

3 Technical Analysis for Responses to Comments Hyatt Place Hotel Expansion and Old Davis Road Extension

The following memorandum from transportation engineers Fehr and Peers provides technical data pertinent to the responses to comments in Section 2.

MEMORANDUM

Date: September 27, 2011

To: Sid England, Assistant Vice Chancellor, Environmental Stewardship and Sustainability

From: Charles Alexander, PE

**Subject: *Technical Analysis for Responses to Comments
Hyatt Place Hotel Expansion and Old Davis Road Extension***

RS08-2602.H

In June 2011, Fehr & Peers completed the *Transportation Impact Study: Hyatt Place Hotel Expansion and Old Davis Road Extension* (TIS). The TIS was used in the Draft Environmental Impact Report (DEIR) for the Hyatt Place Hotel expansion and Old Davis Road extension projects (State Clearinghouse No. 2011032051). The purpose of this technical memorandum is to document the findings of technical analysis for the TIS based on comments received on the DEIR.

Comments on the DEIR and the TIS pertain to the following:

- Cumulative traffic forecast development methodology and consistency with existing and planned land use patterns
- The effects of close intersection spacing and queuing on operations at the 1st Street / Richards Boulevard, Olive Drive / Richards Boulevard, and I-80 Westbound Ramps / Richards Boulevard intersections
- The potential for traffic diversion from I-80 to the Old Davis Road extension and through downtown Davis

STUDY FACILITIES

This technical analysis adds the Richards Boulevard / I-80 Westbound Ramps as a study intersection.

TRAFFIC FORECASTS

This technical analysis uses updated forecasts for several of the TIS' analysis scenarios:

- Existing Plus Old Davis Road Extension scenario – the TIS assumes that the Old Davis Road would only divert inbound campus traffic in the AM peak hour and outbound campus traffic in the PM peak hour; the TIS does not assume diversion of traffic flows in the non-peak direction. This technical analysis assumes diversion of traffic flows in the non-peak direction at a rate proportional to the diversion of peak direction traffic flows.

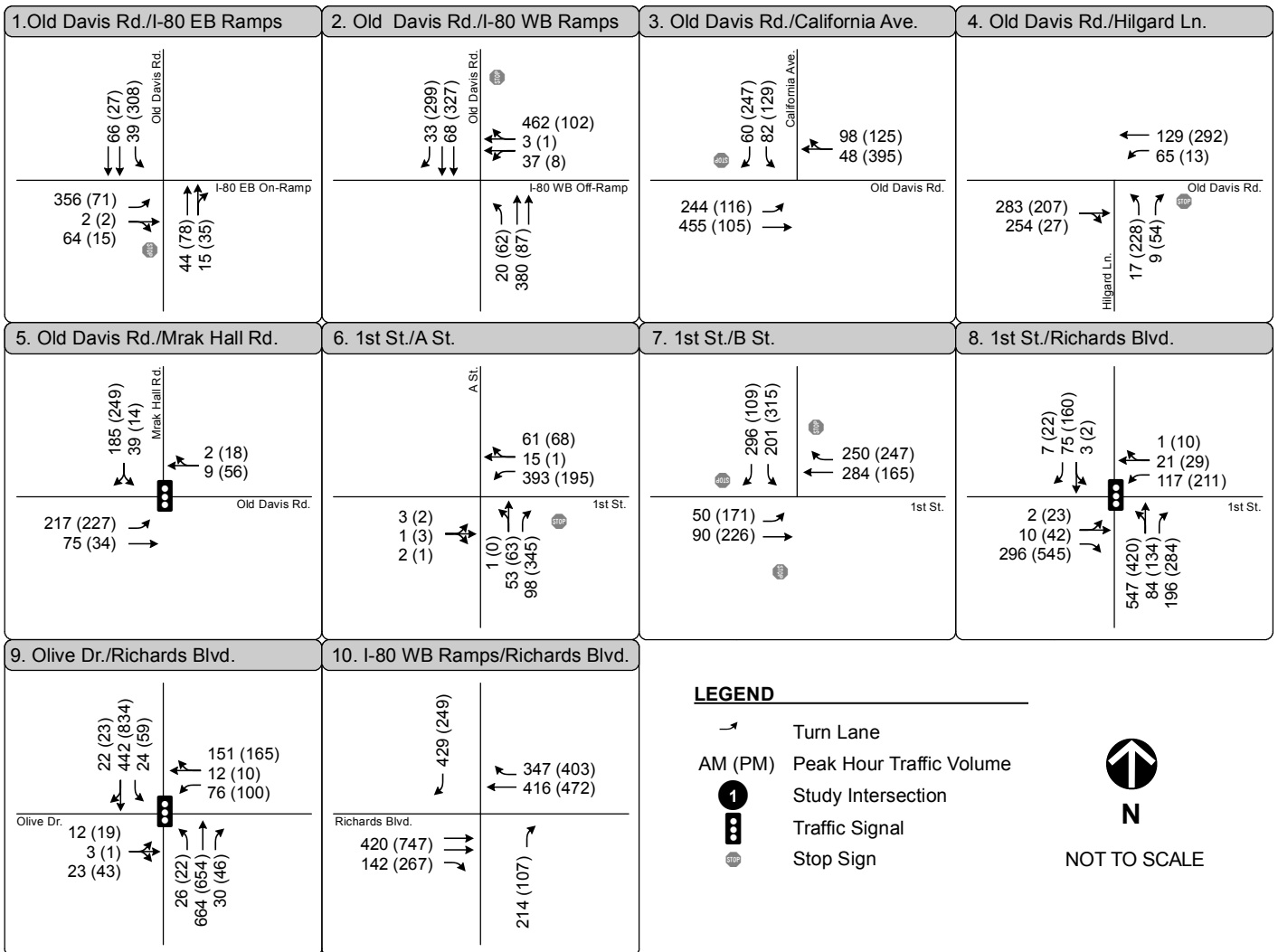
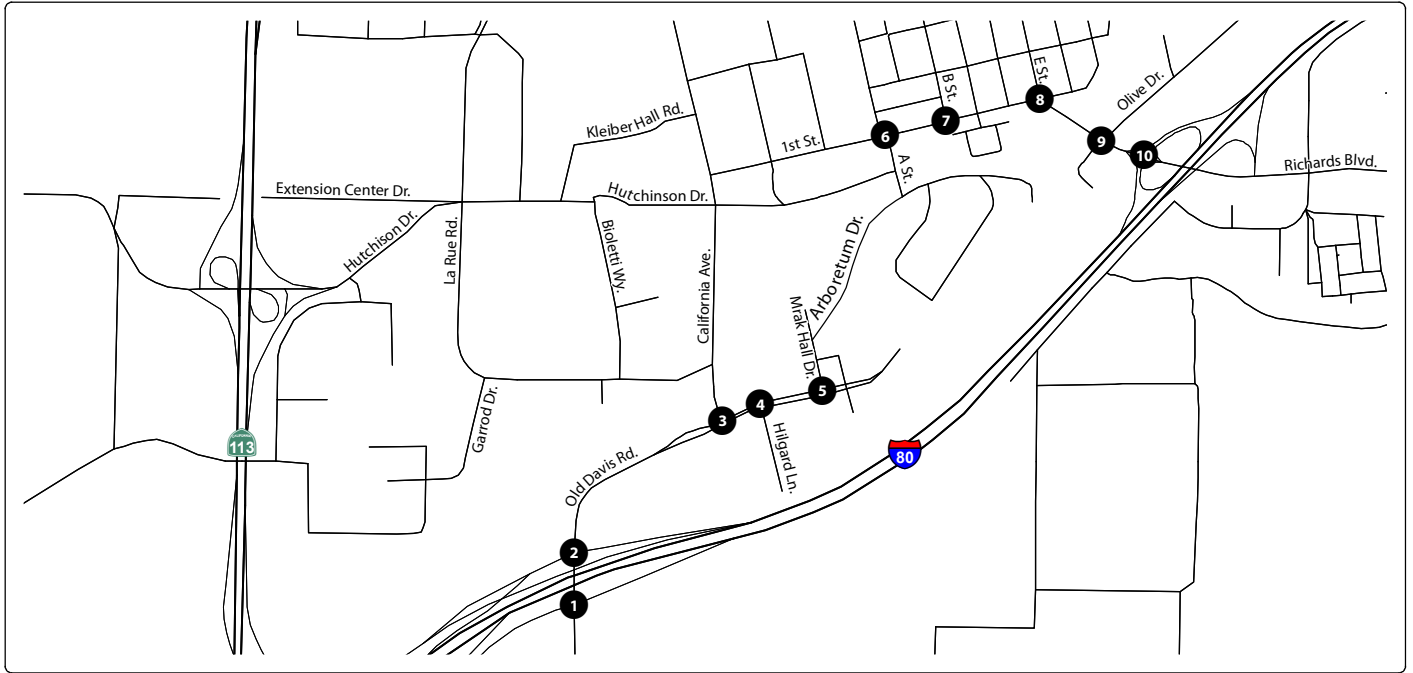
- Existing Plus Hyatt Place Expansion and Old Davis Road Extension scenario – this technical analysis assumes the same diversion of traffic flows in the non-peak direction as the Existing Plus Old Davis Road Extension scenario.
- Cumulative No Project scenario – refinements were made to the land use in the Davis Travel Demand Model and new Cumulative No Project forecasts were produced. Specifically, the model's existing year land use did not reflect the construction of apartments on Olive Drive east of Richards Boulevard. Updating the existing and future land uses to reflect these apartments produced forecasts that retain the existing inbound/outbound traffic pattern for Downtown Davis: inbound traffic is greatest in the AM peak hour and outbound traffic is greatest in the PM peak hour.
- Cumulative Plus Davis Hotel scenario – this technical analysis assumes the same land use refinements as the Cumulative No Project scenario.
- Cumulative Plus Hyatt Place Expansion scenario – this technical analysis assumes the same land use refinements as the Cumulative No Project scenario.
- Cumulative Plus Old Davis Road Extension scenario – the TIS assumes that the Old Davis Road would only divert inbound campus traffic in the AM peak hour and outbound campus traffic in the PM peak hour; the TIS does not assume diversion of traffic flows in the non-peak direction. This technical analysis assumes diversion of traffic flows in the non-peak direction at a rate proportional to the diversion of peak direction traffic flows. Additionally, this technical analysis assumes the same land use refinements as the Cumulative No Project scenario.
- Cumulative Plus Davis Hotel, Hyatt Place Expansion, and Old Davis Road Extension scenario – this technical analysis assumes all of the changes in each cumulative year scenario.

Figures R1-R9 show the updated traffic forecasts.

