A	19.4	B	3.6	A
7	Richards Blvd / N 7th St	Signal	27.2	C	27.3	C	9.3	A
8	Richards Blvd / N 10th St	Signal	12.2	B	10.9	B	5.0	A
9	Richards Blvd / Dos Rios St	Signal	12.0	B	10.1	B	7.2	A
10	Richards Blvd / N 12th St / 16th St	Signal	39.5	D	46.2	D	14.1	B
11	Bannon St / Bercut Dr	SSSC	5.1	A	5.1	A	3.7	A
12	Bannon St / Sequoia Pacific Blvd	AWSC	5.0	A	6.2	A	4.3	A
13	N B St / N 7th St	Signal	18.8	B	32.5	C	10.2	B
14	N B St / N 12th St / Dos Rios St	Signal	16.8	B	13.7	B	11.9	B
15	N B St / 16th St	Signal	6.4	A	12.2	B	5.7	A
16	N 12th St / Sunbeam Ave / Sproule Ave	Signal	8.3	A	8.1	A	3.6	A
17	E St / 12th St	Signal	7.9	A	9.1	A	5.4	A
18	F St / 7th St	Signal	7.6	A	7.4	A	2.8	A
19	F St/ 8th St	AWSC	5.5	A	5.9	A	4.5	A
20	F St / N 12th St	Signal	7.6	A	11.9	B	5.4	A
21	G St / 7th St	Signal	12.9	B	8.0	A	6.2	A
22	H St / 5th St	Signal	8.0	A	7.6	A	3.2	A
23	H St / 6th St	Signal	8.7	A	8.2	A	7.4	A
24	H St / 7th St	Signal	16.3	B	11.1	B	6.9	A
25	H St / 8th St	Signal	7.8	A	6.9	A	5.6	A
26	I St / Jibboom St	Signal	20.6	C	71.5	E	16.9	B
27	I St / 5th St	Signal	6.2	A	15.4	B	8.0	A
28	I St / 6th St	Signal	16.9	B	22.0	C	5.0	A
29	I St / 7th St	Signal	12.9	A	12.2	B	4.8	A
30	I St / 8th St	Signal	9.0	A	19.0	B	9.3	A
31	J St / 3rd St / I-5 Off-Ramps	Signal	72.5	E	25.2	C	17.6	B
32	J St / 5th St	Signal	14.7	B	10.6	B	8.5	A
33	J St / 7th St	Signal	9.5	A	9.4	A	8.3	A
34	Tower Bridge Gateway / 3rd St	Signal	18.2	B	22.6	C	17.2	B
35	Tower Bridge Gateway / 5th St	Signal	12.0	B	11.2	B	6.2	A

TABLE 4.12-3.
INTERSECTION OPERATIONS – EXISTING CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
36	3rd St / C St	Signal	38.5	D	42.8	D	29.3	C
37	5th St / C St	Signal	21.8	C	22.1	C	7.8	A

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F conditions.

SOURCE: Fehr & Peers, 2016.

Freeways

Freeway facilities were analyzed using procedures described in the 2010 HCM. In accordance with Caltrans policies, weave segments were analyzed using the Leisch method, which is described on page 500-39 of the latest edition of the *Highway Design Manual*.[3] **Table 4.12-4** displays the density range associated with each LOS category for mainline segments and ramp merge/diverge movements. The Leisch method only reports LOS.

TABLE 4.12-4.
FREEWAY LEVEL OF SERVICE DEFINITIONS

Level of Service	Mainline (Density) [1]	Ramp Junctions (Density) [1]
A	≤ 11	≤ 10
B	> 11 to 18	> 10 to 20
C	> 18 to 26	> 20 to 28
D	> 26 to 35	> 28 to 35
E	> 35 to 45	> 35
F	> 45 or Demand exceeds capacity[2]	Demand exceeds capacity[2]

1. Density expressed in passenger car equivalents per hour per mile per lane.
2. Occurs when freeway demand exceeds upstream (diverge) or downstream (merge) freeway segment capacity, or if off-ramp demand exceeds off-ramp capacity.

SOURCE: Transportation Research Board, 2010. *Highway Capacity Manual*. December 2010. Exhibits 11-5 and 13-2.

Table 4.12-5 displays the existing peak hour operations on the study freeway facilities. As shown, a number of study freeway facilities currently operate at LOS D or worse during peak hours.

3 California Department of Transportation, 2015. Highway Design Manual. 6th Edition as amended December 30, 2015.

TABLE 4.12-5.
FREEWAY OPERATIONS – EXISTING CONDITIONS

Freeway Facility	Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P Street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	B
2. I-5 Northbound – On-ramp from L Street	Merge	27.9	C	34.4	D	25.3	C
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]	-	D	-	E		C
4. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	D	-	F	-	C
5. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	C	-	F	-	D
6. I-5 Northbound – Off-ramp to I-80	Major Diverge	20.7	C	33.9	D	22.0	C
7. I-5 Southbound – On-ramp from I-80	Major Merge	23.2	C	19.0	C	12.4	B
8. I-5 Southbound – On-ramp from WB West El Camino	Merge	27.9	C	23.3	C	16.5	B
9. I-5 Southbound – Off-ramp to Garden Highway	Diverge	26.8	C	22.0	C	13.9	B
10. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]	-	E	-	D		A
11. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	D	-	D	-	A
12. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	15.4	B	31.0	D	17.0	B
13. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	8.4	A	21.6	C	9.6	A
14. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	11.2	B	32.6	D	11.8	B
15. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	28.1	D	19.4	C	11.2	B
16. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	26.7	C	18.8	B	11.2	B
17. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	26.2	D	17.9	B	10.3	A

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
2. Under the Pre-event scenario, ramp volumes are too low to constitute the segment as a weave. Therefore, the segment is analyzed as a basic segment.

Note: Segment 11 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS D during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Similarly, Segment 1 (i.e., Northbound I-5 from Business 80/US 50 to J Street) are reported at LOS D or E during the AM or PM peak hours. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

SOURCE: Fehr & Peers, 2016.

Pedestrian Facilities

The adequacy of sidewalks and crosswalks in the vicinity of the MLS Stadium was studied using procedures described in Chapter 23 (Off-Street Pedestrian and Bicycle Facilities) of the 2010 HCM. The analysis focuses on Baseline Plus MLS Stadium conditions because this scenario has the greatest certainty with respect to parking lot/garage locations, mode split, and planned roadways. The recommendations presented later also address the need for sidewalks and crosswalks to also function adequately with RSPU buildout when an MLS event is occurring.

While it is acknowledged that Chapters 4, 16, and 17 of the 2010 HCM also include discussions of pedestrian facilities, page 23-1 of Chapter 23 states that pedestrian capacity concepts are the same across facility types, but LOS thresholds may differ depending on the type of facility. Since Chapter 23 presents a clear means by which to analyze pedestrian facility capacity, methods from that chapter (including appropriate pedestrian capacity design standards) are used in this study.

The pedestrian LOS is based on the average space per pedestrian, which is determined from the pedestrian flow rate. The pedestrian flow rate is expressed as the number of pedestrians per minute per foot (ped/min/ft) of crossing width (i.e., the width of the facility, not the length of the crossing) during the peak 15-minutes. It is calculated as follows:

Pedestrian Flow Rate = Pedestrians during peak 15-min / (15 x Width)

As recommended in Chapter 23, the pedestrian flow calculations use a 0.85 peak hour factor (PHF) to determine the peak 15-minute flow. The effective walkway width is considered, which takes into account shy distance away from curbs, fences, and buildings, as well as any fixed objects (trees, benches, etc.).

Page 4-28 of the 2010 HCM indicates that walkways should arguably be designed to a LOS D or better condition. This is because when there are no barriers to pedestrian travel, pedestrians will tend to spill over the edges of a walkway at densities below capacity. Thus, this study applies a LOS D design/evaluation criterion for pedestrian facilities. An LOS D condition is described as "speed and ability to pass slower pedestrians restricted".

Under baseline plus MLS Stadium conditions, some of the sidewalks near the MLS Stadium will have 'unplatooned flows' (i.e., large groups will arrive in a somewhat random fashion versus being released from an upstream signal). According to Table 23-1 of the 2010 HCM, the maximum pedestrian flow rate is 15 pedestrians per minute per foot at LOS D for unplatooned flows. Other sidewalks will have platooned flows due to pedestrians being released from nearby signals. For platooned flows, the maximum pedestrian flow rate is 11 pedestrians per minute per foot at LOS D.

At signalized crosswalks, the relative proportion of time in which the pedestrian 'Walk' interval is illuminated must also be considered. In addition, the effect of the signal causes platooning of pedestrians, for which an adjusted LOS criterion is necessary.

Bicycle Network

The following types of bicycle facilities exist within the City of Sacramento:

- Class I Multi-use Off-Street paths – are paved trails that are separated from roadways, and allow for shared use by both cyclists and pedestrians.
- Class II On-Street Bike Lanes – are designated for use by bicycles by striping, pavement legends, and signs.
- Class III On-Street Bike Routes – are designated by signage for shared bicycle use with vehicles but do not necessarily include any additional pavement width for bicyclists.
- Class IV Protected Bikeways – are generally located within or adjacent to a roadway, but are barrier-separated from vehicular travel lanes. They may be one-way or two-way.

Figure 4.12-5 displays existing bicycle facilities within the study area. As shown, Class II and Class III bike lanes are present on a variety of roadways within the study area. In addition, the American River Bike Trail (Class I path) extends southerly from Discovery Park into Old Sacramento adjacent to the RSP Area.

Pedestrian Network

Figure 4.12-6 displays existing pedestrian facilities within the project vicinity. Sidewalks are present on many, but not all of the streets within the project vicinity. Gaps exist along portions of 7th Street and North B Street. Crosswalks are present at most signalized study intersections.

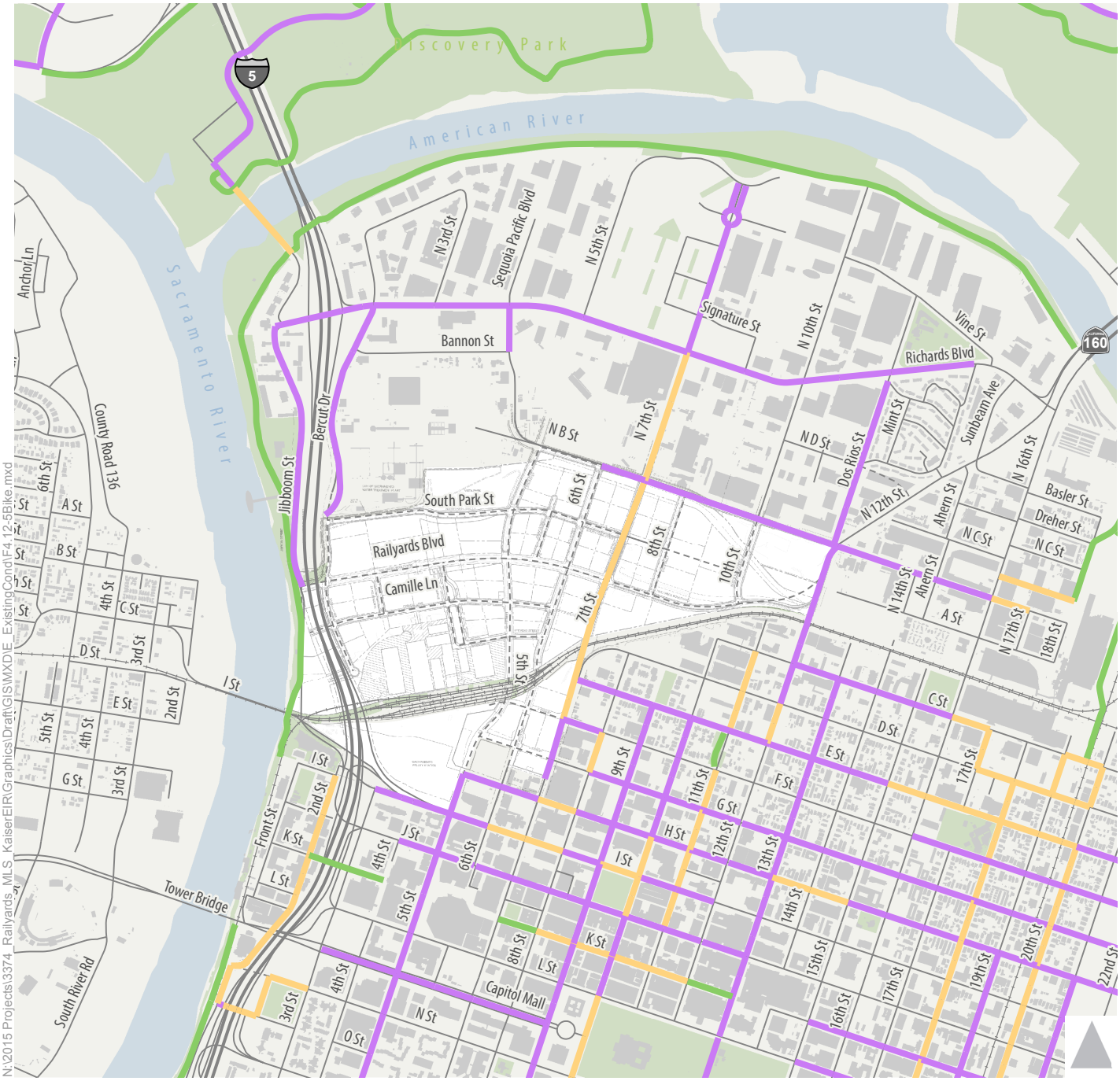
Transit Network

Sacramento Regional Transit (RT) provides bus and light rail transit (LRT) service to the study area. RT operates the following transit services within the project vicinity (see **Figure 4.12-7** for illustration of existing routes, stops, and stations).

Light Rail Transit - The RSP Area is served by the following light rail lines:

- Green Line – operates along 7th Street with a north terminus at Richards Boulevard/ Township 9. It also stops at 7th Street/H Street (Southbound) and 8th Street/H Street (Northbound). The Richards Boulevard/Township 9 stop is about a ¼-mile walk to the 7th Street/North B Street intersection. This line operates on 30-minute headways on weekdays between 6 AM and 9 PM. The Green Line does not operate on Saturdays or Sundays.[4]

[4] In late May 2016, Regional Transit has indicated that due to current budget conditions, it is currently in discussions regarding potential changes to service levels to the Green Line. The outcome of such discussions is currently unknown.



Class I Multi-Use Bike Path

Class II Bike Lane

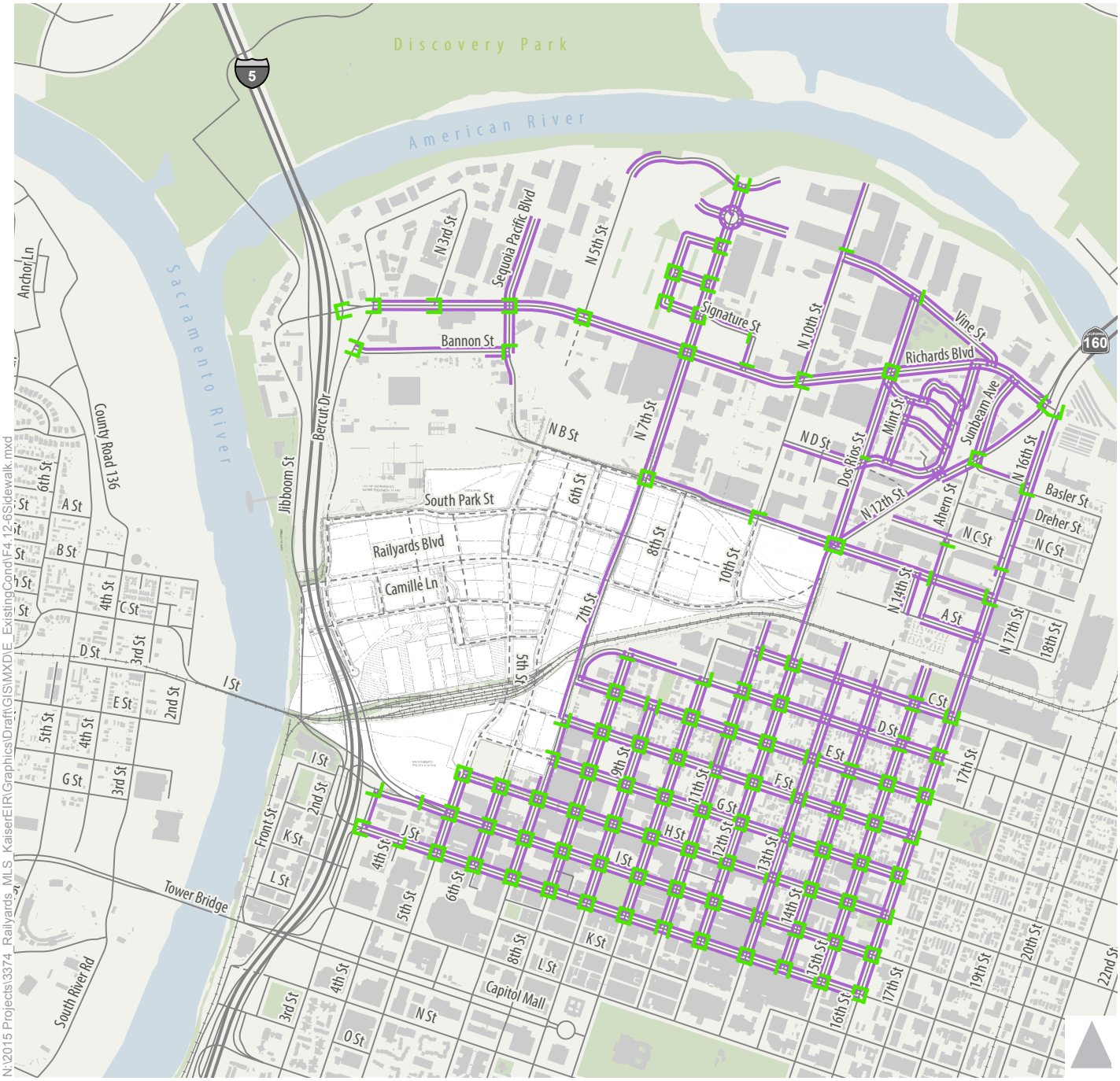
Class III Bike Route

Future Planned Roadway within RSPU

Source: 2015 Downtown Sacramento Transportation Plan

Figure 4.12-5

Existing Bicycle Network



Crosswalk

Sidewalk - Both Sides

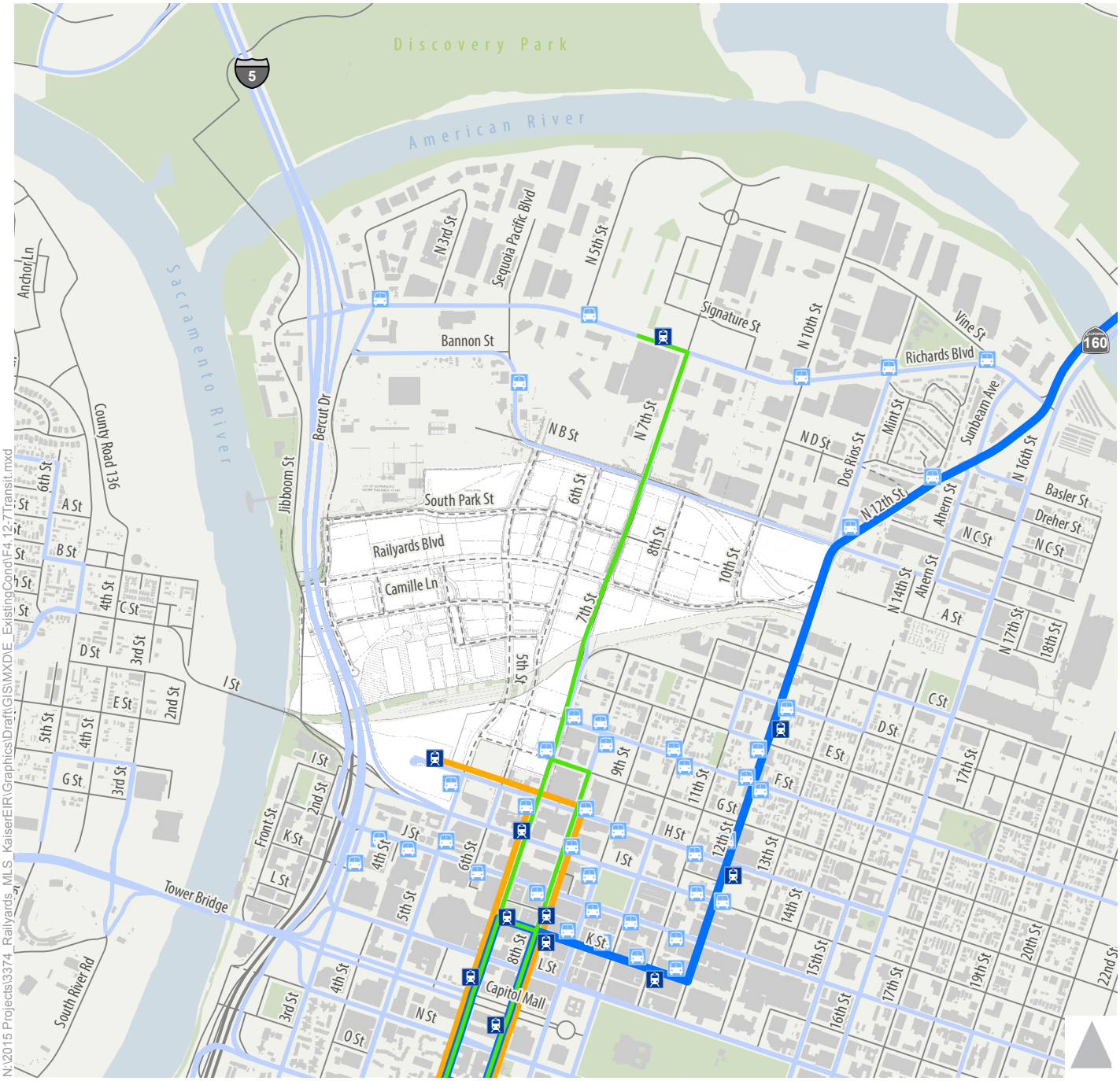
Sidewalk -Left Side

Sidewalk - Right Side

Future Planned Roadway within RSPU

Figure 4.12-6

Existing Pedestrian Network



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Bus Stop
Light Rail Stations
Existing Bus Route

Light Rail
Green Line
Blue Line
Gold Line

Future Planned Roadway within RSPU

Figure 4.12-7

Existing Light Rail Transit (LRT) and Bus Network

- Blue Line – operates along 12th Street with the nearest stop to the RSP Area being at 12th Street/D Street (Alkali Flat). This line operates on 15-minute headways on weekdays during the majority of the day. After 6 PM, this line operates on 30-minute headways.

Fixed Route Bus Service – A wide array of bus routes (including both peak-only and throughout the day) operate within the project vicinity. This includes routes 2, 6, 11, 33, 34, 51, 52, 57, 58, 59, 66 and 90. However, only route 11 travels along 7th Street through the RSP Area. Route 33 provides peak period-only service along North B Street.

Capitol Corridor - is s an intercity passenger train service that serves downtown Sacramento from the new Intermodal Transportation Facility located north of I Street. It operates between Auburn and the Bay Area seven days a week. Currently, the latest trains depart the Intermodal Transportation Facility at 9:10 PM on weekdays and weekends. The station is 0.8 miles from the MLS Stadium (a 15-minute walk).

RT provided average LRT ridership for the Green Line from January 1, 2015 through October 31, 2015. These data were used to identify the line's demand along 7th Street, which is the busiest segment (i.e., maximum load point) along the line. **Table 4.12-6** shows these data including the number of riders, percentage of seats that are occupied, and overall system capacity for the AM (inbound), PM (outbound), and Pre-event (inbound) peak hours.

TABLE 4.12-6.
LIGHT RAIL TRANSIT RIDERSHIP – EXISTING CONDITIONS

			AM Peak Hour Inbound		PM Peak Hour Outbound		Pre-event Peak Hour Inbound	
LRT Line	**Line Segment[1]**	**Data Type[2]**	**Hourly**	**Busiest Train**	**Hourly**	**Busiest Train**	**Hourly**	**Busiest Train**
Green Line (to/from Richards Blvd)	Northbound Between 8th & K and Richards Blvd	Riders	14	8	23	14	9	5
		Maximum Load	--	6	--	11	--	4
		Trains Per Hour	2	--	2	--	2	--
		% Seats Occupied	--	9%	--	17%	--	6%
		% of Capacity	--	4%	--	9%	--	3%
	Southbound Between Richards Blvd and 7th and I	Riders	16	10	21	15	10	6
		Maximum Load	--	8	--	9	--	4
		Trains Per Hour	2	--	2	--	2	--
		% Seats Occupied	--	12%	--	15%	--	7%
		% of Capacity	--	6%	--	8%	--	4%

1. For the Green Line, ridership and capacity analyzed at the segment within the study area. This segment is currently the busiest point along the route.
2. Definition of Data Types are given as follows:
   - Riders = Based on data collected by RT on January 1, 2015 through October 31, 2015.
   - Maximum Load = Greatest number of riders at any single point.
   - Trains per Hour = Based on current RT schedules.
   - % Seats Occupied = Calculated for the busiest train assuming 64 seats per car. During the AM, PM, and Pre-event peak hours, each train has 1 car.
   - % of Capacity = Calculated as maximum load divided by total capacity (assuming 125 persons per car as capacity).

SOURCE: Regional Transit, 2015. Source of analysis: Fehr & Peers, 2016.

The maximum load point for the Green Line occurs within the study area during the PM peak hour, between the Richards Boulevard/Township 9 Station and the 8th Street/ K Station in the northbound direction and the 7th / H Station in the southbound direction. Total capacity utilization in the northbound and southbound travel directions is 9 percent and 8 percent, respectively. These capacity utilization measures suggest ample reserve capacity on current Green Line peak trips. During the Pre-event peak hour, the Green Line has substantial reserve capacity with 4 percent or less of the hourly train capacity currently being used.

4.12.2 Regulatory Setting

This section provides a discussion of applicable federal, state, and local regulations pertaining to transportation that may be applicable to the proposed projects.

Federal

There are no applicable federal regulations that apply directly to the Proposed Project. However, federal regulations relating to the Americans With Disabilities Act (ADA), Title VI, and Environmental Justice relate to transit service.

State

In 2010, Caltrans released a Corridor System Management Report (CSMP) for portions of I-5 within the study area.[5] Table 4 of this report shows existing operations on study segments of I-5 as being at LOS F. The Interstate 5 Transportation Corridor Concept Report (TCCR) indicates a Concept LOS F for this corridor.[6] The concept LOS represents the minimum acceptable service condition over the next 20 years. Page 5 of the TCCR indicates that for existing LOS F conditions, no further degradation is permitted as indicated by the applicable performance measure.

The State Route 160 Transportation Corridor Concept Report (TCCR) shows existing LOS E operations on SR 160 from the American River Bridge to the Capital City Freeway.[7] The report indicates a Concept LOS F for this corridor.

Based on the TCCRs for I-5 and SR 160, degradation from LOS E or better to an LOS F condition is considered unacceptable. For existing or projected LOS F conditions, no further degradation is permitted as indicated by the applicable performance measure (i.e., density).

5 California Department of Transportation, 2010. State of the Corridor Report – State Route 99 and Interstate 5 Corridor System Management Report. Table 4.

6 California Department of Transportation, 2010. The Interstate 5 Transportation Corridor Concept Report. Approved September 13, 2010. pp. 4-5.

7 California Department of Transportation, 2010. The State Route 160 Transportation Corridor Concept Report. Approved June 21, 2010. p. 6-7.

The above LOS results are based on daily volume-to-capacity comparisons and do not necessarily consider specific operational characteristics (e.g., length of weave sections, peak hour factors, etc.) within the I-5 and SR 160 corridors. Nevertheless, these data are valuable in understanding Caltrans' expectations of their current and projected operating performance.

Local

City of Sacramento 2035 General Plan

On March 3, 2015, the City of Sacramento City Council adopted the 2035 General Plan. The Mobility Element of the City of Sacramento's 2035 General Plan outlines goals and policies that coordinate the transportation and circulation system with planned land uses. The following LOS policy is relevant to this study:

M 1.2.2 The City shall implement a flexible context-sensitive Level of Service (LOS) standard, and will measure traffic operations against the vehicle LOS thresholds established in this policy. The City will measure vehicle LOS based on the methodology contained in the latest version of the Highway Capacity Manual (HCM) published by the Transportation Research Board. The City's specific vehicle LOS thresholds have been defined based on community values with respect to modal priorities, land use context, economic development, and environmental resources and constraints. As such, the City has established variable LOS thresholds appropriate for the unique characteristics of the City's diverse neighborhoods and communities. The City will strive to operate the roadway network at LOS D or better for vehicles during typical weekday conditions including AM and PM peak hour with certain exceptions mapped on Figure M-1 (and listed in the actual General Plan document).

A. Core Area (Central City Community Plan Area) – LOS F allowed

B. Priority Investment Areas – LOS F allowed

C. LOS E roadways (11 distinct segments listed). LOS E is also allowed on all roadway segments and associated intersections located within ½ mile walking distance of a light rail stations.

D. LOS F roadways (24 distinct segments listed)

E. If maintaining the above LOS standards would, in the City's judgment, be infeasible and/or conflict with the achievement of other goals, LOS E or F conditions may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation and/or implement vehicle trip reduction measures as part of a development project or a city-initiated project. Additionally, the City shall not expand the physical capacity of the planned roadway network to accommodate a project beyond that identified in Figure M4 and M4a (2035 General Plan Roadway Classification and Lanes).

According to Figure M1 (Vehicle Level of Service Exception Areas) of the 2035 City of Sacramento General Plan, the Tier 1 Priority Investment Area is bounded by the Sacramento River, American River, Broadway, and Alhambra Boulevard. With the exception of the four study intersections located in West Sacramento, all study intersections are located within the Tier 1 Priority Investment Area.

The following policies from the City of Sacramento's 2035 General Plan are also applicable to this study:

Policies

M 1.1.1 **Right-of-Ways.** The City shall preserve and manage right-of-ways consistent with: the circulation diagram, the City Street Design Standards, the goal to provide Complete Streets as described in Goal M 4.2, and the modal priorities for each street segment and intersection established in Policy M4.4.1: Roadway Network Development, Street Typology System.

M 1.2.3 **Transportation Evaluation**. The City shall evaluate discretionary projects for potential impacts to traffic operations, traffic safety, transit service, bicycle facilities, and pedestrian facilities, consistent with the City's Traffic Study Guidelines.

M 1.2.4 **Multimodal Access**. The City shall facilitate the provision of multimodal access to activity centers such as commercial centers and corridors, employment centers, transit stops / stations, airports, schools, parks, recreation areas, medical centers, and tourist attractions.

M 1.3.1 **Grid Network**. To promote efficient travel for all modes, the City shall require all new residential, commercial or mixed-use development that proposes or is required to construct or extend streets to develop a transportation network that is well-connected, both internally and to off-site networks preferably with a grid or modified grid-form.

M 1.3.2 **Eliminate Gaps**. The City shall eliminate "gaps" in roadways, bikeways, and pedestrian networks. To this end:

a. The City shall construct new multi-modal crossings of the Sacramento and American Rivers.

b. The City shall plan and pursue funding to construct grade-separated crossings of freeways, rail lines, canals, creeks, and other barriers to improve connectivity.

c. The City shall construct new bikeways and pedestrian paths in existing neighborhoods to improve connectivity.

M 1.3.3 **Improve Transit Access**. The City shall support the Sacramento Regional Transit District (RT) in addressing identified gaps in public transit networks by working with RT to appropriately locate passenger facilities and stations, pedestrian walkways and bicycle access to transit stations and stops, and public rights of way as necessary for transit- only lanes, transit stops, and transit vehicle stations and layover.

M 2.1.2 **Sidewalk Design**. The City shall require that sidewalks wherever possible be developed at sufficient width to accommodate all users including persons with disabilities and complement the form and function of both the current and planned land use context of each street segment (i.e. necessary buffers, amenities, outdoor seating space).

M 2.1.4 **Cohesive and Continuous Network**. The City shall develop a pedestrian network of public sidewalks, street crossings, and other pedestrian paths that makes walking a convenient and safe way to travel citywide. The network should include a dense pattern of routes in pedestrian-oriented areas such as the Central City and include wayfinding where appropriate.

M 3.1.12 **New Facilities**. The City shall work with transit providers and private developers to incorporate transit facilities into new private development and City project designs including incorporation of

transit infrastructure (i.e., electricity, fiber-optic cable, etc.), alignments for transit route extensions, new station locations, bus stops, and transit patron waiting area amenities (i.e. benches, real-time traveler information screens).

M 3.1.14 **Direct Access to stations**. The City shall ensure that development projects located in the Central City and within ½ mile walking distance of existing and planned light rail stations provide direct pedestrian and bicycle access to the station area, to the extent feasible.

M 3.1.15 **Light Rail Extensions and Enhancements**. The City shall support the extension of light rail service to Sacramento International Airport, further extension in South Sacramento, and other improvements to facilities such as the 65th Street, Royal Oaks, and Swanston stations.

M 3.1.16 **Streetcar Facilities**. The City shall support the development of streetcar lines and related infrastructure and services in the Central City and other multi-modal districts.

M 4.2.1 **Accommodate All Users**. The City shall ensure that all new roadway projects and any reconstruction projects designate sufficient travel space for all users including bicyclists, pedestrians, transit riders, and motorists except where pedestrians and bicyclists are prohibited by law from using a given facility.

M 4.2.2 **Pedestrian and Bicycle-Friendly Streets**. In areas with high levels of pedestrian activity (e.g., employment centers, residential areas, mixed-use areas, schools), the City shall ensure that all street projects support pedestrian and bicycle travel. Improvements may include narrow lanes, target speeds less than 35 miles per hour, sidewalk widths consistent with the Pedestrian Master Plan, street trees, high-visibility pedestrian crossings, and bikeways (e.g. Class II and Class III bike lanes, bicycle boulevards, separated bicycle lanes and/ or parallel multi-use pathways).

M 4.2.5 **Multi-Modal Corridors**. Consistent with the Roadway Network and Street Typologies established in this General Plan, the City shall designate multi-modal corridors in the Central City, within and between urban centers, along major transit lines, and/ or along commercial corridors appropriate for comprehensive multimodal corridor planning and targeted investment in transit, bikeway, and pedestrian path improvements if discretionary funds become available.

M 4.4.4 **Traffic Signal Management**. To improve traffic flow and associated fuel economy of vehicles traveling on city streets, the City shall synchronize the remaining estimated 50 percent of the city's eligible traffic signals by 2035, while ensuring that signal timing considers safe and efficient travel for all modes.

M 5.1.2 **Appropriate Bikeway Facilities**. The City shall provide bikeway facilities that are appropriate to the street classifications and type, number of lanes, traffic volume, and speed on all rights-of-way.

M 5.1.3 **Continuous Bikeway Network**. The City shall provide a continuous bikeway network consisting of bike-friendly facilities connecting residential neighborhoods with key destinations and activity centers (e.g., transit facilities, shopping areas, education institutions, employment centers).

M 5.1.5 **Motorists, Bicyclists, and Pedestrian Conflicts**. The City shall develop safe and convenient bikeways, streets, roadways, and intersections that reduce conflicts between bicyclists and motor vehicles on streets, between bicyclists and pedestrians on multi-use trails and sidewalk, and between all users at intersections.

M 5.1.6 **Connections between New Development and Bicycle Facilities**. The City shall require that new development provides connections to and does not interfere with existing and proposed bicycle facilities.

M 5.1.7 **Bikeway Requirements**. The City shall provide bike lanes on all repaved and/ or reconstructed arterial and collector streets to the maximum extent feasible. The appropriate facility type for each roadway segment shall be consistent with the Roadway Network and Street Typologies defined in this General Plan.

City of West Sacramento 2030 General Plan

As part of the Downtown/Riverfront Streetcar NEPA/CEQA document, the City of West Sacramento applied the following LOS policies to its intersections:

- The *City of West Sacramento General Plan* (2004) allows for LOS C at intersections, unless located within ¼-mile of an interchange or a bridge crossing where a LOS D condition is permitted.

- In 2011, the City Council added a modification to the LOS policy to permit LOS E at certain high dense, pedestrian-oriented, mixed use areas including the Bridge District Specific Plan and Washington Specific Plan, and West Capitol Avenue easterly from Harbor Boulevard. Accordingly, LOS E is considered the minimum LOS for all four study intersections in West Sacramento because they are each located in one of these areas. Additionally, the City considers an increase in delay of more than five seconds at an intersection operating unacceptably to be a significant impact.

I-5 Freeway Subregional Corridor Mitigation Program

The I-5 Freeway Subregional Corridor Mitigation Program (SCMP) is a voluntary development impact fee for new developments within the I-5 corridor between Elk Grove, Downtown Sacramento, and West Sacramento that is intended to be used to construct a set of transportation improvements identified in the SACOG 2016 MTP/SCS. Under the SCMP, a project applicant whose project would generate vehicle trips over the threshold could choose to either pay the fee, which would constitute mitigation of their development project's impacts on the freeway mainline, or conduct a Traffic Impact Study, which would evaluate that project's impact on the freeway system and identify mitigation for those impacts.

According to the *Draft Final Nexus Study for the I-5 Freeway Subregional Corridor Mitigation Program*,[8] the following roadway improvements would be partially funded by the plan (with the remainder coming from other sources):

- Extension of light rail from the Township 9/Richards station to Natomas Center
- New bridge across the American River
- Two new bridges across the Sacramento River
- Reconstruction of I-5/Richards Boulevard Interchange
- Construction of HOV lanes on I-5 from Elk Grove to US 50
- Construction of a transition lane on I-5 between the Garden Highway off- and on-ramps.

8 DKS Associates, 2016. Draft Final Nexus Study for the I-5 Freeway Subregional Corridor Mitigation Program. January 2016.

Page 36 of the study specifies that "Caltrans would consider the fees as an adequate mitigation for freeway mainline impacts". Table 18 on page 32 of the Nexus Study shows the proposed fee per dwelling unit, and per thousand square feet of non-residential space.

The I-5 SCMP was adopted by the Sacramento City Council in April 2016 as a voluntary fee that an applicant can pay to mitigate any mainline I-5 freeway impacts. All three project components (i.e., MLS Stadium, KP Medical Center, and remaining RSPU land uses) have indicated that they are willing to pay the voluntary fee provided that those fees are applied toward projects that directly benefit the RSP Area. Many of the improvements listed above would directly benefit those projects. Refer to Appendix J.1 for a Caltrans letter dated May 25, 2016 indicating that Caltrans considers payment of the I-5 SCMP as adequate mitigation for project impacts to I-5.

4.12.3 Analysis, Impacts, and Mitigation

Significance Criteria

The following describes the significance criteria used to identify project-specific and cumulatively considerable impacts to the transportation and circulation system for each of the proposed projects.

Intersections

Impacts to the roadway system are considered significant if:

- For intersections within Priority Investment Areas of the City of Sacramento, the traffic generated by the project degrades the overall roadway system operation to the extent that the project would not be consistent with General Plan Mobility Policies M 1.2.1, 1.2.2, 1.2.4, 1.3.3, and 1.3.5.
- For intersections located in West Sacramento, the traffic generated by the project degrades LOS from LOS E or better to LOS F; or
- For intersections located in West Sacramento, the LOS (without project) is already (or projected to be) unacceptable and project generated traffic increases the average vehicle delay by 5 seconds or more.

Freeway Facilities

A significant impact would occur if:

- The traffic generated by the project degrades LOS from acceptable (without the project) to unacceptable (with the project);
- The LOS (without project) is already (or projected to be) unacceptable and project-related traffic leads to a perceptible worsening of the applicable performance measure; or

- The traffic related to the project causes off-ramp traffic to queue back to beyond the freeway gore point, or worsens an existing/projected queuing problem.

Transit

Impacts to the transit system are considered significant if the proposed project would:

- Adversely affect public transit operations; or
- Fail to adequately provide access to transit.

Bicycle Facilities

Impacts to bicycle facilities are considered significant if the proposed project would:

- Adversely affect existing or planned bicycle facilities; or
- Fail to adequately provide for access by bicycle.

Pedestrian Circulation

Impacts to pedestrian circulation are considered significant if the proposed project would:

- Adversely affect existing or planned pedestrian facilities; or
- Fail to adequately provide for access by pedestrians.

Construction-Related Traffic Impacts

The project would have a temporarily significant impact during construction if it would:

- Degrade an intersection or roadway to an unacceptable level;
- Cause inconveniences to motorists due to prolonged road closures; or
- Result in increased frequency of potential conflicts between vehicles, pedestrians, and bicyclists.

The first significance criterion bullet listed above under "Intersections" is the City's interpretation of how General Plan Policy M 1.2.2 should be applied in the Core Area and Priority Investment Areas of the City. This policy allows these areas to have intersections that operate at LOS F. However, such conditions should not be detrimental toward other General Plan circulation policies (including but not limited to policies M 1.2.1, 1.2.4, 1.3.3, and 1.3.5), which pertain to providing high-quality transit, walkable neighborhoods and business districts, continuous and connected bikeways, transportation demand management, emergency response, and other circulation considerations. So, while a single intersection operating at LOS F during the peak hour may be considered acceptable under Policy M 1.2.2, a roadway system that experiences severe congestion for multiple modes of travel is generally not considered acceptable under Policy M 1.2.2. To this end, the evaluation of this significance criterion focuses on the totality of system operations to assess consistency with General Plan Policy M 1.2.2.

General Plan Policy M 1.2.3 requires the City to evaluate discretionary projects for potential impacts to traffic operations, traffic safety, transit service, bicycle facilities, and pedestrian facilities. So, even though the project is situated in a Priority Investment Area, a comprehensive analysis of these travel modes is required.

Analysis Methods

This section is organized into the following sub-sections:

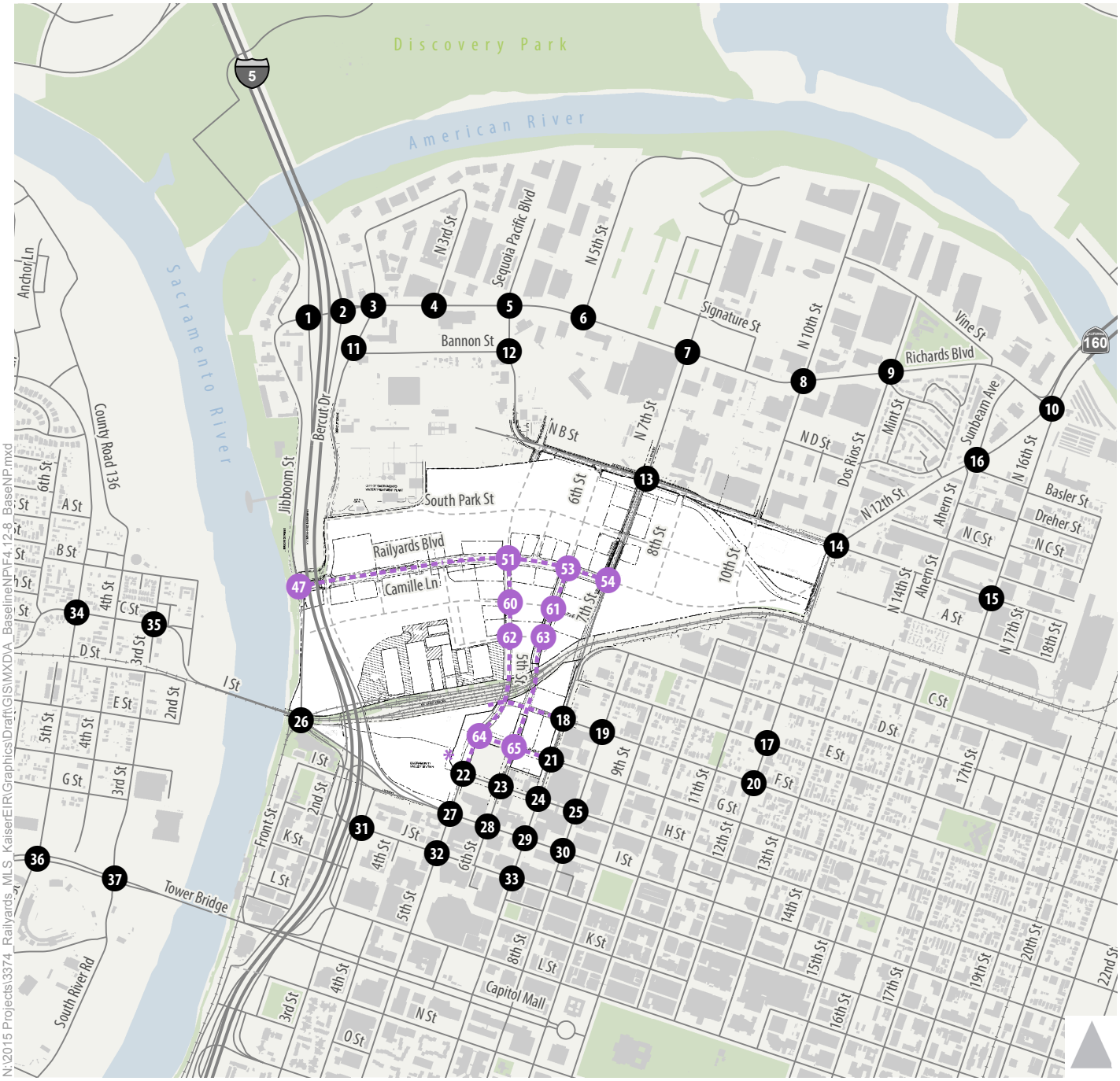
- Planned Roadway Network – Baseline Scenarios
- RSPU Circulation System
- Baseline No Project Conditions
- Baseline Plus RSPU Conditions
- Baseline Plus KP Medical Center Conditions
- Baseline Plus MLS Stadium Conditions
- Cumulative No Project Conditions
- Cumulative Plus Project Conditions
- Land Use Variant
- Vehicle Miles of Travel

The proposed Stormwater Outfall would not generate any trips, nor cause any material effects on a transportation network. Therefore, it is not analyzed in this chapter.

Planned Roadway Network – Baseline Scenarios

Figure 4.12-8 shows the planned roadway improvements assumed in place within the RSP Area under Baseline No Project Conditions. These improvements were assumed in place because they will be constructed and open to traffic by the end of 2016. As shown, Railyards Boulevard would open to traffic between 7th Street and Jibboom Street. Additionally, 5th and 6th Streets would extend northerly as two-lane, two-way streets from downtown to connect with Railyards Boulevard. These improvements have already been constructed, but are not yet open to traffic.

G Street would extend westerly as a two-lane, two-way street, creating new intersections with 5th and 6th Streets. F Street would also be extended westerly under the 5th Street and 6th Street bridges. This extension would not connect to any other roadways under this scenario. These improvements are currently under construction. This figure also includes a note indicating that 5th Street would be modified at H Street to permit southbound through travel (to I Street) under all baseline scenarios.



Existing

Study Intersections

Baseline No Project

Baseline No Project Roadway

Future Planned Roadway within RSPU

* All baseline scenarios assume southbound through travel is permitted on 5th St. at H St.

Figure 4.12-8

Baseline No Project Roadway Network

Figure 4.12-9 shows the assumed roadway connections under Baseline Plus RSPU conditions. This figure indicates that all proposed street improvements would occur within the RSP Area under this scenario. No widenings, extensions, or other improvements outside the RSP Area are included within this scenario. The next section describes the planned RSPU roadways in greater detail, including plans to reconfigure a portion of Railyards Boulevard west of 7th Street.

Figure 4.12-10 shows the assumed roadway connections under Baseline Plus KP Medical Center conditions. As shown, construction of the KP Medical Center would result in the extension of Bercut Drive southerly to Railyards Boulevard, the construction of South Park Street between Bercut Drive and 5th Street, and the construction of 5th Street northerly to South Park Street.

Figure 4.12-11 shows the assumed roadway connections under Baseline Plus MLS Stadium conditions. As shown, construction of the MLS Stadium would result in the following street improvements:

- Extend Railyards Boulevard easterly from 7th Street to 10th Street.
- Extend 8th Street between Railyards Boulevard and North B Street.
- Extend 10th Street partially north of Railyards Boulevard, but do not connect to North B Street.

RSPU Circulation System

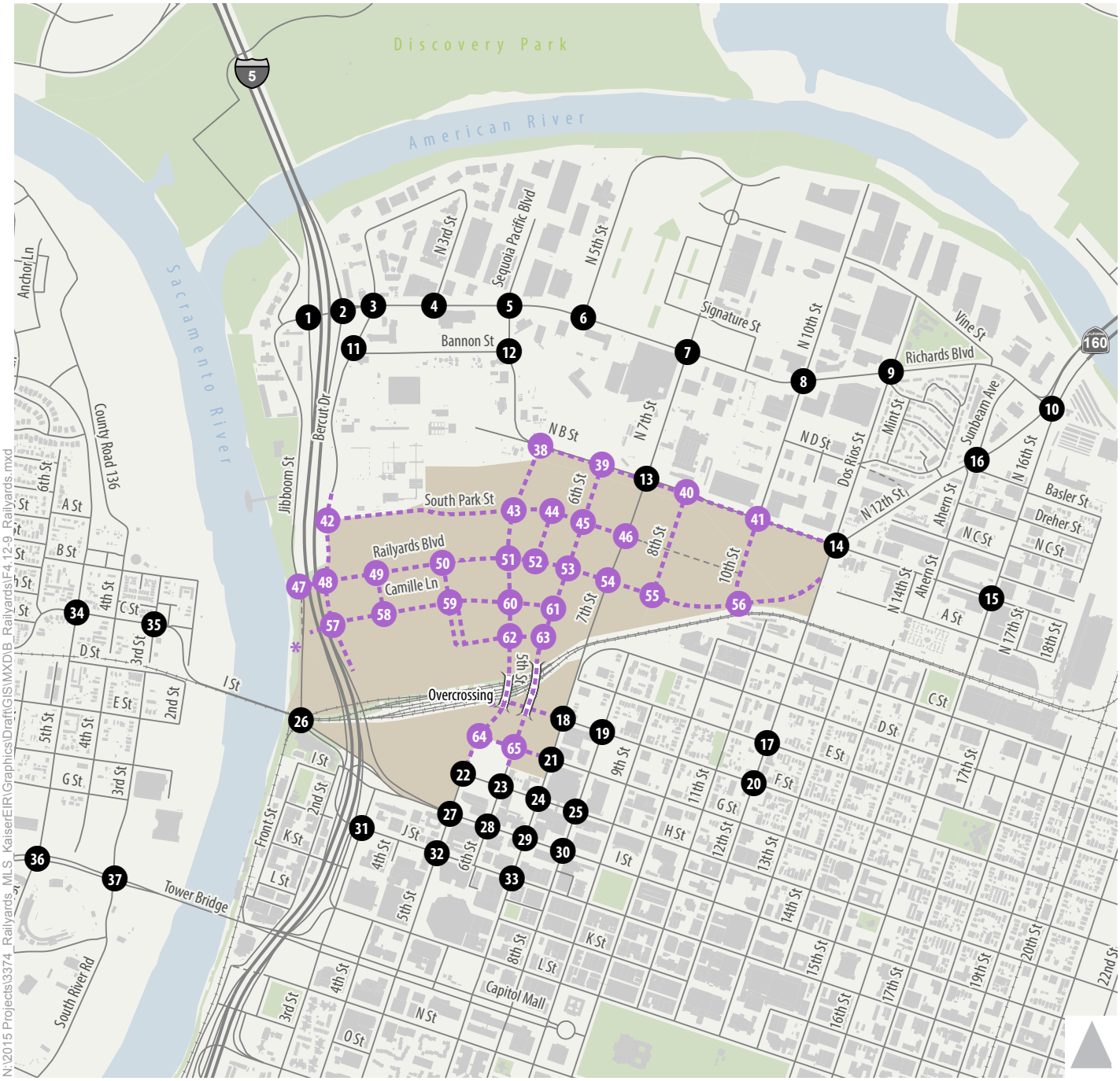
This section describes the planned RSPU circulation system including roadways, intersections, transit, bicycle facilities, pedestrian facilities, parking, and truck routes.

Roadway System

The majority of streets in the RSP Area would be designed in a grid-like configuration, with intersections typically spaced 350 to 650 feet apart (though spacing on portions of Railyards Boulevard and North B Street is generally greater). Unlike much of downtown Sacramento's grid, the spacing is not uniform, but would vary depending on the location of already constructed roadways and other site constraints. The RSPU roadway system would meet the objective of GP Policy M1.3.1, which requires that new mixed-use projects be developed with a transportation network that is well-connected, preferably with a grid or modified grid-form.

Figure 4.12-12 presents a detailed map of the planned roadway network within the RSPU including planned signalized intersections.

Figure 4.12-13a and 13b displays a plan view of the existing and proposed configurations of 7th Street from North B Street to south of Railyards Boulevard. The proposed configuration is shown for both Baseline plus RSPU and Cumulative plus RSPU conditions.



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Study Intersections

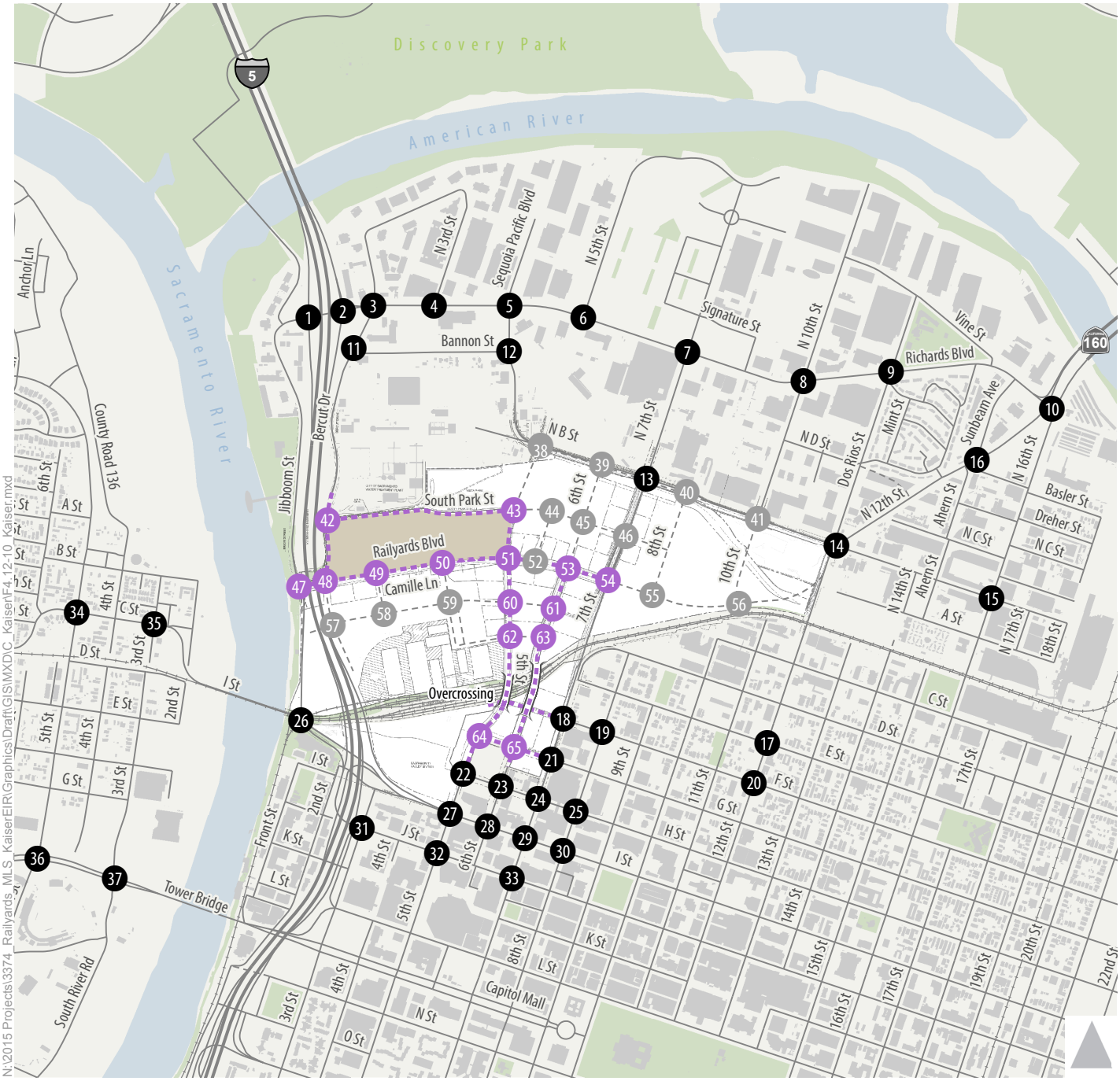
- Baseline Plus RSPU
- Existing

- Project Roadway Assumed Under Baseline Plus RSPU Conditions
- Future Planned Roadway within RSPU
- Railyards Specific Plan Update (RSPU)

* Railyards SP Update would remove connection of Jibboom Street to I Street.

Figure 4.12-9

Baseline Plus RSPU Roadway Network



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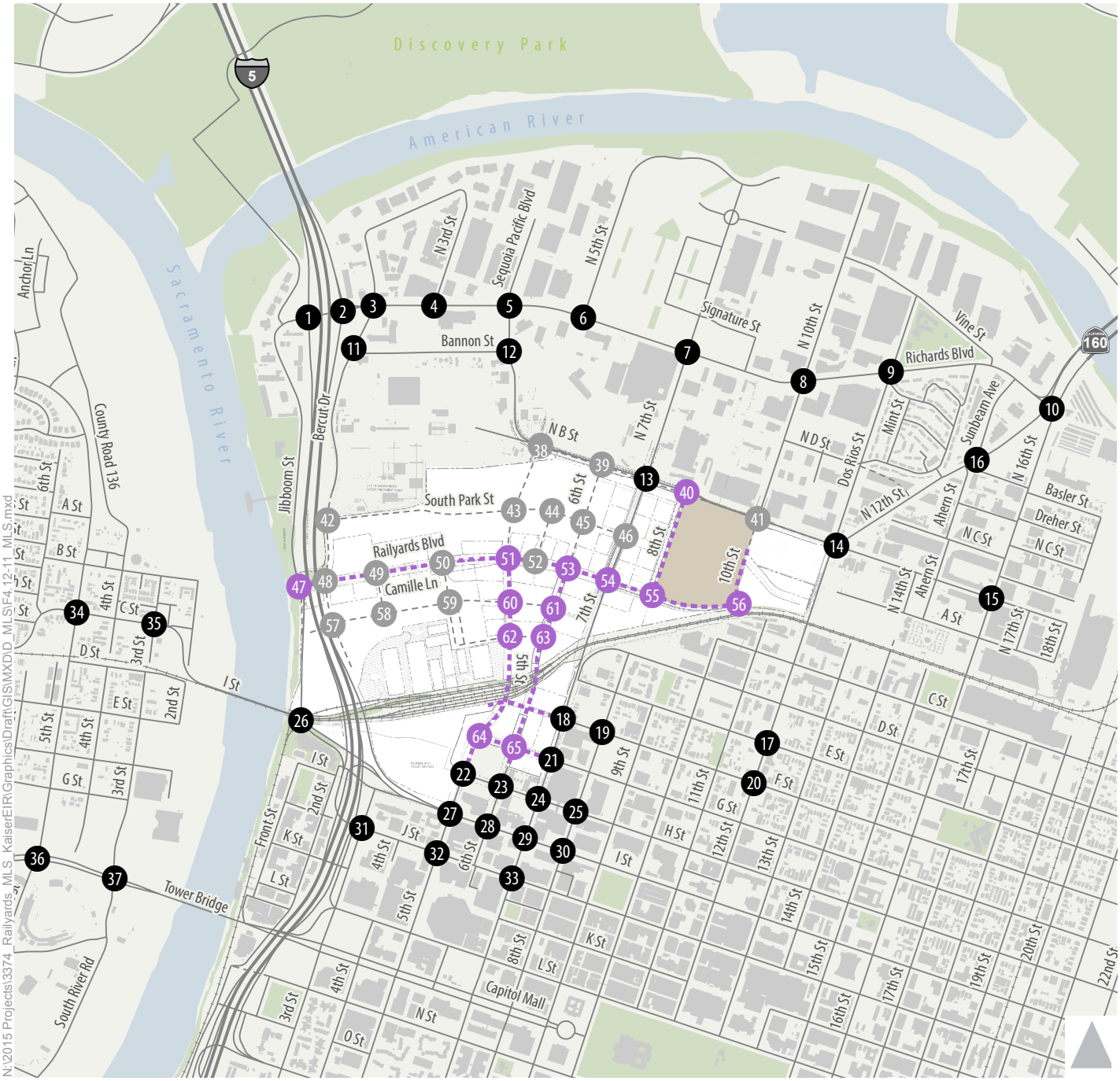
Study Intersections

- Baseline Plus KP Medical Center
- Existing
- Future Intersection within RSPU

- Baseline Roadway Assumed with KP Medical Center
- Future Planned Roadway within RSPU
- Medical Center

Figure 4.12-10

Baseline Plus KP Medical Center Roadway Network



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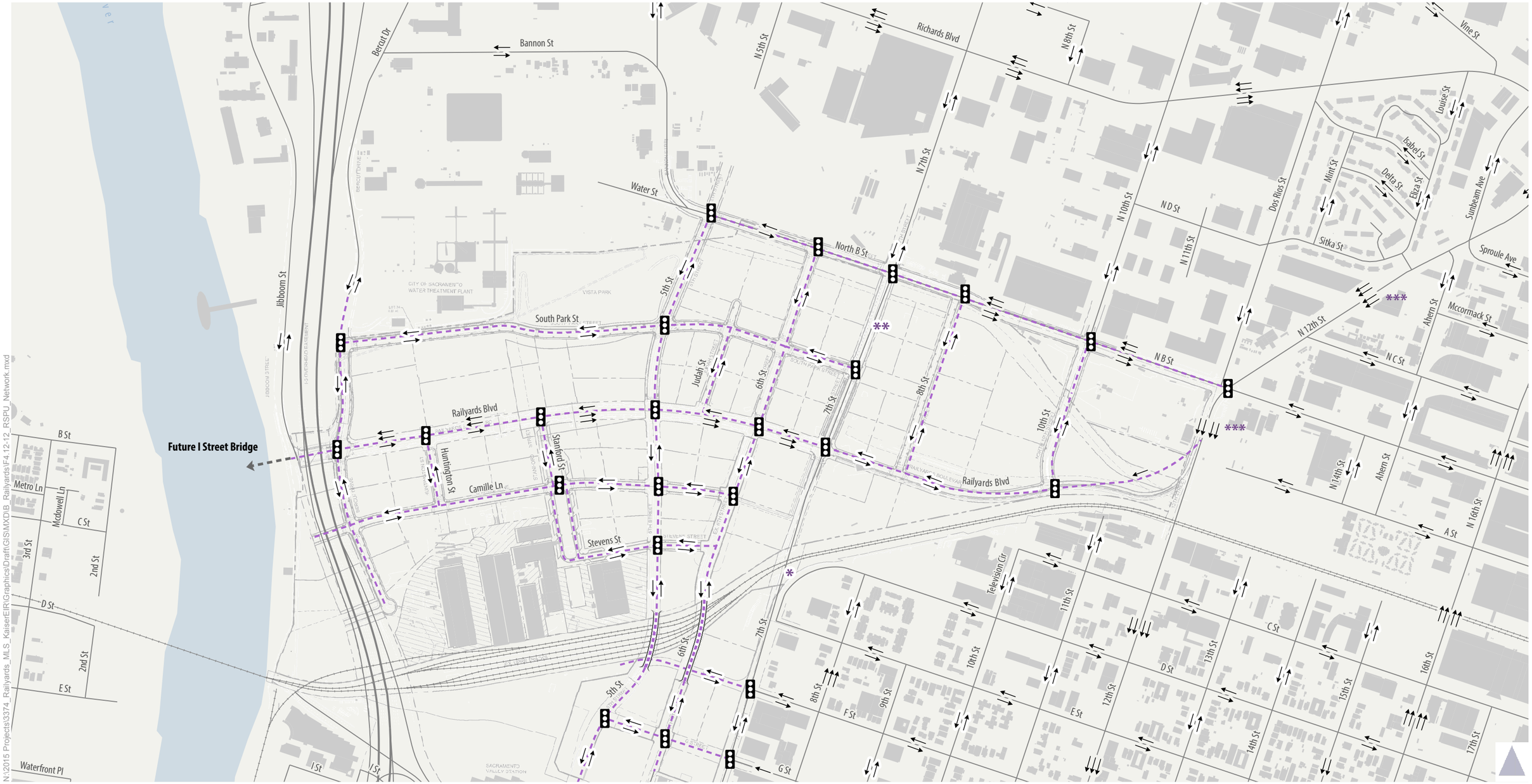
Study Intersections

- Baseline Plus Stadium
- Existing
- Future Intersection within RSPU

- Baseline Roadway Assumed with MLS Stadium
- Future Planned Roadway within RSPU
- Stadium

Figure 4.12-11

Baseline Plus MLS Stadium Roadway Network



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Traffic Signal

Number of Mid-Block Travel Lanes by Direction (excluding any turn lanes, median lanes, or parking lanes)

Proposed RSPU Streets

NOTES:

* Under Baseline Plus RSPU Conditions, 7th Street under UPRR tracks remains as is (wide multi-use sidewalk, southbound travel lane, northbound travel lane), and LRT - only lane.
Under Cumulative Plus RSPU Conditions, 7th Street under UPRR tracks assumed to consist of one shared LRT/vehicle lane and one vehicle-only lane in each direction.

** Under Baseline Plus RSPU Conditions, 7th Street from N B Street to Railyards Blvd would consist of:
Two southbound vehicle only lanes, a median turn lane, one northbound vehicle-only lane (with LRT remaining east of roadway).
Under Cumulative Plus RSPU Conditions, 7th Street would consist of:
One shared LRT/vehicle lane and one vehicle-only lane in each direction separated by a median/turn lane.

*** Cycle track assumed under cumulative conditions, which results in elmination of most westerly travel lane.

Figure 4.12-12

Railyards Specific Plan Update
Roadway Network Under Baseline Conditions

Existing Conditions

For Illustrative Purposes Only

More Detailed Evaluation of 7th Street Alignment Will Be Required During Site Plan Review

Baseline Plus RSPU Conditions

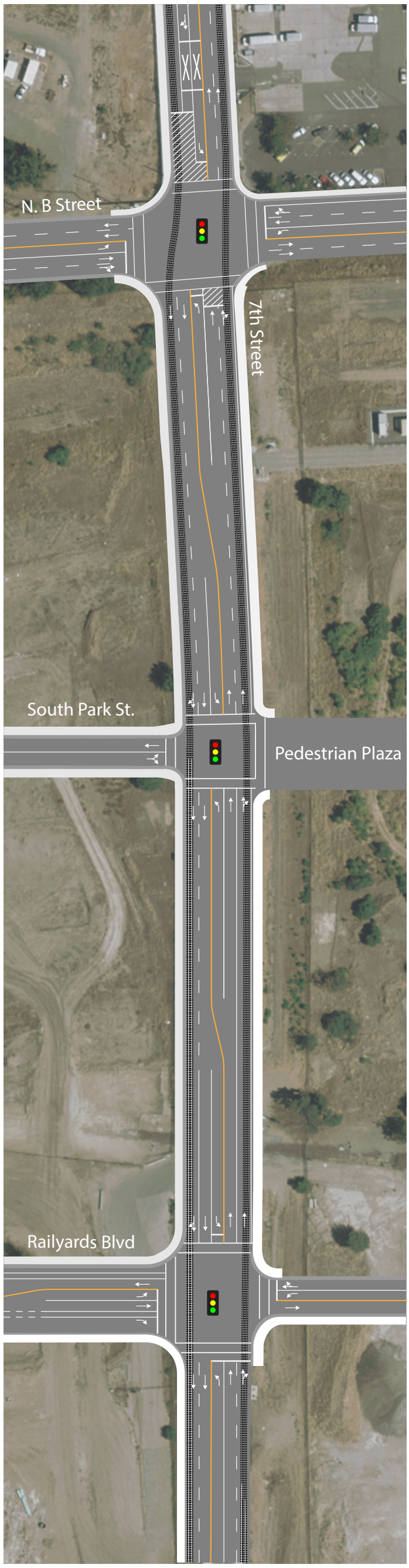
Figure 12-13a

7th Street Plan View

Existing Conditions

For Illustrative Purposes Only

More Detailed Evaluation of 7th Street Alignment Will Be Required During Site Plan Review



Cumulative Plus RSPU Conditions

Figure 12-13b

7th Street Plan View

All of the roadway and intersection improvements described below are considered part of the RSPU project description and are assumed in place under Baseline Plus RSPU and Cumulative Plus RSPU conditions.

Key roadway improvements within the RSP Area are described below:

7th Street

As shown in Figure 4.12-13a, under Baseline plus RSPU conditions, the existing LRT line would remain a bi-directional, single track located outside of the traveled way, and 7th Street would be widened as follows:

- Between North B Street and Railyards Boulevard, 7th Street would consist of one northbound travel lane, a median turn lane, and two southbound travel lanes. All widening would occur to the west. The existing LRT line would remain a bi-directional, single track located outside of the traveled way.

- South of Railyards Boulevard, 7th Street would be widened to include one northbound lane, one median turn lane, and one southbound lane. All widening would occur to the west. This cross-section would be present for approximately 200 feet south of Railyards Boulevard, at which point the road would begin to narrow to conform with the two-lane undivided street section prior to the UPRR undercrossing.

As shown in Figure 4.12-13b, under cumulative plus RSPU conditions, 7th Street would be widened as follows:

- Between North B Street and Railyards Boulevard, 7th Street would consist of two northbound travel lanes, a median turn lane, and two southbound travel lanes. All widening would occur to the west. The outside travel lane in each direction would accommodate LRT as well as vehicles.

- For a short distance south of Railyards Boulevard, 7th Street would be widened to include two northbound lanes, one median turn lane, and two southbound lanes. However, approaching the UPRR undercrossing and within it, 7th Street would narrow to a four-lane undivided roadway consisting of a vehicle-only (inside) lane and a shared vehicle/LRT (outside) lane in each direction. This would be accomplished by raising the grade of the two existing inside vehicular lanes to match the grade of the two outside lanes, which are currently used by LRT vehicles on the east side and bicycles/pedestrians on the west side. This configuration would result in no bicycle or pedestrian facilities on the 7th Street UPRR undercrossing. As is discussed later, the cumulative improvements/widening of 7th Street is intended to support the planned double-tracking of the LRT green line along the corridor.

Railyards Boulevard

Railyards Boulevard would begin as a single-lane westbound-only connector ramp from 12th Street. The ramp would begin as the #3 travel lane (second most westerly) south of North B Street and would remain elevated as 12th Street becomes depressed as it approaches the UPRR

undercrossing. It would then feature a horizontal curve that aligns the roadway in a westerly direction. This configuration results in a grade-separation with the sidewalk and planned cycle track on the west side of 12th Street. The combined effect of this ramp and the cycle track would be to reduce the number of travel lanes on 12th Street at the UPRR undercrossing from four (today) to two lanes under cumulative conditions (far outside lane would become cycle track), though it would consist of three lanes under Baseline plus RSPU conditions.

Railyards Boulevard would continue as a single westbound-only travel lane to 10th Street. West of 10th Street, it would become a two-lane, two-way street with exclusive left-turn pockets at 7th, 8th and 10th Streets.

Under both baseline and cumulative conditions, Railyards Boulevard (between Bercut Drive and 7th Street) would be restriped from its current alignment (two westbound lanes and one eastbound lane separated by a median turn lane) to instead consist of the following:

- Two westbound lanes, a median turn lane, and one eastbound lane from Bercut Drive to Stanford Street.

- Two eastbound lanes, a median turn lane, and one westbound lane from Stanford Street to 7th Street.

The Railyards Boulevard modification would be implemented for the following two reasons:

1. It would add a second eastbound travel lane through the heavily traveled 5th, 6th, and 7th Street intersections. Preliminary traffic analyses (see Appendix J.1) indicated that this restriping would benefit overall plan area traffic operations, particularly during the PM peak hour when there is a large eastbound flow of traffic. This configuration also diverts traffic away from the parallel segment of Camille Lane, which further helps establish its pedestrian-scale environment.

2. It provides a greater area in which to ‘store or stack’ westbound queued vehicles waiting to cross the future two-lane I Street Bridge, which would be the extension of Railyards Boulevard. By providing a second westbound lane approaching the bridge, upstream intersections and parallel street intersections would not be as adversely affected by queuing that would occur prior to the bridge entrance versus if only a single lane was provided.

This modification would not require any relocation of currently constructed curbs, gutters, or sidewalks along Railyards Boulevard. However, it would require restriping and modifications to some traffic signal equipment currently constructed on the roadway.

The Railyards Boulevard modification is recommended to occur prior to the RSPU reaching 25 percent of buildout (calculated either from total square footage / units, vehicle trips, or dwelling unit equivalents) or at such time that the majority (i.e., over 50 percent) of the parcels

fronting along both sides of Railyards Boulevard between Bercut Drive and 7th Street are developed. These triggers have been established based on the RSPU's overall travel characteristics, balanced with a preference to have the ultimate improvements in place well before buildout.

The segment of Railyards Boulevard between Bercut Drive and 7th Street is a critical component of RSP Area infrastructure. It would provide access to adjacent properties while also facilitating local/regional circulation. All intersections and driveways along this segment would be provided at signalized intersections (i.e., at Huntington Street, Stanford Street, 5th Street, and 6th Street) with the exception of the side-street stop-controlled Judah Street approach. No additional driveways would be permitted on Railyards Boulevard unless approved by the City Traffic Engineer.

North B Street

Under Baseline plus RSPU conditions, North B Street would be widened as follows:

- Between 5th Street and 7th Street, it would consist of one lane in each direction separated by a median turn lane.
- From 7th Street to just east of 8th Street, it would consist of two lanes in each direction separated by a median turn lane. All widening would occur to the south along the project frontage.
- From east of 8th Street to east of 10th Street, it would be restriped to consist of two lanes in each direction separated by a median turn lane. It would then conform to the four-lane undivided cross-section further to the east approaching 12th Street.

10th Street

The RSPU does not propose to construct a grade-separated extension of 10th Street northerly from its current terminus at C Street above or below the UPRR tracks to connect with Railyards Boulevard. This roadway connection is shown on the City's General Plan Circulation Diagram. Preliminary engineering evaluations (refer to Appendix J.1 for Kimley Horn memorandum that evaluated 10th Street connection) indicated that the proposed configuration of the Railyards Boulevard and 10th Street north of the UPRR tracks would preclude the feasibility of ultimately extending 10th Street northerly from downtown. The principal constraints relate to grade differences, needed clearance of grade-separations, and spacing of intersections. Therefore, if the proposed RSPU is approved, the City's 2035 General Plan Circulation Diagram would be modified to remove this future street connection.

Ultimately, Railyards Boulevard will continue westerly beyond Jibboom Street as the future I Street Bridge. However, that roadway extension is not assumed in place under any of the baseline scenarios. The cumulative conditions setting includes a detailed discussion of the I Street Bridge project.

Intersections

Many of the intersections within the RSP Area would be controlled by traffic signals. Due to their spacing, some corridors would have synchronized traffic signals such as segments of Railyards Boulevard, 5th Street, 7th Street, and North B Street. This is necessary to allow traffic to flow smoothly between intersections while minimizing stops. This would meet 2035 General Plan Policy M4.4.4, which specifies that the City shall synchronize the remaining 50 percent of its eligible traffic signals by 2035.

