

Willowgrove Project

Local Transportation Analysis

Prepared for:

Raney Planning & Management, Inc.

The City of Davis

FINAL

June 2025

SA24-0248

FEHR  PEERS

Table of Contents

1. Introduction.....	6
2. Analysis Methodology	7
Analysis Locations.....	7
Roadway System Operations.....	10
Travel Demand Forecasting	13
Roadway Operations Performance Criteria	15
City of Davis	15
Yolo County.....	16
Caltrans	16
3. Existing Conditions	18
Roadway System	18
Data Collection.....	20
Analysis Results.....	20
4. Existing Plus Project Conditions.....	28
Project Travel Characteristics.....	28
Trip Generation and Distribution.....	29
Analysis Results.....	29
5. Cumulative Conditions	43
Analysis Results.....	43
6. Recommendations	51
Existing Plus Project Conditions Recommendations.....	51
Cumulative Conditions Recommendations	54

List of Figures

Figure 1: Study Area and Analysis Locations.....	9
Figure 2: Peak Hour Traffic Volumes and Lane Configurations – Existing Conditions.....	21
Figure 3: Inbound Project Trip Distribution	31
Figure 4: Outbound Project Trip Distribution	32
Figure 5: Peak Hour Traffic Volumes and Lane Configurations – Existing Plus Project Conditions.....	33
Figure 6: Peak Hour Traffic Volumes and Lane Configurations – Cumulative Conditions	44
Figure 7: Signalized Project Access Recommendations.....	55

List of Tables

Table 1: Signalized Intersection LOS Criteria	11
Table 2: Stop-Controlled Intersection LOS Criteria	11
Table 3: Proposed Project – Vehicle Trip Generation	30
Table 4: Peak Hour Intersection Operations – Existing and Existing Plus Project Conditions	36
Table 5: Project Access Queuing – Existing and Existing Plus Project Conditions	39
Table 6: Peak Hour Signal Warrants – Existing and Existing Plus Project Conditions	40
Table 7: Peak Hour Intersection Operations – Cumulative Plus Project Conditions	47
Table 8: Peak Hour Signal Warrants – Cumulative Plus Project Conditions	50
Table 9: Peak Hour Intersection Operations – Existing Plus Project Conditions with Improvements	52
Table 10: Project Access Queuing – Existing Plus Project Conditions with Improvements	53
Table 11: Peak Hour Intersection Operations – Cumulative Plus Project Conditions with Improvements	54
Table 12: Project Access Queuing – Cumulative Plus Project Conditions	56
Table 13: PM Peak Hour Intersection Operations – I-80/Mace Boulevard Interchange Vicinity With and Without Ramp Metering – Cumulative Conditions	57
Table 14: Peak Hour Intersection Operations – Cumulative Conditions With Improvements	63
Table 15: Freeway Off-Ramp Queuing – Cumulative Conditions With Improvements	66

This page intentionally left blank.

1. Introduction

This document presents an analysis of the potential effects of the proposed Willowgrove project with respect to peak hour traffic operations, vehicle delay, and level of service (LOS) at intersections in the vicinity of the project site.

Project Location and Land Uses

The project site is located on an approximately 232-acre vacant parcel situated in the northeast area of the City of Davis. It is situated north of East Covell Boulevard and east of the existing Wildhorse Community. Other nearby uses include agricultural land to the north and east, residential to the south, Frances Harper Junior High School to the southeast. The project would include 1,250 dwelling units and 19.5-acres of park offering a variety of recreation and gathering opportunities. The project also includes 5,000 square feet of retail and an approximately 6,300 square-foot daycare facility.

Analysis Scenarios

The following scenarios are analyzed in this study:

- **Existing Conditions** – Establishes the existing setting, which is used to measure project-specific transportation effects.
- **Existing Plus Project Conditions** – Adds changes to travel demand resulting from buildout of the proposed project to existing conditions.
- **Cumulative Conditions** – Represents cumulative travel demand based on reasonably foreseeable local and regional land use and transportation system changes, plus the buildout of the proposed project. Chapter 5 lists the specific cumulative background projects that were considered.



2. Analysis Methodology

This section describes the analysis locations, analysis methods, and performance standards utilized in this study.

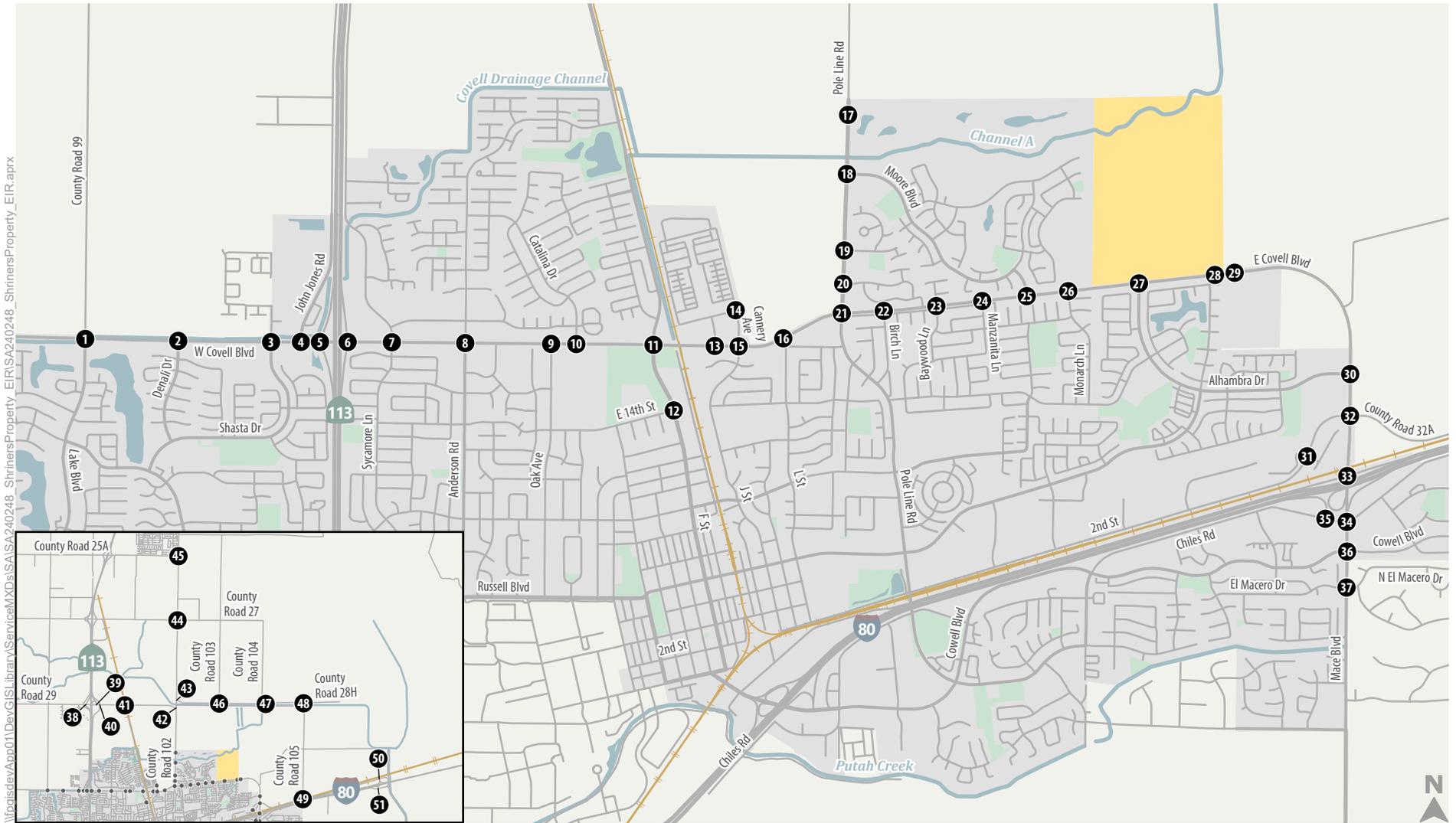
Analysis Locations

Figure 1 displays the locations of the study intersections, which were selected in consultation with City of Davis staff and based on the project's expected travel characteristics (i.e., project location and amount of project trips) as well as facilities susceptible to being affected by the project. This analysis includes the following 51 study intersections, 49 of which exist today:

1. West Covell Boulevard/Lake Boulevard
2. West Covell Boulevard/Denali Drive
3. West Covell Boulevard/Shasta Drive
4. West Covell Boulevard/John Jones Road
5. West Covell Boulevard/SR 113 SB Ramps
6. West Covell Boulevard/SR 113 NB Ramps
7. West Covell Boulevard/Sycamore Lane
8. West Covell Boulevard/Anderson Road
9. West Covell Boulevard/Oak Avenue
10. West Covell Boulevard/Catalina Drive
11. East Covell Boulevard/F Street
12. F Street/East Fourteenth Street
13. East Covell Boulevard/Market Avenue
14. Cannery Avenue/Cannery Loop
15. East Covell Boulevard/J Street/Cannery Avenue
16. East Covell Boulevard/L Street
17. Pole Line Road/Village Farms Road North (Future Intersection)
18. Pole Line Road/Moore Boulevard
19. Pole Line Road/Donner Avenue
20. Pole Line Road/Picasso Avenue
21. East Covell Boulevard/Pole Line Road
22. East Covell Boulevard/Birch Lane
23. East Covell Boulevard/Baywood Lane
24. East Covell Boulevard/Manzanita Lane

25. East Covell Boulevard/Wright Boulevard
26. East Covell Boulevard/Monarch Lane
27. East Covell Boulevard/Alhambra Drive/Westerly Project Intersection
28. East Covell Boulevard/Easterly Project Intersection (Future Intersection)
29. East Covell Boulevard/Harper Junior High School
30. Mace Boulevard/Alhambra Drive
31. Second Street/Fermi Place/Target Driveway
32. Mace Boulevard/Second Street/County Road 32A
33. Mace Boulevard/I-80 WB Ramps
34. Mace Boulevard/Chiles Road
35. Chiles Road/I-80 EB Ramp
36. Mace Boulevard/Cowell Boulevard
37. Mace Boulevard/North El Macero Drive
38. County Road 29/SR 113 SB Ramps
39. County Road 29/SR 113 NB Ramps
40. County Road 29/County Road 100A
41. County Road 29/County Road 101A
42. County Road 102/County Road 29
43. County Road 102/County Road 28H
44. County Road 102/County Road 27
45. County Road 102/County Road 25A
46. County Road 28H/County Road 103
47. County Road 28H/Yolo County Landfill Driveway
48. County Road 28H/County Road 105
49. County Road 105/County Road 32A
50. County Road 32A/I-80 WB Ramps
51. County Road 32B/Chiles Road/I-80 EB Ramps





W:\pgisdev\app01\DevGIS\Library\ServiceMXDs\SA240248_ShirnersProperty_EIR.aprx
 W:\pgisdev\app01\DevGIS\Library\ServiceMXDs\SA240248_ShirnersProperty_EIR.aprx

- 1 Study Intersection
- Project Site
- Railroad
- Parks
- Davis City Limits

Figure 1

Study Intersections



Roadway System Operations

This study analyzes roadway operating conditions using intersection LOS as a primary measure of operational performance. Motorized vehicle LOS is a qualitative measure of traffic flow from the perspective of motorists and is an indication of the comfort and convenience associated with driving. Typical factors that affect motorized vehicle LOS include speed, travel time, traffic interruptions, and freedom to maneuver. Empirical LOS criteria and methods of calculation have been documented in the *Highway Capacity Manual, 7th Edition* (HCM) published by the Transportation Research Board of the National Academies of Science (Transportation Research Board, 2022). The HCM defines six levels of service ranging from LOS A (representing free-flow vehicular traffic conditions with little to no congestion) to LOS F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays). The LOS definitions and calculations contained in the HCM are the prevailing measurement standard used throughout the United States and are used in this study. Motorized vehicle LOS definitions for signalized and unsignalized intersection are discussed on the following pages.

Study Intersections

The LOS at signalized intersections is based on the average control delay (i.e., delay resulting from initial deceleration, queue move-up time, time stopped on an intersection approach, and final acceleration) experienced per vehicle traveling through the intersection. **Table 1** summarizes the relationship between delay and LOS for signalized intersections.

Similar to signalized intersections, the HCM 7th Edition methodology for stop-controlled intersections reports the LOS based on the control delay experienced by motorists traveling through the intersection. As shown in **Table 2**, the delay ranges for stop-controlled intersections are lower than for signalized intersections. The HCM anticipates that motorists expect signalized intersections to carry higher traffic volume that results in greater delay than a stop-controlled intersection. Stop controls are associated with more uncertainty as delays are less predictable, which can reduce users' delay tolerance.

As described in Chapter 21 of the HCM 7th Edition, the LOS for all-way stop controlled intersections is based on the average control delay for the entire intersection. For side-street stop-controlled intersections, the LOS is determined separately for each minor-street movement (or shared movement) and may also be basis on major-street left-turn movements, per Chapter 20 of the HCM 7th Edition. However, in previous City of Davis traffic studies, the LOS for side-street stop-controlled intersections was based on the average control delay for the intersection as a whole.



Table 1: Signalized Intersection LOS Criteria

Level of Service	Description	Average Control Delay ¹
A	Volume-to-capacity ratio is low and either progression is exceptionally favorable or cycle length is very short.	≤ 10
B	Volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.	> 10 to 20
C	Progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	> 20 to 35
D	Volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.	> 35 to 55
E	Volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.	> 55 to 80
F	Volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	> 80

Note: ¹ Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A).

Source: *Highway Capacity Manual, 7th Edition*, Transportation Research Board, 2022.

Table 2: Stop-Controlled Intersection LOS Criteria

Level of Service	Average Control Delay ¹
A	≤ 10
B	> 10 to 15
C	> 15 to 25
D	> 25 to 35
E	> 35 to 50
F	> 50

Note: ¹ Average control delay presented in seconds per vehicle. Delay values are rounded to the nearest second and evaluated for LOS based on the above thresholds (i.e., 10 seconds per vehicle = LOS A).

Source: *Highway Capacity Manual, 7th Edition*, Transportation Research Board, 2022.

To be consistent with both the HCM 7th Edition and recent City of Davis studies, this analysis documents the LOS for side-street stop-controlled intersections in two forms:

- Intersection LOS: based on the weighted average of the control delay experienced by each movement of the intersection. Note that this is not a recognized LOS metric for side-street stop-controlled intersections per the HCM 7th Edition. However, the City of Davis has previously expressed side-street stop-controlled intersection delay using this measure for informational purposes.
- Worst-case LOS: based on the movement (or shared movement) with the greatest control delay at the intersection, which may consist of minor-street stop-controlled movements or major street left-turns.

Note that the term LOS only applies to intersection delay as measured per the HCM 7th Edition. Other forms of assessing intersection delay are acceptable but they should not be associated with a LOS term that was only intended for the specific HCM measurement.

Use of Micro-Simulation Traffic Operations Analysis

This study analyzes study intersections 1 through 37 and 50 through 51 using Trafficware's SimTraffic 11 micro-simulation software. Study intersections 38 through 49 are analyzed using the Synchro 11 software program. SimTraffic was used to account for the effects of turn-pocket overflows, vehicle queuing interactions between adjacent intersections, freeway ramp meters, and interactions between vehicles, bicyclists, and pedestrians. It captures the nature of driver behavior and models the interaction between vehicles in a study network. SimTraffic better accounts for the effects of turn-pocket queue overflows, imbalanced lane usage, queue blocking, queue interactions between adjacent intersections, and pedestrian crossing interactions when compared to conventional, deterministic analysis methods, such as those outlined in the HCM and applied in Synchro 11. The SimTraffic model was calibrated and validated to existing conditions based on travel time data, peak hour volumes, and observed maximum queue lengths.

Because micro-simulation models rely on the random arrival of vehicles into the network, multiple runs are needed to provide a reasonable level of statistical accuracy and validity. The SimTraffic models were run up to thirty times (each using a different random seed number) and ten of those runs were selected and averaged to determine final model outputs. Selected runs were screened to exclude outliers that under- or over-emphasized delay compared to observed conditions.



Travel Demand Forecasting

For the purposes of forecasting traffic volumes for the study intersections, the local UC Davis/City of Davis travel demand model was utilized. The model was developed in close coordination with the City of Davis and UC Davis in order to incorporate planned land use and transportation system changes both within the City and its sphere of influence and on the UC Davis campus. The coordination effort included the following elements of model development:

- **TAZ system** – The traffic analysis zone (TAZ) development included review by City and UC Davis staff to ensure sufficient detail for both existing and new growth areas.
- **Land use inputs** – Inputs were initially obtained from the SACOG 2012 parcel database used in developing regional model inputs for the 2016 SACOG MTP/SCS. These inputs were reviewed for each TAZ with City and UC Davis staff to develop a complete inventory representing 2016 conditions, which is the model's original base year. For the purposes of this study, the base year model land use inputs were updated to Fall 2023 conditions, which coincides with the timing of the traffic counts conducted for this study.

For the model's original future years of 2030 and 2036, land use forecasts were based on future land use changes throughout the region projected in the 2016 SACOG MTP/SCS. The land use forecasts were refined based on input from City staff and UC Davis staff according to planned City of Davis General Plan growth, planned UC Davis 2018 Long Range Development Plan (LRDP) growth, approved development projects, pipeline development projects, and other reasonably foreseeable land development activities. For the purposes of this study, the 2036 land use inputs were modified in consultation with City staff to create a cumulative scenario that captures reasonably foreseeable future land development activity that could affect traffic operations at the study intersections. Major cumulative land use projects included in this study include the UC Davis 2018 LRDP, the Downtown Davis Specific Plan, the Bretton Woods project (formerly known as the West Davis Active Adult Community project), The Promenade project (formerly known as the Nishi project), the DiSC 2022 project, the Palomino Place project, Village Farms, buildout of the remainder commercial parcels at The Cannery, the Chiles Ranch Subdivision project, the Sutter Davis Hospital Expansion, and of course the Willowgrove project.

- **Roadway network inputs** – The local model roadway network was developed from GIS data representing local, collector, arterial, and freeway functional classifications. Input data included the number of travel lanes and free-flow travel speeds based on the previous UC Davis/City of Davis Local Model developed for the 2003 LRDP update, plus new data from field observations and Google Maps imagery. Capacity inputs for each roadway classification were estimated from reference documents including the HCM 6th Edition and the *Travel Demand Forecasting*:

Parameters and Techniques, National Cooperative Highway Research Program, Report 716, (Transportation Research Board, 2012). Changes to the roadway networks for future year scenarios were provided by City and UC Davis staff as noted above.

- **Vehicle trip rates** – The vehicle trip rates were derived from a variety of sources including the UC Davis Campus Travel Survey, the California Household Travel Survey, local residential trip generation estimates based on observed traffic counts, and the *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, 2017). The rates were estimated for the following trip purposes.
 - Home-Based Work (HBW): trips between a residence and a workplace
 - Home-Based Shop (HBS): trips between a residence and a retail destination
 - Home-Based School (HBK): trips between a residence and a school (K-12)
 - Home-Based Other (HBO): trips between a residence and any other destination
 - Non-Home-Based (OO): trips that do not begin or end at a residence, such as traveling from a workplace to a restaurant, or from a retail store to a bank
 - College (COLL): trips to and from a Community College
 - UC Davis (UCD): trips to and from UC Davis
 - Highway Commercial (HC): trips to and from highway commercial destinations
- **Vehicle trip lengths and external trip patterns** – The vehicle trip lengths and the proportion of vehicle trips that occur exclusively within the model area versus those that have origins or destinations external to the model area were obtained from the UC Davis Campus Travel Survey, the California Household Travel Survey, and the American Community Survey. This information was extracted for each trip purpose above. Trips traveling through the model area without stopping such as those on I-80, were estimated from the regional SACOG SACSIM model developed for the 2016 SACOG MTP/SCS and the 2020 SACOG MTP/SCS.
- **Trip assignment** – Trip assignment relies on conventional algorithms that assign trips between origin and destination zones based on travel times that reflect the influence of roadway capacity and speeds. A unique aspect of the assignment process is that UC Davis generated trips had to be associated with parking areas on and off-campus since that is where trips start and end. These parking areas were mapped in collaboration with UC Davis staff and iterative testing of the assignment results was used to refine the association.