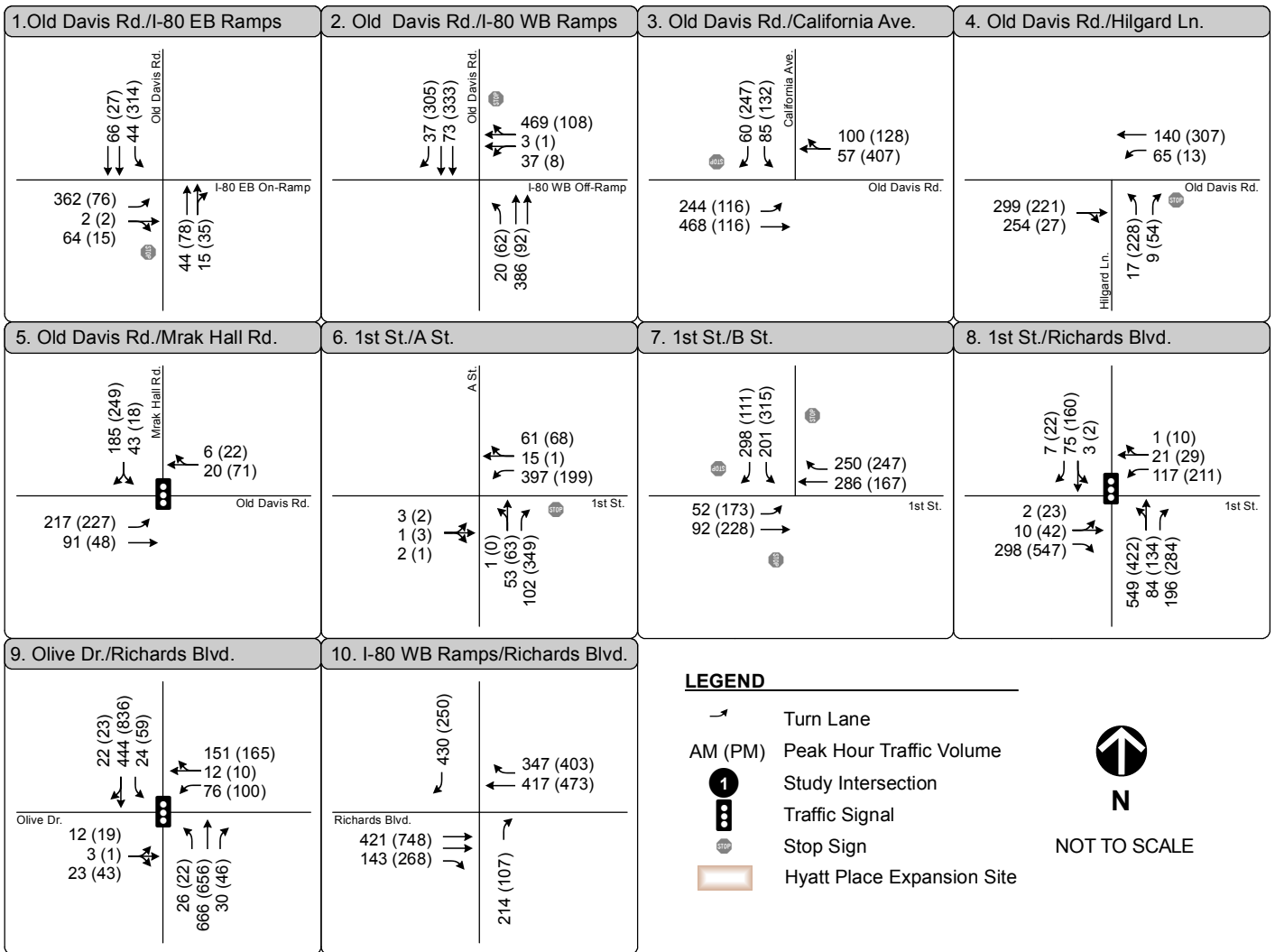
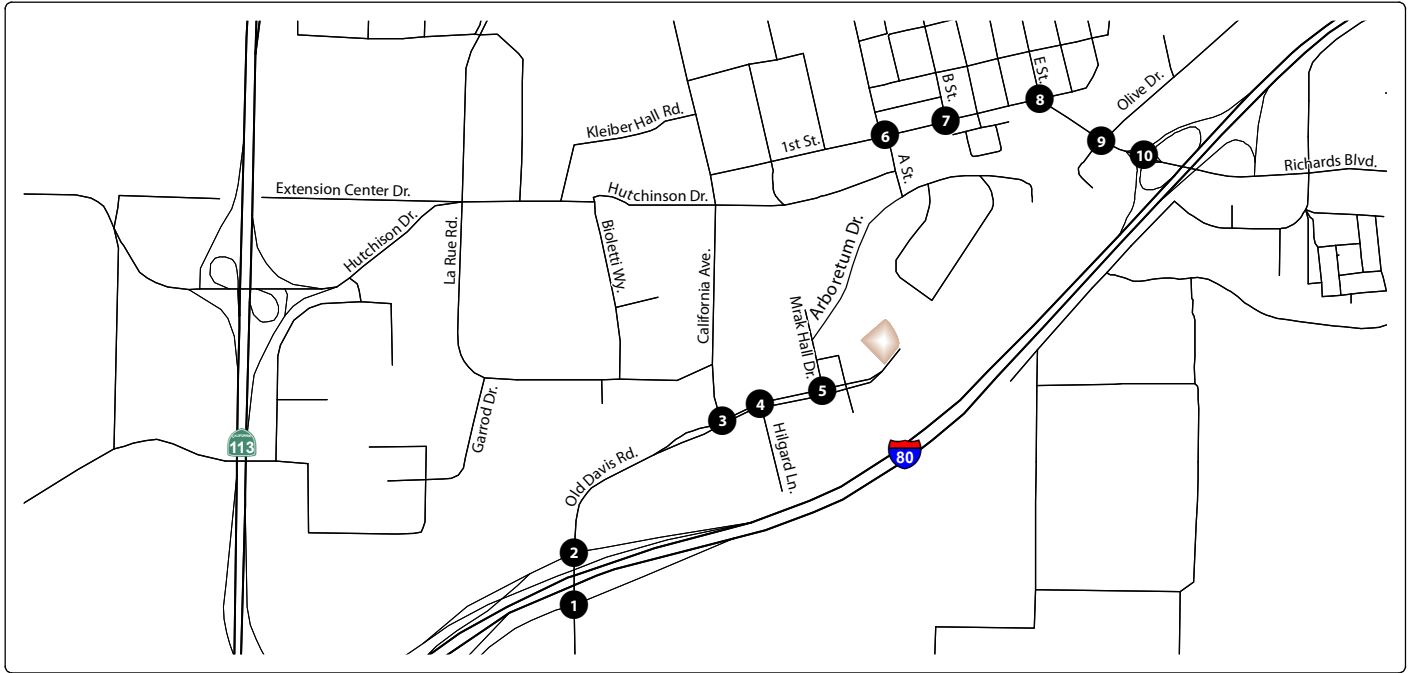
SIGNIFICANCE CRITERIA

The TIS incorrectly applies the significance criteria for City of Davis Core Area intersections to the Olive Drive / Richards Boulevard intersection. The City of Davis Core Area significance criteria specify that LOS F is acceptable and considered a "congested condition" for Core Area intersections.

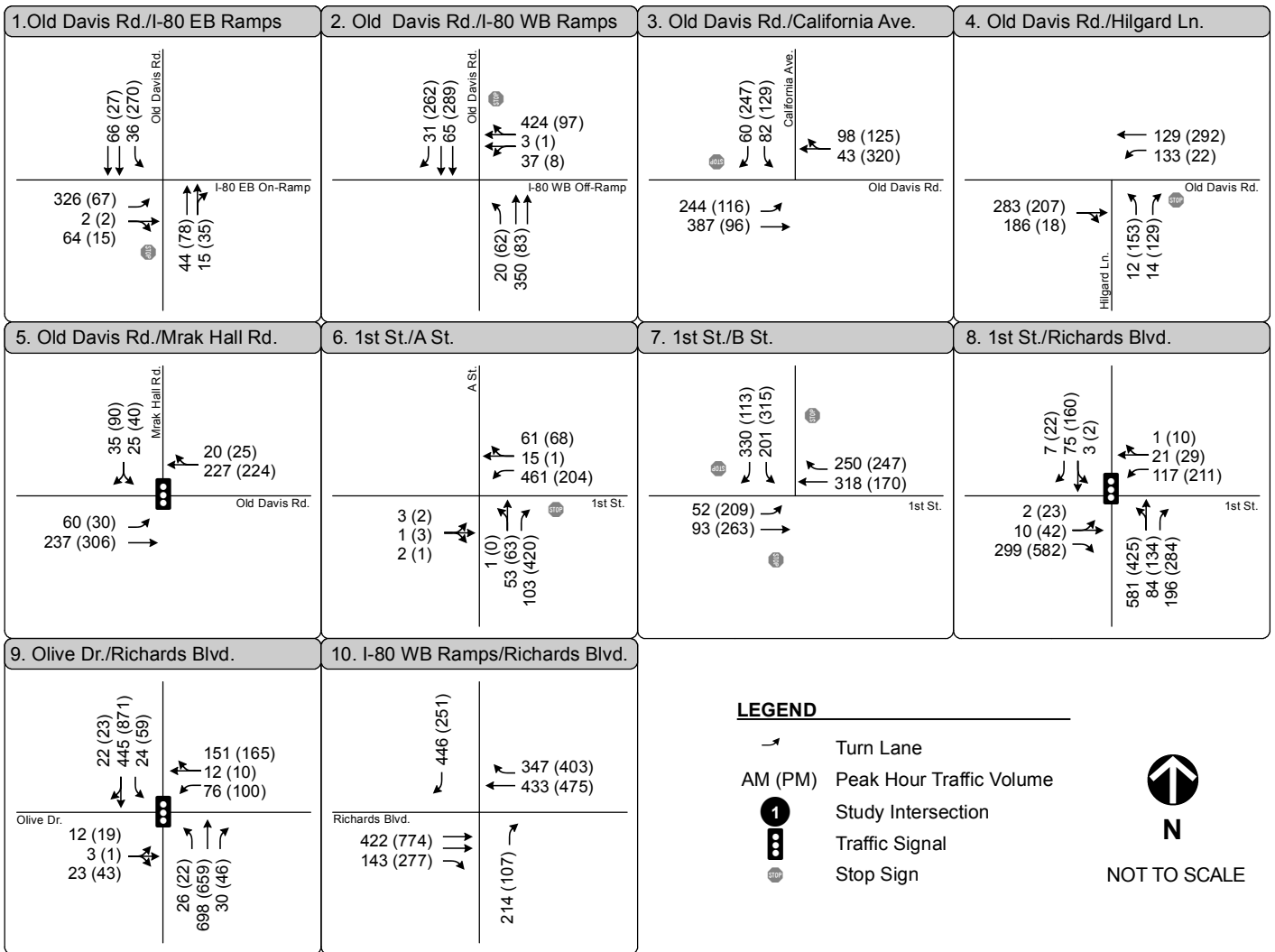
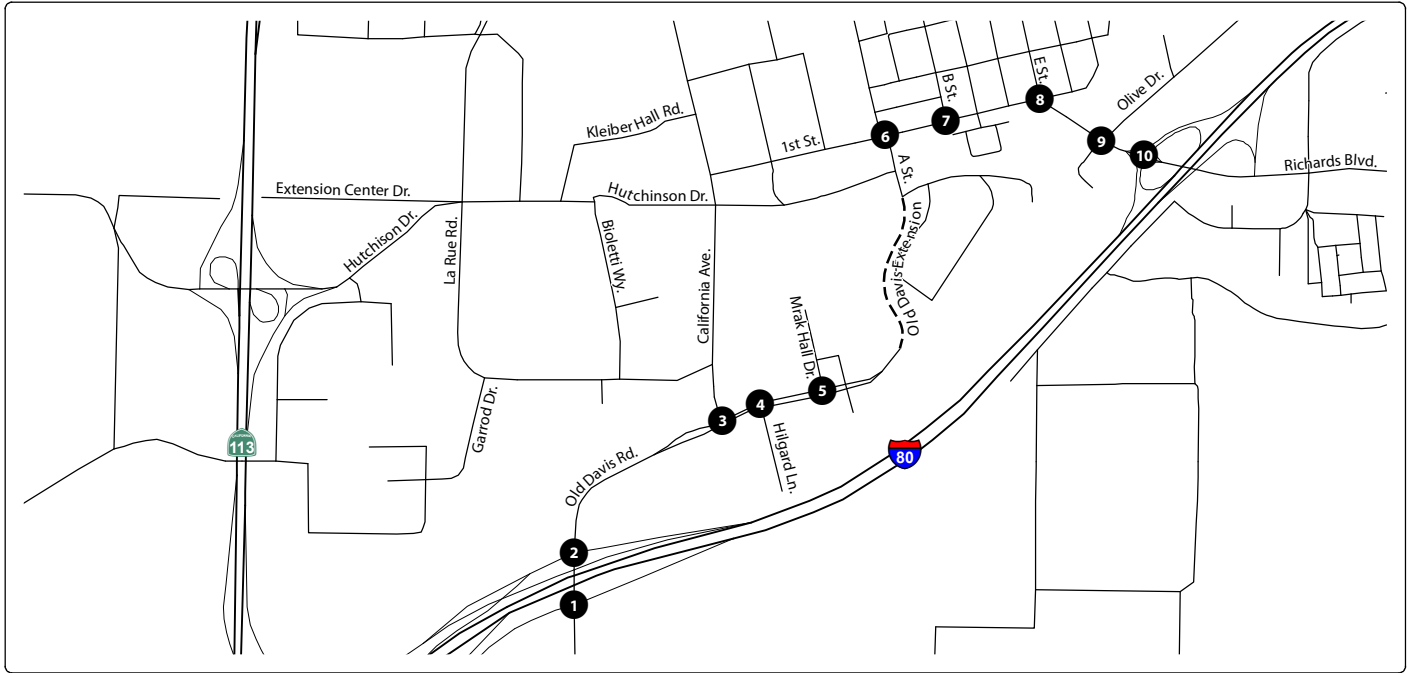
This technical analysis applies the significance criteria for non-Core Area signalized intersections to the Olive Drive / Richards Boulevard intersection. For this intersection, a significant traffic impact is defined when the addition of project traffic causes the overall intersection operations to deteriorate from an acceptable level (LOS E or better in the AM or PM peak hour) to an unacceptable level (LOS F in the AM or PM peak hour).



PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS



PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS HYATT PLACE EXPANSION



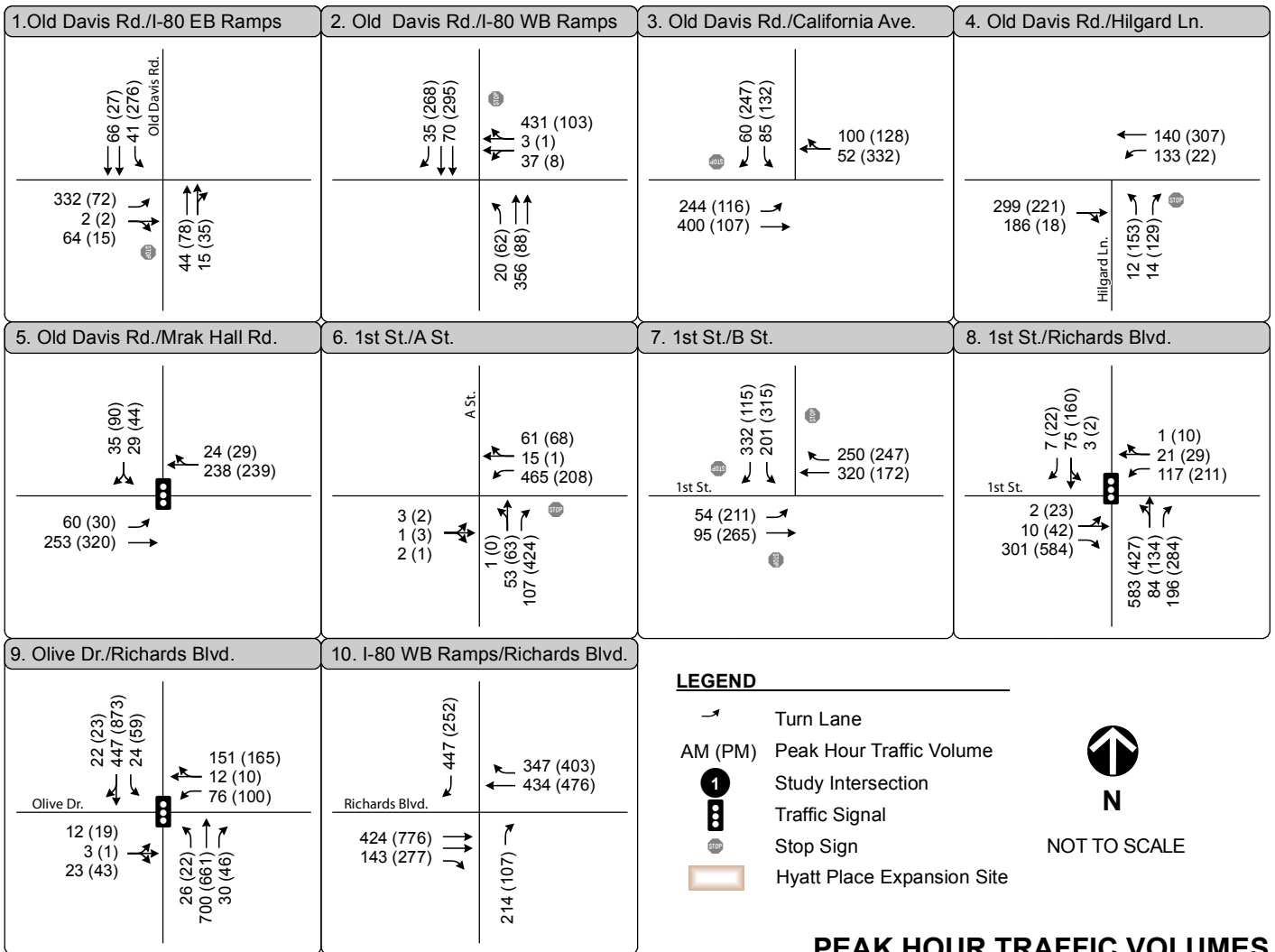
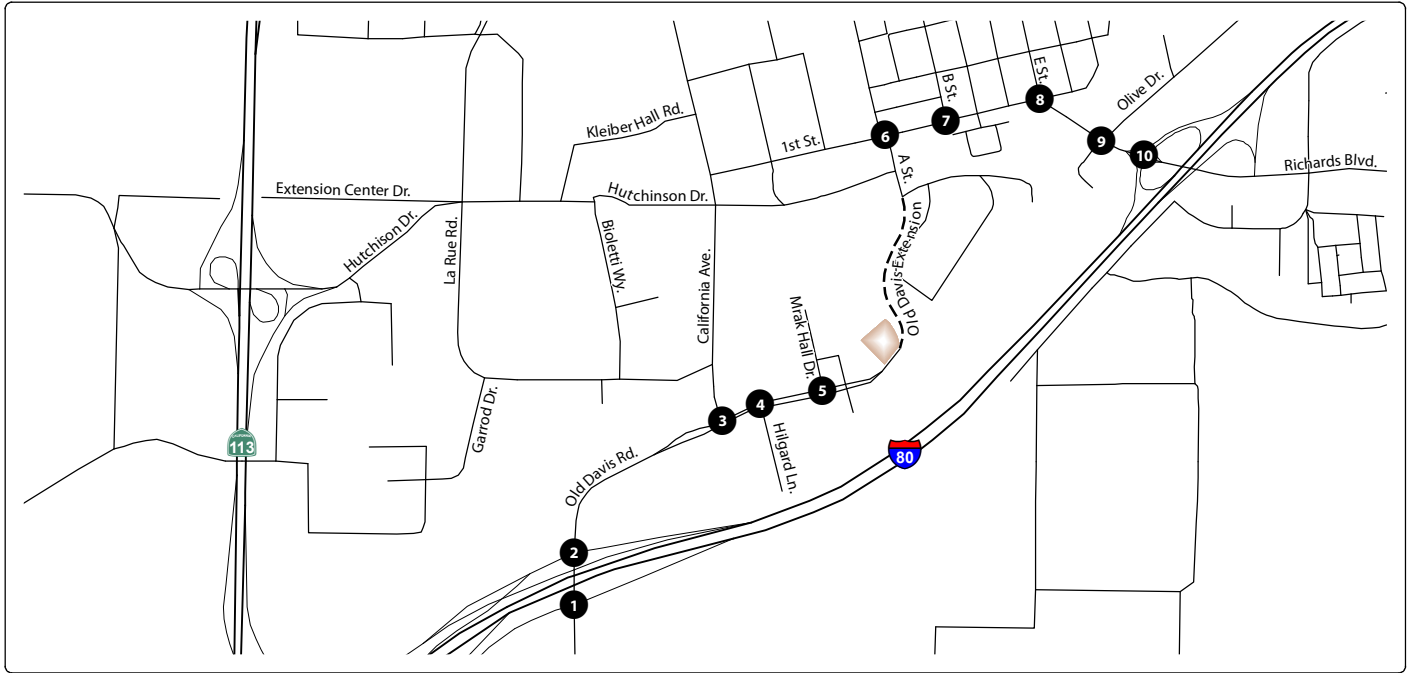
LEGEND