Under Baseline plus RSPU conditions, traffic signals are assumed at a total of 20 intersections within the RSPU based on the following factors: level of projected traffic, spacing relative to other intersections, preliminary operations results, need for protected (i.e., signalized crosswalk) pedestrian crosswalk, and other factors. Several traffic signals have already been constructed along currently closed portions of Railyards Boulevard (at 5th Street, 6th Street, Huntington Drive, and near Stanford Street). Additionally, signals are installed on 6th Street at Camille Lane, and on 5th Street at Camille Lane and Stevens Street.

The vast majority of signalized intersections would feature protected left-turn signal phases (i.e., a green arrow is provided) on the major street approaches. This would be due to the anticipated volume of left-turning traffic, geometrics and signal equipment already in place at intersections, and an overall desire to provide motorists with consistent design elements. Side-street approaches at signalized intersections could consist of protected left-turn phasing, permitted phasing, or split phasing depending on the travel demand and proposed lane configurations.

The majority of travel lanes would be constructed with 11-foot widths to help minimize intersection crossing distances for pedestrians.

Initial intersection lane configurations were based on the *Railyards Option 1 Circulation Network.*[9] Preliminary traffic analyses resulted in suggested refinements at a number of locations, which have been incorporated into the proposed project. The Railyards Boulevard/7th Street and 7th Street/North B Street intersections are particularly critical toward adequate overall circulation in the RSPU. Therefore, they are described in detail below.

Railyards Boulevard/7th Street Intersection

Under Baseline plus RSPU conditions, the Railyards Boulevard/7th Street intersection would consist of the following lane configurations:

- Northbound and westbound approaches: exclusive left-turn and shared through/right lane.
- Southbound and eastbound approaches: dedicated left-turn lane, through lane, and right-turn lane. On each approach, the right-turn lane would become a 'trap' turn for the outside travel lane approaching the intersection. Given the heavy right-turn volume, the

9 Kimley-Horn, 2015. Railyards Option 1 Circulation Network. November 2015.

eastbound right-turn lane is recommended to have an overlap arrow that would allow this movement to run concurrently with the northbound left-turn lane.

Under baseline conditions, the intersection would operate with protected left-turn phasing. Crosswalks would be provided on all approaches. Light rail trains would cross the east leg of the intersection. During these crossings, the traffic signal would be pre-empted to prohibit movements that would cross the tracks.

The lane configurations at the Railyards Boulevard/7th Street intersection under cumulative plus RSPU conditions would be identical to baseline conditions on the eastbound and westbound approaches. However, the northbound and southbound approaches would be modified as follows:

- Additional widening would occur on the east side of 7th Street to convert the existing LRT track into a mixed-use vehicle/LRT lane. This would result in two northbound travel lanes approaching and departing the intersection.

- Additional widening on the west side of 7th Street would occur south of Railyards Boulevard to enable the dedicated southbound right-turn lane approaching the intersection to become a shared through/right lane. Also, a new light rail track would be constructed in the outside southbound travel lane approaching and departing the intersection.

Under cumulative conditions, the intersection would operate with protected left-turn phasing. Since light rail trains would operate in the same travel lanes as vehicles, no pre-emptions would occur. However, if warranted by operating conditions, intelligent advanced signal timing plans may be used to facilitate train crossings.

7th Street/North B Street Intersection

Under Baseline plus RSPU conditions, the 7th Street/North B Street intersection would consist of a dedicated left-turn lane and shared through/right lane on all approaches and would operate with protected left-turn phasing. Crosswalks would be provided on all approaches.

The LRT line transitions from a single track south of this intersection to a double-track north of the intersection. Light rail trains are given signal priority/pre-emption to travel through the intersection. This same type of pre-emption would continue under Baseline plus RSPU conditions.

Under cumulative plus RSPU conditions, the lane configurations at the 7th Street/North B Street intersection would include a second through lane on the northbound, southbound, and westbound approaches. The resulting outside shared through/right lane on the northbound and southbound approaches would also accommodate light rail trains as part of the double-tracking of 7th Street south of North B Street.

Transit Facilities and Services

During a November 3, 2015 meeting with the applicant, RT, and City of Sacramento, RT officials expressed a willingness to work cooperatively with the City and the applicant to ensure that necessary light rail facilities and services would be in place by opening of the proposed MLS Stadium. This meeting and its outcome demonstrates consistency with GP Policy M1.3.3, which specifies that the City shall work with Sacramento RT to coordinate planning efforts for new transit stops. This also demonstrates consistency with GP Policy M3.1.12, which specifies that the City shall work with transit providers and private developers to incorporate transit facilities into new private development and City project designs.

Based on the outcome of that meeting, a new light rail station would be constructed on the east side of 7th Street north of Railyards Boulevard under Baseline plus RSPU conditions. This station would be part of the Green Line service. In addition, it is assumed that bus service would be expanded into the RSPU in response to demand for service.

The vast majority of the RSPU land uses would be located within ½-mile of the planned LRT Green Line station to be located on 7th Street at Railyards Boulevard. The existing Richards/ Township 9 station would be located less than ½-mile from the RSP Area. Also, LRT stations are situated on 7th Street, 8th Street, and H Street, within close proximity of the RSP land uses located south of the UPRR tracks.

Although precise bus routes within the RSP Area are not yet known, it is anticipated that RT bus service would be expanded to the area in response to ridership demand. On most streets, buses would stop in travel lanes (versus a pullout) to pick-up or drop-off passengers. This is advantageous to buses by allowing them to more easily merge back into the traffic stream when compared to turnouts. Although exact locations of bus shelters are not known, the currently constructed (but not yet open to traffic) portion of Railyards Boulevard west of 7th Street includes bus shelters on both sides of the street.

Under cumulative plus RSPU conditions, the new light rail station on 7th Street north of Railyards Boulevard would include stops on both the east and west sides of 7th Street based on the planned double-tracking of the line.

In addition, if constructed, the later phases of the proposed Sacramento/West Sacramento streetcar system would operate within portions of the RSP Area. The Streetcar starter line is not proposed to travel through the RSP Area. Although final routes and stations for the ultimate Streetcar system have not been established, preliminary mapping from the Downtown Transportation Study (Grid 2.0) shows the Streetcar extending northerly along 7th Street, and then westerly along Railyards Boulevard, and then across the new I Street Bridge.

Bicycle Facilities

The RSPU would include a series of Class I, II, III, and IV bicycle facilities to accommodate a variety of bicycling populations ranging from leisurely travelers to commuters. Refer to Figure 2-

14, Bike Plan in the project description for existing and planned bicycle facilities within and adjacent to the RSP Area. As shown, the majority of streets would include Class II bike lanes in both directions. A series of Class I off-street paths would be provided to enable bicyclists to access the Shops buildings from the American River Bike Trail and 12th Street.

As a separate project, the City of Sacramento is pursuing construction of a Class IV two-way cycle track (barrier separated on-street facility) on the west side of North 12th Street from south of Richards Boulevard to south of the UPRR undercrossing. The RSPU would connect to this planned cycle track via a connection from its Class I multi-use path along Railyards Boulevard.

The proposed RSPU bicycle system meets the intent of Policy M5.1.3, which specifies that the City shall provide a continuous bikeway network consisting of bike-friendly facilities connecting neighborhoods and destinations.

Under cumulative conditions, the sidewalk/bike path on the west side of 7th Street along the UPRR undercrossing would be reconfigured as a shared LRT/vehicular travel lane. This modification is necessary to support the planned double-tracking of the LRT line along 7th Street. Due to width constraints within the undercrossing, it is not possible to include four travel lanes as well as bicycle/pedestrian facilities.

The elimination of the sidewalk/bike path may appear to conflict with City General Plan Policy M.1.1.1 (manage the City's rights-of-way to provide Complete Streets) and Policy M4.2.1 (ensure that all new roadway projects and any reconstruction projects designate sufficient travel spaces for users including bicyclists, pedestrians, transit riders, and motorists). However, the modification also helps achieve the objectives of Policy M5.1.5 (develop safe and convenient roadway networks that reduce conflicts between bicyclists and pedestrians on multi-use trails). The current configuration requires bicyclists and pedestrians to share the same sidewalk space.

The 2007 Plan included a bicycle/pedestrian tunnel under the UPRR tracks parallel to 7th Street. The proposed RSPU would eliminate that facility. To address the loss of this connection, the proposed RSPU would reconfigure 6th Street (through elimination of on-street parking) from G Street to Camille Lane to consist of a two-way cycle track on the east side of the street. This facility would provide a connection to the RSPU Class I system.

Pedestrian Facilities

All roadways within the RSPU would include sidewalks on both sides of the street. The vast majority of new sidewalks within the RSP Area would be 16-feet wide. Signalized and all-way stop-controlled intersections would include crosswalks on all legs. The crosswalks would either feature push-button pedestrian actuation, or otherwise have pre-timed pedestrian activations (i.e., similar to downtown). Crosswalks would also be provided at many unsignalized intersections.

Intersections would be designed to keep their overall size to a minimum to maintain a pedestrian-scale environment. No intersections within the RSP Area are proposed to include dual left- or

dual right-turn lanes on individual approaches. In fact, most intersections would consist of shared through/right lanes to further reduce pedestrian crossing distances. Intersections would also be designed with pedestrian-scale curb return radii to slow vehicle turning movements and enhance pedestrian visibility.

The proposed roadway, bicycle, and pedestrian facilities within the RSP Area meet several pertinent policies from the City's General Plan including:

- By limiting dedicated right-turn lanes to only a few critical locations, conflicts between bicyclists in a Class II bike lane and right-turning vehicles would be avoided. By keeping intersections at a reasonable size (i.e., no dual lefts), pedestrian crossing distances would be reduced. These design efforts comply with GP Policy M5.1.5, which specifies that the City shall develop safe and convenient roadway networks that reduce conflicts between bicyclists and motor vehicles on streets, between bicyclists and pedestrians on multi-use trails and sidewalks, and between all users at intersections.

- The extensive network of sidewalks, combined with detailed analysis of the adequacy of their width (in this document) would comply with GP Policy M2.1.2, which specifies that the City shall require sidewalks wherever possible to be developed at a sufficient width to accommodate all users.

- The pedestrian network would satisfy Policy M2.1.4, which specifies that the City shall develop a cohesive and continuous network of pedestrian facilities, including a dense pattern of routes in pedestrian-oriented areas.

- Bicycle facilities, sidewalks, and crosswalks would be present in all directions approaching the planned LRT station at 7th Street and Railyards Boulevard. This would meet GP Policy M3.1.14, which specifies that development projects located in the Central City and within one-half mile walking distance of light rail stations provide direct bicycle and pedestrian access to the station, to the extent feasible.

Parking

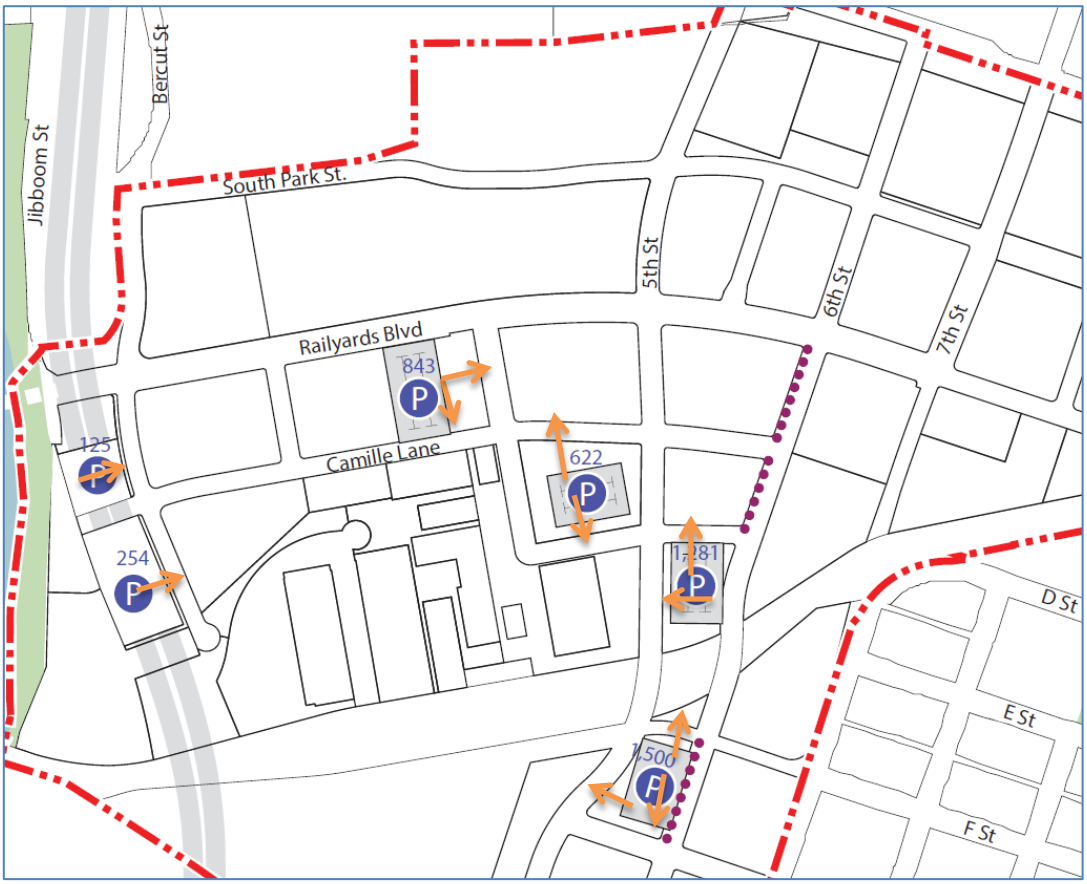
Many of the roadways within the RSP Area would include on-street (parallel) parking including:

- Bercut Drive from south of Railyards Boulevard to South Park Street
- 5th Street from H Street to North B Street (west side only south of UPRR overcrossing, no parking on UPRR overcrossing, and both sides north of UPRR overcrossing)
- 8th Street from Railyards Boulevard to North B Street
- 10th Street from Railyards Boulevard to North B Street
- South Park Street from Bercut Drive to 7th Street
- Railyards Boulevard between Bercut Drive and 7th Street
- Camille Lane between Bercut Drive and 6th Street

- Stevens Street between 5th and 6th Street
- G Street between 5th Street and 7th Street
- Huntington Street, Judah Street, and Stanford Street (portions on east side only)

Although on-street parking is constructed along the currently constructed, but closed portion of 6th Street between H Street and the UPRR overcrossing, this segment would be restriped to provide enhanced on-street bicycle facilities as is discussed later.

The RSPU would include six public parking garages as shown below (see also Figure 2-13 in Chapter 2, Project Description). Together, these six garages would consist of 4,625 parking spaces. It is anticipated that a number of other structured parking garages would be constructed within the RSPU including residential podium parking, garages for office/retail blocks, and medical center parking structures. The orange arrows would represent the primary access points to these garages, subject to additional review and evaluation.



The 1,281-space and 1,500-space parking garages located on either side of the UPRR tracks between 5th and 6th Streets would provide a substantial amount of parking, but have some potential access limitations due to the UPRR tracks and grade differences with adjacent streets. Access is recommended along 5th Street (versus 6th Street) because while 5th Street would have

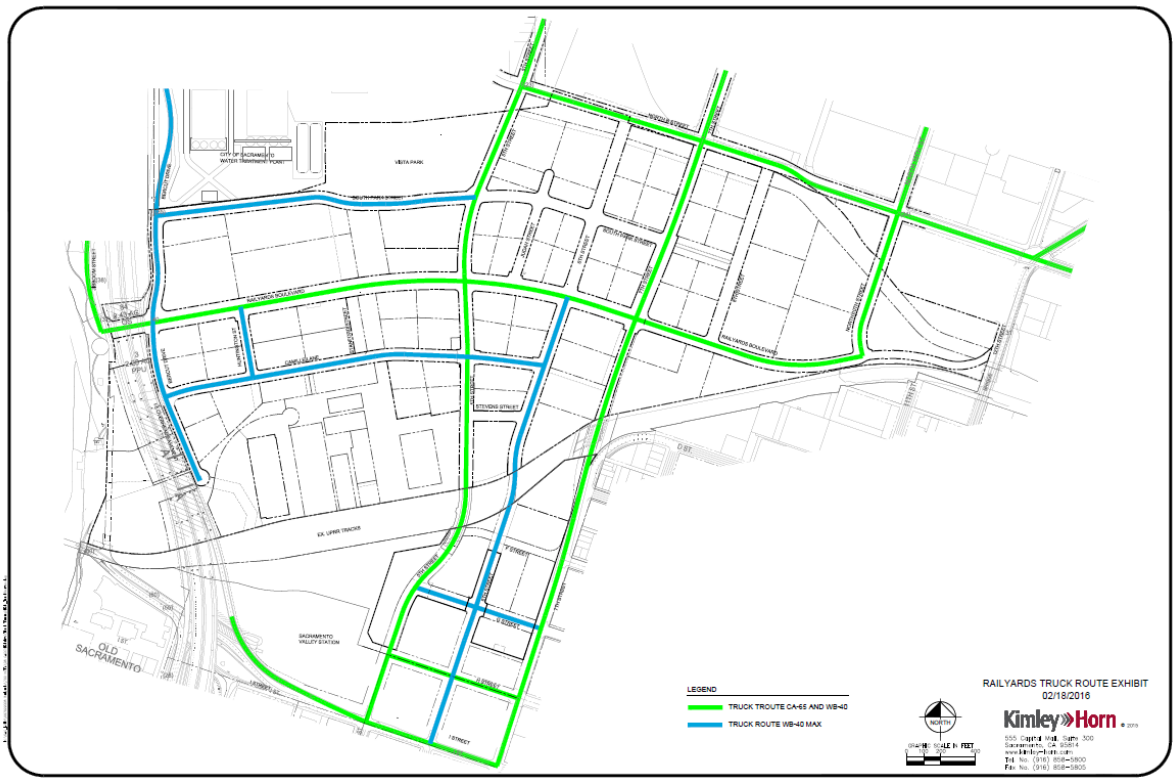
on-street parallel parking and Class II bike lanes, 6th Street would not have on-street parking and have enhanced (protected Class IV) bike facilities. Thus, it is preferable to avoid introducing conflicts between bicyclists on the upgraded facilities along 6th Street with vehicles turning into these garages. It should also be noted that due to grade differences, these garages may connect to 5th Street from the second or third floors. Additional driveways to these garages are subject to review and approval by the City Traffic Engineer.

The transportation impact analysis assumes (unless otherwise noted) that all blocks within the RSPU 'park themselves' which means that the vehicular traffic generated by the uses on that block load into a garage/lot/on-street space within that block, versus parking in a remote garage. The one exception to this is the shops buildings (i.e., located west of North 6th Street and south of Camille Lane). Block 15, and Blocks 20 - 29 would use the planned 622-space garage located within the area. However, since the parking demand is anticipated to exceed the planned supply, it is assumed in the traffic assignments and associated operations analysis that some users would park off-site at other public or private garages.

Truck Routes

The majority of the roadways within the RSP Area would be designed to accommodate trucks as shown below in the *Railyards Truck Movement Exhibit.*[10] Depending on the size and function of a given roadway, curb return radii are designed to either accommodate a truck with a 40-foot wheelbase (WB-40 truck) or a truck with a 65-foot wheelbase (WB-65 California truck). WB-65 California trucks would operate along 6th Street, 7th Street, Railyards Boulevard, and North B Street. Camille Lane, South Park Street, and Bercut Drive would be limited to use by WB-40 trucks. Detailed turning radii measurements have shown that trucks may need to use multiple approach and departure lanes to turn left or right at some intersections, a result of limiting sizes of lane widths and curb return radii. Approval of the RSPU would necessitate that the City's truck route map (shown in Appendix J.1) be modified.

[10] Kimley-Horn, 2016. Railyards Truck Movement Exhibit. February 18, 2016.



Baseline No Project Conditions

This scenario represents the baseline condition upon which impacts associated with each of the three projects are assessed. The baseline scenario reflects existing conditions with the opening of the currently constructed roadways, including Railyards Boulevard from 7th Street to Bercut Drive, and 5th and 6th Streets from H Street to Railyards Boulevard, and G Street from 5th Street to 7th Street (see Figure 4.12-8).

Traffic forecasts for this scenario were developed using the base year version of the SACMET regional travel demand model. The model was modified to include the roadways shown in Figure 4.12-8 and rerun. The difference in traffic forecasts at each study facility resulting from the roadway improvements were then added to the existing volumes. Note that this process also results in the redistribution of background due to the introduction of new roadways.

Figures 4.12-14a and 14b display the Baseline No Project AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. As shown on these figures, seven new intersections within the RSP Area (along 5th, 6th, 7th Streets, and Railyards Boulevard) are assumed to be signalized with lane configurations as shown in the Railyards Option 1 Circulation Network.[11] The Railyards Boulevard/Jibboom Street intersection is assumed to consist of all-way stop control.

[11] Kimley-Horn, 2015. *Railyards Option 1 Circulation Network.* November 2015.

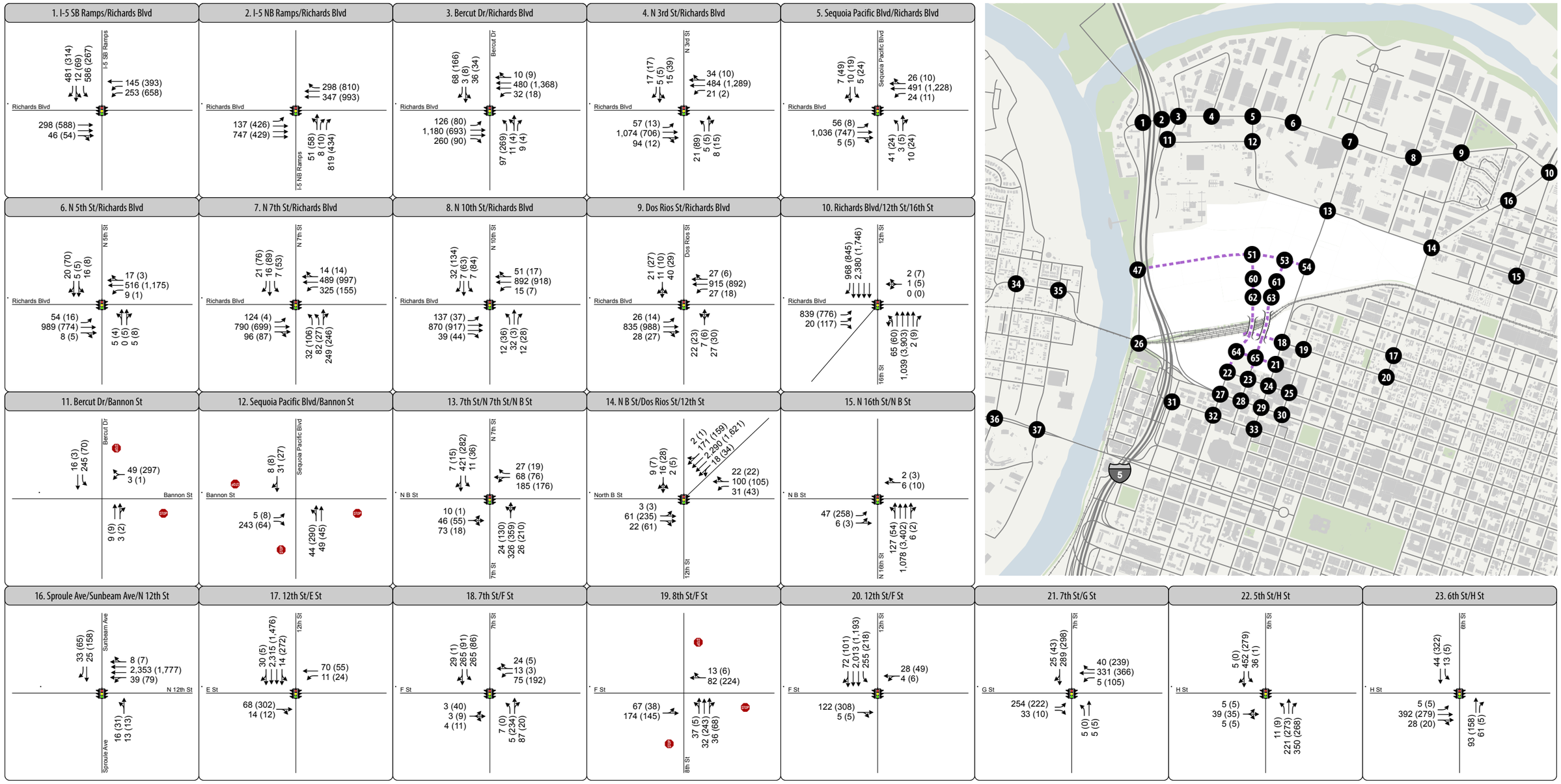
It should be noted that the SACMET model produces AM peak hour, PM peak hour, and daily traffic forecasts. However, it does not produce Pre-event peak hour forecasts. To develop these forecasts, a ratio adjustment process based on the predicted change in existing AM and PM peak hour traffic volumes were applied to the existing Pre-event volumes to obtain the Baseline No Project Pre-event peak hour forecasts, which are shown on **Figure 4.12-15a and 15b**.

Figure 4.12-16 displays the average daily traffic (ADT) on selected roadways within the RSP Area and along its boundaries. ADT values are shown for existing conditions based on traffic count data provided on the City of Sacramento website traffic count database.[12] ADT values are also shown for Baseline No Project conditions using the same ratio methods as described above. As shown, Railyards Boulevard between Jibboom Street and 5th Street is projected to 7,100 ADT. Segments of 5th, 6th, and 7th Streets approaching Railyards Boulevard would carry between 700 and 4,400 ADT.

It should be noted that the ADT estimates provided in this analysis are not used directly in the transportation impact analysis. They are provided here because they are inputs used in the air quality, noise, and greenhouse gas emissions analyses. They also provide the reader with an understandable metric that can be used to assess how a given project would cause a change in traffic levels.

Table 4.12-7 displays the LOS and average delay at each study intersection under Baseline No Project Conditions for each peak hour. The J Street / 3rd Street / I-5 Off-Ramps intersection would continue to operate at LOS E during the AM peak hour. The Railyards Boulevard/ Jibboom Street and I Street/Jibboom Street intersections would operate at LOS E and F, respectively, during the PM peak hour. All other study intersections would operate at LOS D or better.

12 http://cityofsacramento.org/Public-Works/Transportation/Traffic-Data-Maps/Traffic-Counts. In some instances, only older counts (i.e., 3 year or more) were available. This data was used to determine a given facility's AM and PM peak hour ratio to daily traffic, which was then applied to the 2015 AM and PM peak hour volumes. This approach is routinely used to estimate ADT values.



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Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

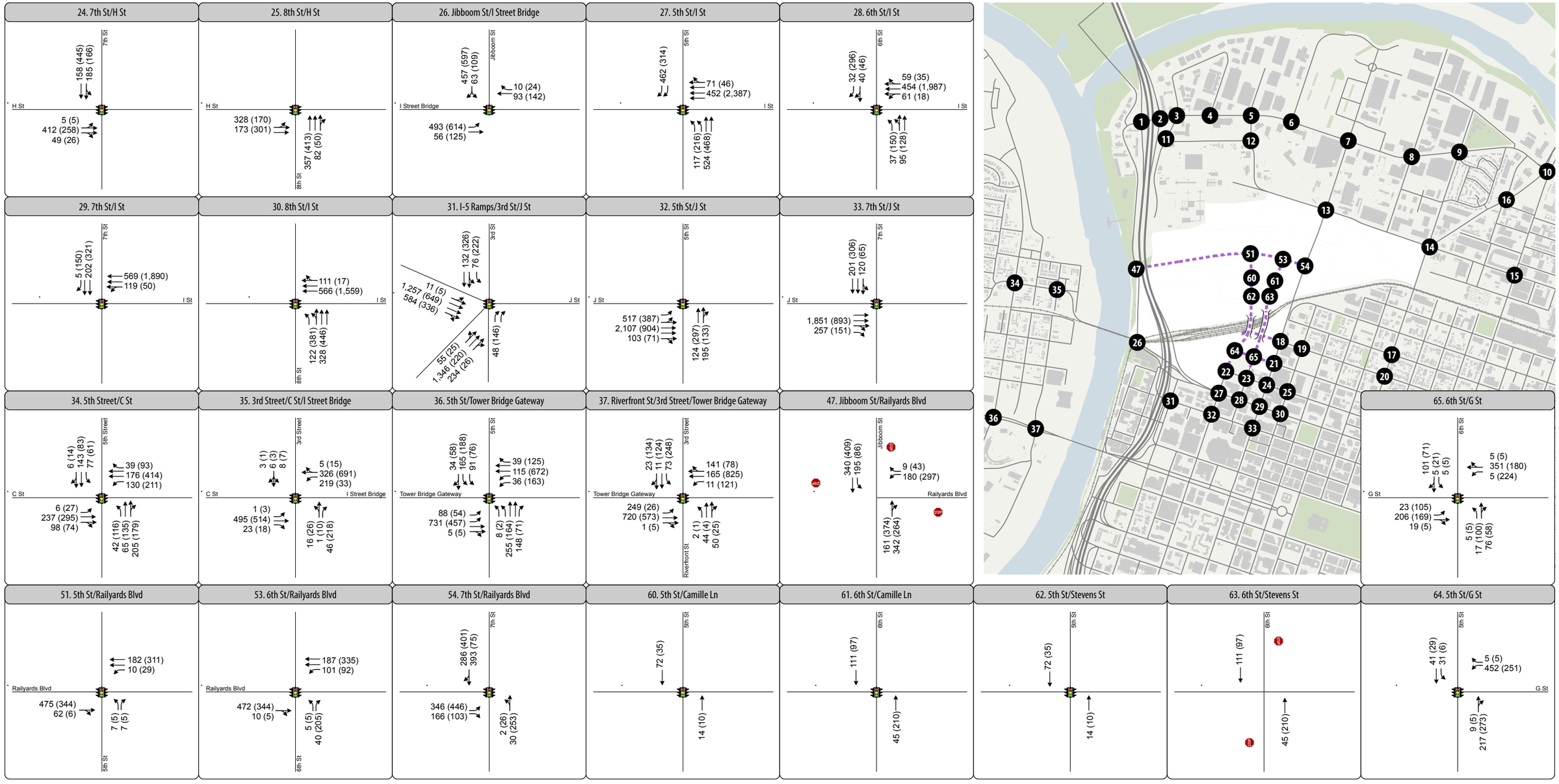
Stop Sign

1 Study Intersection for Given Scenario

Assumed Roadway for Given Scenario

Figure 4.12-14A

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline No Project Conditions



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Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

1 Study Intersection for Given Scenario

Assumed Roadway for Given Scenario

Figure 4.12-14B

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline No Project Conditions

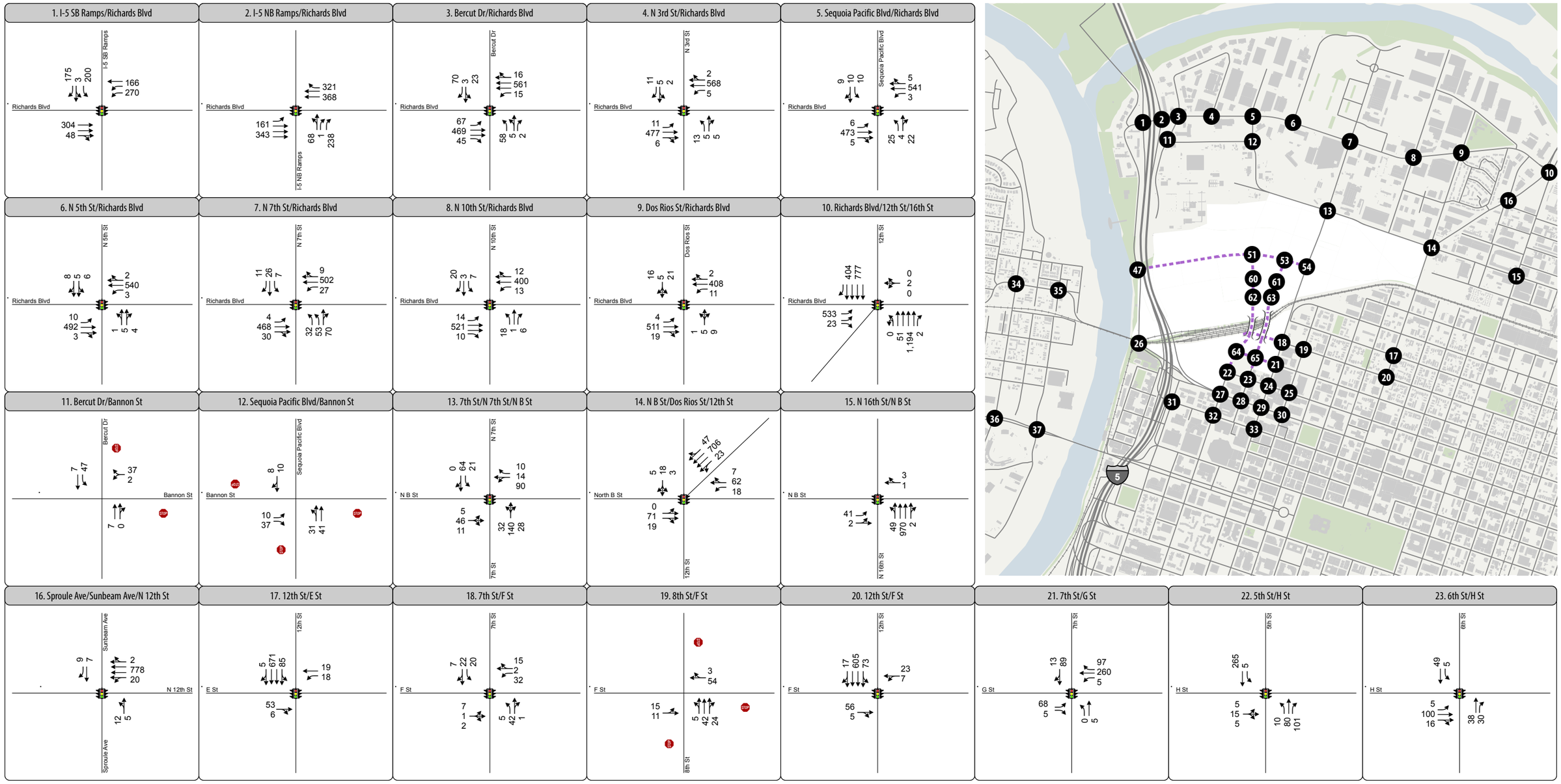

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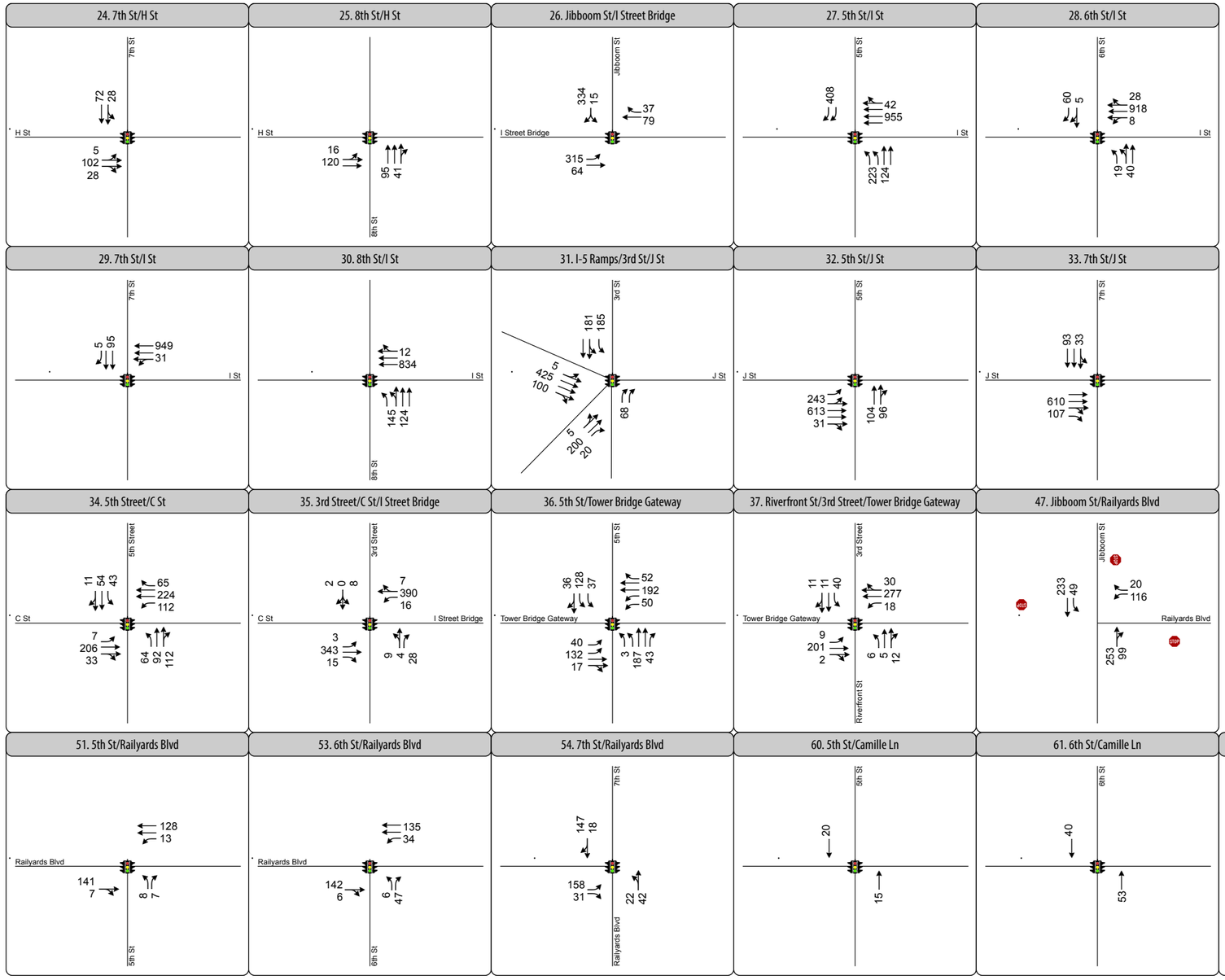
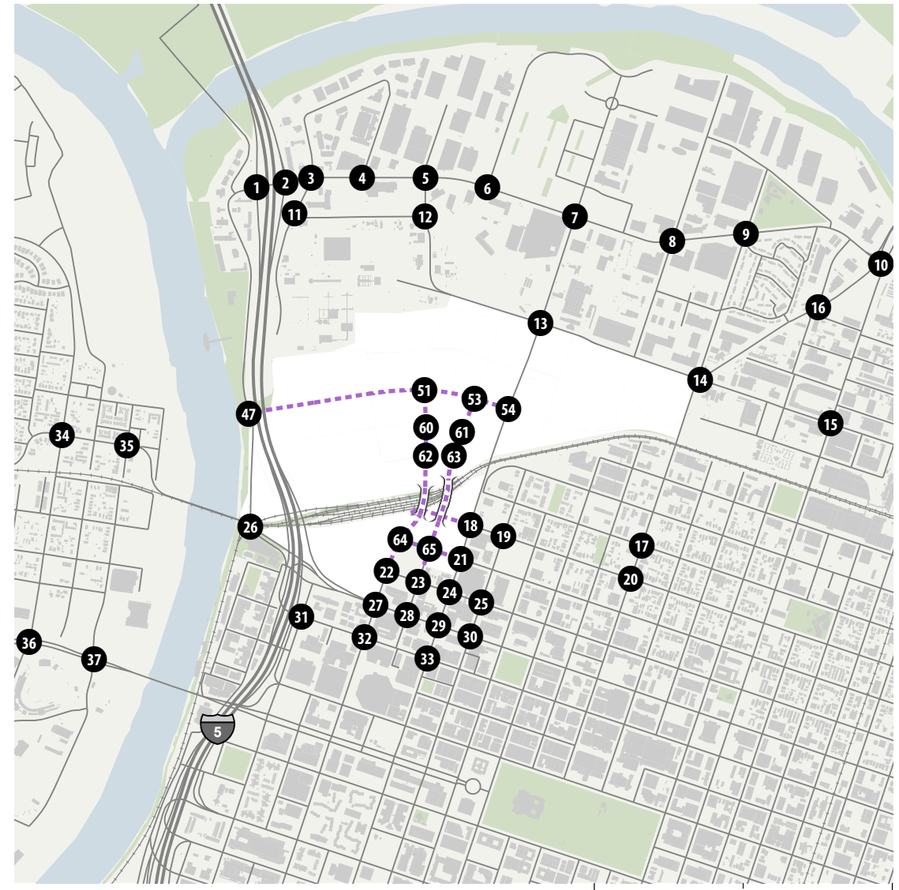
Figure 4.12-15A

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline No Project Conditions





Turn Lane

X,XXX Pre Event Peak Hour Traffic Volume

Traffic Signal

Stop Sign

1 Study Intersection for Given Scenario

Assumed Roadway for Given Scenario

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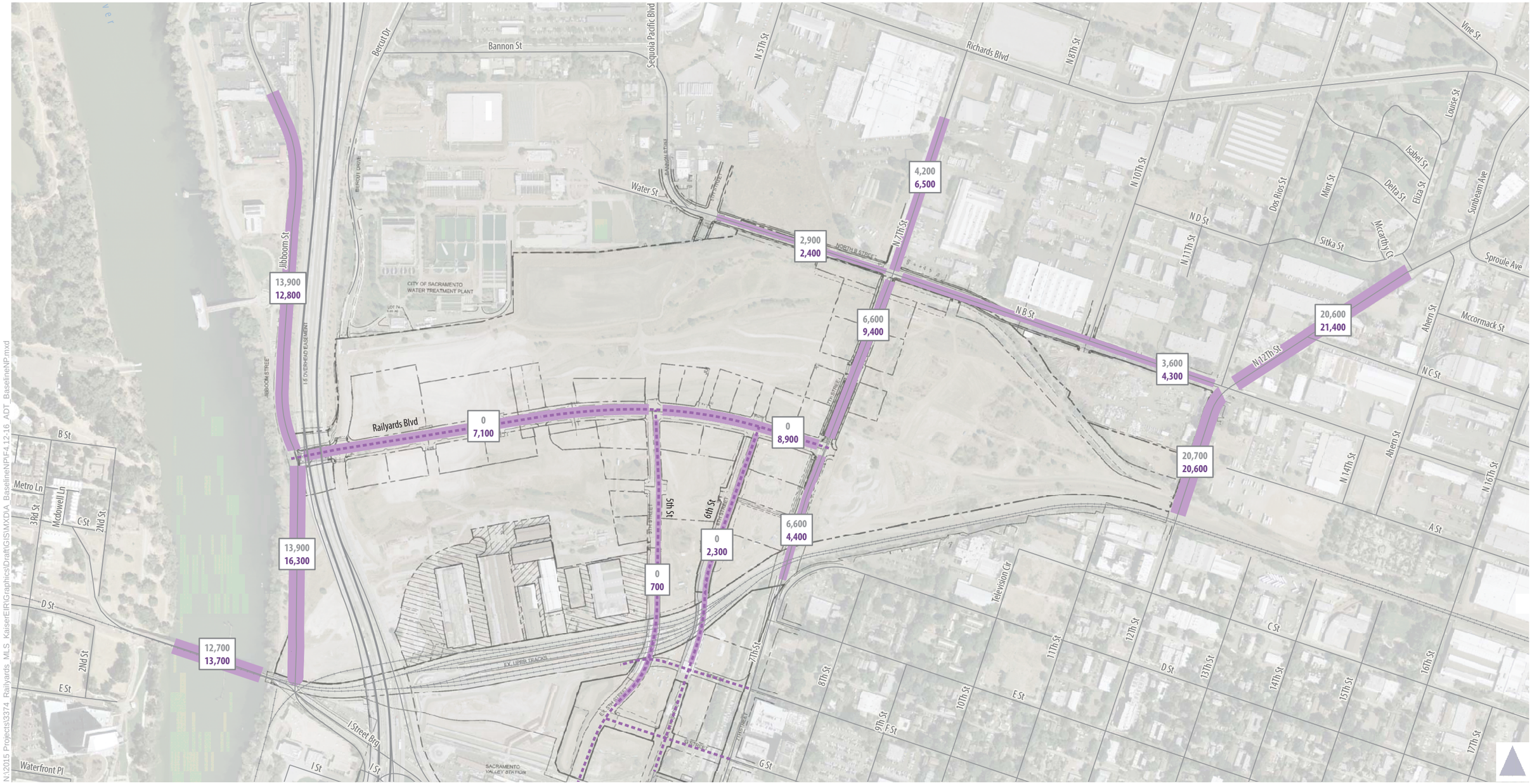
Figure 4.12-15B

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline No Project Conditions



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Roadway Assumed Under Baseline No Project Condition

Baseline No Project Average Daily Traffic (ADT)

X,XXX / X,XXX — Existing ADT / Baseline No Project ADT

Figure 4.12-16

Average Daily Traffic Forecasts - Baseline No Project Conditions

TABLE 4.12-7.
INTERSECTION OPERATIONS – BASELINE NO PROJECT CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	17.2	B	29.8	C	15.2	B
2	Richards Blvd / I-5 NB Ramps	Signal	11.4	B	17.3	B	9.4	A
3	Richards Blvd / Bercut Dr	Signal	14.6	B	28.1	C	11.5	B
4	Richards Blvd / N 3rd St	Signal	7.5	A	14.5	B	3.9	A
5	Richards Blvd / Sequoia Pacific Blvd	Signal	8.7	A	10.4	B	4.4	A
6	Richards Blvd / N 5th St	Signal	8.0	A	7.9	A	5.5	A
7	Richards Blvd / N 7th St	Signal	34.9	C	24.7	C	13.4	B
8	Richards Blvd / N 10th St	Signal	11.1	B	9.5	A	6.0	A
9	Richards Blvd / Dos Rios St	Signal	13.1	B	9.4	A	6.0	A
10	Richards Blvd / N 12th St / 16th St	Signal	37.1	D	29.5	C	13.2	B
11	Bannon St / Bercut Dr	SSSC	5.0	A	5.1	A	3.6	A
12	Bannon St / Sequoia Pacific Blvd	AWSC	4.8	A	6.3	A	4.5	A
13	N B St / N 7th St	Signal	34.4	C	42.8	D	12.1	B
14	N B St / N 12th St	Signal	14.1	B	13.5	B	11.7	B
15	N B St / 16th St	Signal	6.4	A	12.3	B	5.7	A
16	N 12th St / Sunbeam Ave / Sproule Ave	Signal	8.4	A	9.3	A	2.5	A
17	E St / 12th St	Signal	9.0	A	9.9	A	5.2	A
18	F St / 7th St	Signal	8.8	A	9.8	A	4.1	A
19	F St/ 8th St	AWSC	6.7	A	6.4	A	4.6	A
20	F St / N 12th St	Signal	11.3	B	13.1	B	6.2	A
21	G St / 7th St	Signal	16.6	B	15.6	B	8.7	A
22	H St / 5th St	Signal	12.1	B	9.0	A	9.7	A
23	H St / 6th St	Signal	9.5	A	11.3	B	9.8	A
24	H St / 7th St	Signal	9.1	A	8.1	A	6.0	A
25	H St / 8th St	Signal	8.1	A	7.4	A	5.1	A
26	I St / Jibboom St	Signal	42.1	D	95.9	F	18.6	B
27	I St / 5th St	Signal	8.6	A	19.8	B	9.6	A
28	I St / 6th St	Signal	9.3	A	26.6	C	4.5	A
29	I St / 7th St	Signal	7.2	A	9.9	A	7.9	A
30	I St / 8th St	Signal	8.3	A	18.1	B	8.8	A
31	J St / 3rd St / I-5 Off-Ramps	Signal	71.1	E	27.1	C	21.9	C
32	J St / 5th St	Signal	16.9	B	13.9	B	8.8	A
33	J St / 7th St	Signal	10.1	A	10.6	B	8.8	A
34	C St / 3rd St	Signal	20.5	C	22.5	C	16.6	B
35	C St / 5th St	Signal	14.3	B	10.3	B	5.0	A
36	Tower Bridge Gateway / 3rd St	Signal	35.2	D	40.2	D	24.9	C
37	Tower Bridge Gateway / 5th St	Signal	19.9	B	22.5	C	10.8	B
47	Railyards Blvd / Jibboom St	AWSC	15.4	C	35.5	E	9.1	A

TABLE 4.12-7.
INTERSECTION OPERATIONS – BASELINE NO PROJECT CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
51	Railyards Blvd / 5th St	Signal	14.3	B	7.9	A	6.3	A
53	Railyards Blvd / 6th St	Signal	14.5	B	12.5	B	9.3	A
54	Railyards Blvd / 7th St	Signal	45.5	D	51.6	D	9.9	A
60	Camille Ln / 5th St	Signal	0.3	A	0.6	A	0.4	A
61	Camille Ln / 6th St	Signal	0.6	A	0.4	A	0.4	A
62	Stevens St / 5th St	Signal	0.0	A	0.0	A	0.0	A
63	Stevens St / 6th St	Signal	0.2	A	0.3	A	0.1	A
64	G St / 5th St	Signal	8.0	A	7.2	A	13.6	B
65	G St / 6th St	Signal	8.2	A	9.7	A	11.5	B

1. For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches
2. For side-street stop controlled intersections, LOS and average delay reported or the movement with the most delay.
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

Table 4.12-8 displays the LOS for the I-5 and SR 160 study freeway facilities under Baseline No Project Conditions for each peak hour.

TABLE 4.12-8.
FREEWAY OPERATIONS – BASELINE NO PROJECT CONDITIONS

Freeway Facility	Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	B
2. I-5 Northbound – On-ramp from L Street	Merge	27.7	C	34.3	D	25.3	C
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]	-	D	-	E		C
4. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	D	-	F	-	C
5. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	C	-	F	-	D
6. I-5 Northbound – Off-ramp to I-80	Major Diverge	20.6	C	33.9	D	22.0	C
7. I-5 Southbound – On-ramp from I-80	Major Merge	23.2	C	19.0	C	12.4	B
8. I-5 Southbound – On-ramp from WB West El Camino	Merge	27.9	C	23.3	C	16.5	B
9. I-5 Southbound – Off-ramp to Garden Highway	Diverge	26.8	C	22.0	C	13.9	B
10. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]	-	E	-	D		B

TABLE 4.12-8.
FREEWAY OPERATIONS – BASELINE NO PROJECT CONDITIONS

Freeway Facility	Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
11. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	D	-	D	-	B
12. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	15.7	B	31.2	D	17.1	B
13. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	8.6	A	21.9	C	9.7	A
14. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	11.5	B	33.1	D	11.9	B
15. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	29.0	D	19.9	C	11.4	B
16. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	27.6	C	19.2	B	11.4	B
17. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	27.3	D	18.3	C	10.5	A

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
2. Under the Pre-event scenario, ramp volumes are too low to constitute the segment as a weave. Therefore, the segment is analyzed as a basic segment.

Note: Segments 11 – 15 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Similarly, Segments 3 – 6 (i.e., Northbound I-5 from Business 80/US 50 to J Street) are reported at LOS C or D during the PM peak hour. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

SOURCE: Fehr & Peers, 2016.

Baseline Plus RSPU Conditions

As described in Chapter 2, Project Description, the proposed RSPU would consist of the following trip-generating land uses:

- 2,757,027 to 3,857,027 square feet (sf) of office space
- 514,270 sf of retail space
- 771,405 sf of flexible mixed-use space
- KP Medical Center (658,000 sf of hospital and 510,000 sf of medical-office)
- 6,000 to 10,000 multi-family dwelling units
- 1,100 hotel rooms
- 25,000 attendee MLS Stadium
- 485,390 sf of historical and cultural space consisting of 162,525 sf of retail, 142,865 sf of flex space, and 180,000 square-foot museum.

The flexible mixed-use space is assumed to consist of 75 percent office and 25 percent retail per the City of Sacramento Community Development Department. The KP Medical Center land uses

totals shown above exclude the 60,000 square-foot Central Utility Plant (CUP) that generates little or no additional trips.

The non-residential uses would consist of the following totals by land use type:

- 3,442,730 to 4,542,730 sf of office space
- 905,362 sf of retail space
- 658,000 sf hospital space
- 510,000 sf of medical-office space
- 180,000 square-foot museum

The total non-residential land uses (excluding the MLS Stadium) sum to 5,696,092 to 6,796,092 sf.

As described in Chapter 2, Project Description, the RSPU existing zoning permits substantial residential densities that could yield greater than 6,000 total units. Accordingly, it is recognized that if residential development exceeds 6,000 total units, a reduction in non-residential (primarily office) would be necessary so as to not exceed the trip generation estimates presented in this study. An iterative analysis was undertaken (see Technical Memorandum #6 in Appendix J.1.4) that determined that a net increase in 4,000 dwelling units would require a reduction of 1.1 million square feet of office space to result in no net additional trips over the 6,000-unit scenario and 4.5 million square foot office space scenario analyzed herein. Appendix M displays a project site plan and Table M-1 presents land use by block for this scenario. This plan applies a proportional increase in residential to all blocks that previously had residential, and a proportional decrease in office to all blocks that previously had office. Since many of the blocks included both residential and office uses, the net change in trip generation at a block level would be modest. However, it is noted that the (inbound versus outbound) directionality and origins/destinations of those trips would change, which could have the potential to cause localized increases in traffic for certain intersection movements and decrease in other movements.

Table 4.12-9 shows the employment associated with the non-residential uses. While this information is not used directly in the transportation impact analysis, it is used when calculating VMT per capita or employee. It is also helpful in understanding the extent to which the proposed RSPU would import or export shopping or commute trips.

As shown, during typical weekdays when an MLS match is not being played, approximately 22,900 employees would work within the RSPU. An additional 460 employees would be present during days in which an MLS match is being played. The project would have a jobs-housing ratio of 3.8, which implies the majority of workers would be imported from external destinations (i.e., versus live within the RSPU).

TABLE 4.12-9.
EMPLOYMENT WITHIN RAILYARDS SPECIFIC PLAN UPDATE

Land Use	Quantity (square feet)	Employee Ratio	Employees	
			Weekdays Without an MLS Match	Weekdays With an MLS Match
Office	4,542,730	1 per 300 square feet [1]	15,142	15,142
Retail	905,362	1 per 400 square feet [1]	2,263	2,263
KP Medical Center	1,168,000	1 per 275 square feet [2]	4,247	4,247
Museum	180,000	1 per 1,500 square feet [3]	120	120
Hotel	1,100 rooms	1 per room	1,100	1,100
MLS Stadium	N / A	N / A [4]	30	490
		Total	22,902	23,362

NOTES:
[1] Based on employment yields from *RSP EIR* (2007).
[2] Based on ESA's studies of employment density at other Kaiser Medical Center facilities.
[3] Based on ESA's studies of employment density at other museums.
[4] Based on data from Convention Sports & Leisure International who is working on behalf of the applicant.

SOURCE: Fehr & Peers, 2016.

Travel Characteristics of TODs

This following provides some background information related to the expected mode split for residents, employees, and retail patrons in transit-oriented developments (TODs) and in downtown Sacramento.

A substantial amount of research has been conducted on the topic of TOD travel behavior. This section highlights the key findings of several research studies that are applicable to the proposed project's travel characteristics. A 2004 research paper entitled *Travel Characteristics of Transit-Oriented Development in California*[13]analyzed travel behavior of TOD residents, employees, and retail patrons at various TODs located on transit (heavy rail, light rail, and commuter rail) lines in Northern and Southern California. The following summarizes some key findings from that research:

- A total of 624 completed surveys of TOD residents were obtained from 26 different stations. The following summarizes their self-reported transit use (either bus or rail):
  - Home-Based Work Trips: 26.5% via bus or rail
  - Home-Based Non-Work Trips: 8.1% via bus or rail
- A total of 877 completed surveys of TOD employees were obtained from 10 different stations. Transit (either rail or bus) was indicated as the primary commute mode by 18.8% of the surveyed TOD employees.

[13] Cervero, Lund, and Willson, 2004. Travel Characteristics of Transit-Oriented Development in California.

- Surveys of 1,237 retail patrons were conducted at three major transit-focused shopping centers along the Los Angeles Metro, BART, and San Diego Trolley lines. Approximately 20 percent of those surveyed indicated that they had used transit (either bus or rail) to access the site.

The Cervero, Lund, and Willson (2004) research found that levels of transit usage varied significantly by region and rail type. In general, TODs located closer to central business district or adjacent to rail systems with more frequent headways tended to have greater levels of ridership.

Downtown Sacramento Mode Split

According to the 2010 Census, residents of Sacramento's Central City have the following journey-to-work mode splits:

- 15% walk
- 8% bike
- 7% transit

The walk/bike share of non-commute trips is likely higher. This data suggests that downtown residents may have a non-auto mode split of at least 30 percent.

Exhibit 3-19 in Chapter 3 of the 2010 HCM displays the transit share of downtown commuters for several large metropolitan areas. These data, derived in *Commuting in America III, The Third Report on Commuting Patterns and Trends,*[14] show 12 percent of commuters heading into downtown Sacramento chose transit.

MXD+ Trip Generation Tool

The internalization of trips within the RSP Area was estimated using a Mixed-Use Trip Generation Model (MXD), which was developed for the US Environmental Protection Agency (EPA) to estimate internal trip-making and external trips by non-auto travel modes. This model was developed by consultants and academic researchers to more accurately estimate the external vehicular trip generation of mixed-use land development projects than prior methods (e.g., ITE internalization spreadsheet). The model was developed based on empirical evidence at 240 mixed-use projects located across the U.S. The model considers various built environment variables such as land use density, regional location, proximity to transit, and various design variables when calculating the project's internal trips, and external trips made by auto, transit, and non-motorized modes. The MXD model has been applied in numerous EIRs and other CEQA documents throughout California. Appendix J.1 of the Draft EIR contains MXD+ model output for the proposed RSPU.

[14] Transportation Research Board Subcommittee on Census Data for Transportation Planning, 2006. Commuting in America III, The Third Report on Commuting Patterns and Trends. 2006.

Table 4.12-10 displays the daily, AM peak hour, and PM peak hour trip generation of the proposed RSPU under baseline conditions. The data in this table incorporate analysis results from the proposed KP Medical Center and the proposed MLS Stadium, which are described in detail later in this section.

It should be noted that the internalization and non-auto external mode split percentages do not apply equally to all land use types. These percentages represent the overall level of reductions based on the MXD+ model results. Some uses, such as office and residential, would have greater reduction levels than others, such as the retail and medical center. No pass-by reductions have been made because the MXD+ modeling is calibrated to total external trips (including new and pass-by). Accordingly, further reductions for pass-by are not warranted.

This table shows that between 13 and 20 percent of proposed RSPU trips (depending on the analysis period) are expected to remain internal to the site. The use of transit varies from 7 to 13 percent of project trips (depending on the analysis period). External travel by walk and bike varies from 11 to 15 percent of project trips (depending on the analysis period). The proposed RSPU (assuming a MLS match is not being played) would generate approximately 114,600 external daily trips, 7,230 AM peak hour trips (72 percent inbound), and 9,530 PM peak hour trips (65 percent outbound).

With buildout of the proposed RSPU, opportunities for walking and bicycling to the MLS Stadium would increase substantially due to new nearby land uses. Accordingly, the walk/bike mode split of MLS Stadium attendees is estimated to increase from 3.5 percent (estimated for MLS Stadium-only conditions) to 6 percent (MLS Stadium and buildout of RSPU). For a baseline condition analysis, it is not reasonable to assume a substantial redistribution of soccer match attendee residences to new housing (or employment centers) near the MLS Stadium. Such activity, while likely, would take place over a number of years.

The 10,000 unit RSPU scenario would generate fewer external vehicle trips than the RSPU with 6,000 units on a daily basis and during the peak, directional time periods. However, when compared to the 6,000 unit RSPU, it would generate 15.5 percent more traffic in the outbound direction during the AM peak hour and 3.6 percent more traffic in the inbound direction during the PM peak hour. This increases represent 290 additional AM peak hour outbound vehicle trips and 110 additional PM peak hour inbound vehicle trips over the 6,000 unit RSPU. However, as noted previously, these movements would occur in the non-peak travel direction. Further, when these trips are distributed across the variety of external RSP Area gateways, the net increase on a particular roadway or intersection would likely be modest and not expected to generate any new or greater impacts. However, should development plans demonstrate a meaningfully different mix and location of uses than is shown in Appendix M, then supplemental evaluation of those changes would be necessary.

TABLE 4.12-10.
PEAK HOUR AND DAILY TRIP GENERATION OF RAILYARDS SPECIFIC PLAN BUILDOUT – BASELINE CONDITIONS

Land Use	ITE Land Use Code	Quantity	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
KP Medical Center	N / A	1,168 ksf	14,418	14,418	28,836	1,624	432	2,056	771	1,729	2,500
Office	710	4,542.7 ksf	25,053	25,053	50,106	6,237	850	7,087	1,151	5,618	6,769
Retail	820	905.4 ksf	26,708	26,708	53,416	746	456	1,204	2,173	2354	4,527
Multi-Family Residential	232	6,000 units	12,540	12,540	25,080	388	1,652	2,040	1,414	866	2,280
Hotel	310	1,100 rooms	4,494	4,494	8,988	344	239	583	337	323	660
Museum	580	180 ksf	800	800	1,600	138	22	160	17	87	104
MLS Stadium [2]	N / A	N / A	100	100	200	20	0	20	0	20	20
		Gross Trips	84,113	84,113	168,226	9,497	3,651	13,150	5,863	10,997	16,860
		Reduction for Internal Trips [3] (12.7% Daily / 17.7% AM / 19.8% PM)	-10,682	-10,682	-21,365	-1,681	-646	-2,328	-1,161	-2,177	-3,338
		Reduction to Account for Transit Trips [3] (7.3% Daily / 12.8% AM / 12.7% PM)	-6,140	-6,140	-12,280	-1,216	-467	-1,683	-745	-1,397	-2,141
		Reduction to Account for Walk/Bike Trips [3] (11.9% Daily / 14.5% AM / 11.0% PM)	-10,009	-10,009	-20,019	-1,377	-529	-1,907	-645	-1,210	-1,855
		Net External Vehicle Trips	57,281	57,281	114,562	5,223	2,008	7,233	3,313	6,213	9,526

NOTES:

[1] Gross trip rates based on *Trip Generation Manual* (Institute of Transportation Engineers, 2012) for all land uses with the exception of the medical center whose trip generation was based on measured trip rates at the Kaiser Morse Avenue Medical Center. Trip rates for office space based on weighted average rate given amount of office space. Trip rates for retail based on fitted curve equation for typical size of 150,000 square-foot retail center.

[2] For this typical weekday condition scenario, no MLS match assumed at proposed MLS stadium. Assumed trips are associated with modest levels of on-site employees (administrative, janitorial, etc.).

[3] Internal trips, and external trips made by transit, walking, and bicycling based on MXD+ model output (see previous page).

Source: Fehr & Peers, 2016.

Table 4.12-11 displays the proposed RSPU buildout trip generation during the Pre-event peak hour assuming an MLS match is being played. The RSPU (assuming an MLS match is being played) would generate approximately 8,320 inbound vehicle trips and 2,960 outbound vehicle trips during the Pre-event peak hour.

TABLE 4.12-11.
PRE-EVENT PEAK HOUR TRIP GENERATION OF RSPU WITH MLS MATCH – BASELINE CONDITIONS

Land Use	Quantity	Net External Vehicle Trips[1]		
		In	Out	Total
KP Medical Center Office Retail Multi-Family Residential Hotel Museum	1,168 ksf 4,542.7 ksf 905.4 ksf 6,000 units 1,100 rooms 180 ksf	1,456	2,734	4,190
MLS Stadium[2]	N / A	6,866	229	7,095
Total Net External Vehicle Trips		8,322	2,963	11,285

NOTES:

[1] Net external vehicle trips during Pre-event peak hour for non-MLS Stadium land uses represents 44 percent of the trips generated by these uses during the PM peak hour. This 0.44 factor is based on the existing PM peak hour-to-Pre-event peak hour traffic volume ratios during the weekday on segments of I Street, J Street, 5th, 7th, 12th, and 16th Streets.

[2] Sold-out 25,000-person MLS match with 7:30 PM start time assumed at MLS stadium. Vehicle mode split estimated to be 87.5%. The non-vehicle modes include: walk (3.5%), bicycle (2.5%), bus (0.5%), and light rail (6%). Refer to Table 4.12-27.

Source: Fehr & Peers, 2016.

Table 4.12-12 presents the estimated external daily trip generation of the RSPU on a weekday when an MLS match is being played. As shown, an MLS match would cause the RSPU daily vehicular trip generation to increase from 114,600 to 135,700 trips.

TABLE 4.12-12.
DAILY TRIP GENERATION OF RSPU WITH MLS MATCH – BASELINE CONDITIONS

Land Use	Quantity	Net External Vehicle Trips		
		In	Out	Total
KP Medical Center Office Retail Multi-Family Residential Hotel Museum	1,168 ksf 4,542.7 ksf 905.4 ksf 6,000 units 1,100 rooms 180 ksf	57,281	57,281	114,562
MLS Stadium [1]	Attendees	10,137	10,137	20,274
	Employees [2]	418	418	836
Total Net External Vehicle Trips		67,836	67,836	135,672

NOTES:

[1] Sold-out 25,000-person MLS match at MLS stadium. Vehicle mode split estimated to be 87.5% The non-vehicle modes include: walk (3.5%), bicycle (2.5%), bus (0.5%), and light rail (6%).

[2] MLS match assumed to have 460 employees with an average vehicle occupancy of 1.1 employees (and conservatively assuming all drive into the RSP Area and are shuttled from a remote lot.

Source: Fehr & Peers, 2016.

The base year version of the SACMET model was updated to incorporate the RSPU roadway network and land uses. The model was then used to track and assign vehicle trips through the study intersections and freeway facilities. The project not only includes new trip generating land uses, but also introduces new street connections that cause a redistribution of background traffic. The trip assignment patterns were reviewed for reasonableness, and in some instances, traffic was rerouted (i.e., travel demand models are not sensitive to the level of congestion at a given intersection, and typically produce 'all or nothing' traffic assignments).

Figures 4.12-17 and 4.12-18 display the distribution of inbound and outbound trips, respectively, to the RSPU. These figures depict only project trips and do not convey the extent to which the completion of the various planned roadways influences changes in background travel.

Figures 4.12-19a - c display the Baseline Plus RSPU AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. Refer to the prior sub-section that described the RSPU Circulation System for a detailed discussion of planned traffic signals and lane configurations.

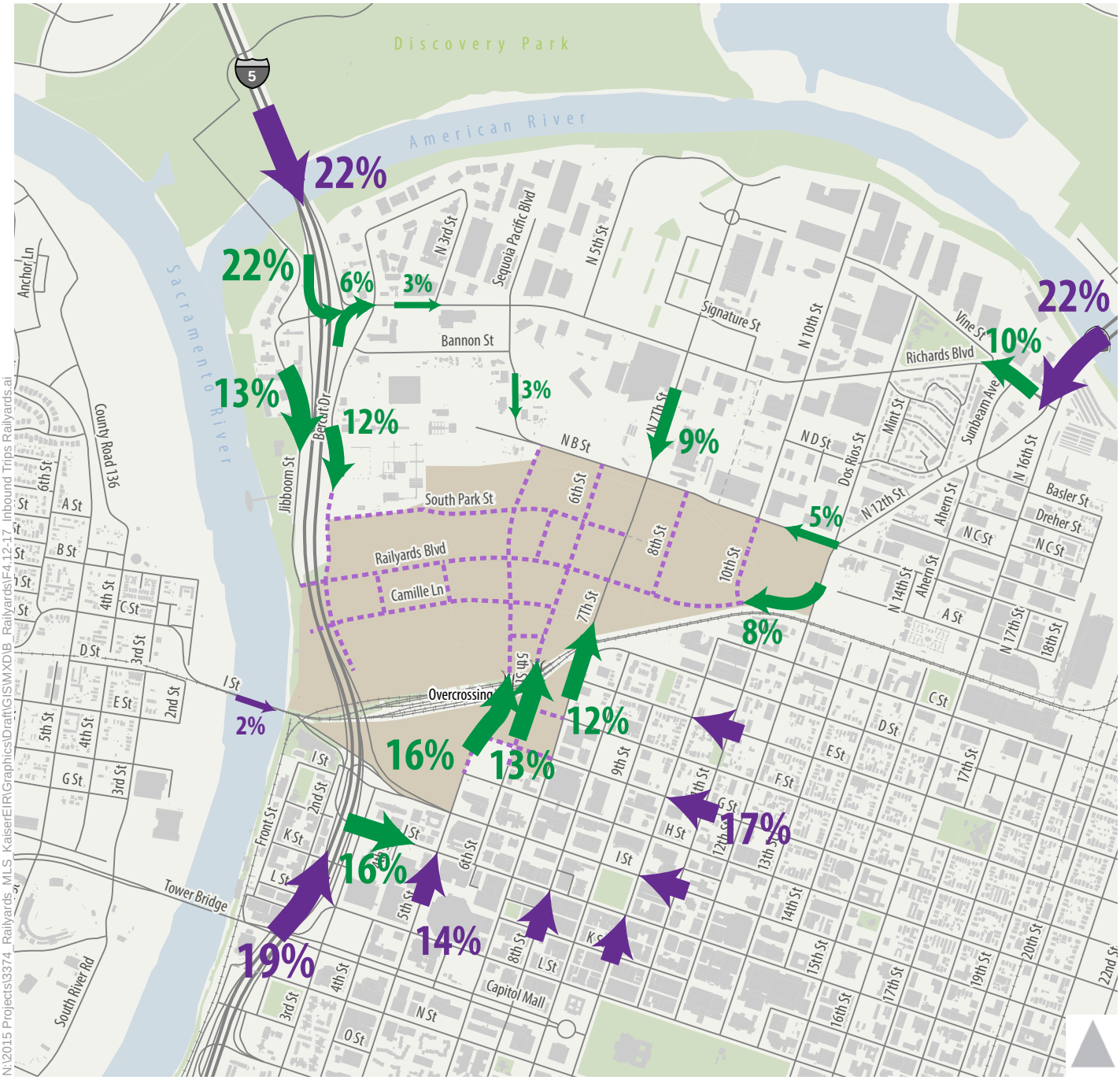
Figure 4.12-20a - c display similar information for the Pre-event peak hour. The values in this figure assume an MLS match is being played.

Figure 4.12-21 displays the ADT on selected roadways within the RSP Area and along its boundary. The values in this figure assume an MLS match is not being played.

Table 4.12-13 displays the average delay and LOS at each study intersection under Baseline Plus RSPU Conditions for each peak hour. There are 64 study intersections under this scenario, with 53 being signalized, five consisting of all-way stop, and six consisting of side-street stop. During the AM peak hour, three would operate at LOS E and one would operate at LOS F. During the PM peak hour, five would operate at LOS E and two would operate at LOS F. During the Pre-event peak hour, five would operate at LOS E and two would operate at LOS F.

Table 4.12-14 displays operations at the study freeway facilities under Baseline Plus RSPU Conditions for each peak hour. During the AM peak hour, two segments would worsen from LOS E to F. During the PM peak hour, two segments currently operating at LOS F would be exacerbated by the addition of RSPU traffic. During the Pre-event peak hour, the westbound SR 160 segments would degrade from LOS A/B under no project conditions to LOS E under Baseline plus RSPU conditions.

Table 4.12-15 displays maximum expected queue lengths and available storage on the I-5 off-ramps expected to be used by project trips under Baseline Plus RSPU Conditions. As shown, the RSPU would cause the maximum vehicle queue on I-5 NB off-ramp at J Street to substantially exceed the available storage during the AM and Pre-event peak hours, which would cause traffic to spill onto the mainline segment of I-5. During the AM peak hour, the maximum queue at the I-5 NB off-ramp at Richards Boulevard would exceed the available storage. During the Pre-event peak hour, the I-5 SB off-ramp at Richards Boulevard would exceed the available storage.



Project Roadway Assumed Under Baseline Plus RSPU

External Cordon Trip Distribution Percentage

Trip Distribution Percentage at/near Project Boundary

Railyards Specific Plan Update (RSPU)

Note

Percentages show proportion of project trips using a given roadway. Totals do not sum to 100% due to scale of map, some local trips that originate within the cordon, and rounding.