The UC Davis/City of Davis travel demand model was applied to generate study intersection traffic volume forecast inputs for the cumulative analysis scenario described above, as well as to inform the distribution and assignment of project trips under the “plus project” analysis scenarios. Separate model runs were performed for each scenario and the model-produced volume forecasts were extracted for final adjustments to account for differences between the model’s base year volume estimates and observed traffic counts. The adjustment involves isolating the incremental change in volume between the base year model and the future year analysis scenario and adding that difference to the baseline traffic counts. This adjustment process helps to minimize potential errors in the model’s base year estimates and is based on the methodology contained in *Analytical Travel Forecasting Approaches for Project-Level Planning and Design, National Cooperative Highway Research Program (NCHRP) Report 765* (Transportation Research Board, 2014).

Roadway Operations Performance Criteria

The following criteria are used to identify operational deficiencies based on the traffic operations analysis.

City of Davis

Per the City of Davis General Plan Transportation Element, LOS E is the minimum acceptable LOS for the majority of intersections within the City, and for each City-operated study intersection in the study area. LOS F is acceptable for other areas (e.g., Downtown Davis and the Richards Boulevard corridor) as established in the General Plan and contingent on approval by the City Council. For the purposes of this analysis, adverse effects to City of Davis roadway operations are defined when the addition of project traffic would cause any of the following:

- For signalized intersections, cause overall intersection operations to deteriorate from an acceptable level (LOS E or better) to an unacceptable level (LOS F);
- For signalized intersections, exacerbate unacceptable (LOS F) operations by increasing an intersection’s average delay by five seconds or more;
- For unsignalized intersections, cause the worst-case movement (or average of all movements for all-way stop-controlled intersections) to worsen from an acceptable level (LOS E or better) to an unacceptable level (LOS F) and meet the peak hour signal warrant;
- For unsignalized intersections that operate unacceptably (LOS F) and meet the peak hour signal warrant without the project, worsen operations by increasing the overall intersection’s volume served by more than one percent; or
- For unsignalized intersections that operate unacceptably but do not meet the peak hour signal warrant without the project, add sufficient volume to meet the warrant.

Yolo County

Per the Yolo County General Plan and the Yolo County Transportation Impact Study Guidelines, LOS C is the minimum acceptable LOS in the unincorporated county, except as specified on designated roadways. LOS D is the minimum acceptable LOS for County Road 32A and County Road 102. For the purposes of this analysis, adverse effects to Yolo County roadway operations are defined when the addition of project traffic would cause any of the following:

- For intersections in the unincorporated county with the exceptions noted below, cause peak hour intersection operations to deteriorate from an acceptable level (LOS C) to an unacceptable level (LOS D or worse);
- For intersections on County Road 32A and County Road 102, cause peak hour intersection operations to deteriorate from an acceptable level (LOS D) to an unacceptable level (LOS E or worse);
- An intersection operates unacceptably under a no project scenario and the project adds 10 or more peak hour trips; or
- The addition of project traffic causes an all-way stop-controlled or side street stop-controlled intersection to meet MUTCD signal warrant criteria.

Caltrans

Caltrans' Local Development – Intergovernmental Review Program (LD-IGR) provides guidance on the evaluation of traffic effects on State highway facilities. In light of Senate Bill 743 and related changes to the CEQA Guidelines, Caltrans has announced in its *Caltrans Draft VMT-Focused Transportation Impact Study Guide* (Caltrans, February 2020) that it will use VMT as the CEQA transportation impact metric for projects on the State highway system and has indicated it will rely on the Governor's Office of Planning and Research (OPR) *Technical Advisory on Evaluating Transportation Impacts in CEQA* when preparing LD-IGR comments on local agency land use projects.

To analyze potential LOS impacts to the State highway system, this study utilizes the performance expectations established in the Caltrans District 3 Interstate 80 Transportation Concept Report (TCR) (2017) and the State Route 113 TCR (2014). According to the I-80 TCR, the horizon year LOS for I-80 within the study area (including ramp terminal intersections) is LOS F. Therefore, LOS F is considered the design operating goal on the I-80 mainline and at I-80 ramp terminal intersections within the study area. The SR 113 TCR identifies a concept LOS E for SR 113 between I-80 and I-5. Therefore, LOS E is considered the design operating goal on the SR 113 mainline and at SR 113 ramp terminal intersection within the study area.



For the purposes of this analysis, adverse effects to Caltrans roadway operations are defined when the addition of project traffic would cause any of the following:

- For signalized intersections, cause overall intersection operations to deteriorate from an acceptable level (LOS F for I-80 and LOS E or better for SR 113) to an unacceptable level;
- For signalized intersections, exacerbate unacceptable operations by increasing an intersection's average delay by five seconds or more;
- For unsignalized intersections, cause the worst-case movement (or average of all movements for all-way stop-controlled intersections) to worsen from an acceptable level to an unacceptable level and meet the California Manual on Uniform Traffic Control Devices (MUTCD) peak hour signal warrant;
- For unsignalized intersections that operate unacceptably and meet the peak hour signal warrant without the project, worsen operations by increasing the overall intersection's volume by more than one percent; or
- For unsignalized intersections that operate unacceptably but do not meet the peak hour signal warrant without the project, add sufficient volume to meet the warrant.

Note that the following topics are covered in the *Willowgrove Project CEQA Transportation Impact Study* (Fehr & Peers, June 2025):

- Freeway off-ramp queuing
- Project access intersection queuing and turn lane storage needs

3. Existing Conditions

Roadway System

Vehicular access to the project site is provided via East Covell Boulevard from the west and Mace Boulevard from the southeast. Access is also possible via Alhambra Drive. These roadways are described in detail below, along with the freeways that provide regional access.

- **East/West Covell Boulevard** is an east-west major arterial that traverses the City of Davis. It begins west of State Route (SR) 113, has an interchange with SR 113, and intersects several primary north-south roads in the City including Anderson Road, F Street, J Street, and Pole Line Road. The following describes the number of lanes and posted speed limits in each direction of East Covell Boulevard east of Pole Line Road:
 - Eastbound: it consists of two travel lanes for a distance of 1.75 miles, narrowing to a single lane at the east property boundary of Harper Junior High School. It continues as a single lane for another 1,575 feet to County Road 104 where it becomes Mace Boulevard. It has a posted speed limit of 35 miles per hour (mph) east of Pole Line Road. The posted speed limit increases to 40 mph east of Wright Boulevard. On-street parking is prohibited along this segment of roadway.
 - Westbound: it consists of a single travel lane for about one mile starting at County Road 104. It widens to include a second lane starting along the frontage of the Wildhorse development and continuing to Pole Line Road, a distance of about 5,160 feet. It has a posted speed limit of 40 mph west at County Road 104 with the speed decreased to 35 mph west of Wright Boulevard.

The eastbound and westbound lanes are generally separated by either a landscaped median or left-turn lane at an intersection. However, the most easterly 1,575 feet section consists of an approximately 12-foot wide swath of pavement delineated by a pair of double-yellow lines. This configuration was implemented in 2024. Bicycle/pedestrian facilities along this roadway are described in the next section.

- **Mace Boulevard** is a two- to four-lane major arterial. It begins at County Road 104, extending southerly to connect with Interstate 80 (I-80), and continuing into South Davis, and beyond. Starting at County Road 104, the southbound direction features one travel lane. A second lane is added 410 feet north of Alhambra Drive and continues to and across I-80. The northbound direction has two lanes over I-80 to Second Street, with the outside lane dropping 250 feet north of Second Street. It has a posted speed limit of 35 mph immediately north of I-80 and 40 mph



north of Second Street. Its north and south travel lanes are separated either by a landscaped median or a left-turn lane.

- **Pole Line Road** is a two-lane north-south major/minor arterial that connects East Davis and South Davis across I-80. North of the City limits, Pole Line Road becomes County Road 102, which continues north to the City of Woodland and Interstate 5 (I-5). Pole line Road has a posted speed limit of 40 mph and 25 mph north and south of East Covell Boulevard, respectively.
- **Alhambra Drive** is a two-lane minor arterial that extends in a southeast direction from East Covell Boulevard to Mace Boulevard, a distance of about 1.1 miles. About halfway, it intersects 5th Street, which extends westerly from that location into Downtown Davis where it becomes Russell Boulevard. Its travel lanes are separated by a raised median, the posted speed limit is 30 mph, and on-street parking is prohibited.
- **State Route 113 (SR 113)** is a four-lane, north-south freeway that extends from Interstate 80 (I-80) at the Yolo/Solano County line north to Interstate 5 (I-5) in Woodland. SR 113 serves Davis via interchanges at Covell Boulevard and Russell Boulevard. Additional SR 113 interchanges within the vicinity of Davis include the Hutchison Drive interchange at the UC Davis campus and the County Road 29 interchange in Yolo County. SR 113 and its interchanges are owned and operated by Caltrans.
- **Interstate 80 (I-80)** is an east-west interstate freeway that connects the San Francisco Bay Area to the west and Sacramento and the Lake Tahoe Basin to the east and beyond. I-80 provides three travel lanes per direction in the vicinity of the project site. I-80 serves Davis via interchanges at Mace Boulevard and Richards Boulevard. Additional I-80 interchanges within the vicinity of Davis include the Old Davis Road interchange at the UC Davis campus and the County Road 32A interchange in Yolo County. I-80 and its interchanges are owned and operated by Caltrans.

East Covell Boulevard/Alhambra Drive Intersection

This signalized T-intersection would be the primary access serving the project site. The eastbound approach consists of two through lanes and one right-turn lane featuring a yield-controlled channelized movement. The westbound approach consists of one through lane and a 120-foot left-turn lane (that permits u-turns). The northbound approach consists of an approximately 20-foot wide single lane that allows motorists to either turn left onto westbound East Covell Boulevard or use the yield-controlled channelized right-turn to head eastbound. The only crosswalk present is on the south leg. Bicycle detection is provided on all approaches. The signal operates with protected left-turn phasing (i.e., green arrow for the protected westbound left-turn).

Data Collection

Intersection turning movement counts were conducted during the morning (7:00 a.m. to 9:00 a.m.) and evening (4:00 p.m. to 6:00 p.m.) peak periods on Thursday, October 26, 2023 at intersections 1 through 37 and Tuesday, February 13, 2024 at intersections 38 through 51. Intersection counts included volumes for vehicles, bicyclists, and pedestrians. During the traffic counts, local schools and UC Davis were in regular session and weather conditions were dry and clear. Based on the traffic data collection, the a.m. peak hour within the study area occurred from 7:45 to 8:45 a.m., and the p.m. peak hour occurred from 4:30 to 5:30 p.m. Peak hour traffic volumes derived from the intersection turning movement counts are illustrated in **Figure 2**.

Additionally, peak period field observations were conducted by Fehr & Peers staff during the traffic counts. The field observations, including observed maximum queues, were utilized to calibrate the existing conditions traffic operations analysis described in the subsequent section.

Analysis Results

The next chapter presents the existing a.m. and p.m. peak hour LOS for each study intersection as part of comparison of LOS without and with the project.

During the a.m. peak hour, vehicle traffic within the study area generally progresses smoothly and all study intersections operate acceptably. Queues generally do not extend to the adjacent upstream intersection and clear within one cycle at signalized intersections. One notable exception is southbound F Street south of East Covell Boulevard, where queue spillbacks were observed from the midblock crossing near Davis Little League Park into the East Covell Boulevard/F Street intersection. This in turn exacerbated eastbound right-turn, westbound left-turn, and southbound through queues at the East Covell Boulevard/F Street intersection. The primary cause of this condition is the crossing guard managing frequent bicycle and pedestrian crossings at the midblock crossing, which results in reduced capacity on northbound and southbound F Street.

During the p.m. peak hour, higher levels of delay and queuing occur on local roadways within the vicinity of the Mace Boulevard interchange at I-80. Three intersections operate at LOS F, including the Mace Boulevard/Chiles Road, Chiles Road/I-80 EB Ramp, and Chiles Road/County Road 32B/I-80 EB Ramps intersections. LOS F conditions at the Mace Boulevard/Chiles Road intersection do not meet the City's LOS standards.



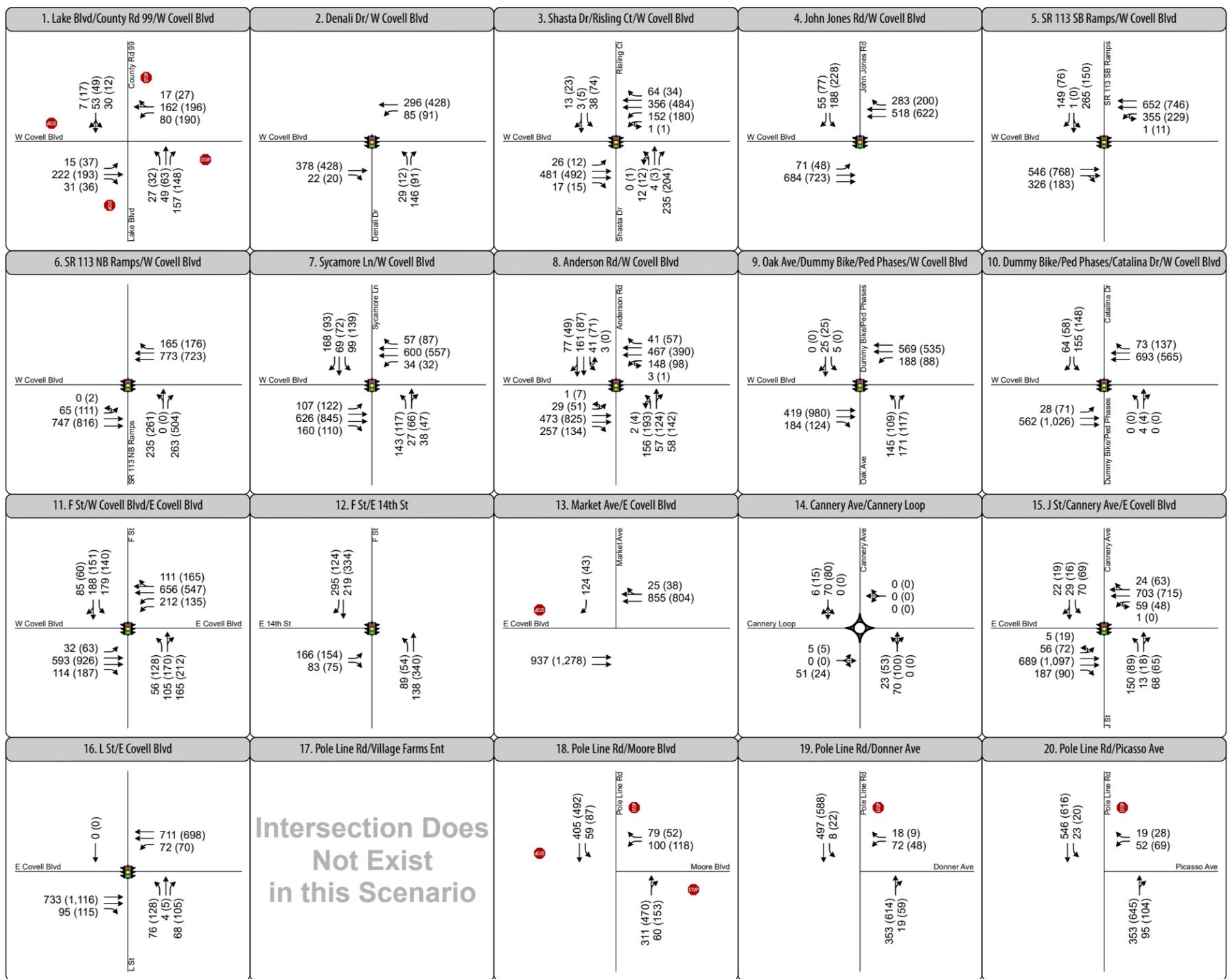
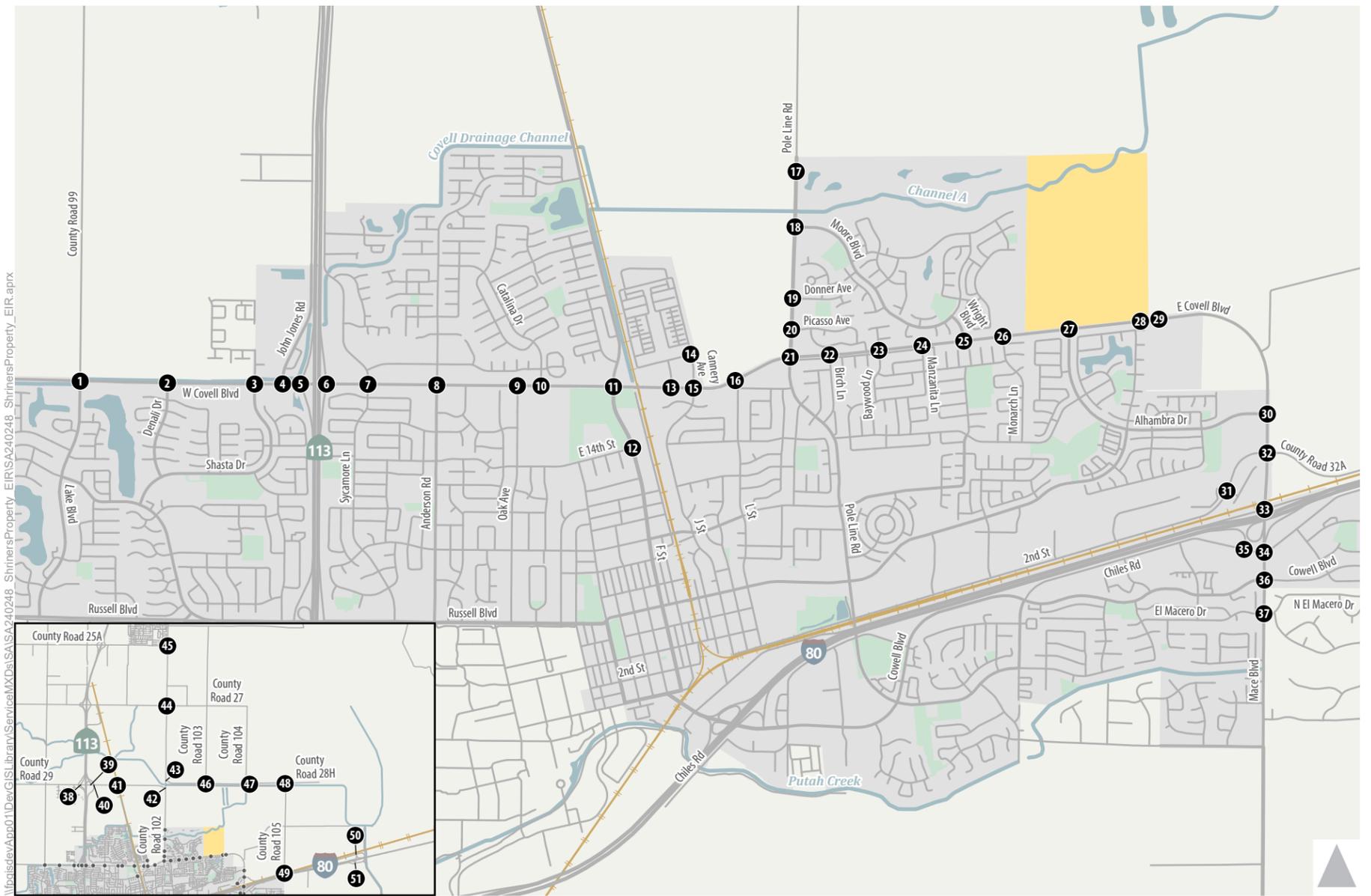
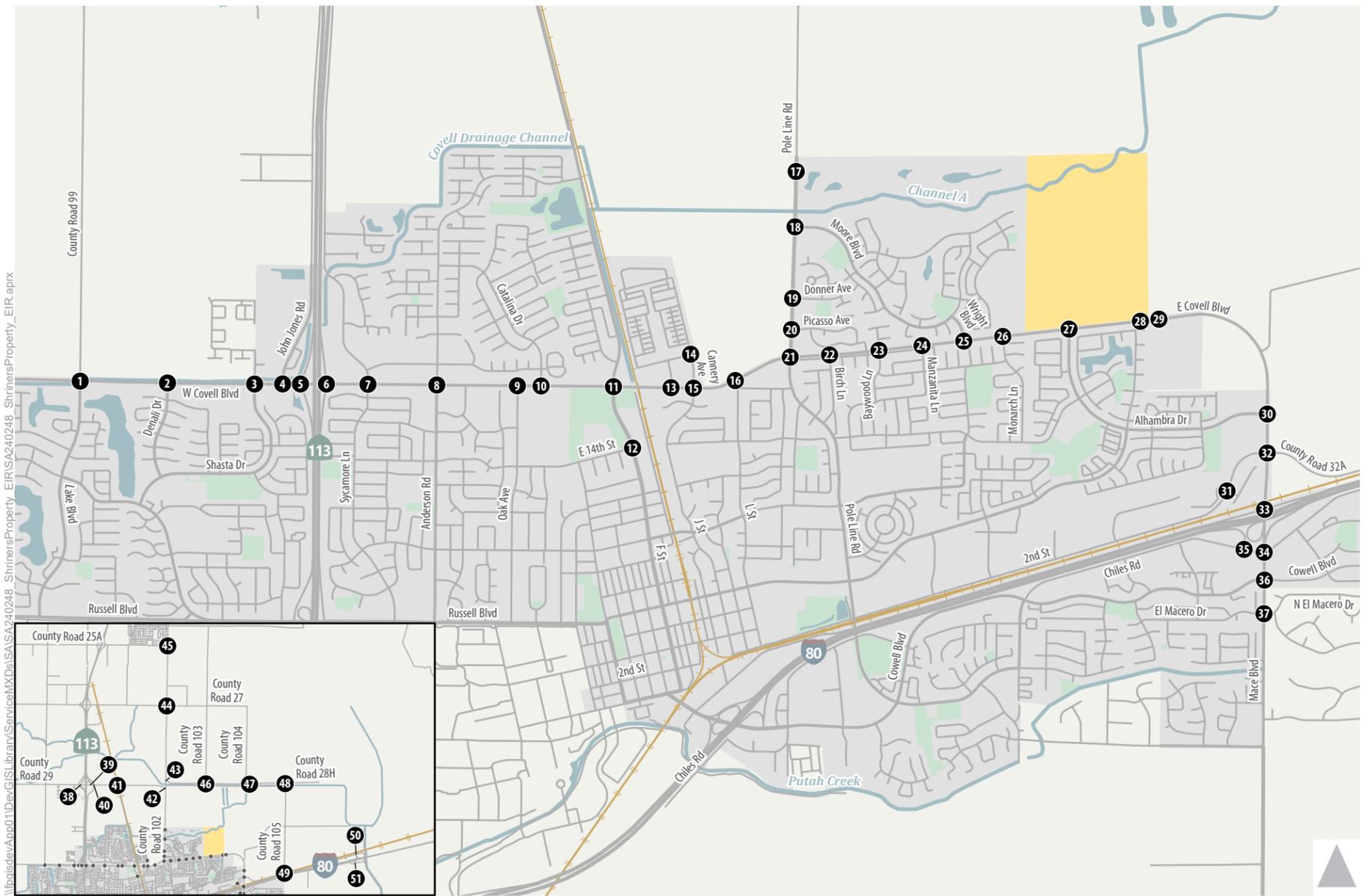