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

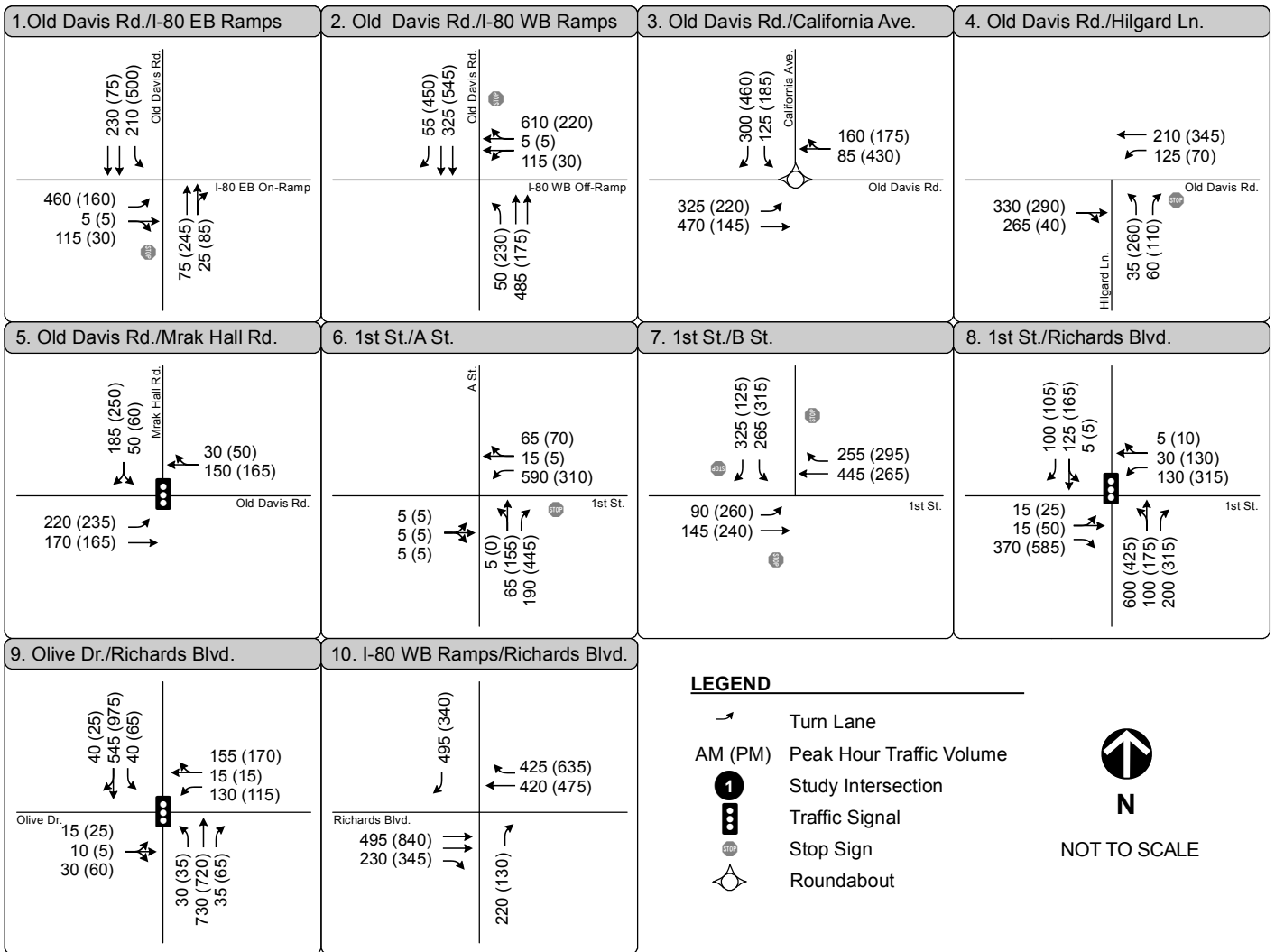
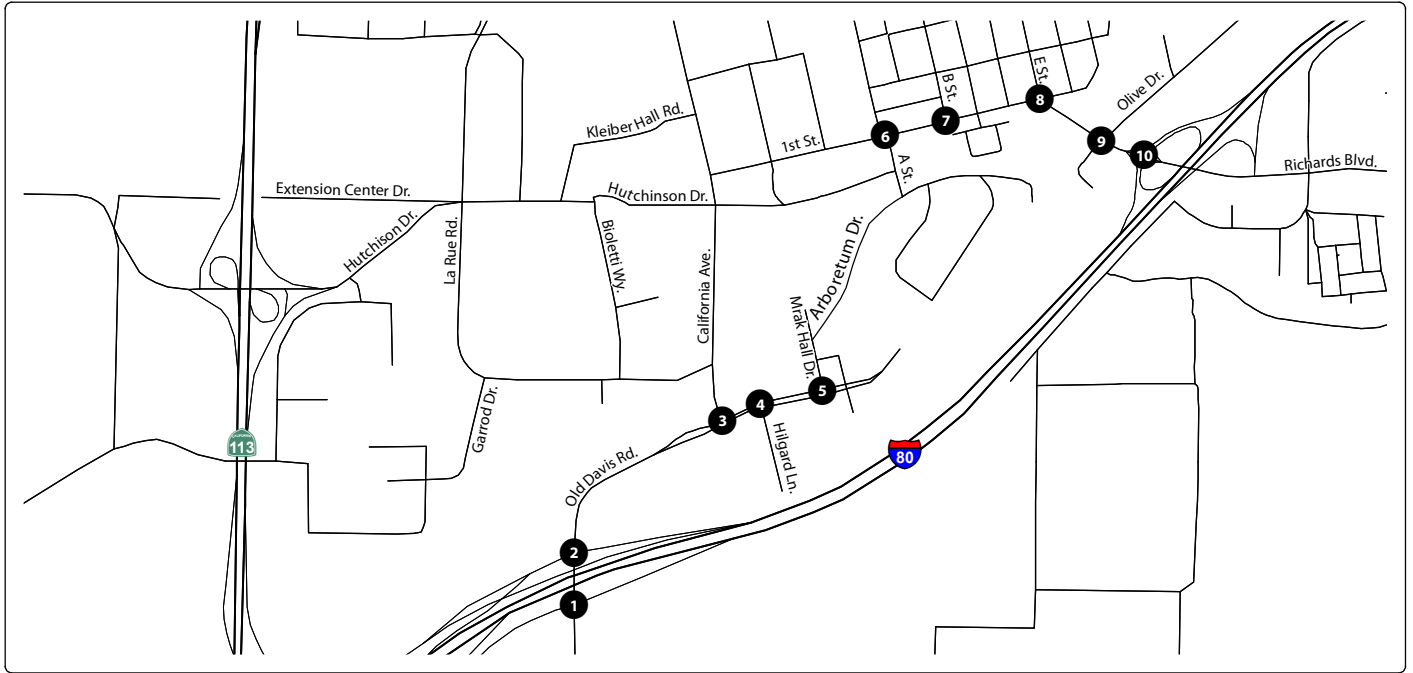


NOT TO SCALE

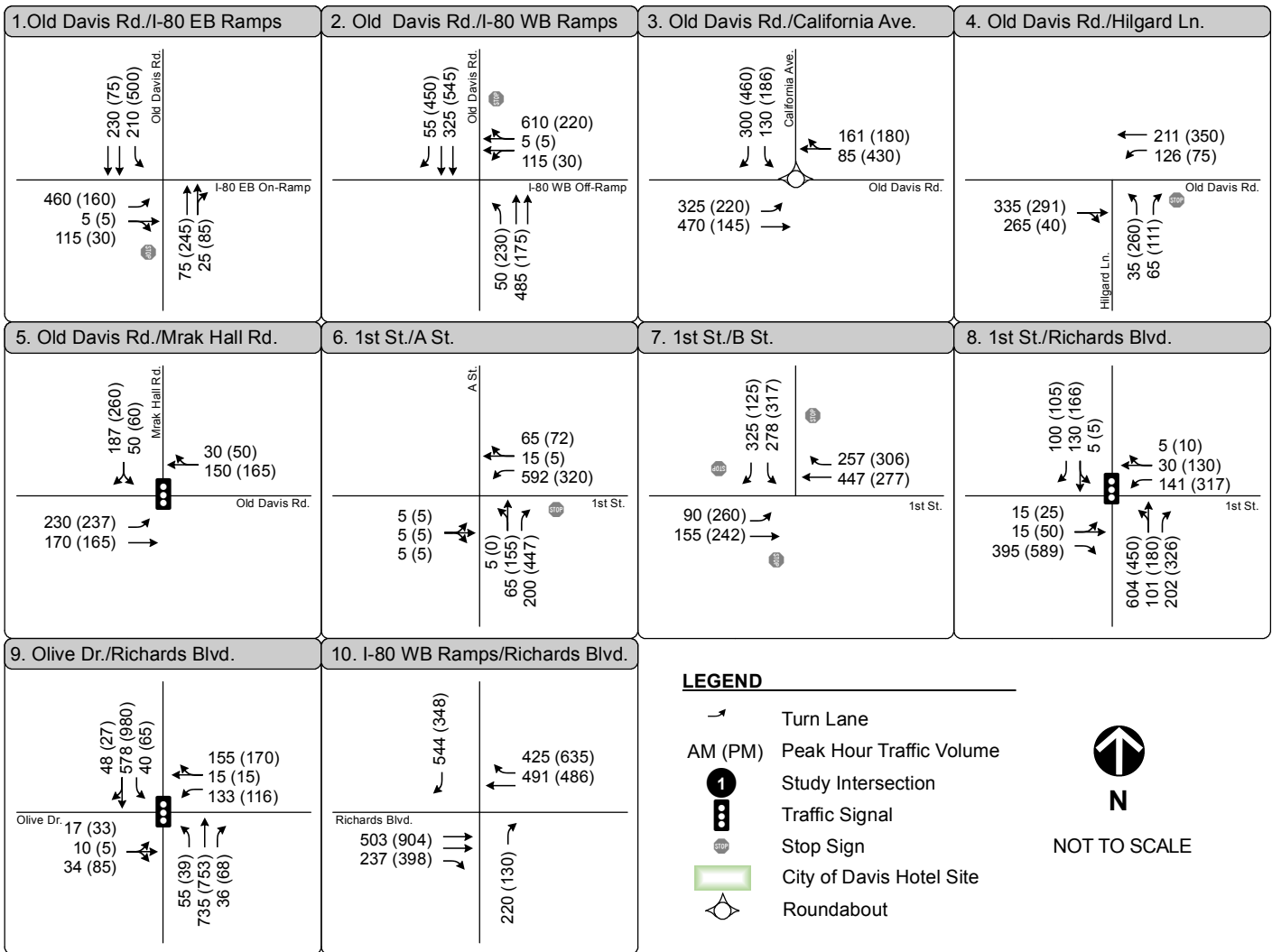
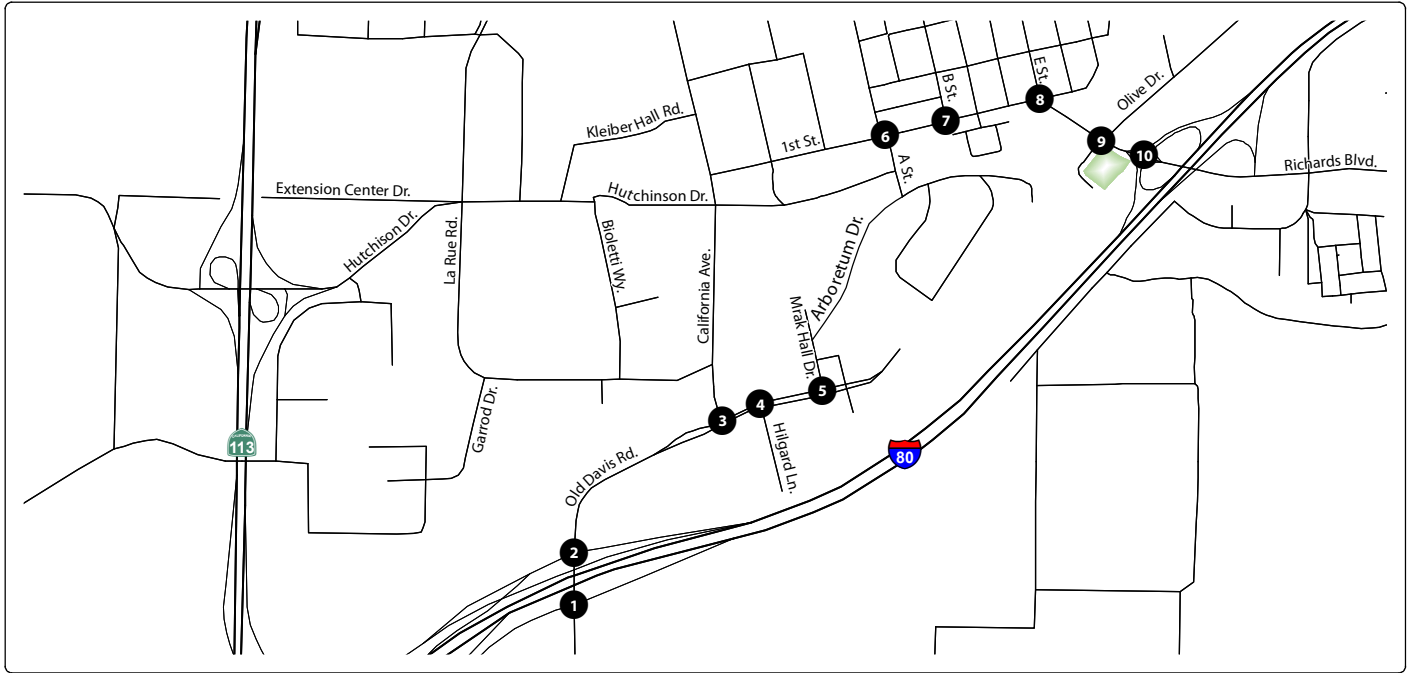
**PEAK HOUR TRAFFIC VOLUMES
AND LANE CONFIGURATIONS -
EXISTING PLUS OLD DAVIS ROAD EXTENSION**