Figure 4-12-17

Distribution of Inbound Vehicle Trips - Baseline Plus RSPU Conditions

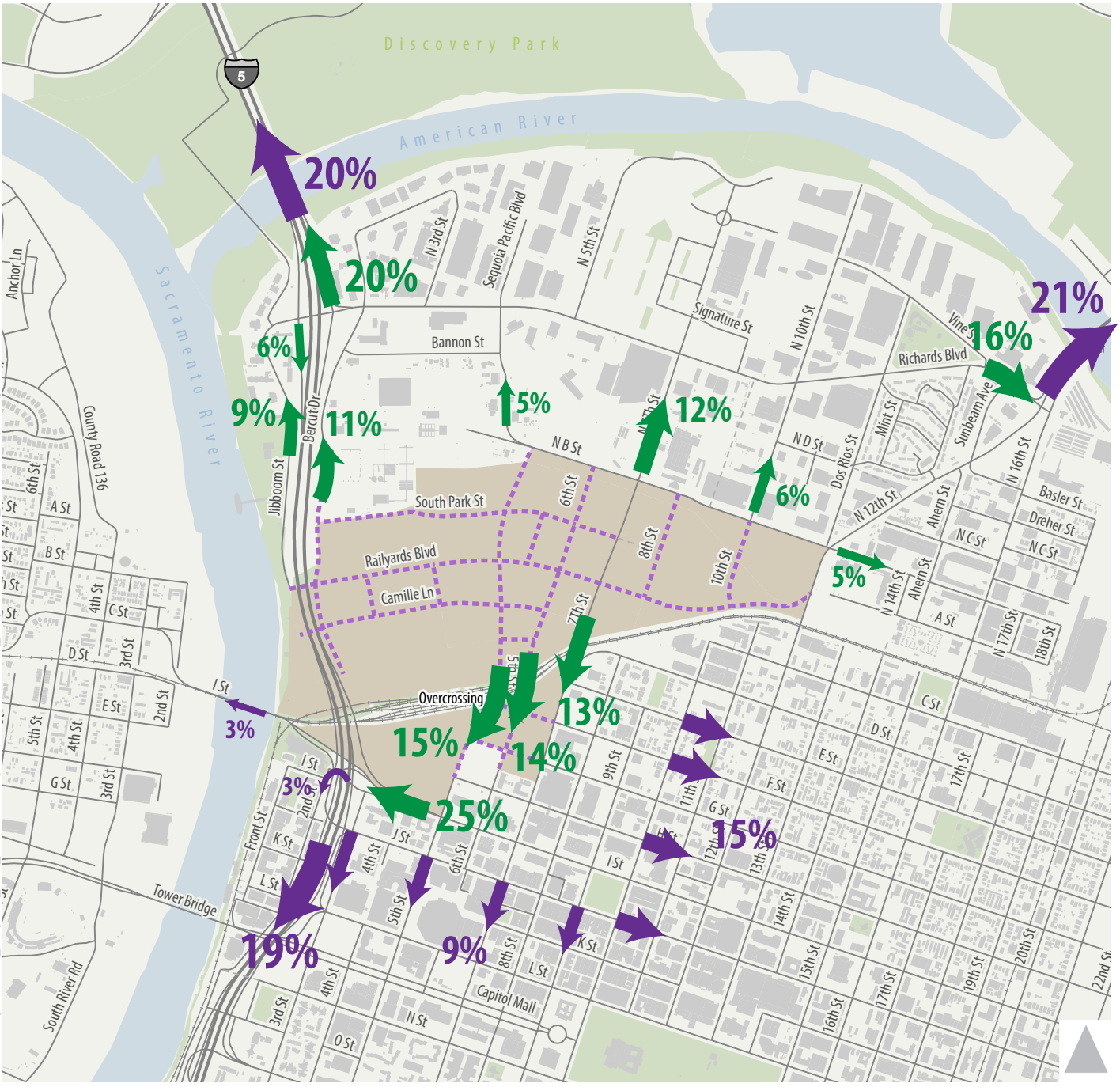
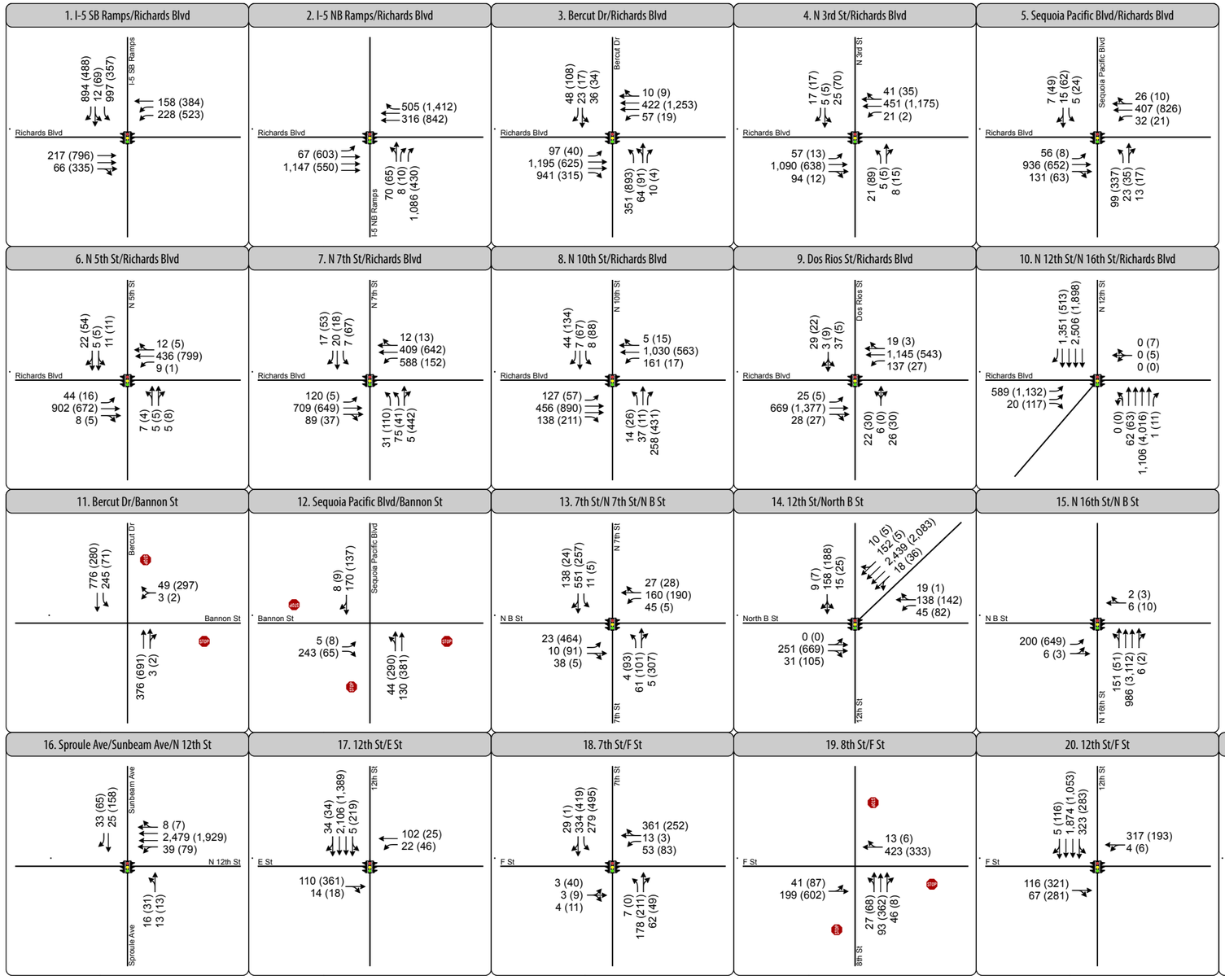
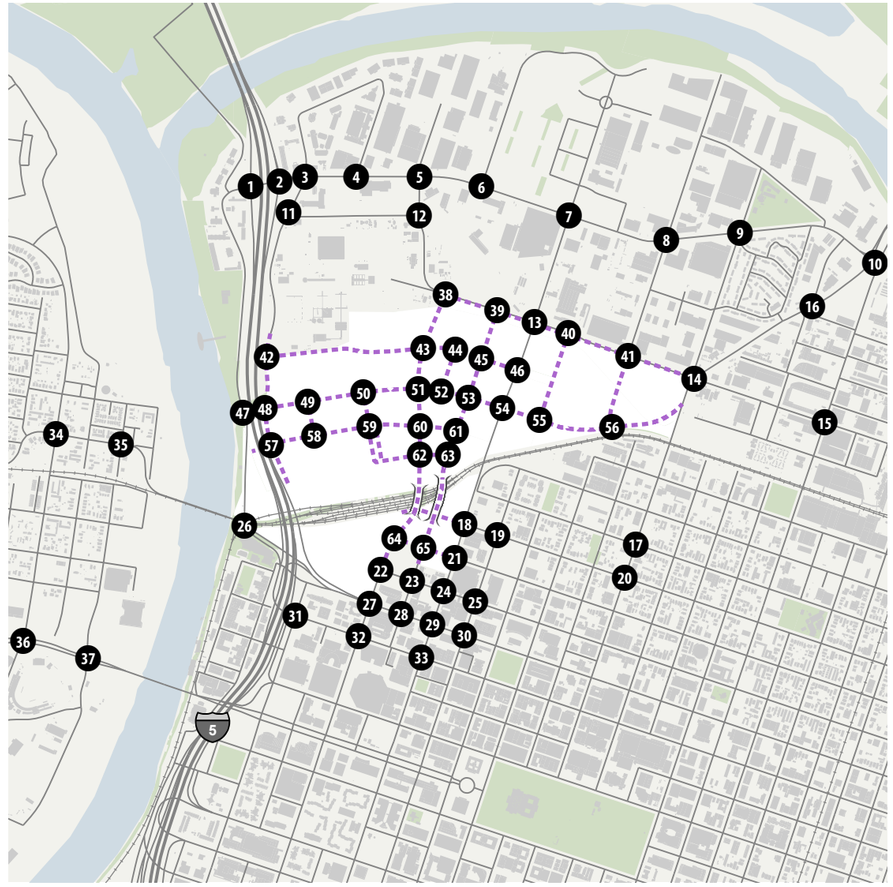


Figure 4.12-18

Distribution of Outbound Vehicle Trips - Baseline Plus RSPU Conditions





1 Study Intersection for Given Scenario

Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-19A

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions

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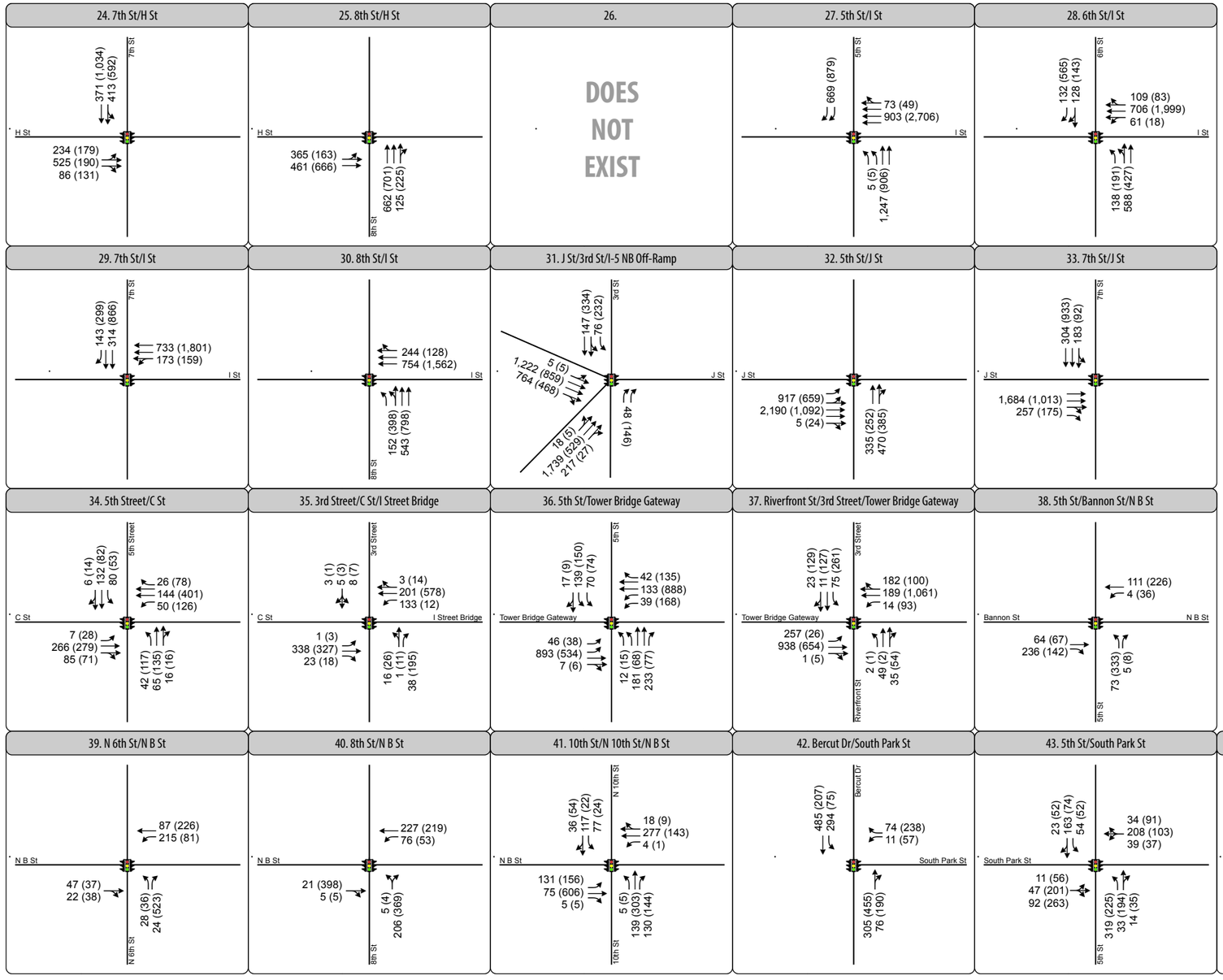


1 Study Intersection for Given Scenario

Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-19B

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions

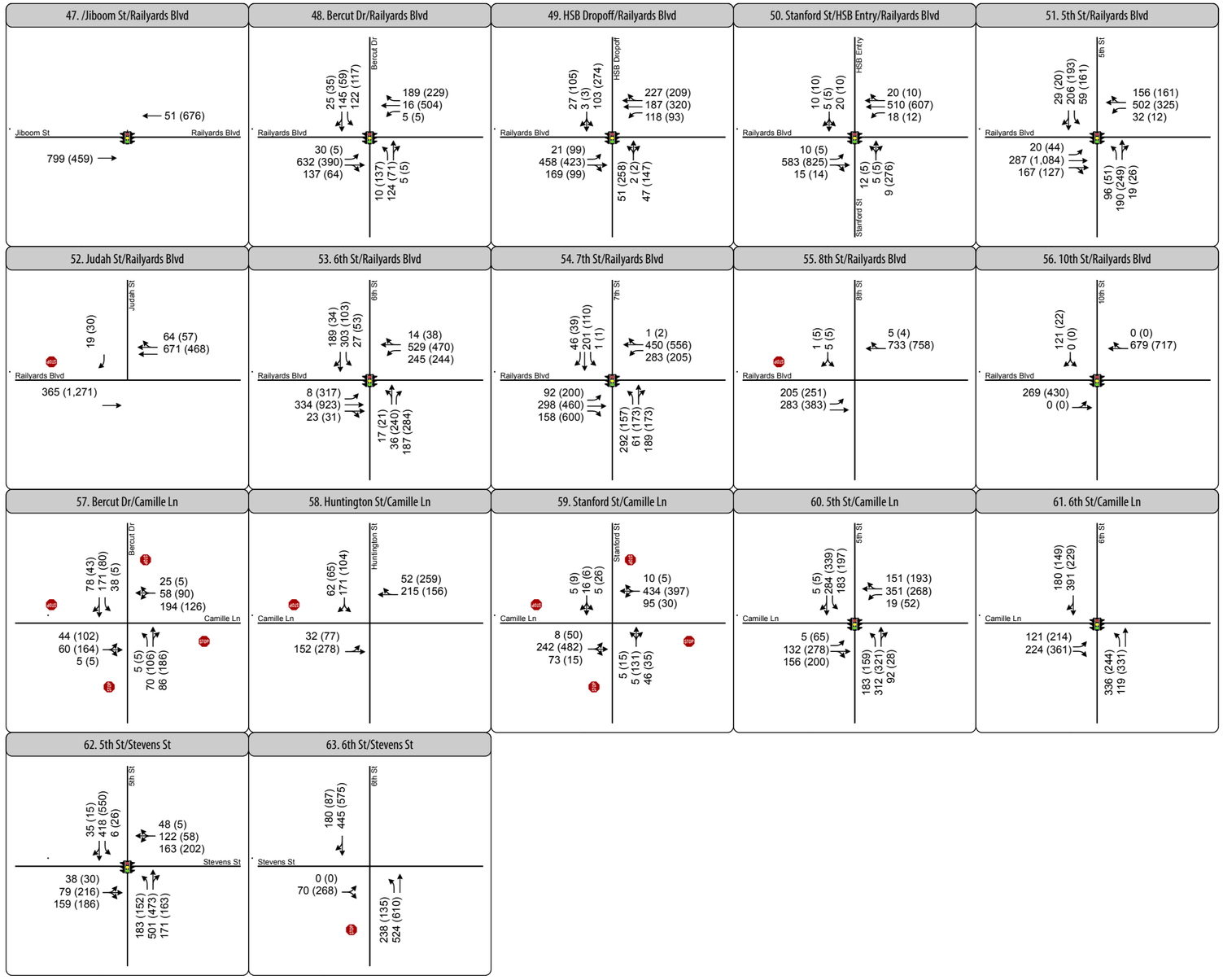
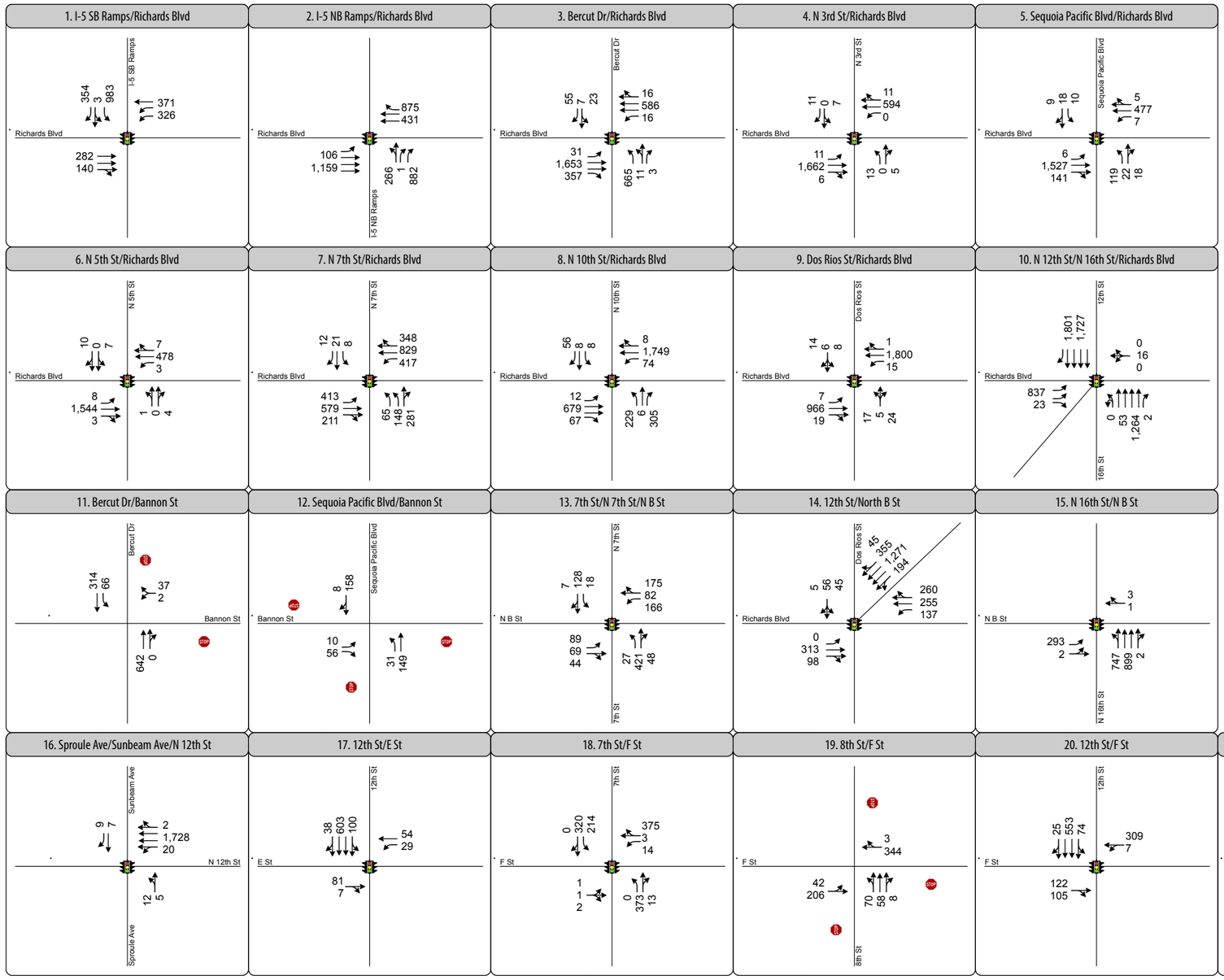


Figure 4.12-19C

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions



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1 Study Intersection for Given Scenario

Turn Lane

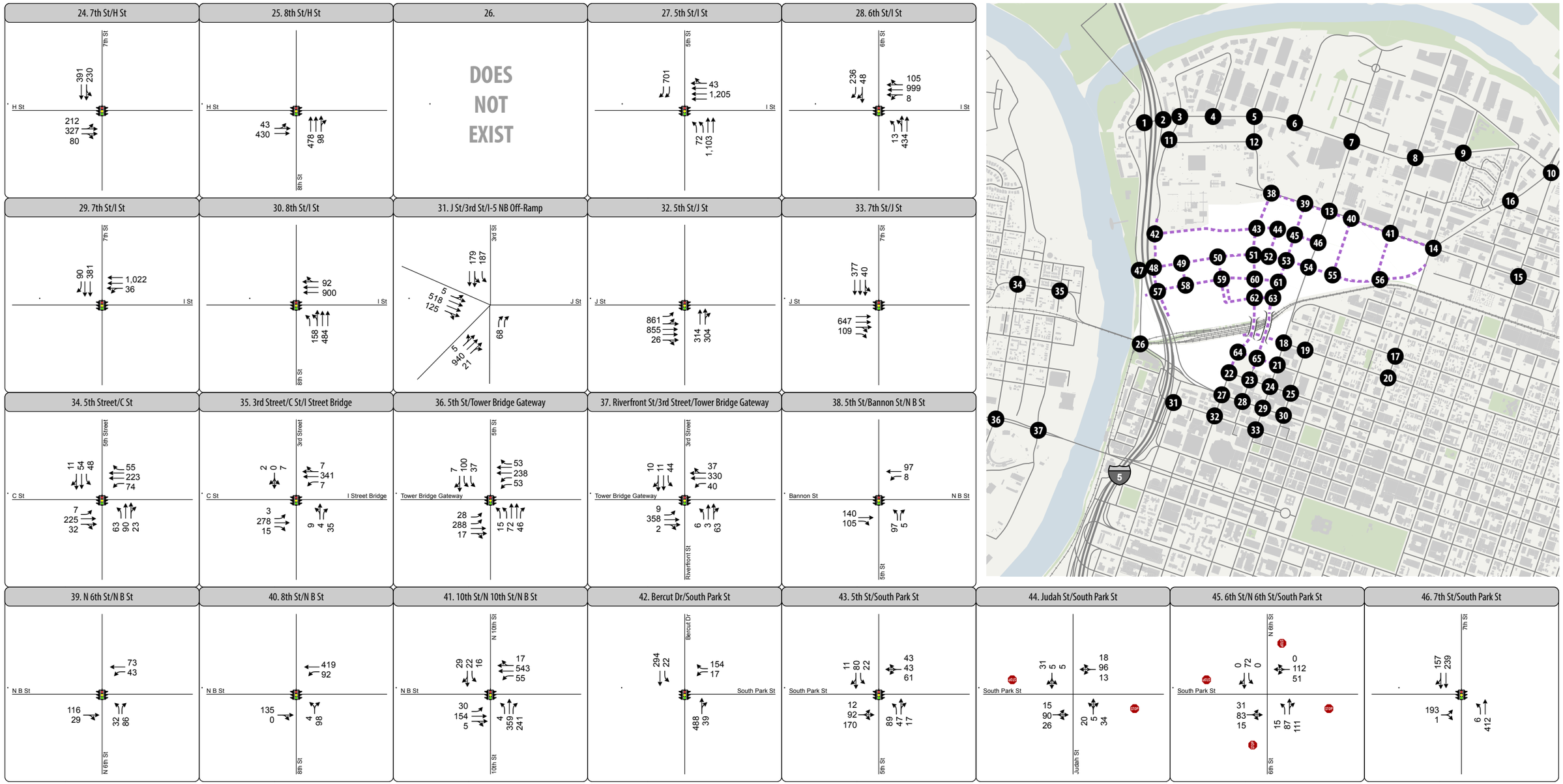
AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-20A

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions



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1 Study Intersection for Given Scenario

Turn Lane

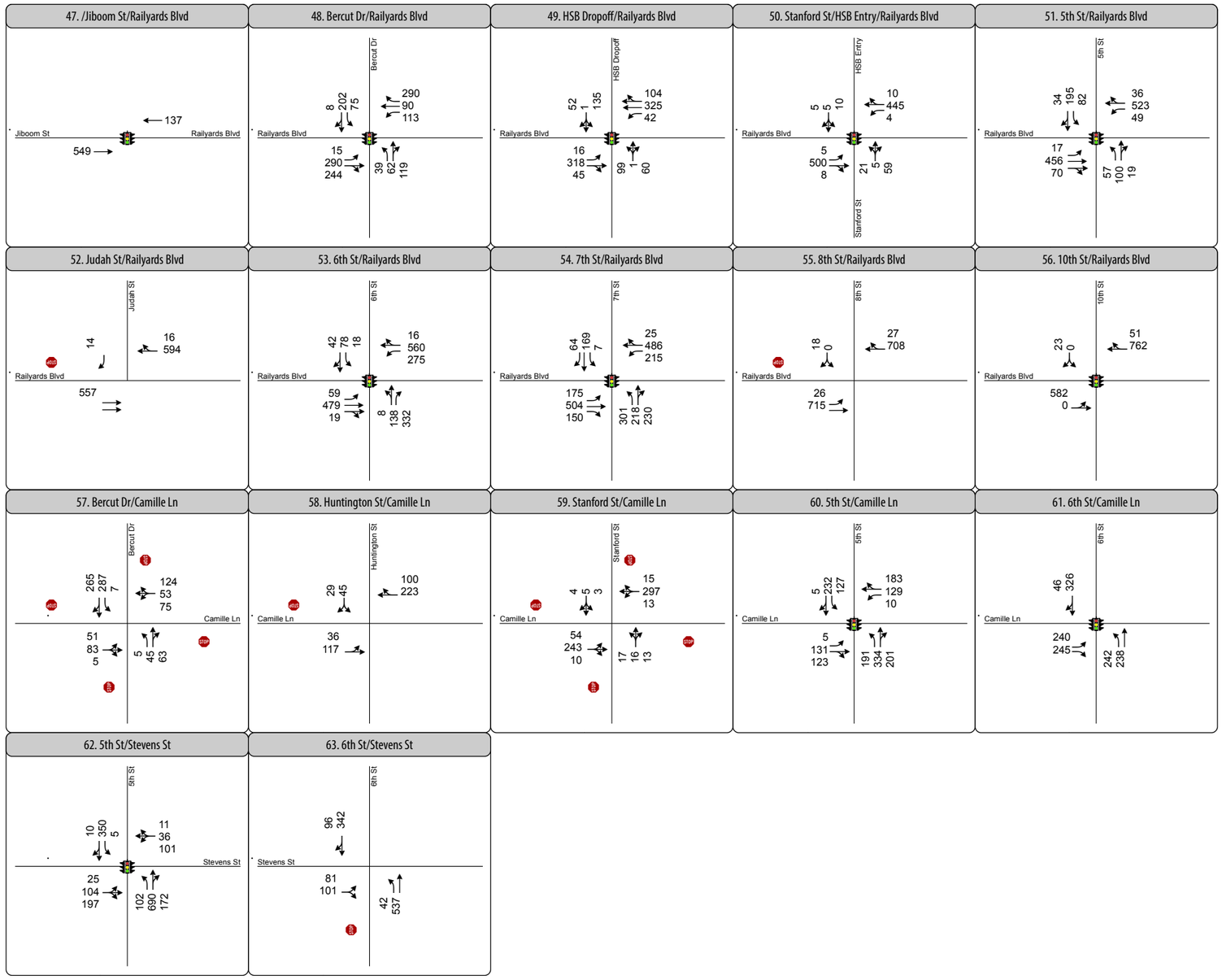
AM (PM) Peak Hour Traffic Volume

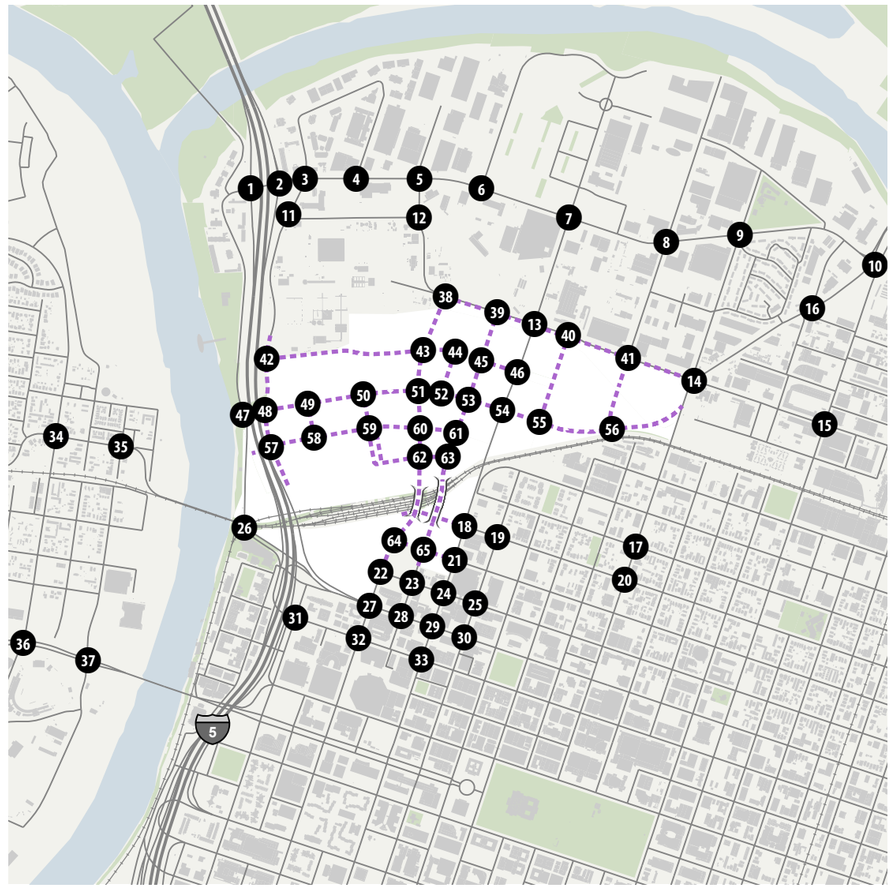
Traffic Signal

STOP Stop Sign

Figure 4.12-20B

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions





1 Study Intersection for Given Scenario

Turn Lane

AM (PM) Peak Hour Traffic Volume

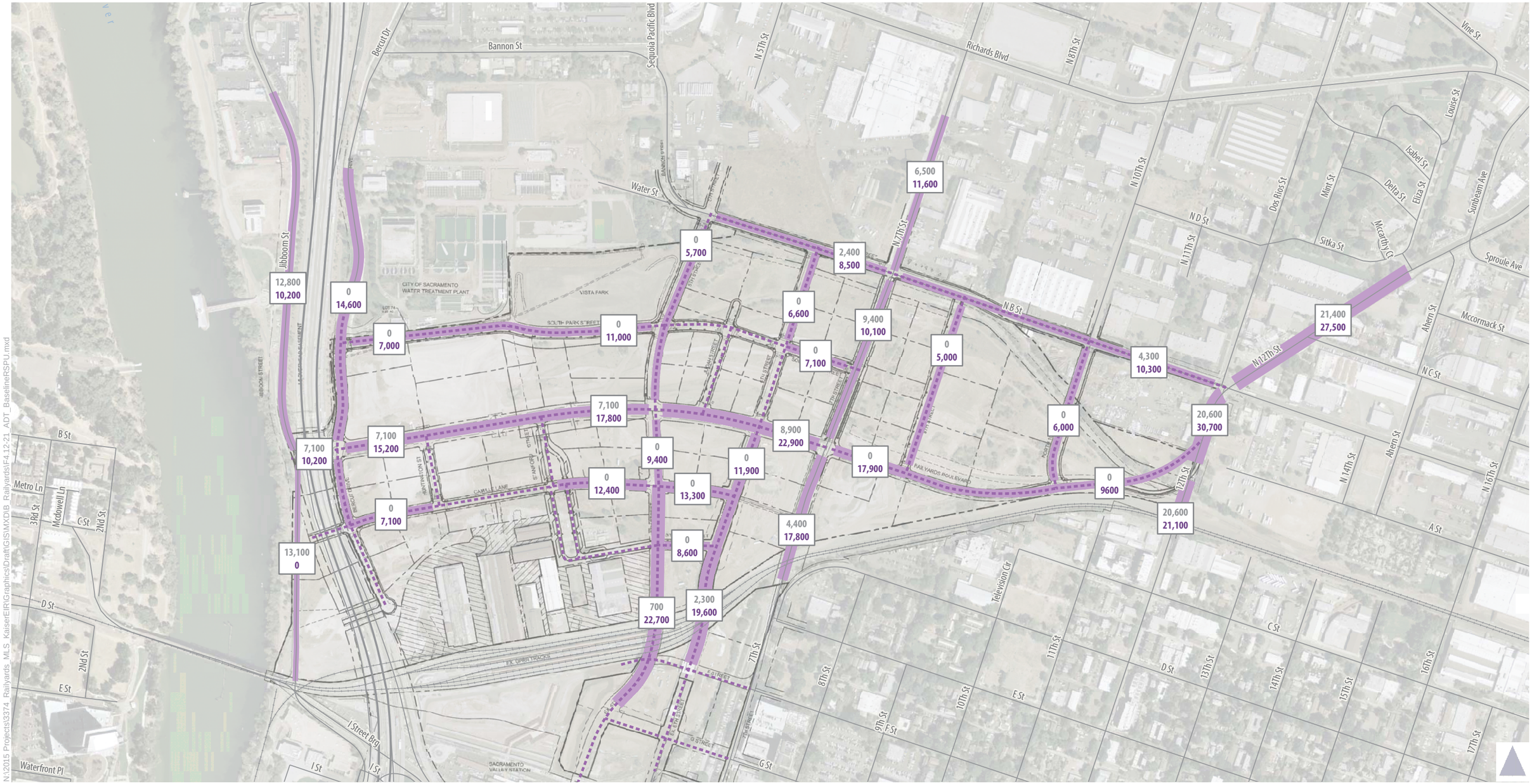
Traffic Signal

Stop Sign

N:\2015 Projects\3374_Railyards_MLS_KaiserEIR\Graphics\Draft\GIS\MXD\B_Railyards\F4.12-20_RailYards_PreEvPHTV.mxd

Figure 4.12-20C

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus RSPU Conditions



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Roadway Assumed Under Baseline Plus RSPU Condition

Baseline Plus RSPU Average Daily Traffic (ADT)

X,XXX
X,XXX

Baseline No Project ADT
Baseline Plus RSPU ADT

Figure 4.12-21

Average Daily Traffic Forecasts - Baseline Plus RSPU Conditions

TABLE 4.12-13.
INTERSECTION OPERATIONS - BASELINE PLUS RSPU CONDITIONS

	Intersection	Control Type	Baseline No Project Conditions						Baseline Plus RSPU Conditions					
			AM Peak Hour		PM Hour		Pre-event Peak Hour		AM Peak Hour		PM Peak Hour		Pre-event Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	17.2	B	29.8	C	15.2	B	44.2	D	60.5	E	45.8	D
2	Richards Blvd / I-5 NB Ramps	Signal	11.4	B	17.3	B	9.4	A	30.4	C	14.9	B	30.1	C
3	Richards Blvd / Bercut Dr	Signal	14.6	B	28.1	C	11.5	B	22.1	C	91.7	F	40.1	D
4	Richards Blvd / N 3rd St	Signal	7.5	A	14.5	B	3.9	A	7.7	A	25.1	C	4.1	A
5	Richards Blvd / Sequoia Pacific Blvd	Signal	8.7	A	10.4	B	4.4	A	14.4	B	36.5	D	14.7	B
6	Richards Blvd / N 5th St	Signal	8.0	A	7.9	A	5.5	A	7.5	A	8.6	A	6.1	A
7	Richards Blvd / N 7th St	Signal	34.9	C	24.7	C	13.4	B	35.8	D	32.7	C	72.4	E
8	Richards Blvd / N 10th St	Signal	11.1	B	9.5	A	6.0	A	14.7	B	16.9	B	16.1	B
9	Richards Blvd / Dos Rios St	Signal	13.1	B	9.4	A	6.0	A	14.2	B	33.2	C	9.0	A
10	Richards Blvd / N 12th St / 16th St	Signal	37.1	D	29.5	C	13.2	B	58.0	E	61.5	E	84.6	F
11	Bannon St / Bercut Dr	SSSC	5.0	A	5.1	A	3.6	A	9.9	A	92.2	F	35.3	E
12	Bannon St / Sequoia Pacific Blvd	AWSC	4.8	A	6.3	A	4.5	A	6.2	A	16.9	C	7.6	A
13	N B St / N 7th St	Signal	34.4	C	42.8	D	12.1	B	44.6	D	30.7	C	24.1	C
14	N B St / N 12th St	Signal	14.1	B	13.5	B	11.7	B	46.2	D	48.5	D	52.8	D
15	N B St / 16th St	Signal	6.4	A	12.3	B	5.7	A	12.4	B	24.7	C	15.5	B
16	N 12th St / Sunbeam Ave / Sproule Ave	Signal	8.4	A	9.3	A	2.5	A	8.8	A	13.3	B	6.6	A
17	E St / 12th St	Signal	9.0	A	9.9	A	5.2	A	11.2	B	14.3	B	6.9	A
18	F St / 7th St	Signal	8.8	A	9.8	A	4.1	A	19.0	B	24.0	C	16.4	B
19	F St/ 8th St	AWSC	6.7	A	6.4	A	4.6	A	8.4	A	15.9	C	14.5	B
20	F St / N 12th St	Signal	11.3	B	13.1	B	6.2	A	14.3	B	19.8	B	10.4	B
21	G St / 7th St	Signal	16.6	B	15.6	B	8.7	A	15.1	B	13.8	B	16.8	B
22	H St / 5th St	Signal	12.1	B	9.0	A	9.7	A	15.3	B	24.2	C	24.1	C
23	H St / 6th St	Signal	9.5	A	11.3	B	9.8	A	18.7	B	29.8	C	19.6	B

TABLE 4.12-13.
INTERSECTION OPERATIONS - BASELINE PLUS RSPU CONDITIONS

	Intersection	Control Type	Baseline No Project Conditions						Baseline Plus RSPU Conditions					
			AM Peak Hour		PM Hour		Pre-event Peak Hour		AM Peak Hour		PM Peak Hour		Pre-event Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
24	H St / 7th St	Signal	9.1	A	8.1	A	6.0	A	13.8	B	17.4	B	10.6	B
25	H St / 8th St	Signal	8.1	A	7.4	A	5.1	A	12.8	B	8.3	A	8.2	A
26	I St / Jibboom St	-	42.1	D	95.9	F	18.6	B	-	-	-	-	-	-
27	I St / 5th St	Signal	8.6	A	19.8	B	9.6	A	9.2	A	32.8	C	21.7	C
28	I St / 6th St	Signal	9.3	A	26.6	C	4.5	A	12.6	B	40.4	D	12.3	B
29	I St / 7th St	Signal	7.2	A	9.9	A	7.9	A	7.6	A	28.2	C	7.1	A
30	I St / 8th St	Signal	8.3	A	18.1	B	8.8	A	13.3	B	39.3	D	9.4	A
31	J St / 3rd St / I-5 Off-Ramps	Signal	71.1	E	27.1	C	21.9	C	214.8	F	101.5	F	138.8	F
32	J St / 5th St	Signal	16.9	B	13.9	B	8.8	A	61.8	E	42.1	D	40.0	D
33	J St / 7th St	Signal	10.1	A	10.6	B	8.8	A	22.3	C	18.2	B	19.5	B
34	C St / 5th St	Signal	20.5	C	22.5	C	16.6	B	15.4	B	19.0	B	16.3	B
35	C St / 3rd St	Signal	14.3	B	10.3	B	5.0	A	7.8	A	7.9	A	5.3	A
36	Tower Bridge Gateway / 5th St	Signal	35.2	D	40.2	D	24.9	C	46.4	D	40.2	D	25.2	C
37	Tower Bridge Gateway / 3rd St	Signal	19.9	B	22.5	C	10.8	B	21.6	D	26.4	C	11.3	B
38	N B St / 5th St / Bannon St	Signal	-	-	-	-	-	-	5.9	A	7.2	A	5.3	A
39	N B St / 6th St	Signal	-	-	-	-	-	-	13.3	B	9.3	A	7.6	A
40	N B St / 8th St	Signal	-	-	-	-	-	-	6.5	A	8.3	A	8.8	A
41	N B St / 10th St	Signal	-	-	-	-	-	-	12.5	B	11.4	B	15.9	B
42	South Park St / Bercut Dr	Signal	-	-	-	-	-	-	12.0	B	10.7	B	6.5	A
43	South Park St / 5th St	Signal	-	-	-	-	-	-	32.6	C	35.1	D	20.9	C
44	South Park St / Judah St	SSSC	-	-	-	-	-	-	3.0	A	3.4	A	3.2	A
45	South Park St / 6th St	AWSC	-	-	-	-	-	-	13.9	B	19.5	C	9.0	A
46	South Park St / 7th St	Signal	-	-	-	-	-	-	4.8	A	5.6	A	7.8	A

TABLE 4.12-13.
INTERSECTION OPERATIONS - BASELINE PLUS RSPU CONDITIONS

	Intersection	Control Type	Baseline No Project Conditions						Baseline Plus RSPU Conditions					
			AM Peak Hour		PM Hour		Pre-event Peak Hour		AM Peak Hour		PM Peak Hour		Pre-event Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
47	Railyards Blvd / Jibboom St	AWSC/ Signal	15.4	C	35.5	E	9.1	A	14.5	B	5.7	A	4.6	A
48	Railyards Blvd / Bercut Dr	Signal	-	-	-	-	-	-	29.8	C	20.3	C	23.0	C
49	Railyards Blvd / PH Garage 2 / Huntington St	Signal	-	-	-	-	-	-	12.6	B	26.0	C	9.8	A
50	Railyards Blvd / HSB Entry / Stanford St	Signal	-	-	-	-	-	-	10.6	B	18.7	B	11.8	B
51	Railyards Blvd / 5th St	Signal	14.3	B	7.9	A	6.3	A	25.2	C	38.9	D	29.9	C
52	Railyards Blvd / Judah St	SSSC	-	-	-	-	-	-	2.1	A	8.5	A	6.0	A
53	Railyards Blvd / 6th St	Signal	14.5	B	12.5	B	9.3	A	17.4	B	30.1	C	30.4	C
54	Railyards Blvd / 7th St	Signal	45.5	D	51.6	D	9.9	A	44.5	D	53.4	D	64.3	E
55	Railyards Blvd / 8th St	Signal	-	-	-	-	-	-	31.7	C	64.1	E	62.9	E
56	Railyards Blvd / 10th St	Signal	-	-	-	-	-	-	26.0	C	43.0	D	73.5	E
57	Camille Ln / Bercut Dr	AWSC	-	-	-	-	-	-	9.1	A	12.8	B	14.1	B
58	Camille Ln / Huntington St	SSSC	-	-	-	-	-	-	2.9	A	6.0	A	2.9	A
59	Camille Ln / Stanford St	AWSC	-	-	-	-	-	-	12.9	B	20.8	C	10.1	B
60	Camille Ln / 5th St	Signal	0.3	A	0.6	A	0.4	A	24.8	C	36.3	D	24.8	C
61	Camille Ln / 6th St	Signal	0.6	A	0.4	A	0.4	A	30.7	C	32.5	C	19.0	B
62	Stevens St / 5th St	Signal	0.0	A	0.0	A	0.0	A	40.7	D	49.9	D	45.4	D
63	Stevens St / 6th St	SSSC	0.2	A	0.3	A	0.1	A	23.6	C	24.2	C	7.6	A
64	G St / 5th St	Signal	8.0	A	7.2	A	13.6	B	55.4	E	70.1	E	48.6	D
65	G St / 6th St	Signal	8.2	A	9.7	A	11.5	B	16.7	C	49.1	D	12.2	B

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-14.
FREEWAY OPERATIONS – BASELINE PLUS RSPU CONDITIONS

		Baseline No Project Conditions						Baseline Plus RSPU Conditions					
		AM Peak Hour		PM Peak Hour		Pre-event Peak Hour		AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
Freeway Facility	Type	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	B	-	F	-	E	-	D
2. I-5 Northbound – On-ramp from L Street	Merge	27.7	C	34.3	D	25.3	C	28.2	D	34.6	D	28.4	D
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave/ Basic[2]	-	D	-	E		C	-	D	-	E		D
4. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	D	-	F	-	C	-	D	-	F	-	D
5. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	C	-	F	-	D	-	D	-	F	-	D
6. I-5 Northbound – Off-ramp to I-80	Major Diverge	20.6	C	33.9	D	22.0	C	21.1	C	37.1	E	23.8	C
7. I-5 Southbound – On-ramp from I-80	Major Merge	23.2	C	19.0	C	12.4	B	25.5	C	19.9	C	14.8	B
8. I-5 Southbound – On-ramp from WB West El Camino	Merge	27.9	C	23.3	C	16.5	B	29.6	D	24.1	C	18.8	B
9. I-5 Southbound – Off-ramp to Garden Highway	Diverge	26.8	C	22.0	C	13.9	B	28.7	D	23.2	C	16.8	B
10. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave/ Basic[2]	-	E	-	D		B	-	F	-	D		B
11. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	D	-	D	-	B	-	D	-	D	-	A
12. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	15.7	B	31.2	D	17.1	B	14.5	B	33.6	D	19.7	B
13. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	8.6	A	21.9	C	9.7	A	7.8	A	23.7	C	12.1	B
14. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	11.5	B	33.1	D	11.9	B	10.6	B	37.1	E	15.8	B
15. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	29.0	D	19.9	C	11.4	B	32.9	E	18.5	C	36.2	E
16. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	27.6	C	19.2	B	11.4	B	31.5	D	17.9	B	35.1	E

TABLE 4.12-14.
FREEWAY OPERATIONS – BASELINE PLUS RSPU CONDITIONS

		Baseline No Project Conditions						Baseline Plus RSPU Conditions					
		AM Peak Hour		PM Peak Hour		Pre-event Peak Hour		AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
Freeway Facility	**Type**	**Density[1]**	**LOS**	**Density[1]**	**LOS**	**Density[1]**	**LOS**	**Density[1]**	**LOS**	**Density[1]**	**LOS**	**Density[1]**	**LOS**
17. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	27.3	D	18.3	C	10.5	A	32.9	D	17.0	B	39.8	E

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
Note: Segments 7 –11 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.
SOURCE: Fehr & Peers, 2016.

TABLE 4.12-15.
FREEWAY OFF-RAMP VEHICLE QUEUES – BASELINE PLUS RSPU CONDITIONS

		AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Maximum Vehicle Queue [1] (Feet)					
Off-Ramp	**Available Storage**	**Baseline No Project**	**Baseline Plus RSPU**	**Baseline No Project**	**Baseline Plus RSPU**	**Baseline No Project**	**Baseline Plus RSPU**
I-5 SB Off-Ramp at J Street	1,500 ft.[2]	700	725	325	700	125	700
I-5 NB Off-Ramp at J Street	1,000 ft.[2]	550	**4,800**	125	300	125	**2,150**
I-5 SB Off-Ramp at Richards Boulevard	1,050 ft.[2]	250	400	200	225	125	**2,425**
I-5 NB Off-Ramp at Richards Boulevard	1,000 ft.[2]	250	**1,125**	150	125	100	975

1. Based on output from SimTraffic microsimulation model.
2. Measured from ramp terminal intersection limit line.
Bolded, underlined cells represent significant freeway impacts.
SOURCE: Fehr & Peers, 2016.

These three tables assume an MLS match is being played for purposes of the Pre-event peak hour analysis.

Baseline Plus KP Medical Center Conditions

As described in Chapter 2, Project Description, the KP Medical Center would consist of 1,168,000 sf of trip generating land uses (the CUP is excluded). That square footage would consistent of 658,000 sf of hospital (56 percent) and 510,000 sf of medical-office (44 percent). According to Kaiser, the Hospital Support Building (HSB) would be a specialty medical office building. It houses physicians and support services associated with the hospital. Given this definition, HSB is considered to be a medical-office type use from a trip generation perspective.

Phase 1 of the KP Medical Center would consist of construction of the majority of the campus, but would exclude construction of 300,000 square-feet of medical-office uses. It would also only construct the westerly parking garage. The easterly parking garage would not be constructed, and its site would instead consist of approximately 475 surface parking spaces. Phase 1 would construct the same roadway connections as buildout.

This section presents the anticipated travel characteristics of the KP Medical Center project. **Table 4.12-16** displays the various land uses, employment levels, and other relevant information associated with the KP Medical Center.

TABLE 4.12-16.
KP MEDICAL CENTER LAND USE INFORMATION

Type	Amount
Land Use[1]	
Hospital (non HSB)	658,000 sq. ft
Hospital Support Building (HSB)	210,000 sq. ft
Medical-Office	300,000 sq. ft
CUP[2]	60,000 sq. ft
Total (excluding CUP)	1,228,000 sq. ft
Employees / Providers / Beds[3]	
Total Employees	2,941 existing (from Morse Facility), 4,247 total future employees
Health Care Providers	299 (1,705 sq. ft. of MOB space per provider)
Licensed Beds	420

NOTES:

1. Buildout land uses from Kaiser Railyards Master Plan, Lionakis, September 17, 2015. Totals exclude square-footage associated with CUP because it consists of non-trip generating uses.
2. CUP is the central processing plant that consists of mechanical and electrical equipment. It generates almost no traffic. It is included in the square footage totals, but excluded from trip calculations.
3. Per November 11 and 16, 2015 emails from Matthew Miller, Kaiser's Director of Program Management.

SOURCE: Fehr & Peers, 2016.

According to Kaiser staff, the Hospital Support Building (HSB) area offers specialty medical care. It houses physicians and support services needed to support the hospital, but that aren't required to be located within the hospital. Given this definition, HSB is considered to be a medical-office type use from a trip generation perspective.

The KP Medical Center would consist 1,168,000 sf of trip generating land uses (the CUP is excluded). That square footage is separated into 658,000 sf of hospital (56 percent) and 510,000 sf of medical-office (44 percent).

The *Trip Generation Manual*[15] contains the following two land use categories that may be applicable to the project:

- Hospital (LU Code 610) – an institution that provides medical or surgical care and overnight accommodations. This category does not include medical clinics or nursing homes, which are covered elsewhere in the Manual.

- Medical-Dental Office Building (LU Code 720) – a facility that provides diagnoses and outpatient care on a routine basis but is unable to provide prolonged in-house medical and surgical care.

15 Institute of Transportation Engineers, 2012. Trip Generation Manual, 9th Edition, 2012.

The *Trip Generation Manual* does not include a 'regional medical center' category consisting of both hospital and medical-office space. Accordingly, data from this resource may be helpful in estimating trips from the KP Medical Center, but cannot be used directly because internalization of trips between the two use types is not known.

Since the KP Medical Center would also involve the closure of the existing Kaiser Sacramento Medical Center on Morse Avenue, traffic counts were conducted at that facility. On Tuesday, October 27, 2015, traffic counts were collected at the ten (10) driveways on Cottage Avenue, Morse Avenue, and Alta Arden Expressway that serve the Kaiser Morse Avenue facility. Kaiser administrators report that October is generally one of their busier months, and actual bed/hospital room use on the count day was above average.[16] Therefore, the counts collected on this day are representative of slightly above average hospital occupancy levels.

Table 4.12-17 displays the land use totals and vehicular trip generation observed at the Kaiser Morse Avenue Medical Center. This table indicates that the site generated about 1.8 trips per thousand square feet (ksf) during the AM peak hour and 2.0 trips per ksf during the PM peak hour.

TABLE 4.12-17.
VEHICULAR TRIP GENERATION OF KAISER MORSE AVENUE FACILITY

Peak Hour [1]	Square Feet (ksf)	Vehicle Trips			Trip Rates (per ksf)		
		Inbound	Outbound	Total	Inbound	Outbound	Total
AM (8 – 9 AM)	477.43	676	183	859	1.42	0.38	1.80
PM (4 – 5 PM)	477.43	296	664	960	0.62	1.39	2.01
Pre-event (6:30-7:30 PM)	477.43	189	266	455	0.39	0.56	0.95

NOTES:

[1] Counts collected from 7 to 9 AM and from 4 to 7:30 PM on Tuesday, October 27, 2015.
ksf = thousand square feet.

SOURCE: Fehr & Peers, 2016.

Kaiser representatives indicated that about 29 percent of the Morse Avenue Kaiser Medical Center is classified as MOB space, and that there are currently 214 health care providers who occupy an average of 1,350 sf of space per provider. This represents substantially more building area than the 138,500 sf of designated MOB space on the site. This implies that some health care providers are using hospital space to provide outpatient services, meaning that the medical center's effective percentage of MOB space is greater than 29 percent.

The Kaiser Morse Avenue Medical Center trip rates were compared to published ITE rates for general reasonableness. The observed rates should not necessarily match the ITE rates perfectly

[16] According to data provided by Matt Miller of Kaiser in an email on November 17, 2015, the medical center had a patient census of 160 on the count day, which is greater than their average annual patient census of 150.

for reasons cited previously. However, the rates should be in the same general range. Pages 26-28 of the *Trip Generation Handbook*[17] provide guidance regarding when the average rate versus fitted curve equation should be used. Based on the project's size and the data in the *Trip Generation Manual*, the *Trip Generation Handbook* recommends that the weighted average rates should be used instead of the fitted curve equations for each category. The following weighted average AM and PM peak hour (of the generator) trip rates (trips per 1,000 sf (ksf)) are provided:

	ITE Trip Generation Rates	
	AM Peak Hour	PM Peak Hour
• Hospital:	0.96	1.16
• Medical-Office:	3.5	4.27

The above trip rates can be used to develop a "blended ITE" rate that considers the relative mix of hospital versus medical-office space. The blended ITE rates (trips per ksf) are as follows:

	ITE Blended Trip Generation Rates	
	AM Peak Hour	PM Peak Hour
• Hospital (71%) / Medical-Office (29%):	1.70	2.06

The following shows how these blended rates compare with the observed trips at the Kaiser Morse Avenue Medical Center:

- AM peak hour: observed rate of 1.8 trips per ksf is six percent greater than the ITE blended trip rate.

- PM peak hour: observed rate of 2.01 trips per ksf is 2.5 percent lower than the ITE blended trip rate.

This suggests that blended ITE rates provide a reasonably accurate estimate of the Kaiser Morse Avenue facility's existing trip generation. Therefore, the blended ITE rates are considered applicable for estimating the KP Medical Center's trip generation, subject to the following two adjustments:

- Adjustment #1 (Difference in MOB Space) – The proposed KP Medical Center would consist of a greater proportion of MOB space (44 percent) than the Kaiser Morse Avenue Medical Center (29 percent).

- Adjustment #2 (Decompression of MOB Space) - The KP Medical Center would provide an average of 1,705 sf of space per provider, whereas the Kaiser Morse Avenue facility currently provides 1,350 sf per provider. Hence, the KP Medical Center would result in a 20.8 percent reduction in MOB provider density. Since provider density affects both the

[17] Institute of Transportation Engineers, 2014. Trip Generation Handbook, 2014. pp. 26-28.

number of employees and patient visits, this effect was accounted for by applying a 20.8 percent reduction to the MOB trip rate.

The following shows the blended (weighted) ITE trip rates (trips per ksf) based on the proposed project's mix of hospital and MOB space.

	ITE Blended and Adjusted Trip Generation Rates	
	AM Peak Hour	PM Peak Hour
• Hospital (56%) / Medical-Office (44%):	1.76[18]	2.14[19]

Table 4.12-18 displays the vehicular trip generation of the KP Medical Center using the adjusted/blended trip rates discussed above. It is important to note that the values in this table do not reflect any additional adjustments for the potential for bicycle, walk, and transit trips made to the proposed project. Such adjustments are presented later in this subsection.

TABLE 4.12-18.
UNADJUSTED TRIP GENERATION OF PROPOSED KP MEDICAL CENTER

Peak Hour	Square Feet (ksf)	Vehicle Trip Rates[1] (per ksf)			Trips[1]		
		Inbound	Outbound	Total	Inbound	Outbound	Total
AM (8 - 9 AM)	1,168	1.39	0.37	1.76	1,624	432	2,056
PM (4 - 5 PM)	1,168	0.66	1.48	2.14	771	1,729	2,500
Pre-event (6:30-7:30 PM)	1,168	0.31	0.70	1.01	362	818	1,180

NOTES:

[1] The term 'unadjusted' is used because the location of the KP Medical Center could result in greater levels of walking, bicycling, or transit use than occurred at the Kaiser Morse Avenue Medical Center. Analysis of these travel choices is presented later.

[2] AM and PM peak hour vehicular trip rates applied to the KP Medical Center are based on adjusted 'blended ITE trip rates' that are calibrated to Kaiser Morse Avenue Medical Center travel. Refer to previous page for description of how adjustments were made.

[3] Existing Pre-event peak hour trip rate at Kaiser Morse Avenue Medical Center was 53 percent lower than PM peak hour trip rate. This same adjustment was applied for KP Medical Center.

ksf = thousand square feet

Source: Fehr and Peers, 2016.

The spatial distribution of Kaiser members who would use the new facility and employees who would work at the new facility is important to the analysis. Kaiser representatives provided the following data to support this analysis:

- Anonymous home residence zip codes of about 230,000 Kaiser members who would use the new facility (Kaiser excluded member zip codes served by its Roseville and South Sacramento facilities due to the likelihood that they would use a facility closer to their residence).

[18] Calculated as follows: (56%*0.96) + ((44%*3.5)0.792) = 1.76

[19] Calculated as follows: (56%*1.16) + ((44%*4.27)0.792) = 2.14

- Anonymous home residence zip codes of about 3,000 Kaiser employees who currently work at the Kaiser Morse Avenue Medical Center, and would relocate to the new facility. Although total employment levels will rise due to the proposed facility's larger size, it is reasonable to assume that the overall distribution pattern of employee residences will be similar given the large geographic sample size.

Figure 4.12-22 shows that 96 percent of Kaiser members who would use the KP Medical Center reside in the top 27 (i.e., most recurring) zip codes. These zip codes reveal a pronounced east-west directionality relative to the RSP Area. This is due to the existing Kaiser Medical Centers in Roseville and Elk Grove, which would continue to serve those members living in the northeast and south parts of the region, respectively.

Figure 4.12-23 shows the distribution of Kaiser employee zip codes. This figure shows that 82 percent of employees reside in the top 40 (i.e., most recurring) zip codes. Unlike the distribution of member zip codes, Kaiser employee zip codes have a more pronounced north-south orientation. This is because some employees residing in the populated areas of Elk Grove, South Placer County, Citrus Heights, and other areas would work at the proposed project despite being physically closer to the other medical centers.

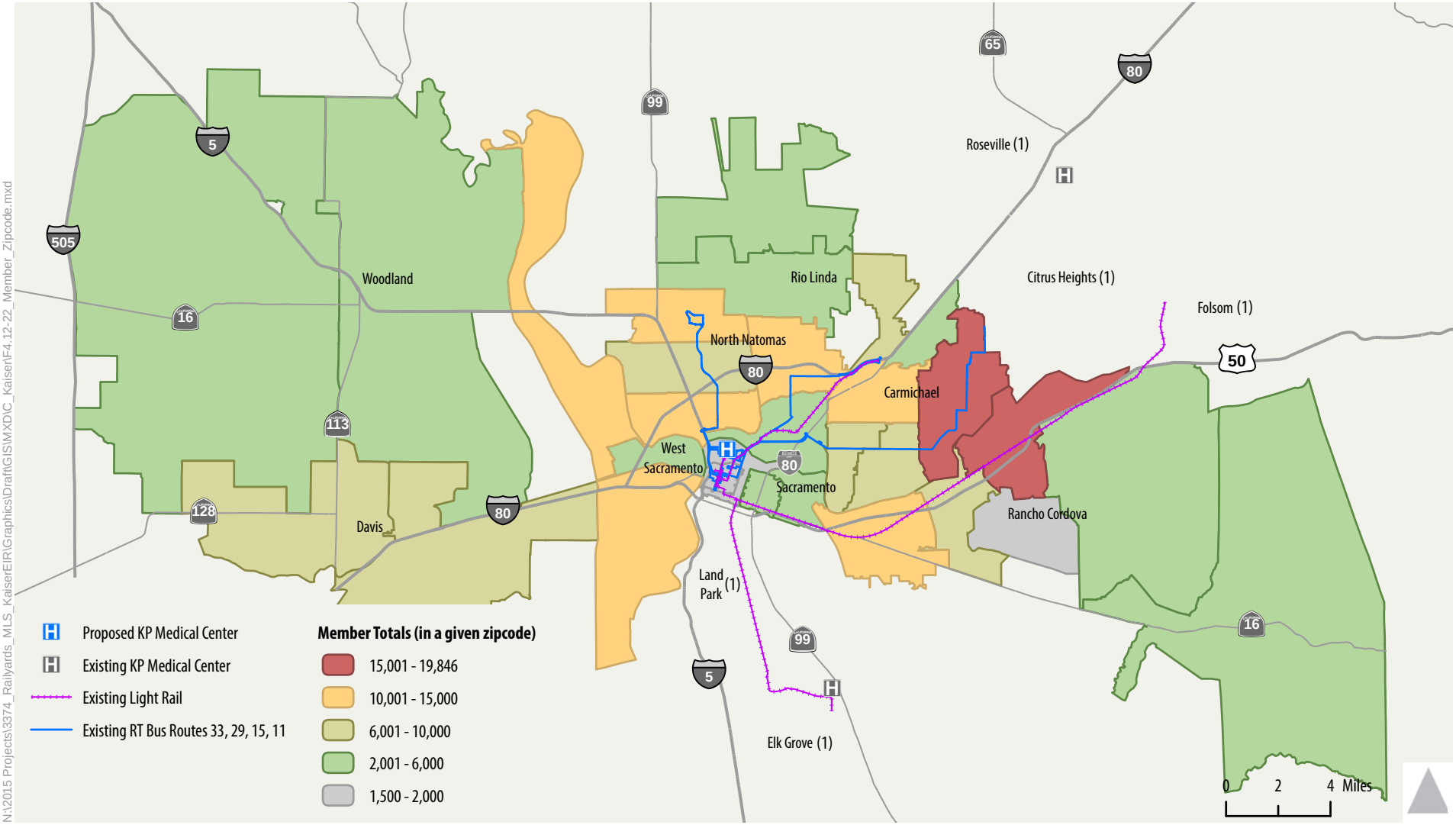
Medical centers also attract visitors who come to see patients, and can represent an important component of overall travel. These trips are reflected in the ITE and Kaiser Morse Avenue Medical Center trip rates. Their spatial trip distribution patterns are likely similar to the member zip codes. Other types of trips, such as deliveries, taxis, ambulances, etc. also occur. They do not represent a substantial percentage of overall trips, but are reflected in the trip rates.

Kaiser administrators indicated that their employees (at Morse Avenue and also for the KP Medical Center) who are involved in health care-related functions typically work the following shifts (start/end times are approximate):

- 70 percent work the day shift from 7 AM to 3 PM.
- 18 percent work the evening shift from 3 PM to 11 PM.
- 12 percent work the overnight shift from 11 PM to 7 AM.

Kaiser administrators also indicated that the first and last appointment times for outpatient care typically occur at 8:30 AM and 5 PM, respectively. However, medical centers such as Kaiser also have a variety of other employees with various administrative roles who work a more typical weekday (i.e., 8 AM to 5 PM) type schedule.

Table 4.12-19 shows the temporal distribution of arriving and departing traffic to the Kaiser Medical Center at Morse Avenue Medical Center.



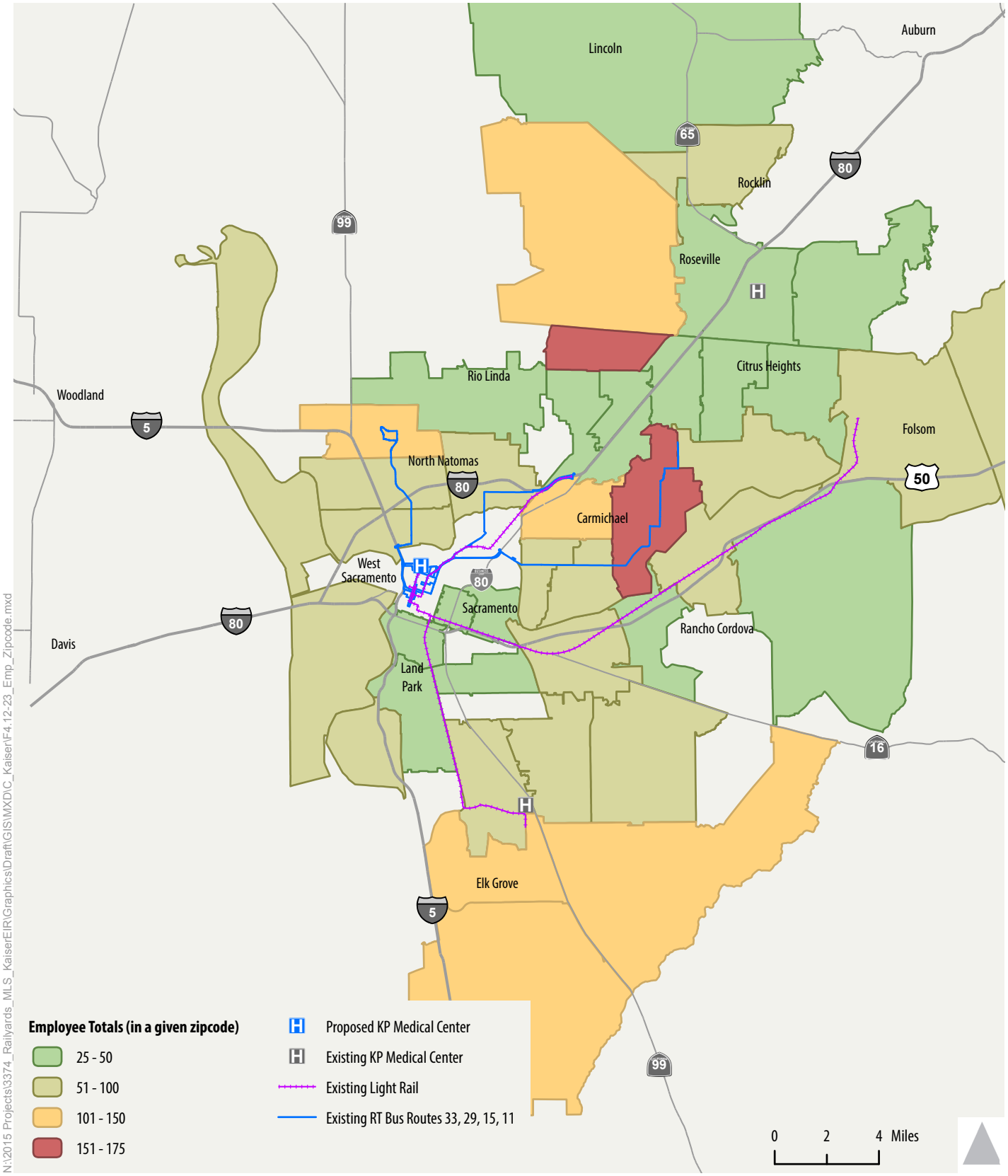
Notes:

1. Top 27 zip codes which are shown, represent 96% of members.
2. Database represents members who would regularly use proposed project versus Kaiser regional medical facilities in Roseville and South Sacramento.

(1) Membership database shows no members in zip codes in these areas (due presumably to other Kaiser facilities being closer).

Figure 4.12-22

Residence Zip Codes of Kaiser Members of Proposed KP Medical Center



Note:
1. Top 40 zip codes which are shown, represent 82% of employees.

Figure 4.12-23

Residence Zip Codes of Kaiser Employees of Proposed KP Medical Center

TABLE 4.12-19.
AM AND PM PEAK PERIOD TRAVEL AT KAISER MORSE AVENUE MEDICAL CENTER

Time	Inbound Vehicles [1]	Outbound Vehicles [1]
7:00 – 7:30 AM	223	99
7:30 – 8:00 AM	281	105
8:00 – 8:30 AM	**375**	79
8:30 – 9:00 AM	301	104
TOTAL	1,180	387
4:00 – 4:30 PM	155	335
4:30 – 5:00 PM	141	329
5:00 – 5:30 PM	92	**356**
5:30 – 6:00 PM	109	189
6:00 – 6:30 PM	115	173
6:30 – 7:00 PM	109	122
7:00 – 7:30 PM	80	144
TOTAL	801	1,648

NOTES:

[1] Counts collected on Tuesday, October 27, 2015. Bolded values represent the peak directional 15-minute vehicle flow rates.
ksf = thousand square feet.

SOURCE: Fehr & Peers, 2016.

Key conclusions from this data include:

- AM Peak Period: Inbound traffic is greatest from 8 to 9 AM, as patients arrive in advance of their appointments, which begin at 8:30 AM, and for other medical needs (prescriptions, labs, etc.),. However, it is likely that many employees also arrive during this peak hour.

- PM Peak Period: Inbound traffic is greatest from 4 to 5 PM as patients arrive in advance of their appointments, the last of which begins at 5 PM. Outbound travel is much greater from 4 to 5:30 PM (versus after 5:30 PM) due to the combined effects of both patients and employees departing during this period.

In consideration of the above, the following proportions of member versus employee trips are expected for each study period. These ratios are based on available data and professional judgment (from observations of numerous medical centers and medical office buildings in the Sacramento region and beyond).

- AM Peak Hour: 65 percent members and 35 percent employees.
- PM Peak Hour: 40 percent members and 60 percent employees.
- Pre-event Peak Hour: 40 percent members and 60 percent employees.

These ratios do not affect trip generation. Rather, they affect trip distribution and mode split due to the different geographic origins and destinations of the two groups.

Mode Split

A bus stop is located on both sides of Morse Avenue adjacent to the Kaiser Morse Avenue Medical Center. Sacramento Regional Transit (RT) operates bus routes 22, 80, and 84 on one-hour headways during peak periods, while Route 82 operates on 30-minute headways. During peak hours, ten buses per hour stop at the Kaiser facility to pick-up or drop-off members and employees.

Peak hour boarding and alighting data was obtained from RT for these four bus routes. It is likely that bus riders that board or alight at this stop were associated with Kaiser Medical Center at Morse Avenue given its close proximity and regional attraction. The following data was obtained:

- AM Peak Hour (8-9 AM): 8 passengers alighted (exited) and 5 passengers boarded from the four routes.

- PM Peak Hour (4-5 PM): 6 passengers alighted (exited) and 9 passengers boarded from the four routes.

This information can be used to estimate a bus mode split by converting vehicle trips from Table 4.12-19 into person trips (assuming an average vehicle occupancy of 1.2 persons per vehicle). This represents a 0.5 percent bus mode split during the AM and PM peak hours.

To provide an additional comparative evaluation, bus ridership data from the Sutter Medical Center, Sacramento (SMCS) (adjacent to the Capital City Freeway) was obtained to understand whether medical centers near the Central City have higher levels of bus ridership than in more suburban locations. The SMCS is served by four bus routes. During the AM peak hour, there were 12 alightings. During the PM peak hour, there were 21 boardings. Given that size of the SMCS (over one million square feet), this level of bus ridership appears generally comparable to the Kaiser Facility on Morse Avenue.

Based on this data, no additional adjustments to the gross trip generation estimates in Table 4.12-19 were made to account for additional bus ridership at the KP Medical Center.

Using zip code data of Kaiser members and existing LRT service/stations, four percent of Kaiser members reside within one-half-mile of an existing light rail station. This distance is often considered the maximum distance individuals will walk to access transit. Another 26 percent reside between one-half and two miles of a light rail station. These members could walk/bike, drive, be dropped off, or take a bus to access the station. The remaining 70 percent reside at least two miles from a light rail station. Similarly, one percent of Kaiser employees reside within one-half-mile of a light rail station. Another 10 percent of employees reside between one-half and two miles of a light rail station.

The relative travel time between light rail and driving is one of several important determinants of mode choice. Analyses were conducted to compare AM peak hour inbound travel time and PM peak hour outbound travel time along the I-80 (east), US 50 (east), and SR 99 (South) LRT/freeway corridors for travel by (single occupant) vehicle and light rail. The data indicated that travel to the site by vehicle is currently much shorter than travel by light rail (see Appendix J.1). It is important to note that arrivals/departures on a Blue or Gold Line train require a transfer to board a Green Line train to access the 7th/Richards Township 9 LRT station.

Kaiser member and employee residence zip code data were translated into the traffic analysis zone (TAZ) system of the SACMET regional travel demand model. The base year version of this model was used to estimate the transit mode split associated with inbound travel from each TAZ to the KP Medical Center (it is not possible to isolate the reverse movement due to model trip tracking limitations). For employees, only home-based-work trips were tracked. For members, trips with home-based-other, and non-home-based-other purposes were tracked. The model estimated that less than one percent of Kaiser members and 14 percent of Kaiser employees would take transit to access the KP Medical Center. Transit use is expected to be greater for employees than members because some members may have mobility limitations that pose challenges to access light rail. Further, travel behavior data shows that transit comprises a greater percentage of work versus other trips. The Kaiser employee transit mode split result is further supported by data from the *Highway Capacity Manual* (2010), pp. 3-26, in which it was reported using Census data that 12.3 percent of downtown commuters to Sacramento ride transit.

Using the aforementioned percentages of peak hour trips made by members versus employees, a weighted average transit mode split was developed for each peak hour.

The RSP Area would be located within zip code 95811, which extends northerly to the American River, southerly to the UPRR tracks, westerly to the Sacramento River, and easterly to 12th Street. The adjacent zip code to the south is 95814, which covers the central business district. These two zip codes represent the expected primary origins/destinations of walk trips. These zones comprise 1.7 percent of all member residence zip codes and 0.3 percent of all employee residence zip codes. Thus, the number of Kaiser employees and members within the catchment area for walk trips is limited.

The catchment area for bicycle trips to KP Medical Center would be geographically larger than walk trips. The majority of properties within zip codes 95811, 95814, 95816, 95833, and 95605 would be within a four-mile bike ride of the Medical Center. These zones comprise 11 percent of all member residence zip codes and 3 percent of all employee residence zip codes. Thus, the number of Kaiser employees and members within the catchment area for bike trips to Kaiser is moderate, and suggests that some bicycling activity to/from the KP Medical Center is expected.

Table 4.12-20 displays the expected mode split for the KP Medical Center under baseline conditions. This table indicates transit (bus and light rail) mode split ranges from 5.5 to 8.5

percent depending on the peak hour, while the active transportation (bike and walk) mode split is 2.5 percent.

TABLE 4.12-20.
KP MEDICAL CENTER MODE SPLIT – BASELINE CONDITIONS

Peak Hour	Travel Mode				
	Auto	Light Rail	Bus	Bike	Walk
AM	92%	5%	0.5%	2%	0.5%
PM	89%	8%	0.5%	2%	0.5%
Pre-event	89%	8%	0.5%	2%	0.5%

NOTES:
Refer to previous pages for analyses methodologies used to estimate mode split.
SOURCE: Fehr & Peers, 2016.

Table 4.12-21 displays the net external vehicular trip generation of the proposed KP Medical Center. This table reflects adjustments for travel by bicycle, walk, and transit trips.

TABLE 4.12-21.
NET EXTERNAL VEHICULAR TRIP GENERATION OF KP MEDICAL CENTER

Land Use	Square Feet (ksf)	Trips [1]								
		AM Peak Hour			PM Peak Hour			Pre-event Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Medical Center	1,168	1,624	432	2,056	771	1,729	2,500	362	818	1,180
Reduction for Bicycle Trips (2%)		32	9	41	15	35	50	7	17	24
Reduction for Walk Trips (0.5%)		8	2	10	4	9	13	2	4	6
Reduction for Light Rail Trips (5% / 8%)[2]		81	22	103	62	138	200	29	65	94
Net External Vehicle Trips		1,503	399	1,902	690	1,547	2,237	324	732	1,056

NOTES:
[1] Gross trips are reduced for bicycle, walk, and light rail trips. Gross trips already account for 0.5% bus mode split.
[2] Light rail mode split is 5% during AM peak hour and 8% during PM and Pre-event peak hours.
SOURCE: Fehr & Peers, 2016.

Table 4.12-22 displays the gross and net external vehicular trip generation for Phase 1 of the proposed KP Medical Center. This data was derived in a similar manner as the trip generation for KP Medical Center buildout. However, it was necessary to account for the greater proportion of Phase 1 being hospital versus medical-office by using the same blended trip rate methodology as presented earlier. This table shows that Phase 1 would generate approximately 1,120 AM peak hour external vehicle trips and 1,320 PM peak hour external vehicle trips. Although Phase 1 would develop about 74 percent of the total building square footage of the campus, it would generate about 59 percent of the campus' total trip generation.