Figure 2a
Peak Hour Traffic Volumes and Lane Configurations - Existing Conditions



<p>21. Pole Line Rd/E Covell Blvd</p> <p>210 (226) 246 (295) 142 (164)</p> <p>124 (116) 431 (360) 66 (84)</p> <p>157 (298) 442 (691) 134 (189)</p> <p>142 (139) 167 (335) 41 (43)</p>	<p>22. Birch Ln/Dummy Bike/Ped Phases/E Covell Blvd</p> <p>4 (0) 73 (9)</p> <p>552 (519) 53 (11) 17 (12)</p> <p>556 (869) 69 (29)</p> <p>65 (41) 27 (18)</p>	<p>23. Baywood Ln/E Covell Blvd</p> <p>9 (12) 0 (1) 4 (3)</p> <p>3 (2) 570 (543) 25 (11)</p> <p>0 (11) 2 (15) 575 (846) 23 (27)</p> <p>22 (12) 0 (1) 23 (15)</p>	<p>24. Manzanita Ln/E Covell Blvd</p> <p>551 (528) 12 (26) 0 (1)</p> <p>581 (828) 21 (36)</p> <p>47 (28) 26 (15)</p>	<p>25. Wright Blvd/E Covell Blvd</p> <p>112 (64) 132 (109)</p> <p>69 (105) 451 (491)</p> <p>41 (86) 566 (758)</p>
<p>26. Monarch Ln/E Covell Blvd</p> <p>1 (1) 0 (0) 0 (0)</p> <p>1 (0) 492 (573) 15 (22)</p> <p>0 (0) 668 (832) 30 (35)</p> <p>27 (22) 0 (0) 41 (24)</p>	<p>27. Alhambra Blvd/E Covell Blvd</p> <p>383 (498) 32 (18)</p> <p>609 (701) 100 (155)</p> <p>125 (97) 39 (4)</p>	<p>Intersection Does Not Exist in this Scenario</p>		<p>29. Harper JR HS Access/E Covell Blvd</p> <p>325 (515) 139 (3)</p> <p>523 (699) 125 (6)</p> <p>90 (1) 3 (1)</p>
<p>30. Mace Blvd/Alhambra Dr</p> <p>28 (16) 608 (710)</p> <p>14 (10) 278 (185)</p> <p>157 (187) 444 (488)</p>	<p>31. Second St/Target Main Dwy /Fermi Place</p> <p>56 (115) 401 (248) 31 (15) 18 (35)</p> <p>8 (37) 1 (8) 6 (10)</p> <p>14 (187) 1 (2) 31 (86)</p> <p>21 (156) 186 (656) 3 (13)</p>	<p>32. Mace Blvd/Second St/County Rd 32A</p> <p>63 (136) 803 (637) 18 (111) 1 (4)</p> <p>17 (20) 22 (27) 13 (72)</p> <p>10 (17) 24 (120) 5 (147) 207 (602)</p> <p>457 (330) 559 (531) 10 (23)</p>	<p>33. Mace Blvd/I-80 WB Ramps</p> <p>148 (142) 875 (1,168)</p> <p>519 (501) 2 (1) 294 (362)</p> <p>359 (203) 507 (383)</p>	<p>34. Mace Blvd/Chiles Rd</p> <p>271 (225) 285 (397) 162 (255) 2 (0)</p> <p>328 (198) 67 (33) 17 (29)</p> <p>400 (387) 149 (317) 129 (55)</p> <p>22 (22) 575 (501) 20 (133)</p>
<p>35. I-80 EB Off-Ramp/Chiles Rd</p> <p>75 (38) 301 (73)</p> <p>360 (279) 0 (1)</p> <p>377 (685)</p>	<p>36. Mace Blvd/Cowell Blvd</p> <p>62 (69) 189 (210) 80 (108)</p> <p>101 (63) 77 (40) 39 (13)</p> <p>123 (120) 88 (65) 10 (26)</p> <p>9 (14) 270 (380) 48 (20)</p>	<p>37. Mace Blvd/N El Macero Dr</p> <p>21 (11) 142 (152) 75 (86)</p> <p>91 (74) 4 (24) 4 (7) 0 (1)</p> <p>19 (7) 5 (10) 3 (4)</p> <p>6 (12) 217 (333) 3 (6)</p>	<p>38. SR 113 SB Ramps/County Rd 29</p> <p>83 (46) 0 (1) 220 (154)</p> <p>130 (147) 43 (20)</p> <p>209 (258) 32 (36)</p>	<p>39. SR 113 NB Ramps/County Rd 29</p> <p>29 (31) 21 (30) 1 (0)</p> <p>185 (171) 144 (136)</p> <p>42 (116) 387 (296)</p>
<p>40. County Rd 100A/County Rd 29</p> <p>4 (4) 0 (1) 2 (0)</p> <p>1 (3) 290 (267) 20 (14)</p> <p>1 (0) 3 (4) 327 (294) 77 (28)</p> <p>34 (36) 0 (2) 12 (18)</p>				

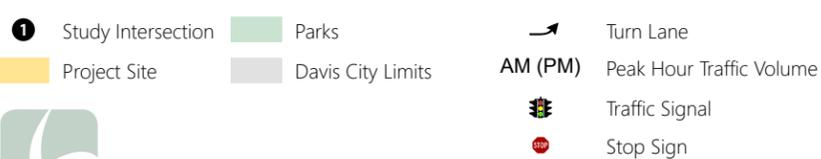
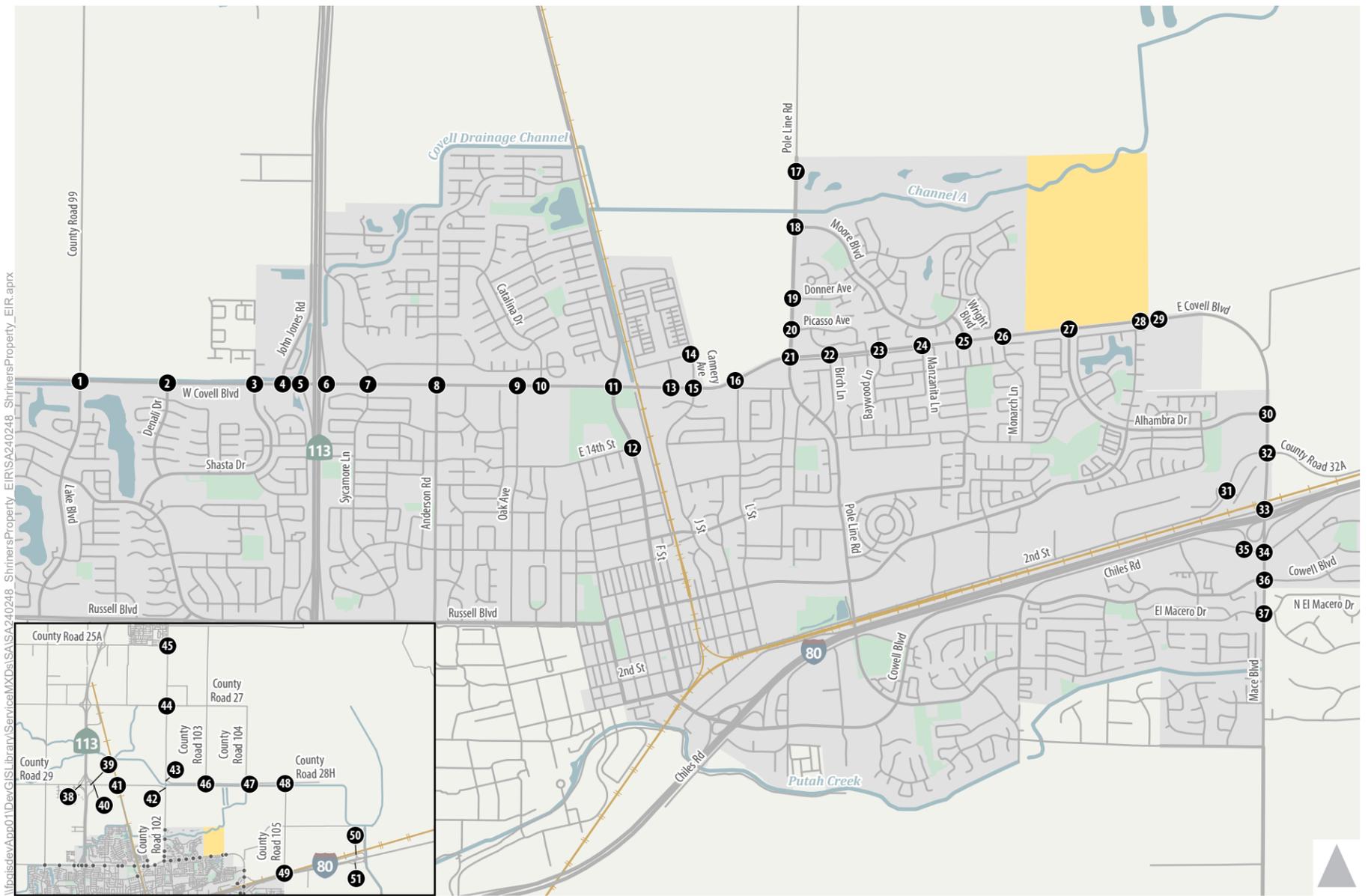


Figure 2b
 Peak Hour Traffic Volumes
 and Lane Configurations -
 Existing Conditions





41. County Rd 101A/County Rd 29	42. County Rd 102/County Rd 29	43. County Rd 102/County Rd 28H	44. County Rd 102/County Rd 27	45. County Rd 102/County Rd 25A
<p>168 (150) 69 (40) 0 (1)</p> <p>County Rd 29</p> <p>142 (176) 200 (134)</p> <p>County Rd 101A</p> <p>141 (132) 21 (31)</p>	<p>100 (79) 377 (347)</p> <p>County Rd 102</p> <p>County Rd 29</p> <p>52 (110) 114 (100)</p> <p>140 (106) 229 (391)</p>	<p>461 (398) 57 (48)</p> <p>County Rd 102</p> <p>24 (87) 16 (28)</p> <p>County Rd 28H</p> <p>254 (457) 27 (44)</p>	<p>43 (18) 452 (367) 4 (3)</p> <p>County Rd 27</p> <p>15 (35) 6 (9) 61 (82)</p> <p>46 (55) 211 (474) 2 (1)</p>	<p>15 (28) 405 (345) 1 (0)</p> <p>County Rd 25A</p> <p>15 (10) 105 (38)</p> <p>26 (55) 199 (455)</p>
46. County Rd 103/County Rd 28H	47. Yolo County Landfill Dwy/County Rd 28H	48. County Rd 105/County Rd 28H	49. County Rd 105/County Rd 32A	50. I-80 WB Ramps/County Rd 32A
<p>2 (4) 10 (11)</p> <p>County Rd 103</p> <p>7 (22) 46 (107)</p> <p>County Rd 28H</p> <p>1 (0) 90 (94)</p>	<p>22 (48) 13 (16)</p> <p>Yolo County Landfill Dwy</p> <p>14 (0) 35 (65)</p> <p>County Rd 28H</p> <p>21 (1) 69 (105)</p>	<p>1 (0) 1 (1)</p> <p>County Rd 28H</p> <p>2 (0) 82 (121)</p> <p>49 (66) 2 (0)</p>	<p>30 (194) 7 (5)</p> <p>County Rd 32A</p> <p>41 (41) 52 (59)</p> <p>72 (122) 8 (9)</p>	<p>5 (7) 3 (8)</p> <p>County Rd 32A</p> <p>100 (321) 2 (2)</p> <p>I-80 WB Ramps</p> <p>89 (97) 68 (51)</p>
51. I-80 EB Ramps/Chiles Rd	<p>4 (4) 1 (2)</p> <p>I-80 EB Ramps</p> <p>113 (320) 55 (52)</p> <p>Chiles Rd</p> <p>72 (349) 7 (13)</p>			

- 1 Study Intersection
- Project Site
- Parks
- Davis City Limits
- Turn Lane
- AM (PM)** Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign

Figure 2c
Peak Hour Traffic Volumes
and Lane Configurations -
Existing Conditions



These conditions can be attributed to the following factors:

- Ramp metering at the eastbound I-80 on-ramps controls the amount of study area traffic that can enter the freeway from northbound and southbound Mace Boulevard. The ramp meters are designed to improve operating conditions on eastbound I-80 by increasing or decreasing on-ramp flow rates according to mainline traffic volumes. Therefore, when congested conditions occur on eastbound I-80, flow rates decrease for the Mace Boulevard on-ramps, causing additional delays and queueing on Mace Boulevard and connecting local roadways such as Chiles Road. Similar conditions exist at the eastbound I-80 on-ramp at Chiles Road east of Davis. Field observations confirmed that the on-ramp meters were operating during the p.m. peak hour (and are modeled in the Sim-Traffic network).
- Diverted local and regional traffic onto study area roadways due to extended periods of very low travel speeds on eastbound I-80 from the causeway, through Davis, and into Solano County. During congested conditions, low mainline travel speeds substantially increase travel times for motorists on eastbound I-80. Hence, diverting off I-80 onto local roadways often provides a faster alternative to remaining on the freeway through Davis. Similarly, locally generated traffic utilizing eastbound I-80 can experience faster travel times by accessing I-80 as far east as possible (e.g., motorists departing Downtown Davis for Sacramento accessing I-80 at Mace Boulevard or CR 32A instead of Richards Boulevard). Moreover, the increased prevalence and use of navigation apps (e.g., Google Maps, WAZE, etc.) in recent years provides motorists with real-time and predictive travel time information that can influence route selection.

On the day that traffic counts were collected for this study, field observations indicated that congested conditions were present on both eastbound I-80 and local roadways surrounding the Mace Boulevard interchange during the p.m. peak hour. Queue spillbacks were observed on southbound Mace Boulevard from the eastbound I-80 loop on-ramp ramp meter to Alhambra Drive and on northbound Mace Boulevard from the eastbound I-80 slip on-ramp ramp meter to Cowell Boulevard. Queue spillbacks were also observed on eastbound Chiles Road from Mace Boulevard to the Hanlees Davis Toyota car dealership/service center. Lastly, queue spillbacks were observed on eastbound and westbound Chiles Road at the eastbound I-80 ramps (east of Davis). The following pages include photos of observed conditions.





Queuing on southbound Mace Boulevard approaching Second Street/County Road 32A during the p.m. peak hour on Thursday October 27, 2024.



Queuing in both directions of Mace Boulevard at the Second Street/County Road 32A intersection during the p.m. peak hour on Thursday October 27, 2024.



Queueing on southbound Mace Boulevard approaching the eastbound I-80 on-ramp during the p.m. peak hour on Thursday October 27, 2024.



Queueing on northbound Mace Boulevard approaching the eastbound I-80 on-ramp during the p.m. peak hour on Thursday October 27, 2024.



Typical p.m. peak hour queuing within the vicinity of the I-80/Mace Boulevard interchange



Source: Google Earth

4. Existing Plus Project Conditions

Project Travel Characteristics

According to the project description (*Willowgrove Project Description*, January 2025), the proposed project would consist of the following land uses:

- A total of 1,250 dwelling units, comprised of both affordable and market-rate single- and multi-family residences.
- 19.5 acres of parks, including a community park, mini-park, and dog park. The community park would include a playground, recreation center, two lighted softball fields, one multi-purpose (soccer/lacrosse) field, six lighted pickleball courts, bike repair station, and outdoor community gathering area.
- A 1.5-acre site for neighborhood retail, yielding 5,000 square feet.
- 43.9 acres of urban agricultural transition area.
- 7.3 acres of neighborhood greenbelts.
- A daycare facility (within the High Density Residential parcel) with approximately 6,300 square feet of building space and 2,700 square feet of playing area.

According to *Willowgrove Project Description*, access to the project site would be provided from East Covell Boulevard as follows:

- Westerly Project Access: new north leg to signalized East Covell Boulevard/Alhambra Drive intersection.
- Easterly Project Access: New right-in/right-out street that intersects East Covell Boulevard at 1,560 feet¹ east of Alhambra Drive and 380 feet west of the Harper Junior High School signalized driveway.

Both access streets would consist of one lane in each direction separated by a 16-foot landscaped median.

¹ Referenced from the centerline of each intersection.



Trip Generation and Distribution

Appendix B to this report is a detailed memorandum describing how the project's trip generation was derived. **Table 3** (taken from that memo) summarizes the estimated weekday and peak hour trip generation for the Willowgrove Project using the methods described in the memorandum.

After accounting for internal trips and external trips made by walking, biking, and transit use, the project would generate an estimated 10,422 new daily trips with 774 occurring during the AM peak hour, and 1,045 occurring during the PM peak hour. Among AM peak hour trips, 70% would be outbound. Among PM peak hour trips, 61% would be inbound.

The expected spatial distribution of new trips generated by the project was derived using a combination of resources. Project trips were added to the City of Davis base year travel demand model. The model was then run and the spatial distribution of trips from the Traffic Analysis Zone (TAZ) that represents the project area was tracked. It was also possible to approximate the distribution of trips generated by the Wildhorse Project located west of the project site (by reviewing travel patterns at its access points on East Covell Boulevard and Pole Line Road). **Figures 3 and 4** show the project's inbound and outbound trip distribution, respectively. **Figure 5** shows the existing plus project peak hour traffic volumes at study intersections under this scenario.

Analysis Results

Table 4 presents the a.m. and p.m. peak hour delay and LOS for each study intersection under Existing and Existing Plus Project conditions. **Table 5** displays the maximum vehicle queues for all movements at the two project access intersections under Existing Plus Project conditions (see **Appendix C** for technical calculations). **Table 6** displays the peak hour signal warrant analysis results (CA MUTCD Warrants 3A and 3B) for study intersections owned and operated by Yolo County and unsignalized Caltrans ramp terminal intersections under Existing and Existing Plus Project conditions. Refer to **Appendix C** for technical calculations.