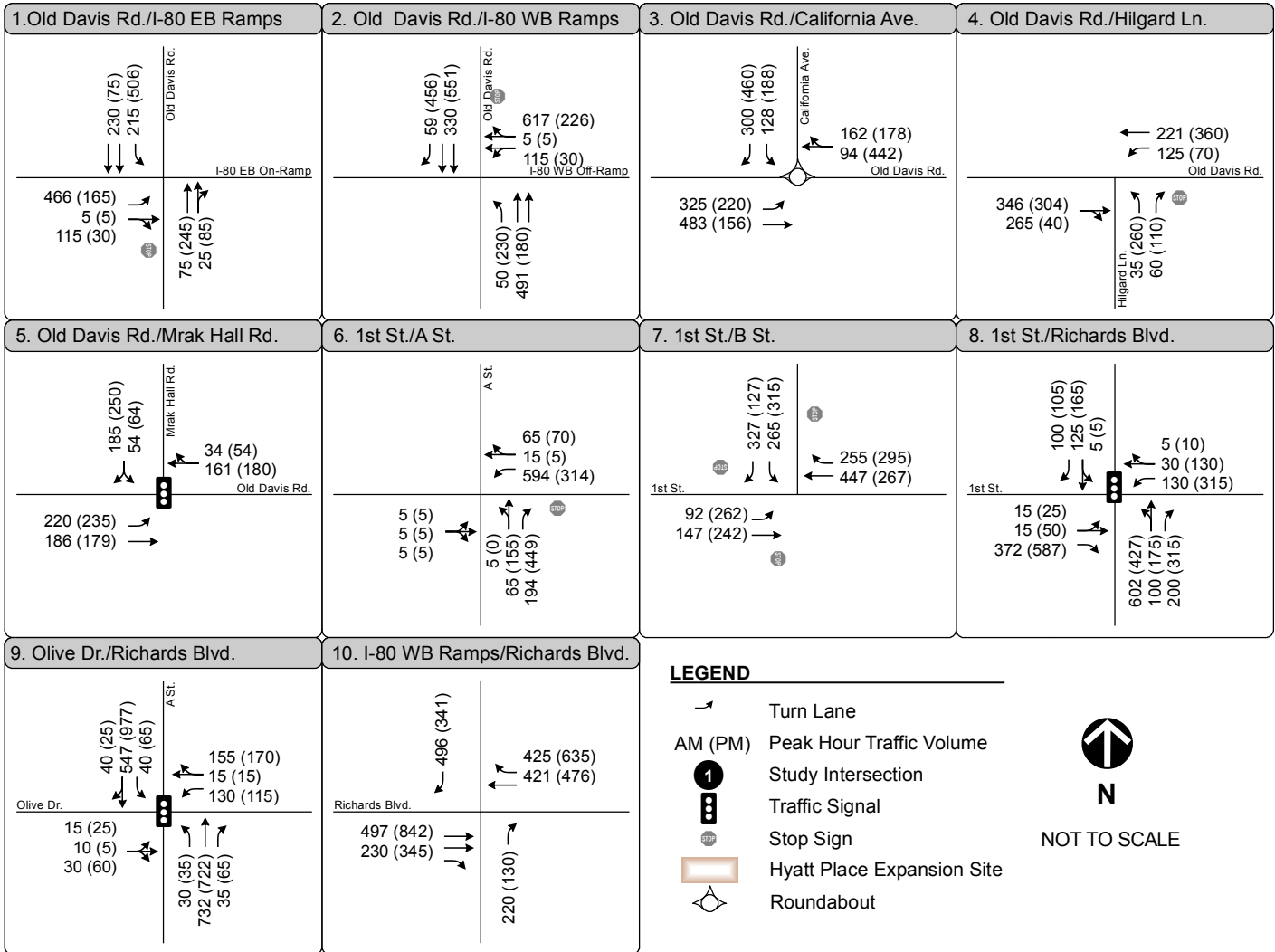
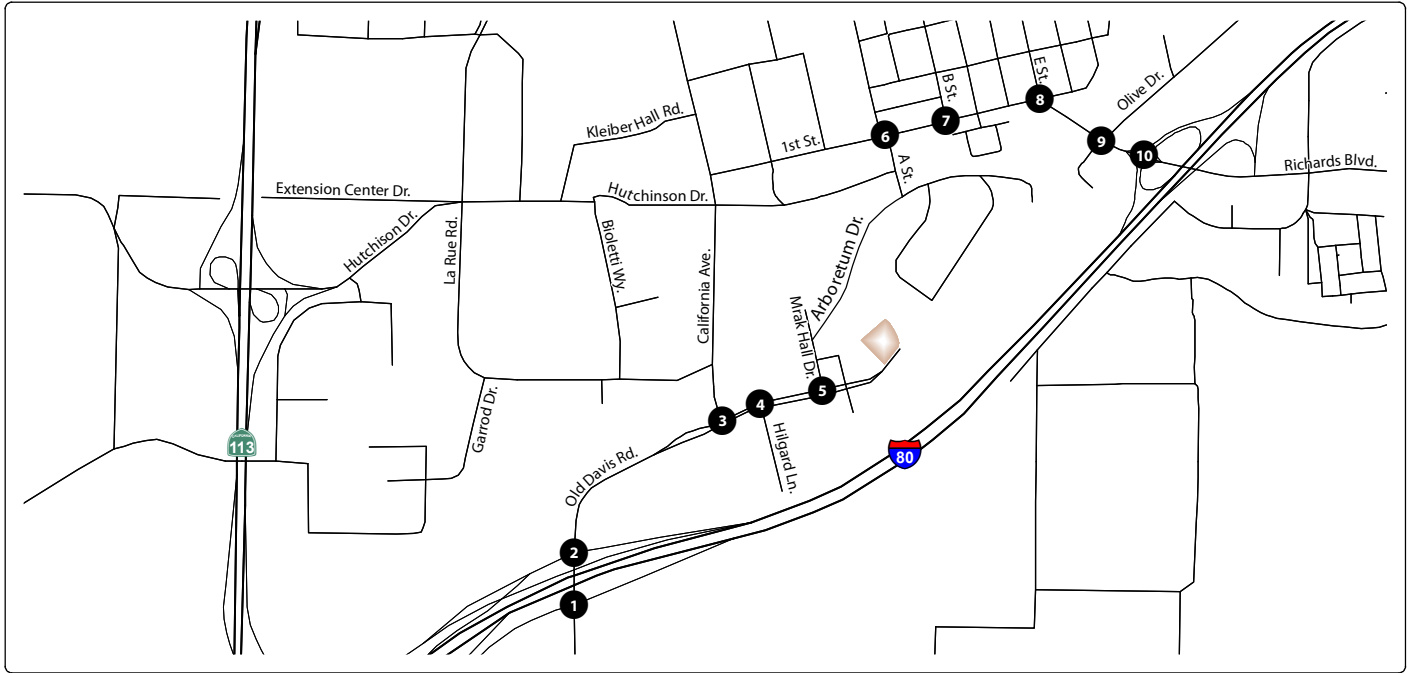
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS HYATT PLACE EXPANSION AND OLD DAVIS ROAD EXTENSION