TABLE 4.12-22.
NET EXTERNAL VEHICULAR TRIP GENERATION OF PHASE 1 OF KP MEDICAL CENTER

Land Use	Square Feet (ksf)	Trips [1]								
		AM Peak Hour			PM Peak Hour			Pre-event Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total
Medical Center	868	955	254	1,209	453	1,017	1,470	213	481	694
Reduction for Bicycle Trips (2%)		19	5	24	9	20	29	4	10	14
Reduction for Walk Trips (0.5%)		5	1	6	2	5	7	1	2	3
Reduction for Light Rail Trips (5% / 8%)[2]		48	13	61	36	81	117	17	38	55
Net External Vehicle Trips		883	235	1,118	405	910	1,316	191	430	621

NOTES:

[1] Gross trips are reduced for bicycle, walk, and light rail trips. Gross trips already account for 0.5% bus mode split.
[2] Light rail mode split is 5% during AM peak hour and 8% during PM and Pre-event peak hours.

SOURCE: Fehr & Peers, 2016.

The SACMET model was used to assign KP Medical Center vehicle trips through the study intersections and freeway facilities in accordance with the following steps:

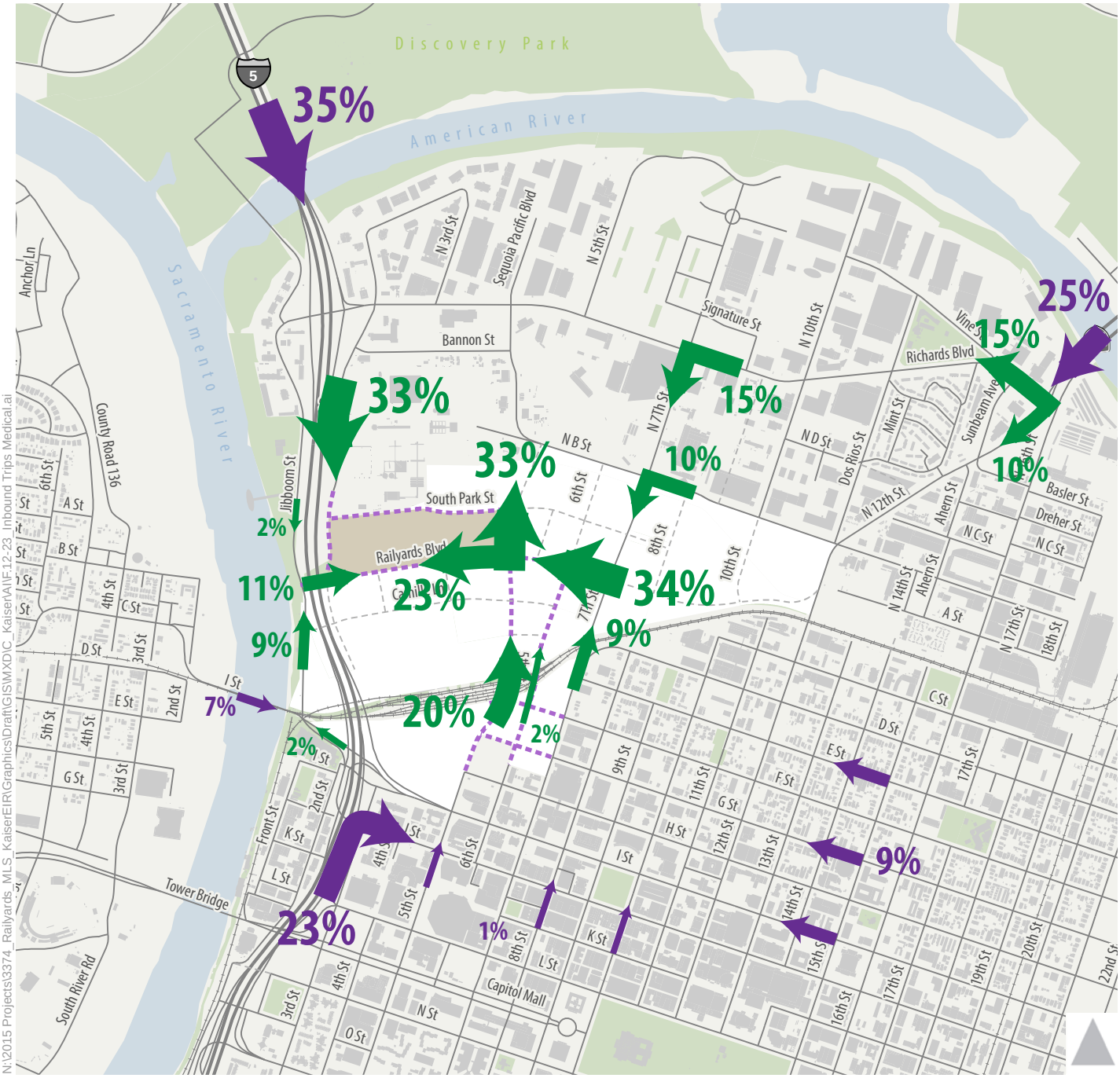
1. The origin/destination of trips was based on employee and member zip codes, which were translated into the model's TAZ system. The weighting of zip codes was based on the trip proportions of each user type for each peak hour.

2. A trip table (matrix) was created that assigns inbound and outbound vehicle trips between the various TAZs and the KP Medical Center site.

3. The model assigned project trips to various freeways and surface streets. This process allowed for the traffic model to keep account of the volume and routing of trips. These trips were then added to the Baseline No Project scenario to yield the Baseline Plus Medical Center scenario. The trip assignment patterns (i.e., congested ramps and other bottlenecks) were then reviewed for reasonableness. If necessary, trips were rerouted to less congested parallel paths.

Figure 4.12-24 displays the distribution of inbound vehicle trips to the project site. **Figure 4.12-25** shows similar information for outbound trips.

Figures 4.12-26a and 26b display the Baseline Plus KP Medical Center AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. This figure shows that the two KP Medical Center accesses off Railyards Boulevard would each be signalized. Similarly, the following additional intersections would also be signalized: Railyards Boulevard/ Jibboom Street, Railyards Boulevard/Bercut Drive, and Bercut Drive/South Park Street.



Note

Percentages show proportion of project trips using a given roadway. Totals do not sum to 100% due to scale of map, some local trips that originate within the cordon, and rounding.

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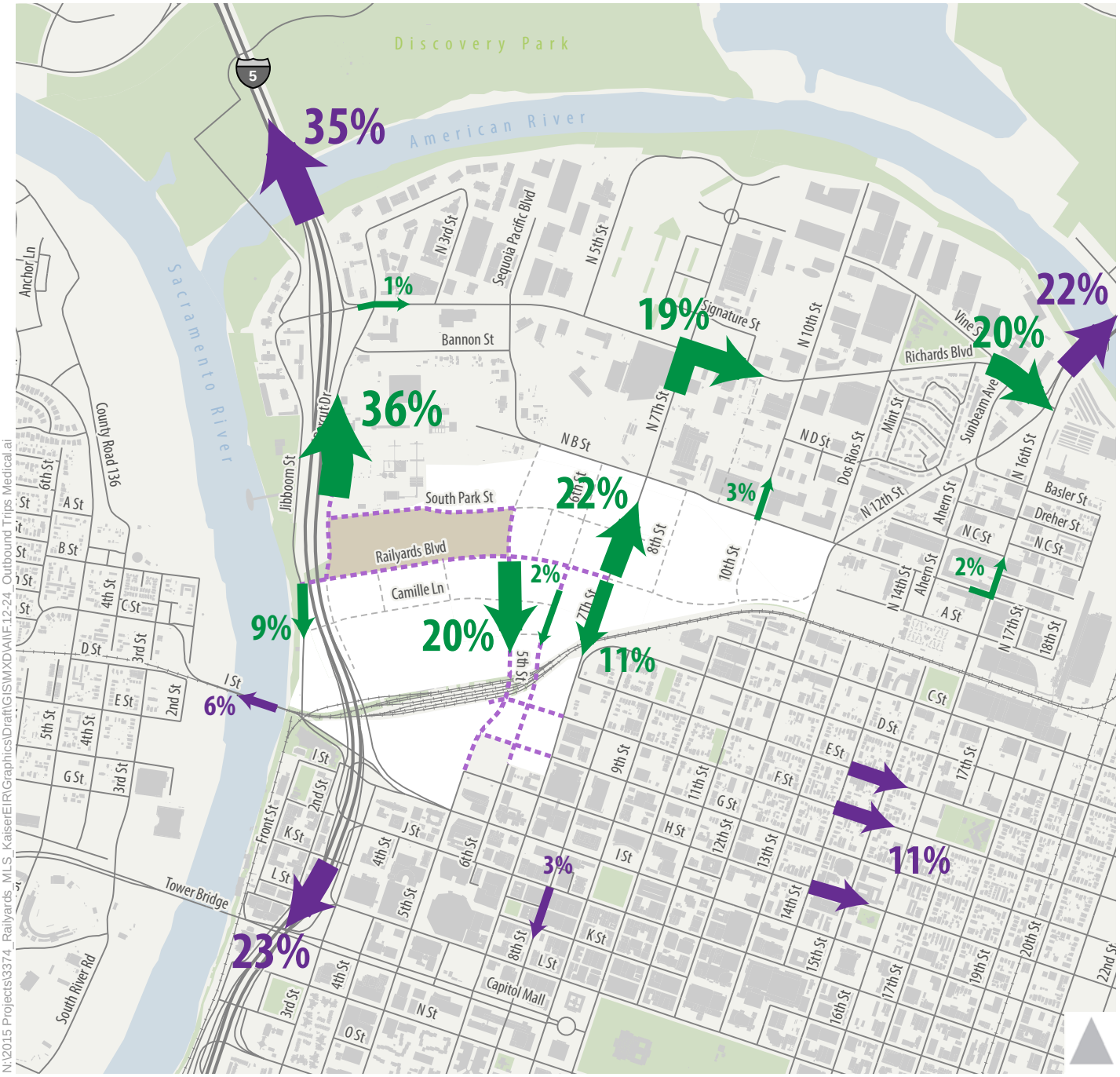
Figure 4.12-24

Distribution of Inbound Vehicle Trips - Baseline Plus KP Medical Center Conditions



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Baseline Roadway Assumed with KP Medical Center

Future Planned Roadway within RSPU

External Cordon Trip Distribution Percentage

Trip Distribution Percentage at/near Project Boundary

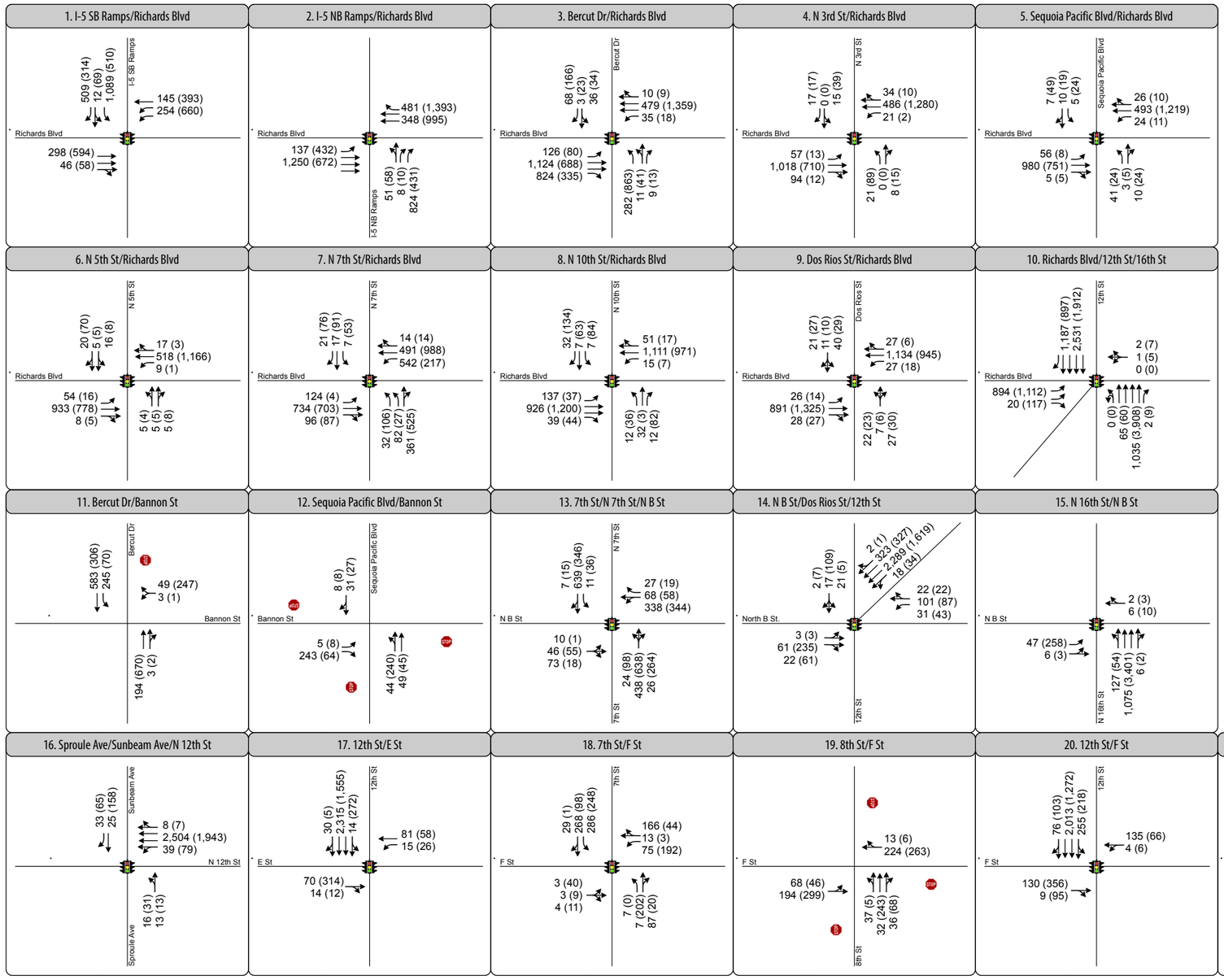
KP Medical Center

Note

Percentages show proportion of project trips using a given roadway. Totals do not sum to 100% due to scale of map, some local trips that are destined within the cordon, and rounding.

Figure 4.12-25

Distribution of Outbound Trips - Baseline Plus KP Medical Center Conditions



Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

1 Study Intersection for Given Scenario

Assumed Roadway for Given Scenario

Proposed KP Medical Center Site

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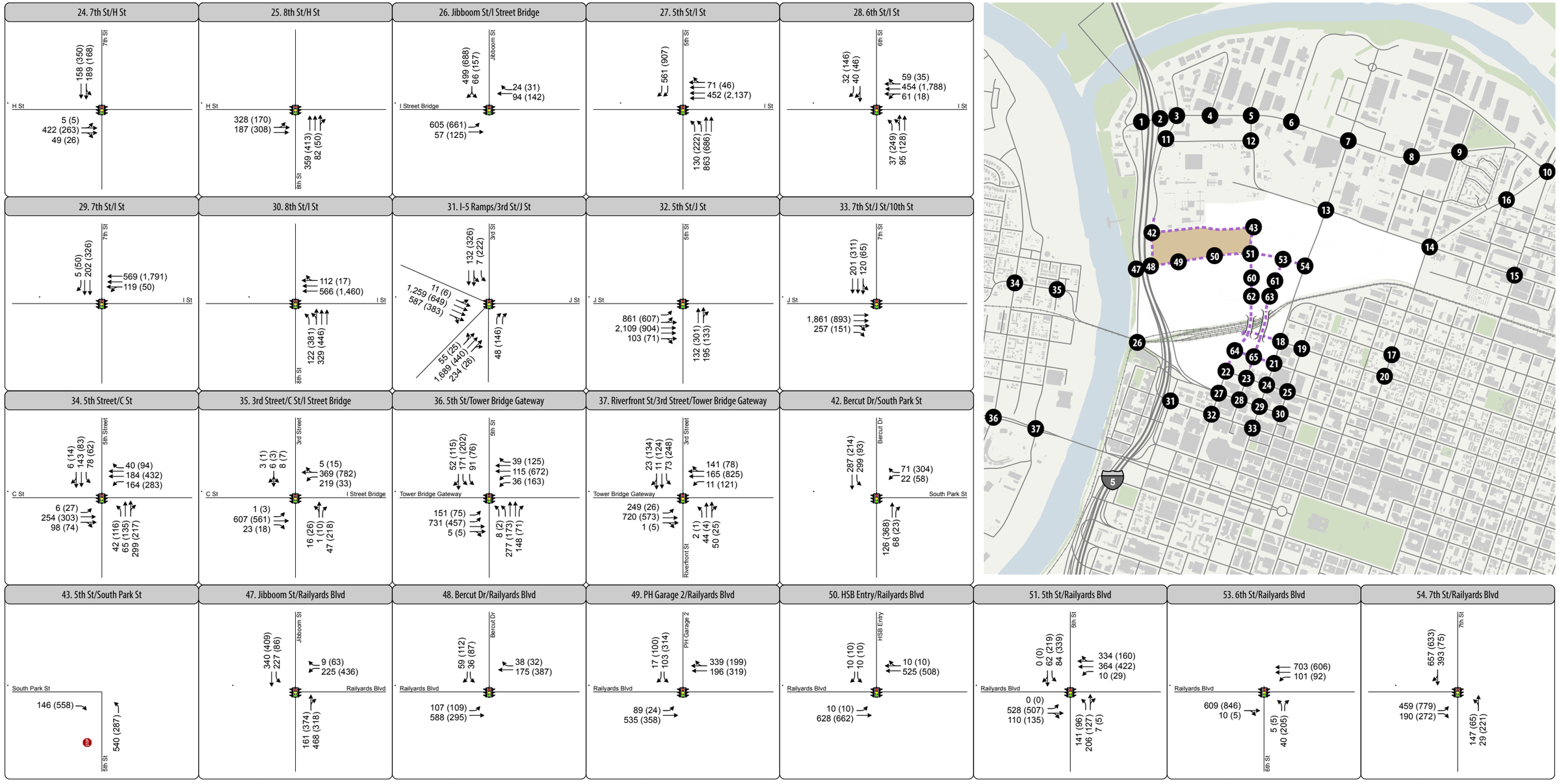
Figure 4.12-26A

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus KP Medical Center Conditions



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Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

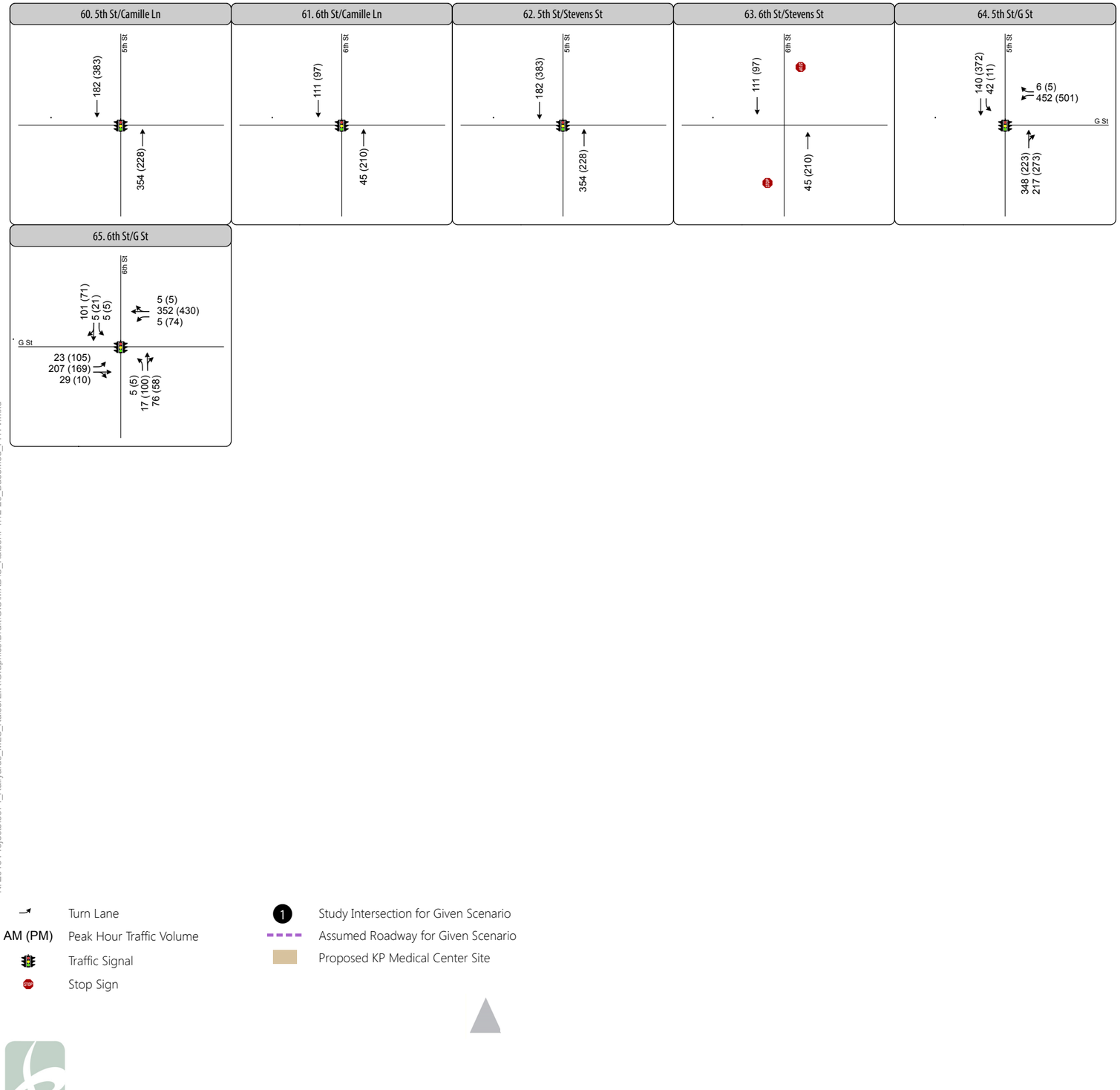
1 Study Intersection for Given Scenario

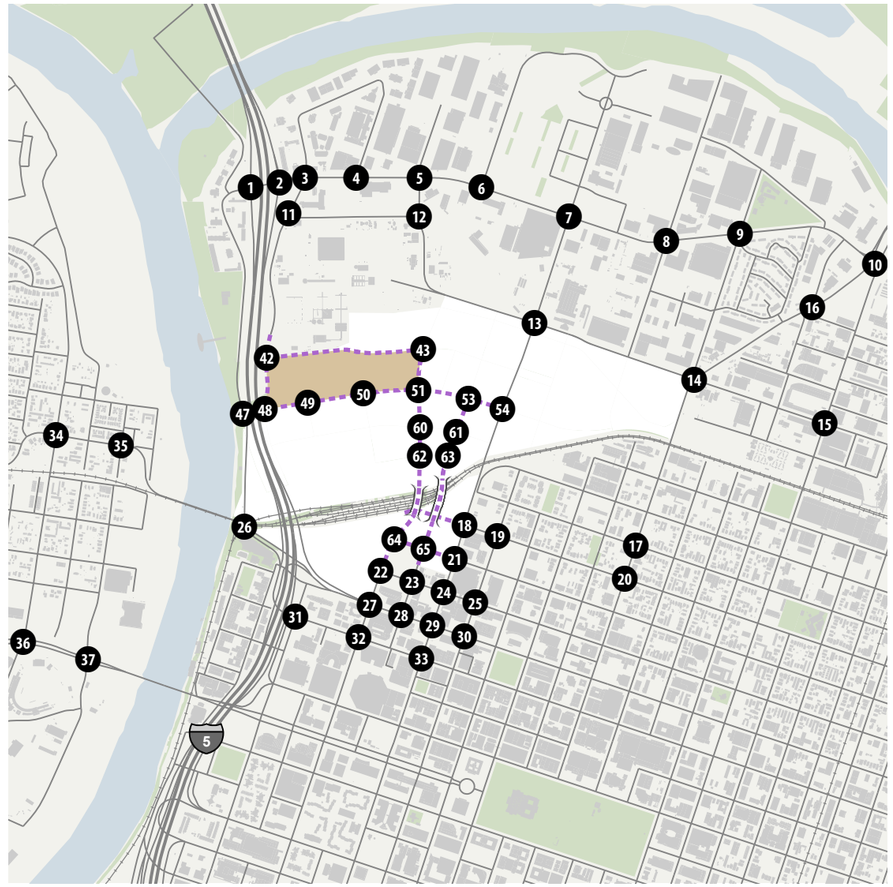
Assumed Roadway for Given Scenario

Proposed KP Medical Center Site

Figure 4.12-26B

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus KP Medical Center Conditions





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Turn Lane
AM (PM) Peak Hour Traffic Volume
Traffic Signal
Stop Sign

1 Study Intersection for Given Scenario
Assumed Roadway for Given Scenario
Proposed KP Medical Center Site

Figure 4.12-26C

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus KP Medical Center Conditions

Since the proposed KP Medical Center is being constructed to replace the Kaiser Medical Center at Morse Avenue (which is required to close by 2030 unless it undergoes substantial seismic upgrades), the Baseline Plus Medical Center scenario redistributed existing vehicle trips generated by the existing facility. The process for doing this is similar to the three steps described above. This explains why there would be decreases in travel on certain roadways (e.g., EB SR 160 AM peak hour) between Baseline No Project and Baseline Plus KP Medical Center conditions.

Figure 4.12-27 displays the AM and PM peak hour traffic forecasts along the KP Medical Center project frontage under Baseline Plus KP Medical Center conditions. This includes key intersections adjacent to the site as well as parking garage entry points. This figure also shows the proposed spacing of intersections and driveways along public streets.

Figure 4.12-28 displays the ADT on selected roadways under Baseline Plus KP Medical Center conditions within the RSP Area and along its boundary.

Table 4.12-23 displays the average delay and LOS at each study intersection under Baseline Plus KP Medical Center Conditions for each peak hour. With the addition of traffic from the proposed KP Medical Center traffic, operations would be at LOS E at four intersections and LOS F at one intersection during the AM peak hour. Similarly, operations would be at LOS E at three intersections and LOS F at four intersections during the PM peak hour. Capacity constraints at intersections along 7th Street (at Railyards Boulevard and North B Street) cause vehicular spillbacks that would adversely affect upstream intersections. Operations at the 7th Street/ Railyards Boulevard intersection are reported at LOS D during the PM peak hour. However, this intersection is the bottleneck that causes eastbound traffic on Railyards Boulevard to spill back into upstream intersections, as evidenced by LOS D through F operations on Railyards Boulevard at 5th Street, 6th Street, and the easterly KP Medical Center access driveway.

Table 4.12-24 displays projected operations on the study area freeway facilities under Baseline Plus KP Medical Center Conditions for each peak hour. As shown, the proposed KP Medical Center would cause several facilities to degrade by one service level. Most notably, it would cause the weave section from the I-5 southbound on-ramp to Richards Boulevard off-ramp to degrade from LOS E to F during the AM peak hour. It would also contribute to further degraded LOS F operations on two segments of northbound I-5 during the PM peak hour.

Table 4.12-25 displays maximum expected queue lengths and available storage on the I-5 off-ramps expected to be used by project trips under Baseline Plus KP Medical Center Conditions. As shown, the project would cause the maximum vehicle queue on the I-5 Richards Boulevard southbound off-ramp to exceed the available storage, with queues extending onto the I-5 mainline during the AM peak hour.

XX (XX) AM (PM) Peak Hour Volume

Turn Lane

Stop Sign

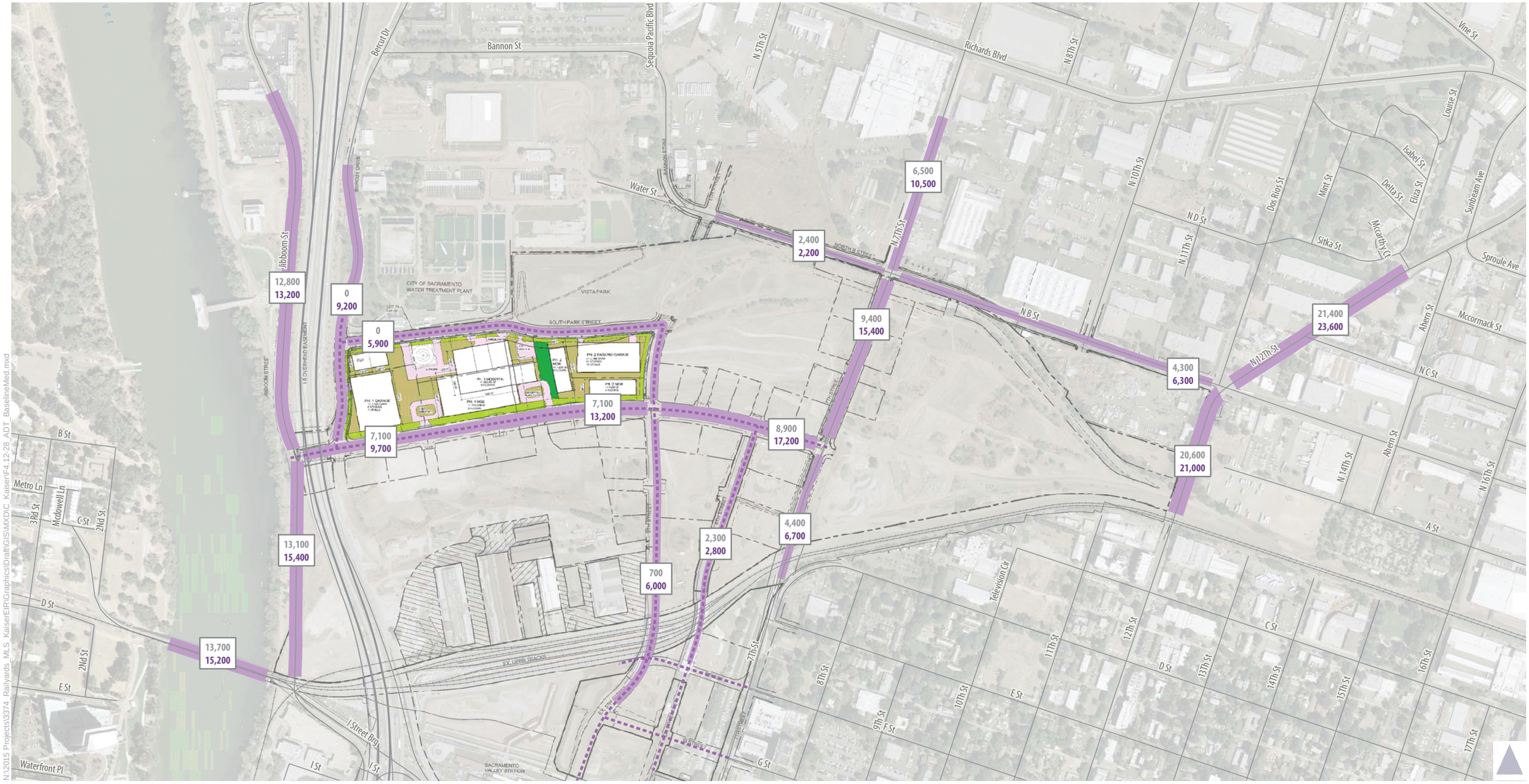
Traffic Signal

Note

Proposed accesses to KP Medical Center are preliminary and have not been analyzed. Subsequent evaluation of turn lanes, driveway spacing, throat depths, and other on-site circulation features is necessary once a more detailed site plan is available.

Figure 4.12-27

Driveway and Adjacent Intersection Volumes and Lane Configurations - Baseline Plus KP Medical Center Conditions



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Roadway Assumed Under Baseline Plus KP Medical Center Condition

Baseline Plus KP Medical Center Average Daily Traffic (ADT)

X,XXX
X,XXX

Baseline No Project ADT
Baseline Plus KP Medical Center ADT

Figure 4.12-28

Average Daily Traffic Forecasts - Baseline Plus KP Medical Center Conditions

TABLE 4.12-23.
INTERSECTION OPERATIONS – BASELINE PLUS KP MEDICAL CENTER

	Intersection	Control Type	No Project				Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	17.2	B	29.8	C	59.3	E	34.5	C
2	Richards Blvd / I-5 NB Ramps	Signal	11.4	B	17.3	B	16.0	B	14.3	B
3	Richards Blvd / Bercut Dr	Signal	14.6	B	28.1	C	16.3	B	87.4	F
4	Richards Blvd / N 3rd St	Signal	7.5	A	14.5	B	7.1	A	34.5	C
5	Richards Blvd / Sequoia Pacific Blvd	Signal	8.7	A	10.4	B	9.5	A	31.1	C
6	Richards Blvd / N 5th St	Signal	8.0	A	7.9	A	8.4	A	17.0	B
7	Richards Blvd / N 7th St	Signal	34.9	C	24.7	C	54.2	D	27.1	C
8	Richards Blvd / N 10th St	Signal	11.1	B	9.5	A	11.7	B	10.3	B
9	Richards Blvd / Dos Rios St	Signal	13.1	B	9.4	A	11.6	B	9.3	A
10	Richards Blvd / N 12th St/16th St	Signal	37.1	D	29.5	C	48.9	D	49.8	D
11	Bannon St / Bercut Dr	SSSC	5.6	A	5.2	A	12.2	B	258.4	F
12	Bannon St / Sequoia Pacific Blvd	AWSC	4.8	A	6.3	A	4.8	A	5.4	A
13	N B St / N 7th St	Signal	34.4	C	42.8	D	70.1	E	76.6	E
14	N B St / N 12th St	Signal	14.1	B	13.5	B	16.5	B	18.4	B
15	N B St / 16th St	Signal	6.4	A	12.3	B	8.1	A	12.4	B
16	N 12th St / Sunbeam Ave / Sproule Ave	Signal	8.4	A	9.3	A	9.0	A	11.5	B
17	E St / 12th St	Signal	9.0	A	9.9	A	9.7	A	10.1	B
18	F St / 7th St	Signal	8.8	A	9.8	A	10.1	B	11.4	B
19	F St/ 8th St	AWSC	6.7	A	6.4	A	7.2	A	8.2	A
20	F St / N 12th St	Signal	11.3	B	13.1	B	11.8	B	14.9	B
21	G St / 7th St	Signal	16.6	B	15.6	B	16.2	B	14.0	B
22	H St / 5th St	Signal	12.1	B	9.0	A	13.5	B	42.6	D
23	H St / 6th St	Signal	9.5	A	11.3	B	9.3	A	17.3	B
24	H St / 7th St	Signal	9.1	A	8.1	A	8.0	A	9.2	B
25	H St / 8th St	Signal	8.1	A	7.4	A	7.5	A	8.0	A
26	I St / Jibboom St	Signal	42.1	D	95.9	F	72.4	E	119.5	F
27	I St / 5th St	Signal	8.6	A	19.8	B	10.1	B	43.4	D
28	I St / 6th St	Signal	9.3	A	26.6	C	8.7	A	38.8	D
29	I St / 7th St	Signal	7.2	A	9.9	A	6.9	A	13.3	B
30	I St / 8th St	Signal	8.3	A	18.1	B	8.4	A	27.3	C
31	J St / 3rd St / I-5 Off-Ramps	Signal	71.1	E	27.1	C	87.2	F	38.6	D
32	J St / 5th St	Signal	16.9	B	13.9	B	21.7	C	31.9	C
33	J St / 7th St	Signal	10.1	B	10.6	B	9.3	A	10.6	B

TABLE 4.12-23.
INTERSECTION OPERATIONS – BASELINE PLUS KP MEDICAL CENTER

	Intersection	Control Type	No Project				Plus Project			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
34	C St / 5th St	Signal	20.5	C	22.5	C	19.8	B	22.5	C
35	C St / 3rd St	Signal	14.3	B	10.3	B	16.7	B	10.3	B
36	Tower Bridge Gateway / 5th St	Signal	35.2	D	40.2	D	38.3	D	41.0	D
37	Tower Bridge Gateway / 3rd St	Signal	19.9	B	22.5	C	20.4	C	21.6	C
42	South Park St / Bercut Dr	Signal	-	-	-	-	5.1	A	16.6	B
43	South Park St / 5th St	SSSC	-	-	-	-	3.4	A	18.1	C
47	Railyards Blvd / Jibboom St.	AWSC/ Signal	15.4	C	35.5	E	17.6	B	27.8	C
48	Railyards Blvd / Bercut	Signal	-	-	-	-	5.8	A	16.1	B
49	Railyards Blvd / PH Garage 2 / Huntington St	Signal	-	-	-	-	11.5	B	28.9	C
50	Railyards Blvd / HSB Entry / Stanford St	Signal	-	-	-	-	8.9	A	77.3	E
51	Railyards Blvd / 5th St	Signal	14.3	B	7.9	A	21.4	C	92.4	F
53	Railyards Blvd / 6th St	Signal	14.5	B	12.5	B	24.2	C	46.0	D
54	Railyards Blvd / 7th St	Signal	45.5	D	51.6	D	65.2	E	50.9	D
60	Camille Ln / 5th St	Signal	0.3	A	0.6	A	0.4	A	1.0	A
61	Camille Ln / 6th St	Signal	0.6	A	0.4	A	0.5	A	0.4	A
62	Stevens St / 5th St	Signal	0.0	A	0.0	A	0.2	A	0.3	A
63	Stevens St / 6th St	SSSC	0.2	A	0.3	A	0.1	A	0.2	A
64	G St / 5th St	Signal	8.0	A	7.2	A	12.8	B	79.1	E
65	G St / 6th St	Signal	8.2	A	9.7	A	4.4	A	14.3	B

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-24.
FREEWAY OPERATIONS – BASELINE PLUS KP MEDICAL CENTER CONDITIONS

		Baseline No Project Conditions				Baseline Plus KP Medical Center Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Freeway Facility	Type	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	E	-	D
2. I-5 Northbound – On-ramp from L Street	Merge	27.7	C	34.3	D	28.0	D	35.3	E
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]	-	D	-	E	-	D	-	E
4. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	D	-	F	-	D	-	F
5. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	C	-	F	-	D	-	F
6. I-5 Northbound – Off-ramp to I-80	Major Diverge	20.6	C	33.9	D	21.5	C	36.9	E
7. I-5 Southbound – On-ramp from I-80	Major Merge	23.2	C	19.0	C	25.0	C	19.6	C
8. I-5 Southbound – On-ramp from WB West El Camino	Merge	27.9	C	23.3	C	28.9	D	23.8	C
9. I-5 Southbound – Off-ramp to Garden Highway	Diverge	26.8	C	22.0	C	28.5	D	22.7	C
10. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]	-	E	-	D	-	F	-	D
11. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	D	-	D	-	D	-	D
12. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	15.7	B	31.2	D	16.0	B	32.8	D
13. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	8.6	A	21.9	C	8.8	A	23.8	C
14. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	11.5	B	33.1	D	11.8	B	37.4	E
15. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	29.0	D	19.9	C	31.9	D	21.6	C
16. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	27.6	C	19.2	B	30.3	D	20.8	C
17. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	27.3	D	18.3	C	31.0	D	19.9	C

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.

Note: Segments 7 –11 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-25.
FREEWAY OFF-RAMP VEHICLE QUEUES – BASELINE PLUS KP MEDICAL CENTER CONDITIONS

		AM Peak Hour		PM Peak Hour	
		Maximum Vehicle Queue [1]			
Off-Ramp	Available Storage	Baseline No Project	Baseline Plus KP Medical Center	Baseline No Project	Baseline Plus KP Medical Center
I-5 SB Off-Ramp at J Street	1,500 ft. [2]	700	725	325	400
I-5 NB Off-Ramp at J Street	1,050 ft. [2]	550	1,000	125	300
I-5 SB Off-Ramp at Richards Boulevard	1,050 ft. [2]	250	**1,525**	200	275
I-5 NB Off-Ramp at Richards Boulevard	1,000 ft. [2]	250	550	150	125

NOTES:

1. Based on output from SimTraffic microsimulation model.
2. Measured from ramp terminal intersection limit line.

Bolded, underlined cells represent queuing that exceeds available storage.

SOURCE: Fehr & Peers, 2016.

Based on the illustrative site plans for the proposed KP Medical Center, the following recommendations are offered for the KP Medical Center accesses:

- The following recommendations are offered at the Westerly KP Medical Center Garage:
  - The signalized garage access on Railyards Boulevard (opposite Huntington Street) should include exclusive outbound left- and right-turn lanes with 250 feet of storage to accommodate the projected vehicle queues.
  - The two-way left-turn lane on Railyards Boulevard between the signalized Kaiser driveway and Bercut Drive would provide 400 feet of potential vehicle stacking, which is sufficient to accommodate their cumulative travel demands (i.e., less than 100 left-turns at each location during each peak hour).
  - The unsignalized garage access on Bercut Drive would be situated between the signalized Railyards Boulevard/Bercut Drive and Bercut Drive/South Park Street intersections, which are 625 feet apart. This segment of Bercut Drive would include two northbound lanes and one southbound lane, separated by a two-way left-turn lane. The garage access should be located such that there is a minimum of 200 feet of vehicle storage in the southbound left-turn lane on Bercut Drive, which is sufficient to accommodate the maximum expected queue of 150 feet (see Appendix J.1). This can be accommodated while also providing at least 200 feet of storage in the southbound left-turn lane at the Railyards Boulevard/Bercut Drive intersection.
  - Under Baseline Plus KP Medical Center conditions, the unsignalized garage access on Bercut Drive is projected to accommodate 20 outbound left-turns and 354 outbound right-turns during the PM peak hour. This amount of traffic is a substantial

volume to serve from a side-street stop. It is recommended that consideration be given to prohibiting outbound left-turns and/or constructing a northerly access onto South Park Street.

- The second northbound travel lane on Bercut Drive is recommended to terminate (i.e., become a trap right-turn lane) at South Park Street.

- The following recommendations are offered at the Easterly KP Medical Center Garage:
  - The easterly driveway would be situated less than 100 feet from 5th Street, which is too close to allow inbound or outbound left-turns. Therefore, this driveway should be restricted to right-turns only.
  - The westerly driveway should be situated as far westerly from 5th Street as possible so as to maximum the back-to-back left-turn lane storage in the two-way left-turn lane. The stop-controlled garage exit should consist of dedicated left- and right-turn lanes with 250 feet of storage each to accommodate the projected vehicle queues.

Supplemental review and evaluation of KP Medical Center site plans would occur as part of the subsequent KP Medical Center Site Plan and Design Review process(es).

A focused analysis of Phase 1 was conducted to understand how roadways and intersections within the RSP Area would operate. **Table 4.12-26** shows the results (refer to Appendix J.1 for technical calculations). As shown, the Railyards Boulevard/7th Street and North B Street/7th Street intersections would operate at LOS E during the AM and PM peak hours, respectively. As is noted later, these two intersections would become bottlenecks that cause queue spillbacks throughout the roadway system.

TABLE 4.12-26.
INTERSECTION OPERATIONS - BASELINE PLUS KP MEDICAL CENTER PHASE 1

Intersection		Traffic Control	Baseline No Project Conditions				Baseline Plus KP Medical Center Phase 1 Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	34.4	C	42.8	D	49.3	D	65.8	E
43	South Park St / 5th St	SSSC	-	-	-	-	1.6	A	3.0	A
50	Railyards Blvd / HSB Entry / Stanford St	Signal	-	-	-	-	13.4	B	21.7	C
51	Railyards Blvd / 5th St	Signal	14.3	B	7.9	A	24.1	C	48.5	D
53	Railyards Blvd / 6th St	Signal	14.5	B	12.5	B	17.0	B	38.0	D
54	Railyards Blvd / 7th St	Signal	45.5	D	51.6	D	57.8	E	45.0	D

1. For intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

Baseline Plus MLS Stadium Conditions

The analysis of the proposed MLS Stadium considers how mode choice, route selection, and parking are influenced by the location of the proposed Stadium.

Travel behavior and demographics of attendees to MLS soccer matches at the proposed Stadium may be somewhat different than for Sacramento Republic FC soccer matches. However, those differences are not currently known. Further, there is no evidence to support a premise that there is a materially different fan base for USL versus MLS soccer in a metropolitan region the size of Sacramento. Therefore, this analysis assumes the same travel behavior observed at Sacramento Republic FC soccer matches would also occur at the proposed Stadium.

During weekday evening MLS matches, an estimated 460 employees would be present at the Stadium including police, medical, concessions, ticketing, ushers, security, and cleaning. The vast majority of these employees would arrive prior to the Pre-event peak hour.

Travel Behavior at Sacramento Republic FC Soccer Matches

This subsection presents travel data collected at Sacramento Republic FC soccer matches. This data is used to help determine the expected mode split, vehicular trip generation, and parking demand of the proposed Stadium.

Evening peak period traffic counts were conducted at all entry/exit points that serve Bonney Field at Cal Expo on Saturday, September 20, 2014. During this evening, the Sacramento Republic FC hosted a home playoff match, which had an announced sell-out crowd of 8,000 persons. The gates opened at 6:00 PM and the match started at 7:30 PM. **Table 4.12-27** shows the vehicular arrival percentages in 30-minute increments. This data indicates that 70 percent of inbound traffic arrived during the one hour prior to the start of the event.

TABLE 4.12-27.
ARRIVAL PERCENTAGES AT SACRAMENTO REPUBLIC FC GAME AT BONNEY FIELD

Time	Inbound Percentage
5:30-6:00 PM	6.1%
6:00-6:30 PM	16.7%
6:30-7:00 PM	38.0%
7:00-7:30 PM	32.0%
7:30-8:00 PM	7.2%
TOTAL	100%

NOTES:
Counts collected on Saturday, September 20, 2014. Game started at 7:30 PM.
SOURCE: Fehr & Peers, 2016.

Other key conclusions from the data collection effort included:

- During the Pre-event peak hour, there was approximately one outbound trip for every 30 inbound trips. These were presumably made by an employee, delivery, or attendee drop-off.
- Vehicle occupancy was recorded for over 1,900 inbound vehicles, with the average vehicle occupancy (AVO) being 2.23 persons per vehicle.
- Travel to Bonney Field by walk or bike was negligible (though it is noted that some attendees chose to park on the north side of Exposition Boulevard and walk into Cal Expo to avoid paying for parking).

The reasonableness of these results from counts collected on a Saturday is confirmed by counts conducted on a Thursday (April 5, 2012) during a Sacramento Kings game at Sleep Train Arena. During that game, 67.4 percent of inbound traffic arrived during the one hour prior to the start of the event. An AVO of 2.27 was observed.

Sacramento RT provided boarding and alighting information collected during four Sacramento Republic matches played at Hughes Stadium, which is located in close proximity (i.e., less than one quarter-mile walk) to the Sacramento City College light rail station along the RT Blue Line. The data in **Table 4.12-28** indicates that between 4.5 and 6.2 percent of attendees traveled to Hughes Stadium by light rail.

TABLE 4.12-28.
TRANSIT USE AT SACRAMENTO REPUBLIC FC GAMES AT HUGHES STADIUM

Date	Alightings (pre-match)	Boardings (post-match)	Attendance	Mode Split
5/3/2014	1,082	972	17,414	5.6% - 6.2%
5/17/2014	916	967	20,231	4.5% - 4.8%
6/7/2014	910	963	20,231	4.5% - 4.8%
2/28/2015	1,043	930	20,231	4.6% - 5.2%

SOURCE: Sacramento Regional Transit.

Sacramento Republic FC representatives provided residence zip code data for all 2015 season ticket holders. Approximately two-thirds of the 11,500 seats at Bonney Field, which was expanded from 8,000 seats after the 2014 season, are reserved for season ticket holders. Of this total, 6,700 seats are associated with individuals (versus businesses or other organizations). Data regarding tickets owned by businesses and other organizations was not provided or used because such data does not offer insight into likely trip origins or destinations.

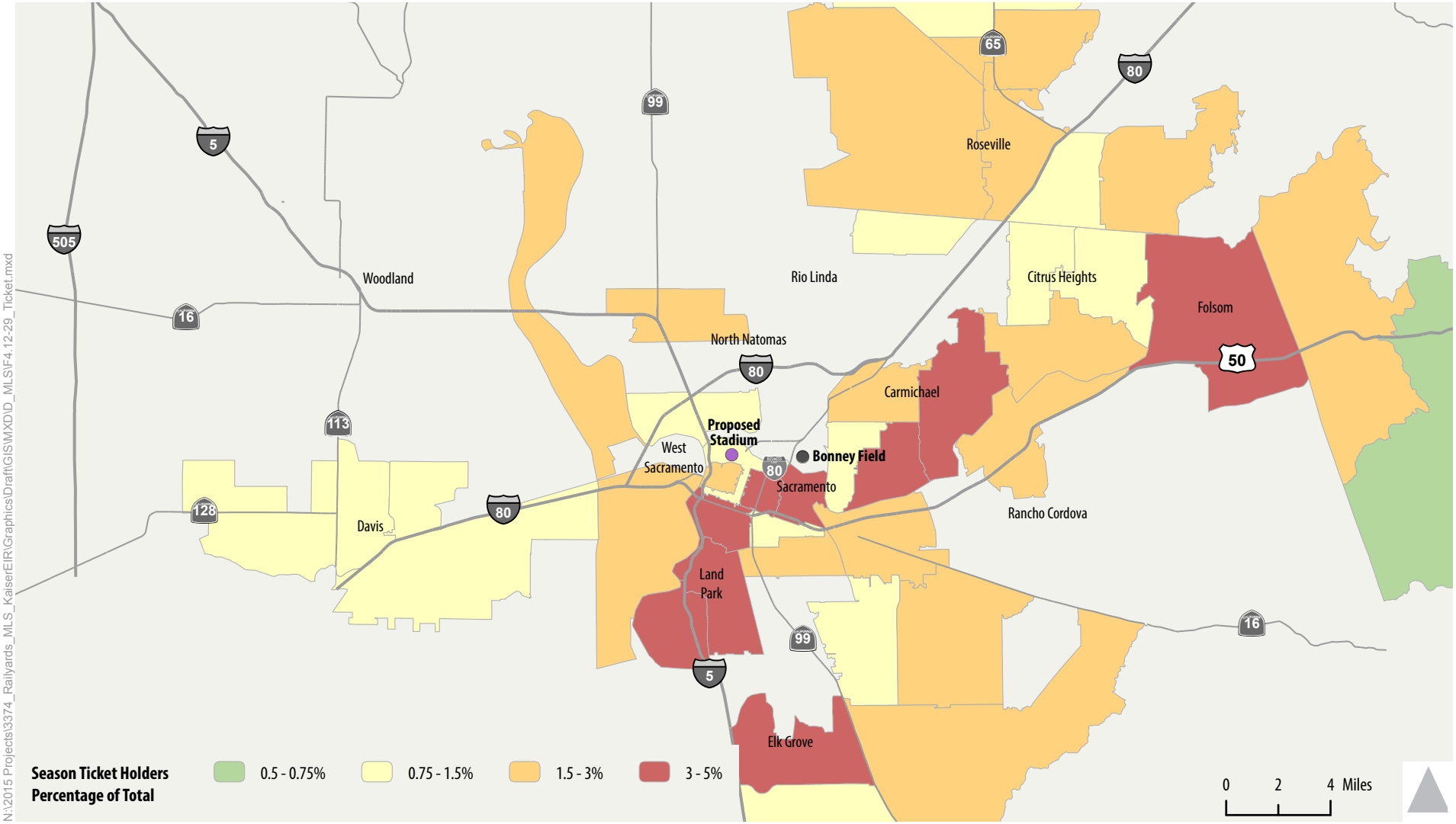
Figure 4.12-29 displays the distribution of zip codes for residential season ticket holders within the Sacramento region. This figure indicates that zip codes with the greatest proportion of season ticketholders (i.e., 3 to 5 percent in each zip code) occurs in Land Park, Elk Grove, East Sacramento, Carmichael, and Folsom. However, other areas of the region including Natomas, West Sacramento, Rancho Cordova, Roseville, and eastern Sacramento County also have significant shares (i.e., ranging from 1.5 to 3 percent in each zip code). Lastly, it is noted that 17 percent of season ticket holder zip codes are beyond the limits of the figure, suggesting that some reside in outlying areas such as Yuba City, Dixon, Lincoln, Auburn, Cameron Park, Placerville, Galt, Rancho Murrieta, and Stockton/Lodi.

Fehr & Peers contracted with AirSage to obtain data for eight (8) Sacramento Republic weekday evening matches played at Bonney Field in 2014 and 2015. AirSage contracts with cell phone service providers to obtain this data. Their agreements require the data to be 'scrubbed' so that individual travel behavior is anonymous. They use complex analytical tools and methods to determine when a trip begins and ends based on the location of the cell phone, time elapsed without cell phone movement, and other considerations. AirSage was provided with a GIS file containing the traffic analysis zone (TAZ) system of the SACMET regional travel demand model. Inbound trips were specified to be collected from 5 to 8 PM during match days. Similarly, data for outbound trips was collected from 9 PM to 12 AM. Selected match days were confirmed to not overlap with other major events held at Cal Expo, such as the State Fair and remote parking for the 2015 US Senior Open.

The data yielded a sample of 722 inbound trips and 878 outbound trips. Over the eight matches, the total attendance was approximately 74,000 persons. Each directional sample represents about one percent of overall attendance level. This level of sampling is expected for several reasons. First, most, but not all attendees have cell phones. Second, data was provided by one of the cell phone service providers in the area, meaning only a portion of the overall cell phone market was sampled. Third, cell phone data is not continuously transmitted, and as such, some trips involving idle phones were not observed. Fourth, AirSage carefully reviews the cell phone records and removes data points that are potentially inaccurate (e.g., unclear of start/end of trip or TAZ). Fehr & Peers reviewed the resulting sample and found the data to represent a broad geographic area of trip origins and destinations.

The Pre-event inbound directionality of trips showed a strong correlation with season ticket holder zip code residence data. This suggests that many of the Pre-event trips originated from a residence, which is considered reasonable since games started at 7:30 PM (i.e., less likely for trip to come from an employment center).

The post-event outbound directionality of trips is comparable to the Pre-event distribution, but shows a slightly greater orientation of trips toward TAZs with retail uses. In fact, the TAZs comprising the post-event destinations had 16 percent more retail employees (based on data from the SACMET model) than the Pre-event origins. This makes intuitive sense because two of the



Notes:

1. According to the Sacramento Republic FC, about 2/3 of seats at the 11,500-seat Bonney Field facility were reserved by season ticket holders during the 2015 season. This exhibit displays anonymous zip code data for the approximately 6,687 personal (non-business) season ticket holders.
2. Zip codes data provided represent 83% of all season ticket holders.

Figure 4.12-29

Sacramento Republic FC Season Ticket Holder Residence Zip Codes

eight games were played on a Friday evening, in which attendees may be more inclined to visit a restaurant, bar, or ice cream shop after games, given that most people do not work on Saturdays.

In summary, the cell phone data is considered valid for use in helping to assess the project's travel characteristics. **Figure 4.12-30** shows the trip origins for Sacramento Republic FC attendees. **Figure 4.12-31** show similar information for post-event trip destinations.

Transit Mode Split

During a November 3, 2015 meeting with the applicant, RT, and City of Sacramento, RT officials expressed a willingness to work cooperatively with the City and the applicant to ensure that necessary light rail facilities and services would be in place by the time the proposed Stadium would open. Specific improvements identified as being necessary included:

- Construction of a new (either temporary or permanent) light rail station located on the east side of 7th Street north of Railyards Boulevard;
- Increased service frequency to accommodate special events (including 15-minute train headways and/or 3- or 4-car trains); and
- Increased service duration to accommodate transit riders after a Stadium event ends (e.g., service would extend until 10:30 or 11:00 PM for a 7:30 PM soccer match).

A six percent light rail mode split is estimated for pre- and post-event attendees. This estimate is based on the following:

- When Sacramento Republic FC matches were played at Hughes Stadium (adjacent to a blue line stop), an average of five percent of attendees were observed using light rail;
- Although the proposed MLS Stadium would be located closer to downtown than Hughes Stadium, it would require any riders using the Blue Line (from Cosumnes River College or Watt/I-80) or the Gold Line (from Folsom) to transfer at a downtown station to the Green line. In contrast, the Blue Line that serves Hughes Stadium does not require the same degree of transfers, which suggests that some riders on the Blue Line (from Watt Avenue) may choose to deboard at the Alkali Flat station and walk to the Stadium; and
- The expected mode split also considers that a portion of the approximately three percent of current Sacramento Republic FC season ticket holders reside in close proximity of the Stadium (i.e., in zip codes 95811 and 95814) and could therefore use the Green Line versus walking for their trip. See below for detailed discussion.

Bus Mode Split

The proposed MLS Stadium would initially (unless service is upgraded) be served by four RT routes (11, 15, 29, 33). Routes 11 and 15 operate on one-hour headways throughout most of day to serve Natomas and Del Paso Heights/Rio Linda. However, their weekday service ends by 8 or

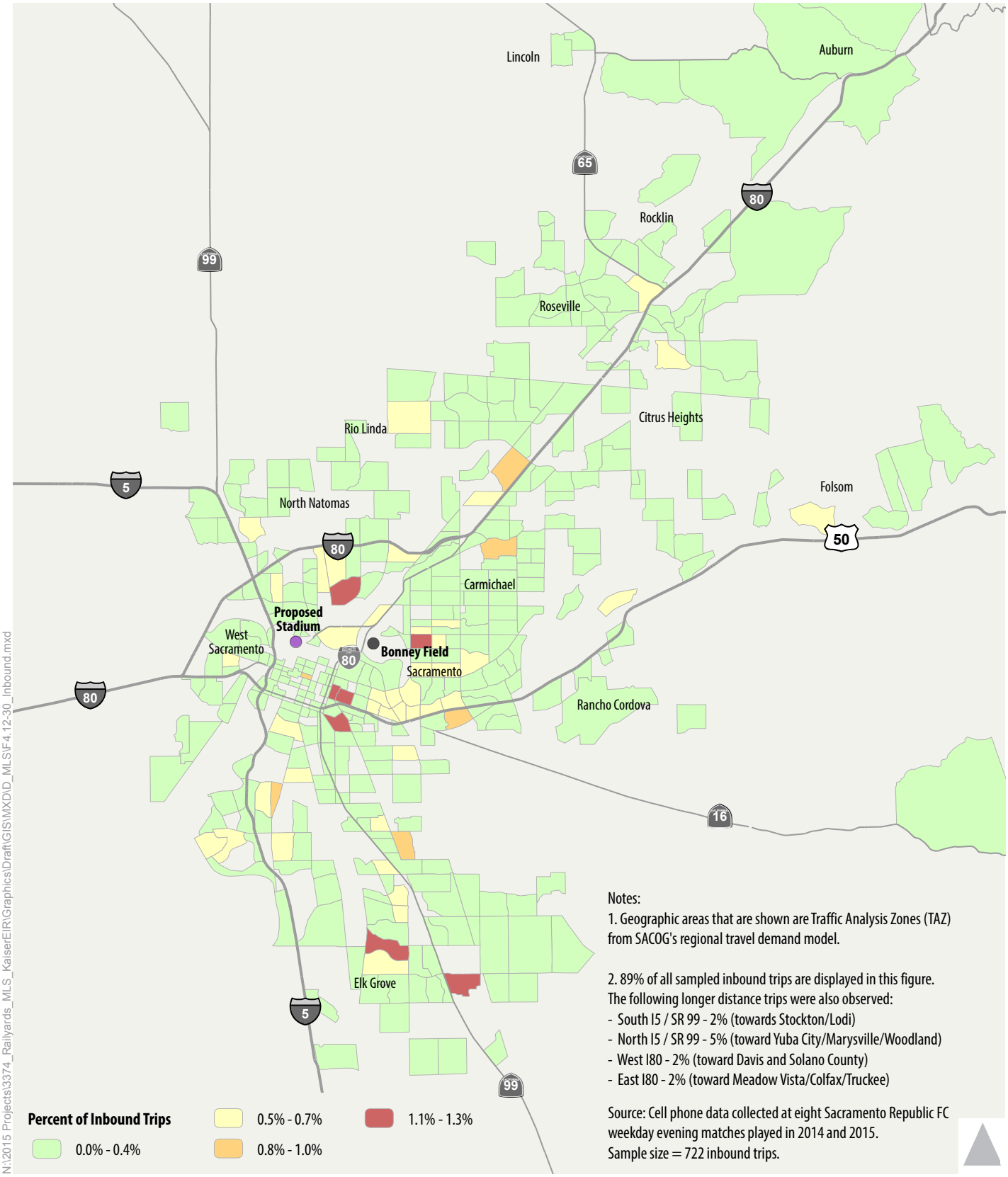


Figure 4.12-30

Trip Origins for Sacramento Republic FC Soccer Matches - Inbound Travel to Bonney Field

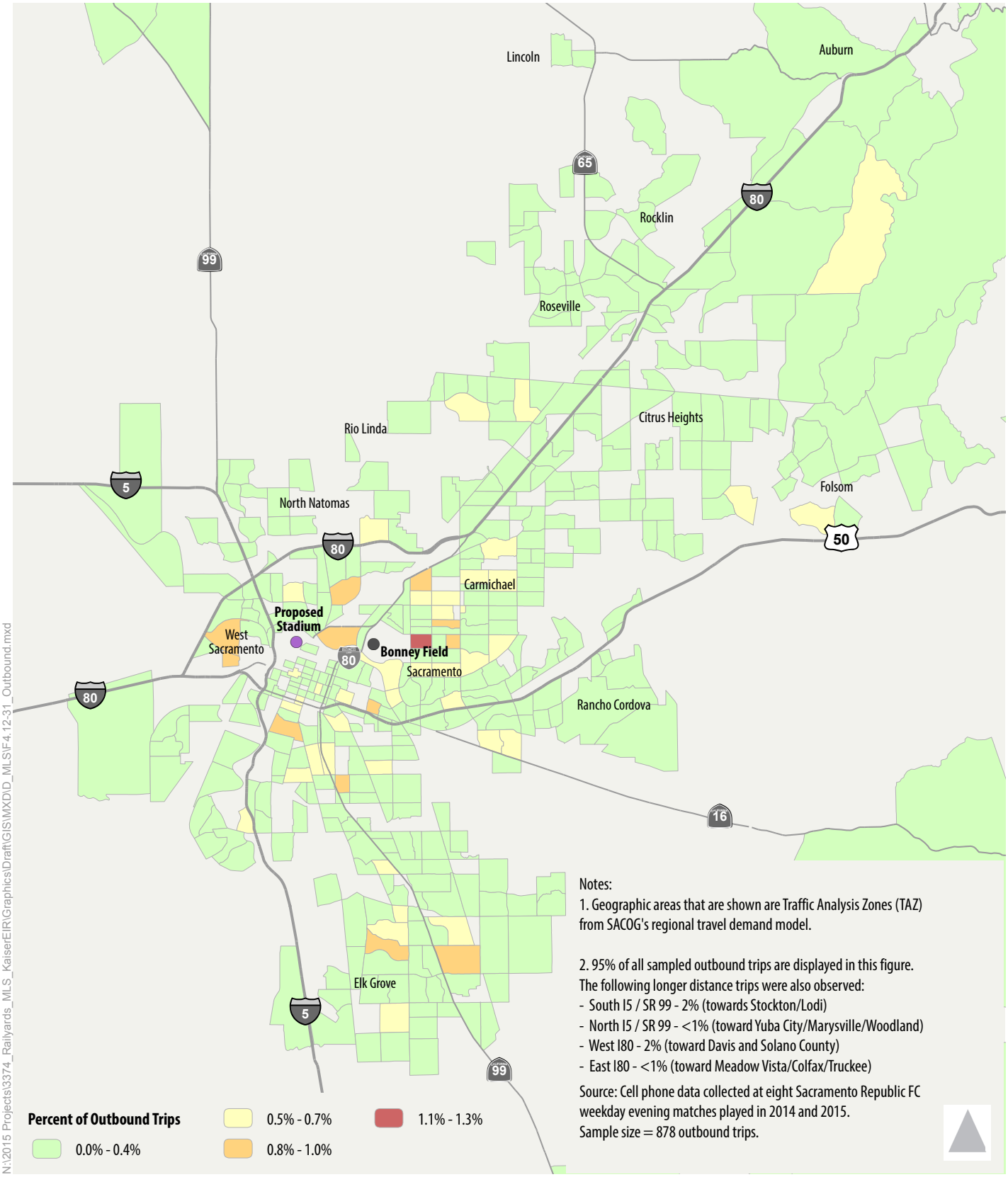


Figure 4.12-31

Trip Destinations for Sacramento Republic FC Soccer Matches - Outbound Travel from Bonney Field

9 PM, meaning that current operations would not provide opportunities for attendees to ride the bus after matches. Routes 29 and 33 are peak-period only.

Since RT has indicated a willingness to work with the City and applicant to enhance transit (including bus) operations in response to demand, it is estimated that 0.5 percent of soccer match attendees would travel by bus to/from the Stadium. This translates into 125 riders in each direction, which could be accommodated by four or five special event buses. Capitol Corridor service currently ends at about 9 PM, which implies that this travel mode could not be used for post-event travel unless service changes.

Walk Mode Split

The proposed MLS Stadium is located in zip code 95811, which extends northerly to the American River, southerly to the UPRR tracks, westerly to the Sacramento River, and easterly to 12th Street. The adjacent zip code to the south is 95814, which covers the CBD. These two zip codes represent the expected primary origins/destinations of walk trips. These zones comprise three percent of all Sacramento Republic FC season ticket holder residence zip codes. About 15 percent of all season tickets are registered to businesses or organizations, some of which are presumably located downtown. Thus, the catchment area for walk trips could therefore include as much as five percent of all match attendees.

It is expected that some potential walk trips would instead use the Green line. This is particularly true for destinations to the south, in which it would be a ¾-mile walk from the 7th/K and 8th/H LRT Green line stations to a future station on 7th Street at Railyards Boulevard. Some attendees may choose to ride light rail versus walk that distance. In contrast, the Green line terminal station at Richards/Township 9 is located less than ½-mile north of a future Railyards/7th Street station. Other factors such as wait time, train crowding, and cost would also influence their mode choice.

Based on the above factors, it is estimated that 1.5 percent of MLS match attendees would walk (as their primary mode of travel). It is important to note that this mode split represents the travel mode for the primary trip used to access the MLS Stadium. There would be substantial numbers of pedestrians who would walk from various lots and garages (after driving to them) to access the Stadium.

Bicycle Mode Split

The catchment area for bicycle trips to the proposed Stadium would be geographically larger than the walk trip catchment area. The majority of properties within zip codes 95811, 95814, 95816, 95833, and 95605 are within a four-mile bike ride of the proposed Stadium. These zones comprise eight percent of all season ticket holder residence zip codes. Thus, the number of attendees within the catchment area for bike trips to the proposed Stadium is considerable, and suggests that bicycling activity to/from the site is expected. Based on the above factors, it is estimated that about two percent of attendees (500 bicyclists) would bicycle to/from matches. It is important to note that this mode split applies only to weekday evening soccer matches. During

weekends, west coast MLS soccer matches often begin in the afternoon, meaning that pre- and post-event bicycle travel would occur during daylight hours, which could affect mode choice.

Table 4.12-29 displays the expected mode split for the MLS Stadium under baseline conditions. As shown, 90 percent of MLS match attendees are anticipated to travel to the MLS Stadium by vehicle.

TABLE 4.12-29.
MLS STADIUM ATTENDEE MODE SPLIT – BASELINE CONDITIONS

Peak Hour	Primary Travel Mode for Weekday Evening Soccer Match				
	Vehicle	Light Rail	Bus	Walk	Bike
Pre-event / Post-Event	90%	6%	0.5%	1.5%	2%

NOTES:
Refer to previous pages for analysis methodologies used to estimate mode split.
SOURCE: Fehr & Peers, 2016.

It is anticipated that the mode split would change materially under cumulative conditions due to a variety of factors. The RT Green Line is planned to extend northerly from its current terminus to serve the Natomas area and beyond. Additional bicycle facilities are planned including a two-way cycle track on 12th Street. Development of the proposed RSPU is assumed to occur under cumulative conditions, which would provide numerous opportunities for shorter trips from businesses, retail/restaurant establishments, and residences. The mode split is presented later.

The MLS Stadium's weekday Pre-event peak hour trip generation is calculated based on the vehicle mode split, percentage of attendees arriving during the Pre-event peak hour, and AVO. **Table 4.12-30** indicates that the proposed Stadium would generate approximately 7,060 inbound trips and 235 outbound trips during the Pre-event peak hour.

TABLE 4.12-30.
PRE-EVENT VEHICULAR TRIP GENERATION OF MLS STADIUM – BASELINE CONDITIONS

Land Use	Quantity	Pre-event Peak Hour (6:30-7:30 PM)		
		Inbound	Outbound	Total
Stadium	25,000 Attendees [1] - Vehicle Mode Split (90%) - Average Vehicle Occupancy (2.23) - Percent Arriving During Pre-event Peak Hour (70%)	7,063	-	-
	Outbound trips [2]	-	235	
	Pre-event Peak Hour Trip Generation	7,063	235	7,298

NOTES:
1 All employees assumed to arrive prior to the Pre-event peak hour.
2 One outbound trip (i.e., deliveries, employee/attendee drop-offs, Uber/taxi) for every 30 inbound trips based on data from analogous Sacramento Republic FC match.
SOURCE: Fehr & Peers, 2016.

Expected Parking Demand and Proposed Supply

This subsection describes the parking demand for the proposed MLS Stadium during a sold-out 25,000-person MLS match. The following estimates and assumptions are used to develop this estimate:

- 90 percent of attendees travel by vehicle, with the remaining 10 percent traveling by light rail, bus, bicycle, or walking.
- An average vehicle occupancy of 2.23 based on Sacramento Republic FC observations.
- All employees are assumed to park in remote lots and be shuttled to the Stadium.

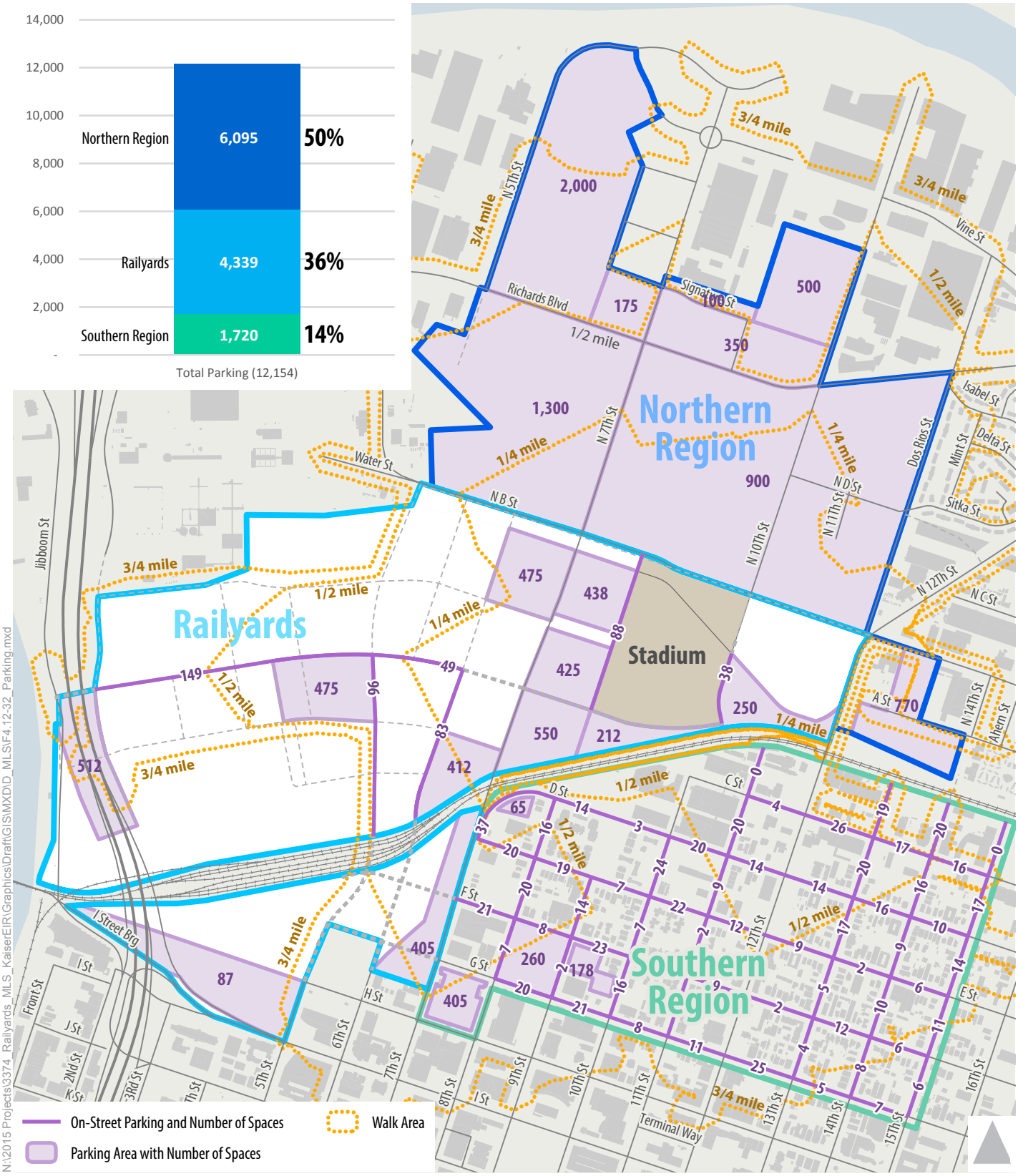
Based on these parameters, a sold-out 25,000-seat MLS match would require 10,090 parking spaces. To assess available parking in the Stadium vicinity, the following evaluations were performed:

- Obtained the proposed supply of parking to be provided on vacant lots within the RSP Area (as proposed by the Stadium applicant).
- Conducted field observations to measure available public parking in garages and on-street south of the UPRR tracks.
- Estimated the amount of available parking on vacant and underutilized parcels located north of the RSP (as proposed by the Stadium applicant).

Figure 4.12-32 shows that there are a total of more than 12,000 planned, available parking spaces in the vicinity of the proposed Stadium. However, as indicated by the walk distance contour lines, not all spaces are located within a ¾-mile or less walk of the stadium. This figure includes various notes that describe in detail how the available parking supply was calculated.

Figure 4.12-33 shows that there would be over 10,875 parking spaces located within a ¾-mile or less walk of the proposed Stadium. Approximately one-third is each located within ¼-mile, within one quarter- to one half-mile, and within one half- to three quarters of a mile of the proposed MLS Stadium. In summary, an adequate supply of parking is proposed to accommodate a sold-out 25,000-person soccer match under baseline conditions.

Figure 4.12-34 displays the estimated amount of parking that is estimated to be available within the RSP Area under RSPU buildout conditions for an MLS match. As the footnotes in this figure indicate, the available parking is based on vacant parking (during a weekend or weekday evening) that would otherwise be used by offices. It also includes six public parking garages. As shown, over 11,200 spaces are estimated to be available (excluding any spaces within the KP Medical Center).