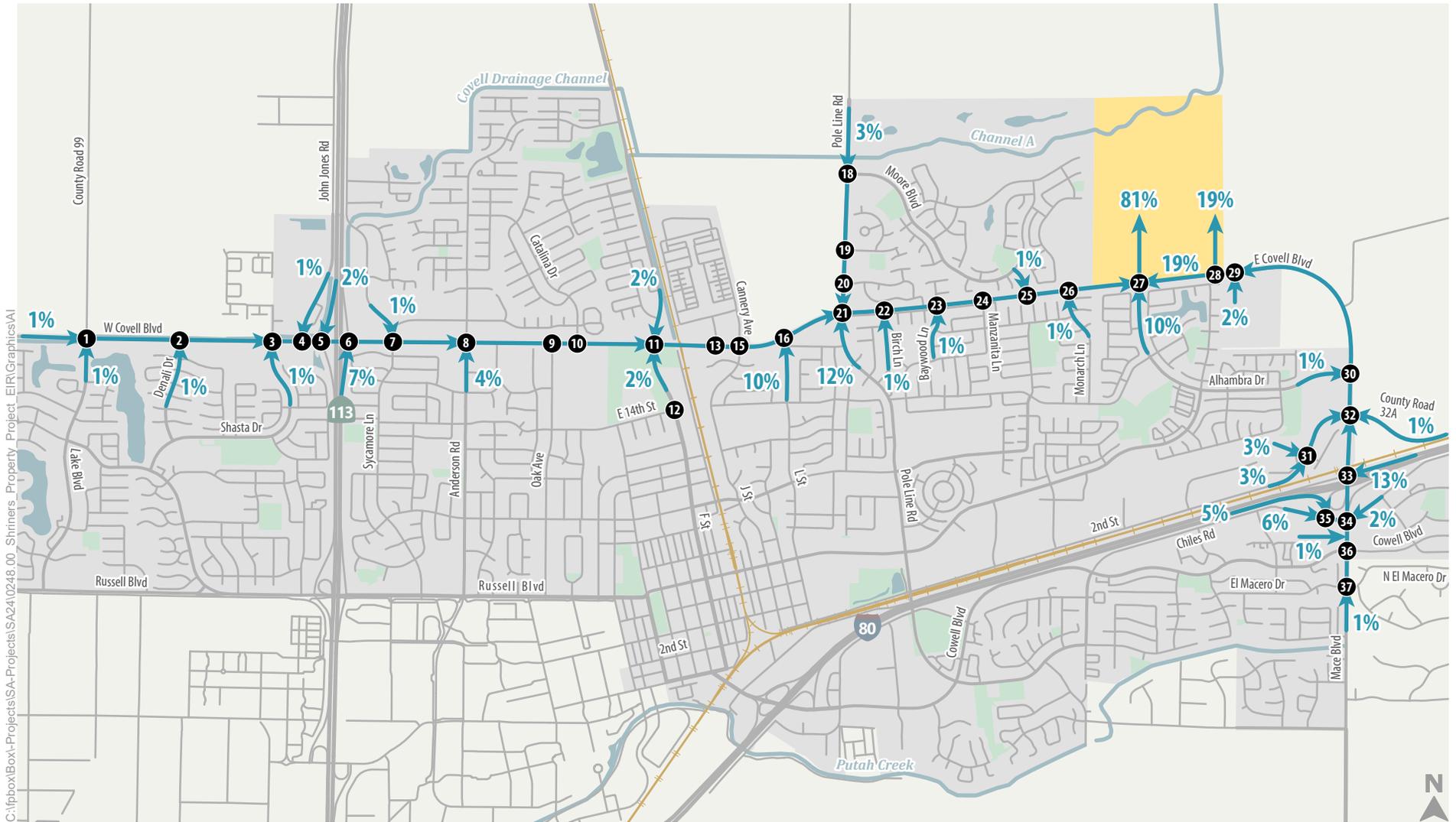
Key findings from these tables are discussed after the figures and tables themselves on the following pages.

Table 3: Proposed Project – Vehicle Trip Generation

Land Use	ITE LUC	Units	Quantity	Daily Trips ¹	AM Peak Hour ¹			PM Peak Hour ¹			
					Inbound	Outbound	Total	Inbound	Outbound	Total	
Total Trips Generated by Proposed Land Uses											
Single-Family Detached	210	Dwelling Units	712 DU's	6,714	129	369	498	421	248	669	
Multifamily Housing (Low Rise)	220	Dwelling Units	288 DU's	1,941	28	87	115	93	54	147	
Affordable Housing	223	Dwelling Units	250 DU's	1,203	36	89	125	68	47	115	
Recreational Community Center	495	1,000 Sq. Ft. GLA	9.5 KSF	274	12	6	18	11	13	24	
Softball/Multi-Use Fields	488	Fields	3 fields	215	2	2	4	33	15	48	
Pickleball Courts	490	Courts	6 courts	182	3	3	6	18	7	25	
Neighborhood Retail	822	1,000 Sq. Ft. GLA	5 KSF	272	7	5	12	17	17	33	
Daycare Center	565	1,000 Sq. Ft. GLA	6.3 KSF	300	37	32	69	33	37	70	
				<i>Raw External Vehicle Trips</i>	11,101	254	593	847	694	438	1,131
Reductions for Internal Capture and External Walking, Biking, and Transit use											
				Internal Capture ²	-568	-14	-34	-48	-36	-24	-60
				External Walk, Bike, and Transit ³	-111	-4	-21	-25	-21	-5	-26
				<i>Total Reductions</i>	-679	-18	-55	-73	-57	-29	-86
				Net New External Vehicle Trips	10,422	236	538	774	637	409	1,045

Notes: ¹ Trips generated based on trip rates from 11th Edition of *Trip Generation Manual* (Institute of Transportation Engineers, 2021).
² Internal capture reductions based on application of MXD+ model: Daily = 5.1%, AM Peak Hour = 5.9%, PM Peak Hour = 5.3%.
³ External walk, bike, and transit trip reductions are derived from MXD+ model for daily trips and US Census Bureau ACS journey to work data. See Appendix B.
 Values may not sum perfectly due to rounding.
 KSF = Thousand square feet. GLA – Gross Leasable Area.
 Sources: Fehr & Peers, 2025.





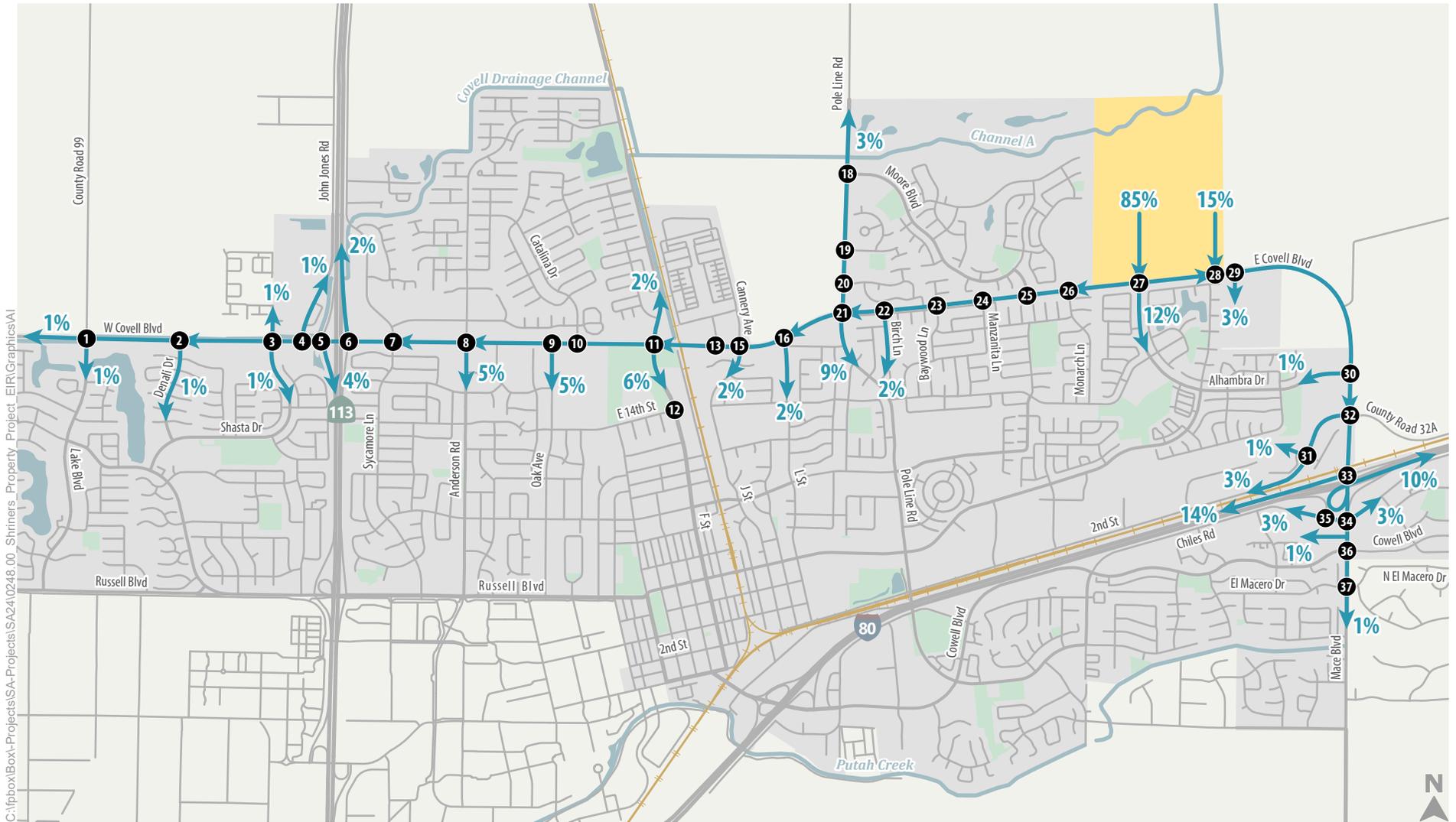
C:\ipbox\Box1-Projects\SA-Projects\SA2410248.00_Shriners_Property_Project_EIR\Graphics\AI

- Study Intersection
- Project Site
- Railroad
- Parks
- Davis City Limits
- Inbound Trip Distribution

Figure 3



Inbound Project Trip Distribution



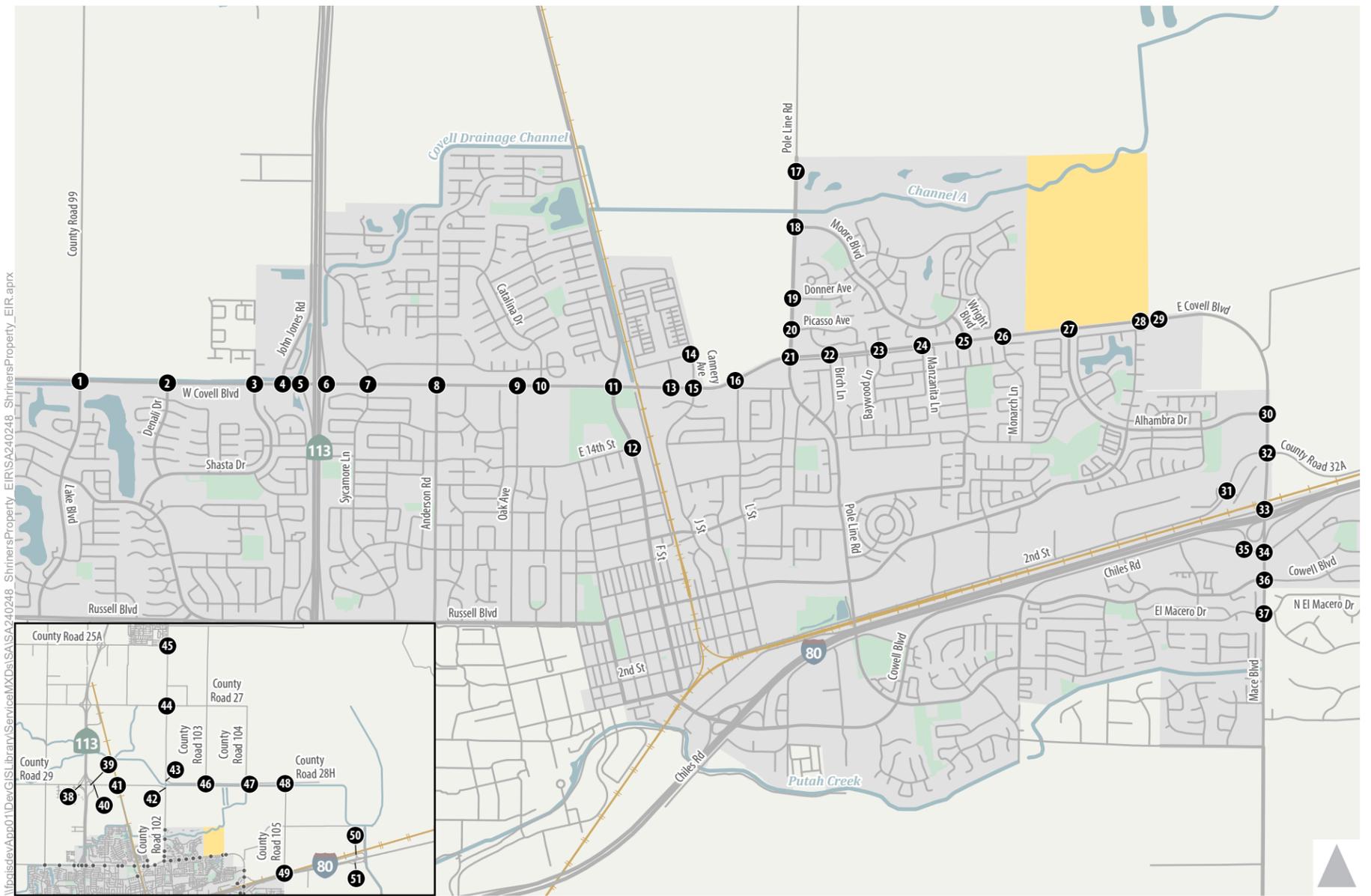
C:\ipbox\Box1-Projects\SA-Projects\SA2410248.00_Shriners_Property_Project_EIR\Graphics\AI

- Study Intersection
- Railroad
- Project Site
- Parks
- Davis City Limits
- Outbound Trip Distribution



Figure 4

Outbound Project Trip Distribution



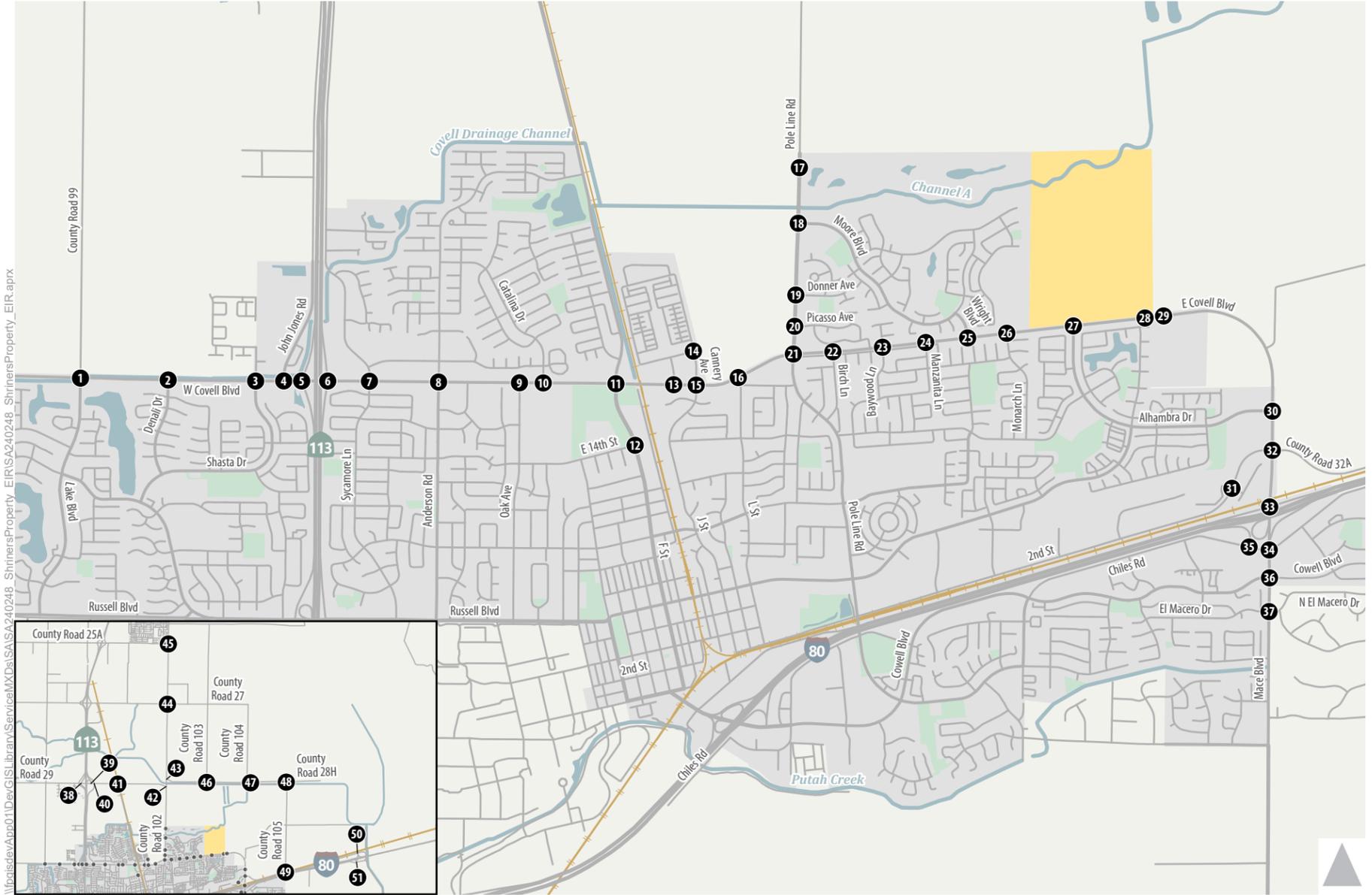
<p>1. Lake Blvd/County Rd 99/W Covell Blvd</p>	<p>2. Denali Dr/W Covell Blvd</p>	<p>3. Shasta Dr/Rising Ct/W Covell Blvd</p>	<p>4. John Jones Rd/W Covell Blvd</p>	<p>5. SR 113 SB Ramps/W Covell Blvd</p>
<p>6. SR 113 NB Ramps/W Covell Blvd</p>	<p>7. Sycamore Ln/W Covell Blvd</p>	<p>8. Anderson Rd/W Covell Blvd</p>	<p>9. Oak Ave/Dummy Bike/Ped Phases/W Covell Blvd</p>	<p>10. Dummy Bike/Ped Phases/Catalina Dr/W Covell Blvd</p>
<p>11. F St/W Covell Blvd/E Covell Blvd</p>	<p>12. F St/E 14th St</p>	<p>13. Market Ave/E Covell Blvd</p>	<p>14. Cannery Ave/Cannery Loop</p>	<p>15. J St/Cannery Ave/E Covell Blvd</p>
<p>16. L St/E Covell Blvd</p>	<p>17. Pole Line Rd/Village Farms Ent</p> <p>Intersection Does Not Exist in this Scenario</p>	<p>18. Pole Line Rd/Moore Blvd</p>	<p>19. Pole Line Rd/Donner Ave</p>	<p>20. Pole Line Rd/Picasso Ave</p>



Figure 5a

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions





21. Pole Line Rd/E Covell Blvd 	22. Birch Ln/Dummy Bike/Ped Phases/E Covell Blvd 	23. Baywood Ln/E Covell Blvd 	24. Manzanita Ln/E Covell Blvd 	25. Wright Blvd/E Covell Blvd
26. Monarch Ln/E Covell Blvd 	27. Willowgrove West Ent/Alhambra Blvd/E Covell Blvd 	28. Willowgrove East Ent/E Covell Blvd 	29. Harper JR HS Access/E Covell Blvd 	30. Mace Blvd/Alhambra Dr
31. Second St/Target Main Dwy/Fermi Place 	32. Mace Blvd/Second St/County Rd 32A 	33. Mace Blvd/I-80 WB Ramps 	34. Mace Blvd/Chiles Rd 	35. I-80 EB Off-Ramp/Chiles Rd
36. Mace Blvd/Cowell Blvd 	37. Mace Blvd/N El Macero Dr 	38. SR 113 SB Ramps/County Rd 29 	39. SR 113 NB Ramps/County Rd 29 	40. County Rd 100A/County Rd 29