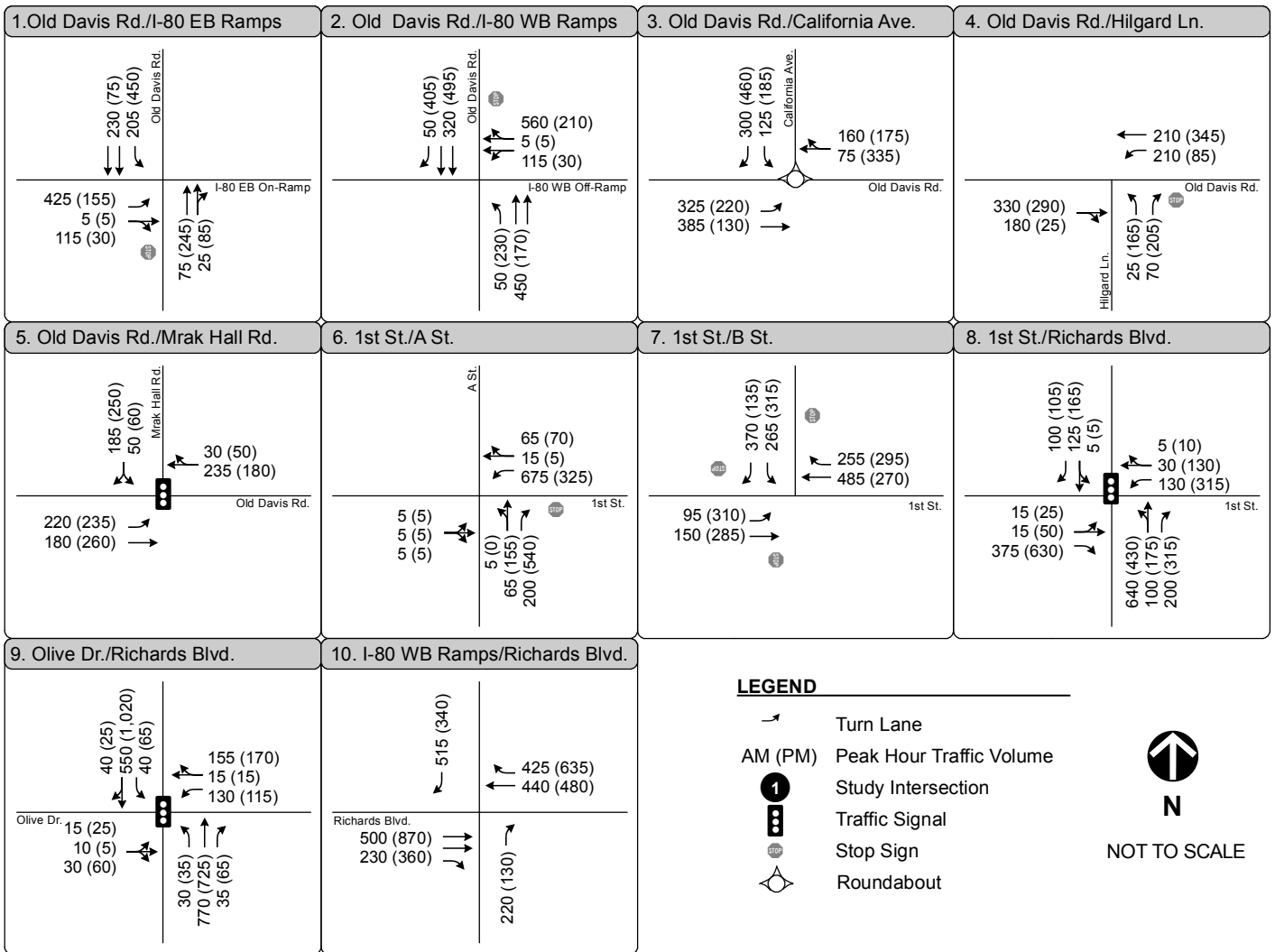
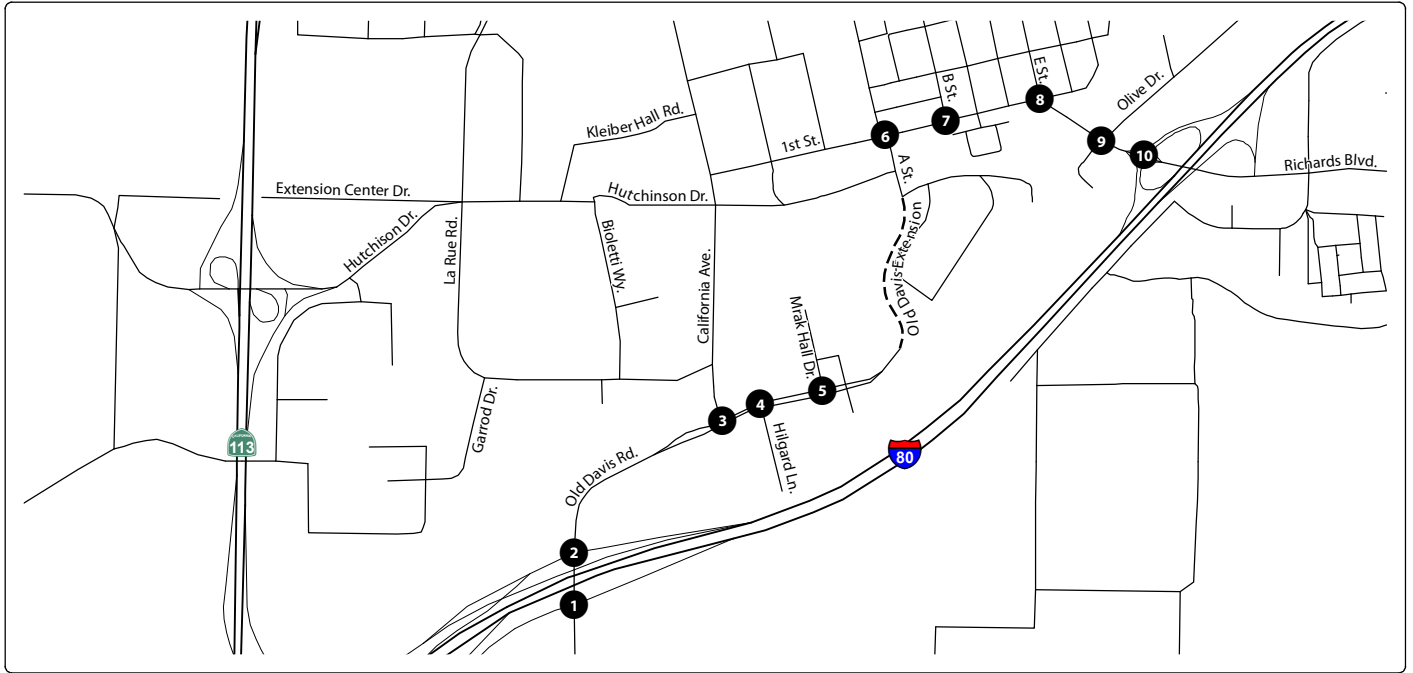
**PEAK HOUR TRAFFIC VOLUMES
AND LANE CONFIGURATIONS -
CUMULATIVE NO PROJECT**



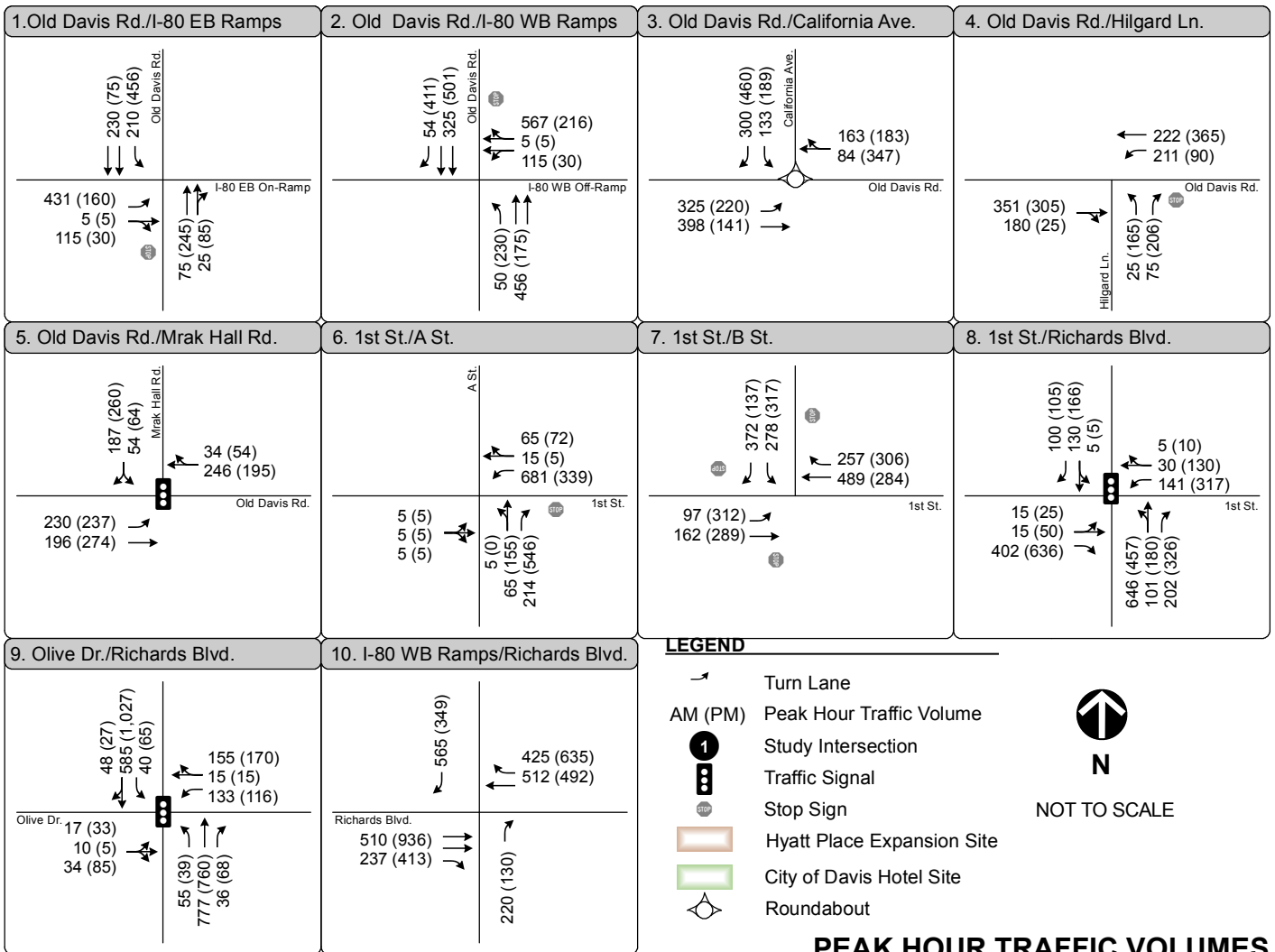
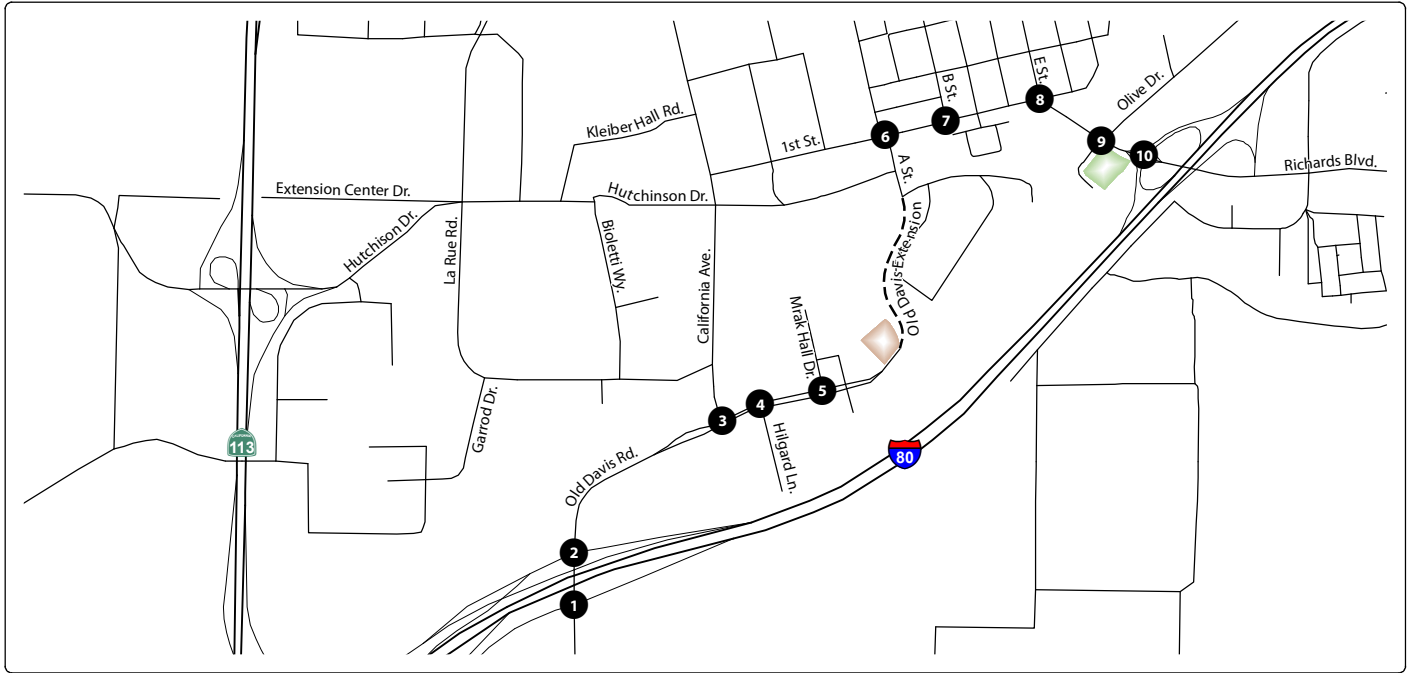
PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS DAVIS HOTEL



PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS HYATT PLACE EXPANSION



**PEAK HOUR TRAFFIC VOLUMES
AND LANE CONFIGURATIONS -
CUMULATIVE PLUS OLD DAVIS ROAD EXTENSION**



**PEAK HOUR TRAFFIC VOLUMES
AND LANE CONFIGURATIONS -
CUMULATIVE PLUS DAVIS HOTEL, HYATT PLACE
EXPANSION AND OLD DAVIS ROAD EXTENSION**

METHODOLOGY

The TIS uses Trafficware's Synchro software; Synchro is a standard traffic operations software based on the procedures outlined in the *2000 Highway Capacity Manual* (Transportation Research Board, 2000). To account for the effects of queue blocking and queue interactions between adjacent intersections, analysis was performed using SimTraffic for the following intersections:

- 1st Street / Richards Boulevard
- Olive Drive / Richards Boulevard
- I-80 Westbound Ramps / Richards Boulevard

Analysis of the other study intersections uses Synchro.