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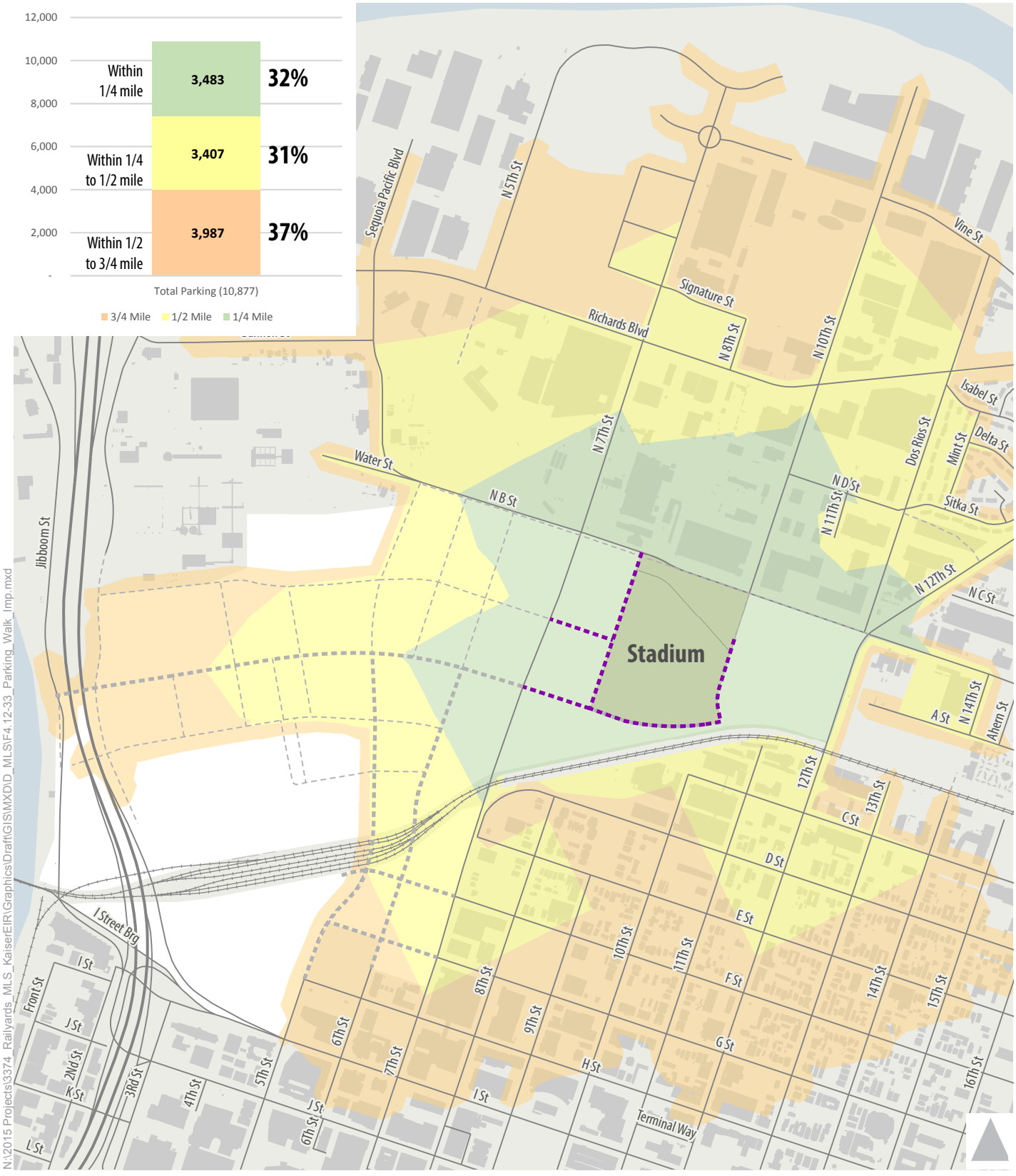
1. Available parking in existing public/private lots/garages and on-street based on field observations conducted by Fehr & Peers between 6:30 and 7:30 PM on weekdays in December 2015.
2. Walk distances based on street network connectivity.
3. Available parking on designated vacant parcels in the RSPU based on acreage and assumption of 125 spaces per acre.
4. Available parking north of RSPU based on properties targeted for potential parking, and subjected to aerial imagery inspection of portion of property that is vacant. Unit value of 125 spaces per acre of vacant property assumed.

Figure 4.12-32

Available Parking in Vicinity of Proposed MLS Stadium



Distance from MLS

1/4

1/2

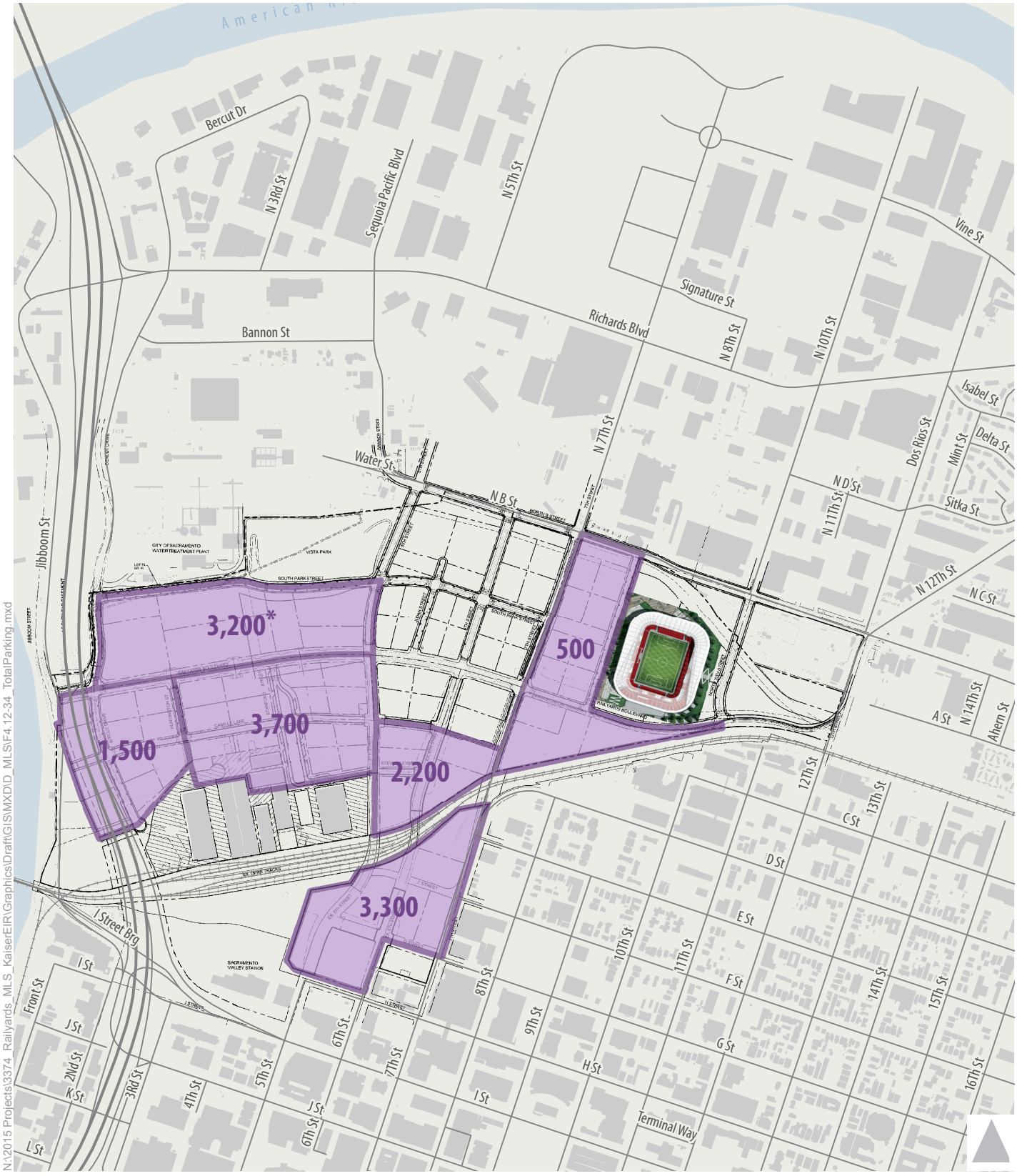
3/4

Assumed Pedestrian Access/Connection to be Constructed with MLS Stadium Under Baseline Conditions

Note: Walk distance measured to nearest corner of MLS Stadium.

Figure 4.12-33

Available Parking Within Given Walk Distance of MLS Stadium



Parking Areas and Estimated Total Spaces

Notes:

1. Assumes 2 spaces per ksf of office with 80% of total spaces assumed to be available for MLS Events.
2. Also includes 6 public garages that would contribute 4,625 spaces of the total shown.
3. Parking availability rounded to the nearest hundred spaces.
4. 11,200 total available spaces (excluding KP Medical Center).

* Potentially available spaces in KP Medical Center.

Figure 4.12-34

Estimated Available Parking in RSPU Under Buildout Conditions

Trip Distribution/Assignment Characteristics

Pre-event peak hour trips were distributed in accordance with Figure 4.12-29, which displays the trip origins of Sacramento Republic FC attendees based on the cell phone data. The SACMET model was used to assign vehicle trips through the study intersections and freeway facilities in accordance with the following steps:

1. Project trips were assigned into various garages, surface lots, and available on-street spaces based on the amount of available parking in each facility, location of each facility (relative to trip origin and Stadium), and walk distance. The assignment process considered the origin/destination of trips (i.e., trips from the north will likely park north of the Stadium).

2. A trip table (matrix) was created to assign inbound and outbound vehicle trips between the TAZs and a series of newly created TAZs that represent parking at Stadium.

3. The SACMET travel forecasting model assigned project trips to various freeways and surface streets. This process allows for the traffic model to keep account of the volume and routing of trips. The trip assignment patterns were reviewed for reasonableness (i.e., congested ramps and other bottlenecks), with minor rerouting of trips to shorter/less-congested paths. These trips are then added to the Baseline No Project scenario to yield the Baseline Plus MLS Stadium scenario. These forecasts are shown on **Figure 4.12-35a, 35b, and 35c**.

With development of the proposed MLS Stadium, new traffic signals would be installed at the following intersections: North B Street/8th Street. Railyards Boulevard/8th Street, and Jibboom Street/Railyards Boulevard.

It should be noted that nearly one-quarter of all attendees are expected to arrive prior to the beginning of the Pre-event peak hour. Those traveling by vehicle would occupy some of the available parking. Some motorists may choose to park closest to the MLS Stadium to minimize walk distance. Others might choose to park in strategic lots with easy egress opportunities after games. The assignment of vehicle trips to individual lots and garages considered these factors.

During the Pre-event peak hour, MLS attendees arriving by vehicle are anticipated to park in the following geographic locations based on the proposed supply of parking and origin of trips:

- North of the RSP: 3,294 vehicles (47 percent)
- Within RSP: 2,775 vehicles (39 percent)
- South of RSP (south of UPRR tracks): 994 vehicles (14 percent)

Although Figure 4.12-32 indicated that over 4,000 spaces would be available within the RSP Area, the assignment of peak hour project trips into those lots is considerably less for two

reasons. First, some of this parking would already be occupied by attendees arriving prior to the beginning of the Pre-event peak hour (any parking already occupied prior to the Pre-event peak hour is assumed to be attendees since this Baseline Plus MLS Stadium scenario assumed no retail or other development within the RSPU that would require parking). Second, some of the parking would be located more than one half mile from the proposed MLS Stadium. Other lots north of the RSP Area would have availability and be a shorter walk distance.

Figure 4.12-36 shows the Pre-event peak hour pedestrian flows along sidewalks within the RSP Area and streets to the north, east, and south. These estimates were based on the project's vehicular trip generation and expected use of parking. They also consider primary walk trips from origins outside of the RSP Area as well as walk trips after attendees exit the 7th/Railyards light rail station. However, they do not reflect changes in walk patterns associated with any type of traffic or pedestrian management plans.

Table 4.12-31 displays the average delay and LOS at each study intersection under Baseline Plus MLS Stadium conditions during the Pre-event peak hour. The LOS calculations considered the effects of these large pedestrian flows. As shown, a sold-out (25,000-person) match at the MLS Stadium would cause six study intersections to worsen from LOS C or better to LOS E or F during the Pre-event peak hour.

Table 4.12-32 displays operations at the study freeway facilities under Baseline Plus MLS Stadium conditions during the Pre-event peak hour. As shown, the project would cause several facilities to degrade by one or two service levels. However, all facilities would continue to operate at LOS D or better.

Table 4.12-33 displays maximum estimated queue lengths and available storage on the I-5 off-ramps expected to be used by project trips Baseline Plus MLS Stadium conditions during the Pre-event peak hour. The project would cause increases in maximum queue lengths on all off-ramps. However, the resulting queues would remain within the available storage capacity.

Pedestrians desiring to enter/exit the MLS Stadium would have several access choices. General admission entry points would be located on the north and east sides and at the northwest and southwest corners of the stadium. Premium seat holder entry would be provided on the west side of the stadium.

Table 4.12-34 displays projected pedestrian usage of various sidewalks, and corresponding LOS results. The table includes actual sidewalk widths, effective sidewalk widths (excluding obstruction widths and shy distances, or buffer space a pedestrian typically gives to curbs, walls, or other adjacent features), and resulting flow rates. It is worth noting that some segments are classified as being 'platooned' while others are not. This influences the reported LOS for a given pedestrian flow rate.

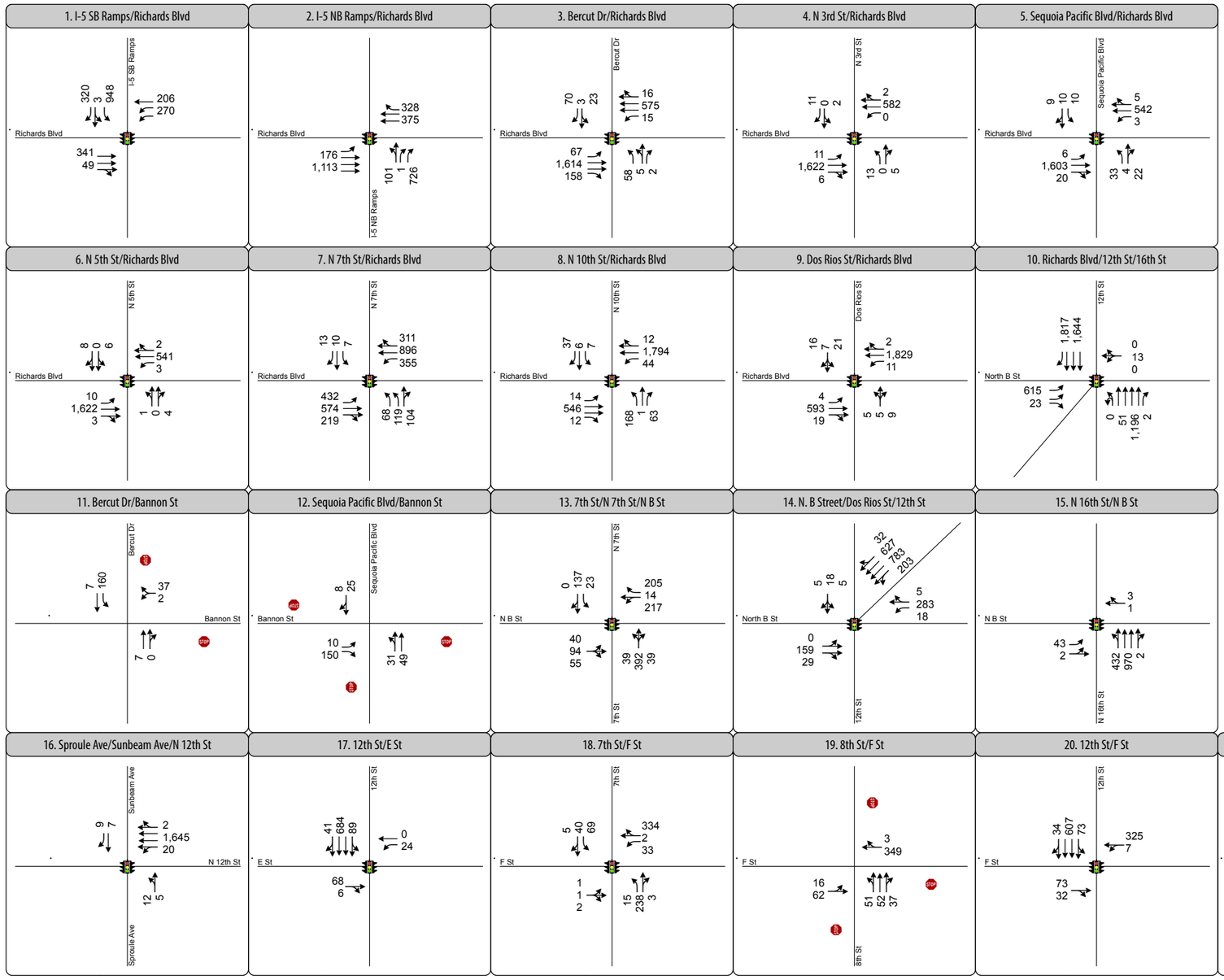


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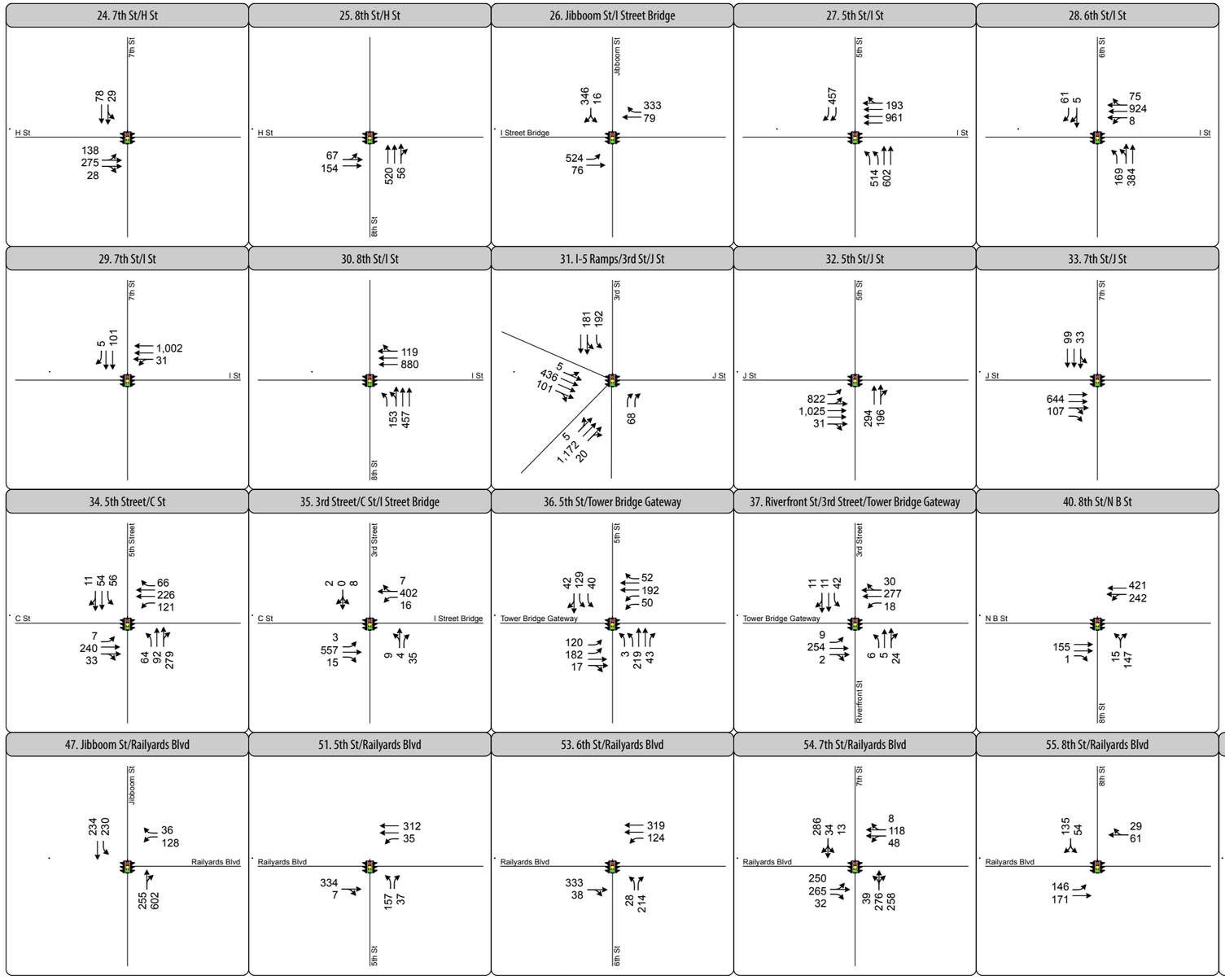
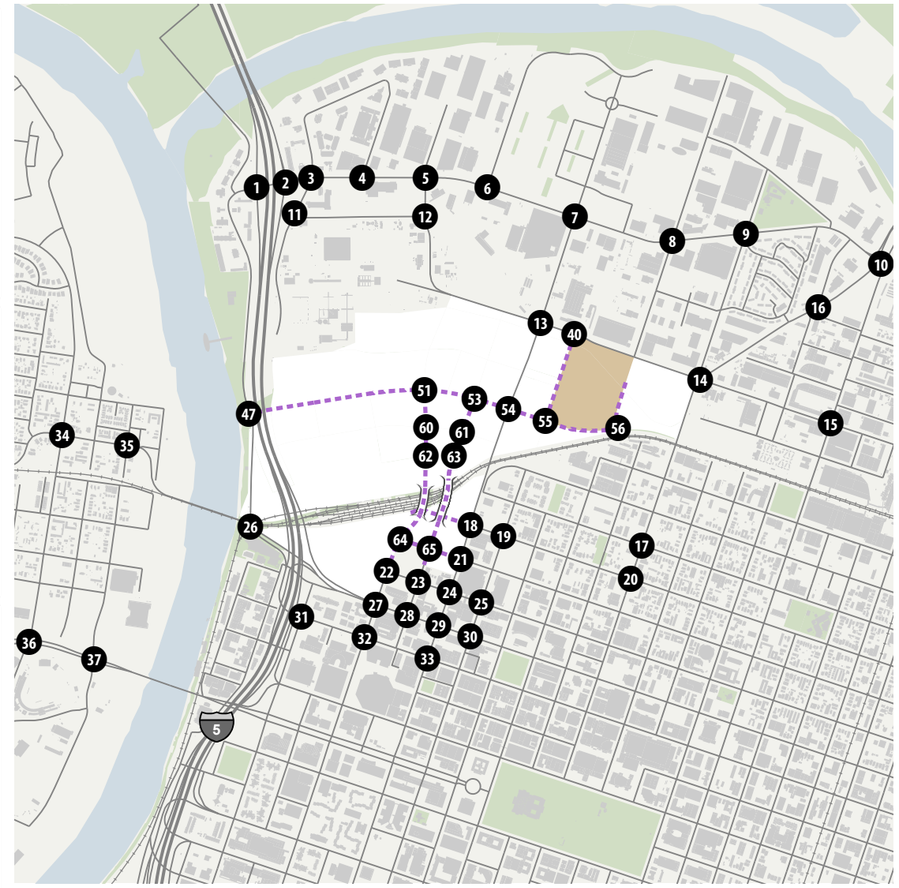
Figure 4.12-35A

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus MLS Stadium Conditions





Turn Lane
X,XXX Pre Event Peak Hour Traffic Volume
Traffic Signal
Stop Sign
1 Study Intersection for Given Scenario
Assumed Roadway for Given Scenario
Proposed MLS Stadium Site

Figure 4.12-35B

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus MLS Stadium Conditions

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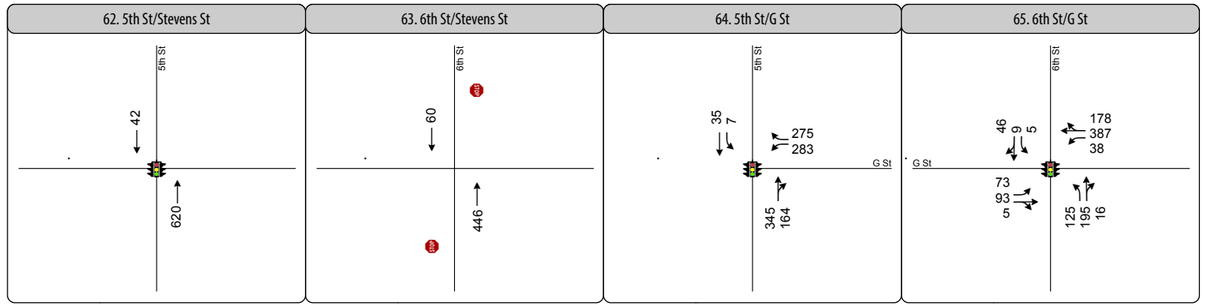

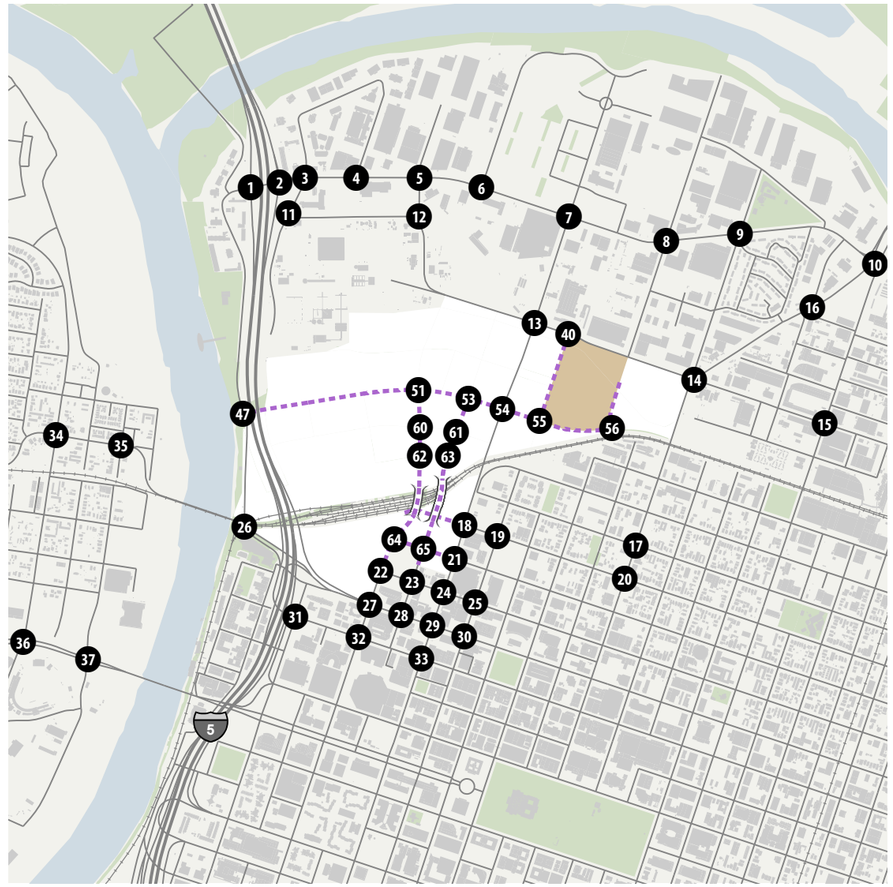

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Turn Lane

X,XXX Pre Event Peak Hour Traffic Volume

Traffic Signal

Stop Sign

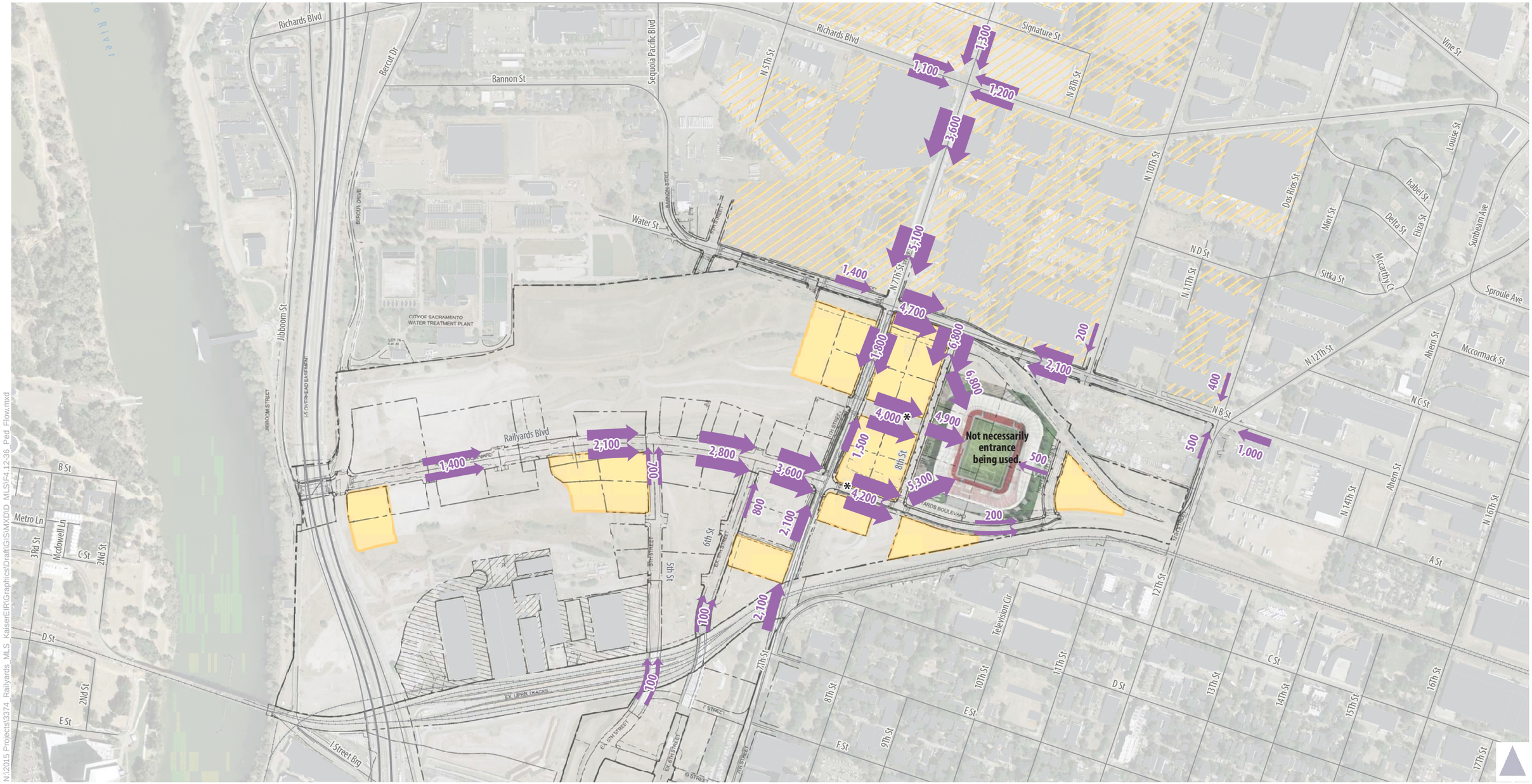
1 Study Intersection for Given Scenario

Assumed Roadway for Given Scenario

Proposed MLS Stadium Site

Figure 4.12-35C

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Baseline Plus MLS Stadium Conditions



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Surface Parking Lot within RSPU to be Available for Attendee Parking

Properties North of RSPU Anticipated to be Available for Attendee Parking

Pedestrian Flow (sidewalk on one side of street)

Pedestrian Flow (sidewalk on both sides of street)
(Pedestrian flows rounded to the nearest hundered)

* Volumes include 900 transit riders.

NOTES:

1. Pedestrian flows shown for 25,000-person MLS soccer match. During pre-event peak hour, 70% of attendees assumed to arrive.
2. Refer to Table 4.12-35 for pedestrian flows at sidewalks.
3. Pedestrian flows east and west of 8th Street do not balance due to some attendees who exit from parking lots directly west of 8th Street.
4. Parking south of UPRR includes various garages, surface lots, and on-street parking.
5. Pedestrian flows shown here do not consider planned traffic management strategies, and will change once they are implemented.

Figure 4.12-36

Pedestrian Flows - Pre Event Peak Hour Under Baseline Plus MLS Stadium Conditions

TABLE 4.12-31.
PRE-EVENT PEAK HOUR INTERSECTION OPERATIONS – BASELINE PLUS MLS STADIUM

	Intersection	Control Type	No Project		Plus Project	
			Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	15.2	B	23.9	C
2	Richards Blvd / I-5 NB Ramps	Signal	9.4	B	14.8	B
3	Richards Blvd / Bercut Dr	Signal	11.5	B	10.0	B
4	Richards Blvd / N 3rd St	Signal	3.9	A	4.0	A
5	Richards Blvd / Sequoia Pacific Blvd	Signal	4.4	A	6.5	A
6	Richards Blvd / N 5th St	Signal	5.5	A	17.5	B
7	Richards Blvd / N 7th St	Signal	13.4	B	79.8	E
8	Richards Blvd / N 10th St	Signal	6.0	A	11.6	B
9	Richards Blvd / Dos Rios St	Signal	6.0	A	6.9	A
10	Richards Blvd / N 12th St / 16th St	Signal	13.2	B	83.6	F
11	Bannon St / Bercut Dr	SSSC	4.0	A	5.0	A
12	Bannon St / Sequoia Pacific Blvd	AWSC	4.5	A	4.4	A
13	N B St / N 7th St	Signal	12.1	B	42.3	D
14	N B St / N 12th St	Signal	11.7	B	20.4	C
15	N B St / 16th St	Signal	5.7	A	8.0	A
16	N 12th St / Sunbeam Ave / Sproule Ave	Signal	2.5	A	3.7	A
17	E St / 12th St	Signal	5.2	A	5.5	A
18	F St / 7th St	Signal	4.1	A	10.9	B
19	F St/ 8th St	AWSC	4.6	A	12.9	B
20	F St / N 12th St	Signal	6.2	A	11.0	B
21	G St / 7th St	Signal	8.7	A	10.7	B
22	H St / 5th St	Signal	9.7	A	7.5	A
23	H St / 6th St	Signal	9.8	A	12.7	B
24	H St / 7th St	Signal	6.0	A	10.3	B
25	H St / 8th St	Signal	5.1	A	8.3	A
26	I St / Jibboom St	Signal	18.6	B	54.7	D
27	I St / 5th St	Signal	9.6	A	18.1	B
28	I St / 6th St	Signal	4.5	A	13.4	B
29	I St / 7th St	Signal	7.9	A	7.6	A
30	I St / 8th St	Signal	8.8	A	10.3	B
31	J St / 3rd St / I-5 Off-Ramps	Signal	21.9	C	94.1	F
32	J St / 5th St	Signal	8.8	A	52.3	D
33	J St / 7th St	Signal	8.8	A	22.1	C
34	C St / 5th St	Signal	16.6	B	17.2	B

TABLE 4.12-31.
PRE-EVENT PEAK HOUR INTERSECTION OPERATIONS – BASELINE PLUS MLS STADIUM

	Intersection	Control Type	No Project		Plus Project	
			Avg Delay	LOS	Avg Delay	LOS
35	C St / 3rd St	Signal	5.0	A	5.9	A
36	Tower Bridge Gateway / 5th St	Signal	24.9	C	30.6	C
37	Tower Bridge Gateway / 3rd St	Signal	10.8	B	9.1	A
40	N B St / 8th St	Signal	-	-	12.8	B
47	Railyards Blvd / Jibboom St	AWSC/Signal	9.1	A	19.6	B
51	Railyards Blvd / 5th St	Signal	6.3	A	64.9	E
53	Railyards Blvd / 6th St	Signal	9.3	A	108.8	F
54	Railyards Blvd / 7th St	Signal	9.9	A	124.5	F
55	Railyards Blvd / 8th St	Signal	-	-	7.5	A
56	Railyards Blvd / 10th St	AWSC	-	-	4.9	A
60	Camille Ln / 5th St	Signal	0.4	A	1.3	A
61	Camille Ln / 6th St	Signal	0.4	A	25.7	C
62	Stevens St / 5th St	Signal	0.0	A	0.6	A
63	Stevens St / 6th St	Signal	0.1	A	7.2	A
64	G St / 5th St	Signal	13.6	B	10.0	A
65	G St / 6th St	Signal	11.5	B	14.2	B

For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-32.
PRE-EVENT PEAK HOUR FREEWAY OPERATIONS – BASELINE PLUS MLS STADIUM CONDITIONS

		Baseline No Project		Baseline Plus MLS Stadium	
Freeway Facility	**Type**	**Density[1]**	**LOS**	**Density[1]**	**LOS**
1. I-5 Northbound – P street on-ramp to J Street off-ramp	Weave	-	B	-	D
2. I-5 Northbound – On-ramp from L Street	Merge	25.3	C	27.2	C
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]		C	-	C
4. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	C	-	C
5. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	D	-	D
6. I-5 Northbound – Off-ramp to I-80	Major Diverge	22.0	C	22.1	C
7. I-5 Southbound – On-ramp from I-80	Major Merge	12.4	B	15.0	B
8. I-5 Southbound – On-ramp from WB West El Camino	Merge	16.5	B	18.7	B
9. I-5 Southbound – Off-ramp to Garden Highway	Diverge	13.9	B	16.9	B
10. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]		A	-	B
11. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	A	-	A
12. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	17.1	B	17.7	B
13. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	9.7	A	10.2	A
14. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	11.9	B	12.5	B
15. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	11.4	B	33.6	D
16. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	11.4	B	31.9	D
17. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	10.5	A	33.6	D

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
2. Under the Pre-event scenario, ramp volumes are too low to constitute the segment as a weave. Therefore, the segment is analyzed as a basic segment.

Note: Segments 11 – 15 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Similarly, Segments 3 – 6 (i.e., Northbound I-5 from Business 80/US 50 to J Street) are reported at LOS C or D during the PM peak hour. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-33.
FREEWAY OFF-RAMP VEHICLE QUEUES – BASELINE PLUS MLS STADIUM CONDITIONS

Off-Ramp	Available Storage	Pre-event Peak Hour Maximum Vehicle Queue [1]	
		Baseline No Project	Baseline Plus MLS Stadium
I-5 SB Off-Ramp at J Street	1,500 ft.[2]	125	225
I-5 NB Off-Ramp at J Street	1,000 ft. [2]	125	1,000
I-5 SB Off-Ramp at Richards Boulevard	1,050 ft. [2]	125	375
I-5 NB Off-Ramp at Richards Boulevard	1,000 ft. [2]	100	275

1. Based on output from SimTraffic microsimulation model.
2. Measured from ramp terminal intersection limit line to freeway off-ramp gore point.
SOURCE: Fehr & Peers, 2016.

TABLE 4.12-34.
PRE-EVENT PEAK HOUR SIDEWALK PEDESTRIAN VOLUMES AND LOS – BASELINE PLUS MLS STADIUM CONDITIONS

Sidewalk Street Segment [1]	Side	Actual Width[2], ft	Effective Width[2], ft	Pre-event Peak Hour Pedestrians[3]	Pedestrian Flow Rate, ped/minute/ft[4]	LOS
5th St south of Railyards Blvd	West	11.5	6	600	2.0	A
5th St south of Railyards Blvd	East	11.5	6	100	0.3	A
6th St railroad overcrossing	West	6	3	< 50	< 0.3	A
6th St railroad overcrossing	East	6	3	100	0.7	A
6th St south of Railyards Blvd	West	15.5	10	< 50	< 0.01	A
6th St south of Railyards Blvd	East	15.5	10	800	1.6	A
7th St railroad undercrossing	West	10	6.5	2,100	6.3	B
7th St south of Railyards Blvd	West	14	12.5	2,100	3.3	A
7th St south of Park St	West	10	10	300	0.6	A
7th St south of Park St	East	10	10	1,500	2.9	A
7th St south of B St	West	16	8.5	300	0.7	A
7th St south of B St	East	16	8.5	1,800	4.2	A
7th St north of B St	West	5	1	2,200	43.1	F
7th St north of B St	East	5	1	2,900	56.9	F
7th St south of Richards Blvd	West	5	2.5	1,400	11.0	D
7th St south of Richards Blvd	East	5	2	2,200	21.6	E
7th St north of Richards Blvd	West	8	8	1,000	2.5	A
7th St north of Richards Blvd	East	8	6.5	300	0.9	A
8th St north of Railyards Blvd.	West	16	8.5	300	0.7	A
8th St south of North B St	West	16	8.5	800	1.8	A
10th St north of Railyards Ave	West	5	3.5	200	1.1	A
10th St north of Railyards Ave	East	5	3.5	< 50	< 0.3	A
10th St north of North B St	West	5	3.5	200	1.1	A
10th St north of North B St	East	5	3.5	400	2.2	A
12th St south of North B St	West	6	2.5	500	3.9	A

TABLE 4.12-34.
PRE-EVENT PEAK HOUR SIDEWALK PEDESTRIAN VOLUMES AND LOS – BASELINE PLUS MLS STADIUM CONDITIONS

Sidewalk Street Segment [1]	Side	Actual Width[2], ft	Effective Width[2], ft	Pre-event Peak Hour Pedestrians[3]	Pedestrian Flow Rate, ped/minute/ft[4]	LOS
Dos Rios St north of North B St	West	5.5	4	400	2.0	A
Dos Rios St north of North B St	East	5	2	< 50	< 0.5	A
Railyards Blvd west of Huntington St	South	12	10.5	1,400	2.6	A
Railyards Blvd west of 7th St	North	16.5	11	1,100	2.0	A
Railyards Blvd west of 7th St	South	16.5	11	2,500	4.5	A
Railyards Blvd west of 8th St	North	16	8.5	1,700	3.9	A
Railyards Blvd west of 8th St	South	16	8.5	2,500	5.8	B
North B St west of 7th St	North	unpaved	unpaved	1,400	unpaved	F
North B St west of 7th St	South	unpaved	unpaved	< 50	unpaved	F
North B St west of 8th St	North	5	2	3,100	30.4	F
North B St west of 8th St	South	unpaved	unpaved	1,600	unpaved	F
North B St east of 8th St	North	5	3.5	600	3.4	A
North B St east of 8th St	South	unpaved	unpaved	1,500	unpaved	F
North B St east of 10th St	North	5	3.5	400	2.2	A
North B St east of 10th St	South	5	2.5	1,500	11.8	D
North B St east of 12th St	North	5	2	< 50	< 0.5	A
North B St east of 12th St	South	5	2	1,000	9.8	C
Richards Blvd west of 7th St	North	6	4.5	400	1.7	A
Richards Blvd west of 7th St	South	5	3.5	700	3.9	A
Richards Blvd east of 7th St	North	5	2.5	900	7.1	C
Richards Blvd east of 7th St	South	5	3.5	300	1.7	A

NOTES:

1. Sidewalk locations having greatest pedestrian flows for an MLS game are shown in the table.
2. "Actual Width" of crosswalks based on distance between building/fence/outer edge of sidewalk and curb/planting strip. "Effective Width" of sidewalk subtracts obstruction (such as poles or benches) widths, 2 feet for shy distance away from buildings and 1.5 feet for shy distance away from low walls, fences, or curbs per HCM guidance.
3. Pedestrian volumes estimated based on expected parking garage/lot/on-street usage, locations of transit stops, and stadium entrances. Volumes rounded to the nearest 100
4. Pedestrian flow rate calculated for peak 15-minutes based on a suggested 0.85 PHF per page 23-24 of 2010 HCM.

Shaded cells represent LOS E or F.

SOURCE: Fehr & Peers, 2016.

This table reveals several heavily used sidewalks including portions of 7th Street, Railyards Boulevard, and North B Street. As shown, eight distinct sidewalk segments are projected to operate at LOS E or F. Each of these facilities either consists of 5-foot sidewalks (often having obstructions) or consists of no sidewalks at all.

Table 4.12-35 displays the Pre-event peak hour intersection crosswalk volumes, and LOS. During special events, it is typical for pedestrians to adopt a 'safety in numbers' type attitude, whereby they may be more likely to enter a crosswalk during the Flashing Don't Walk indication if accompanied by many others. Similarly, they may be more likely to walk outside of crosswalks. This table displays the pedestrian flow rate for lawful crossings as well as these common, but technically unlawful or improper behaviors. However, it is worth noting that should

these intersections be controlled by Police Officers, it is unlikely that pedestrians would be permitted to enter the crosswalk when the pedestrian indication is in a Flashing Don't Walk mode.

TABLE 4.12-35.
PRE-EVENT PEAK HOUR PEDESTRIAN CROSSWALK VOLUMES AND LOS – BASELINE PLUS MLS STADIUM CONDITIONS

			Legal (Improper) [4] Crossing Type	
Crossing Location [1]	**Leg [1]**	**Pre-event Peak Hour Pedestrians [2]**	**Pedestrian Flow Rate, ped/minute/ft [3]**	**LOS**
Railyards Blvd at 7th St [5]	West	2,200	68 (22)	F (F)
	East	100	3 (1)	A (A)
	North	3,600	111 (42)	F (F)
	South	2,200	68 (25)	F (F)
B St at 7th St [6]	West	1,800	40 (16)	F (E)
	East	1,700	56 (21)	F (E)
	North	1,800	59 (20)	F (E)
	South	1,800	59 (20)	F (E)
Richards Blvd at 7th St	West	700	33 (10)	F (C)
	East	1,900	90 (27)	F (E)
	North	700	33 (8)	F (C)
	South	< 50	2 (1)	A (A)

NOTES:
1. Locations having greatest pedestrian flows are shown in the table. "East Leg" refers to the crossing on the east edge of the intersection. "North", "South", and "West" legs have similar definitions.
2. Pre-event peak hour pedestrian flows are for an MLS game. Pedestrian flow rate calculated for peak 15-minutes based on a suggested 0.85 PHF per page 23-24 of 2010 HCM. Pedestrian volumes estimated based on expected parking lot locations, locations of transit stops, and stadium entrances. Volumes rounded to the nearest 100
3. Width of crosswalks based on distance between striping, 10 feet on all legs.
4. Calculations for "improper" crossings based on: additional 2-foot of crossing width within crosswalk, and use of 50% of Flashing Don't WALK by pedestrians to enter the crosswalk.
5. Assumes 7th Street is widened to four lanes and intersection operates with protected left-turn phasing on all approaches.
6. Assumes north-south 7th Street operates with protected left-turn phasing and east-west North B Street operates with permitted phasing.

Shaded cells represent LOS E or F.
SOURCE: Fehr & Peers, 2016.

This table indicates that the majority of crosswalks at these intersections would operate at LOS E or F regardless of whether crossings would be lawful versus improper.

Detailed analysis was not conducted for crosswalks at the intersections of Railyard Boulevard at 8th Street and B Street at 8th Street. As is discussed in the Event TMP in Appendix J.2, these intersections would be part of a special event traffic management plan, in which traffic is directed toward certain facilities with appropriately-designed pedestrian amenities. Refer to Appendix J.2 for details.

Detailed pedestrian flow rate forecasts and analysis were not conducted for post-event conditions for several reasons. First, as is discussed in the Event TMP in Appendix J.2, certain streets along the stadium frontage would be temporarily closed to accommodate heavy outbound pedestrian

flows. Second, the time necessary to empty the MLS Stadium would likely be a greater limiting factor of pedestrian mobility than sidewalk or crosswalk widths.

Concurrent Events

This subsection evaluates the potential for soccer matches at the MLS Stadium to overlap with other sporting events in the Sacramento region. To understand the anticipated frequency of such occurrences, the 2014 and 2015 home schedules of the National Basketball Association (NBA) Sacramento Kings and AAA Sacramento Rivercats baseball team were compared against the schedule for the MLS San Jose Earthquakes. The Earthquakes' schedule was selected because a Sacramento MLS team would likely have a similar 'west coast' schedule of games and start times. Following are the key findings of this evaluation.

- In 2014, there were 12 'multi-game' days (7 Saturdays, 3 Wednesdays, 1 Friday, and 1 Sunday). Nine of the 12 days involved home games played by the San Jose Earthquakes and Sacramento Rivercats. There were four days involving home game played by the San Jose Earthquakes and Sacramento Kings (including one day that includes all three teams).

- The 2015 data were quite similar to 2014 with 11 'multi-game' days occurring most often on Saturdays and involving the San Jose Earthquakes and Sacramento Rivercats. There were three instances involving home games played by the San Jose Earthquakes and Sacramento Kings.

This data yields the following conclusions:

- A soccer match at the MLS Stadium would be most likely to overlap with a baseball game at Raley Field on a Saturday evening. Raley Field and the MLS Stadium are over one mile apart, and are not proposed to have much, if any, overlapping parking. However, they will rely on many of the same roadways, freeways, light rail/bus routes, etc. Therefore, advanced planning for such events, though rare, is necessary.

Due to the infrequent nature of such overlapping events, they are not analyzed in this study.

Cumulative Conditions

This subsection describes anticipated travel conditions under cumulative (2035) conditions for the roadway, transit, and bicycle/pedestrian systems. The version of the SACMET regional travel demand model previously used for the City's General Plan update and the I Street Bridge study was used to forecast cumulative traffic volumes within the study area.

Land Use and Transportation System Assumptions

The cumulative version of the SACMET model accounts for planned land use growth within the City of Sacramento according to the City's 2035 General Plan, as well as growth in the surrounding region. The SACMET model also accounts for planned improvements to the surrounding transportation system.

In February 2016, the Sacramento Area Council of Governments adopted its 2016 Metropolitan Transportation Plan (MTP) and Sustainable Communities Strategy (SCS) for the Sacramento region. This plan describes and then evaluates, based on assumptions about how local land use plans will develop over the plan horizon, a transportation plan for 2036 that establishes priorities for allocation of state and federal funding of transportation improvements, and the ways that the Sacramento region will meet the requirements of a number of different state laws (e.g., SB 375). This section references various data from the MTP/SCS including the Tier 1 project list (refer to Appendix J.1 for Tier 1 project list within study area), which comprises those transportation improvements that are planned (and have identified funding) to be constructed by 2036.

The cumulative analysis for this study assumes a variety of reasonably foreseeable future roadway improvements in the study area including:

- Two-lane I Street Bridge Replacement over the Sacramento River to new location that would connect at C Street in West Sacramento on the west, and at Railyards Boulevard/ Jibboom Street on the east. In conjunction with this improvement, vehicles would no longer travel on the existing I Street Bridge. (City of Sacramento 2035 General Plan);

- Two-lane Truxel Road Bridge over the American River, extending from Sequoia Pacific Boulevard on the south to Garden Highway on the north. (City of Sacramento 2035 General Plan);

- Two-lane Broadway Bridge over the Sacramento River (2016 MTP/SCS Tier 1 project);

- High Occupancy Vehicle (HOV) lanes on I-5 from I-80 into downtown Sacramento (2016 MTP/SCS Tier 1 project);

- I-5/Richards Boulevard Interchange improvements (2016 MTP/SCS Tier 1 project);

- Richards Boulevard/North 12th Street/North 16th Street/Sutters Landing Parkway intersection reconfiguration (City of Sacramento General Plan); and

- Various other roadway improvements in the River District.

The new bridges comply with GP Policy M.1.3.2, which specifies that the City shall pursue construction of multi-modal crossings of the Sacramento and American Rivers.

Assumed transit improvements (see Tier 1 project list in Appendix J.1) include the following:

- Green Line LRT system improvements – extension of service from the Richards Boulevard//Township 9 station to Sacramento International Airport, double-tracking of line along 7th Street to increase capacity, and increase in service to 15-minute headways;

- Sacramento/West Sacramento streetcar system – would operate within portions of the RSP Area. Although final routes and stations have not been established, preliminary mapping from the Downtown Transportation Study (Grid 2.0) shows the Streetcar extending northerly along 7th Street, and then westerly along Railyards Boulevard, and extending across the new I Street Bridge (via a median transit lane).

- Neighborhood shuttles that would connect the RSP Area to West Sacramento, the River District, and Downtown.

- Sacramento Valley Station – Phase III upgrades including a bus terminal, public parking, and a double-tracked light rail loop along H Street, F Street, with connections to 7th Street south of the UPRR undercrossing.

Figure 4.12-37 illustrates the cumulative transportation system (including roadways and transit) within the RSP Area.

A two-way cycle track is assumed in place on 12th Street from south of Richards Boulevard into downtown Sacramento. This would result in the elimination of one of the four travel lanes currently present on 12th Street in this area.

Land uses within the model include reasonably foreseeable projects including:

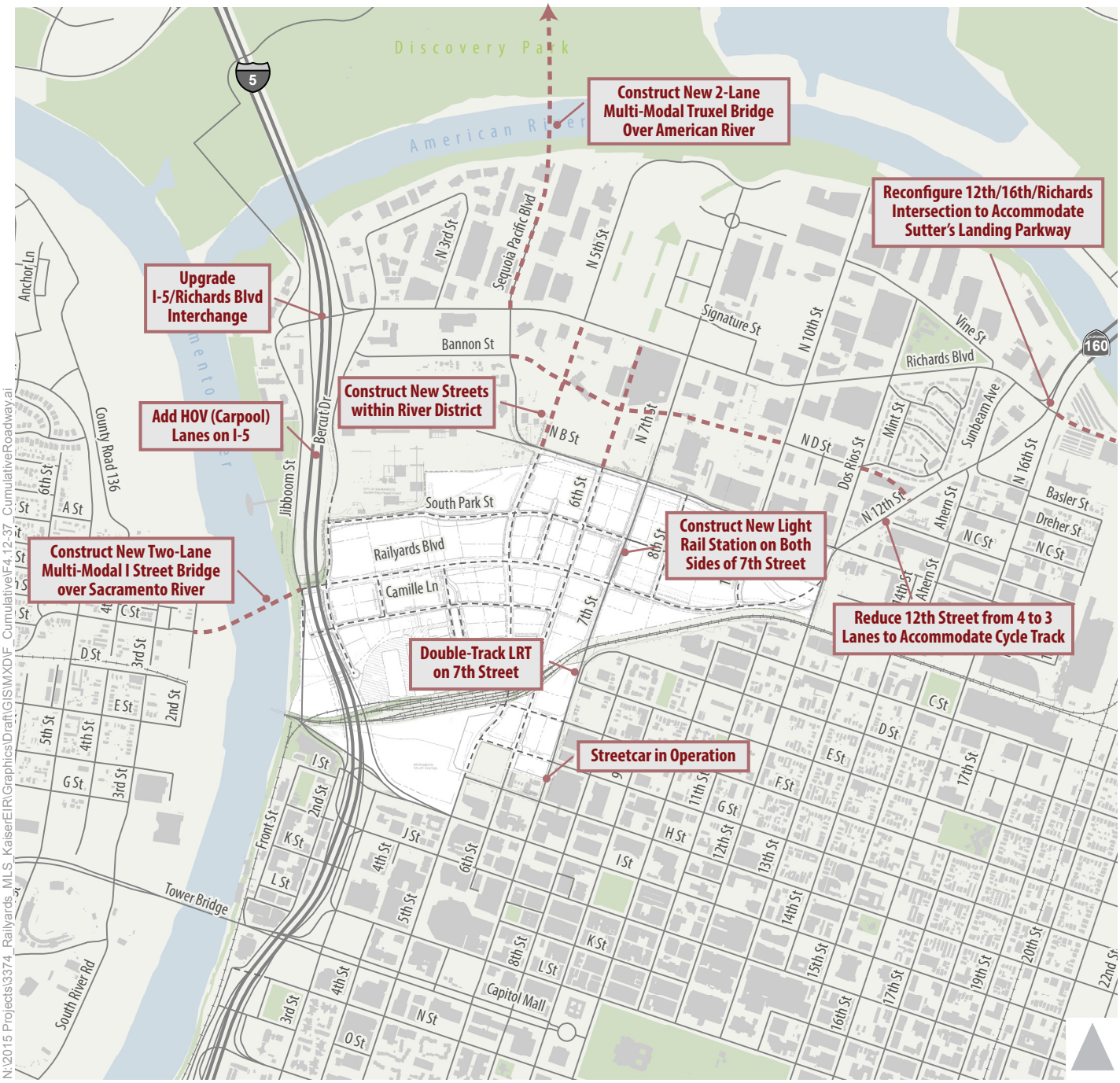
- Golden 1 Center and supporting residential, office, hotel, and retail uses in Downtown Commons – located in downtown Sacramento, bounded by J Street, 7th Street, L Street, and 5th Street.

- New downtown developments including: Kaiser MOB at J Street/6th Street, a new Sacramento County Courthouse located at north of H Street between 5th and 6th Streets, and 11,000 new dwelling units in the downtown grid outside the RSP (consistent with City goal of adding new residential in downtown).

- River District – mixed-use development north and east of the RSPU.

- Twin Rivers Redevelopment – reconstruction and expansion of the Dos Rios housing project along with mixed-use development located between Dos Rios Avenue and North 16th Street, along North 12th Street and south of Richards Boulevard. Also includes a new Blue Line station along North 12th Street.

- Development of the Bridge District and Washington Area Specific Plans in West Sacramento.



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---- Future Planned Roadway within RSPU

Figure 4.12-37

Planned Cumulative Roadway and Transit System Improvements Railyards Specific Plan Vicinity

Cumulative No Project Conditions

As described in Chapter 6, Alternatives, under the No Project/No Action Alternative, if the proposed RSPU is not approved, it is reasonable to expect that under cumulative conditions the approved 2007 Railyards Specific Plan ("2007 Plan") would be implemented. Thus, the 'cumulative no project' scenario is the 2007 Plan (but with several modifications in roadway assumptions both within and adjacent to the plan since its approval). The 2007 RSP EIR presented trip generation information for the 'Maximum Office' and 'Maximum Residential' scenarios for cumulative (2030) conditions only. Since the technical analysis was based on the more conservative (i.e., greater trip generation) Maximum Office Scenario, this scenario is used in this analysis.

The 2007 Plan (Maximum Office Scenario) consisted of the following land uses:

- 2,993,000 sf of office space
- 1,566,000 sf of retail space
- 11,300 multi-family dwelling units
- 180,000 square-foot museum and performing arts center

Table 4.12-36 shows the employment associated with the non-residential uses for the 2007 RSP (Maximum Office scenario). As shown, the 2007 RSP would accommodate approximately 14,140 employees, with a jobs-housing ratio of 1.25. While this information is not used directly in the transportation impact study, it is used when calculating VMT per capita or employee. It is also helpful in understanding the extent to which the 2007 RSP would import versus export shopping or commute trips.

The cumulative analysis presented in the 2007 RSP EIR included several meaningful roadway network assumptions within the RSP Area that are no longer planned, including:

- 5th Street / 7th Street couplet – 5th Street would consist of three northbound lanes and 7th Street would consist of three southbound lanes. In 2011, the City Council modified these roadways to become two-lane, two-way streets.

TABLE 4.12-36.
EMPLOYMENT FOR 2007 RAILYARDS SPECIFIC PLAN

Land Use	Quantity (square feet)	Employee Ratio	Employees
Office	2,993,000	1 per 300 square feet [1]	9,977
Retail	1,566,000	1 per 400 square feet [1]	3,915
Museum	N / A	N / A [2]	250
		Total	14,142

NOTES:

1 Based on employment yields from *RSP EIR* (2007).

2 2007 Railyards Specific Plan consisted of museum and performing arts center. Employment estimated as 120 museum employees (consistent with employment for 180,000 square-foot museum in RSPU), and 130 employees for performing arts center, which yields 250 total employees in this category.

SOURCE: Fehr & Peers, 2016.

A number of other planned roadway network modifications in the vicinity of the RSP Area have also occurred since the 2007 RSP EIR was certified including:

- New I Street Bridge (at Railyards Boulevard) – such a bridge was not contemplated in the 2007 Plan.
- New Truxel Road Bridge – such a bridge was not contemplated in the 2007 Plan.
- North 12th Street Conversion – the 2007 Draft EIR assumed North 12th Street would be converted to two-way operation between Richards Boulevard and North B Street. Instead, it is now planned to remain one-way.
- SR 160 Widening – assumed to be widened to eight lanes over the American River. Widening of this facility is no longer planned.
- I-5/Richards/Bannon Street – Split diamond interchange. City of Sacramento Department of Public Works staff directed that the Braided Ramp Alternative from the I-5/Richards Boulevard Interchange 2010 Project Study Report (PSR) be assumed.

In summary, there are a number of factors that are contributing to the conclusion that the Cumulative No Project analysis contained in this Draft SEIR cannot be compared directly with the Cumulative plus 2007 Plan analysis from the 2007 RSPU EIR. Reasons include:

- The 2007 RSP's trip generation has been re-estimated using an updated edition of the *Trip Generation Manual* and the latest research on internal trip capture and external non-auto mode split.
- The City's General Plan has been updated twice and the travel demand model has been updated, and the horizon year has changed from 2030 to 2035.
- Roadways both within and connecting to the RSP Area have substantially changed.

The internalization of trips within the project site was estimated using the Mixed-Use Trip Generation Model (MXD) model. **Appendix J.1** contains MXD+ model output for the 2007 RSP under cumulative conditions.

Table 4.12-37 displays the daily, AM peak hour, and PM peak hour trip generation of the 2007 RSP under cumulative conditions.

This table shows that between 15 and 25 percent of project trips (depending on the analysis period) are expected to remain internal to the site. These internalization percentages reflect the overall well-balanced mix of residential, office, and retail. The use of transit varies from 8 to 13 percent of project trips (depending on the analysis period). External travel by walk and bike varies from 15 to 19 percent of project trips (depending on the analysis period). The 2007 Plan would generate approximately 110,000 external daily trips, 5,400 AM peak hour trips (59 percent inbound), and 8,450 PM peak hour trips (58 percent outbound).

TABLE 4.12-37.
PEAK HOUR AND DAILY TRIP GENERATION OF 2007 RAILYARDS SPECIFIC PLAN – CUMULATIVE CONDITIONS

Land Use	ITE Land Use Code	Quantity	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	710	2,993 ksf	16,506	16,507	33,013	4109	560	4669	758	3,702	4,460
Retail	820	1,566 ksf	46,197	46,197	92,394	1,291	792	2,083	3,758	4,072	7,830
Multi-Family Residential	232	11,300 du's	23,617	23,617	47,234	730	3,112	3,842	2,662	1,632	4,294
Other	580	N / A	2,410	2,410	4,820	516	130	645	167	703	869
		Gross Trips	88,730	88,731	177,461	6,646	4,594	11,239	7,345	10,109	17,453
		Reduction for Internal Trips [2] (14.8% Daily / 19.6% AM / 25.3% PM)	-13,132	-13,132	-26,264	-1,303	-900	-2,203	-1,858	-2,558	-4,416
		Reduction to Account for Transit Trips [2] (7.8% Daily / 13.3% AM / 12.8% PM)	-6,921	-6,921	-13,842	-884	-611	-1,495	-940	-1,294	-2,234
		Reduction to Account for Walk/Bike Trips [2] (15.4% Daily / 19.0% AM / 13.5% PM)	-13,664	-13,665	-27,329	-1,263	-873	-2,135	-992	-1,365	-2,356
		Net External Vehicle Trips	55,013	55,013	110,026	3,197	2,210	5,406	3,555	4,893	8,447

NOTES:

[1] Gross trip rates based on *Trip Generation Manual* (Institute of Transportation Engineers, 2012). Trip rates for office space based on weighted average rate given amount of office space. Trip rates for retail based on fitted curve equation for typical size of 150,000 square-foot retail center.

[2] Trip generation of 'other' uses (i.e., museum and performing arts center) based on values from 2007 Plan DEIR.

[3] Internal trips, and external trips made by transit, walking, and bicycling based on MXD+ model output (see previous page).

Source: Fehr & Peers, 2016.

The 2007 RSP EIR estimated that the 2007 RSP would generate approximately 150,000 external daily trips, 10,200 AM peak hour trips, and 15,500 PM peak hour trips. Those estimates are no longer considered valid because they were based on the 2003 version of *Trip Generation*, which has since been updated twice. Additionally, advancements in transportation planning since that time have allowed for more accurate estimations of internal trip-making and external trips made by transit, bus, and walk than existed in 2007.

The cumulative version of the SACMET model was modified to incorporate the 2007 RSP including its land uses, roadway network (including any subsequent revisions), and any identified mitigation measures. The model was used to assign vehicle trips through the study intersections and freeway facilities. The project not only includes new trip generating land uses, but also introduces new street connections that cause a redistribution of background traffic. The trip assignment patterns were reviewed for reasonableness, and some minor adjustments in travel paths were made where necessary.

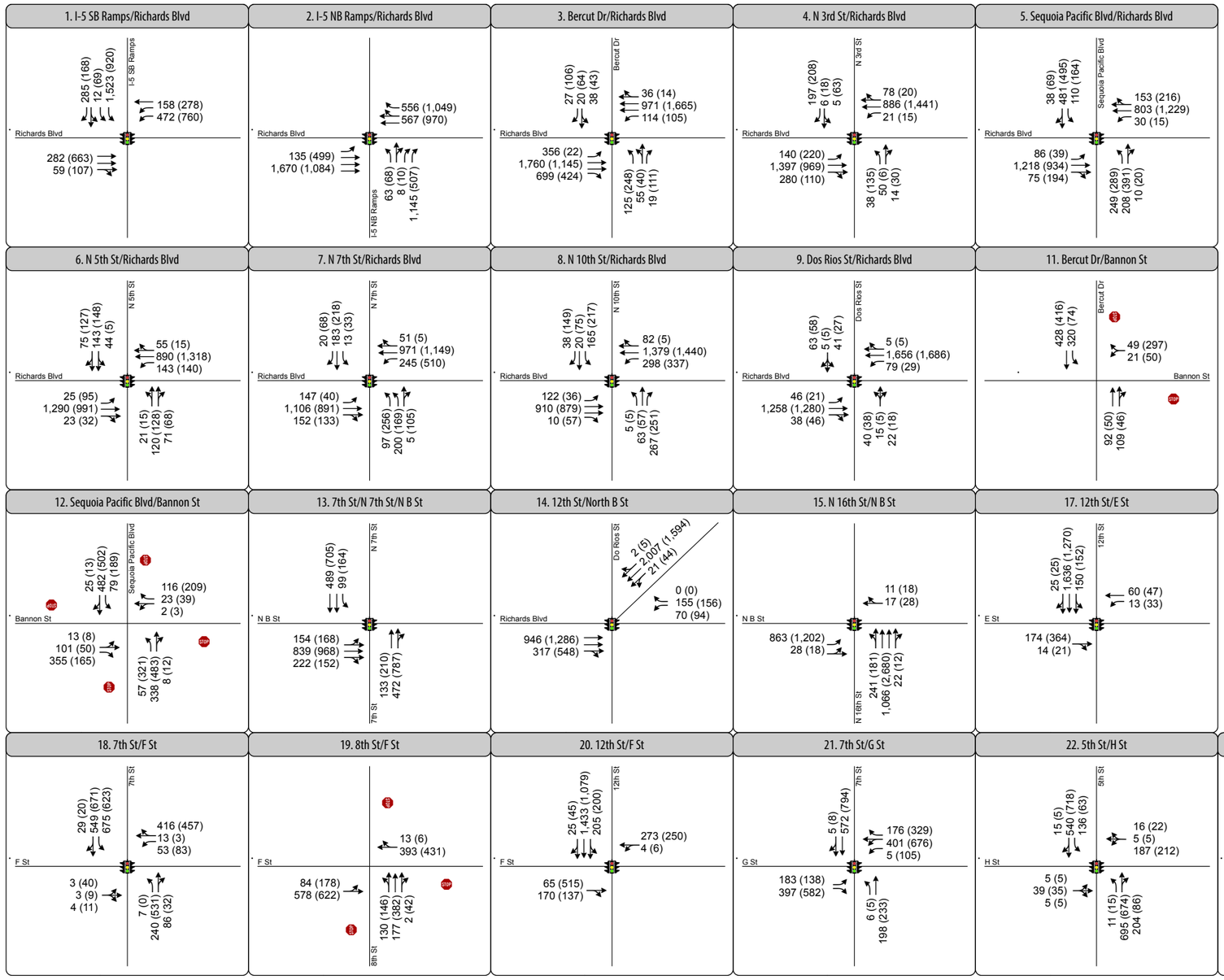
Figures 4.12-38a, 38b, and 38c display the Cumulative No Project AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. **Figures 4.12-39a, 39b, and 39c** display similar information for the Pre-event peak hour. Traffic controls and lane configurations at intersections within the RSP Area were based on the 'cumulative full buildout scenario with mitigation' in the 2007 RSP EIR. However, several adjustments were necessary based on changes in lane configurations both within and outside the RSP Area since then.

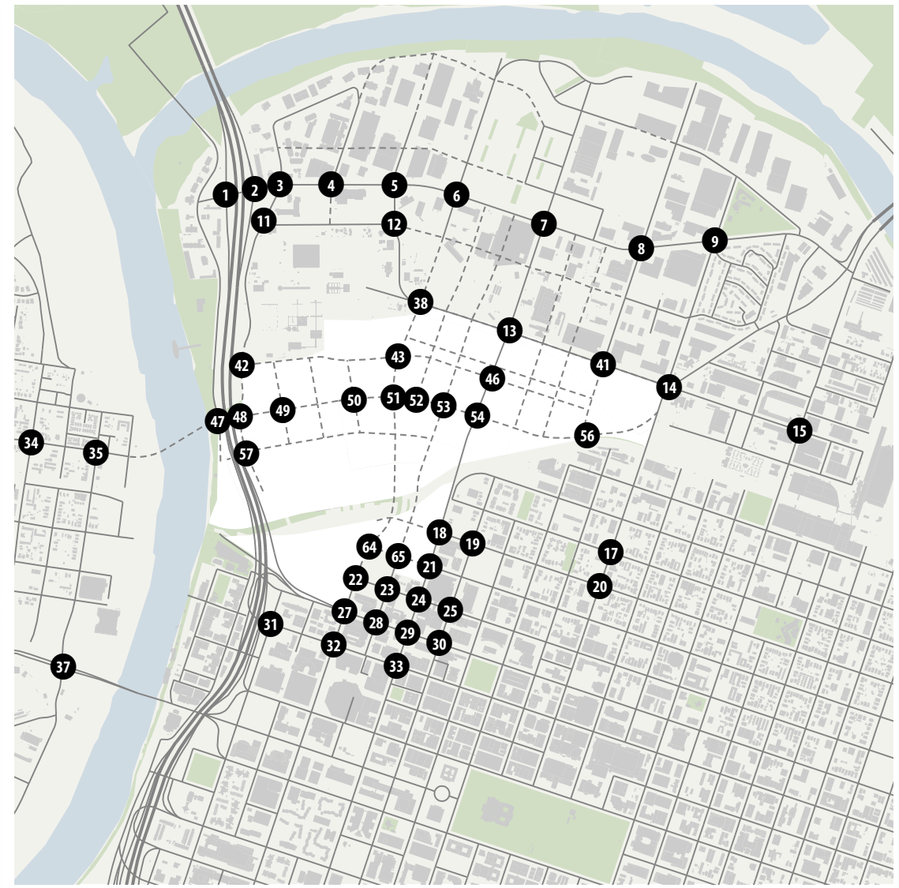
Figure 4.12-40 displays the ADT on selected roadways within the RSP Area and along its boundary under Cumulative No Project conditions.

Table 4.12-38 displays the average delay and LOS at each study intersection under Cumulative No Project conditions for each peak hour. Of the 52 total intersections being studied, seven operate at LOS E or F during the AM peak hour and 14 operate at LOS E or F during the AM peak hour. All intersections would operate at LOS D or better during the Pre-event peak hour.

Table 4.12-39 displays operations at the study freeway facilities under Cumulative No Project conditions for each peak hour. As shown, a number of facilities operate in the LOS E or F range.

Table 4.12-40 displays maximum expected queue lengths and available storage on the I-5 off-ramps Cumulative No Project conditions for each peak hour. As shown, the vehicle queue on the I-5 NB off-ramp would exceed the available storage on the ramp.





Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-38A

Weekday AM and PM Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions

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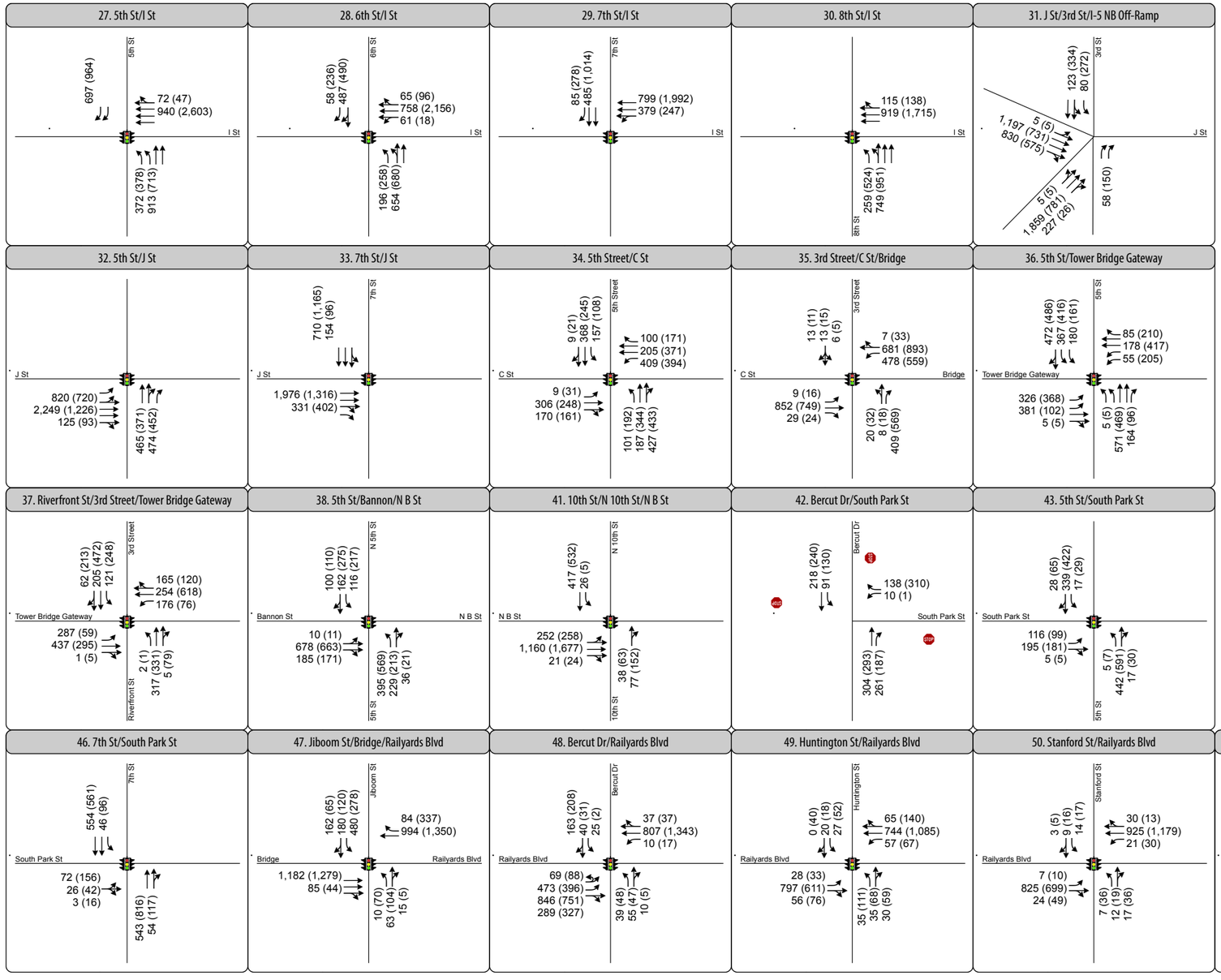


Turn Lane

AM (PM) Peak Hour Traffic Volume

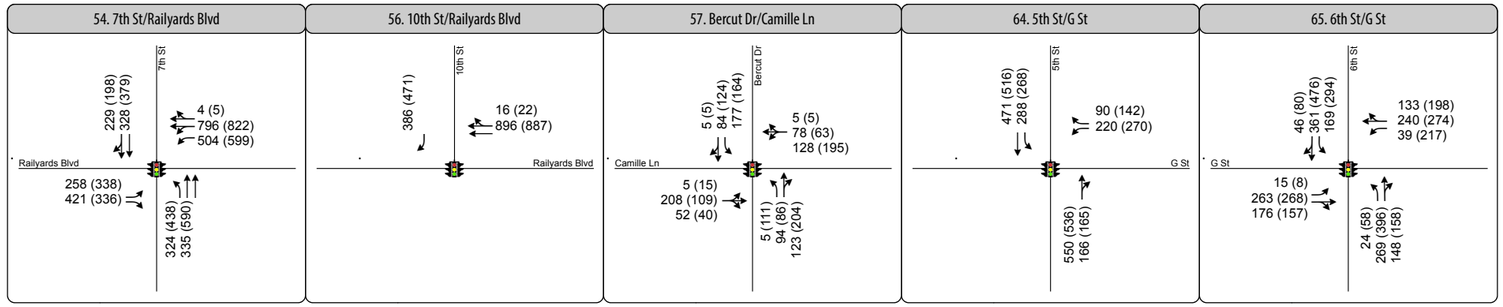
Traffic Signal

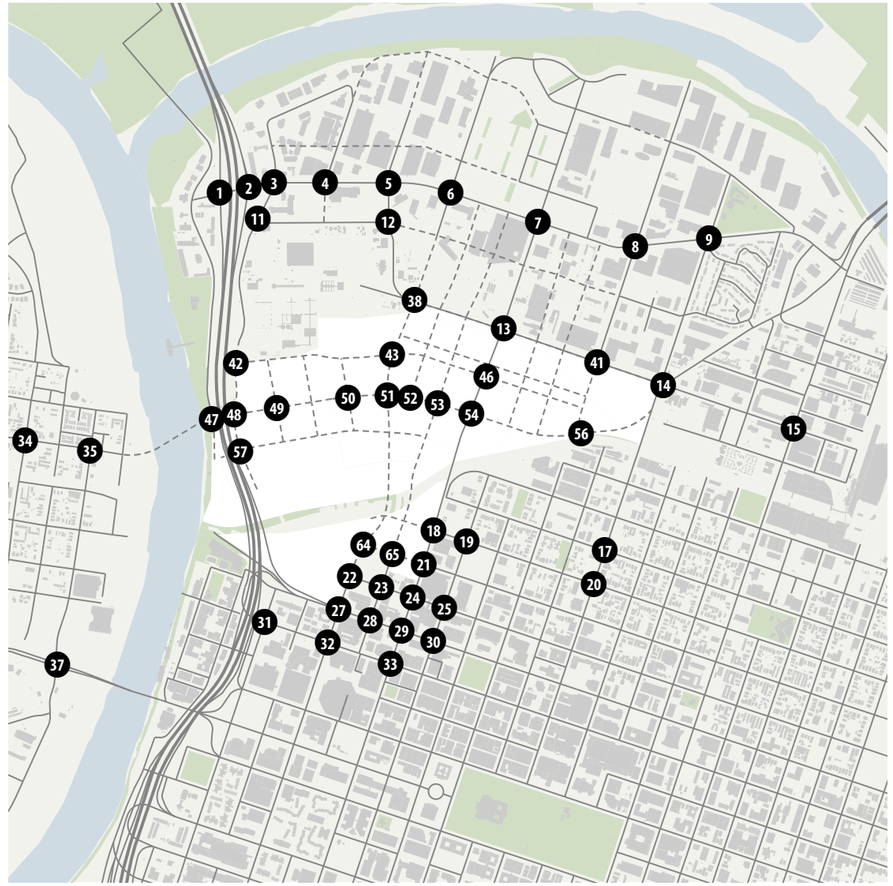
Stop Sign

N:\2015 Projects\3374_Railyards_MLS_Kaiser\EIR\Graphics\Draft\GIS\MXD\F_CumulativeIF4.12-38_ CumNP_PHTV.mxd

Figure 4.12-38B

Weekday AM and PM Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions





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Turn Lane

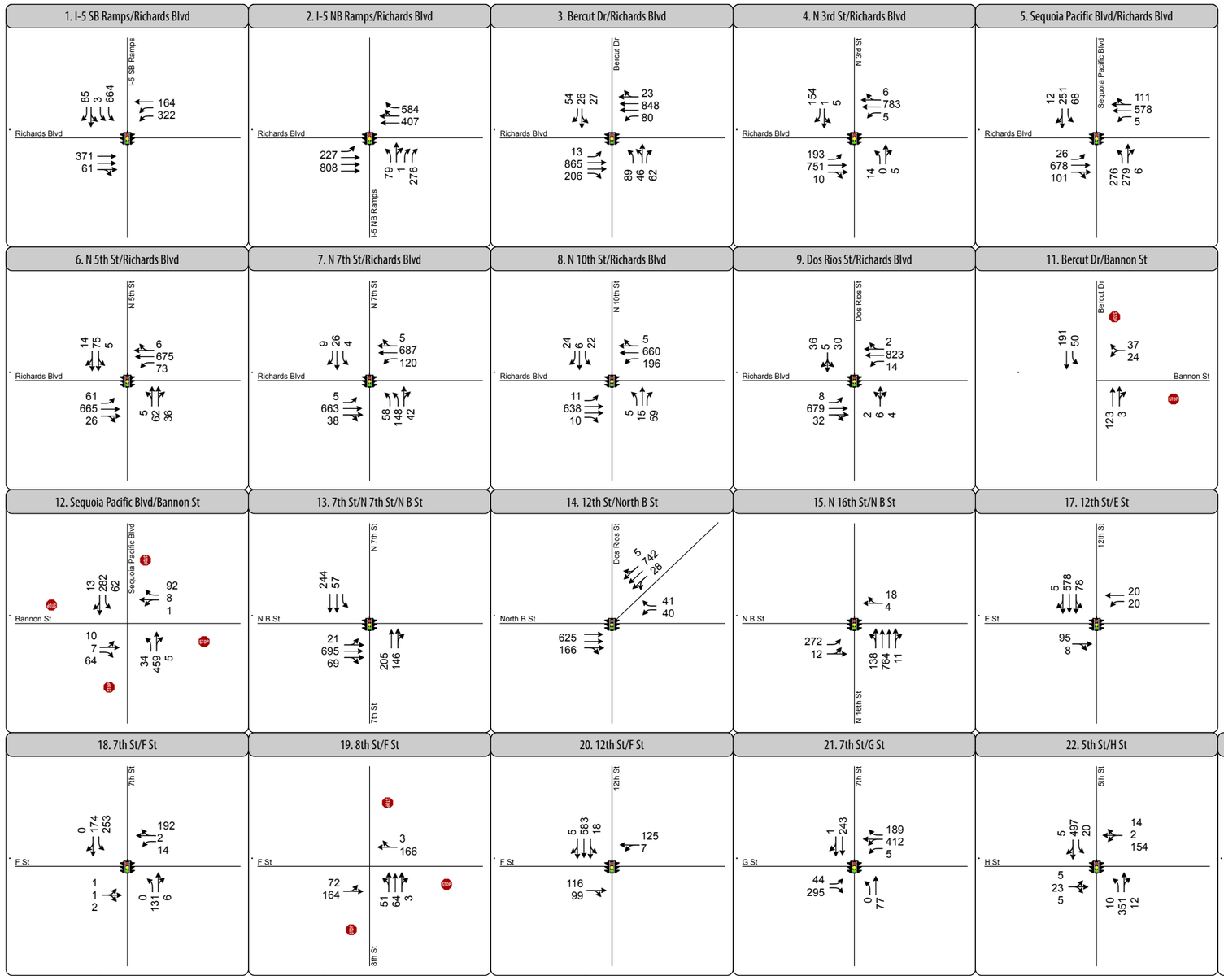
AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-38C

Weekday AM and PM Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions



Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-39A

Weekday Pre Event Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions

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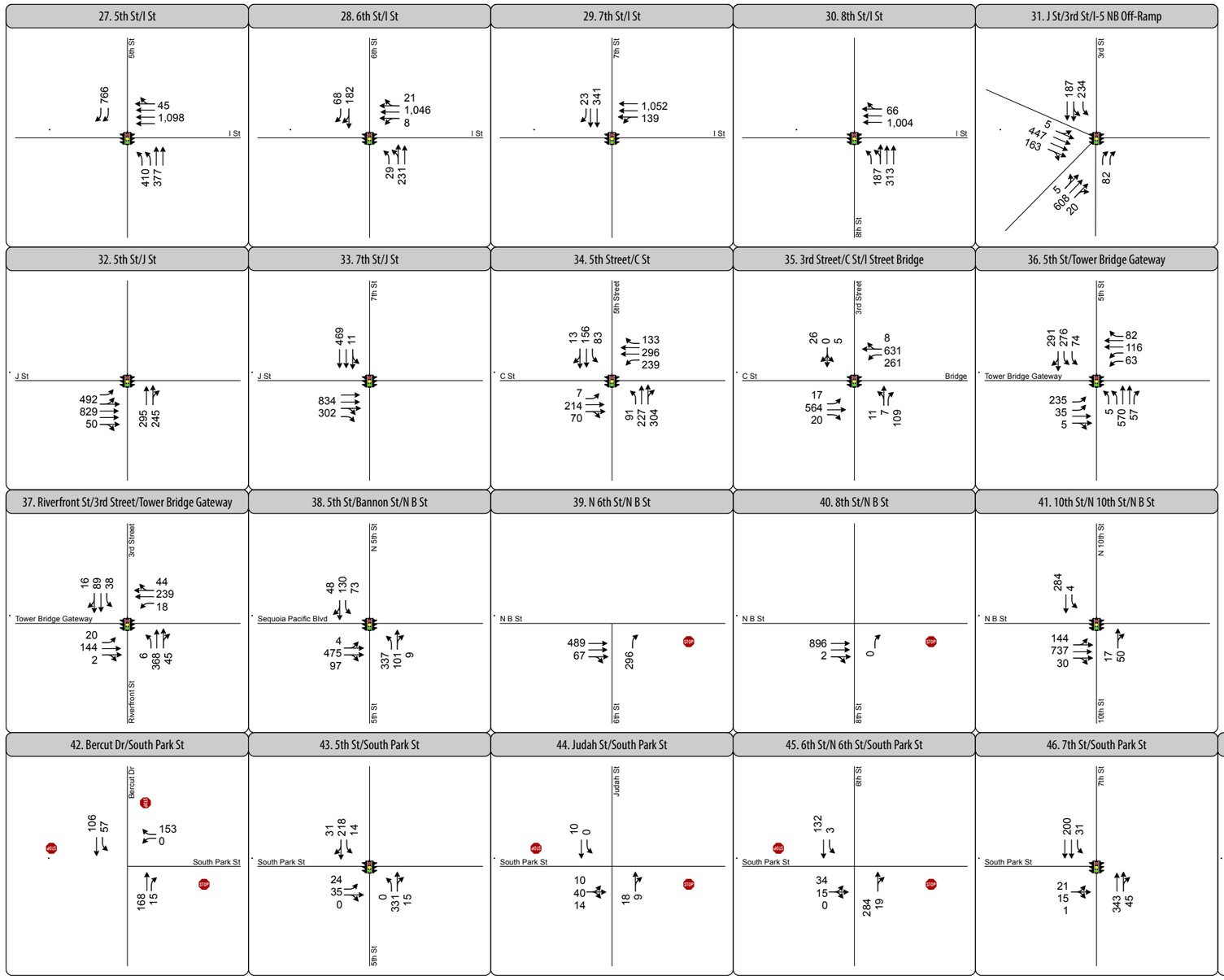

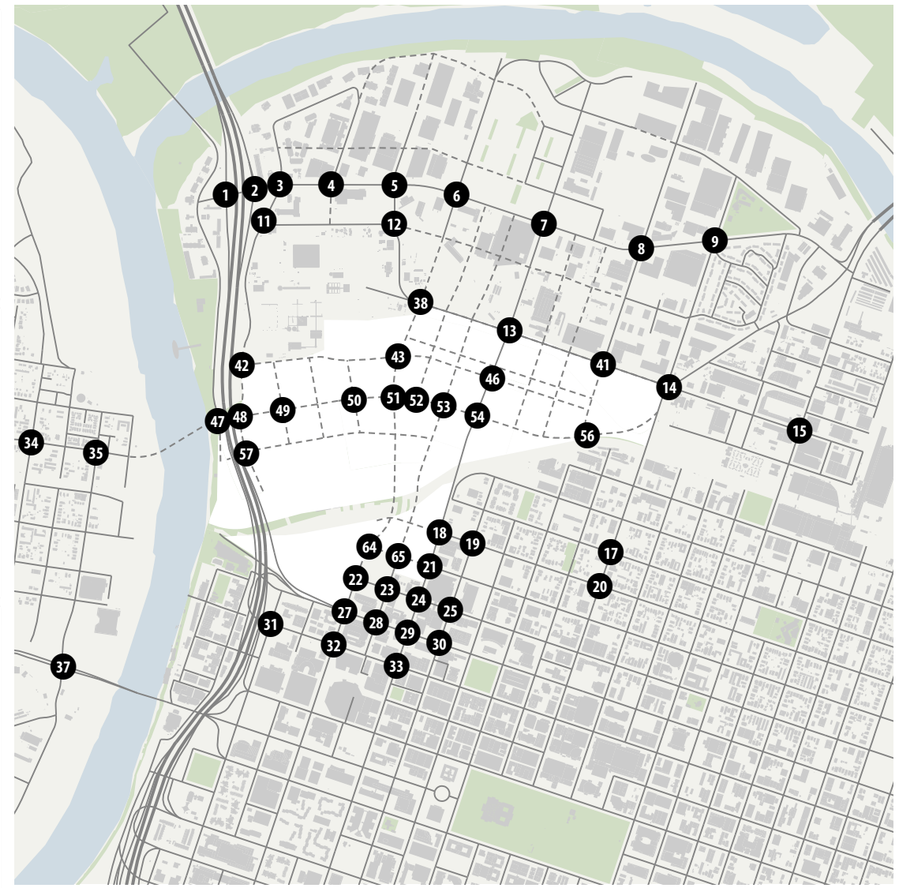

Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-39B

Weekday Pre Event Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions

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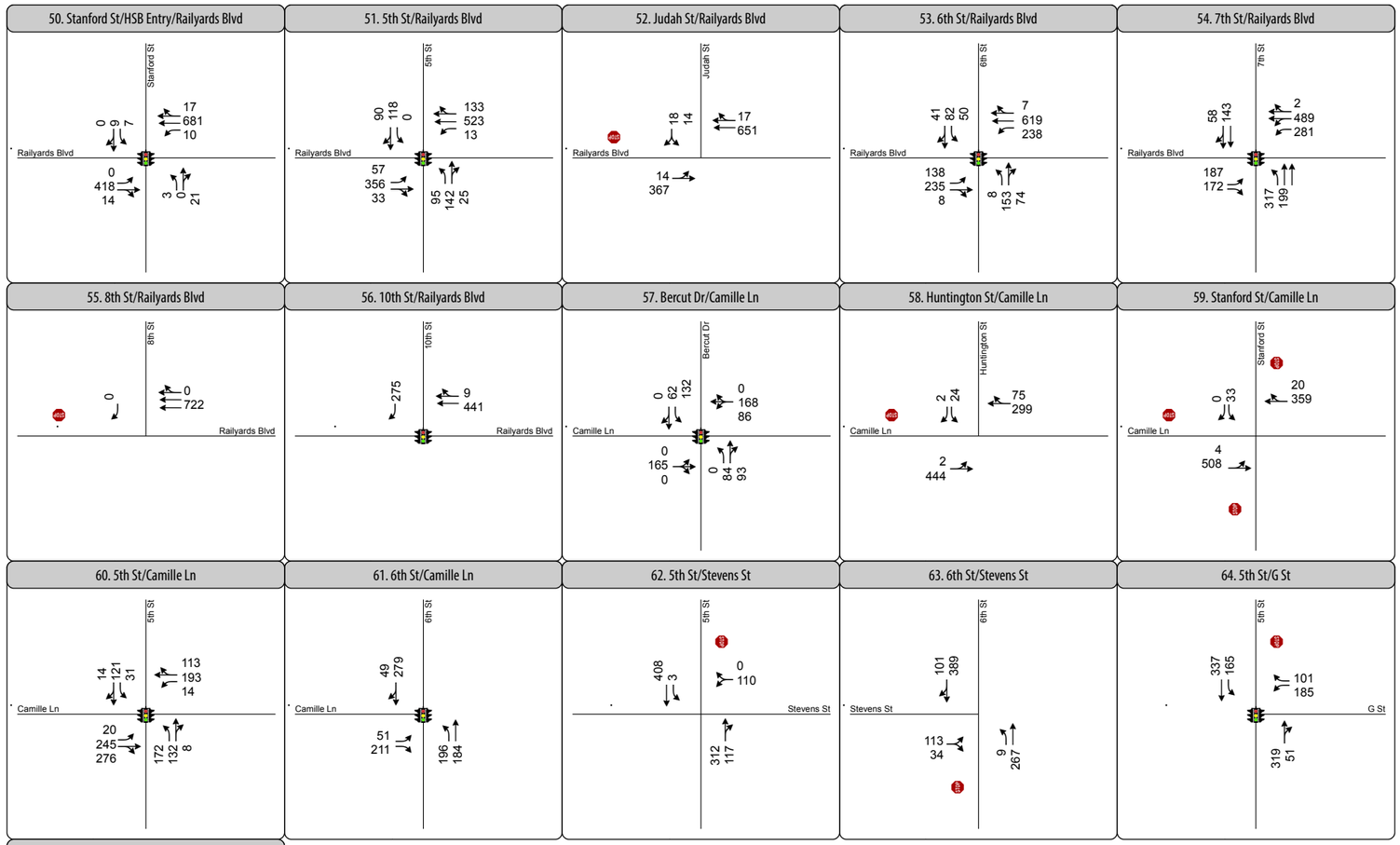

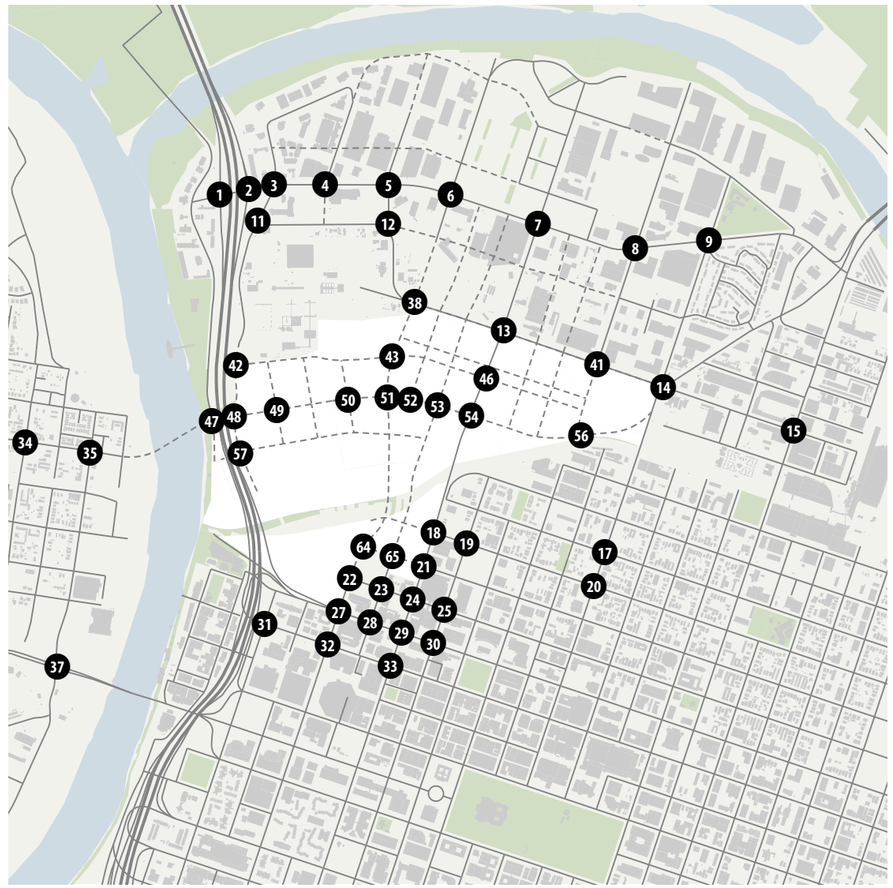

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Figure 4.12-39C

Weekday Pre Event Peak Hour Volumes and Lane Configurations - Cumulative No Project Conditions

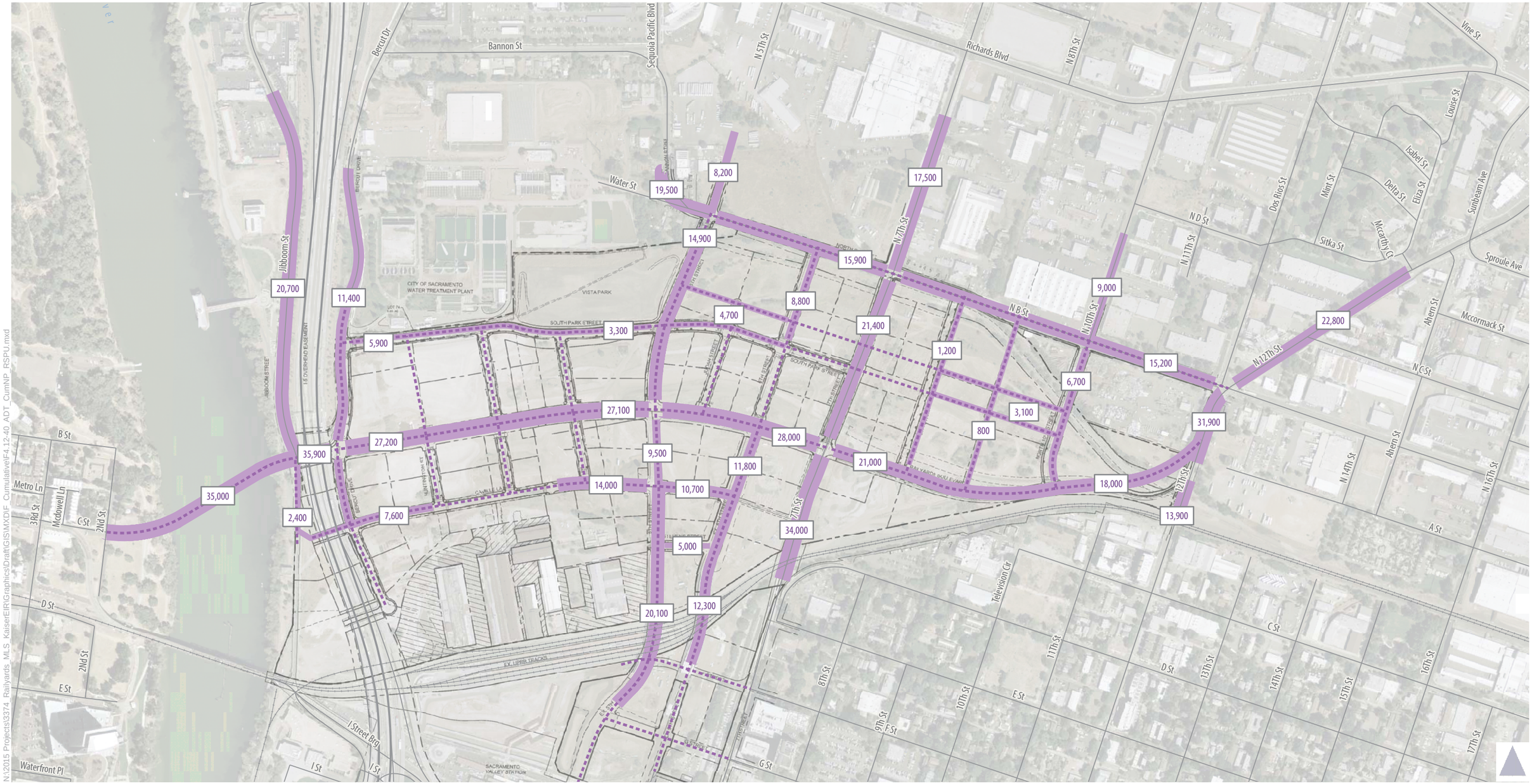

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Figure 4.12-40

Average Daily Traffic Forecasts - Cumulative No Project Conditions

TABLE 4.12-38.
INTERSECTION OPERATIONS - CUMULATIVE NO PROJECT CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	37.9	D	47.0	D	20.5	C
2	Richards Blvd / I-5 NB Ramps	Signal	49.9	D	22.3	C	11.9	B
3	Richards Blvd / Bercut Dr	Signal	30.2	C	45.5	D	17.8	B
4	Richards Blvd / N 3rd St	Signal	22.1	C	38.6	D	11.2	B
5	Richards Blvd / Sequoia Pacific Blvd	Signal	61.4	E	91.7	F	23.8	C
6	Richards Blvd / N 5th St	Signal	22.5	C	49.2	D	16.3	B
7	Richards Blvd / N 7th St	Signal	42.8	D	77.4	E	19.5	B
8	Richards Blvd / N 10th St	Signal	29.8	C	36.1	D	13.8	B
9	Richards Blvd / Dos Rios St	Signal	22.4	C	25.9	C	10.5	B
10	Richards Blvd / N 12th St / 16th St [1]	Signal	-	-	-	-	-	-
11	Bannon St / Bercut Dr	SSSC	8.0	A	12.3	B	6.3	A
12	Bannon St / Sequoia Pacific Blvd	AWSC	11.5	B	26.1	D	8.9	A
13	N B St / N 7th St	Signal	17.9	B	27.9	C	13.4	B
14	N B St / N 12th St	Signal	49.8	D	43.9	D	22.9	C
15	N B St / 16th St	Signal	21.2	C	29.1	C	14.5	B
16	N 12th St / Sunbeam Ave / Sproule Ave [1]	Signal	-	-	-	-	-	-
17	E St / 12th St	Signal	9.3	A	10.6	B	6.7	A
18	F St / 7th St	Signal	33.3	C	67.0	E	7.9	A
19	F St/ 8th St	AWSC	16.4	C	24.4	C	6.8	A
20	F St / N 12th St	Signal	13.1	B	20.9	C	9.2	A
21	G St / 7th St	Signal	15.3	B	43.8	D	10.3	B
22	H St / 5th St	Signal	48.4	D	59.4	E	27.1	C
23	H St / 6th St	Signal	29.6	C	41.1	D	12.5	B
24	H St / 7th St	Signal	32.8	C	31.7	C	15.3	B
25	H St / 8th St	Signal	18.2	B	38.9	D	9.1	A
26	I St / Jibboom St [2]	Signal	-	-	-	-	-	-
27	I St / 5th St	Signal	51.3	D	38.8	D	33.1	C
28	I St / 6th St	Signal	60.3	E	59.0	E	42.1	D
29	I St / 7th St	Signal	17.4	B	28.0	C	9.6	A
30	I St / 8th St	Signal	12.6	B	64.3	E	13.4	B
31	J St / 3rd St / I 5 NB Off-Ramp	Signal	100.8	F	51.7	D	30.1	C
32	J St / 5th St	Signal	31.3	C	30.5	C	14.9	B
33	J St / 7th St	Signal	13.7	B	11.2	B	9.5	A
34	C St / 5th St	Signal	67.2	E	47.9	D	18.9	B

TABLE 4.12-38.
INTERSECTION OPERATIONS - CUMULATIVE NO PROJECT CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
35	C St / 3rd St	Signal	147.6	F	149.0	F	14.8	B
36	Tower Bridge Gateway / 5th St	Signal	27.8	C	31.2	C	21.7	C
37	Tower Bridge Gateway / 3rd St	Signal	38.6	D	38.2	D	18.2	B
38	N B St / 5th St	Signal	39.7	D	64.0	E	20.1	C
41	N B St / 10th St	Signal	12.0	B	18.4	B	12.5	B
42	South Park St / Bercut Dr	AWSC	10.6	B	11.6	B	4.0	A
43	South Park St / 5th St	Signal	12.5	B	22.6	C	9.0	A
46	South Park St / 7th St	Signal	12.0	B	34.9	C	7.9	A
47	Railyards Blvd / Jibboom St	Signal	145.0	F	101.3	F	9.8	A
48	Railyards Blvd / Bercut Dr	Signal	50.3	D	48.0	D	6.0	A
49	Railyards Blvd / Huntington St	Signal	31.6	C	54.6	D	14.9	B
50	Railyards Blvd / Stanford St	Signal	11.5	B	25.0	C	10.1	B
51	Railyards Blvd / 5th St	Signal	29.5	C	46.2	D	21.7	C
52	Railyards Blvd / Judah St	SSSC	5.2	A	7.0	A	1.5	A
53	Railyards Blvd / 6th St	Signal	40.9	D	55.5	E	11.0	B
54	Railyards Blvd / 7th St	Signal	72.7	E	114.7	F	6.1	A
56	Railyards Blvd / 10th St	Signal	16.9	B	44.8	D	20.9	C
57	Camille Ln / Bercut Dr	Signal	13.6	B	18.0	B	6.9	A
64	G St / 5th St	Signal	47.7	D	58.9	E	24.4	C
65	G St / 6th St	Signal	18.2	B	63.5	E	35.2	D

1. Not analyzed due to unknown nature of improvement.
2. Does not exist.

Shaded cells represent LOS E or F operations.

Certain intersections within RSP Area are not studied under cumulative no project conditions because they were not analyzed in the 2007 Plan DEIR. Accordingly, lane configurations/traffic controls for those locations from the 2007 Plan are not known.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-39.
FREEWAY OPERATIONS – CUMULATIVE NO PROJECT CONDITIONS

Freeway Facility	Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P Street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	C
2. I-5 Northbound – On-ramp from L Street	Merge	31.5	D	30.9	D	24.3	C
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]	-	F	-	F	-	C
4. I-5 Northbound – On ramp from Bercut Drive	Merge	28.3	D	33.6	D	21.3	C
5. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	E	-	F	-	D
6. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	E	-	F	-	D
7. I-5 Northbound – Off-ramp to I-80	Major Diverge	25.5	C	36.0	E	23.4	C
8. I-5 Southbound – On-ramp from I-80	Major Merge	26.6	D	23.6	C	14.9	B
9. I-5 Southbound – On-ramp from WB West El Camino	Merge	25.6	C	24.5	C	18.3	B
10. I-5 Southbound – Off-ramp to Garden Highway	Diverge	27.6	C	25.4	C	16.7	B
11. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]	-	E	-	E	-	B
12. I-5 Southbound – Off ramp to Jiboom Street	Diverge	32.5	D	31.9	D	21.7	C
13. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	C	-	E	-	B
14. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	24.6	C	37.3	E	19.8	B
15. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	15.1	B	31.2	D	11.9	B
16. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	17.9	B	43.2	E	11.5	B
17. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	32.1	D	24.4	C	13.4	B
18. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	33.6	D	26.0	C	14.6	B
19. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	37.0	E	25.5	C	13.8	B

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
2. Under the Pre-event scenario, ramp volumes are too low to constitute the segment as a weave. Therefore, the segment is analyzed as a basic segment.

Note: Segments 11 – 15 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Similarly, Segments 3 – 6 (i.e., Northbound I-5 from Business 80/US 50 to J Street) are reported at LOS C or D during the PM peak hour. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

TABLE 4.12-40.
FREEWAY OFF-RAMP VEHICLE QUEUES – CUMULATIVE NO PROJECT CONDITIONS

Off-Ramp	Available Storage	Maximum Vehicle Queue (feet) [1]		
		AM Peak Hour	PM Peak Hour	Pre-event Peak Hour
I-5 SB Off-Ramp at J Street	1,500 ft.[2]	1,175	400	425
I-5 NB Off-Ramp at J Street	1,000 ft.[2]	**2,000**	525	525
I-5 SB Off-Ramp at Richards Boulevard	1,050 ft.[2]	650	300	200
I-5 NB Off-Ramp at Richards Boulevard	1,000 ft.[2]	925	200	100

1. Based on output from SimTraffic microsimulation model.
2. Measured from ramp terminal intersection limit line.
Bolded, underlined cells represent significant freeway impacts.

SOURCE: Fehr & Peers, 2016.

Cumulative Plus Project (RSPU) Conditions

Table 4.12-41 displays the daily, AM peak hour, and PM peak hour trip generation of the RSPU under cumulative conditions. Appendix J.1 of the Draft EIR contains MXD+ model output for the RSPU. As noted in the table, the daily trip generation totals do not assume an MLS match is being played. Daily trips associated with an MLS match are presented later in this section.

This table shows that between 13 and 18 percent of project trips (depending on the analysis period) are expected to remain internal to the site. The use of transit varies from 8 to 14 percent of project trips (depending on the analysis period). External travel by walk and bike varies from 15 to 19 percent of project trips (depending on the analysis period).

With buildout of the RSPU, opportunities for walking and bicycling to the MLS Stadium would increase substantially due to new nearby land uses. Accordingly, the walk/bike mode split of MLS Stadium attendees is estimated to modestly increase from 3.5 percent (estimated for MLS Stadium-only conditions) to 6 percent (MLS Stadium and buildout of RSPU). For a baseline condition analysis, it is not reasonable to assume a substantial redistribution of soccer match attendee residences to new housing (or employment centers) near the MLS Stadium. Such activity, while likely, would take place over a number of years.

Table 4.12-42 displays the expected mode split for the MLS Stadium under cumulative conditions. This table indicates greater levels of transit, bike, and pedestrian usage consistent with enhanced transit service and nearby walkable destinations. As shown, 83 percent of MLS match attendees are anticipated to travel to the MLS Stadium by vehicle, down from 90 percent under baseline conditions.

TABLE 4.12-41.
PEAK HOUR AND DAILY TRIP GENERATION OF RAILYARDS SPECIFIC PLAN BUILDOUT – CUMULATIVE CONDITIONS

Land Use	ITE Land Use Code	Quantity	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
KP Medical Center	N / A	1,168 ksf	14,418	14,418	28,836	1,624	432	2,056	771	1,729	2,500
Office	710	4,542.7 ksf	25,053	25,053	50,106	6,237	850	7,087	1,151	5,618	6,769
Retail	820	905.4 ksf	26,708	26,708	53,416	746	456	1,204	2,173	2354	4,527
Multi-Family Residential	232	6,000 units	12,540	12,540	25,080	388	1,652	2,040	1,414	866	2,280
Hotel	310	1,100 rooms	4,494	4,494	8,988	344	239	583	337	323	660
Museum	580	180 ksf	800	800	1,600	138	22	160	17	87	104
MLS Stadium [2]	N / A	N / A	100	100	200	20	0	20	0	20	20
		Gross Trips	84,113	84,113	168,226	9,497	3,651	13,150	5,863	10,997	16,860
		Reduction for Internal Trips [3] (12.5% Daily / 16.6% AM / 18.4% PM)	-10,514	-10,514	-21,028	-1,577	-606	-2,183	-1,079	-2,023	-3,102
		Reduction to Account for Transit Trips [3] (7.8% Daily / 13.8% AM / 13.8% PM)	-6,561	-6,561	-13,122	-1,311	-504	-1,815	-809	-1,518	-2,327
		Reduction to Account for Walk/BikeTrips [3] (15.6% Daily / 19.0% AM / 14.6% PM)	-13,122	-13,122	-26,243	-1,804	-694	-2,499	-856	-1,606	-2,462
		Net External Vehicle Trips	53,916	53,916	107,833	4,805	1,847	6,653	3,119	5,850	8,969

NOTES:

[1] Gross trip rates based on *Trip Generation Manual* (Institute of Transportation Engineers, 2012) for all land uses with the exception of the medical center whose trip generation was based on measured trip rates at the Kaiser Morse Avenue Medical Center. Trip rates for office space based on weighted average rate given amount of office space. Trip rates for retail based on fitted curve equation for typical size of 150,000 square-foot retail center.

[2] For this typical weekday condition scenario, no MLS match assumed at proposed MLS stadium. Assumed trips are associated with modest levels of on-site employees (administrative, janitorial, etc.).

[3] Internal trips, and external trips made by transit, walking, and bicycling based on MXD+ model output (see previous page).

Source: Fehr & Peers, 2016.

TABLE 4.12-42.
MLS STADIUM ATTENDEE MODE SPLIT – CUMULATIVE CONDITIONS

Peak Hour	Primary Travel Mode for Weekday Evening Soccer Match				
	Vehicle	Light Rail	Bus	Walk	Bike
Pre-event / Post-Event	83%	10%	1%	3%	3%

NOTES:

This mode split applies to conditions associated with RSPU buildout. Resulting auto mode of 83 percent is slightly lower than the 87.5% auto mode split under baseline conditions due to greater levels of transit usage corresponding to increased light rail service (i.e., green line extension to Natomas) and frequency.

SOURCE: Fehr & Peers, 2016.

Table 4.12-43 displays the RSPU buildout trip generation under cumulative conditions during the Pre-event peak hour assuming an MLS game is being played. The RSPU (assuming an MLS match is being played) would generate approximately 7,900 inbound vehicle trips and 2,800 outbound vehicle trips during the Pre-event peak hour.

TABLE 4.12-43.
PRE-EVENT PEAK HOUR TRIP GENERATION OF RSPU WITH MLS MATCH – CUMULATIVE CONDITIONS

Land Use	Quantity	Net External Vehicle Trips [1]		
		In	Out	Total
KP Medical Center Office Retail Multi-Family Residential Hotel Museum	1,168 ksf 4,542.7 ksf 905.4 ksf 6,000 units 1,100 rooms 180 ksf	1,372	2,574	3,946
MLS Stadium [2]	N / A	6,513	217	6,730
Total Net External Vehicle Trips		7,885	2,791	10,676

NOTES:

[1] Net external vehicle trips during Pre-event peak hour for non-Stadium uses represents 44 percent of the trips generated by these uses during the PM peak hour. This 0.44 factor is based on existing traffic volumes during the weekday Pre-event peak hour versus PM peak hour observed on segments of I Street, J Street, 5th, 7th, 12th, and 16th Streets.

[2] Sold-out 25,000-person MLS match with 7:30 PM start time assumed at proposed stadium. Vehicle mode split estimated to be 83%.

Source: Fehr & Peers, 2016.

Under cumulative conditions, parking for MLS matches would be provided primarily in garages located within the RSP Area. However, nearby off-site parking to the north and south would also be available.

Table 4.12-44 presents the estimated external cumulative daily trip generation of the RSPU on a weekday when an MLS match is being played. As shown, an MLS match would cause the RSPU daily vehicular trip generation to increase from 107,800 to 127,300 trips.

TABLE 4.12-44.
DAILY TRIP GENERATION OF RSPU WITH MLS MATCH – CUMULATIVE CONDITIONS

Land Use	Quantity	Net External Vehicle Trips		
		In	Out	Total
KP Medical Center Office Retail Multi-Family Residential Hotel Museum	1,168 ksf 4,542.7 ksf 905.4 ksf 6,000 units 1,100 rooms 180 ksf	53,916	53,916	107,833
MLS Stadium [1]	Attendees	9,305	9,305	18,610
	Employees [2]	418	418	836
Total Net External Vehicle Trips		63,639	63,639	127,279

NOTES:
[1] Sold-out 25,000-person MLS match at MLS stadium. Vehicle mode split estimated to be 83%
[2] MLS match assumed to have 460 employees with an average vehicle occupancy of 1.1 employees (and conservatively assuming all drive into the RSP Area and are shuttled from a remote lot.

Source: Fehr & Peers, 2016.

Table 4.12-45 compares the cumulative net external vehicular trip generation for the RSPU without and with an MLS Match during the AM, PM, and Pre-event peak hours and on a daily basis. This table indicates that the MLS match would cause a 170 percent increase in the RSPU trip generation during the Pre-event peak hour, and an 18 percent increase in the trip generation on a daily basis.

TABLE 4.12-45.
TRIP GENERATION COMPARISON – RSPU WITHOUT AND WITH MLS MATCH

Time Period	Net External Vehicle Trips Under Cumulative Conditions	
	Without MLS Match	With MLS Match
Daily	107,833	127,279
AM Peak Hour	6,653	6,653
PM Peak Hour	8,969	8,969
Pre-event Peak Hour	3,946	10,676

Source: Fehr & Peers, 2016.

The proposed RSPU would generate approximately 107,800 external daily trips, 6,650 AM peak hour trips, and 9,000 PM peak hour trips under cumulative conditions (assuming an MLS match is not being played). When compared to the 2007 Plan, these totals represent two percent less daily traffic, 23 percent more AM peak hour trips and 6.5 percent more PM peak hour trips. The primary contributor to this increase in the inclusion of more office space (and less residential) in the RSPU, which causes a change in the jobs-housing ratio resulting in the import of larger numbers of employee trips.

The cumulative year version of the SACMET model was updated to incorporate the RSPU roadway network and land uses. The model was then used to track and assign vehicle trips through the study intersections and freeway facilities. The project not only includes new trip generating land uses, but also introduces new street connections that cause a redistribution of background traffic. The trip assignment patterns were reviewed for reasonableness, and in some instances, traffic was rerouted (i.e., travel demand models are not sensitive to the level of congestion at a given intersection, and typically produce 'all or nothing' traffic assignments).

Figures 4.12-41a, 41b, and 41c display the Cumulative Plus RSPU AM and PM peak hour traffic volumes, controls, and lane configurations at the study intersections. Refer to RSPU Circulation System for a discussion of the planned roadway system. It should be noted that the Richards Boulevard/North 12th Street/North 16th Street intersection were not analyzed under cumulative conditions due to the uncertainty of what lane configurations and traffic controls will be present. This facility is planned to have capacity expansions, though detailed geometric drawings of those improvements have not been prepared. Therefore, any cumulative analyses of that facility would be speculative at this time.

Figure 4.12-42a, 42b, and 42c display similar information for the Pre-event peak hour. **Figure 4.12-43** displays the ADT on selected roadways within the RSP Area and along its boundary.

Table 4.12-46 displays the average delay and LOS at each study intersection under Cumulative Plus RSPU Conditions for each peak hour. As shown, 10 of the 62 study intersections (16 percent) would operate at LOS E or F during the AM peak hour. During the PM peak hour, 22 of the 62 study intersections (35 percent) would operate at LOS E or F. During the Pre-event peak hour, 6 of the 62 study intersections (10 percent) would operate at LOS E or F.

It was not possible to account for any potential added delays that could be caused from the planned operation of the Streetcar on portions of 7th Street and Railyards Boulevard because the future design and operations (i.e., signal pre-emption, station locations, etc.) of the Streetcar in this area are not known. It is presumed the Streetcar would share the same tracks as light rail trains south of Railyards Boulevard. However, its travel path onto Railyards Boulevard could require signal pre-emption. Additionally, special signal timings or pre-emptions could also be necessary at signals along Railyards Boulevard to facilitate the Streetcar's movement. The analysis, including LOS results, could not account for any such effects due to the high degree of uncertainty. Although the City is working on a funding strategy for the planned Streetcar starter line, there are currently no plans for funding a later phase of the Streetcar that would travel through the RSP Area streets.

Table 4.12-47 displays operations at the study freeway facilities under Cumulative Plus RSPU Conditions for each peak hour. As shown, a number of facilities operate in the LOS E or F range.

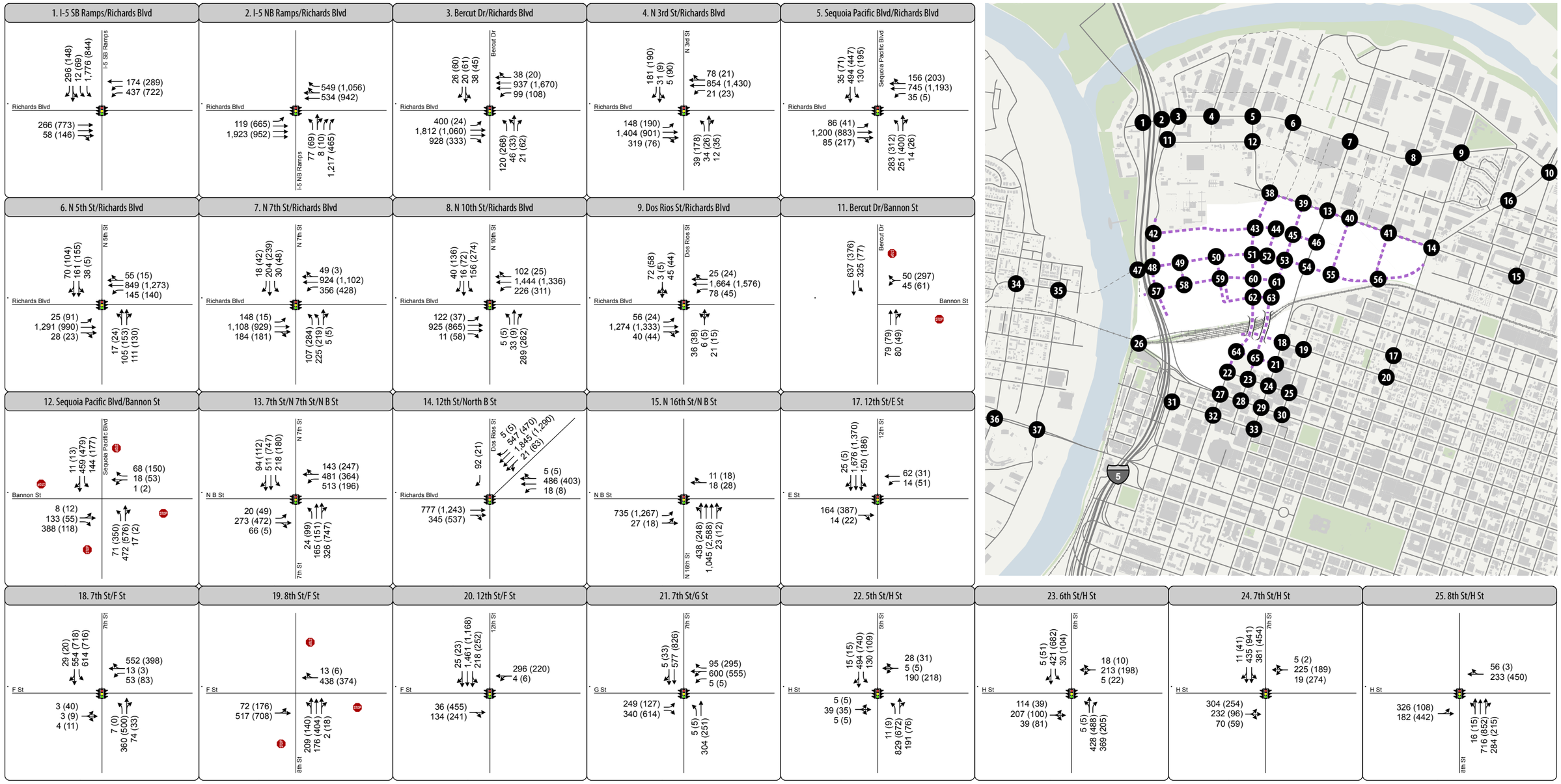

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Figure 4.12-41A

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions

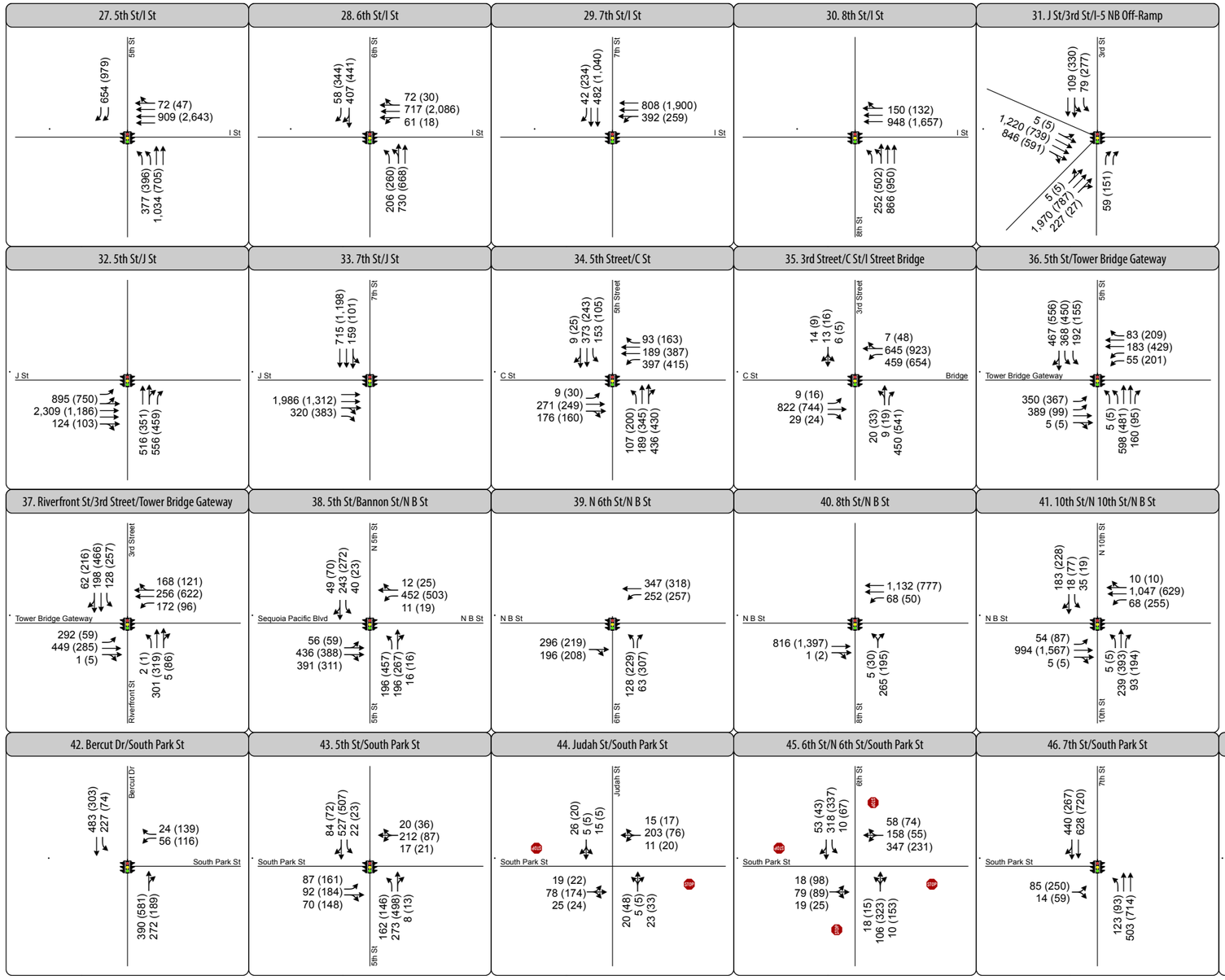

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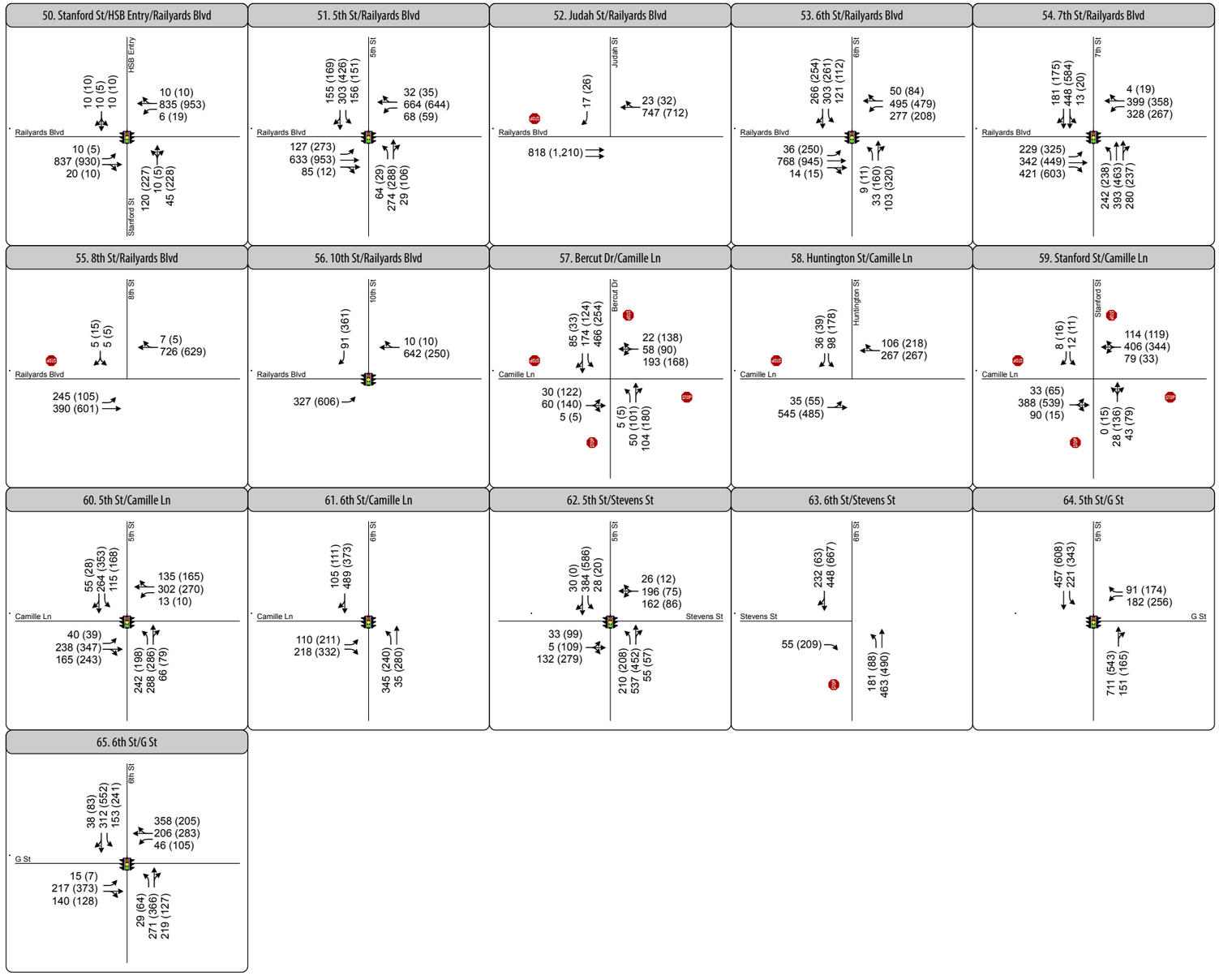
Figure 4.12-41B

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions



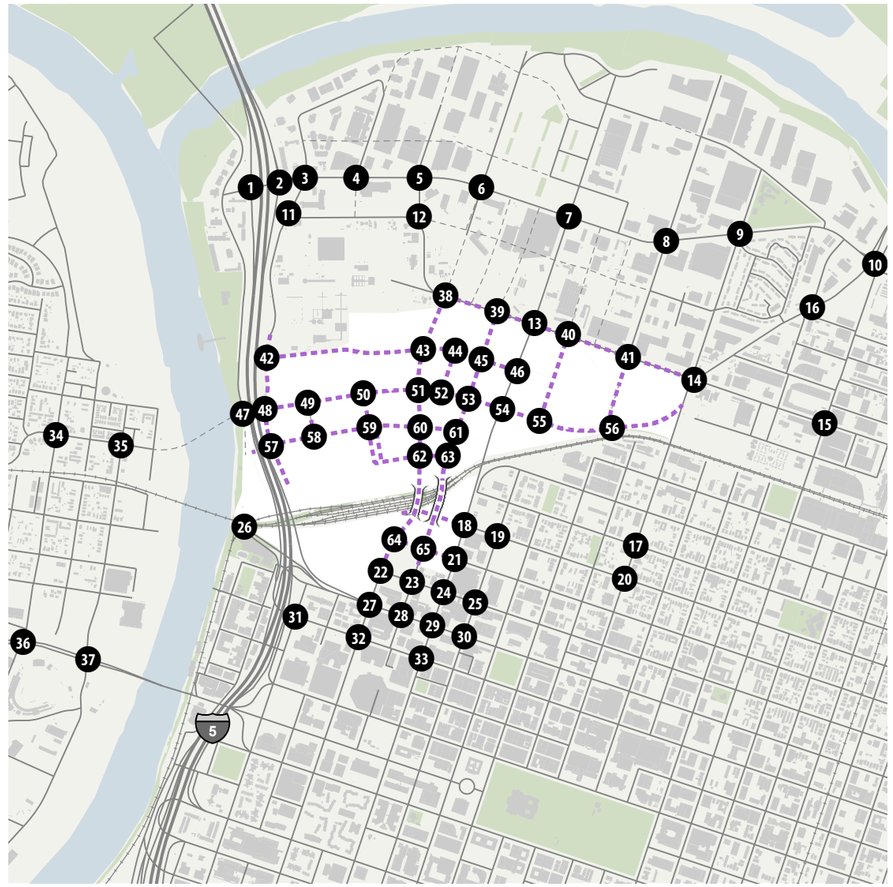


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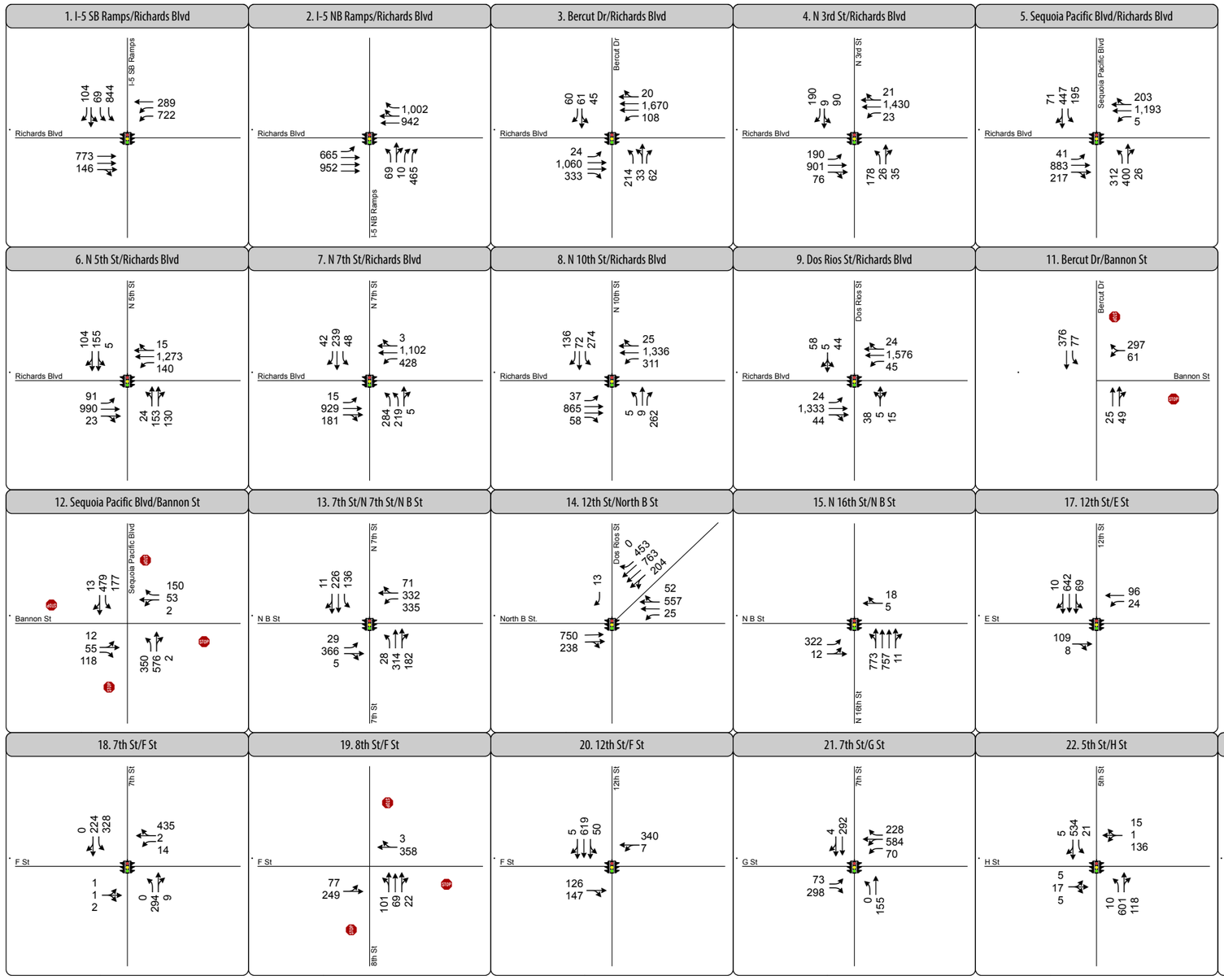
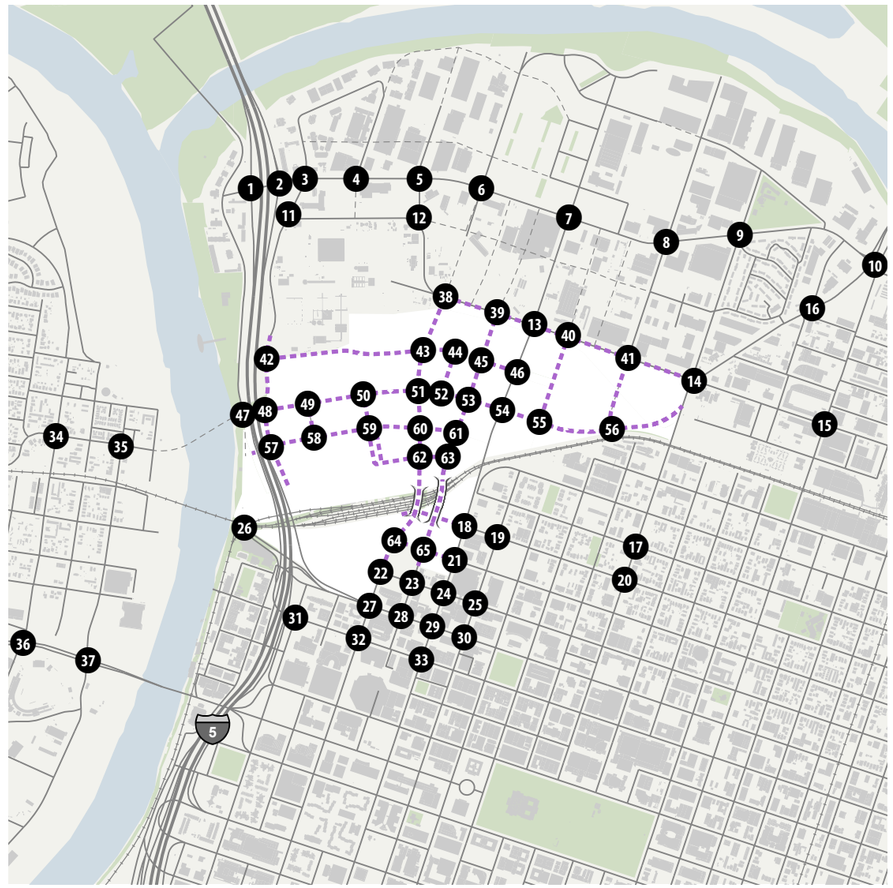
Figure 4.12-41C

Weekday AM and PM Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions





Turn Lane

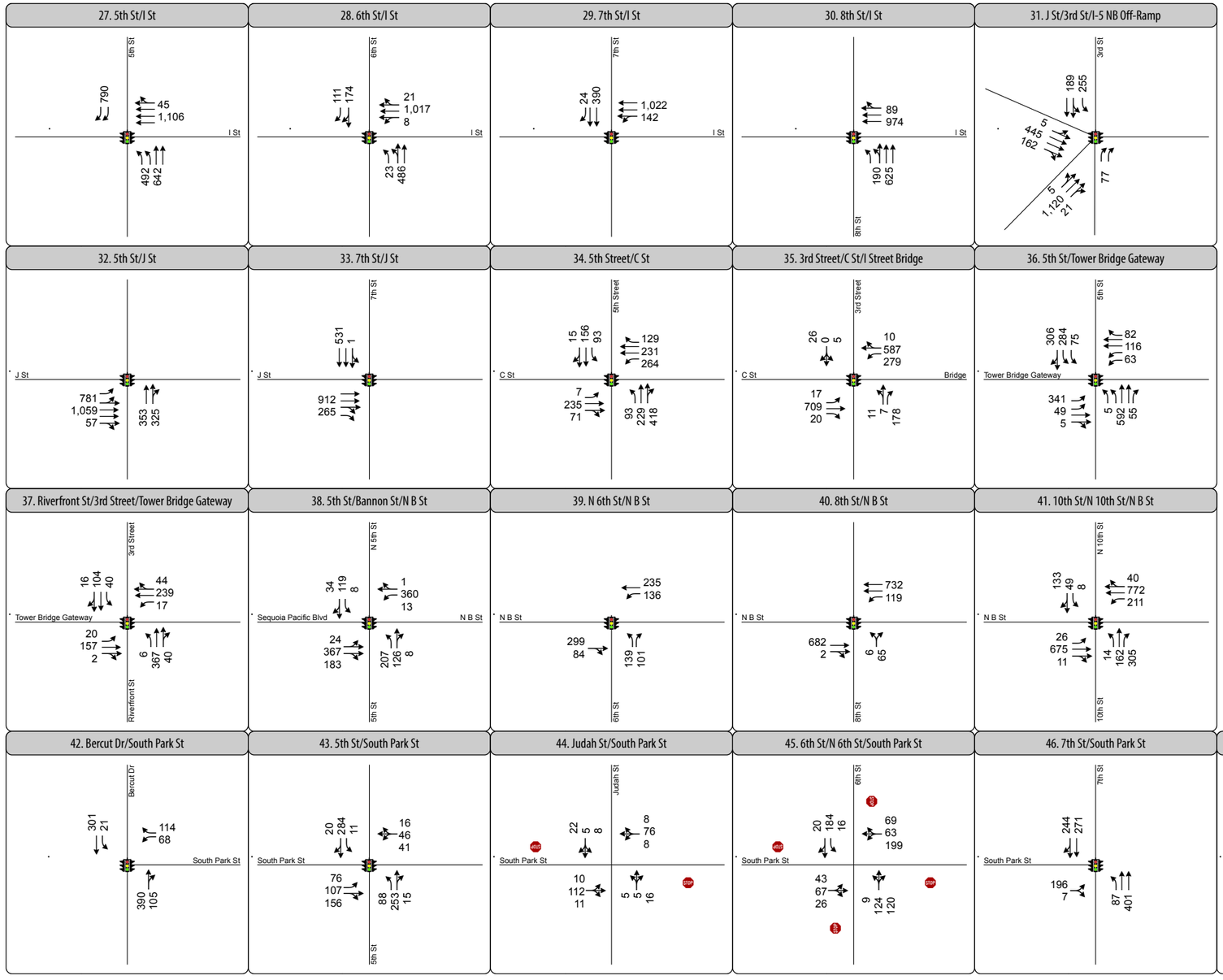
AM (PM) Peak Hour Traffic Volume

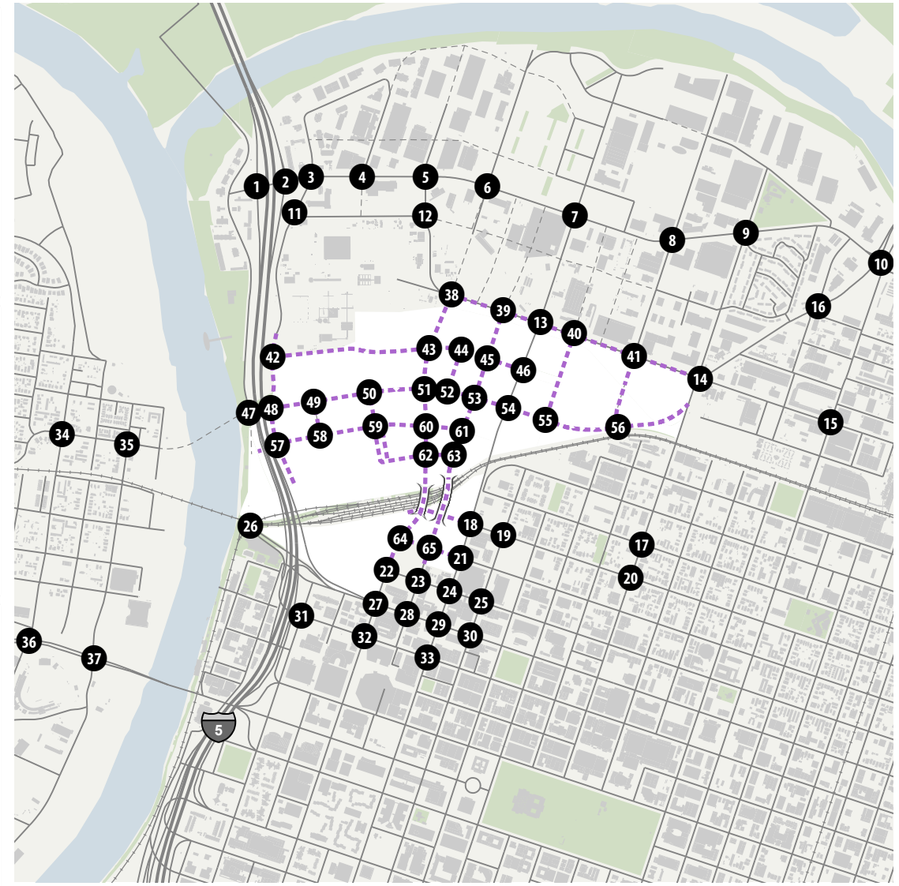
Traffic Signal

Stop Sign

Figure 4.12-42A

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions





Turn Lane

AM (PM) Peak Hour Traffic Volume

Traffic Signal

Stop Sign

Figure 4.12-42B

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions

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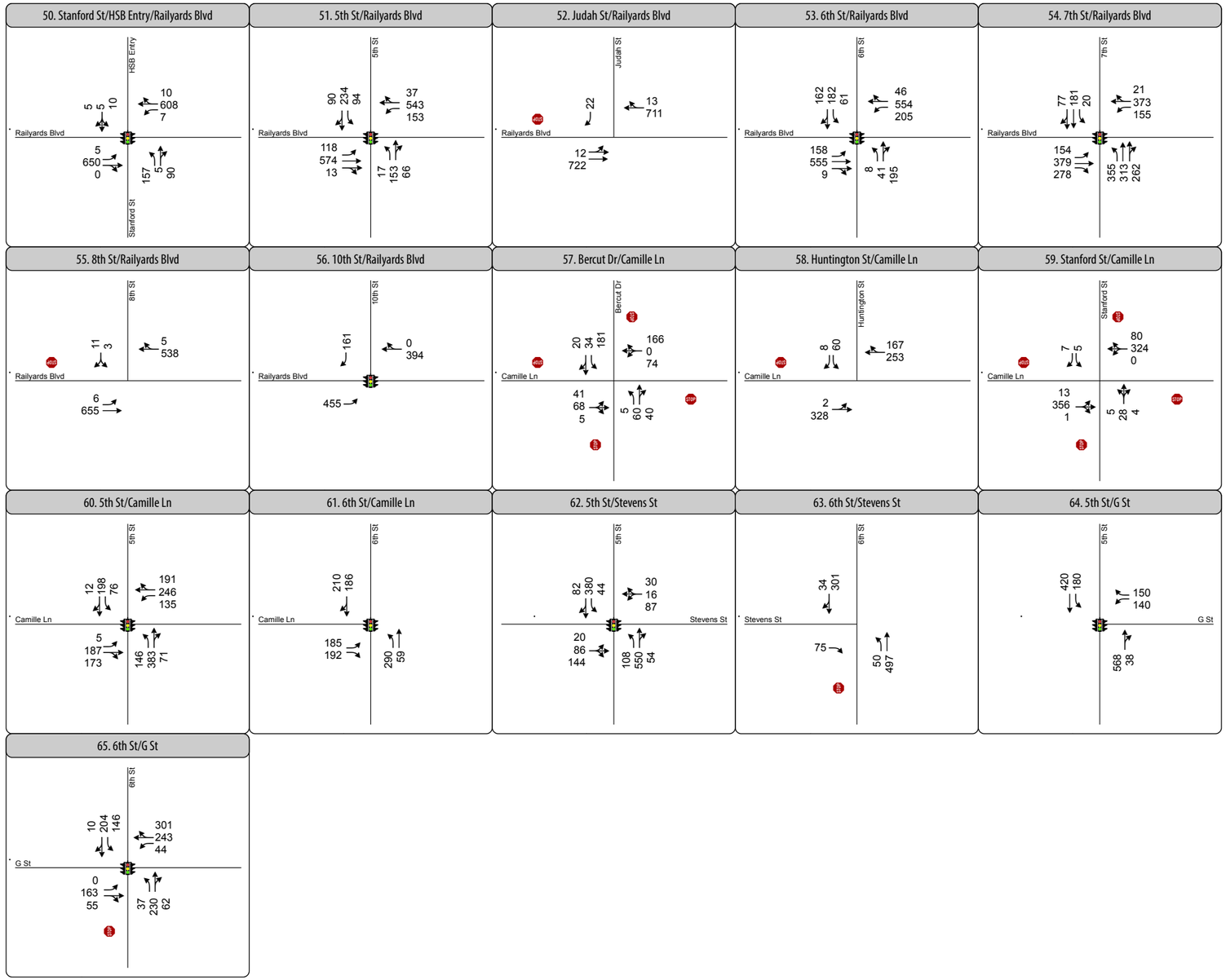