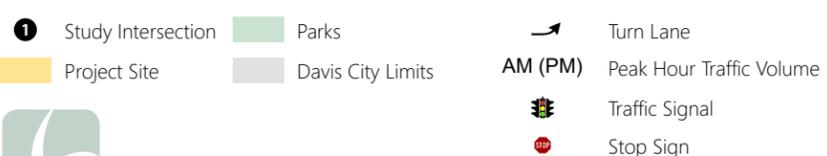
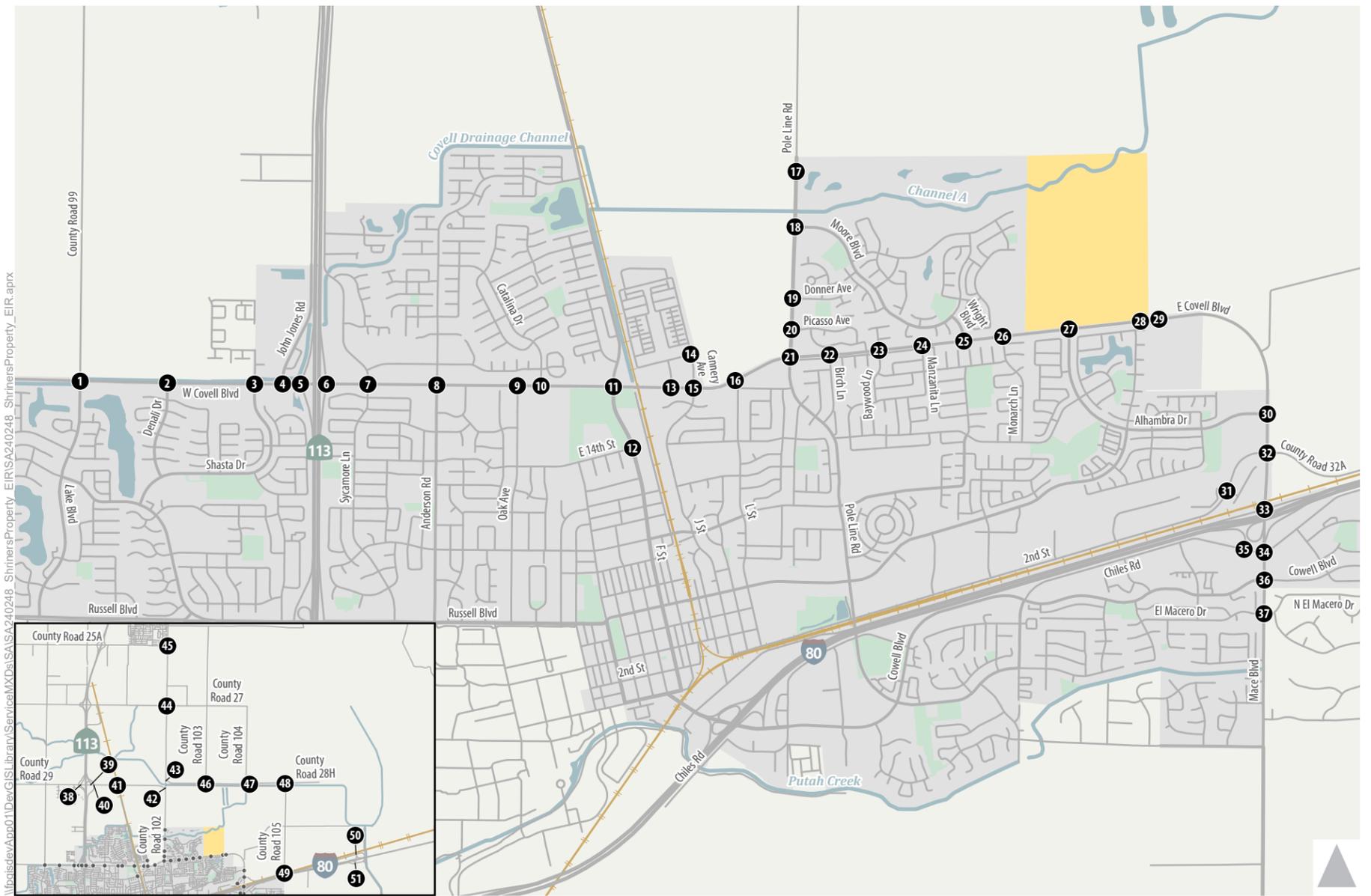


Figure 5b

Peak Hour Traffic Volumes and Lane Configurations - Existing Plus Project Conditions





<p>41. County Rd 101A/County Rd 29</p>	<p>42. County Rd 102/County Rd 29</p>	<p>43. County Rd 102/County Rd 28H</p>	<p>44. County Rd 102/County Rd 27</p>	<p>45. County Rd 102/County Rd 25A</p>
<p>46. County Rd 103/County Rd 28H</p>	<p>47. Yolo County Landfill Dwy/County Rd 28H</p>	<p>48. County Rd 105/County Rd 28H</p>	<p>49. County Rd 105/County Rd 32A</p>	<p>50. I-80 WB Ramps/County Rd 32A</p>
<p>51. I-80 EB Ramps/Chiles Rd</p>	<p>Legend:</p> <ul style="list-style-type: none"> 1 Study Intersection Project Site Parks Davis City Limits Turn Lane AM (PM) Peak Hour Traffic Volume Traffic Signal Stop Sign 			

Figure 5c
Peak Hour Traffic Volumes
and Lane Configurations -
Existing Plus Project Conditions



Table 4: Peak Hour Intersection Operations – Existing and Existing Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. West Covell Boulevard/ Lake Boulevard	AWSC	City of Davis	10	A	9	A	10	A	9	A
2. West Covell Boulevard/ Denali Drive	Signal	City of Davis	9	A	8	A	9	A	8	A
3. West Covell Boulevard/ Shasta Drive	Signal	City of Davis	13	B	11	B	13	B	11	B
4. West Covell Boulevard/ John Jones Road	Signal	City of Davis	15	B	12	B	15	B	13	B
5. West Covell Boulevard/ SR 113 SB Ramps	Signal	Caltrans	33	C	17	B	33	C	17	B
6. West Covell Boulevard/ SR 113 NB Ramps	Signal	Caltrans	16	B	21	C	17	B	25	C
7. West Covell Boulevard/ Sycamore Lane	Signal	City of Davis	25	C	25	C	26	C	26	C
8. West Covell Boulevard/ Anderson Road	Signal	City of Davis	27	C	29	C	29	C	33	C
9. West Covell Boulevard/ Oak Avenue	Signal	City of Davis	22	C	20	B	25	C	30	C
10. West Covell Boulevard/ Catalina Drive	Signal	City of Davis	14	B	14	B	15	B	15	B
11. East Covell Boulevard/F Street	Signal	City of Davis	30	C	30	C	32	C	36	D
12. F Street/East Fourteenth Street	Signal	City of Davis	24	C	18	B	25	C	19	B
13. East Covell Boulevard/ Market Ave	SSSC	City of Davis	5 (10)	A (B)	12 (17)	B (C)	8 (12)	A (B)	14 (20)	B (C)
14. Cannery Avenue/Cannery Loop	RAB	City of Davis	3	A	3	A	3	A	3	A
15. East Covell Boulevard/J Street/Cannery Avenue	Signal	City of Davis	35	C	50	D	44	D	46	D
16. East Covell Boulevard/L Street	Signal	City of Davis	15	B	19	B	16	B	25	C
17. Pole Line Road/Village Farms Road North	-	City of Davis	Does Not Exist				Does Not Exist			



Table 4: Peak Hour Intersection Operations – Existing and Existing Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
18. Pole Line Road/Moore Boulevard	AWSC	City of Davis	13	B	21	C	14	B	20	C
19. Pole Line Road/Donner Avenue	SSSC	City of Davis	4 (14)	A (B)	4 (23)	A (C)	4 (15)	A (C)	3 (19)	A (C)
20. Pole Line Road/Picasso Avenue	SSSC	City of Davis	4 (23)	A (C)	5 (33)	A (D)	4 (20)	A (C)	5 (35)	A (D)
21. East Covell Boulevard/Pole Line Road	Signal	City of Davis	28	C	37	D	34	C	43	D
22. East Covell Boulevard/Birch Lane	Signal	City of Davis	23	C	11	B	24	C	13	B
23. East Covell Boulevard/ Baywood Lane	SSSC	City of Davis	4 (14)	A (B)	4 (20)	A (C)	4 (13)	A (B)	4 (21)	A (C)
24. East Covell Boulevard/ Manzanita Lane	SSSC	City of Davis	4 (15)	A (B)	5 (16)	A (C)	5 (18)	A (C)	6 (31)	A (D)
25. East Covell Boulevard/ Wright Boulevard	Signal	City of Davis	10	B	12	B	11	B	14	B
26. East Covell Boulevard/ Monarch Lane	SSSC	City of Davis	3 (14)	A (B)	3 (20)	A (C)	3 (18)	A (C)	4 (24)	A (C)
27. East Covell Boulevard/ Alhambra Drive/Project Access	Signal	City of Davis	8	A	7	A	41	D	76	E
28. East Covell Boulevard/ Project East Access	- / SSSC	City of Davis	Does Not Exist				5 (7)	A (A)	12 (94)	B (F)
29. East Covell Boulevard/ Harper JHS	Signal	City of Davis	14	B	8	A	15	B	13	B
30. Mace Boulevard/ Alhambra Drive	Signal	City of Davis	12	B	12	B	17	B	20	C
31. Second Street/Fermi Place/Target Driveway	Signal	City of Davis	5	A	15	B	5	A	15	B
32. Mace Boulevard/ Second Street/County Road 32A	Signal	City of Davis	33	C	29	C	68	E	68	E
33. Mace Boulevard/I-80 WB Ramps	Signal	Caltrans	22	C	57	E	27	C	67	E
34. Mace Boulevard/Chiles Road	Signal	City of Davis	36	D	89	F	34	C	70	E
35. Chiles Road/I-80 EB Ramps	Signal	Caltrans	10	B	245	F	10	A	209	F

Table 4: Peak Hour Intersection Operations – Existing and Existing Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
36. Mace Boulevard/ Cowell Boulevard	Signal	City of Davis	21	C	29	C	19	B	26	C
37. Mace Boulevard/North El Macero Drive	AWSC	City of Davis	8	A	8	A	8	A	8	A
38. County Road 29/SR 113 SB Ramps	SSSC	Caltrans	9 (20)	A (C)	5 (16)	A (C)	10 (21)	A (C)	5 (16)	A (C)
39. County Rd 29/SR 113 NB Ramps	SSSC	Caltrans	1 (13)	A (B)	2 (15)	A (C)	1 (13)	A (B)	2 (15)	A (C)
40. County Rd 29/County Rd 100A	SSSC	Yolo Co	1 (17)	A (C)	2 (15)	A (C)	1 (18)	A (C)	2 (16)	A (C)
41. County Rd 29/County Rd 101A	SSSC	Yolo Co	5 (19)	A (C)	4 (16)	A (C)	5 (21)	A (C)	4 (16)	A (C)
42. County Rd 102/County Rd 29	SSSC	Yolo Co	4 (30)	A (D)	5 (34)	A (D)	5 (32)	A (D)	5 (34)	A (D)
43. County Rd 102/County Rd 28H	SSSC	Yolo Co	1 (19)	A (C)	1 (21)	A (C)	1 (20)	A (C)	1 (21)	A (C)
44. County Rd 102/County Rd 27	AWSC	Yolo Co	14	B	18	C	14	B	18	C
45. County Rd 102/County Rd 25A	SSSC	Yolo Co	2 (15)	A (C)	1 (19)	A (C)	2 (15)	A (C)	1 (19)	A (C)
46. County Rd 28H/County Rd 103	SSSC	Yolo Co	1 (9)	A (A)	1 (10)	A (A)	1 (9)	A (A)	1 (10)	A (A)
47. County Rd 28H/Yolo County Landfill Driveway	SSSC	Yolo Co	3 (9)	A (A)	3 (9)	A (A)	3 (9)	A (A)	3 (9)	A (A)
48. County Rd 28H/County Rd 105	SSSC	Yolo Co	4 (9)	A (A)	3 (9)	A (A)	4 (9)	A (A)	3 (9)	A (A)
49. County Rd 105/County Rd 32A	SSSC	Yolo Co	7 (11)	A (B)	10 (15)	A (B)	7 (11)	A (B)	10 (15)	A (B)
50. County Rd 32A/I-80 WB Ramps	SSSC	Caltrans	6 (9)	A (A)	4 (6)	A (A)	6 (9)	A (A)	5 (7)	A (A)
51. County Road 32B/Chiles Road/I-80 EB Ramps	SSSC	Caltrans	3 (8)	A (A)	276 (392)	F (F)	4 (7)	A (A)	276 (392)	F (F)

Notes: For signalized and all-way stop intersections and roundabouts, average intersection delay is the weighted average of all approaches (and reported as seconds per vehicle). For side-street stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Refer to text below for discussion of adverse project impacts.

RAB = Roundabout. SSSC = Side-Street Stop Control. AWSC = All-Way Stop Control.

"-" = Does not exist. Traffic controls separated by "/" indicate changes to traffic controls between analysis scenarios.

Source: Fehr & Peers, 2025.



Table 5: Project Access Queuing – Existing and Existing Plus Project Conditions

Intersection	Movement	Available Storage ¹	Maximum Queue Length ²			
			Existing Conditions		Existing Plus Project Conditions	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
East Covell Blvd/Alhambra Drive/Westerly Project Access	EB LT	- ³	Does Not Exist		250 feet	375 feet
	EB TH	1,400 feet	175 feet	150 feet	350 feet	600 feet
	EB RT	200 feet	0 feet	0 feet	250 feet	175 feet
	WB LT	120 feet	75 feet	50 feet	225 feet ⁵	225 feet ⁵
	WB TH/RT	1,850 feet / 1,525 feet ⁴	150 feet	175 feet	800 feet	1,550 feet
	NB LT	75 feet	150 feet	100 feet	175 feet	175 feet
	NB TH/RT	75 feet	0 feet	0 feet	200 feet	175 feet
	SB LT	275 feet	Does Not Exist		275 feet	175 feet
	SB TH/RT	275 feet	Does Not Exist		625 feet	525 feet
East Covell Blvd/Easterly Project Access	WB TH/RT	- / 325 feet	Does Not Exist		0 feet	200 feet
	SB RT	- / 125 feet	Does Not Exist		75 feet	450 feet

Notes: ¹ Defined as length of turn pocket based on aerial imagery or project site plan. Upstream extent is distance back to closest intersection or driveway.

² Maximum queue estimates are based on results from SimTraffic micro-simulation model. Queues are maximum per lane, rounded up to the nearest 25 feet.

³ No proposed turn lane length shown in project site plan or project description.

⁴ Project reduces this value by creating easterly access intersection.

⁵ This does not represent queued traffic spilling out of the turn pocket, but is rather left-turning traffic blocked from entering the turn lane by the through queue.

Shaded cells represent a maximum queue that exceeds the available storage.

Source: Fehr & Peers, 2025.

Table 6: Peak Hour Signal Warrants – Existing and Existing Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B
28. East Covell Blvd/ Project East Access	SSSC	City of Davis	Does Not Exist				Not Met	Not Met	Not Met	Not Met
38. County Road 29/SR 113 SB Ramps	SSSC	Caltrans	Not Met	Met	Not Met	Not Met	Not Met	Met	Not Met	Not Met
39. County Road 29/SR 113 NB Ramps	SSSC	Caltrans	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
40. County Road 29/County Road 100A	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
41. County Road 29/County Road 101A	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
42. County Road 102/County Road 29	SSSC	Yolo County	Not Met	Met	Not Met	Met	Not Met	Met	Not Met	Met
43. County Road 102/County Road 28H	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
44. County Road 102/County Road 27	AWSC	Yolo County	Not Met	Not Met	Not Met	Met	Not Met	Not Met	Not Met	Met
46. County Road 28H/County Road 103	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
47. County Road 28H/Yolo County Landfill Driveway	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
48. County Road 28H/County Road 105	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
49. County Road 105/County Road 32A	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met
50. County Road 32A/I- 80 WB Ramps	SSSC	Caltrans	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met



Table 6: Peak Hour Signal Warrants – Existing and Existing Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Existing Conditions				Existing Plus Project Conditions				
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
			Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B	
51. County Road 32B/Chiles Road/I-80 EB Ramps	SSSC	Caltrans	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met	Not Met

Notes: Shaded cells indicate locations that meet the peak hour signal warrant.
 Source: Fehr & Peers, 2025.

The following key findings are derived from Table 4:

- At signalized City of Davis intersections, the project would not worsen operations at an intersection from acceptable (LOS E or better) to unacceptable (LOS F). However, several intersections experience severe degradations in operations, which are discussed in detail below.
- At unsignalized City of Davis intersections, the project would not cause the worse-operating movement to degrade from acceptable (LOS E or better) to unacceptable (LOS F) with the one exception below. However, this is not considered an adverse impact (see discussion below).
- At Yolo County intersections, the project would not worsen operations at an intersection from acceptable to unacceptable, nor would it exacerbate already unacceptable conditions at any Yolo County intersections.

The following key findings are derived from Table 5:

- Development of the project would cause nearly all turning movements at the East Covell Blvd/Alhambra Drive/Westerly Project Access to have maximum queues that exceed their available storage. Some movements would have increased maximum queue lengths despite the project not adding traffic to it. This occurs because the project would add a new 4th leg causing cycle lengths to increase. It also introduces crosswalks across East Covell Boulevard, which increases queueing on the eastbound and westbound approaches.
- Westbound traffic during the PM peak hour would queue back from Alhambra Drive to nearly the Harper JHS signalized driveway.

The following key finding is derived from Table 6:

- The project would not cause any unsignalized study intersections that do not currently meet at a peak hour signal warrant during a given peak hour to now meet the signal warrant.

The following provides a more detailed discussion of individual intersection results from Table 4:

- East Covell Boulevard/Alhambra Drive/Westerly Project Access Intersection (#27): Operations degrade from LOS A currently to LOS D during the a.m. peak hour and LOS E during the p.m. peak hour. The p.m. peak hour delay is within four seconds of LOS F.
- East Covell Boulevard/Easterly Project Access Intersection (#28): Operations would be at LOS F on the southbound stop-controlled approach during the p.m. peak hour under Existing Plus Project conditions. This occurs as a result of westbound queue spillback from intersection #27. However, this degradation condition is not considered an adverse impact because the intersection would not satisfy a peak hour volume warrant for a traffic signal. Further, conditions would be remedied with the improvements to intersection #27.
- Mace Boulevard/Second Street/County Road 32A (#32): Operations degrade from LOS C currently to LOS E during both the a.m. and p.m. peak hours. The project would add about 200 vehicles to the heavily-traveled southbound approach during the a.m. peak hour. The project would add a combined 220 vehicles to the eastbound left, northbound through, and westbound right-turn movements during the p.m. peak hour. The resulting volume of 900 vehicles in a single through north of the intersection is considerable.

There are some instances in which the intersection's average delay decreases under Existing Plus Project conditions. This typically occurs as a result of the project adding traffic to lower delay movements, such as major street through movements. In other instances, project trips added to already oversaturated conditions (i.e., at I-80/Mace Boulevard interchange) results in increased model instability, which causes considerable changes in reported delay values.



5. Cumulative Conditions

The cumulative analysis scenario evaluates peak hour study intersection operations based on anticipated future traffic volumes, utilizing the methods summarized in the “Travel Demand Forecasting” section of Chapter 2. The cumulative analysis scenario includes the proposed Willowgrove project, as well as the various other reasonably foreseeable projects discuss in Chapter 2.

The cumulative analysis assumes largely the same roadway system and intersection controls as are currently present. This is because the City’s Capital Improvement Program (CIP) does not include any specific roadway improvements within the study area. Additionally, there are no funded/programmed plans to upgrade the SR 113/West Covell Boulevard, I-80/Mace Boulevard, or I-80/County Road 32A/Chiles Road interchanges. Notable reasonably foreseeable roadway network changes included in the cumulative analysis include the following:

- New roadway connections serving the Village Farms, Willowgrove Property, Palomino Place, DiSC 2022, and Bretton Woods projects.
- Signalization of the County Road 102/County Road 25A intersection

To be consistent with past studies, roundabouts are assumed in place on Pole Line Road at Moore Boulevard (#18), Donner Avenue (#19), and Picasso Avenue (#20). Under cumulative conditions, each intersection is assumed to have a new west leg to serve the Village Farms project. However, it should be noted that the *Village Farms Davis Project Draft EIR* (Raney Planning & Management, January 2025) recommends traffic signals at intersections #19 and #20 instead of roundabouts.