SimTraffic is the simulation add-on to Trafficware's Synchro software; it captures the random nature of driver behavior and models the interaction between vehicles in a study network. SimTraffic better accounts for delays under congested conditions including pedestrian crossings, queue blocking, and queue interactions between adjacent intersections when compared to traditional analysis methods.

The SimTraffic model was calibrated to existing field conditions to ensure that traffic volumes, queue lengths, and other operational observations were satisfactorily replicated. Existing queue lengths were measured from videos collected on May 10, 2011. Table R1 shows the validation results of measured and simulated queue lengths.

TABLE R1: QUEUE LENGTH VALIDATION RESULTS					
Intersection Approach	Storage ²	AM Peak Hour		PM Peak Hour	
		Measured Queue (feet / lane)	Simulated Queue ¹ (feet / lane)	Measured Queue (feet / lane)	Simulated Queue ¹ (feet / lane)
1st Street / Richards Boulevard					
Northbound	625 feet	625+	625+	415	625+
Southbound	400 feet	150	115	165	225
Eastbound	225 feet	75	90	225+	225+
Westbound	225 feet	165	180	225+	225+
Olive Drive / Richards Boulevard					
Northbound	1,475 feet	425	425	500	440
Southbound	650 feet	125	150	600	565
I-80 Westbound / Richards Boulevard					
Southbound	1,450 feet	50	35	75	10
Notes: ¹ 95 th percentile queue length as reported by SimTraffic microsimulation model validated to existing conditions. ² Distance to adjacent upstream intersection or freeway diverge. Bold font indicates that the queue exceeds the available storage. Source: Fehr & Peers, 2011					

As shown in Table R1, the simulated queue lengths closely reflect the measured queue lengths for key intersection approaches. Variation in measured queue lengths and simulated queue lengths is within the expected range for a SimTraffic model. Table R1 demonstrates that the SimTraffic model is calibrated to measured queue lengths.

Percent volume served, the amount of volume served by the simulation model versus the actual volume counted at the intersection, is another indicator of SimTraffic model validation. Percent volume served should be near 100 percent for each intersection. Table R2 shows the percent volume served for each intersection.

TABLE R2: PERCENT VOLUME SERVED VALIDATION RESULTS		
Intersection	Percent Volume Served	
	AM Peak Hour	PM Peak Hour
1 st Street / Richards Boulevard	99%	98%
Olive Drive / Richards Boulevard	111%	99%
I-80 Westbound / Richards Boulevard	102%	101%
Source: Fehr & Peers 2011		

As shown in Table R2, the simulated percent volume served is near 100 percent at each intersection

Based on the results of the queue length and percent volume served validation, the SimTraffic model accurately reflects existing conditions and is appropriate for use in intersection analysis.

INTERSECTION ANALYSIS

Existing and Existing Plus Project Scenarios

Table R3 shows the delay and level of service, using the updated forecasts and methodology, for the existing and existing plus project scenarios.

**TABLE R3:
INTERSECTION DELAY / LEVEL OF SERVICE – EXISTING PLUS PROJECT CONDITIONS**

Intersection	Control	Peak Hour	Delay / LOS ¹							
			Existing		Existing Plus Hyatt Place Expansion		Existing Plus Old Davis Road Extension		Existing Plus Hyatt Place Expansion and Old Davis Road Extension	
			Average	Worst-Delayed Movement	Average	Worst-Delayed Movement	Average	Worst-Delayed Movement	Average	Worst-Delayed Movement
UC Davis Campus Intersections										
Old Davis Road / I-80 Eastbound	Side Street Stop-Controlled	AM PM	10 / B 9 / A	15 / B 29 / D	11 / B 10 / A	15 / C 31 / D	10 / A 8 / A	14 / B 23 / C	10 / A 8 / A	14 / B 25 / C
Old Davis Road / I-80 Westbound	Side Street Stop-Controlled	AM PM	10 / B 2 / A	21 / C 13 / B	11 / B 2 / A	22 / C 13 / B	9 / A 2 / A	18 / C 13 / B	9 / A 2 / A	18 / C 13 / B
Old Davis Road / California Avenue	Side Street Stop-Controlled	AM PM	8 / A 10 / A	38 / E 26 / D	8 / A 10 / B	43 / E 28 / D	7 / A 9 / A	31 / D 21 / C	8 / A 9 / A	35 / D 22 / C
Old Davis Road / Hilgard Lane	Side Street Stop-Controlled	AM PM	1 / A 11 / B	17 / C 37 / E	1 / A 12 / B	17 / C 41 / E	2 / A 7 / A	18 / C 25 / D	2 / A 7 / A	19 / C 27 / D
Old Davis Road / Mrak Hall Drive	Signalized	AM PM	22 / C 32 / C	-- --	25 / C 36 / D	-- --	19 / B 17 / B	-- --	19 / B 17 / B	-- --
City of Davis Intersections										
1 st Street / A Street	Side Street Stop-Controlled	AM PM	14 / B 13 / B	77 / F² 18 / C	14 / B 13 / B	80 / F² 19 / C	20 / C 15 / C	>80 / F² 21 / C	20 / C 16 / C	>80 / F² 21 / C
1 st Street / B Street	All Way Stop	AM PM	14 / B 16 / C	-- --	14 / B 16 / C	-- --	16 / C 17 / C	-- --	16 / C 17 / C	-- --
1 st Street / Richards Boulevard	Signalized	AM PM	25 / C 39 / D	-- --	25 / C 39 / D	-- --	23 / C 36 / D	-- --	24 / C 38 / D	-- --
Olive Drive / Richards Boulevard	Signalized	AM PM	21 / C 29 / C	-- --	20 / B 29 / C	-- --	21 / C 24 / C	-- --	22 / C 27 / C	-- --
I-80 WB / Richards Boulevard	Uncontrolled	AM PM	2 / A 2 / A	3 / A 2 / A	2 / A 3 / A	3 / A 2 / A	3 / A 2 / A	3 / A 2 / A	3 / A 2 / A	4 / A 2 / A

Notes: ¹Intersection delay is reported in seconds per vehicle, and is based on the average of all approaches for all-way stop controlled intersections and signalized intersections per HCM methodology. For side-street stop controlled intersections, the delay and LOS is reported for both the average of all approaches and the worst-delayed movement.

²Does not meet MUTCD peak hour signal warrant

Shaded cells indicate that intersections were analyzed using SimTraffic

Bold text indicates a congested condition (LOS F) at City of Davis Core Area intersections.

Source: Fehr & Peers, 2011

As shown in Table R3, the addition of traffic from the Old Davis Road extension and/or Hyatt Place expansion does not cause any intersections operating acceptably in the Existing Conditions scenario to operate unacceptably.

In the Existing Plus Hyatt Expansion scenario, delay for the worst-case movements operating at LOS E or worse increases because of the addition of project traffic at the following intersections:

- Old Davis Road / California Avenue – AM peak hour, worst-case movement is LOS E
- Old Davis Road / Hilgard Lane – PM peak hour, worst-case movement is LOS E
- 1st Street / A Street – AM peak hour, worst-case movement is LOS F

In the Existing Plus Old Davis Road Extension and Existing Plus Hyatt Place Expansion and Old Davis Road Extension scenarios, delay for the worst-case movement increases because of the addition of project traffic at the 1st Street / A Street intersection (AM peak hour, worst-case movement is LOS F).

Table R4 shows the 95th percentile queue lengths at the I-80 Westbound off-ramp to Richards Boulevard.

TABLE R4: OFF-RAMP QUEUEING – EXISTING PLUS PROJECT CONDITIONS						
Off-Ramp	Storage Length	Peak Hour	Queue Length			
			Existing	Existing Plus Hyatt Place Expansion	Existing Plus Old Davis Road Extension	Existing Plus Hyatt Place Expansion and Old Davis Road Extension
I-80 Westbound Off-ramp to Richards Boulevard	1,450 feet	AM PM	35 feet 10 feet	20 feet 35 feet	30 feet 35 feet	40 feet 20 feet

Notes: ¹Queue length is the 95th percentile queue as reported by SimTraffic simulation software.
 Source: Fehr & Peers, 2011

As shown in Table R4, neither of the proposed projects causes off-ramp queues to extend beyond the available storage.

These findings are consistent with the conclusions of the TIS.

Cumulative No Project and Cumulative Plus Project Scenarios

Table R5 shows the delay and level of service, using the updated forecasts and methodology, for the cumulative and cumulative plus project scenarios.

**TABLE R5:
INTERSECTION DELAY / LEVEL OF SERVICE – CUMULATIVE CONDITIONS**

Intersection	Control	Peak Hour	Delay / LOS ¹									
			Cumulative No Project		Cumulative Plus Davis Hotel		Cumulative Plus Hyatt Place Expansion		Cumulative Plus Old Davis Road Extension		Cumulative Plus Davis Hotel, Hyatt Place Expansion, and Old Davis Road Extension	
			Average	Worst-Delayed Movement	Average	Worst-Delayed Movement	Average	Worst-Delayed Movement	Average	Worst-Delayed Movement	Average	Worst-Delayed Movement
UC Davis Campus Intersections												
Old Davis Road / I-80 Eastbound	Side Street Stop-Controlled	AM	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F
		PM	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	>80 / F	71 / F	>80 / F	80 / F
Old Davis Road / I-80 Westbound	Side Street Stop-Controlled	AM	17 / C	40 / E	17 / C	40 / E	18 / C	43 / E	12 / B	29 / D	13 / B	29 / D
		PM	4 / A	46 / E	4 / A	46 / E	5 / A	47 / E	4 / A	40 / E	4 / A	41 / E
Old Davis Road / California Avenue	Roundabout ²	AM	10 / B	--	10 / B	--	11 / B	--	8 / A	--	8 / A	--
		PM	8 / A	--	8 / A	--	8 / A	--	7 / A	--	8 / A	--
Old Davis Road / Hilgard Lane	Side Street Stop-Controlled	AM	3 / A	21 / C	3 / A	21 / C	3 / A	21 / C	4 / A	24 / C	3 / A	25 / C
		PM	17 / C	66 / F	18 / C	71 / F	18 / C	72 / F	8 / A	33 / D	8 / A	36 / E
Old Davis Road / Mrak Hall Drive	Signalized	AM	26 / C	--	29 / C	--	25 / C	--	28 / C	--	32 / C	--
		PM	29 / C	--	30 / C	--	29 / C	--	28 / C	--	30 / C	--
City of Davis Intersections												
1 st Street / A Street	Side Street Stop-Controlled	AM	24 / C	>80 / F	24 / C	>80 / F	24 / C	>80 / F	38 / E	>80 / F	38 / E	>80 / F
		PM	23 / C	61 / F	23 / C	68 / F	23 / C	63 / F	30 / D	70 / F	32 / E	>80 / F
1 st Street / B Street	All Way Stop	AM	27 / D	--	29 / D	--	28 / D	--	37 / E	--	39 / E	--
		PM	21 / C	--	21 / C	--	21 / C	--	24 / C	--	25 / C	--
1 st Street / Richards Boulevard	Signalized	AM	34 / C	--	35 / D	--	35 / D	--	35 / C	--	37 / D	--
		PM	55 / D	--	65 / E	--	57 / E	--	52 / D	--	65 / E	--
Olive Drive / Richards Boulevard	Signalized	AM	46 / D	--	49 / D	--	46 / D	--	55 / E	--	56 / E	--
		PM	47 / D	--	72 / E	--	47 / D	--	46 / D	--	72 / E	--
I-80 WB / Richards Boulevard	Uncontrolled	AM	7 / A	10 / A	10 / A	9 / A	7 / A	10 / A	9 / A	12 / B	11 / B	9 / A
		PM	6 / A	6 / A	14 / B	11 / B	8 / A	9 / A	6 / A	7 / A	14 / B	13 / B

Notes: ¹Intersection delay is reported in seconds per vehicle, and is based on the average of all approaches for all-way stop controlled intersections and signalized intersections per HCM methodology. For side-street stop controlled intersections, the delay and LOS is reported for both the average of all approaches and the most delayed movement.