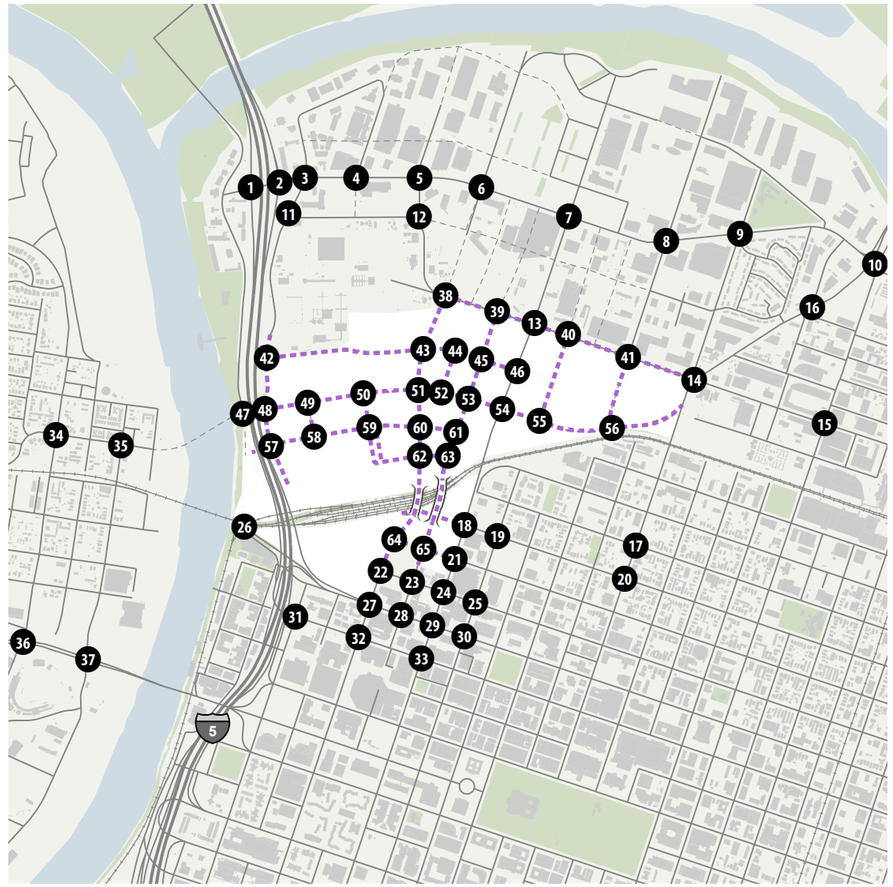

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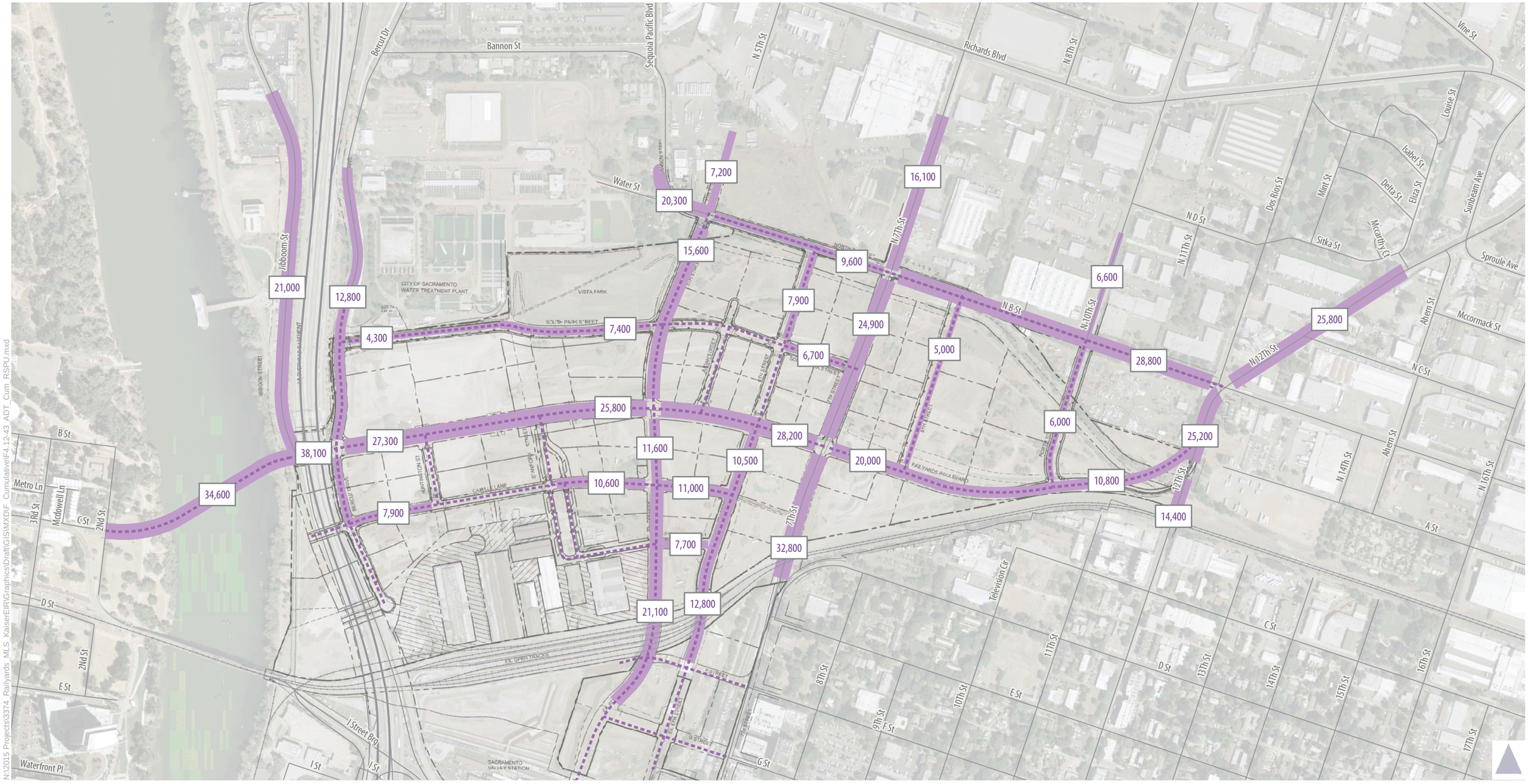
Figure 4.12-42C

Weekday Pre Event Peak Hour Traffic Volumes and Lane Configurations - Cumulative Plus RSPU Conditions



Roadway Assumed Under Cumulative Plus RSPU Conditions

Cumulative Plus RSPU Average Daily Traffic (ADT)

X,XXX Cumulative Plus RSPU ADT

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Figure 4.12-43

Average Daily Traffic Forecasts - Cumulative Plus RSPU Conditions

TABLE 4.12-46.
INTERSECTION OPERATIONS - CUMULATIVE PLUS RSPU CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	105.0	F	61.8	E	67.0	E
2	Richards Blvd / I-5 NB Ramps	Signal	59.5	E	13.6	B	12.0	B
3	Richards Blvd / Bercut Dr	Signal	29.5	C	33.1	C	27.6	C
4	Richards Blvd / N 3rd St	Signal	20.8	C	29.3	C	36.6	D
5	Richards Blvd / Sequoia Pacific Blvd	Signal	63.2	E	80.4	F	81.8	F
6	Richards Blvd / N 5th St	Signal	22.4	C	43.3	D	33.4	C
7	Richards Blvd / N 7th St	Signal	55.7	E	67.0	E	76.1	E
8	Richards Blvd / N 10th St	Signal	28.8	C	23.5	C	30.5	C
9	Richards Blvd / Dos Rios St	Signal	22.8	C	18.8	B	14.9	B
10	Richards Blvd / N 12th St / 16th St [1]	Signal	-	-	-	-	-	-
11	Bannon St / Bercut Dr	SSSC	8.5	A	7.4	A	6.1	A
12	Bannon St / Sequoia Pacific Blvd	AWSC	14.1	B	34.8	D	40.1	E
13	N B St / N 7th St	Signal	45.2	D	51.0	D	38.7	D
14	N B St / N 12th St	Signal	36.7	D	35.3	D	30.6	C
15	N B St / 16th St	Signal	16.2	B	25.5	C	25.3	C
16	N 12th St / Sunbeam Ave / Sproule Ave [1]	Signal	-	-	-	-	-	-
17	E St / 12th St	Signal	9.4	A	11.8	B	8.1	A
18	F St / 7th St	Signal	39.3	D	61.4	E	14.6	B
19	F St/ 8th St	AWSC	20.1	C	24.2	C	9.6	A
20	F St / N 12th St	Signal	13.1	B	28.0	C	11.3	B
21	G St / 7th St	Signal	19.8	B	28.8	C	15.9	B
22	H St / 5th St	Signal	44.3	D	68.8	E	38.7	D
23	H St / 6th St	Signal	19.2	B	52.0	D	28.6	C
24	H St / 7th St	Signal	23.8	C	29.9	C	28.7	C
25	H St / 8th St	Signal	18.4	B	40.6	D	12.3	B
26	I St / Jibboom St [2]	Signal	-	-	-	-	-	-
27	I St / 5th St	Signal	63.8	E	44.6	D	36.4	D
28	I St / 6th St	Signal	61.9	E	59.8	E	29.6	C
29	I St / 7th St	Signal	20.7	C	29.0	C	13.5	B
30	I St / 8th St	Signal	16.9	B	54.2	D	15.8	B
31	J St / 3rd St / I 5 NB Off-Ramp	Signal	111.7	F	63.1	E	68.3	E
32	J St / 5th St	Signal	36.0	D	39.0	D	26.6	C
33	J St / 7th St	Signal	12.9	B	9.6	A	6.8	A
34	C St / 5th St	Signal	46.6	D	95.8	F	24.4	C

TABLE 4.12-46.
INTERSECTION OPERATIONS - CUMULATIVE PLUS RSPU CONDITIONS

	Intersection	Control Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
35	C St / 3rd St	Signal	120.2	F	180.0	F	28.3	C
36	Tower Bridge Gateway / 5th St	Signal	30.6	C	31.5	C	23.0	C
37	Tower Bridge Gateway / 3rd St	Signal	37.7	D	36.9	D	19.8	B
38	N B St / 5th St	Signal	37.4	D	43.4	D	27.3	C
39	N B St / 6th St	Signal	35.0	D	24.7	C	21.0	C
40	N B St / 8th St	Signal	22.9	C	30.2	C	14.1	B
41	N B St / 10th St	Signal	23.3	C	50.1	D	21.4	C
42	South Park St / Bercut Dr	Signal	13.7	B	79.6	E	8.6	A
43	South Park St / 5th St	Signal	59.6	E	79.9	E	26.4	C
44	South Park St / Judah St	SSSC	3.0	A	3.7	A	2.7	A
45	South Park St / 6th St	AWSC	27.8	D	33.1	D	11.7	B
46	South Park St / 7th St	Signal	18.2	B	27.2	C	14.0	B
47	Railyards Blvd / Jibboom St	Signal	147.6	F	111.5	F	64.6	E
48	Railyards Blvd / Bercut Dr	Signal	32.9	C	76.5	E	32.3	C
49	Railyards Blvd / Huntington St	Signal	34.9	C	70.4	E	34.9	C
50	Railyards Blvd / Stanford St	Signal	36.6	D	48.6	D	29.5	C
51	Railyards Blvd / 5th St	Signal	34.5	C	64.3	E	25.2	C
52	Railyards Blvd / Judah St	SSSC	1.7	A	12.9	B	4.5	A
53	Railyards Blvd / 6th St	Signal	22.9	C	54.1	D	24.4	C
54	Railyards Blvd / 7th St	Signal	39.6	D	73.6	E	54.0	D
55	Railyards Blvd / 8th St	Signal	9.2	A	22.4	C	23.7	C
56	Railyards Blvd / 10th St	Signal	20.9	C	23.4	C	32.0	C
57	Camille Ln / Bercut Dr	AWSC	10.2	B	102.8	F	7.8	A
58	Camille Ln / Huntington St	SSSC	3.3	A	21.0	C	4.1	A
59	Camille Ln / Stanford St	AWSC	11.2	B	41.9	E	13.6	B
60	Camille Ln / 5th St	Signal	34.0	C	61.2	E	28.1	C
61	Camille Ln / 6th St	Signal	30.1	C	35.0	D	23.7	C
62	Stevens St / 5th St	Signal	26.7	C	38.3	D	18.7	C
63	Stevens St / 6th St	SSSC	11.4	B	38.3	E	13.2	B
64	G St / 5th St	Signal	33.7	C	66.6	E	24.3	C
65	G St / 6th St	Signal	13.5	B	56.8	E	19.7	B

1. Not analyzed due to unknown nature of planned improvement.
2. Does not exist.
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-47.
FREEWAY OPERATIONS – CUMULATIVE PLUS RSPU CONDITIONS

Freeway Facility	Type	AM Peak Hour		PM Peak Hour		Pre-event Peak Hour	
		Density[1]	LOS	Density[1]	LOS	Density[1]	LOS
1. I-5 Northbound – P Street on-ramp to J Street off-ramp	Weave	-	E	-	D	-	D
2. I-5 Northbound – On-ramp from L Street	Merge	31.2	D	31.4	D	24.5	C
3. I-5 Northbound – I street on-ramp to Richards Boulevard off-ramp	Weave / Basic[2]	-	F	-	F	-	C
4. I-5 Northbound – On ramp from Bercut Drive	Merge	27.3	C	-	F	20.6	C
5. I-5 Northbound – Richards Boulevard on-ramp to Garden Hwy. off-ramp	Weave	-	E	-	F	-	E
6. I-5 Northbound –Garden Hwy. on-ramp to West El Camino off-ramp	Weave	-	E	-	F	-	E
7. I-5 Northbound – Off-ramp to I-80	Major Diverge	24.5	C	37.0	E	26.9	C
8. I-5 Southbound – On-ramp from I-80	Major Merge	26.3	D	23.3	C	15.0	B
9. I-5 Southbound – On-ramp from WB West El Camino	Merge	25.5	C	24.6	C	19.4	B
10. I-5 Southbound – Off-ramp to Garden Highway	Diverge	27.4	C	25.3	C	18.1	B
11. I-5 Southbound – Garden Hwy. on-ramp to Richards Blvd. off-ramp	Weave / Basic[2]	-	E	-	E	-	C
12. I-5 Southbound – Off ramp to Jiboom Street	Diverge	31.5	D	32.1	D	22.4	C
13. I-5 Southbound – Richards Blvd. on-ramp to J Street off-ramp	Weave	-	C	-	E	-	C
14. SR 160 Eastbound – Northgate Blvd Off-ramp	Diverge	24.8	C	37.8	E	21.2	C
15. SR 160 Eastbound – Del Paso Blvd off-Ramp	Diverge	13.1	B	31.9	D	13.2	B
16. SR 160 Eastbound – Del Paso Blvd to Leisure Lane	Basic	15.9	B	44.1	E	12.6	B
17. SR 160 Westbound – Canterbury Rd to Del Paso Blvd	Basic	35.0	D	23.6	C	26.6	D
18. SR 160 Westbound – On-ramp from Del Paso Blvd	Merge	-	F	25.2	C	26.7	C
19. SR 160 Westbound – Del Paso Blvd to Northgate Blvd	Basic	44.8	E	24.5	C	26.2	D

NOTES:

1. Density measured in passenger car equivalents per lane per mile. Density not calculated for weaving segments.
2. Under the Pre-event scenario, ramp volumes are too low to constitute the segment as a weave. Therefore, the segment is analyzed as a basic segment.

Note: Segments 11 – 15 (i.e., Southbound I-5 from I-80 to J Street) are reported at LOS C, D or E during the AM peak hour based on HCM procedures. However, field observations indicate that queuing from the J Street off-ramp causes mainline slowing, which is not considered by HCM methods. Similarly, Segments 3 – 6 (i.e., Northbound I-5 from Business 80/US 50 to J Street) are reported at LOS C or D during the PM peak hour. Field observations indicate that downstream bottlenecks cause slowing in these segments, which is not considered by HCM methods. Thus, actual operations in these segments may be worse than reported above.

Table 4.12-48 displays maximum expected queue lengths and available storage on the I-5 off-ramps expected to be used by project trips under Cumulative Plus RSPU Conditions. As shown, under Cumulative Plus RSPU Conditions, vehicle queues would exceed the available off-ramp storage at three of the four off-ramps during the AM peak hour. There would be no queues that exceed the available off-ramp storage in the PM peak hour.

TABLE 4.12-48.
FREEWAY OFF-RAMP VEHICLE QUEUES – CUMULATIVE PLUS RSPU CONDITIONS

Off-Ramp	Available Storage	Maximum Vehicle Queue (feet) [1]		
		AM Peak Hour	PM Peak Hour	Pre-event Peak Hour
I-5 SB Off-Ramp at J Street	1,500 ft.[2]	1,300	450	200
I-5 NB Off-Ramp at J Street	1,000 ft.[2]	**2,900**	675	**1,100**
I-5 SB Off-Ramp at Richards Boulevard	1,050 ft.[2]	**2,600**	275	300
I-5 NB Off-Ramp at Richards Boulevard	1,000 ft.[2]	**1,150**	150	150

1. Based on output from SimTraffic microsimulation model.
2. Measured from ramp terminal intersection limit line.
Bolded, underlined cells represent significant freeway impacts.

SOURCE: Fehr & Peers, 2016.

Land Use Variant

The Project Description, Population, and/or Housing chapter describes the Land Use Variant. As is documented in those chapters, this alternative would replace the KP Medical Center and MLS Stadium projects with a mix of residential and non-residential uses.

Approximately 23,430 employees would work within the RSP Area under the Land Use Variant. The project would have a jobs-housing ratio of 3.35, which is slightly more balanced than the RSPU ratio of 3.8 employees per housing unit.

Table 4.12-49 displays the daily, AM peak hour, and PM peak hour trip generation of the Land Use Variant under baseline conditions. This trip generation was estimated in the same manner as for the proposed RSPU.

As shown, the Land Use Variant would generate approximately 119,700 new daily vehicle trips, 7,200 new AM peak hour vehicle trips, and 10,900 new PM peak hour vehicle trips.

When compared to the RSPU, the Land Use Variant would generate about 0.5 percent less traffic during the AM peak hour and 14.4 percent more traffic during the PM peak hour. On a daily basis, the Land Use Variant would generate about 4.5 percent more traffic. But on days in which an MLS event is being held, the Land Use Variant would generate about 11.8 percent less daily traffic.

TABLE 4.12-49.
PEAK HOUR AND DAILY TRIP GENERATION OF LAND USE VARIANT – BASELINE CONDITIONS

Land Use	ITE Land Use Code	Quantity	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	710	5,709 ksf	31,485	31,485	62,970	7,838	1,068	8,907	1,447	7,060	8,507
Retail	820	1,272.5 ksf	37,537	37,537	75,074	1,048	641	1,692	3,054	3,308	6,363
Multi-Family Residential	232	7,000 units	14,630	14,630	29,260	453	1,927	2,380	1,650	1,010	2,660
Hotel	310	1,100 rooms	4,494	4,494	8,988	344	239	583	337	323	660
Museum	580	180 ksf	800	800	1,600	138	22	160	17	87	104
		Gross Trips	-88,946	88,946	177,892	9,821	3,897	13,722	6,504	11,789	18,293
		Reduction for Internal Trips [2] (14% Daily / 21.1% AM / 17.2% PM)	-12,452	-12,452	-24,905	-2,072	-822	-2,895	-1,119	-2,028	-3,146
		Reduction to Account for Transit Trips [2] (8.5% Daily / 14.2% AM / 13.5% PM)	-7,560	-7,560	-15,121	-1,395	-553	-1,949	-878	-1,592	-2,470
		Reduction to Account for Walk/Bike Trips [2] (10.2% Daily / 12.2% AM / 9.9% PM)	-9,072	-9,072	-18,145	-1,198	-475	-1,674	-644	-1,167	-1,811
		Net External Vehicle Trips	59,861	59,861	119,721	5,156	2,046	7,204	3,863	7,003	10,866

NOTES:

1 Gross trip rates based on *Trip Generation Manual* (Institute of Transportation Engineers, 2012) for all land uses. Trip rates for office space based on weighted average rate given amount of office space. Trip rates for retail based on fitted curve equation for typical size of 150,000 square-foot retail center.
2 Internal trips, and external trips made by transit, walking, and bicycling based on MXD+ model output.

Source: Fehr & Peers, 2016.

Since the RSPU Land Use Variant would generate more PM peak hour traffic than the proposed RSPU, a focused analysis of PM peak hour operations was conducted at critical intersections under a Baseline Plus RSPU Land Use Variant scenario. **Table 4.12-50** displays the results.

TABLE 4.12-50.
FOCUSED PM PEAK HOUR INTERSECTION OPERATIONS – BASELINE PLUS RSPU LAND USE VARIANT

	Intersection	Control Type	Baseline No Project		Baseline Plus RSPU		Baseline Plus Land Use Variant	
			PM Peak Hour		PM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	29.8	C	60.5	E	39.4	D
2	Richards Blvd / I-5 NB Ramps	Signal	17.3	B	14.9	B	14.9	B
3	Richards Blvd / Bercut Dr	Signal	28.1	C	91.7	F	111.5	F
7	Richards Blvd / N 7th St	Signal	24.7	C	32.7	C	30.3	C
10	Richards Blvd / N 12th St / 16th St	Signal	29.5	C	61.5	E	57.1	E
13	N B St / N 7th St	Signal	42.8	D	30.7	C	23.5	C
14	N B St / N 12th St	Signal	13.5	B	48.5	D	62.4	E
31	J St / 3rd St / I-5 Off-Ramps	Signal	27.0	C	61.5	E	129.9	F
40	N B St / 8th St	Signal	-	-	8.3	B	5.8	A
41	N B St / 10th St	Signal	-	-	11.4	B	21.6	C
54	Railyards Blvd / 7th St	Signal	51.6	D	53.4	D	59.0	E
55	Railyards Blvd / 8th St	Signal	-	-	64.1	E	21.5	C
56	Railyards Blvd / 10th St	Signal	-	-	43.0	D	28.0	C
60	Camille Ln / 5th St	Signal	0.6	A	36.3	D	49.2	D
61	Camille Ln / 6th St	Signal	0.4	A	32.5	C	47.2	D
62	Stevens St / 5th St	Signal	0.0	A	49.9	D	66.3	E
63	Stevens St / 6th St	SSSC	0.2	A	24.2	C	13.1	B
64	G St / 5th St	Signal	7.4	A	70.1	E	99.1	F
65	G St / 6th St	Signal	9.6	A	49.1	D	58.7	E

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

This table indicates that the Land Use Variant would cause several intersections to experience degraded operations as compared to conditions with the RSPU. A total of six study intersections (within the focused analysis areas) would operate at LOS E or F, under baseline conditions with the RSPU, while eight intersections would operate at LOS E or F with the Land Use Variant. Of the 19 intersections listed in this table, their average delay would increase from 44.5 seconds

under the RSPU to 49.4 seconds under the Land Use Variant. This represents an 11 percent increase, which is generally consistent with the Land Use Variant's 14 percent increase in PM peak hour trips over the RSPU.

Table 4.12-51 displays the daily, AM peak hour, and PM peak hour trip generation of the Land Use Variant under cumulative conditions. This alternative's trip generation was estimated in the same manner as for the proposed RSPU. As shown, the Land Use Variant would generate approximately 112,600 new daily vehicle trips, 6,600 new AM peak hour vehicle trips, and 10,250 new PM peak hour vehicle trips.

When compared to the RSPU, the Land Use Variant would generate about 0.8 percent less traffic during the AM peak hour, and 14.4 percent more traffic during the PM peak hour. On a daily basis, the Land Use Variant would generate about four percent more traffic. But on days in which an MLS event is being held, the Land Use Variant would generate about 11.5 percent less daily traffic.

Since the RSPU Land Use Variant would generate more PM peak hour traffic than the proposed RSPU under cumulative conditions, a focused analysis of PM peak hour operations was conducted at critical intersections under a Cumulative Plus RSPU Land Use Variant scenario. **Table 4.12-52** displays the results. The Land Use Variant would cause some intersections to improve while others degrade relative to RSPU conditions. This would occur as a result of greater levels of traffic passing through the system, minor changes in the roadway network, and the formation of new bottleneck locations.

Vehicle Miles of Travel (VMT)

This section describes the methodologies used to estimate the VMT associated with the proposed RSPU, KP Medical Center, and MLS Stadium. VMT is presented for informational purposes in this section. However, the values shown here are used in other sections of this SEIR as inputs to air quality, noise, greenhouse gas emissions, and transportation fuel consumption estimates.

VMT is considered a useful metric in understanding of the overall impacts of a project on the transportation system. VMT is often expressed on a 'per capita' or 'per employee' basis to understand the relative efficiency of one project versus another. By definition, one VMT occurs when a vehicle is driven one mile. In addition, a given VMT value represents vehicular miles of travel for entire weekday. Lastly, VMT values in this chapter represent the full length of a given trip, and are not truncated at city, county, or region boundaries.

The VMT of the RSPU was calculated by tracking VMT associated with all traffic analysis zones (TAZs) that represent the RSPU throughout the entire SACMET travel demand model (as well as trip lengths that extend beyond SACOG region). This method does not consider how the project would change background travel patterns due to new land uses and roadway connections. This method also does not consider any non-home-based trips made by RSPU residents. While the SACMET travel demand model does include such trips, it is not possible to associate such trips or their VMT with an individual residence or TAZ.

TABLE 4.12-51.
PEAK HOUR AND DAILY TRIP GENERATION OF LAND USE VARIANT – CUMULATIVE CONDITIONS

Land Use	ITE Land Use Code	Quantity	Trips [1]								
			Daily			AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total	In	Out	Total
Office	710	5,709 ksf	31,485	31,485	62,970	7,838	1,068	8,907	1,447	7,060	8,507
Retail	820	1,272.5 ksf	37,537	37,537	75,074	1,048	641	1,692	3,054	3,308	6,363
Multi-Family Residential	232	7,000 units	14,630	14,630	29,260	453	1,927	2,380	1,650	1,010	2,660
Hotel	310	1,100 rooms	4,494	4,494	8,988	344	239	583	337	323	660
Museum	580	180 ksf	800	800	1,600	138	22	160	17	87	104
		Gross Trips	88,946	88,946	177,892	9,821	3,897	13,722	6,504	11,789	18,293
		Reduction for Internal Trips [2] (13.8% Daily / 20% AM / 15.8% PM)	-12,275	-12,275	-24,549	-1,964	-779	-2,744	-1,028	-1,863	-2,890
		Reduction to Account for Transit Trips [2] (9% Daily / 15.2% AM / 14.6% PM)	-8,005	-8,005	-16,010	-1,493	-592	-2,086	-950	-1,721	-2,671
		Reduction to Account for Walk/Bike Trips [2] (13.9% Daily / 16.7% AM / 13.5% PM)	-12,363	-12,363	-24,727	-1,640	-651	-2,292	-878	-1,592	-2,470
		Net External Vehicle Trips	56,303	56,303	112,606	4,724	1,874	6,600	3,649	6,614	10,262

NOTES:

1 Gross trip rates based on *Trip Generation Manual* (Institute of Transportation Engineers, 2012) for all land uses. Trip rates for office space based on weighted average rate given amount of office space. Trip rates for retail based on fitted curve equation for typical size of 150,000 square-foot retail center.
2 Internal trips, and external trips made by transit, walking, and bicycling based on MXD+ model output.

Source: Fehr & Peers, 2016.

TABLE 4.12-52.
FOCUSED PM PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE PLUS RSPU LAND USE VARIANT

	Intersection	Control Type	Cumulative No Project		Cumulative Plus RSPU		Cumulative Plus Land Use Variant	
			PM Peak Hour		PM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
1	Richards Blvd / I-5 SB Ramps	Signal	47.0	D	61.8	E	55.3	E
2	Richards Blvd / I-5 NB Ramps	Signal	22.3	C	13.6	B	14.6	B
3	Richards Blvd / Bercut Dr	Signal	45.5	D	33.1	C	44.7	D
7	Richards Blvd / N 7th St	Signal	77.4	E	67.0	E	72.5	E
13	N B St / N 7th St	Signal	27.9	C	51.0	D	56.0	E
14	N B St / N 12th St	Signal	43.9	D	35.3	D	68.2	E
31	J St / 3rd St / I-5 Off-Ramps	Signal	51.7	D	63.1	E	54.7	D
40	N B St / 8th St	Signal	5.4	A	30.2	C	19.4	B
41	N B St / 10th St	Signal	18.4	B	50.1	D	40.7	D
54	Railyards Blvd / 7th St	Signal	114.7	F	73.6	E	60.0	E
55	Railyards Blvd / 8th St	Signal	533.6	F	22.4	C	18.7	C
56	Railyards Blvd / 10th St	Signal	44.8	D	23.4	C	18.2	B
60	Camille Ln / 5th St	Signal	46.2	D	61.2	E	54.3	D
61	Camille Ln / 6th St	Signal	79.5	E	35.0	D	34.3	C
62	Stevens St / 5th St	Signal	15.2	C	38.3	D	68.3	E
63	Stevens St / 6th St	SSSC	10.1	B	38.3	E	27.9	D
64	G St / 5th St	Signal	58.9	E	66.6	E	95.0	F
65	G St / 6th St	Signal	63.5	E	56.8	E	92.1	F

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

Table 4.12-53 displays the RSPU VMT under baseline conditions, both without and with an MLS match being played. This table also shows the VMT for the Land Use Variant.

The RSPU would generate 1,008,891 VMT, with the average vehicular trip length being about 8.7 miles. The average trip length is considered greater than average (based on all travel activity in the Sacramento region) because 69 percent of the project's gross daily trips are associated with employment uses (i.e., office and KP Medical Center). It is well documented in travel behavior literature that trips for work purposes are longer than trips for other purposes. Lastly, it is noted that the VMT estimate and average trip length does not account for the more than 50,000 daily trips are being made by walking, bicycling, transit, or are otherwise being internalized and do not require vehicular travel. This effect can be measured by dividing the project's VMT by the RSPU gross trip generation (168,226 daily trips per Table 4.12-10), yielding a resulting trip length is 6.0 miles.

TABLE 4.12-53.
BASELINE CONDITIONS VMT – RSPU AND LAND USE VARIANT

Metric	RSPU (Without MLS Match)	RSPU (With MLS Match) [4]	Land Use Variant
Daily VMT [1]	1,008,891	1,275,088	1,028,294
Daily Vehicle Trips	116,492 [2]	137,602	121,992
Average Trip Length [3]	8.7 miles	9.1 miles	8.4 miles

NOTES:

[1] Calculated using the SACMET travel demand model by tracking the quantity and length of all vehicle trips that have either an origin or destination within the RSPU. Trip length also considers additional distance made by some trips that have origins/destinations beyond the SACOG region.

[2] This value is slightly greater than the project's expected external daily vehicle trip generation of 114,562 trips from Table 4.12-10 due to some internal trips being made by vehicle.

[3] Divides VMT by number of daily trips.

[4] Refer to Table 4.12-53 for MLS Stadium VMT.

Source: Fehr & Peers, 2016.

The Land Use Variant would generate 1.9 percent more VMT than the RSPU. However, since the Land Use Variant generates 4.5 percent more daily traffic, it is not surprising that the average trip length decreases.

The analysis methodologies that support the results in Table 4.12-51 implicitly make several important conclusions regarding how the project would change socioeconomics, employment, and discretionary spending in the Sacramento region. First, an additional 6,000 households are added to the Sacramento region. Second, the total number of employed persons in the region increases by 22,900. Third, the number of Kaiser Permanente members increases substantially. Fourth, the overall demand to visit and spend money at retail centers and hotels increases.

It unlikely that total employment in the Sacramento region would instantaneously increase by 22,900 persons, Kaiser membership would immediately increase substantially, and discretionary spending would rise. In the near-term, there would likely be some losses in market share by other existing businesses (slightly greater vacancy rates at other office complexes, slightly reduced occupancy rates at hotel, fewer retail customers, etc.) due to the introduction of the RSPU non-residential land uses. This implies that the 1,008,891 VMT value (which does not assume any such effects) is conservative.

Table 4.12-54 displays the VMT of the KP Medical Center under baseline conditions. This table also shows the VMT that would be eliminated by the closure of Kaiser Morse Avenue Medical Center. The sum of the added and subtracted VMT is considered the net VMT associated with the proposed KP Medical Center and associated activities. Refer to footnotes in table for analysis methodologies.

TABLE 4.12-54.
BASELINE CONDITIONS VMT – KP MEDICAL CENTER

Metric	Quantity		
	KP Medical Center	Kaiser Morse Avenue Medical Center	Net Effect
Daily VMT [1]	338,280	-132,436	205,844
Daily Vehicle Trips [2]	26,245	-11,511	14,734
Average Trip Length [3]	12.9 miles	11.5 miles	-
Adjusted Average Trip Length [4]	11.8 miles		

NOTES:

1 Calculated using the SACMET travel demand model by tracking the quantity and length of inbound and outbound vehicle trips (for both members and employees) between trip origins/destinations and each medical center.
2 Calculated as follows: The ratio of AM and PM peak hour trips generated by the facility was factored up to a daily value based on the observed AM and PM peak hour to daily ratios at three Kaiser medical centers in Southern California.
3 Divides VMT by number of daily trips.
4 Considers that 9.2 percent of all KP Medical Center trips are made by walking, bicycling, or transit. Calculated as follows = 338,280 VMT / (1.092*26,245) = 11.8 miles

Source: Fehr & Peers, 2016.

As shown, the KP Medical Center would result in a net increase of approximately 205,850 VMT during a typical weekday. The table suggests that the average trip length (for vehicle trips) is actually slightly longer for the KP Medical Center versus Kaiser Morse Avenue. The general reasonableness of this conclusion can be confirmed by reviewing the zip code residences of employees who will work at the KP Medical Center. A large quantity of employees who reside in easterly Sacramento County and south Placer County will have longer commutes. However, this is somewhat offset by some employees residing in downtown, Natomas, West Sacramento, Davis, and Elk Grove who would have shorter commutes.

The KP Medical Center would also complete roadway connections of Bercut Drive and South Park Street, thereby allowing through travel on those streets. However, such connections would most likely only result in diversions from parallel routes (i.e., Jibboom Street and Railyards Boulevard), which means changes in VMT associated with these street connections would be nominal.

Table 4.12-55 displays the VMT of the proposed MLS Stadium under baseline conditions. Refer to footnotes in table for analysis methodologies. As shown, the MLS Stadium would generate 248,197 VMT during a day in which a soccer match is being played. For vehicle trips, the one-way average trip length is 11.8 miles. This value seems reasonable in consideration of the locations of origins/destinations of expected attendees (see Figures 4.12-29 and 4.12-30). This would translate into 9.9 VMT per attendee.

TABLE 4.12-55.
BASELINE CONDITIONS VMT – MLS STADIUM

Metric	Quantity
Daily VMT [1]	248,197
Daily Vehicle Trips [2]	21,110
Average Trip Length [3]	11.8 miles

NOTES:

[1] Calculated using the SACMET travel demand model by tracking the quantity and length of inbound and outbound vehicle trips (for both attendees and employees) between trip origins/destinations and stadium parking lot/garage for a 25,000-person sold-out soccer match. Trip length also considers additional distance made by some attendees who originate from outside of the SACOG region.

[2] Source is Table 4.12-12.

[3] Divides VMT by number of daily trips.

Source: Fehr & Peers, 2016.

The RSPU would have a weekday recurring service population (defined as the total number of residents and employees on a given site) of approximately 22,900 employees and 15,000 residents (assuming 2.5 persons per dwelling unit) for a total of 37,900. This results in 26.6 VMT per service population. This number should not be considered an absolute value, but rather a relative value that is compared under cumulative conditions, both under no project (2007 RSP) and proposed project (RSPU) conditions. It is not an absolute value because it doesn't consider other transient populations (in the denominator) such as KP Medical Center members, hotel guests, museum guests, and retail patrons that generate travel to the RSPU. Those populations are typically not included in these types of calculations because they are difficult to accurately estimate.

The Land Use Variant would have a weekday recurring service population (employees plus residents) of approximately 40,930 (assuming 2.5 persons per dwelling unit). This results in 25.1 VMT per service population.

The estimate in Table 4.12-53 does not consider how the introduction of MLS Stadium would result in greater internalization of trips for the non-Stadium land uses. These internalization affects are considered under cumulative conditions because that setting (i.e., 20 years into the future) allows sufficient time for individuals to self-select housing, purchase of MLS event tickets, etc. to reduce travel distance.

Table 4.12-56 displays the VMT of the No Project scenario, the RSPU, and the Land Use Variant under cumulative conditions. The RSPU would generate two percent less VMT than the Land Use Variant, but 8.3 percent greater VMT than the No Project condition. A detailed estimate of the RSPU cumulative VMT with an MLS match was not prepared due to the uncertainty of where MLS attendees will reside under cumulative conditions. Table 4.12-53 showed an MLS match would generate about 248,000 VMT under baseline conditions. Under cumulative conditions, a greater non-auto mode split is expected and more housing would be available in downtown. Given this, it is likely that the MLS Stadium would generate less than 248,000 VMT under cumulative conditions.

TABLE 4.12-56.
CUMULATIVE CONDITIONS VMT – NO PROJECT, RSPU, AND LAND USE VARIANT

Metric	No Project	RSPU (Without MLS Match)	Land Use Variant
Daily VMT [1]	814,263	881,951	899,513
Daily Vehicle Trips	112,470	109,728 [2]	114,837
Average Trip Length [3]	6.7 miles	7.4 miles	7.2 miles

NOTES:

1 Calculated using the SACMET travel demand model by tracking the quantity and length of all vehicle trips that have either an origin or destination within the RSPU. Trip length also considers additional distance made by some trips that have origins/destinations beyond the SACOG region.
2 This value is slightly greater than the project's expected external daily vehicle trip generation due to some internal trips being made by vehicle.
3 Divides VMT by number of daily trips.

Source: Fehr & Peers, 2016.

Table 4.12-57 compares the VMT per service population for each scenario under cumulative conditions.

TABLE 4.12-57.
VMT PER SERVICE POPULATION – CUMULATIVE CONDITIONS

Scenario	VMT [1]	Service Population [2]	VMT per Service Population
No Project	814,263	42,392	19.2
RSPU	881,951	37,900	23.3
Land Use Variant	899,513	40,930	22.0

NOTES:

1 See Table 4.12-56.
2 Service population defined as the total number of residents and employees on a given site.

Source: Fehr & Peers, 2016.

As shown, the RSPU would generate about six percent more VMT per service population than the Land Use Variant, and 21 percent more VMT per service population than the No Project scenario.

Impacts and Mitigation Measures

Impact 4.12-1: The proposed projects could worsen conditions at intersections in the City of Sacramento.

Railyards Specific Plan Update

Impact 6.12-1 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in significant impacts to various intersections within the City. The full discussion of this topic is located on pages 6.12-61 through 6.12-70 of the 2007 RSP EIR. Impact 6.12-2 of the 2007 RSP EIR also identified significant impacts of the initial phase of the 2007 RSP on City roadways. Since that document was published, the City has modified its approach to analyzing its

transportation system, and no longer analyzes roadway segments because intersections typically control overall system operations. Therefore, conclusions and recommended mitigation measures associated with Impact 6.12-2 are no longer applicable.

Similar to the 2007 RSP EIR, the proposed RSPU would cause some intersections in the City of Sacramento to have degraded operating conditions. The 2007 RSP EIR relied upon a LOS C threshold for City intersections based on the policy from the adopted General Plan at that time. In contrast, the City of Sacramento 2035 General Plan identifies this area of the City as a Tier 1 Priority Investment Area, in which LOS F operations may be accepted provided that provisions are made to improve the overall system, promote non-vehicular transportation and/or implement vehicle trip reduction measures. These changes in LOS policies directly affect whether certain mitigation measures from the 2007 RSP EIR are still applicable. The end of this sub-section provides a discussion of the need for each of the 2007 RSP EIR mitigations pertaining to intersection impacts.

During project development and planning, the proposed RSPU roadway system underwent a detailed traffic operations analysis to determine the most appropriate traffic controls and lane configurations within the RSP Area, while maintaining a multi-modal, pedestrian-scale environment. As shown on Table 4.12-13, the vast majority of intersections within the RSP Area would operate at LOS E or better during all three peak hours with the proposed circulation system in place. The following intersections would operate at LOS F:

- Richards Boulevard/Bercut Drive (PM peak hour)
- Richards Boulevard/N. 12th Street/N. 16th Street (Pre-event peak hour)
- Bannon Street/Bercut Drive (PM peak hour)
- J Street / 3rd Street / I-5 Off-Ramps (AM, PM, and Pre-event peak hours)

Expected intersection operations during the AM and PM peak hour would be generally tolerable with modest to moderate levels of vehicle queuing and delays along some corridors. Of the listed intersections reported at LOS F, most are within 15 seconds of delay or less of operating at LOS E. During the Pre-event peak hour, several intersections would operate at LOS E or F and would become bottlenecks in the system, causing significant queue spillbacks onto roadways such as 12th Street, Richards Boulevard, North B Street, and 7th Street. The extent of these queue spillbacks are presented under the MLS Stadium impact statement. During the Pre-event peak hour, traffic generated by the proposed RSPU would degrade the overall roadway system operation to the extent that the project would not be consistent with General Plan Policy M 1.2.2 relating to the City's Level of Service Policy and would be detrimental toward achieving other General Plan circulation policies regarding to multi-modal improvements (General Plan Policies M1.2.1, M1.2.4, M1.3.3 and M1.3.5). Therefore, this impact is considered **potentially significant.**

Railyards Specific Plan Update Land Use Variant

Under the RSPU Land Use Variant, the potential for adverse intersection impacts would be similar, if not greater, than as discussed above for the proposed RSPU. This is because the RSPU Land Use Variant would generate an equivalent amount of AM peak hour traffic, but 14 percent more PM peak hour traffic when compared to the RSPU. Since the Land Use Variant would not include an MLS Stadium, impacts during the Pre-event peak hour would not occur. Table 4.12-50 indicates that the Land Use Variant would cause several intersections to experience degraded operations as compared to conditions with the RSPU. However, the average delay during the PM peak hour for the 19 intersections listed in Table 4.12-50 is 49 seconds during the PM peak hour, and three intersections would operate at LOS F. However, those three intersections would each experience at least 100 seconds of delay per vehicle, and would become bottlenecks in the system. The RSPU Land Use Variant could require a greater level of on-site infrastructure and does not propose any overall system improvements beyond the RSP Area. Therefore, this impact is considered **potentially significant.**

KP Medical Center

The KP Medical Center would construct new roadways along its frontage including portions of Bercut Drive, South Park Street, and 5th Street. However, it would not widen or modify any other intersections within the RSP Area. According to Table 4.12-23, with the addition of KP Medical Center traffic to Baseline No Project Conditions, LOS F operations would occur at one intersection during the AM peak hour and four intersections during the PM peak hour. A number of other intersections would operate at LOS E. Review of the SimTraffic micro-simulation models show extensive queuing along portions of Railyards Boulevard, 7th Street, and Bercut Drive. An image on following page provides an illustration of these queues. The following intersections would experience LOS F operations:

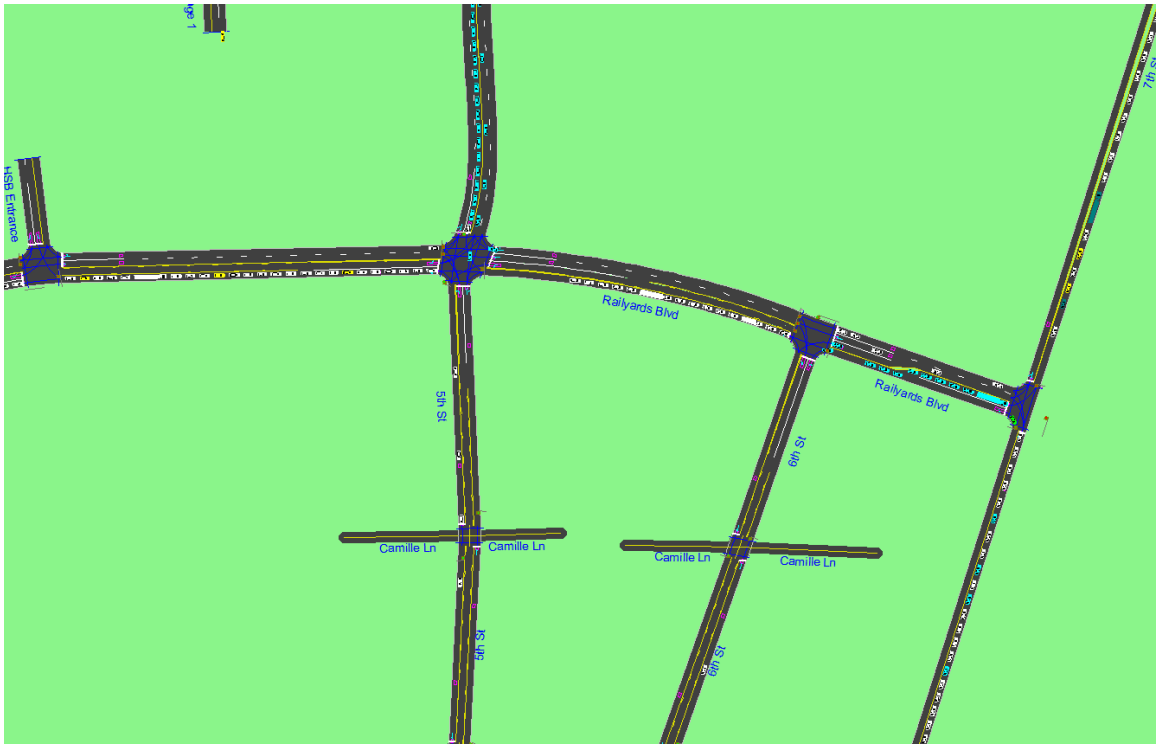
- Richards Boulevard/Bercut Drive (PM peak hour)
- Bannon Street/Bercut Drive (PM peak hour)
- I Street/Jibboom Street (PM peak hour)
- J Street/3rd Street/I-5 NB Off-Ramp (AM peak hour)
- Railyards Boulevard/5th Street (PM peak hour)

The KP Medical Center would result in several intersection turning movements that would substantially exceed their available capacity under Baseline Plus KP Medical Center conditions including:

- 780 left-turns in a single 125-foot left-turn lane on eastbound Railyards Boulevard at 7th Street during the PM peak hour.
- 1,000 total approach vehicles in the single northbound left/through/right lane on 7th Street approaching North B Street during the PM peak hour.

- 860 left-turns in the dual left-turn lanes on northbound Bercut Drive at Richards Boulevard during the PM peak hour.

These heavy movements help explain the extent of the vehicle queuing shown in the SimTraffic image on the following page. Traffic generated by the proposed KP Medical Center would degrade the overall roadway system operation to the extent that the project would not be consistent with General Plan Policy M 1.2.2 relating to the City's Level of Service Policy and would be detrimental toward achieving other General Plan circulation policies regarding to multi-modal improvements (General Plan Policies M1.2.1, M1.2.4, M1.3.3 and M1.3.5). Therefore, this impact is considered **potentially significant**.



View of SimTraffic image during PM peak hour showing vehicle queue spillback on eastbound Railyards Boulevard affecting upstream intersections under Baseline plus KP Medical Center.

MLS Stadium

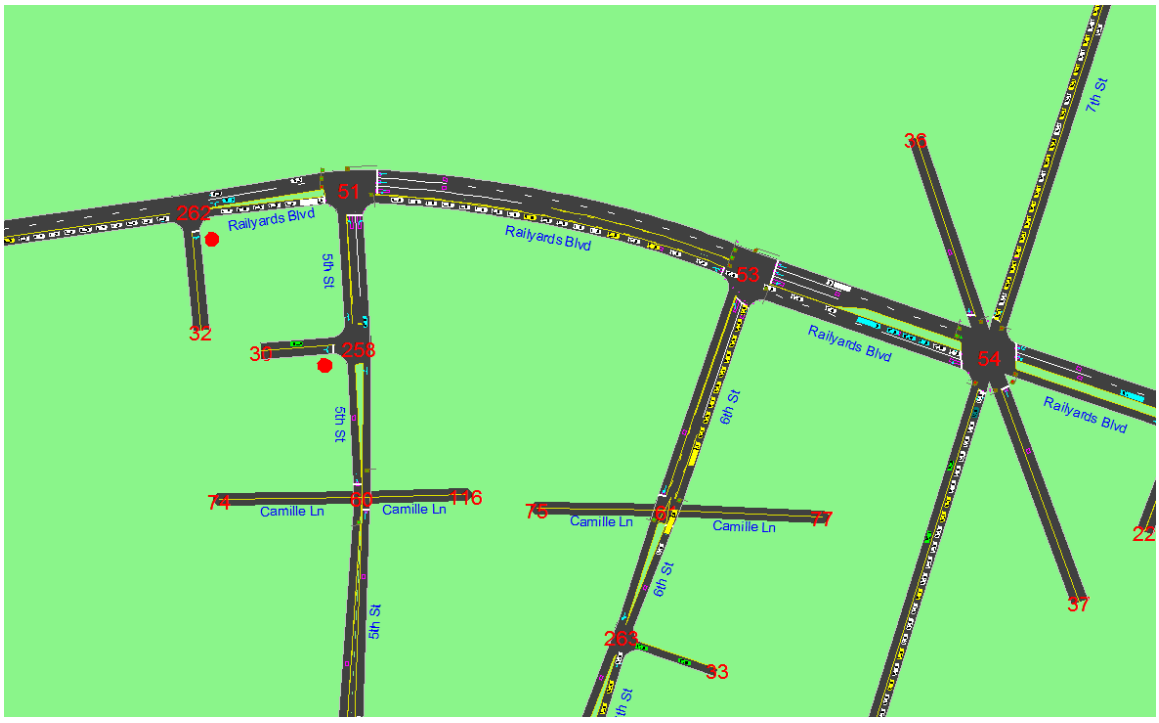
The MLS Stadium would construct Railyards Boulevard east of 7th Street and 8th Street between North B Street and Railyards Boulevard. However, it would not widen or modify any other intersections within the RSP Area. According to Table 4.12-31, a sold-out (25,000-person) soccer match at the MLS Stadium would cause four study intersections to worsen from LOS C or better to LOS F during the Pre-event peak hour. An additional two intersections would operate at LOS E. Review of the SimTraffic micro-simulation models show extensive queuing along portions of

Railyards Boulevard, 7th Street, 12th Street, and North B Street. The following intersections would experience LOS F operations:

- Richards Boulevard/N. 12th Street/N. 16th Street (LOS F)
- J Street/3rd Street/I-5 NB Off-Ramp (LOS F)
- Railyards Boulevard/6th Street (LOS F)
- Railyards Boulevard/7th Street (LOS F)

Implementation of the MLS Stadium under baseline conditions would result in lengthy, undissipated vehicle queues that have the potential to adversely affect intersection operations, emergency vehicle response time, and increase conflicts with large volumes of pedestrians prior to MLS soccer matches. An image on following page provides an illustration of these queues.

Traffic generated by the proposed MLS Stadium would degrade the overall roadway system operation to the extent that the project would not be consistent with General Plan Policy M 1.2.2 relating to the City's Level of Service Policy and would be detrimental toward achieving other General Plan circulation policies regarding to multi-modal improvements. Therefore, this impact is considered **potentially significant.**



View of SimTraffic image showing vehicle queue spillback on eastbound Railyards Boulevard and northbound/southbound 7th Street during the Pre-event peak hour. The fifth and six legs shown at the 7th Street/Railyards Boulevard intersection represent light rail tracks that would pre-empt the intersection during train crossings.

Summary

The roadway system within the RSP Area has been designed to function adequately under Baseline plus RSPU conditions. Although several intersections within the RSP Area would operate at LOS E during the AM and PM peak hours, no intersections would operate at LOS F and the overall system would function efficiently. However, beyond the RSP Area boundary, several intersections would operate at LOS F. This conclusion is similar to Impact 6.12-1 of the 2007 RSP EIR. During the Pre-event peak hour (with an MLS match being played), a number of intersections would operate at LOS E or F, prior to any mitigation.

When compared to the RSPU, impacts of the RSPU Land Use Variant would be similar during the AM peak hour, greater during the PM peak hour, and considerably lesser during periods when MLS soccer matches would otherwise be played within the RSPU.

The proposed KP Medical Center and MLS Stadium would construct only site frontage improvements. Their land uses and travel characteristics would result in extensive queuing and deteriorated intersection operations within the RSP Area. These impacts are considered **significant**. Mitigation measures are recommended to address these impacts.

Mitigation Measures

Mitigation Measure 4.12-1 described below is different than Mitigation Measure 6.4-1 (pages 6.4-65 through 6.4-70) of the 2007 RSP EIR for a variety of reasons. In many instances, the need for (and type of) mitigation differs due to changes in LOS policies, planned RSP Area roadways, and project travel characteristics.

Mitigation Measure 4.12-1(a) (RSPU)

i. Implement Event Transportation Management Plan (TMP) to the satisfaction of the City Traffic Engineer and subject to the performance standards set forth within it including:

1. Vehicle Queuing on City Streets: Through added intersection capacity and/or traffic management, traffic does not queue back to upstream locations during the Pre-Event peak hour including (but not limited to):

- *Northbound 7th Street traffic does not spill back from Railyards Boulevard into the undercrossing of the UPRR tracks (i.e., queues do not extend any greater than 600 feet from Railyards Boulevard).*
- *Westbound North B Street traffic does not spill back from 7th Street into the 8th Street intersection*
- *Westbound North B Street traffic does not spill back from 8th Street into the 12th Street intersection*
- *Southbound 7th Street traffic does not spill back to the LRT tracks at North B Street*

2. *Pedestrian Flows: Through pedestrian flow management, pedestrians do not spill out of sidewalks onto streets with moving vehicles, particularly along 7th Street between Richards Boulevard and G Street, Railyards Boulevard between 5th Street and 8th Street, and North B Street between 7th Street and 12th Street.*

3. *Vehicular Parking: A comprehensive parking plan is implemented that includes (but is not limited to) a reservation system, smartphone parking app, directional signage, real-time parking garage occupancy, etc. that minimizes unnecessary vehicular circulation (while looking for parking) within and adjacent to the RSP Area.*

4. *Bicycle Parking: Signage is clearly visible to direct bicyclists to MLS Stadium event bicycle parking, which has an adequate supply to accommodate a typical MLS Stadium event.*

5. *Light Rail Transit: A new light rail station/stop is constructed on 7th Street north of Railyards Boulevard and operational at the time the stadium opens, providing an adequate level of LRT service to meet the Pre- and Post-Event ridership demands.*

6. *Bus/Paratransit: Specific locations are provided to accommodate public buses and paratransit vehicle stops within one block of the MLS Stadium.*

7. *Ridesharing: Specific locations are provided for pick-up/drop-off areas such that taxi, Uber, or similar ridesharing services do not impede overall vehicular or pedestrian flow (including maintaining uncongested conditions along 10th Street to enable emergency vehicle response).*

8. *Truck Staging: Delivery trucks associated with special events do not park or idle along 7th Street, 8th Street, North B Street, or Railyards Boulevard. Delivery trucks, buses, or other large vehicles should not be parked within the 10th Street cul-de-sac in a manner that blocks fire apparatus or other vehicles from being able to turn around.*

ii. *Each project developed pursuant to the RSPU shall pay the applicable fee for the I-5 Subregional Corridor Mitigation Program (SCMP) prior to issuance of building permits.*

iii. *Convert existing Dos Rios Street leg at 12th Street/North B Street intersection to a right-turn only intersection that does not operate as part of the traffic signal.*

The Event TMP, which is included as Appendix J.2, would manage vehicular and pedestrian circulation, and parking near the MLS Stadium during soccer events. An overview of the Event TMP is described in later in this section. This mitigation measure complies with General Plan Policy M 2.1.1, which suggests that LOS E or F conditions

may be permitted provided that development projects promote non-vehicular transportation and/or implement trip reduction measures. The Event TMP would describe the mechanisms for accommodating non-vehicular travel (i.e., bicycling, walking, and public transit), which would be implemented by the MLS Stadium operator with support from the City of Sacramento.

Payments into the I-5 SCMP would represent fair share contributions to improve I-5 including partial funding for reconstruction of the I-5/Richards Boulevard interchange. Reconstruction of this interchange would reduce congestion at the interchange as well as adjacent intersections such as Richards Boulevard/Bercut Drive. This fee also helps fund other improvements such as I-5 HOV lanes and the extension of the LRT Green Line to Natomas.

The modification of the 12th Street/North B Street intersection to remove the Dos Rios Street leg is necessary under Baseline Plus RSPU conditions during the Pre-event peak hour. Although operations are at LOS E, substantial queuing occurs in the outside lanes on southbound 12th Street. Removal of this signal phase enables more intersection green time to be provided to the 12th Street approach.

Mitigation Measure 4.12-1(b) (KPMC)

The following measures shall be implemented prior to issuance of the Certificate of Occupancy for Phase 1 of the KP Medical Center.

i. Implement Mitigation Measure 4.12-1(a)(ii)

ii. Implement Transportation Demand Management (TDM) Program.

iii. Widen Railyards Boulevard at 7th Street to provide a dedicated northbound left-turn lane and dedicated southbound right-turn lane. Operate signal with protected northbound left-turn phasing.

iv. Coordinate traffic signals on Railyards Boulevard at 5th, 6th, and 7th Streets.

v. Implement either Option 1a, 1b, or 1c:

- *<u>Option 1a</u>: Extend 5th Street northerly from South Park Street to North B Street. Install traffic signal at the 5th Street/South Park Street intersection. Operate 5th Street/North B Street intersection with side-street stop-control. Widen eastbound North B Street at 7th Street to include a dedicated left-turn lane and a shared through/right lane and operate east-west approaches with protected left-turn phasing.*
- *<u>Option 1b</u>: Extend South Park Street easterly from 5th Street and extend 6th Street northerly from South Park Street extension to North B Street. Install traffic signal at the 5th Street/South Park Street intersection. Operate 6th Street/North B Street intersection with side-street stop-control. Widen eastbound North B Street at 7th*

Street to include a dedicated left-turn lane and a shared through/right lane and operate east-west approaches with protected left-turn phasing.

- *Option 1c: Widen 7th Street/North B Street intersection to consist of a left-turn lane and a shared through/right lane on all approaches. Operate signal with protected left-turn phasing.*

Refer to **Figure 4.12-44** for illustration of recommended mitigation measures.

The Transportation Demand Management (TDM) program is required by City Code and is intended to reduce the number of single-occupant vehicle trips generated by the project during peak hours. Typical TDM strategies include: preferential carpool parking, off-peak staff shift times, private shuttles, transit subsidies, appointment of a TDM coordinator, bike lockers/ showers, and other measures. This mitigation measure complies with General Plan Policy M2.1.1, which suggests that LOS E or F conditions may be permitted provided that development projects promote non-vehicular transportation and/or implement trip reduction measures.

A dedicated northbound left-turn at the 7th Street/Railyards Boulevard intersection would allow the traffic signal to operate with protected northbound left-turn phasing versus inefficient north-south split phasing. All widening would need to occur to the west to avoid affecting the LRT tracks located directly to the east. Given the traffic volumes and spacing of intersections along Railyards Boulevard, coordination of signal operations would benefit corridor operations.

Options 1a and 1b would provide parallel capacity to 7th Street by extending either 5th Street to North B Street, or extending South Park Street and 6th Streets to North B Street. This would enable motorists to use these streets to access North B Street. However, improvements would still be necessary at the 7th Street/Railyards Boulevard and 7th Street/North B Street intersections. The widening of the eastbound North B Street approach to include one left-turn lane and one shared through/right lane would likely require widening to the north. Based on review of aerial imagery and field visits, the left-turn lane would be limited to 150 to 200 feet in length so as to minimize/ avoid impacting any properties on the north side of North B Street. In addition, the westbound approach would be restriped to consist of a left-turn lane and a shared through/right lane so that the east-west approaches would operate with protected left-turn phasing and have proper lane alignment.

Option 1c would widen/restripe the 7th Street/North B Street intersection to consist of a left-turn lane and a shared through/right lane on all approaches. This improvement would require reconstruction/elimination of a portion of the berm located directly south of the intersection.

Operations at the Bannon Street/Bercut Drive intersection would be at LOS F during the PM peak hour due to queues that spill back from the Richards Boulevard/Bercut Drive intersection. The future reconstruction of the I-5/Richards Boulevard interchange would indirectly benefit this intersection by reducing the extent to which queues spill into this intersection.

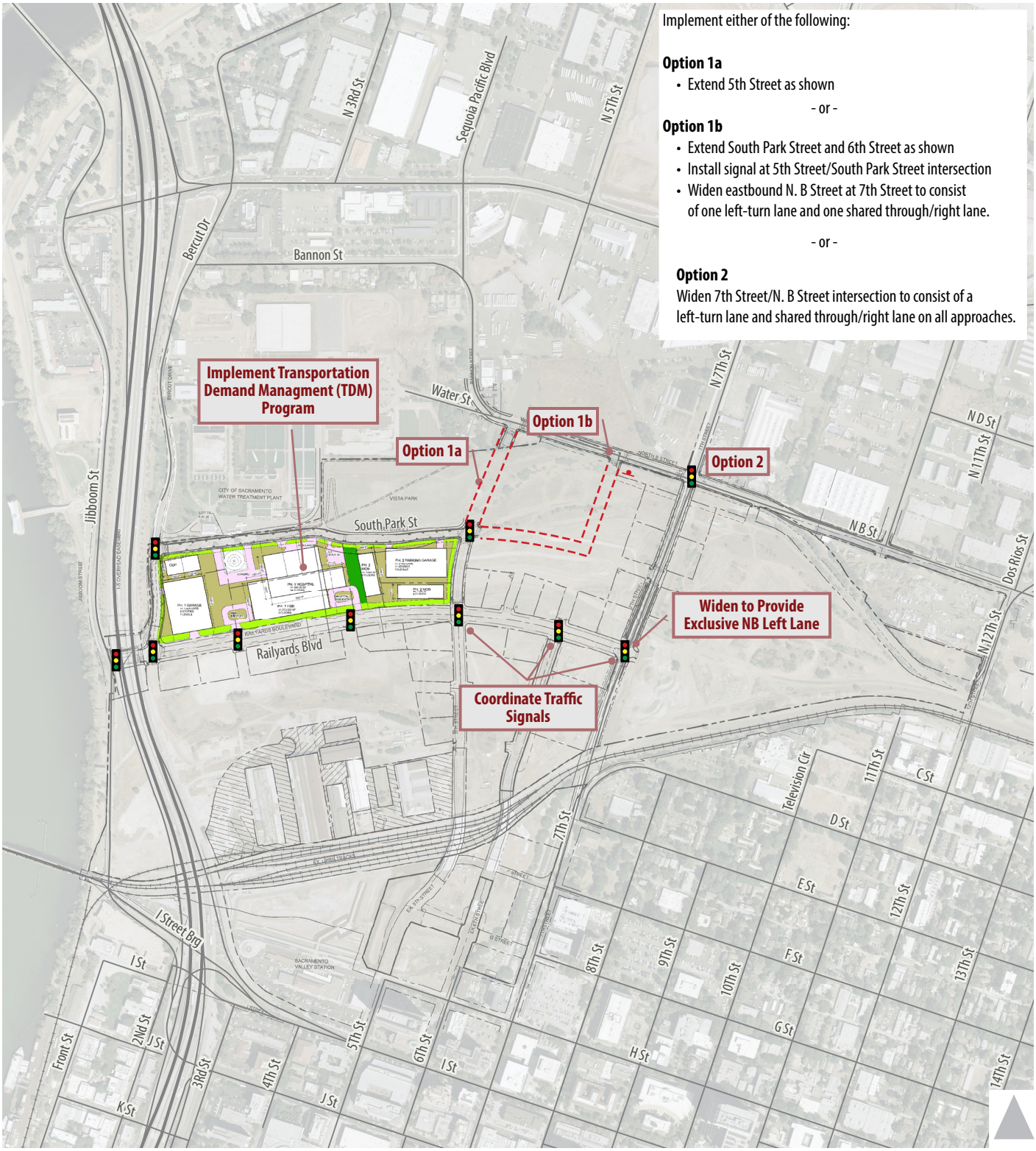


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Figure 4.12 - 44

Project Specific Mitigation Measures for KP Medical Center

The I Street/Jibboom Street intersection would operate at LOS F both without and with the KP Medical Center. No feasible mitigations are available to improve operations at this intersection. However, this intersection would be eliminated at such time that RSPU development requires removal of the Jibboom Street viaduct, or the new I Street bridge is constructed.

Table 4.12-58 displays the resulting operations at intersections within the RSP Area under Baseline Plus KP Medical Center with mitigation Options 1a, 1b, and 1c. According to this table, Options 1a and 1b would have similar effects, improving conditions substantially on Railyards Boulevard. However, operations at the North B Street/7th Street intersection would be at LOS E (close to the LOS F threshold) due to the continued inefficient north-south split-phase signal operation. Option 1c would increase the capacity at the North B Street/7th Street intersection and improve its operations to the LOS D/E cusp during the PM peak hour. However, because parallel capacity to 7th Street would not be added, intersections along Railyards Boulevard would continue to experience moderate delays, with LOS D conditions.

Table 4.12-59 presents an analysis that was undertaken to determine whether Phase 1 of the KP Medical Center may require a lesser amount of mitigation as compared to the buildout mitigations. Since Phase 1 would generate about 59 percent of the trips when compared to buildout, a lesser amount of mitigation may be warranted. A lesser mitigation consisting of adding a dedicated northbound left-turn lane at the Railyards Boulevard/7th Street intersection was tested (along with coordination of traffic signals along Railyards Boulevard). This would enable the north-south phases to operate more efficiently. While this did reduce some of the delay at the Railyards Boulevard/7th Street intersection, it moved the bottleneck to the N. B Street/7th Street intersection, causing it to worsen to LOS F. SimTraffic modeling results showed extensive queuing along 7th Street and Railyards Boulevard due to this bottleneck. Table 4.12-59 also shows that operations with Phase 1 would improve to acceptable levels with Option 1b in place. A similar conclusion would hold for Options 1a and 1c.

Based on the results in Table 4.12-59, this analysis has concluded that the mitigation measures identified for KP Medical Center buildout would be required at such time that Phase 1 is developed. Due to the nature of the needed improvements (i.e., parallel capacity to 7th Street or major upgrade to North B Street/7th Street), it is not possible to construct only a portion of the improvements.

Mitigation Measure 4.12-1(c) (MLS)

i. Implement Mitigation Measure 4.12-1(a)(i).

ii. *Convert existing Dos Rios Street leg at 12th Street/North B Street intersection to a right-turn only intersection that does not operate as part of the traffic signal.*

iii. Implement Transportation Demand Management (TDM) Program, if required by city code.

iv. Construct South Park Street between 6th Street and 7th Street.

TABLE 4.12-58.
INTERSECTION OPERATIONS - BASELINE PLUS KP MEDICAL CENTER WITH MITIGATION

	Intersection	Traffic Control	Baseline Plus KP Medical Center Conditions				Baseline Plus KP Medical Center Conditions – Mitigation Option 1a				Baseline Plus KP Medical Center Conditions – Mitigation Option 1b				Baseline Plus KP Medical Center Conditions – Mitigation Option 1c			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	70.1	E	76.6	E	41.2	D	79.7	E	45.5	D	78.6	E	23.7	C	55.2	E
39	N B St / N 6th St	SSSC	-	-	-	-	3.0	A	3.7	A	2.8	A	1.5	A	-	-	-	-
43	South Park St / 5th St	Signal	3.4	A	18.1	C	-	-	-	-	9.9	A	15.4	B	6.7	A	7.9	A
50	Railyards Blvd / HSB Entry / Stanford St	Signal	8.9	A	77.3	E	9.8	A	13.0	B	13.0	B	13.8	B	9.2	A	19.5	B
51	Railyards Blvd / 5th St	Signal	21.4	C	92.4	F	12.5	B	13.9	B	21.0	C	21.2	C	18.8	B	39.4	D
53	Railyards Blvd / 6th St	Signal	24.2	C	46.0	D	19.9	B	22.5	C	14.4	B	23.1	C	18.8	B	33.7	C
54	Railyards Blvd / 7th St	Signal	65.2	E	50.9	D	13.5	B	26.0	C	18.0	B	18.2	B	19.0	B	15.3	B

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches

Mitigation Option 1a refers to extending 5th Street to North B Street along with minor widening of 7th Street/North B Street. Option 1b refers to extending South Park Street easterly to 6th Street and constructing 6th Street between South Park Street and North B Street along with minor widening of 7th Street/North B Street. Option 1c consists of major widening of 7th Street/N. B Street intersection. All options also include other measures (see previous pages).
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-59.
INTERSECTION OPERATIONS - BASELINE PLUS KP MEDICAL CENTER PHASE 1 WITH MITIGATION

	Intersection	Traffic Control	Baseline No Project Conditions				Baseline Plus KP Medical Center Phase 1 Conditions				Baseline Plus KP Medical Center Phase 1 Conditions – 7th/Railyards Mitigation Only				Baseline Plus KP Medical Center Phase 1 Conditions – Mitigation Option 1b			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	34.4	C	42.8	D	49.3	D	65.8	E	41.3	D	87.0	F	38.4	D	67.9	E
39	N B St / N 6th St	SSSC	-	-	-	-	-	-	-	-	-	-	-	-	2.6	A	2.6	A
43	South Park St / 5th St	SSSC	-	-	-	-	1.6	A	3.0	A	1.6	A	2.7	A	3.9	A	5.5	A
50	Railyards Blvd / HSB Entry / Stanford St	Signal	-	-	-	-	13.4	B	21.7	C	12.9	B	28.1	C	13.1	B	13.5	B
51	Railyards Blvd / 5th St	Signal	14.3	B	7.9	A	24.1	C	48.5	D	22.1	C	50.2	D	23.7	C	23.0	C
53	Railyards Blvd / 6th St	Signal	14.5	B	12.5	B	17.0	B	38.0	D	14.5	B	39.8	D	11.9	B	12.0	B
54	Railyards Blvd / 7th St	Signal	45.5	D	51.6	D	57.8	E	45.0	D	25.2	C	33.3	C	18.7	B	12.9	B

1. For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches
2. For side-street stop controlled intersections, LOS and average delay for the movement with the most delay are reported.

"7th/Railyards Mitigation only" consists of widening the south leg of the Railyards Boulevard /7th Street intersection to provide a dedicated NB left-turn lane.
Mitigation Option 1b includes the extension of South Park Street to 6th Street and the extension of 6th Street to N. B Street.
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

v. *Construct 6th Street between Railyards Boulevard and North B Street.*

vi. *Install traffic signals at 7th Street/South Park Street, 6th Street/North B Street, Railyards Boulevard/8th Street, and North B Street/8th Street.*

vii. *Widen 7th Street at Railyards Boulevard to provide dedicated northbound and southbound left-turn lanes, and operate signal with protected left-turn phasing.*

viii. *Widen/restripe 7th Street at North B Street to consist of one left-turn lane and one shared through/right lane on all approaches, and operate signal with protected left-turn phasing.*

Refer to **Figure 4.12-45** for illustration of recommended mitigation measures (roadway-related only, and not including measures identified in the Event TMP).

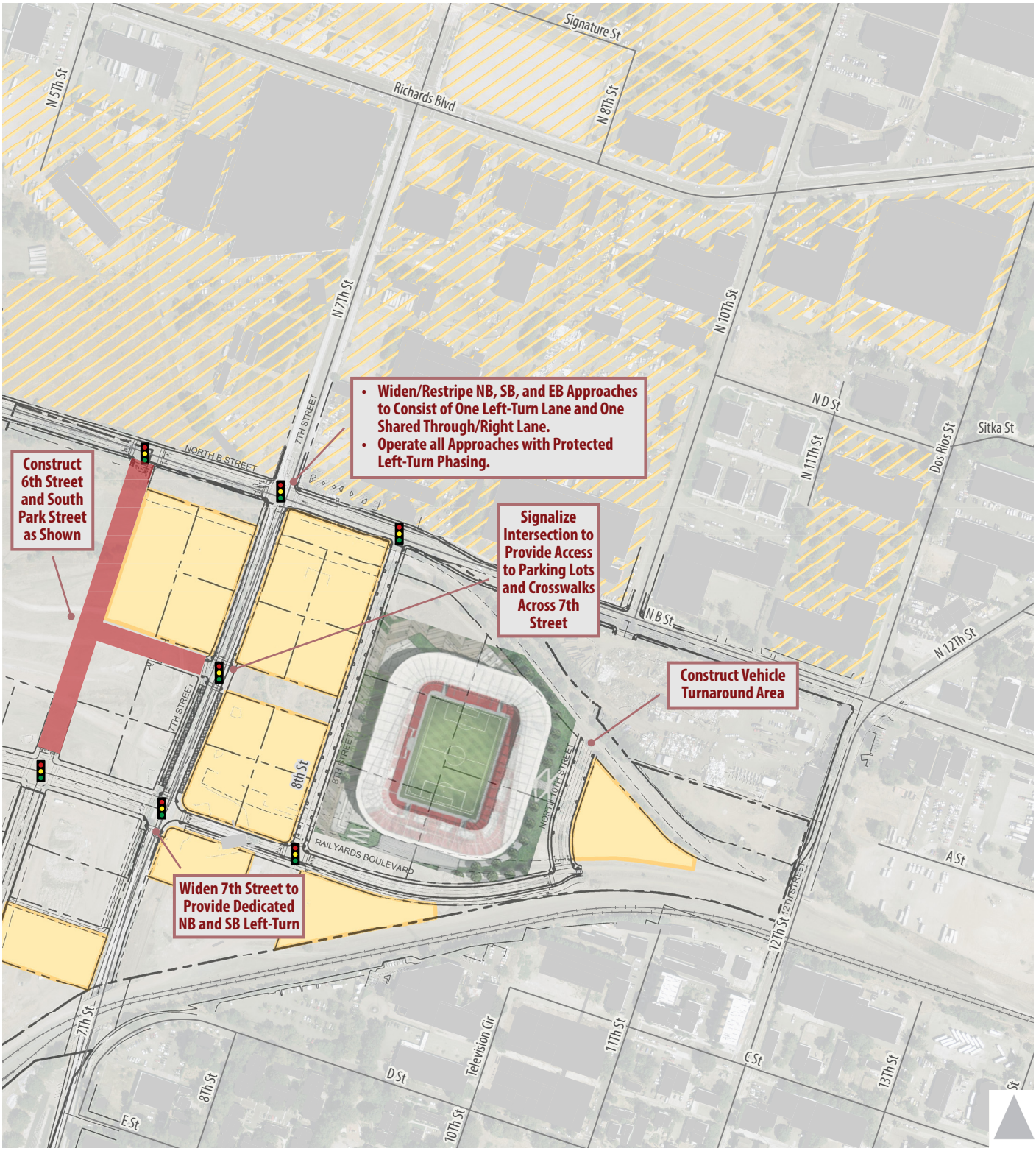
Overview of Event TMP

Figure 4.12-46 displays the Pre-Event Peak Hour pedestrian volumes on sidewalks in the MLS Stadium vicinity under Baseline Plus MLS Stadium Conditions with the Event TMP in place. As shown, pedestrian barricades would be placed in strategic locations so as to avoid creating pedestrian/vehicle conflict points at parking lot ingresses. Pedestrians at the 7th Street/Railyards Boulevard intersection would be directed either easterly along the north side of Railyards Boulevard or northerly along 7th Street to the Pedestrian Plaza located opposite South Park Street. The Pedestrian Plaza, which would be about 100 feet wide, would serve a variety of stadium-related functions. The Event TMP identifies the need to maintain a minimum 30-foot clear width throughout the length of the Pedestrian Plaza for pedestrian movement. This figure also shows that traffic control officers (TCOs) would be situated at key intersections to regulate/control pedestrian movements. Officers would not be controlling the flow of traffic at these intersections.

Figure 4.12-47 displays the recommended traffic and pedestrian management plan for Pre-Event Conditions including adjacent parking lot ingresses, placement of TCOs, and pick-up/drop-off areas. This figure shows the following two public street intersection turn movement prohibitions:

- Southbound right-turn on 7th Street at Railyards Boulevard – This movement would be prohibited to reduce traffic levels on southbound 7th Street, which would help decrease queuing and better accommodate pedestrian flows as discussed later. Many of these right-turning vehicles would be destined for parking areas to the west within the RSP Area. By virtue of extending 6th Street between North B Street and Railyards Boulevard, a parallel route to 7th Street would be provided. The Event TMP discusses the use of signage along North B Street and 7th Street to direct motorists to appropriate streets.

- Northbound left-turn on 8th Street at North B Street – This movement would be prohibited so as to not introduce any additional traffic into the 7th Street corridor. The majority of northbound travel on 8th Street during the Pre-event peak hour would be associated with drop-off activity. These motorists would be routed easterly on North B Street to access 10th Street or 12th Street.