A managed lane is planned to be added on the adjacent segment of I-80, which has been considered in the traffic forecasts. Consistent with standard practice, traffic signal timings were optimized due to changes in travel demand between current and cumulative conditions.

Figure 6 illustrates peak hour intersection turning movement volumes under cumulative plus project conditions. Note that these volumes differ slightly from prior cumulative forecasts within the portion of the study area closest to the Willowgrove site due to its land use changes in early 2025.

Analysis Results

Table 7 presents the a.m. and p.m. peak hour delay and LOS for each study intersection under cumulative plus project conditions. Refer to **Appendix D** for technical calculations.

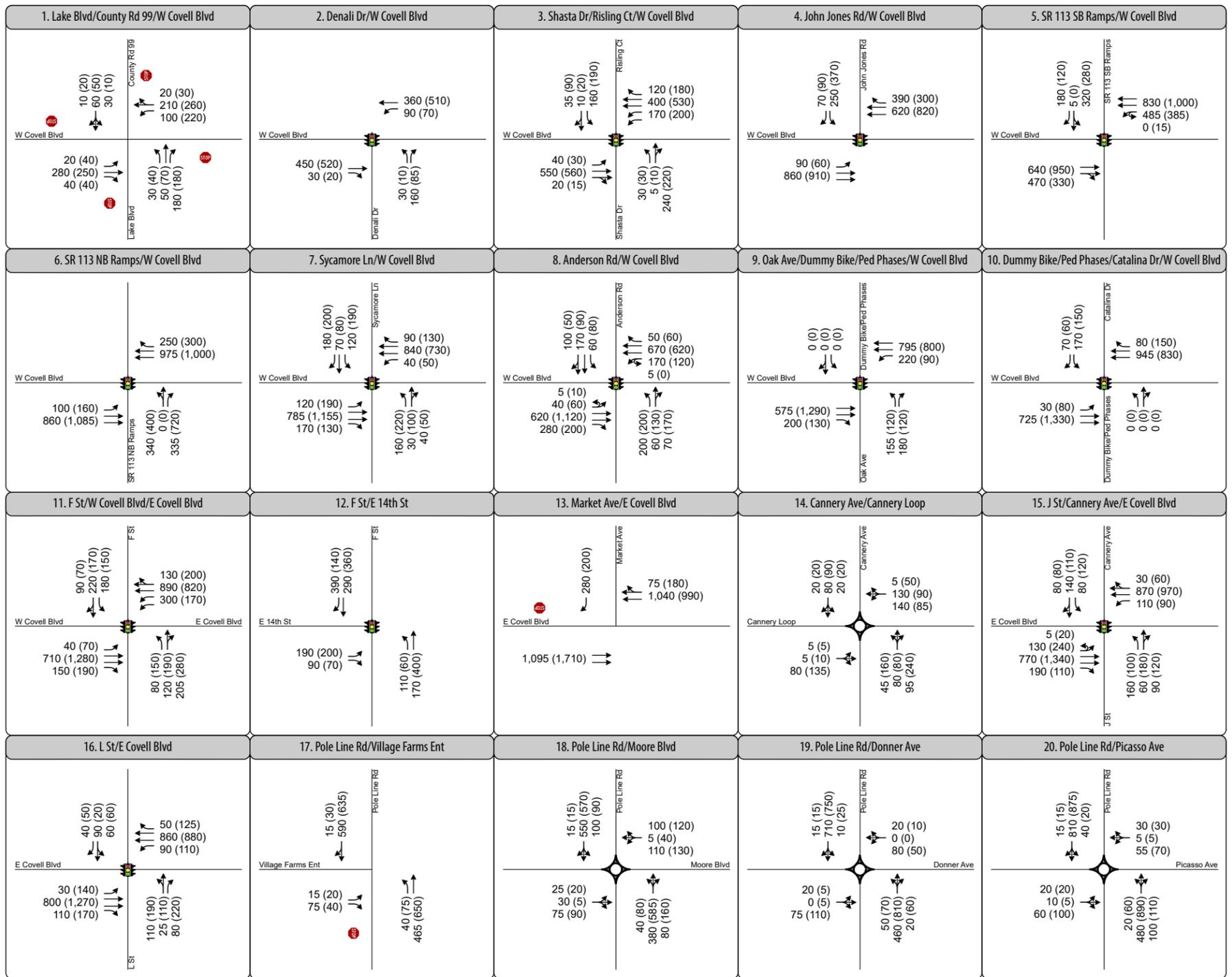
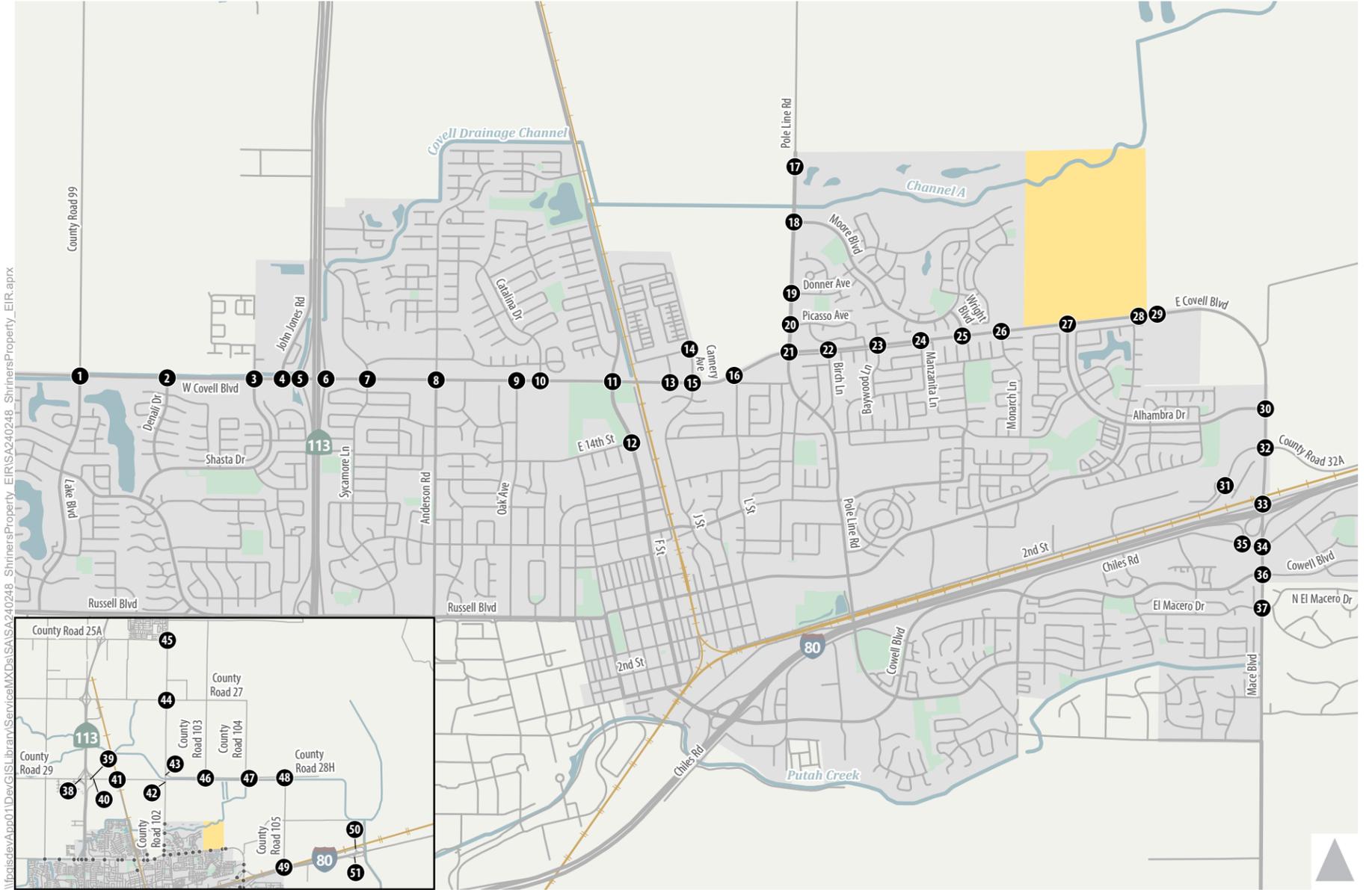


Figure 6a
**Peak Hour Traffic Volumes
 and Lane Configurations -
 Cumulative Plus Project Conditions**



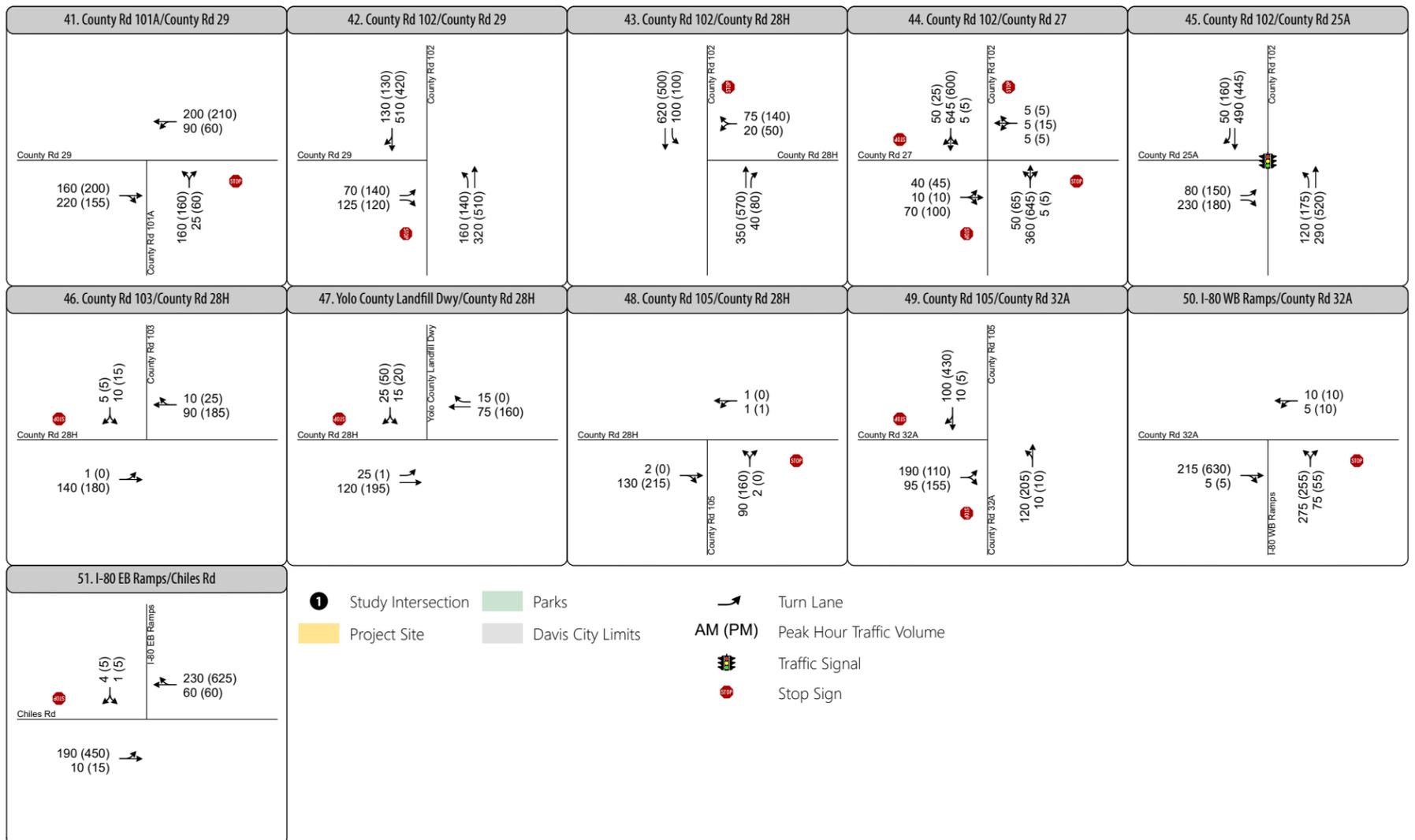
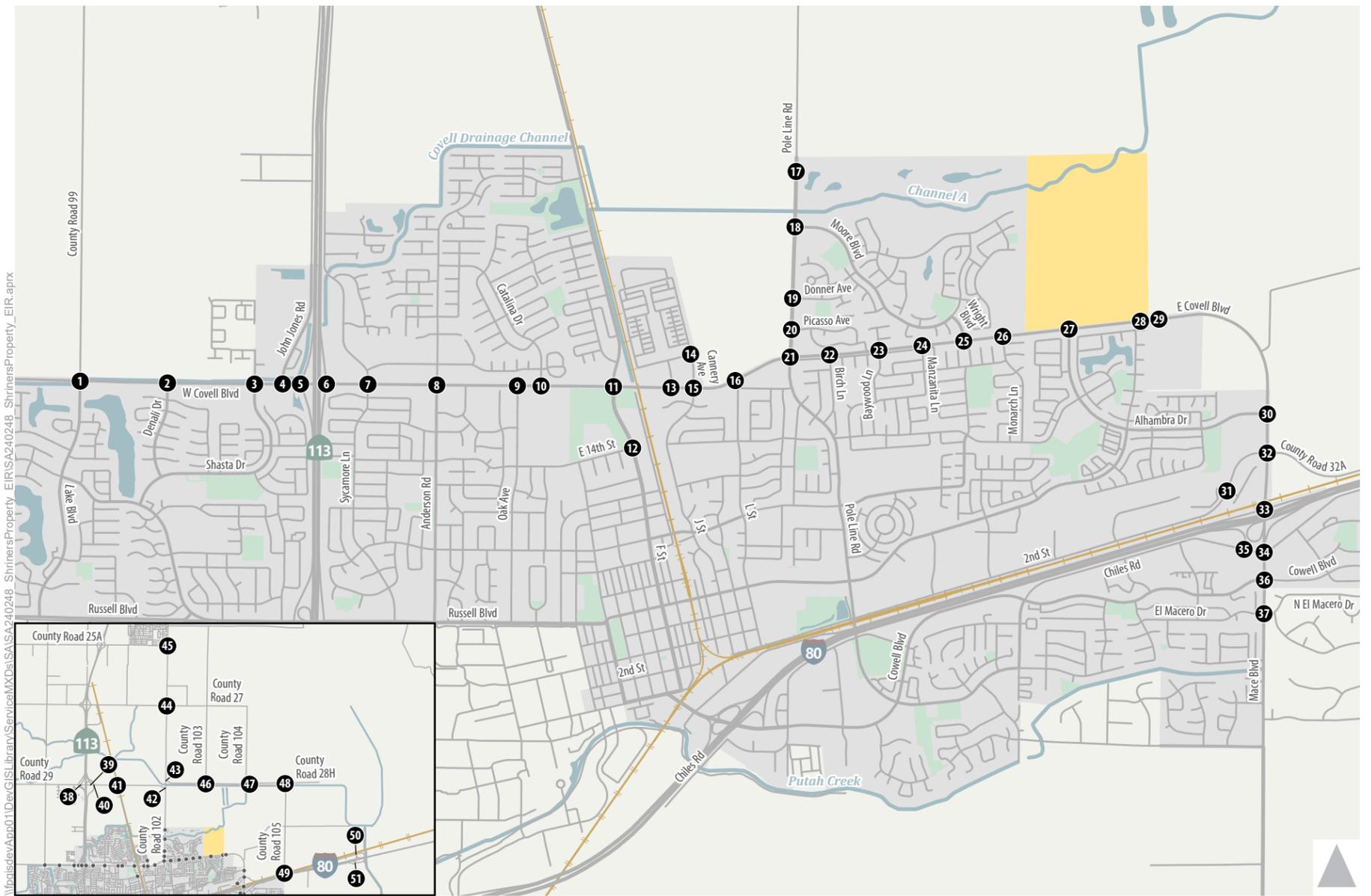


Figure 6c
Peak Hour Traffic Volumes
and Lane Configurations -
Cumulative Plus Project Conditions



Table 7: Peak Hour Intersection Operations – Cumulative Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1. West Covell Boulevard/Lake Boulevard	AWSC	City of Davis	12	B	11	B
2. West Covell Boulevard/ Denali Drive	Signal	City of Davis	10	B	9	A
3. West Covell Boulevard/ Shasta Drive	Signal	City of Davis	32	C	26	C
4. West Covell Boulevard/John Jones Road	Signal	City of Davis	29	C	47	D
5. West Covell Boulevard/SR 113 SB Ramps	Signal	Caltrans	72	E	53	D
6. West Covell Boulevard/SR 113 NB Ramps	Signal	Caltrans	79	E	79	E
7. West Covell Boulevard/ Sycamore Lane	Signal	City of Davis	85	F	80	E
8. West Covell Boulevard/ Anderson Road	Signal	City of Davis	39	D	55	D
9. West Covell Boulevard/Oak Avenue	Signal	City of Davis	29	C	86	F
10. West Covell Boulevard/ Catalina Drive	Signal	City of Davis	17	B	47	D
11. East Covell Boulevard/F Street	Signal	City of Davis	63	E	154	F
12. F Street/East Fourteenth Street	Signal	City of Davis	26	C	35	D
13. East Covell Boulevard/ Market Avenue	SSSC	City of Davis	13 (32)	B (D)	9 (83)	A (F)
14. Cannery Avenue/Cannery Loop	RAB	City of Davis	4	A	7	A
15. East Covell Boulevard/J St/Cannery Avenue	Signal	City of Davis	62	E	136	F
16. East Covell Boulevard/L Street	Signal	City of Davis	38	D	69	E
17. Pole Line Road/Village Farms Road North	SSSC	City of Davis	5 (28)	A (D)	5 (26)	A (D)
18. Pole Line Road/Moore Boulevard	RAB	City of Davis	36	E	45	E
19. Pole Line Road/Donner Avenue	RAB	City of Davis	83	F	107	F
20. Pole Line Road/Picasso Avenue	RAB	City of Davis	41	E	53	F
21. East Covell Boulevard/Pole Line Road	Signal	City of Davis	95	F	130	F
22. East Covell Boulevard/Birch Lane	Signal	City of Davis	21	C	17	B
23. East Covell Boulevard/ Baywood Lane	SSSC	City of Davis	5 (30)	A (D)	5 (50)	A (F)
24. East Covell Boulevard/ Manzanita Lane	SSSC	City of Davis	6 (34)	A (D)	7 (42)	A (E)
25. East Covell Boulevard/ Wright Boulevard	Signal	City of Davis	14	B	15	B
26. East Covell Boulevard/ Monarch Lane	SSSC	City of Davis	6 (53)	A (F)	8 (66)	A (F)
27. East Covell Boulevard/ Alhambra Drive/Willowgrove Westerly Project Access	Signal	City of Davis	37	D	139	F

Table 7: Peak Hour Intersection Operations – Cumulative Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
28. East Covell Blvd/Easterly Project Access	SSSC	City of Davis	12 (16)	B (C)	142 (314)	F (F)
29. East Covell Blvd/Harper JHS Driveway	Signal	City of Davis	15	B	149	F
30. Mace Boulevard/ Alhambra Drive	Signal	City of Davis	53	D	51	D
31. Second Street/Fermi Place/Target Dwy	Signal	City of Davis	10	B	97	F
32. Mace Blvd/ Second St/County Rd 32A	Signal	City of Davis	107	F	111	F
33. Mace Boulevard/I-80 WB Ramps	Signal	Caltrans	104	F	41	D
34. Mace Boulevard/Chiles Road	Signal	City of Davis	69	E	125	F
35. Chiles Road/I-80 EB Ramp	Signal	Caltrans	129	F	268	F
36. Mace Boulevard/ Cowell Boulevard	Signal	City of Davis	25	C	145	F
37. Mace Boulevard/North El Macero Drive	AWSC	City of Davis	8	A	29	D
38. County Road 29/SR 113 SB Ramps	SSSC	Caltrans	13 (29)	B (D)	8 (22)	A (C)
39. County Road 29/SR 113 NB Ramps	SSSC	Caltrans	1 (15)	A (B)	3 (18)	A (C)
40. County Road 29/County Road 100A	SSSC	Yolo County	2 (23)	A (C)	2 (21)	A (C)
41. County Road 29/County Road 101A	SSSC	Yolo County	7 (28)	A (D)	8 (27)	A (D)
42. County Road 102/County Road 29	SSSC	Yolo County	7 (80)	A (F)	15 (135)	B (F)
43. County Road 102/County Road 28H	SSSC	Yolo County	1 (34)	A (D)	2 (40)	A (E)
44. County Road 102/County Road 27	AWSC	Yolo County	48	E	74	F
45. County Road 102/County Road 25A	Signal	Yolo County	14	B	12	B
46. County Road 28H/County Road 103	SSSC	Yolo County	1 (10)	A (A)	1 (11)	A (B)
47. County Rd 28H/Yolo County Landfill Dwy	SSSC	Yolo County	2 (10)	A (A)	2 (11)	A (B)
48. County Road 28H/County Road 105	SSSC	Yolo County	4 (10)	A (A)	4 (10)	A (B)
49. County Road 105/County Road 32A	SSSC	Yolo County	11 (27)	B (D)	69 (264)	F (F)
50. County Road 32A/I-80 WB Ramps	SSSC	Caltrans	8 (12)	A (B)	11 (>300)	B (F)
51. County Rd 32B/Chiles Road/I-80 EB Ramps	SSSC	Caltrans	7 (9)	A (A)	>300 (>300)	F (F)

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Shaded cells indicate locations with unacceptable peak hour LOS. Shaded cells not shown for LOS F operations at intersections connecting to I-80 due to design LOS goal of F for that facility.