²This analysis assumes the construction of the Old Davis Road / California Avenue roundabout

Shaded cells indicate that intersections were analyzed using SimTraffic

Purple text indicates unacceptable operations (intersection average LOS of E or F) at UC Davis Campus intersections

Bold text indicates a congested condition (LOS F) at City of Davis Core Area intersections.

Source: Fehr & Peers, 2011

As shown in Table R5, six of the study intersections have overall intersection conditions or worst-delayed movements of LOS E or F in the Cumulative Plus Davis Hotel Scenario:

- Old Davis Road / I-80 Eastbound – AM and PM peak hours, average delay for all approaches is LOS F and worst-delayed movement is LOS F
- Old Davis Road / I-80 Westbound – AM and PM peak hours, worst-delayed movement is LOS E
- Old Davis Road / Hilgard Lane – PM peak hour, worst-delayed movement is LOS F
- 1st Street / A Street – AM and PM peak hours, worst-delayed movement is LOS F
- 1st Street / Richards Boulevard – PM peak hour, average delay for all approaches is LOS E
- Olive Drive / Richards Boulevard – PM peak hour, average delay for all approaches is LOS E

The addition of traffic from the Hyatt Place expansion and Old Davis Road extension (the Cumulative Plus Davis Hotel, Hyatt Place Expansion, and Old Davis Road Extension scenario) deteriorates the level of service at the following intersections:

- 1st Street / B Street – AM peak hour, average delay for all approaches increases from 29 seconds to 39 seconds; LOS for all approaches changes from LOS D to LOS E
- Olive Drive / Richards Boulevard – AM peak hour, average delay for all approaches increases from 49 seconds to 56 seconds; LOS for all approaches changes from LOS D to LOS E

Table R6 shows the 95th percentile queue lengths at the I-80 Westbound off-ramp to Richards Boulevard.

TABLE R6: OFF-RAMP QUEUEING – CUMULATIVE CONDITIONS							
Off-Ramp	Storage Length	Peak Hour	Queue Length				
			Cumulative No Project	Cumulative Plus Davis Hotel	Cumulative Plus Hyatt Place Expansion	Cumulative Plus Old Davis Road Extension	Cumulative Plus Davis Hotel, Hyatt Place Expansion, and Old Davis Road Extension
I-80 Westbound Off-ramp to Richards Boulevard	1,450 feet	AM PM	285 feet 130 feet	270 feet 250 feet	265 feet 190 feet	370 feet 125 feet	310 feet 255 feet

Notes: ¹Queue length is the 95th percentile queue as reported by SimTraffic simulation software.
 Source: Fehr & Peers, 2011

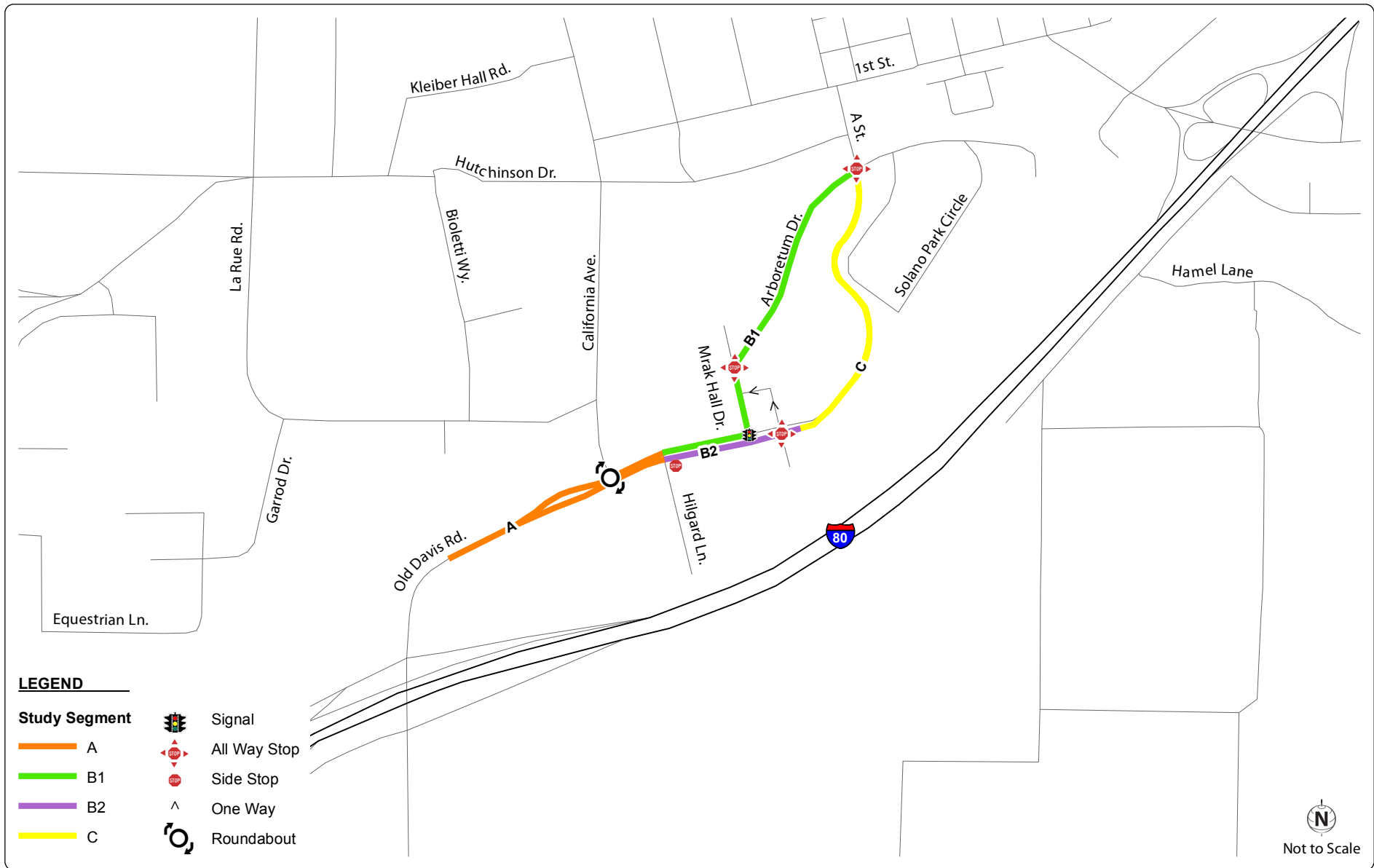
As shown in Table R6, neither of the proposed projects causes off-ramp queues to extend beyond the available storage.

FREEWAY DIVERSION ASSESSMENT

On page 36 of the TIS, the TIS concludes that the Old Davis Road extension is not expected to induce traffic from I-80.

Fehr & Peers conducted additional travel time analysis, using a floating car technique, to compare the expected travel time on the Old Davis Road extension to the existing alignment that requires drivers to use Mrak Hall Drive and Arboretum Drive. A GPS transponder was used to record travel time through the corridors.

Figure R10 shows the study segments that were used to compile travel times on the two routes. Because of summer construction at the Old Davis Road / California Avenue intersection, Fehr & Peers used data collected during the PM peak hour on Friday, January 14, 2011 for Study Segment A. Data for Study Segments B1 and B2 was collected during the PM peak hour on August 8, 2011. Travel time for Study Segment C assumes an average travel speed of 30 miles per hour.



Due to the horizontal curves on the Old Davis Road extension and the acceleration/deceleration necessary at the Arboretum Drive / A Street intersection, travel speeds on the Old Davis Road extension are likely to be lower than 30 miles per hour.

Table R7 shows the results of the additional travel time analysis.

TABLE R7: TRAVEL TIME ANALYSIS		
Study Segment	Existing Alignment (using Arboretum Road) Travel Time (mm:ss)	Old Davis Road Extension Alignment Travel Time (mm:ss)
Eastbound		
Segment A	00:37	00:37
Segment B1	01:47	--
Segment B2	--	00:47
Segment C	--	00:51
Total	02:24	02:15
Westbound		
Segment A	00:39	00:39
Segment B1	01:39	--
Segment B2	--	00:51
Segment C	--	00:51
Total	02:17	02:20

Table R7 shows that both the eastbound and westbound travel times for the Old Davis Road extension alignment are comparable to the travel times for the existing alignment. In the eastbound direction, the Old Davis Road extension alignment is nine seconds faster (six percent faster). In the westbound direction, the Old Davis Road extension alignment is three seconds slower (two percent slower). Because there is no appreciable time difference between the two alignments, the Old Davis Road extension is not expected to induce traffic from parallel facilities.

IMPACT SUMMARY

Chapter 1 of the TIS outlines the significance criteria use to identify impacts at intersections on the UC Davis campus and in the City of Davis; this technical analysis applies revised significance criteria to the Olive Drive / Richards Boulevard intersection. The impact findings of the TIS are consistent with the updates to intersection analysis presented in this technical memorandum. The only significant impact is at the **1st Street / A Street** intersection.

Additional Considerations for City of Davis Intersections

At the **1st Street / B Street** intersection, the average delay for approaches from 29 seconds to 39 seconds and the LOS for all approaches changes from LOS D to LOS E. For this intersection, a

significant traffic impact is defined when the addition of project traffic exacerbates a congested condition (LOS F and meets the MUTCD peak hour signal warrant without the project). Because this intersection operates better than LOS F, this change of LOS would be a less-than-significant impact.

For the **1st Street / Richards Boulevard** intersection, a significant traffic impact is defined when the addition of project traffic exacerbates a congested condition (LOS F in the Core Area) by increasing the intersection's average delay by five seconds or more. The LOS for all approaches is LOS D and LOS E in the AM and PM peak hour, respectively; therefore, there is no significant traffic impact at this intersection.

For the **Olive Drive / Richards Boulevard** intersection, a significant traffic impact is defined when the addition of project traffic causes the overall intersection operations to deteriorate from an acceptable level (LOS E or better in the AM or PM peak hour) to an unacceptable level (LOS F in the AM or PM peak hour). The LOS for all approaches is LOS E in both the AM and PM peak hours; therefore, there is no significant traffic impact at this intersection.