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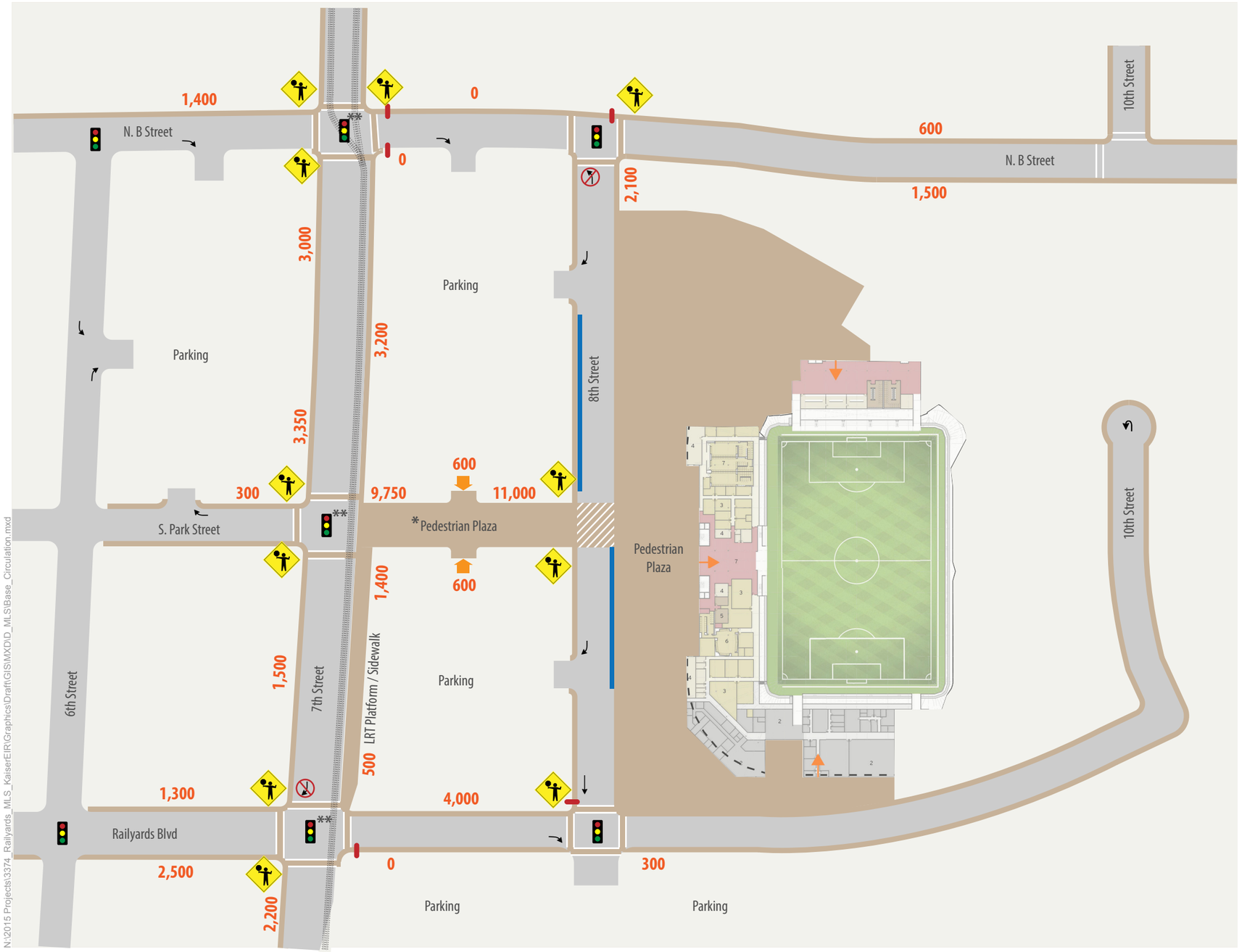
Surface Parking Lot within RSPU to be Available for Attendee Parking

Properties North of RSPU Anticipated to be Available for Attendee Parking

Signalized Intersection

Figure 4.12-45

Proposed Mitigation Measures (Roadway-Related Only) for MLS Stadium



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Notes:
1. Based on 25,000-person MLS soccer match (70% arrive during pre-event peak hour).
2. Values rounded to nearest fifty persons.
3. Recommended sidewalk width considers future building (ie. need to account for shy distance) at back of sidewalk and no obstructions within sidewalk.
4. Map not to scale.

*
Minimum 30 feet of plaza recommended to remain clear and unobstructed for pedestrian travel.

**
Operate traffic signals with extended walk intervals on all approaches.

Figure 4.12-46

Pedestrian Volumes During Pre Event Peak Hour - Baseline Plus MLS Stadium Conditions

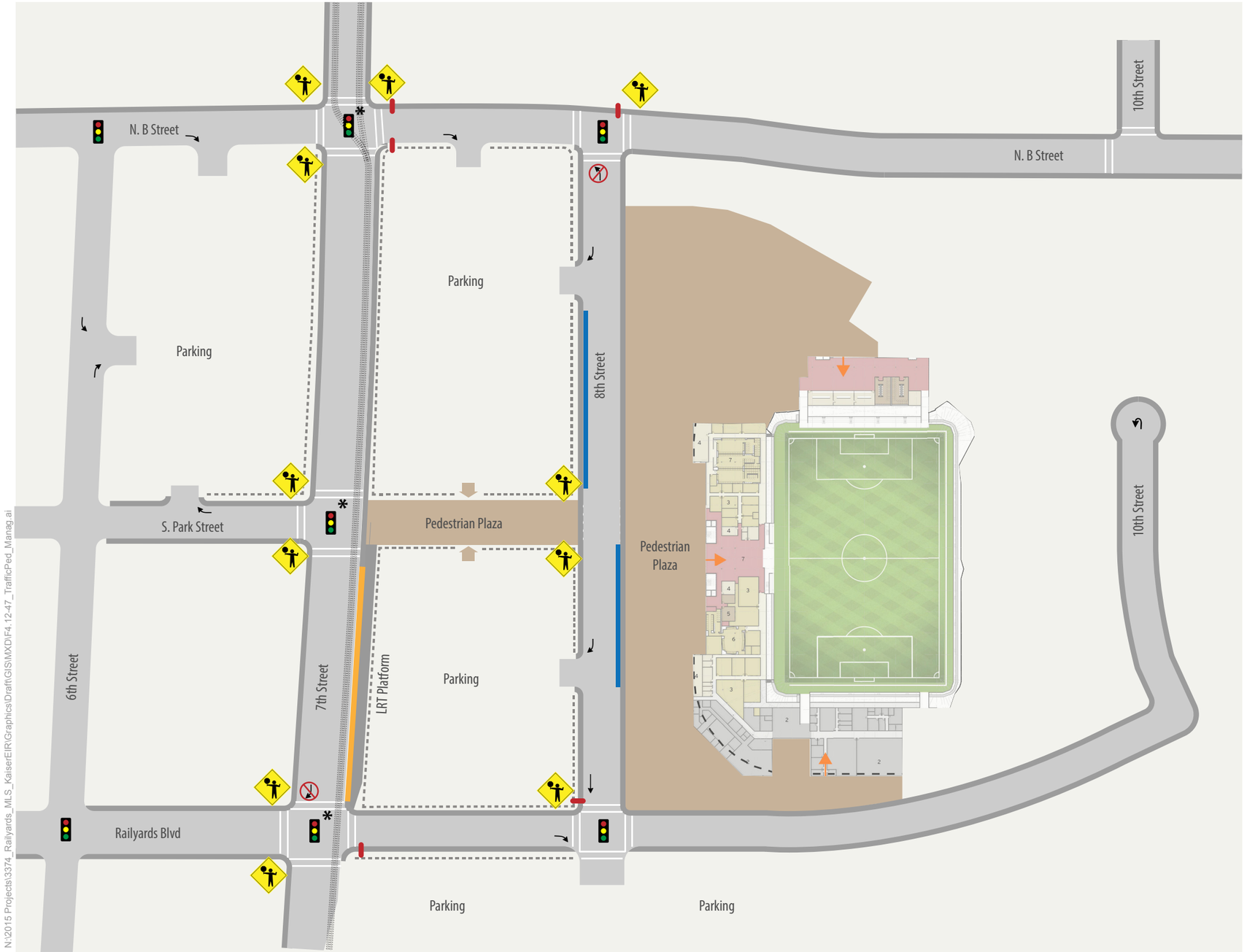


Figure 4.12-47

Recommended Traffic and Pedestrian Management During Pre-Event Peak Hour - Baseline Plus MLS Stadium Conditions

Figure 4.12-48 displays vehicle routing into surface parking lots that would be available near the MLS Stadium under Baseline Plus MLS Stadium conditions. This figure shows that parking areas located directly south of Railyards Boulevard east of 7th Street would be served from a fourth leg to the Railyards Boulevard/8th Street signalized intersection. This is preferred over a mid-block access to avoid creating a driveway cut in the planned Class I multi-use trail located on the south side of Railyards Boulevard. Additionally, egress after MLS matches would be improved via a traffic signal versus a minor driveway opening.

Figure 4.12-49 displays the vehicle routing for drop-offs at the MLS Stadium under Baseline Plus MLS Stadium conditions. As shown, vehicles would be permitted to travel both northbound on 8th Street (from Railyards Boulevard) and southbound on 8th Street (from North B Street) to drop-off passengers. Vehicles that could use the drop-off areas could include paratransit, buses, taxis, Uber, Lyft, and private vehicles.

Whereas all streets in the MLS Stadium vicinity would be open to traffic during the Pre-event peak hour, it would be necessary to close 8th Street between Railyards Boulevard and North B Street to inbound traffic during the Post-event condition due to substantial levels of pedestrian activity that would occur along this street after a soccer match ends. **Figure 4.12-50** displays the traffic and pedestrian management plan during the Post-event condition under Baseline Plus MLS conditions. It shows details such as partial street closures, routing of vehicles from individual parking lots, placement of barriers and barricades to guide pedestrians to appropriate crossing points, staging areas along Railyards Boulevard and 10th Street for Post-Event pick-ups, and placement of TCOs.

The recommendations shown on Figures 4.12-47 through 4.12-50 were developed through a series of meetings in April 2016 with the MLS Stadium operator and architect, Sacramento Fire and Police Departments, City of Sacramento Public Works, and the consulting team. Readers are referred to the Event TMP in Appendix J.2 for a more detailed discussion of Pre-event and Post-event traffic and pedestrian management procedures.

Table 4.12-60 displays the resulting operations at intersections within the RSP Area under Baseline Plus MLS Stadium conditions during the Pre-event peak hour with the proposed mitigation measures in effect. With the proposed mitigations, all seven intersections shown in this table would operate at LOS D or better. Signal timing adjustments were tested at the I-5 off-ramps at J Street intersection during the Pre-event peak hour. It was not possible to materially reduce delays or queuing through signal retiming.

Table 4.12-61 displays the effectiveness of mitigation measures 4.12-1(c) i – viii within and adjacent to the RSP Area under Baseline Plus RSPU conditions during the Pre-event peak hour assuming an MLS match is being played. As shown, operations would not appreciably improve with the mitigations in place because many of the identified mitigations (needed for MLS-only conditions) would already be in place at RSPU buildout. However, no intersections would operate at LOS F.

TABLE 4.12-60.
PRE-EVENT PEAK HOUR INTERSECTION OPERATIONS – BASELINE PLUS MLS STADIUM WITH MITIGATION

	Intersection	Control Type	No Project		Plus Project		Plus Project with Mitigation	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	12.1	B	42.3	D	51.1	D
14	N B St / N 12th St	Signal	11.7	B	20.4	C	21.2	C
40	N B St / N 8th St	Signal	-	-	12.8	B	17.2	B
51	Railyards Blvd / 5th St	Signal	6.3	A	64.9	E	14.5	B
53	Railyards Blvd / 6th St	Signal	9.3	A	108.8	F	26.1	C
54	Railyards Blvd / 7th St	Signal	9.9	A	124.5	F	50.3	D
55	Railyards Blvd / 8th St	Signal	9.9	A	7.5	A	10.0	B

NOTES:

For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Refer to previous pages for description of mitigation measures
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

TABLE 4.12-61.
PRE-EVENT PEAK HOUR INTERSECTION OPERATIONS – BASELINE PLUS RSPU CONDITIONS (ASSUMING MLS MATCH) WITH MITIGATION

	Intersection	Control Type	No Project		Plus RSPU (Assuming MLS Match)		Plus RSPU (Assuming MLS Match) with Mitigation	
			Avg Delay	LOS	Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	12.1	B	24.1	C	48.1	D
14	N B St / N 12th St	Signal	11.7	B	48.5	D	54.2	D
40	N B St / N 8th St	Signal	-	-	8.8	A	7.7	A
51	Railyards Blvd / 5th St	Signal	6.3	A	29.9	C	28.1	C
53	Railyards Blvd / 6th St	Signal	9.3	A	30.1	C	33.1	C
54	Railyards Blvd / 7th St	Signal	9.9	A	53.4	D	78.1	E
55	Railyards Blvd / 8th St	Signal	-	-	64.1	F	73.2	E
56	Railyards Blvd / 10th St	Signal	-	-	43.0	D	62.8	E

NOTES:

For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Refer to previous pages for description of mitigation measures
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

Traffic Signal

Parking Lot Ingress

Prohibited Turn Movement

Traffic Control Officer(s)

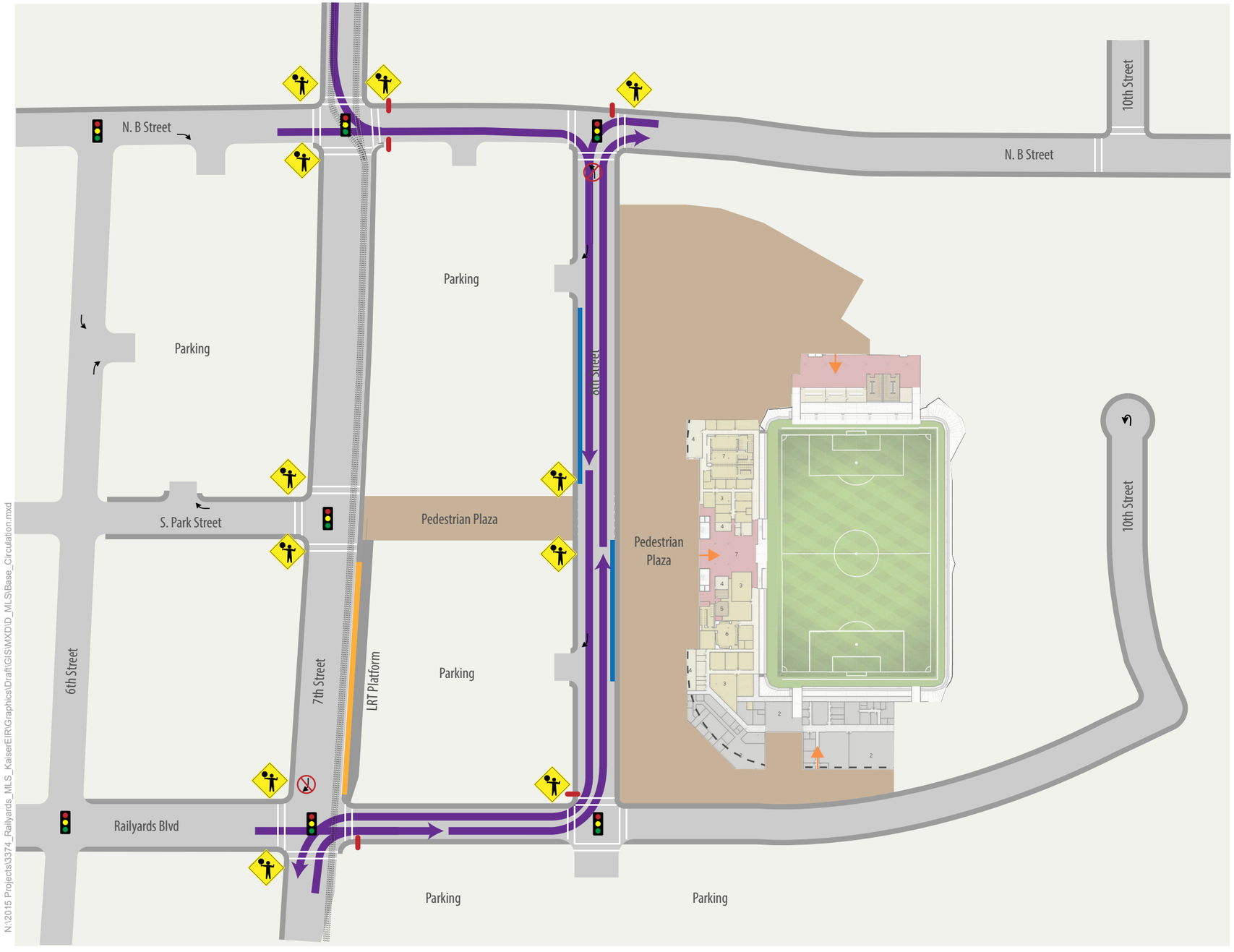
Barriers Prohibiting Pedestrians

Drop-Off Area
(Buses, Taxis, Uber, Paratransit, etc.)

Vehicular Access to Parking

Figure 4.12-48

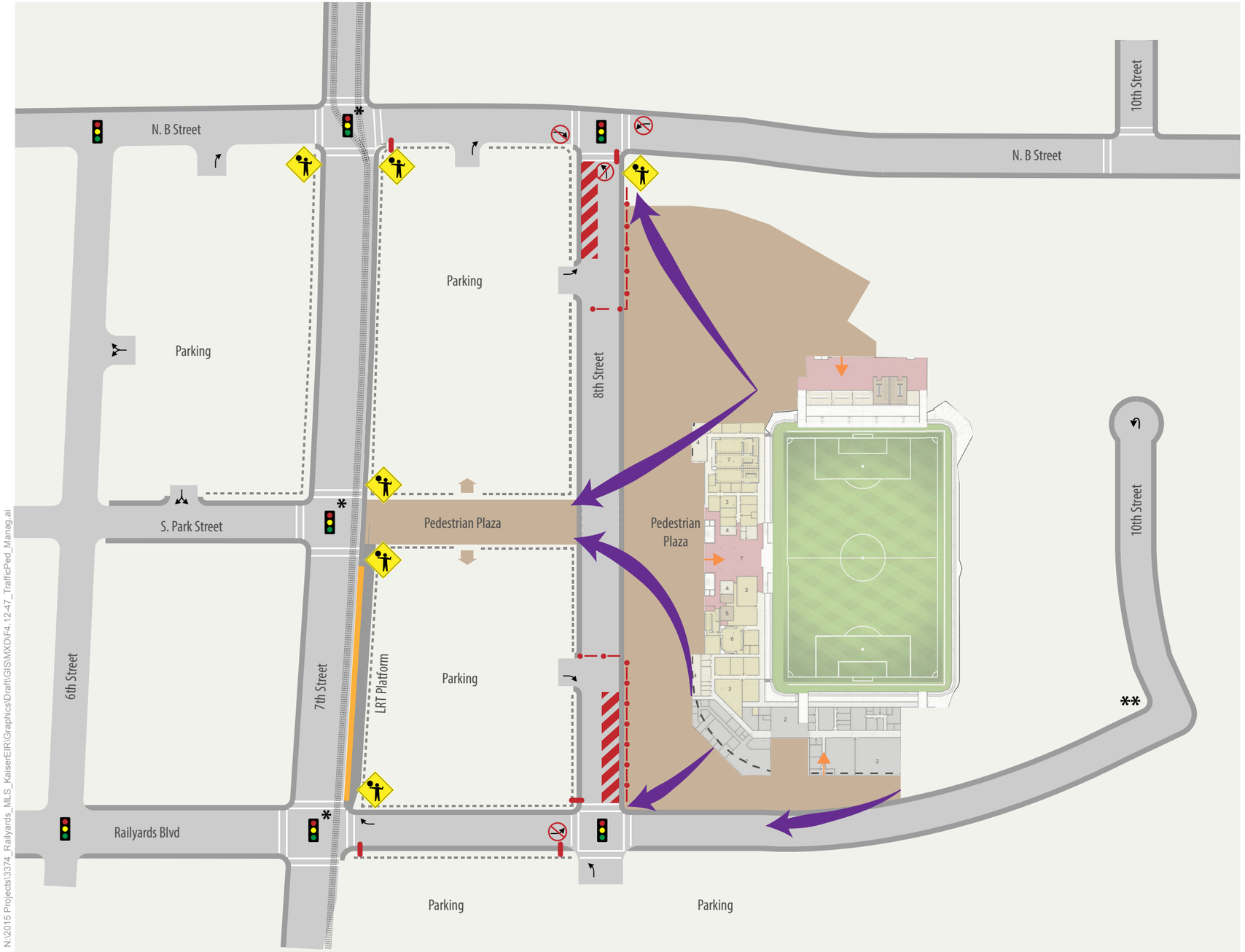
Vehicle Routing to Parking
During Pre-Event Peak Hour -
Baseline Plus MLS Stadium Conditions



- Traffic Signal
- Parking Lot Ingress
- Prohibited Turn Movement
- Traffic Control Officer(s)
- Barriers Prohibiting Pedestrians
- Drop-Off Area (Buses, Taxis, Uber, Paratransit, etc.)
- Vehicular Access to Drop-Off

Figure 4.12-49

Vehicle Routing for Drop-Offs During Pre-Event Peak Hour - Baseline Plus MLS Stadium Conditions



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- Traffic Signal
- Parking Lot Ingress
- Prohibited Turn Movement
- Traffic Control Officer(s) in Quadrants/Areas Shown
- Barriers Prohibiting Pedestrians
- Street Closure
- Primary Post-Event Pedestrian Flow
- Fence Around Parking Lots
- Temporary Barricades to Prohibit Pedestrians

* Operate traffic signals with extended pedestrian walk times on all approaches

** Railyards Blvd/10th Street may be used as staging area for pick-up vehicles until 8th Street reopens to vehicular traffic

Figure 4.12-50

Recommended Traffic and Pedestrian Management During Post-Event Peak Hour - Baseline Plus MLS Stadium Conditions

The following evaluates the extent to which mitigation measures identified in the 2007 RSP EIR for baseline intersection impacts may still be applicable to the proposed RSPU:

Mitigation Measure

6.12-1(a): I-5 SB Ramps/Richards Blvd – mitigation is no longer applicable because the improvements specified by the mitigation have been constructed.

6.12-1(b): I-5 NB Ramps/Richards Blvd – mitigation is no longer applicable because the improvements specified by the mitigation have been constructed.

6.12-1(c): Richards Blvd/Bercut Drive – mitigation is no longer applicable because the improvements specified by the mitigation have been constructed.

6.12-1(d): North 7th Street/Richards Blvd – mitigation is no longer applicable because specified improvements (operate northbound right-turn lane with an overlap arrow) would not function with the built condition, which is a shared through/right lane.

6.12-1(e): North 12th Street/North 16th Street/Richards Blvd. signal optimization – The analysis contained in this chapter did not identify the need for this mitigation.

6.12-1(f): Bannon Street/Bercut Drive – mitigation is no longer necessary under baseline conditions based on projected traffic volumes and operations at this intersection are acceptable with stop-control.

6.12-1(g): 12th Street/N. B Street signal optimization – The analysis contained in this chapter did not identify the need for this mitigation. However, a physical improvement to the intersection was identified.

6.12-1(h): 7th Street/Railyards Boulevard – mitigation called for adding a second eastbound right-turn lane. This mitigation is no longer necessary because achievement of a LOS C conditions is no longer necessary based on changes in the City's General Plan LOS policy.

6.12-1(i): 5th Street/G Street – mitigation (i.e., add second eastbound left-turn lane) is not feasible because 5th Street has been designed and constructed to have one lane in each direction, meaning a second eastbound left-turn lane would not have a second receiving lane.

6.12-1(j): 6th Street/G Street – mitigation (i.e., add second southbound through lane) is no longer feasible because 5th Street has been designed and constructed to have one lane in each direction, meaning right-of-way is not available to construct a second southbound through lane.

6.12-1(k): 6th Street/H Street – mitigation (i.e., restripe northbound approach to consist of one through lane and one shared through/right lane) is not feasible because 6th Street has

been designed and constructed to have one lane in each direction, meaning a second northbound through lane would not have a second receiving lane.

6.12-1(l): 7th Street/H Street signal optimization – The analysis contained in this chapter did not identify the need for this mitigation.

6.12-1(m): Jibboom Street/I Street – signal optimization – The analysis contained in this chapter did not identify the need for this mitigation. With the RSPU, this intersection will no longer exist.

6.12-1(n): 5th Street/I Street signal optimization – The analysis contained in this chapter did not identify the need for this mitigation.

6.12-1(o): 6th Street/I Street – mitigation (i.e., prohibit on-street parking on the north side of I Street east of 6th street from 4 to 6 PM) is no longer applicable because it has already been implemented.

6.12-1(p): 3th Street/J Street – this mitigation would convert the outside lane on the SB I-5 off-ramp from a shared through/right lane to a dedicated right-turn lane. It would also convert the southbound center lane from a shared left/through to a dedicated through only movement. This mitigation would also include signal optimization. The analysis contained in this chapter evaluated the benefits of signal retiming during the Pre-event peak hour to accommodate MLS-related traffic. However, no improvements were achieved. Furthermore, the specified improvements would have little or no beneficial effects on intersection operations.

6.12-1(q): 3th Street/L Street – mitigation called for modifying lane configurations. Since this is not a study intersection, it is not directly applicable. However, it is noted that modifications to the intersection are currently being made, which suggests this mitigation is not applicable.

6.12-1(r): 5th Street/Capitol Mall – mitigation called for optimizing signal timing. Since this is not a study intersection, it is no longer applicable, though signal retiming along Capitol Mall is scheduled to occur as part of the Golden 1 Center project.

In summary, none of the mitigation measures for baseline intersection impacts identified in the 2007 RSP EIR is directly applicable to the RSPU. This occurs as a result of a variety of factors ranging from changes in LOS policies, different physical improvements now built/planned in the RSP Area, and other factors.

Impact Significance After Mitigation (RSPU): The RSPU and Land Use Variant are located in a Tier 1 Priority Investment Area of the City, in which LOS F may be permitted under certain conditions. The RSPU and Land Use Variant each include a variety of transportation improvements intended to accommodate non-auto modes of travel, which allow for an LOS F condition to be permitted. Although certain City intersections that are adjacent to state highway

facilities would operate at LOS F, the RSPU and Land Use Variant would pay the I-5 SCMP, which helps fund state highway improvements as well as transit service expansions. Therefore, with implementation of required mitigation measures, this impact is ***less than significant*** after mitigation.

Impact Significance After Mitigation (KPMC): Through payment of the I-5 SCMP, the KP Medical Center would mitigate impacts to the state highway system. Other mitigation options for the KP Medical Center include roadway system upgrades within the RSP Area that would substantially improve otherwise highly congested travel corridors. Further, mitigation calls for the project to develop and implement a TDM program. Therefore, with implementation of required mitigation measures, this impact is ***less than significant*** after mitigation.

Impact Significance After Mitigation (MLS): The Event TMP describes recommended vehicle routing, traffic management, pedestrian linkages, transit accommodation, and parking necessary to accommodate a sold-out 25,000-person MLS soccer match. As the data in Table 4.12-60 shows, implementation of the Event TMP would improve operations from LOS E or F at several intersections surrounding the stadium to LOS D or better. Other mitigations for the MLS Stadium include roadway extensions, intersection widenings, and enhancements to bicycle and pedestrian facilities (as is described later). Therefore, with implementation of required mitigation measures, this impact is ***less than significant*** after mitigation.

Impact 4.12-2: The proposed projects could worsen conditions on freeway facilities maintained by Caltrans.

Railyards Specific Plan Update

Impact 6.12-3 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in significant impacts to various freeway facilities maintained by Caltrans. The full discussion of this topic is located on pages 6.12-72 through 6.12-74 of the 2007 RSP EIR. Impact 6.12-4 of the 2007 RSP EIR identified additional significant impacts of the initial phase of the 2007 RSP on freeway facilities. However, the analysis of freeway facilities has evolved since that time such that the methodology utilized in Impact 6.12-4 is no longer applicable.

Similar to the 2007 RSP EIR, the proposed RSPU would cause some freeway facilities maintained by Caltrans to have degraded operating conditions. The addition of proposed RSPU trips would cause the following significant impacts to Caltrans freeway facilities:

- I-5 northbound weave from P street to J Street (LOS E to F during AM peak hour, 672 trips added)
- I-5 northbound weave from Richards Boulevard to Garden Hwy (LOS F exacerbated during PM peak hour, 812 trips added)

- I-5 northbound weave from Garden Hwy. on-ramp to West El Camino Avenue (LOS F exacerbated during PM peak hour, 812 trips added)
- I-5 southbound weave from Garden Hwy. to Richards Blvd. (LOS E to F during AM peak hour, 774 trips added)

The degraded operation of these segments is considered a **significant impact**. Although the project would add trips to other study freeway facilities, the resultant operations on those facilities would remain acceptable.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would cause the same impacts as the proposed RSPU during the AM peak hour and slightly more severe impacts during the PM peak hour. However, no new impacts would occur. The following lists the significant freeway facility impacts of the RSPU Land Use Variant:

- I-5 northbound weave from P street to J Street (LOS E to F during AM peak hour, 663 trips added)
- I-5 northbound weave from Richards Boulevard to Garden Highway (LOS F exacerbated during PM peak hour, 931 trips added)
- I-5 northbound weave from Garden Highway on-ramp to West El Camino Avenue (LOS F exacerbated during PM peak hour, 931 trips added)
- I-5 southbound weave from Garden Highway to Richards Boulevard (LOS E to F during AM peak hour, 736 trips added)

The degraded operation of these segments is considered a **significant impact**. Although the Land Use Variant would add trips to other study freeway facilities, the resultant operations would remain acceptable.

KP Medical Center

The KP Medical Center would cause the following significant freeway facility impacts:

- I-5 northbound weave from Richards Boulevard to Garden Highway (LOS F exacerbated during PM peak hour, 542 PM peak hour trips added)
- I-5 northbound weave from Garden Highway on-ramp to West El Camino Avenue (LOS F exacerbated during PM peak hour, 536 PM peak hour added)
- I-5 southbound weave from Garden Highway to Richards Boulevard (LOS E to F during AM peak hour, 526 AM peak hour trips added)

The degraded operation of these segments is considered a **significant impact**. Although the project would add trips to other study freeway facilities, the resultant operations would remain acceptable.

MLS Stadium

The MLS Stadium would worsen operations on a number of freeway facilities from LOS C or better to LOS D during the Pre-event peak hour. However, the resulting operations would be considered acceptable. In addition, when MLS trips are added to RSPU buildout during the Pre-event peak hour, no facilities are expected to degrade to unacceptable levels. Therefore, impacts to the study freeway facilities associated with the MLS Stadium would be considered **less than significant**.

Summary

The proposed RSPU and Land Use Variant would each cause significant impacts at four study freeway facilities. Impacts associated with the Land Use Variant would be more severe during the PM peak hour based on its greater trip generation. The KP Medical Center would cause significant impacts at three study freeway facilities. Although the MLS Stadium would worsen freeway operations during the Pre-event peak hour, operations would remain acceptable. Therefore, the MLS Stadium would not cause any significant freeway impacts.

Mitigation Measures

Mitigation Measure 6.12-3 of the 2007 RSP EIR identified significant impacts on portions of I-5 at Richards Boulevard and J Street (see pages 6.12-72 through 6.12-74 of the 2007 RSP EIR). However, no feasible mitigation was available at that time.

The following mitigation is recommended for impact 4.12-2.

> **Mitigation Measure 4.12-2 (RSPU, KPMC)**
>
> *Implement Mitigation Measure 4.12-1(a)(ii).*

Impact Significance After Mitigation (RSPU, KPMC): Through payment of the I-5 SCMP, the RSPU, Land Use Variant, and KP Medical Center would fully mitigate their impacts to the state highway system. Therefore, this impact is **less than significant** after mitigation.

Impact 4.12-3: The proposed projects could worsen vehicle queuing at off-ramps on I-5.

Railyards Specific Plan Update

Impact 6.12-5 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in vehicle queue spillbacks at the northbound I-5 off-ramp at J Street that extend onto the mainline. The full discussion of this topic is located on pages 6.12-76 and 6.12-77 of the 2007 RSP EIR.

Similar to the 2007 RSP EIR, the proposed RSPU would cause vehicular queues at off-ramps along I-5 to queue back onto the freeway mainline. According to Table 4.12-15, the addition of proposed RSPU trips would cause the following significant queue spillbacks on freeway off-ramps:

- I-5 NB Off-Ramp at J Street (maximum queue of 4,800 feet during the AM peak hour and 2,150 feet during the Pre-event peak hour would exceed the 1,000 feet of available storage).
- I-5 SB Off-Ramp at Richards Boulevard (maximum queue of 2,425 feet during the Pre-event peak hour would exceed the 1,050 feet of available storage).
- I-5 NB Off-Ramp at Richards Boulevard (maximum queue of 1,125 feet during the AM peak hour would exceed the 1,000 feet of available storage).

At the I-5 NB off-ramp at J Street, the RSPU would cause the off-ramp volume to increase from 1,580 vehicles to 1,974 vehicles during the AM peak hour. The corresponding queue increase from 550 to 4,800 feet represents an additional 170 vehicles queued on the off-ramp and mainline. This increased queue is the result of additional off-ramp traffic as well as additional downstream bottlenecks along the J Street corridor, which would cause more frequent spillbacks to this intersection.

These queuing impacts are considered **significant**.

Railyards Specific Plan Update Land Use Variant

The addition of RSPU Land Use Variant trips would cause the following significant queue spillbacks on freeway off-ramps:

- I-5 NB Off-Ramp at J Street (maximum queue of 4,800 feet during the AM peak hour would exceed the 1,000 feet of available storage).
- I-5 NB Off-Ramp at Richards Boulevard (maximum queue of 1,125 feet during the AM peak hour would exceed the 1,000 feet of available storage).

These queuing impacts are considered **significant**.

KP Medical Center

The KP Medical Center would cause the following significant queue spillback on freeway off-ramps:

- I-5 SB off-ramp at Richards Boulevard (maximum queue of 1,525 feet during the AM peak hour would exceed the 1,050 feet of available storage).

This queuing impact is considered **significant**.

It should be noted that this scenario results in a queue spillback onto I-5 whereas RSPU buildout would not. This occurs as a result of a greater percentage of off-ramp traffic turning right onto Jibboom Street under RSPU conditions. This result is due to greater congestion on the east side of the I-5/Richards Boulevard interchange due to additional traffic exiting from the northbound off-ramp under RSPU buildout conditions. The greater percentage of right-turning vehicles allows for more right-turn-on-red movements, which reduces queuing on the off-ramp.

MLS Stadium

The MLS Stadium would cause additional queuing at various off-ramps on I-5 during the Pre-event peak hour. However, queues would not extend back onto the freeway mainline. Therefore, impacts associated with freeway off-ramp queuing during an MLS Stadium event would be considered **less than significant** as a project-specific impact.

However, it is noted that under Baseline Plus RSPU conditions during the Pre-event peak hour, queue spillbacks onto the mainline would occur on the I-5 northbound off-ramp at J Street and on the I-5 SB off-ramp at Richards Boulevard. Traffic associated with the MLS Stadium would contribute to these queues. Therefore, MLS Stadium queuing impacts would be cumulatively **significant**.

Summary

The proposed RSPU and Land Use Variant would cause significant queuing impacts at three and two freeway off-ramps on I-5, respectively. The KP Medical Center would cause significant queuing impacts at one freeway off-ramp. Although the MLS Stadium would cause additional queuing at various off-ramps on I-5 during the Pre-event peak hour queues would not extend back onto the freeway mainline with MLS trips only. However, when MLS trips are added to RSPU buildout, queuing impacts would occur. Therefore, the MLS Stadium queuing impacts would be considered **less than significant** as a project-specific impact, but cumulatively **significant**.

Mitigation Measures

Mitigation Measure 6.12-5 of the 2007 RSP EIR identified significant impacts associated with off-ramp queuing at the northbound J Street off-ramp on I-5. However, no feasible mitigation was available at that time.

The following mitigation is recommended for impact 4.12-3.

Mitigation Measure 4.12-3 (RSPU, KPMC, MLS)

Implement Mitigation Measure 4.12-1(a)(ii).

Impact Significance After Mitigation (RSPU, KPMC, MLS): Through payment of the I-5 SCMP, the RSPU, KP Medical Center, and MLS Stadium would mitigate impacts to the state highway system, particularly queuing impacts at the I-5/Richards Boulevard interchange off-ramps. However, since the timing of this interchange upgrade is unknown, these queuing impacts could occur for a number of years prior to the interchange reconstruction. Therefore, impacts

associated with queuing at the I-5/Richards Boulevard interchange off-ramp are considered **significant and unavoidable** in the short-term, and **less than significant** after interchange reconstruction.

None of the identified improvements within the I-5 SCMP would directly reduce queuing on the I-5 NB off-ramp at J Street. Since this impact occurs during AM and Pre-event peak hours, each of the proposed projects contributes to the creation of the impact. This impact is considered **significant and unavoidable**.

Impact 4.12-4: The proposed projects could adversely affect public transit operations or fail to adequately provide access to transit.

Railyards Specific Plan Update

Impact 6.12-6 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in a demand for public transit that exceeds the available supply. The full discussion of this topic is located on page 6.12-77 of the 2007 RSP EIR. That document did not evaluate the project's effects on public transit operations or adequacy of providing access to transit.

The proposed RSPU's roadway network would achieve LOS E or better operations under Baseline plus RSPU conditions for the AM and PM peak hours along the North 7th Street corridor between Richards Boulevard and downtown. This corridor would be used by light rail trains and buses. Since LOS E or better operations is typical in downtown settings and would not cause undue delay to transit vehicles, the RSPU would not adversely affect public transit operations by causing increases in train or bus delays.

The RSPU would provide a series of crosswalks, sidewalks, multi-use paths to provide access to the planned light rail station at Railyards Boulevard and 7th Street. Accordingly, the RSPU would not fail to adequately provide access to transit. Similarly, it would not affected adversely public transit operations. Therefore, impacts would be considered **less than significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant's roadway network would be very similar to that of the proposed RSPU, and would achieve AM and PM peak hour LOS E or better operations under Baseline plus Land Use Variant conditions along the North 7th Street corridor between Richards Boulevard and downtown. This corridor would be used by light rail trains and buses. Since LOS E or better operations is typical in downtown settings, the RSPU Land Use Variant would not adversely affect public transit operations by causing increases in train or bus delays.

The RSPU Land Use Variant would provide a series of crosswalks, sidewalks, multi-use paths to provide access to the planned light rail station at Railyards Boulevard and 7th Street. Accordingly, the RSPU Land Use Variant's would not fail to adequately provide access to transit. Similarly, it

would not affected adversely public transit operations. Therefore, impacts would be considered **less than significant**.

KP Medical Center

The KP Medical Center would cause the Railyards Boulevard/7th Street and 7th Street/North B Street intersections to degrade to LOS E or F conditions during the AM and/or PM peak hours. Vehicular queuing associated with these operating conditions would cause other intersections to be adversely affected. The result could be added delays in existing/planned bus service along segments of 7th Street and Railyards Boulevard. However, Mitigation Measures 4.12-1(c) *i - v* would result in improved traffic operations with all intersections operating at LOS E or better. Since LOS E or better operations is typical in downtown settings, the KP Medical Center would not adversely affect public transit operations by causing increases in train or bus delays.

The KP Medical Center would be required to implement a TDM program, which would include several measures to reduce trip generation, such measures may include but not limited to providing a shuttle to transport employees and members to the Township 9/Richards light rail station, etc. Additionally, there is a continuous system of sidewalks and crosswalks along Railyards Boulevard, and 7th Street that could be used to walk to the station. Therefore, impacts associated with providing access to transit are considered **less than significant**.

MLS Stadium

The MLS Stadium would cause the Railyards Boulevard/7th Street and Richards Boulevard/North 7th Street intersections to degrade to LOS E or F conditions during the Pre-event peak hour. Vehicular queuing associated with these operating conditions would cause other intersections to be adversely affected. The result could be delays in existing/planned bus service along segments of 7th Street and Railyards Boulevard. However, Mitigation Measures 4.12-1(d) *i - viii* would result in improved traffic operations with all intersections in the MLS Stadium vicinity operating at LOS E or better. Since LOS E or better operations is typical in downtown settings, including downtown Sacramento, the MLS Stadium would not adversely affect public transit operations by causing any substantial increases in train or bus delays.

The MLS Stadium would include a large pedestrian plaza that would extend between 7th and 8th Streets to provide access to the Stadium plaza from the light rail platform. In addition, pick-up and drop-off areas would be established on both sides of 8th Street adjacent to the Stadium plaza. Additional pick-up/drop-off opportunities, and staging of transit vehicles would be possible along Railyards Boulevard and 10th Street. Therefore, impacts associated with providing access to transit are considered **less than significant**.

Summary

The proposed RSPU, KP Medical Center, and MLS Stadium would not cause any substantial adverse impacts to transit operations or access to transit. The City of Sacramento Community Development Department would place Conditions of Approval on the various project components

to ensure that they work with the City and Regional Transit to help fund and implement the necessary transit service expansions in a reasonable period of time. This would include constructing and operating a new light rail station at 7th Street/Railyards Boulevard. It is further noted that payment of the I-5 SCMP by each of the proposed project's (as part of previous mitigation measures) includes fair-share funding toward the extension of the green rail northerly across the American River into Natomas. Therefore, impacts associated with providing access to transit are considered **less than significant**.

Mitigation Measures

Mitigation Measure 6.12-6 of the 2007 RSP EIR called for the 2007 RSP to pay a fair share toward transit construction and operating expenses, and dedicate right-of-way within the RSP Area to enable RT to ultimately construct the light rail extension to Sacramento International Airport.

Due to changes in how transit impacts are judged (and given Regional Transit's acknowledgement that they would work with the various RSPU components to ensure that transit service is provided when needed), impacts on transit ridership (i.e., enough space on trains to accommodate passengers) are not considered significant effects. However, effects on transit operations and access to transit (i.e., platform size, ability to walk to station, etc.) are considered effects that could be potentially significant.

Mitigation Measure 4.12-4 (RSPU, KPMC, MLS)

None required.

Impact 4.12-5: The proposed projects could adversely affect existing or planned bicycle facilities or fail to provide for access by bicycle.

Railyards Specific Plan Update

Impact 6.12-7 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in a significant impact on bicycle facilities because it was not consistent with the City's Bikeway Master Plan and design standards.

The RSPU would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. However, the proposed location and facility types are not consistent with the planned bicycle network within the RSP Area as shown in the City's Bikeway Master Plan. If the RSPU is approved, then the preferred network shown in the City's Bikeway Master Plan should be modified accordingly. However, this lack of consistency does not constitute a significant effect because the RSPU bicycle network provides for a convenient and connected system of bike facilities. Accordingly, the RSPU would not adversely affect existing bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. However, the proposed location and facility types are not consistent with the planned bicycle network within the RSP as shown in the City's Bikeway Master Plan. If the RSPU Land Use Variant is approved, then the preferred network shown in the City's Bikeway Master Plan should be modified accordingly. However, this lack of consistency does not constitute a significant effect because the RSPU bicycle network provides for a convenient and connected system of bike facilities. Accordingly, the RSPU Land Use Variant would not adversely affect existing bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

KP Medical Center

The KP Medical Center would provide Class II bike facilities along its frontage. Bicyclists desiring to access the KP Medical Center could access the facility as follows. From the west, they could use the American River Bike Trail and exit at the Railyards Boulevard/Jibboom Street intersection. From the south, they could use segments of 5th, 6th, or 7th Streets, which have on-street bicycle facilities. From the north, they could use Bercut Drive, which has Class II bicycle lanes. From the east, they could use portions of North B Street, 7th Street, and Railyards Boulevard, which have Class II or III facilities. Accordingly, the KP Medical Center would not adversely affect existing bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

MLS Stadium

According to Table 4.12-26, two percent of attendees to the MLS Stadium for a weekday evening soccer match would be expected to ride a bicycle to the facility. This equates to 500 bicyclists. During weekend games, an even greater bicycle mode split could be expected given that matches would end during daylight hours.

Bicyclists would be able to access the project from a variety of on-street and off-street facilities. From the west, they could use the American River Bike Trail and exit at the Railyards Boulevard/Jibboom Street intersection, riding on a Class II bike lane on Railyards Boulevard to the MLS Stadium. From the south, they could use segments of 5th, 6th, or 7th Streets, which have on-street bicycle facilities. From the east, they could use North B Street, which has Class II bicycle lanes. Bicyclists from the north who do not wish to ride with traffic along 7th Street could instead use the lesser traveled parallel segment of North 10th Street.

Parking within the MLS Stadium plaza area would include short-term racks, long-term parking, and bike valet service. The current design drawings allow for on-site parking for up to 500 bicycles. The majority of bicycle parking would be located in the southeast or northwest corners of the stadium. The southeast corner was chosen because it can be easily accessed from the Class I path located on the south side of Railyards Boulevard east of 7th Street. The northwest corner

was selected to capture bicyclists as they enter from North B Street to discourage further bicycle travel into the plaza area. Overflow bike parking in adjacent, vacant lots is also being studied. Since the MLS Stadium would have adequate on-site parking for bicycles and adjacent streets would provide for a variety of on-street and off-street bike routes, impacts to bicycle facilities and access via bicycle would be considered **less than significant**.

Summary

The proposed RSPU, KP Medical Center, and MLS Stadium would not cause any adverse impacts to existing bicycle facilities and would not fail to provide access by bicycle. The RSPU would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. This impact is considered **less than significant**.

Mitigation Measures

Mitigation Measure 6.12-7 of the 2007 RSP EIR called for the 2007 RSP to ensure that bicycle facilities connect to the existing/planned City network and that the on-site bicycle facilities meet the intent of the City's Bikeway Master Plan and design standards.

Mitigation Measure 4.12-5 (RSPU, KPMC, MLS)

None required.

Impact 4.12-6: The proposed projects could adversely affect existing or planned pedestrian facilities or fail to provide for access for pedestrians.

Railyards Specific Plan Update

Impact 6.12-8 of the 2007 RSP EIR found that the initial phase of the 2007 RSP could result in unsafe conditions for pedestrians due to the lack of detail with regard to provision of pedestrian facilities.

The RSPU would provide sidewalks on both sides of nearly all public streets. Other than locations that have already been constructed (such as 5th and 6th Street bridges) and locations on the far west side of the RSP Area, all new roadways would be designed with 16-foot sidewalks consistent with the City's standard for downtown Streets. In addition, 7th Street would be widened from south of Railyards Boulevard to North B Street to include 16-foot sidewalks on both sides of the street. Crosswalks would be provided on all legs of nearly all intersections within the RSP Area. To minimize conflicts between bicyclists and pedestrians on sidewalks, Class I, II, III, and IV bike facilities are planned on the majority of RSP Area roadways. Accordingly, the RSPU would not adversely affect existing pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered ***less than significant***.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would provide sidewalks on both sides of nearly all public streets. Crosswalks would be provided on all legs of nearly all intersections within the RSP Area. To minimize conflicts between bicyclists and pedestrians on sidewalks, Class I, II, III, and IV bike facilities are planned on the majority of RSP Area roadways. Accordingly, the RSPU Land Use Variant would not adversely affect existing pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered ***less than significant***.

KP Medical Center

The KP Medical Center would provide sidewalks along its frontage and multiple pedestrian linkages into the campus from public streets. Sidewalks are present along various roadways within the RSP Area for members and employees desiring to walk to the facility. Accordingly, the KP Medical Center would not adversely affect existing pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered ***less than significant***.

MLS Stadium

According to Table 4.12-26, 1.5 percent of attendees to the MLS Stadium for a weekday evening soccer match would be expected to walk to the facility as their primary means of travel. In addition, nearly all attendees would be expected to walk from parking locations in and around the RSP Area. Since parking for MLS matches would be situated within the RSP Area, to the north in the River District, and to the south in downtown, many of the roadways within the RSP Area and connecting to it would experience substantial levels of pedestrian activity in the peak hours prior to and after MLS matches. In many instances, sidewalk and crosswalk widths would be inadequate to accommodate these pedestrian flows. Inadequate pedestrian facilities could result in pedestrian backups or could result in pedestrians walking in streets or other locations where pedestrian travel is not safe or proper. Therefore, the MLS Stadium could potentially adversely affect existing pedestrian facilities and fail to provide adequate access for pedestrians. This is considered a ***significant impact***.

Summary

The proposed RSPU and KP Medical Center would not cause any adverse impacts to existing pedestrian facilities and would not fail to provide access for pedestrians. Soccer matches at the MLS Stadium would result in many of the roadways within the RSP Area experiencing substantial levels of pedestrian activity prior to and after MLS matches. In many instances, sidewalk and crosswalk widths would be inadequate to accommodate these pedestrian flows, without mitigation place. Therefore, the MLS stadium could adversely affect existing pedestrian facilities and fail to provide adequate access to the stadium for pedestrians. This is considered a **significant impact**.

Mitigation Measures

Mitigation Measure 6.12-8 of the 2007 RSP EIR called for the 2007 RSP to construct sidewalks on all frontage improvements.

The following mitigation is recommended for Impact 4.12-6.

Mitigation Measure 4.12-6 (MLS)

Implement Mitigation Measure 4.12-1(a)(i).

Impact Significance After Mitigation (MLS Stadium): The implementation of the Event Transportation Management Plan to the satisfaction of the City Traffic Engineer, would result in use of a variety of pedestrian management tools, that could include providing additional parking spaces within the RSPU to reduce pedestrian flows from the area north of North B Street, wider sidewalks, shuttles, special-event light rail trains, reduced parking supplies, and extended pedestrian walk phases would be improved pedestrian LOS at these facilities. Refer to Appendix J.2 for a detailed discussion of these and other potential improvements. Given the current uncertainty of specific MLS Stadium operations, conditions would be monitored once it is operational and the TMP would be revised to include other measures to improve these conditions. The Event TMP including the performance measures pertaining to pedestrian flow shall be approved by City Traffic Engineer prior to issuance of the Certificate of Occupancy for the proposed Stadium. Accordingly, pedestrian facility impacts on streets between the proposed Stadium and identified parking resources, including North 7th Street from North B Street to Railyards Boulevard would be mitigated to **less than significant.**

Impact 4.12-7: The proposed projects could cause construction-related traffic impacts.

Railyards Specific Plan Update

The 2007 RSP EIR did not include a discussion of construction-related traffic impacts.

Construction of the RSPU would involve large amounts of grading, earthwork, and construction activities over an extended period of time. Large numbers of trucks and employee trips would enter and exit the RSP Area during construction. These activities could cause lane closures, damage to roadways, and increased conflicts with bicyclists, pedestrians, and transit. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, RSPU impacts during construction would be ***significant.***

Railyards Specific Plan Update Land Use Variant

Construction of the RSPU Land Use Variant would involve large amounts of grading, earthwork, and construction activities over an extended period of time. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, Land Use Variant impacts during construction would be ***significant.***

KP Medical Center

Construction of the KP Medical Center would involve large numbers of trucks and employee trips that would enter and exit the RSP Area during construction. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, KP Medical Center impacts during construction would be ***significant.***

MLS Stadium

Construction of the MLS Stadium would involve large numbers of trucks and employee trips that would enter and exit the RSP Area during construction. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, MLS Stadium impacts during construction would be ***significant.***

Summary

The proposed RSPU, KP Medical Center, and MLS Stadium would each cause potentially significant construction impacts based on the duration of construction, the potential for lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians/transit during construction. This impact is considered **significant.**

Mitigation Measures

The 2007 RSP EIR did not identify any construction-related impacts or mitigation measures.

The following mitigation is recommended for Impact 4.12-7.

Mitigation Measure 4.12-7 (RSPU, KPMC, MLS)

Before issuance of grading permits for any phase of the project site, the project applicants shall prepare a detailed Construction Traffic Management Plan that will be subject to review and approval by the City Department of Public Works, in consultation with Caltrans, affected transit providers, and local emergency service providers including the City of Sacramento Fire and Police departments. The plan shall ensure that acceptable operating conditions on local roadways and freeway facilities are maintained. At a minimum, the plan shall include:

- *The number of truck trips, time, and day of street closures*
- *Time of day of arrival and departure of trucks*
- *Limitations on the size and type of trucks, provision of a staging area with a limitation on the number of trucks that can be waiting*
- *Provision of a truck circulation pattern*
- *Identification of detour routes and signing plan for street closures*
- *Provision of driveway access plan so that safe vehicular, pedestrian, and bicycle movements are maintained (e.g., steel plates, minimum distances of open trenches, and private vehicle pick up and drop off areas)*
- *Maintain safe and efficient access routes for emergency vehicles and transit*
- *Manual traffic control when necessary*
- *Proper advance warning and posted signage concerning street closures*
- *Provisions for pedestrian and bicycle safety*

A copy of each construction traffic management plan shall be submitted to local emergency response agencies and transit providers, and these agencies shall be notified at least 30 days before the commencement of construction that would partially or fully obstruct roadways.

Impact Significance After Mitigation (RSPU, KPMC, MLS): The implementation of the above mitigation measure would reduce this impact to **less than significant.**

Cumulative Impacts

Impact 4.12-8: The proposed projects could contribute to cumulatively unacceptable intersection operations in the City of Sacramento.

Railyards Specific Plan Update

Table 4.12-46 displays the average delay and LOS at each study intersection under Cumulative Plus RSPU Conditions for each peak hour. As shown, 10 of the 62 study intersections (16 percent) would operate at LOS E or F during the AM peak hour. During the PM peak hour, 22 of the 62 study intersections (35 percent) would operate at LOS E or F. During the Pre-event peak hour, 6 of the 62 study intersections (10 percent) would operate at LOS E or F. In contrast, the Cumulative No Project conditions in Table 4.12-38 showed 14 percent of AM peak hour

intersections, 27 percent of PM peak hour intersections, and 0 percent of Pre-event peak hour intersections operating at LOS E or F.

Expected intersection operations during all three study periods would feature lengthy undissipated vehicle queues, and frequent vehicle spillbacks to upstream intersections. Because these undissipated queues have the potential to adversely affect intersection operations and safety, this impact is considered **potentially significant**.

Railyards Specific Plan Update Land Use Variant

Under the RSPU Land Use Variant, the potential for adverse intersection impacts would be similar, if not greater, than as discussed above for the proposed RSPU. This is because the RSPU Land Use Variant would generate an equivalent amount of AM peak hour traffic, but 14 percent more PM peak hour traffic when compared to the RSPU. Since the Land Use Variant would not include an MLS Stadium, impacts during the Pre-event peak hour would not occur. Table 4.12-52 indicates that the Land Use Variant would cause several intersections to experience degraded operations as compared to conditions with the RSPU. Since the RSPU Land Use Variant would likely require a greater level of on-site infrastructure and does not propose any overall system improvements beyond the RSP Area, impacts to City intersections are considered **potentially significant**.

KP Medical Center

Implementation of the KP Medical Center under cumulative conditions would contribute to lengthy, undissipated vehicle queues that have the potential to adversely affect intersection operations, safety, and emergency vehicle response time. This impact is considered **potentially significant**.

MLS Stadium

Implementation of the MLS Stadium under cumulative conditions would contribute to lengthy, undissipated vehicle queues that have the potential to adversely affect intersection operations, emergency vehicle response time, and increase conflicts with large volumes of pedestrians prior to MLS soccer matches. This impact is considered **potentially significant**.

Summary

Although the roadway system within the RSP Area has been designed to function adequately under Baseline plus RSPU conditions, the combined effects of two new bridges and reducing a travel lane on North 12th Street between Richards Boulevard and downtown would be a substantial increase in traffic on RSP Area roadways. The effect of this added traffic is greater congestion, queuing, and delays. The KP Medical Center and MLS Stadium contribute to those conditions.

When compared to the RSPU, impacts of the RSPU Land Use Variant would be similar during the AM peak hour, greater during the PM peak hour, and considerably lesser during periods when MLS soccer matches would otherwise be played within the RSPU.

Mitigation Measures

The mitigation measures listed below consider whether the assumed infrastructure is already in place under cumulative conditions.

Mitigation Measure 4.12-8 (a) (RSPU)

i. Implement *Mitigation Measure 4.12-1(a)(i).*

ii. *Implement Mitigation Measure 4.12-1(a)(ii).*

The Event TMP, which is included as Appendix J.2, would manage vehicular and pedestrian circulation, and parking near the MLS Stadium during soccer events. The Event TMP would describe the mechanisms for accommodating non-vehicular travel (i.e., bicycling, walking, and public transit), which would be implemented by the MLS Stadium operator with support from the City of Sacramento.

Payments into the I-5 SCMP would represent fair share contributions to improve I-5 including partial funding for reconstruction of the I-5/Richards Boulevard interchange. This fee also helps fund other improvements such as the extension of the LRT Green Line to Natomas.

Mitigation Measure 4.12-8 (b) (KPMC)

i. *Implement Mitigation Measure 4.12-1(a)(ii).*

ii. *Implement Mitigation Measure 4.12-2(b)(ii).*

Mitigation Measure 4.12-8 (c) (MLS)

i. *Implement Mitigation Measure 4.12-1(a)(i).*

ii. *Implement Mitigation Measure 4.12-1(c)(iii).*

Table 4.12-62 displays the effectiveness of the Event TMP (i.e., measure 4.12-8(d), part i) under Cumulative Plus RSPU conditions during the Pre-event peak hour assuming an MLS match is being played. As shown, the Event TMP actions would actually cause an overall increase in vehicular delays. However, this is necessary to accommodate the large pedestrian flows associated with MLS events.

TABLE 4.12-62.
PRE-EVENT PEAK HOUR INTERSECTION OPERATIONS – CUMULATIVE PLUS RSPU CONDITIONS (ASSUMING MLS MATCH) WITH MITIGATION

	Intersection	Control Type	Plus RSPU (Assuming MLS Match)		Plus RSPU (Assuming MLS Match) with Mitigation	
			Avg Delay	LOS	Avg Delay	LOS
13	N B St / N 7th St	Signal	38.7	D	51.9	D
14	N B St / N 12th St	Signal	30.6	C	52.9	D
40	N B St / N 8th St	Signal	14.1	B	24.7	C
51	Railyards Blvd / 5th St	Signal	25.2	C	28.6	C
53	Railyards Blvd / 6th St	Signal	24.4	C	73.0	E
54	Railyards Blvd / 7th St	Signal	54.0	D	32.9	C
55	Railyards Blvd / 8th St	Signal	23.7	C	31.6	C
56	Railyards Blvd / 10th St	Signal	32.0	C	51.9	D

1. For all intersections, average intersection delay is reported in seconds per vehicle for all approaches
Refer to previous pages for description of mitigation measures
Shaded cells represent LOS E or F operations.

SOURCE: Fehr & Peers, 2016.

Impact Significance After Mitigation (RSPU): The RSPU and Land Use Variant are located in a Tier 1 Priority Investment Area of the City, in which LOS F may be permitted under certain conditions. The RSPU and Land Use Variant each include a variety of transportation improvements intended to accommodate non-auto modes of travel, which allow for an LOS F condition to be permitted. Although certain City intersections that are adjacent to state highway facilities would operate at LOS F, the RSPU and Land Use Variant would pay the I-5 SCMP, which helps fund state highway improvements as well as transit service expansions. Therefore, with implementation of required mitigation measures, this impact is **less than significant** after mitigation.

Impact Significance After Mitigation (KPMC): Through payment of the I-5 SCMP, the KP Medical Center would mitigate impacts to the state highway system. Further, mitigation calls for the project to develop and implement a TDM program. Therefore, with implementation of required mitigation measures, this impact is **less than significant** after mitigation.

Impact Significance After Mitigation (MLS): The Event TMP describes recommended vehicle routing, traffic management, pedestrian linkages, transit accommodation, and parking necessary to accommodate a sold-out 25,000-person MLS soccer match. This impact is **less than significant** after mitigation.

Impact 4.12-9: The proposed projects could worsen cumulative conditions on freeway facilities maintained by Caltrans.

Railyards Specific Plan Update

When compared to the Cumulative No Project freeway analysis results in Table 4.12-39, the proposed RSPU would cause the following cumulatively significant impacts to Caltrans freeway facilities:

- I-5 northbound weave from I Street to Richards Boulevard (LOS F exacerbated during AM and PM peak hours)
- I-5 northbound on-ramp merge from Bercut Drive (LOS D to F during PM peak hour)
- I-5 northbound weave from Richards Boulevard to Garden Highway (LOS F exacerbated during PM peak hour)
- I-5 northbound weave from Garden Hwy. on-ramp to West El Camino Avenue (LOS F exacerbated during PM peak hour)
- SR 160 westbound on-ramp merge from Del Paso Boulevard (LOS D to F during AM peak hour)

The degraded operation of these segments is considered a cumulatively **significant impact**. Although the project would add trips to other study freeway facilities, the resultant operations on those facilities would remain acceptable

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would cause the same impacts as the proposed RSPU during the AM peak hour and slightly more severe impacts during the PM peak hour. The degraded operation of these segments is considered a cumulatively **significant impact**. Although the Land Use Variant would add trips to other study freeway facilities, the resultant operations would remain acceptable.

KP Medical Center

Implementation of the KP Medical Center under cumulative conditions would contribute to the aforementioned freeway impacts. This impact is considered **potentially significant**.

MLS Stadium

Implementation of the MLS Stadium under cumulative conditions would worsen two freeway study segments from LOS D to E during the Pre-event peak hour. However, the resulting operations would be considered acceptable. Therefore, impacts to the study freeway facilities associated with the MLS Stadium would be considered **less than significant**.

Summary

The proposed RSPU and Land Use Variant would each cause significant impacts at five study freeway facilities. Impacts associated with the Land Use Variant would be more severe during the PM peak hour based on its greater trip generation. The KP Medical Center would contribute to those impacts as well. These impacts are considered **significant.**

Although the MLS Stadium would worsen freeway operations during the Pre-event peak hour, operations would remain acceptable. Therefore, the MLS Stadium would not cause any significant freeway impacts. This impact is considered less than **significant.**

Mitigation Measures

The following mitigation is recommended for Impact 4.12-9.

Mitigation Measure 4.12-9 (RSPU, KPMC)

i. Implement Mitigation Measure 4.12-1(a)(ii).

Impact Significance After Mitigation (RSPU, KPMC): Through payment of the I-5 SCMP, the RSPU and KPMC would fully mitigate their impacts to the state highway system. Therefore, this impact is **less than significant** after mitigation.

Impact 4.12-10: The proposed projects could worsen vehicle queuing at off-ramps on I-5 under cumulative conditions.

Railyards Specific Plan Update

Similar to the 2007 RSP EIR, the proposed RSPU would cause vehicular queues at off-ramps along I-5 to queue back onto the freeway mainline. According to Table 4.12-48, the addition of proposed RSPU trips would cause the following significant queue spillbacks on freeway off-ramps:

- I-5 NB Off-Ramp at J Street (maximum queue of 2,900 feet during the AM peak hour and 1,100 feet during the Pre-event peak hour would exceed the 1,000 feet of available storage).
- I-5 SB Off-Ramp at Richards Boulevard (maximum queue of 2,600 feet during the AM peak hour would exceed the 1,050 feet of available storage).
- I-5 NB Off-Ramp at Richards Boulevard (maximum queue of 1,150 feet during the AM peak hour would exceed the 1,000 feet of available storage).

These queuing impacts are considered **significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant trips would cause comparable queuing impacts to the RSPU during the AM peak hour given its similar AM peak hour trip generation. These queuing impacts are considered **significant**.

KP Medical Center

Implementation of the KP Medical Center under cumulative conditions would contribute to the aforementioned AM peak hour queuing impacts. This impact is considered **significant**.

MLS Stadium

The MLS Stadium would cause additional queuing at the I-5 northbound off-ramp at J Street during the Pre-event peak hour that would exceed the available storage. This impact is considered **significant**.

Summary

The proposed RSPU and Land Use Variant would cause cumulatively significant queuing impacts at three freeway off-ramps on I-5. The KP Medical Center would also contribute to those queuing impacts. The MLS Stadium would cause additional queuing at the I-5 northbound off-ramp at J Street during the Pre-event peak hour that would exceed the available storage. These impacts are considered cumulatively **significant**.

Mitigation Measures

The following mitigation is recommended for impact 4.12-10.

> **Mitigation Measure 4.12-10 (RSPU, KPMC, MLS)**
>
> *Implement Mitigation Measure 4.12-1(a)(ii).*

Impact Significance After Mitigation (RSPU, KPMC, MLS): Through payment of the I-5 SCMP, the RSPU, Land Use Variant, KP Medical Center, and MLS Stadium would mitigate impacts to the state highway system, particularly queuing impacts at the I-5/Richards Boulevard interchange off-ramps. Therefore, impacts associated with queuing at the I-5/Richards Boulevard interchange off-ramp are considered **less than significant** after interchange reconstruction.

None of the identified improvements within the I-5 SCMP would directly reduce queuing on the I-5 NB off-ramp at J Street. Since this impact occurs during AM and Pre-event peak hours, each of the proposed projects contributes to the creation of the impact. This impact is considered **significant and unavoidable**.

Impact 4.12-11: The proposed projects could adversely affect public transit operations or fail to adequately provide access to transit under cumulative conditions.

Railyards Specific Plan Update

Under cumulative conditions, a number of intersections within the RSP Area would operate at LOS E or F during the AM and PM peak hours. This could contribute to delays to transit vehicles. However, current occurs on certain key corridors (e.g., I Street) in downtown and transit providers have adjusted their schedules accordingly. The RSPU would provide a series of crosswalks, sidewalks, multi-use paths to provide access to the planned light rail station at Railyards Boulevard and 7th Street. Accordingly, the RSPU would not fail to adequately provide access to transit. Similarly, it would not adversely affect public transit operations. Therefore, impacts would be considered **less than significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant's roadway network would be very similar to that of the proposed RSPU. The RSPU Land Use Variant would provide a series of crosswalks, sidewalks, multi-use paths to provide access to the planned light rail station at Railyards Boulevard and 7th Street. Accordingly, the RSPU Land Use Variant would not fail to adequately provide access to transit. Similarly, it would not affected adversely public transit operations. Therefore, impacts would be considered **less than significant**.

KP Medical Center

The KP Medical Center would be required to implement a TDM program, which could potentially include providing a shuttle to transport employees and members to the Township 9/Richards light rail station. Additionally, there is a continuous system of sidewalks and crosswalks along Railyards Boulevard, and 7th Street that could be used to walk to the station. Therefore, impacts associated with providing access to transit are considered **less than significant**.

MLS Stadium

The MLS Stadium would include a large pedestrian plaza that would extend between 7th and 8th Streets to provide access to the Stadium plaza from the light rail platform. In addition, pick-up and drop-off areas would be established on both sides of 8th Street adjacent to the Stadium plaza. Additional pick-up/drop-off opportunities, and staging of transit vehicles would be possible along Railyards Boulevard and 10th Street. Therefore, impacts associated with providing access to transit are considered **less than significant**.

Summary

The proposed RSPU, Land Use Variant, KP Medical Center, and MLS Stadium would not cause any adverse impacts to transit operations or access to transit. The City of Sacramento Community Development Department would place Conditions of Approval on the various project components to ensure that they work with the City and Regional Transit to help fund and implement the

necessary transit service expansions in a reasonable period of time. This would include constructing and operating a new light rail station at 7th Street/Railyards Boulevard during the first year that soccer matches are played at the MLS Stadium, and also contributing toward a second track that operates on the west side of 7th Street. It is further noted that payment of the I-5 SCMP by each of the proposed project's (as part of previous mitigation measures) includes fair-share funding toward the extension of the green rail northerly across the American River into Natomas. This impact is considered **less than significant**.

Mitigation Measures

None required.

Impact 4.12-12: The proposed projects could adversely affect existing or planned bicycle facilities or fail to provide for access by bicycle under cumulative conditions.

Railyards Specific Plan Update

The RSPU would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. The RSPU would include bicycle connectivity provisions to connect with the planned cycle track (Class IV bikeway) to be located along 12th Street. The RSPU would not adversely affect any existing/planned bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. The RSPU Land Use Variant would not adversely affect existing bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

KP Medical Center

The KP Medical Center would provide Class II bike facilities along its frontage. Bicyclists desiring to access the KP Medical Center could access the facility from a variety of travel directions. The KP Medical Center would not adversely affect existing/planned bicycle facilities or fail to provide for access by bicycle. Therefore, impacts would be considered **less than significant**.

MLS Stadium

Bicyclists would be able to access the project from a variety of on-street and off-street facilities. This includes the planned Class IV bikeway (cycle track), which would extend along 12th Street. A bike path connection between the Class I path along Railyards Boulevard and the Class IV

bikeway would be provided. Under cumulative conditions, bicycling would be prohibited along 7th Street under the UPRR. However, the parallel segment of 6th Street would be upgraded to consist of buffered Class II bike lanes from G Street to Stevens Street.

Bicycle parking within the MLS Stadium plaza area would include short-term racks, long-term parking, and bike valet service. The current design drawings allow for on-site parking for up to 500 bicycles. The majority of bicycle parking would be located in the southeast or northwest corners of the stadium. The southeast corner was chosen because it can be easily accessed from the Class I path located on the south side of Railyards Boulevard east of 7th Street. The northwest corner was selected to capture bicyclists as they enter from North B Street to discourage further bicycle travel into the plaza area. Overflow bike parking in adjacent, vacant lots is also being studied. Since the MLS Stadium would have adequate on-site parking for bicycles and adjacent streets would provide for a variety of on-street and off-street bike routes, impacts to bicycle facilities and access via bicycle would be considered **less than significant**.

Summary

The proposed RSPU, RSPU Land Use Variant, KP Medical Center, and MLS Stadium would not cause any adverse impacts to existing/planned bicycle facilities and would not fail to provide access by bicycle. The RSPU would provide a series of Class I, II, III, and IV facilities throughout the RSP Area that would connect with existing/planned bicycle facilities to the west, east, north, and south. This impact is considered **less than significant**.

Mitigation Measures

None required.

Impact 4.12-13: The proposed projects could adversely affect existing or planned pedestrian facilities or fail to provide for access for pedestrians under cumulative conditions.

Railyards Specific Plan Update

The RSPU would provide sidewalks on both sides of nearly all public streets. All new roadways would be designed with 16-foot sidewalks consistent with the City's standard for downtown Streets. In addition, 7th Street would be widened from south of Railyards Boulevard to North B Street to include 16-foot sidewalks on both sides of the street. Crosswalks would be provided on all legs of nearly all intersections within the RSP Area. Under cumulative conditions, pedestrian travel along 7th Street under the UPRR track would be prohibited. These movements would instead be made via the 5th Street or 6th Street bridges, which would be connected south of the UPRR tracks at G Street, and north of the UPRR tracks at Railyards Boulevard. To minimize conflicts between bicyclists and pedestrians on sidewalks, Class I, II, III, and IV bike facilities are planned on the majority of RSP Area roadways. Specifically, Class IV (protected cycle track) facilities would be constructed on both sides of 6th Street from H Street to Railyards Boulevard.

Accordingly, the RSPU would not adversely affect existing pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered **less than significant**.

Railyards Specific Plan Update Land Use Variant

The RSPU Land Use Variant would provide sidewalks on both sides of nearly all public streets. Crosswalks would be provided on all legs of nearly all intersections within the RSP Area. To minimize conflicts between bicyclists and pedestrians on sidewalks, Class I, II, III, and IV bike facilities are planned on the majority of RSP Area roadways. Accordingly, the RSPU Land Use Variant would not adversely affect existing pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered **less than significant**.

KP Medical Center

The KP Medical Center would provide sidewalks along its frontage and multiple pedestrian linkages into the campus from public streets. Sidewalks are present along various roadways within the RSP Area for members and employees desiring to walk to the facility. Accordingly, the KP Medical Center would not adversely affect existing/planned pedestrian facilities or fail to provide for access for pedestrians. Therefore, impacts would be considered **less than significant**.

MLS Stadium

According to Table 4.12-42, 3 percent of attendees to the MLS Stadium for a weekday evening soccer match under cumulative conditions would be expected to walk to the facility as their primary means of travel. Since parking for MLS matches would be situated both within the RSP Area and in areas beyond it, many of the roadways within the RSP Area and connecting to it would experience substantial levels of pedestrian activity prior to and after MLS matches. In many instances, sidewalk and crosswalk widths would be inadequate to accommodate these pedestrian flows. Therefore, the MLS stadium could potentially adversely affect existing/planned pedestrian facilities and fail to provide adequate access to the stadium for pedestrians. This is considered a **significant impact**.

Summary

The proposed RSPU, RSPU Land Use Variant, and KP Medical Center would not cause any adverse impacts to existing pedestrian facilities and would not fail to provide access for pedestrians. This impact is considered **less than significant**.

Soccer matches at the MLS Stadium would result in many of the roadways within the RSP Area experiencing substantial levels of pedestrian activity prior to and after MLS matches. In many instances, sidewalk and crosswalk widths would be inadequate to accommodate these pedestrian flows, without mitigation place. Therefore, the MLS stadium could adversely affect existing pedestrian facilities and fail to provide adequate access to the stadium for pedestrians. This impact is considered **significant.**

Mitigation Measures

The following mitigation is recommended for Impact 4.12-13.

Mitigation Measure 4.12-13 (MLS)

Implement Mitigation Measure 4.12-1(a)(i).

Impact Significance After Mitigation (MLS): The implementation of the Event Transportation Management Plan to the satisfaction of the City Traffic Engineer would result in use of a variety of pedestrian management tools, that could include providing additional parking spaces within the RSPU to reduce pedestrian flows from the area north of North B Street, wider sidewalks, shuttles, special-event light rail trains, reduced parking supplies, and extended pedestrian walk phases would be improved pedestrian LOS at these facilities. Refer to Appendix J.2 for a detailed discussion of these and other potential improvements. Given the current uncertainty of specific MLS Stadium operations, conditions would be monitored once it is operational and the TMP would be revised to include other measures to improve these conditions. The Event TMP including the performance measures pertaining to pedestrian flow shall be approved by City Traffic Engineer prior to issuance of the Certificate of Occupancy for the proposed Stadium. Accordingly, pedestrian facility impacts on streets between the proposed Stadium and identified parking resources, including North 7th Street from North B Street to Railyards Boulevard would be mitigated to less than significant.

Impact 4.12-14: The proposed projects could cause construction-related traffic impacts under cumulative conditions

Railyards Specific Plan Update

Construction of the RSPU would involve large amounts of grading, earthwork, and construction activities over an extended period of time. Large numbers of trucks and employee trips would enter and exit the RSP Area during construction. These activities could cause lane closures, damage to roadways, and increased conflicts with bicyclists, pedestrians, and transit. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. However, it is likely that the RSPU buildout would occur over a number of years and overlap with a variety of other construction activities such as new bridges, interchange reconstructions, bicycle/pedestrian improvements, and transit service expansion. Due to the potential for RSPU construction impacts to overlap with other planned construction projects, this impact would be **significant.**

Railyards Specific Plan Update Land Use Variant

Construction of the RSPU Land Use Variant would involve large amounts of grading, earthwork, and construction activities over an extended period of time. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and

a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. Due to the potential for Land Use Variant construction impacts to overlap with other planned construction projects, this impact would be **significant.**

KP Medical Center

Although the majority of the KP Medical Center square footage would be constructed as part of its first phase, the second phase of construction would involve additional medical office space and parking. Those construction activities would potentially overlap with other construction activities such as new bridges, interchange reconstructions, bicycle/pedestrian improvements, and transit service expansion. This impact would be **potentially significant.**

MLS Stadium

Construction of the MLS Stadium would involve large numbers of trucks and employee trips that would enter and exit the RSP Area during construction. The duration of construction, number of trucks, truck routing, number of employees, employee parking, truck idling, lane closures, and a variety of other construction-related activities are unknown at this time. Therefore, it would be speculative to conduct any type of quantitative analysis. It is possible that MLS Stadium construction could overlap with other near-term construction within the RSP Area. However, because of the extent and duration of construction, and the associated potential for prolonged lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians, MLS Stadium impacts during construction would be **significant.**

Summary

The proposed RSPU, RSPU Land Use Variant, KP Medical Center, and MLS Stadium would each cause potentially significant cumulative construction impacts due to the potential for overlap with other construction activities and the need for potential for lane closures, damage to roadbeds, and traffic hazards to bikes/pedestrians/transit during construction. These impacts are considered **significant**.

Mitigation Measures

The following mitigation is recommended for Impact 4.12-7.

> **Mitigation Measure 4.12-14 (a) (RSPU, KPMC, MLS)**
>
> *Implement Mitigation Measure 4.12-7.*

Impact Significance After Mitigation (RSPU, KPMC, MLS): The implementation of the above mitigation measure would reduce this impact to **less than significant.**