Signal = Traffic Signal. RAB = Roundabout. SSSC = Side-Street Stop Control. AWSC = All-Way Stop Control.

Source: Fehr & Peers, 2025.



Future increases in peak hour traffic volumes would substantially degrade operations throughout the study area. Poor traffic progression and extensive queue spillbacks would occur on Covell Boulevard and Mace Boulevard, causing upstream intersection blockages and high levels of delay and queuing on side streets along the corridor and at the SR 113/West Covell Boulevard and I-80/Mace Boulevard interchange off-ramps. The following summarizes deficient operations during each peak hour:

- During the a.m. peak hour, four City of Davis study intersections would operate unacceptably, while another three Yolo County study intersections would operate deficiently. The I-80/Mace Boulevard and SR 113/West Covell Boulevard interchange ramp intersections would operate at LOS E or F.
- During the p.m. peak hour, 15 City of Davis study intersections would operate unacceptably, while another five Yolo County study intersections would operate deficiently. The I-80/Mace Boulevard interchange would be substantially overcapacity.

During the p.m. peak hour, on-ramp ramp meters at the I-80/Mace Boulevard and I-80/County Road 32A/Chiles Road interchanges would continue to constrain capacity for motorists accessing eastbound I-80. This in turn would cause extensive upstream delay/queuing on adjacent City of Davis and Yolo County roadways. Chapter 6 quantifies how City of Davis intersections are affected by this ramp metering.

Yolo County roadways would experience increased traffic volumes and degraded performance due to increased traffic generated by the City of Davis and other Yolo County communities (e.g., trips between the City of Woodland and I-80 via County Road 32A/County Road 105/County Road 28H/County Road 102).

Table 8 displays the peak hour signal warrant analysis results (CA MUTCD Warrants 3A and 3B) for study intersections owned and operated by Yolo County and unsignalized Caltrans ramp terminal intersections under cumulative plus project conditions. Numerous selected study intersections would meet the peak hour signal warrant under cumulative plus project conditions.

Table 8: Peak Hour Signal Warrants – Cumulative Plus Project Conditions

Intersection	Traffic Control	Jurisdiction	Cumulative Plus Project Conditions			
			AM Peak Hour		PM Peak Hour	
			Warrant 3A	Warrant 3B	Warrant 3A	Warrant 3B
38. County Road 29/SR 113 SB Ramps	SSSC	Caltrans	Not Met	Met	Not Met	Met
39. County Road 29/SR 113 NB Ramps	SSSC	Caltrans	Not Met	Not Met	Not Met	Not Met
40. County Road 29/County Road 100A	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met
41. County Road 29/County Road 101A	SSSC	Yolo County	Not Met	Met	Not Met	Met
42. County Road 102/County Road 29	SSSC	Yolo County	Not Met	Met	Met	Met
43. County Road 102/County Road 28H	SSSC	Yolo County	Not Met	Met	Not Met	Met
44. County Road 102/County Road 27	AWSC	Yolo County	Met	Met	Met	Met
46. County Road 28H/County Road 103	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met
47. County Road 28H/Yolo County Landfill Driveway	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met
48. County Road 28H/County Road 105	SSSC	Yolo County	Not Met	Not Met	Not Met	Not Met
49. County Road 105/County Road 32A	SSSC	Yolo County	Not Met	Not Met	Met	Met
50. County Road 32A/I-80 WB Ramps	SSSC	Caltrans	Not Met	Not Met	Met	Met
51. County Road 32B/Chiles Road/I-80 EB Ramps	SSSC	Caltrans	Not Met	Not Met	Not Met	Not Met

Notes: Shaded cells indicate locations that meet the peak hour signal warrant.
 Source: Fehr & Peers, 2025.



6. Recommendations

This chapter discusses recommended improvements for project-specific adverse intersection impacts and cumulative improvements to address deficient operations.

Existing Plus Project Conditions Recommendations

The following improvements at the East Covell Blvd/Alhambra Drive/Westerly Project Access intersection are recommended to address adverse queuing conditions shown in Table 5:

Eastbound East Covell Boulevard Approach

- *Construct 400-foot eastbound left-turn lane.* This could be constructed within the raised median that currently has several trees, landscaping, and a street light.
- *Lengthen eastbound right-turn lane from 200 to 225 feet.* This could likely be constructed through restriping lanes.

Westbound East Covell Boulevard Approach

- *Construct 250-foot westbound right-turn lane.* This would likely come out of the project's 25-foot landscape setback.
- *Lengthen westbound left-turn lane from 120 to 200 feet.* This could be constructed within the raised median that currently has several trees and landscaping.

Northbound Alhambra Drive Approach

- *Restripe the northbound approach such that both lanes have 200 feet of storage each.* This would require removal of the landscaped median, but would not require widening of either edge of Alhambra Drive.

Table 9 shows how the above improvements would benefit a.m. and p.m. peak hour delays and LOS at the two project accesses. See **Appendix E** for technical calculations. As shown, the signalized westerly access would improve from LOS E to the LOS C/D cusp with the above improvement during the p.m. peak hour. Reduced queuing on the westbound approach would also benefit the easterly access operations. Delays would also be reduced at the easterly project access by virtue of vehicles no longer spilling back into that intersection.

Table 9: Peak Hour Intersection Operations – Existing Plus Project Conditions with Improvements

Intersection	Traffic Control	Jurisdiction	Existing Plus Project Conditions				Existing Plus Project Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
27. East Covell Boulevard/ Alhambra Drive/West Project Access	Signal	City of Davis	41	D	76	E	40	D	35	D
28. East Covell Boulevard/ Project East Access	SSSC	City of Davis	5 (7)	A (A)	12 (94)	B (F)	5 (7)	A (A)	4 (6)	A (A)

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Shaded cells indicate locations with unacceptable peak hour LOS. SSSC = Side-Street Stop Control.

Source: Fehr & Peers, 2025.

Table 10 displays the maximum vehicle queues for all movements at the two project access intersections under Existing Plus Project conditions with the above improvements. See **Appendix E** for technical calculations. Key findings from this table include:

1. The eastbound left-turn movement can be accommodated by a 400-foot turn lane. Vehicle queues would not spill out of this lane (based on the signal timings expected to be implemented). As noted previously, this turn lane requires removal of several trees and relocation of one streetlight. However, no widening of East Covell Boulevard is required.
2. The addition of westbound right-turn lanes at both project accesses result in less queuing on westbound East Covell Boulevard. With queued traffic no longer blocking the easterly project access, vehicle delays and queuing exiting that project access are much reduced. However, westbound through traffic still queues 600 feet upstream from Alhambra Boulevard/Project Westerly Access, temporarily blocking access to the westbound left and right-turn lanes.
3. Outbound traffic would spill back into the on-site roundabout even with the identified improvements. While the queue would spill into the roundabout, the degree of queuing is not so severe that it would 'lock it up'. Additionally, TDM strategies that are part of the project's mitigation requirements would reduce project trips, potentially leading to less queuing leaving the site. Queuing in the shared through/right lane would be significantly reduced if a dedicated southbound right-turn lane were to be added.



Table 10: Project Access Queuing –Existing Plus Project Conditions with Improvements

Intersection	Movement	Available Storage ¹	Maximum Queue Length ²					
			Existing Conditions		Existing Plus Project Conditions			
					Without Mitigation		With Mitigation	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
East Covell Blvd/Alhambra Drive/Westerly Project Access	EB LT	- / 400 feet ³	Does Not Exist		250 feet	375 feet	200 feet	400 feet
	EB TH	1,400 feet	175 feet	150 feet	350 feet	600 feet	325 feet	275 feet
	EB RT	200 feet / 225 feet	0 feet	0 feet	250 feet	175 feet	225 feet	175 feet
	WB LT	120 feet / 200 feet	75 feet	50 feet	225 feet ⁵	225 feet ⁵	225 feet ⁵	225 feet ⁵
	WB TH/RT / WB TH	1,850 feet / 1,525 feet ⁴	150 feet	175 feet	800 feet	1,550 feet	625 feet	600 feet
	WB RT	- / 250 feet	Does Not Exist		Does Not Exist		350 feet ⁵	350 feet ⁵
	NB LT	75 feet / 200 feet	150 feet	105 feet	175 feet	175 feet	175 feet	175 feet
	NB RT / NB TH/RT	75 feet / 200 feet	0 feet	0 feet	200 feet	175 feet	150 feet	175 feet
	SB LT	275 feet	Does Not Exist		275 feet	175 feet	300 feet	250 feet
	SB TH/RT	275 feet	Does Not Exist		625 feet	525 feet	375 feet	300 feet
East Covell Blvd/Easterly Project Access	WB TH/RT	- / 325 feet	Does Not Exist		0 feet	200 feet	0 feet	0 feet
	SB RT	- / 125 feet	Does Not Exist		75 feet	450 feet	75 feet	100 feet

Notes: ¹ Defined as length of turn pocket based on aerial imagery or project site plan. Upstream extent is distance back to closest intersection or driveway. “ - / x feet” = Available storage under existing versus existing plus project conditions with improvement.

² Maximum queue estimates are based on results from SimTraffic micro-simulation model. Queues are maximum per lane, rounded up to the nearest 25 feet.

³ No proposed turn lane length shown in project site plan or project description. A 400-foot turn lane was modeled.

⁴ Project reduces this value by creating easterly access intersection.

⁵ This does not represent queued traffic spilling out of the turn pocket, but is rather a condition in which turn lane access is blocked by queued through traffic.

Shaded cells represent a maximum queue that exceeds the available storage.

Source: Fehr & Peers, 2025.

Cumulative Conditions Recommendations

Improvements are also required at the project’s East Covell Blvd/Alhambra Drive/Westerly Project Access intersection to address adverse queuing conditions under the cumulative scenario. The improvements recommended under cumulative conditions are those identified for existing plus project conditions, plus the following additional/modified improvements:

- Construct second westbound travel lane along the entire project frontage.
- Lengthen eastbound right-turn lane from 200 to 300 feet (was recommended to be lengthened to 250 feet under existing plus project conditions).
- Restripe the northbound approach such that both lanes have 250 feet of storage (were recommended to be lengthened to 200 feet under existing plus project conditions).

Figure 7 illustrates these improvements at the project’s East Covell Blvd/Alhambra Drive/Westerly Project Access intersection.

Table 11 shows how the above improvements would benefit a.m. and p.m. peak hour delays and LOS at the two project accesses and at the Harper JHS Driveway signal on East Covell Boulevard. See **Appendix E** for technical calculations. As shown, all three intersections shown in the table would improve from LOS F to LOS D or better with the above improvements during the p.m. peak hour.

Table 11: Peak Hour Intersection Operations – Cumulative Plus Project Conditions with Improvements

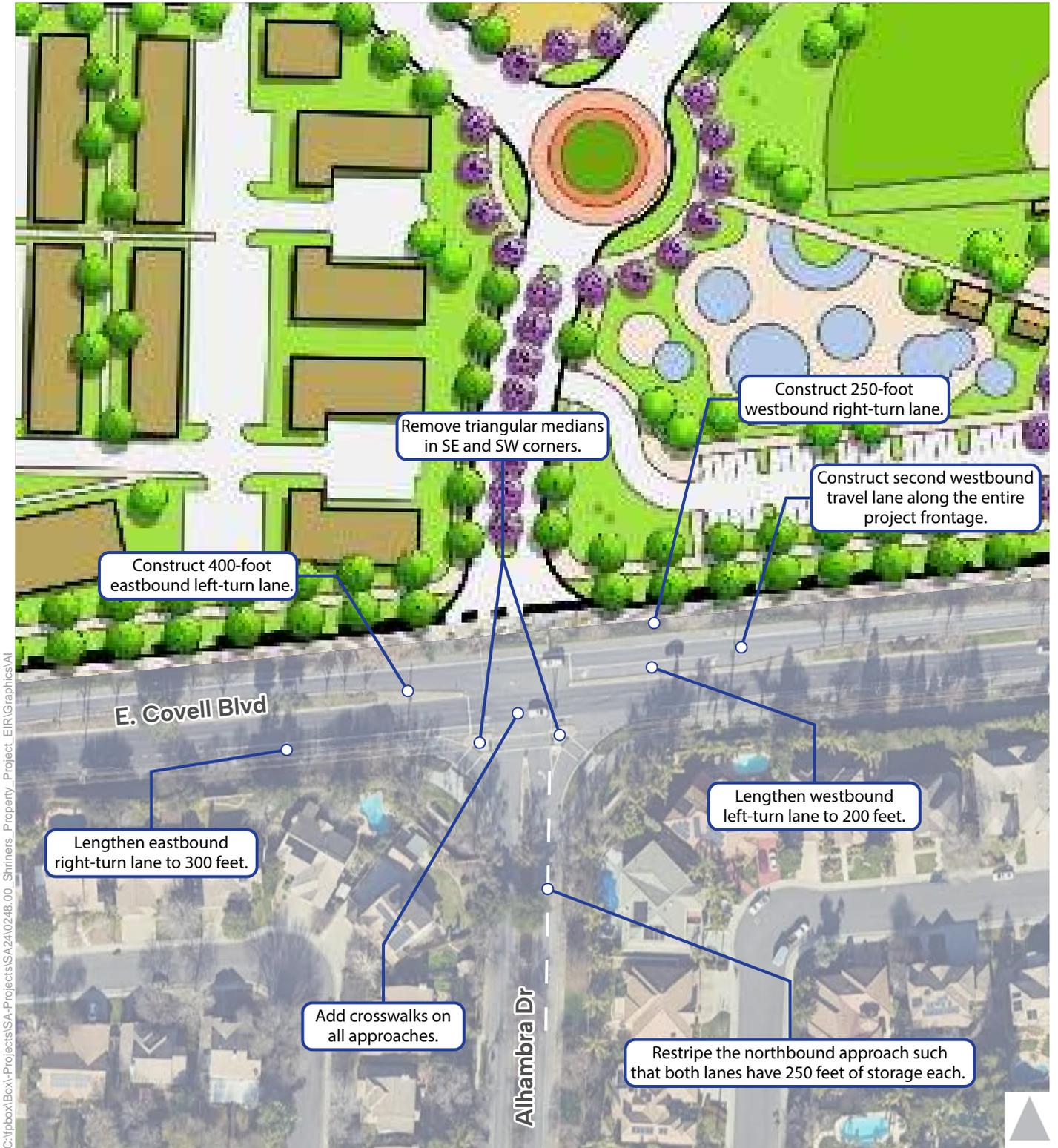
Intersection	Traffic Control	Jurisdiction	Cumulative Plus Project Conditions				Cumulative Plus Project Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
27. East Covell Boulevard/ Alhambra Drive/West Project Access	Signal	City of Davis	37	D	139	F	33	C	35	D
28. East Covell Boulevard/ Project East Access	SSSC	City of Davis	12 (16)	B (C)	142 (314)	F (F)	7 (9)	A (A)	6 (8)	A (A)
29. East Covell Blvd/Harper JHS Driveway	Signal	City of Davis	15	B	149	F	14	B	15	B

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Shaded cells indicate locations with unacceptable peak hour LOS. SSSC = Side-Street Stop Control.

Source: Fehr & Peers, 2025.





C:\pbox\Box1-Projects\SA-Projects\SA2410248.00_Shriners_Property_Project_EIR\Graphics\A1



Figure 7
 Signalized Project Access Recommendations

Table 12 displays the maximum vehicle queues for all movements at the two project access intersections under Cumulative Plus Project conditions with the above improvements. This table indicates that the identified improvements result in maximum queue lengths that do not exceed the available storage at all locations with the exception of the southbound left-turn at the project’s signalized access. Similar to the existing plus project finding, that queue would spill briefly into the upstream roundabout but would not ‘lock up’ its operations.

Table 12: Project Access Queuing – Cumulative Plus Project Conditions

Intersection	Movement ¹	Available Storage ¹	Maximum Queue Length ²			
			Cumulative Plus Project Conditions Without Mitigation		Cumulative Plus Project Conditions with Mitigation	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
East Covell Blvd/Alhambra Drive/West Project Access	EB LT	- / 400 feet	200 feet	375 feet	200 feet	375 feet
	EB TH	1,400 feet	375 feet	1,000 feet	375 feet	350 feet
	EB RT	200 feet / 300 feet	300 feet	200 feet	300 feet	225 feet
	WB LT	120 feet / 200 feet	225 feet ⁴	225 feet ⁴	150 feet ⁴	100 feet
	WB TH/RT / WB TH	1,525 feet	600 feet	1,850 feet	225 feet	350 feet
	WB RT	- / 250 feet	Does Not Exist		100 feet	200 feet
	NB LT	75 feet / 250 feet	175 feet	175 feet	200 feet	225 feet
	NB TH/RT	75 feet / 250 feet	225 feet	1,600 feet	150 feet	250 feet
	SB LT	275 feet	275 feet	275 feet	275 feet	275 feet
	SB TH/RT	275 feet	500 feet	400 feet	400 feet	300 feet
East Covell Blvd/East Project Access	WB TH/RT / WB TH	325 feet	0 feet	275 feet	0 feet	0 feet
	SB RT	125 feet	100 feet	450 feet	100 feet	75 feet

Notes: ¹ Defined as length of turn pocket based on aerial imagery or project site plan. Upstream extent is distance back to closest intersection or driveway. Turn lanes shown as “_/_” imply one set of lanes under one scenario and one set of lanes under the other scenario.

² Maximum queue estimates are based on results from SimTraffic micro-simulation model. Queues are maximum per lane, rounded up to the nearest 25 feet.

³ No proposed turn lane length shown in project site plan or project description.

⁴ This does not represent queued traffic spilling out of the turn pocket, but is rather left-turning traffic blocked by the through queue.

Shaded cells represent a maximum queue that exceeds the available storage.

Source: Fehr & Peers, 2025.



As described in the previous chapter, the on-ramp ramp meters at the I-80/Mace Boulevard and I-80/County Road 32A/Chiles Road interchanges would have a substantial effect on local roadway operations under cumulative conditions. Caltrans owns and operates these ramp meters and adjusts metering rates based on eastbound I-80 mainline operations. Eastbound I-80 mainline operations can vary drastically depending on day-to-day and seasonal variations in traffic volumes and on incidents on the freeway. As such, ramp meter service rates and their associated effects on local roadway operations can similarly vary drastically. To illustrate the effect of these ramp meters on local roadway operations, an analysis was conducted on the I-80/Mace Boulevard interchange vicinity to evaluate p.m. peak hour traffic operations without ramp metering under cumulative conditions. These results are presented in **Table 13**.

Table 13: PM Peak Hour Intersection Operations – I-80/Mace Boulevard Interchange Vicinity With and Without Ramp Metering – Cumulative Conditions

Intersection	Traffic Control	Jurisdiction	Cumulative Conditions – P.M. Peak Hour			
			With Ramp Metering		Without Ramp Metering	
			Delay	LOS	Delay	LOS
29. Mace Boulevard/ Alhambra Drive	Signal	City of Davis	51	D	63	E
30. Second Street/Fermi Place/Target Driveway	Signal	City of Davis	97	F	29	C
31. Mace Boulevard/ Second Street/County Road 32A	Signal	City of Davis	111	F	75	E
32. Mace Boulevard/I-80 WB Ramps	Signal	Caltrans	41	D	39	D
33. Mace Boulevard/Chiles Road	Signal	City of Davis	125	F	79	E
34. Chiles Road/I-80 EB Ramp	Signal	Caltrans	268	F	43	D
35. Mace Boulevard/ Cowell Boulevard	Signal	City of Davis	145	F	54	D
36. Mace Boulevard/North El Macero Drive	AWSC	City of Davis	29	D	9	A

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Shaded cells indicate locations with unacceptable peak hour LOS.

Signal = Traffic Signal. RAB = Roundabout. SSSC = Side-Street Stop Control. AWSC = All-Way Stop Control. "-" = Does not exist.

Source: Fehr & Peers, 2025.

As shown, all study intersections would operate at acceptable levels during the p.m. peak hour without ramp metering. Additionally, without ramp metering, p.m. peak hour off-ramp queues at the Chiles Road/I-80 Eastbound Ramp would not spill back onto the freeway mainline. This analysis does not suggest that ramp metering should be removed altogether, but underscores the need for the City of Davis to collaborate with Caltrans to determine an appropriate ramp metering protocol that balances performance expectations for the eastbound I-80 mainline with those for nearby local roadways such as Mace Boulevard and Chiles Road.

Fehr & Peers recommends the following physical improvements and signal timing changes to improve peak hour traffic operations under cumulative conditions (note that improvements at intersections along Pole Line Road north of East Covell Boulevard to provide access to Village Farms are not listed here; readers should review the *Village Farms Davis Project Draft EIR* for those improvements):

- Covell Boulevard between Shasta Drive/Risling Court and Birch Lane: Coordinate traffic signals, optimize signal timings, and operate with a 140 second cycle length during the a.m. peak period and a 150 second cycle length during the p.m. peak period. Note that these improvements may require controller or communications upgrades. Also note that a portion of these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans.
- Mace Boulevard between Alhambra Drive and Cowell Boulevard: Coordinate traffic signals, optimize signal timings, and operate with a 150 second cycle length during the a.m. and p.m. peak periods. Note that these improvements may require controller or communications upgrades.
- West Covell Boulevard/SR 113 Southbound Ramps: Construct a second westbound left-turn lane and a second receiving lane on the southbound on-ramp. Note that these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans.
- West Covell Boulevard/SR 113 Northbound Ramps: Modify the northbound off-ramp to consist of three lanes approaching West Covell Boulevard, including one left-turn lane, one shared left/through/right lane, and one right-turn lane. Construct a second eastbound left-turn lane. Note that these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans.
- West Covell Boulevard/Sycamore Lane: Lengthen the eastbound left-turn lane storage from 150 to 275 feet.
- East Covell Boulevard/F Street: Construct a second southbound left-turn lane.
- East Covell Boulevard/Pole Line Road: Construct a second eastbound left-turn lane and a second receiving lane on northbound Pole Line Road north of East Covell Boulevard. Lengthen the eastbound left-turn lane storage from 125 to 230 feet, the southbound left-turn lane storage from 200 to 400 feet, and the northbound left-turn storage from 125 to 225 feet. Implement an overlap phase for the eastbound left-turn and southbound right-turn movements. Lengthen the



northbound left-turn lane storage from 125 to 225 feet. Reconfigure eastbound and westbound channelized right-turn lanes into standard right-turn pockets.

- East Covell Boulevard/Monarch Lane: Install a traffic signal. Modify each approach to consist of two lanes, including a left-turn pocket and a shared through/right lane, and operate each approach with protected left-turn phasing.
- East Covell Boulevard and Mace Boulevard: Widen to four lanes between Monarch Lane and Second Street/County Road 32A (i.e., construct a second eastbound/southbound lane between Harper Junior High School and Alhambra Drive and a second westbound/northbound lane between Second Street/County Road 32A and Monarch Lane).
- Mace Boulevard/Alhambra Drive: Modify the northbound approach to consist of four lanes, including a left-turn pocket, two through lanes, and a right-turn pocket.
- Mace Boulevard/Second Street/County Road 32A: Modify the northbound approach to consist of five lanes, including two left-turn pockets, two through lanes, and a right-turn pocket.
- Mace Boulevard/I-80 Westbound Ramps: Modify the northbound approach to consist of three lanes, including one left-turn lane and two through lanes. Lengthen the northbound left-turn lane storage from 275 to 350 feet. Modify the southbound approach to consist of four lanes, including three through lanes and a right-turn pocket. The new third through lane should begin as a receiving lane for the eastbound channelized right-turn lane at the Mace Boulevard/Second Street/County Road 32A intersection. This lane should be signed and striped for I-80 access only. It is possible that this modification could be constructed without widening the UPRR overcrossing structure by removing the existing median. However, further engineering analysis outside of the scope of this study is required to fully evaluate the feasibility of this modification with respect to the existing overcrossing/interchange structures and adjacent properties. City staff has indicated that the buffered Class II bike lanes currently on portions of Mace Boulevard would remain with any improvements. Note that portions of these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans.
- Mace Boulevard/I-80 Eastbound Loop On-Ramp: The improvements tested included converting the HOV lane to a general purpose lane and control both lanes with the ramp meter. However, Caltrans (in a February 21, 2025 DEIR comment letter on the *Village Farms DEIR*) expressed a lack of support for converting on-ramp HOV lanes to general purposes lanes at a different on-ramp at this interchange). Nevertheless, it is included as part of this exploratory analysis. Other improvements include modifying the southbound approach to consist of three lanes, including two through lanes and a “trap” right-turn lane (which would channelize traffic to the loop on-ramp). The right-turn lane should be signed and striped for eastbound I-80 access only. It is possible that this modification could be constructed without widening the I-80 overcrossing structure by removing the existing median and one of the two northbound left-turn lanes at the Mace Boulevard/I-80 Westbound Ramps intersections. However, further engineering analysis

outside of the scope of this study is required to fully evaluate the feasibility of this modification with respect to the existing overcrossing/interchange structures. Note that these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans. Caltrans may determine that alternative improvements are preferred, such as the construction of a third on-ramp storage lane instead of the conversion of the existing HOV lane to a general purpose lane.

- Mace Boulevard/I-80 Eastbound Slip On-Ramp: Extend the on-ramp and relocate the ramp meter 500 feet east of its current location. Convert the HOV lane to a general purpose lane and control both lanes with the ramp meter. The Caltrans February 21, 2025 DEIR comment letter on the *Village Farms DEIR* expressed a lack of support for this conversion. Caltrans may determine that alternative improvements are preferred, such as the construction of a third on-ramp storage lane.
- Mace Boulevard/Chiles Road: Modify the southbound channelized right-turn lane to a standard right-turn lane.
- Chiles Road/I-80 Eastbound Off-Ramp: Modify the westbound approach to consist of a single through lane. Modify the eastbound approach to consist of two through lanes and begin the second through lane at the Hanlees Davis Toyota driveway. Note that these improvements would occur within Caltrans right-of-way and are subject to review and approval by Caltrans.
- County Road 29/SR 113 SB Ramps: Install all-way stop control. Note that this improvement would occur within Caltrans right-of-way and is subject to review and approval by Caltrans.
- County Road 29/County Road 101A: Install a traffic signal and interconnect with adjacent at-grade railroad crossing controls. Note that this improvement would occur within Yolo County right-of-way and is subject to review and approval by Yolo County.
- County Road 102/County Road 29: Install a traffic signal or roundabout. Note that installation of all-way stop control was considered for this intersection as well as the County Road 102 intersections with County Road 27 and County Road 28H. However, all-way stop control would not improve peak hour intersection operations at these intersections to acceptable levels per the Yolo County LOS policy. Note that this improvement would occur within Yolo County right-of-way and is subject to review and approval by Yolo County.
- County Road 102/County Road 28H: Install a traffic signal or roundabout. Note that this improvement would occur within Yolo County right-of-way and is subject to review and approval by Yolo County.
- County Road 102/County Road 27: Install a traffic signal or roundabout. Note that this improvement would occur within Yolo County right-of-way and is subject to review and approval by Yolo County.
- County Road 105/County Road 32A: Install all-way stop control. Note that this intersection is planned for modification as part of the Yolo County's County Road 32A Railroad Crossing



Relocation Project. This project will result in the elimination of the existing at-grade crossing of County Road 32A and the UPRR tracks. As part of this project, the County Road 32A intersection with County Road 105 will be relocated north of the UPRR tracks. Note that this improvement would occur within Yolo County right-of-way and is subject to review and approval by Yolo County.

- County Road 32A/I-80 WB Ramps: Install all-way stop control. Note that this improvement would occur within Caltrans right-of-way and is subject to review and approval by Caltrans.

With the exception of the improvement recommendations that are provided for both Existing Plus Project and cumulative conditions, the project applicant should contribute fair share funding to cover their proportionate cost of the recommended improvements under cumulative conditions. Determination of fair share contributions for each improvement should consider the extent to which the improvement is needed to address an existing deficiency, or if the improvement is needed to address a future deficiency only. This assessment should be conducted separately for each standalone improvement.

Table 14 presents peak hour delay and LOS at all study intersections under cumulative conditions with the implementation of the recommended improvements described previously (including at the project access locations). Overall, the improvements would substantially reduce delays and queueing throughout the study area. During the a.m. peak hour, all study intersections would operate acceptably. During the p.m. peak hour, the recommended improvements would reduce the number of study intersections operating at unacceptable levels from 18 intersections to the following 5 intersections:

- East Covell Boulevard/F Street (#11)
- East Covell Boulevard/Market Avenue (#13)
- East Covell Boulevard/J Street/Cannery Avenue (#15)
- Mace Boulevard/Chiles Road (#34)
- Mace Boulevard/Cowell Boulevard (#36)

Under cumulative conditions, future travel demand would exceed the available capacity at several intersections along the Covell Boulevard and Mace Boulevard corridor such that unacceptable LOS F conditions cannot be avoided even with the recommended improvements. This is due to a combination of factors, such as physical, environmental, and policy constraints related to roadway capacity or network expansion, the considerable amount of new low-density and single-family residential development in Davis anticipated in the cumulative analysis scenario, and the substantial effect of I-80 mainline and interchange operations on local roadway traffic operations.

It is important to note that several of the improvements would expand roadway capacity in a manner that could conflict with City of Davis goals related to VMT and GHG emissions reductions (i.e., due to the correlation between roadway capacity expansion and induced vehicle travel demand). While this study

focused primarily on physical improvements and signal timing changes to improve traffic operations, the City could consider other strategies to improve local roadway traffic operations under cumulative conditions while also supporting City goals related to reducing VMT and GHG emissions and promoting multi-modal travel. These strategies include, but are not limited to, the following:

- Plan for higher-density residential development with a greater emphasis on multi-family housing over single-family housing. This strategy would result in fewer vehicle trips generated on a per unit basis.
- Plan for a greater mix of land uses in new residential development areas, particularly grocery stores and other daily/semi-regular shopping destinations. This strategy would reduce shopping trip distances, in turn shifting a greater share of trips from driving to walk/bike/transit and reducing trip lengths and associated VMT for driving trips.
- Increase the coverage, frequency, and speed of the local transit system to promote transit as a viable travel option for local trips. This strategy would shift a greater share of local trips from driving to transit.
- Implement new parking management strategies such as parking supply reductions and parking pricing. This strategy would reduce vehicle ownership levels and associated vehicle trip generation/VMT and encourage use of other transportation modes for local trips.
- Explore the potential for targeted peak period roadway pricing to reduce regional cut-through traffic on local roadways (e.g., eastbound I-80 traffic diverting onto local roadways such as Chiles Road and Mace Boulevard). Similarly, support roadway pricing on I-80 to reduce overall regional vehicle travel demand through Davis.
- Explore the potential for a new I-80 interchange in Davis between Richards Boulevard and Mace Boulevard. This strategy would improve local access to the State Highway System, more evenly distribute travel demand across multiple interchanges, and reduce the need for substantial capacity expansions at existing interchanges such as Mace Boulevard.

Table 15 displays how the above improvements would reduce queuing at freeway off-ramps. As shown, all queues would be accommodated within the available storage.



Table 14: Peak Hour Intersection Operations – Cumulative Conditions With Improvements

Intersection	Traffic Control	Jurisdiction	Cumulative Conditions				Cumulative Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. West Covell Boulevard/ Lake Boulevard	AWSC	City of Davis	12	B	11	B	13	B	11	B
2. West Covell Boulevard/ Denali Drive	Signal	City of Davis	10	B	9	A	11	B	9	A
3. West Covell Boulevard/ Shasta Drive	Signal	City of Davis	32	C	26	C	33	C	26	C
4. West Covell Boulevard/ John Jones Road	Signal	City of Davis	29	C	47	D	27	C	20	B
5. West Covell Boulevard/SR 113 SB Ramps	Signal	Caltrans	72	E	53	D	43	D	38	D
6. West Covell Boulevard/SR 113 NB Ramps	Signal	Caltrans	79	E	79	E	24	C	38	D
7. West Covell Boulevard/ Sycamore Lane	Signal	City of Davis	85	F	80	E	32	C	68	E
8. West Covell Boulevard/ Anderson Road	Signal	City of Davis	39	D	55	D	38	D	35	D
9. West Covell Boulevard/Oak Avenue	Signal	City of Davis	29	C	86	F	31	C	40	D
10. West Covell Boulevard/ Catalina Drive	Signal	City of Davis	17	B	47	D	19	B	28	C
11. East Covell Boulevard/F Street	Signal	City of Davis	63	E	154	F	47	D	129	F
12. F Street/East Fourteenth Street	Signal	City of Davis	26	C	35	D	25	C	22	C
13. East Covell Boulevard/ Market Avenue	SSSC	City of Davis	13 (32)	B (D)	83 (9)	F (A)	9 (18)	A (C)	80 (9)	F (A)
14. Cannery Avenue/Cannery Loop	RAB	City of Davis	4	A	7	A	4	A	4	A

Table 14: Peak Hour Intersection Operations – Cumulative Conditions With Improvements

Intersection	Traffic Control	Jurisdiction	Cumulative Conditions				Cumulative Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
15. East Covell Boulevard/J Street/Cannery Avenue	Signal	City of Davis	62	E	136	F	50	D	131	F
16. East Covell Boulevard/L Street	Signal	City of Davis	38	D	69	E	35	D	72	E
21. East Covell Boulevard/Pole Line Road	Signal	City of Davis	109	F	139	F	42	D	71	E
22. East Covell Boulevard/Birch Lane	Signal	City of Davis	20	C	15	B	20	C	16	B
23. East Covell Boulevard/Baywood Lane	SSSC	City of Davis	5 (24)	A (C)	5 (33)	A (D)	5 (28)	A (D)	5 (37)	A (E)
24. East Covell Boulevard/Manzanita Lane	SSSC	City of Davis	5 (27)	A (D)	6 (40)	A (E)	6 (28)	A (D)	6 (42)	A (E)
25. East Covell Boulevard/Wright Boulevard	Signal	City of Davis	14	B	14	B	14	B	16	B
26. East Covell Boulevard/Monarch Lane	SSSC/Signal	City of Davis	6 (39)	A (E)	11 (144)	B (F)	23	C	31	C
27. East Covell Boulevard/Alhambra Drive/West Project Access	Signal	City of Davis	37	D	139	F	33	C	35	D
28. East Covell Boulevard/Project East Access	SSSC	City of Davis	12 (16)	B (C)	142 (314)	F (F)	7 (9)	A (A)	6 (8)	A (A)
29. East Covell Blvd/Harper JHS Driveway	Signal	City of Davis	15	B	149	F	14	B	15	B
30. Mace Boulevard/Alhambra Drive	Signal	City of Davis	53	D	51	D	55	D	56	E
31. Second Street/Fermi Place/Target Driveway	Signal	City of Davis	10	B	97	F	11	B	31	C
32. Mace Boulevard/Second Street/County Road 32A	Signal	City of Davis	107	F	111	F	61	E	62	E
33. Mace Blvd/I-80 WB Ramps	Signal	Caltrans	104	F	41	D	35	D	34	C



Table 14: Peak Hour Intersection Operations – Cumulative Conditions With Improvements

Intersection	Traffic Control	Jurisdiction	Cumulative Conditions				Cumulative Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
34. Mace Boulevard/ Chiles Road	Signal	City of Davis	69	E	125	F	75	E	112	F
35. Chiles Road/I-80 EB Ramp	Signal	Caltrans	129	F	268	F	158	F	340	F
36. Mace Boulevard/ Cowell Blvd	Signal	City of Davis	25	C	145	F	26	C	106	F
37. Mace Boulevard/North El Macero Drive	AWSC	City of Davis	8	A	29	D	8	A	10	A
38. County Rd 29/SR 113 SB Ramps	SSSC	Caltrans	13 (29)	B (D)	8 (22)	A (C)	13	B	12	B
39. County Rd 29/SR 113 NB Ramps	SSSC/AWSC	Caltrans	1 (15)	A (B)	3 (18)	A (C)	1 (15)	A (B)	3 (18)	A (C)
40. County Rd 29/County Rd 100A	SSSC	Yolo Co	2 (23)	A (C)	2 (21)	A (C)	2 (23)	A (C)	2 (21)	A (C)
41. County Rd 29/County Rd 101A	SSSC/Signal	Yolo Co	7 (28)	A (D)	8 (27)	A (D)	12	B	12	B
42. County Rd 102/County Rd 29	SSSC/Signal	Yolo Co	7 (80)	A (F)	15 (135)	B (F)	16	B	12	B
43. County Rd 102/County Rd 28H	SSSC/Signal	Yolo Co	1 (34)	A (D)	2 (40)	A (E)	6	A	8	A
44. County Rd 102/County Rd 27	AWSC/Signal	Yolo Co	48	E	74	F	15	B	17	B
45. County Rd 102/County Rd 25A	Signal	Yolo Co	14	B	12	B	14	B	12	B
46. County Rd 28H/County Rd 103	SSSC	Yolo Co	1 (10)	A (A)	1 (11)	A (B)	1 (10)	A (A)	1 (11)	A (B)
47. County Road 28H/Yolo County Landfill Driveway	SSSC	Yolo Co	2 (10)	A (A)	2 (11)	A (B)	2 (10)	A (A)	2 (11)	A (B)
48. County Rd 28H/County Rd 105	SSSC	Yolo Co	4 (10)	A (A)	4 (10)	A (B)	4 (10)	A (A)	4 (10)	A (B)
49. County Rd 105/County Rd 32A	SSSC/AWSC	Yolo Co	11 (27)	B (D)	69 (264)	F (F)	11	B	16	C
50. County Rd 32A/I-80 WB Ramps	SSSC/AWSC	Caltrans	8 (12)	A (B)	>300 (11)	F (B)	12	B	>300	F

Table 14: Peak Hour Intersection Operations – Cumulative Conditions With Improvements

Intersection	Traffic Control	Jurisdiction	Cumulative Conditions				Cumulative Conditions With Improvements			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
51. County Road 32B/Chiles Road/I-80 EB Ramps	SSSC	Caltrans	7 (9)	A (A)	>300 (>300)	F (F)	10 (3)	A (A)	>300 (>300)	F (F)

Notes: For signalized intersections, average intersection delay is reported in seconds per vehicle for all approaches. For two-way stop-controlled intersections, average intersection delay is reported in seconds per vehicle for all approaches with the delay and LOS for the worst-case movement reported in parentheses.

Intersections #17- #21 are excluded from this table because improvements at them are being contemplated within the *Village Farms Project EIR*.

Shaded cells indicate locations with unacceptable peak hour LOS.

Signal = Traffic Signal. RAB = Roundabout. SSSC = Side-Street Stop Control. AWSC = All-Way Stop Control.

Source: Fehr & Peers, 2025.

Table 15: Freeway Off-Ramp Queuing – Cumulative Conditions With Improvements

Off-Ramp	Off-Ramp Distance ¹	Maximum Queue Length ²			
		Cumulative Conditions		Cumulative Conditions With Improvements	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
West Covell Boulevard/SR 113 SB Ramps	1,375 feet	1,975 feet	1,175 feet	850 feet	975 feet
West Covell Boulevard/SR 113 NB Ramps	1,275 feet	1,350 feet	1,900 feet	350 feet	575 feet
Mace Boulevard/I-80 WB Off-Ramp	1,200 feet	2,875 feet	300 feet	450 feet	400 feet
Chiles Road/I-80 EB Off-Ramp	1,100 feet	550 feet	1,350 feet	1,050 feet	350 feet
County Road 32A/I-80 WB Ramps	1,020 feet	175 feet	200 feet	150 feet	150 feet
Chiles Road/County Road 32B/I-80 EB Ramps	875 feet	50 feet	50 feet	50 feet	50 feet

Notes: ¹ Measured from the intersection stop bar to the gore point of the freeway off-ramp. Does not include auxiliary lane on freeway mainline.

² Maximum queue estimates are based on results from SimTraffic micro-simulation model. Queues are maximum per lane, rounded up to the nearest 25 feet.

³ Shaded cells represent conditions in which the queue would spill onto the freeway mainline.

Source: Fehr & Peers, 2025.



