
Appendix G:

Transportation Supporting Information

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Transportation Operations Review of Russell at Truxel Project

Prepared for:



Submitted on:

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SA25-0304

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Executive Summary

Purpose

This study analyzes transportation operations associated with implementation of the proposed Russell at Truxel residential project located in the Natomas area of the City of Sacramento. It is an updated analysis of a transportation operations review conducted for a different mix of residential uses on the site in 2022/2023. This study describes existing conditions, analyzes the project's expected travel characteristics, reviews how the project would affect travel conditions near the site vicinity, and recommends improvements to better accommodate all modes of travel. The updated analysis of transportation operations is conducted for Baseline and Baseline plus Project conditions, consistent with the analysis methodology for the 2022/2023 study. New traffic counts were collected for the transportation operations update, as counts for the prior study collected in 2022 were considered outdated, and an updated baseline project list was also evaluated. The Project VMT analysis was not updated as the 2022/2023 assessment determined that the residential project is located in a traffic analysis zone with a VMT per resident value derived from the base year SACSIM travel demand model that falls below the significance threshold for residential uses, yielding a conclusion that VMT impacts would be less than significant, and that condition has not changed.

Project Description

The project site is located at 3625 Fong Ranch Road north of San Juan Road. The site is bounded by Fong Ranch Road on the east, the Interstate 80/Truxel Road interchange to the west, a drainage canal to the north, and Discovery High School and Natomas High School to the south. Currently, the project site is vacant. The proposed project would develop 119 affordable multi-family residential units and 100 single-family detached dwelling units.

Existing Conditions

A traffic operations analysis was performed for two-lane segment of Fong Ranch Road, four-lane segment of San Juan Road, and four- to six-lane segment of Truxel Road in the project vicinity. Natomas High School, which is situated in the northwest quadrant of the San Juan Road/Fong Ranch Road intersection, is a major traffic generator during periods when students arrive and depart school (start time is 8:30 AM and release time is 3:30 PM).

The San Juan Road/Fong Ranch Road (#11) intersection is controlled by a traffic signal and operates at Level of Service (LOS) D during the AM and PM peak hours, which include the peak drop-off and pick-up periods of Natomas High School. Extensive queuing occurs on all approaches to this intersection, pedestrian flows are heavy, and students are pick-up and dropped off in many locations near it.

Natomas High School traffic represents 56% of all AM peak hour trips and 67% of all PM peak hour trips on Fong Ranch Road north of San Juan Road. Extensive queuing and LOS D conditions also exist at the signalized Truxel Road/San Juan Road (#3) intersection.

Project Travel Characteristics

The proposed project would generate approximately 115 AM peak hour trips, 146 PM peak hour trips, and 1,530 daily trips. The vast majority of these trips (95% on a daily basis) would utilize Fong Ranch Road to access San Juan Road. However, during peak student drop-off and pick-up periods at Natomas High School, the area becomes quite congested, especially at southbound and eastbound of the San Juan Road/Fong Ranch Road (#11).

Project Deficiencies under Baseline Conditions

The baseline condition represents existing (May 2025) conditions plus the addition of trips generated by the ParkeBridge East Residential project, which has been approved by the City of Sacramento on a vacant parcel on the east side of Havenparke Circle.

Changes in Traffic Volumes

The project would result in a 10% increase in AM peak hour traffic and a 39% increase in PM peak hour traffic on Fong Ranch Road immediately directly north of San Juan Road. School trips are highly focused during the instruction start/end times, while residential trips occur in a more dispersed manner across the day. Thus, on a daily basis, the project would cause the volume of traffic on Fong Ranch Road north of San Juan Road from 5,400 to 6,900 vehicles, a 28% increase.

Changes in Traffic Operations (Delay and Queuing)

The project would cause modest (three seconds or less) increases in delays at intersection. Vehicle queues would worsen, particularly at the San Juan Road/Fong Ranch Road (#11) intersection, which already experiences queuing that exceeds available turn pocket storage when school starts and ends at Natomas High School.

Under the Baseline No Project scenario, study intersection #3 (Truxel Road/San Juan Road) operates at LOS E during the AM peak hour and LOS D during the PM peak hour. With the addition of project traffic, delays and queues increase, resulting in LOS E during both peak periods.

At study intersections #11 (San Juan Road/Fong Ranch Road) and #12 (San Juan Road/Pony Express Drive), the project introduces significant delays and queuing, constituting operational deficiencies. LOS F conditions occur at both intersections during the AM peak hour, and at intersection #11 during the PM peak hour. These impacts are primarily attributed to peak-hour school-related traffic, which results in substantial congestion at both locations.

At all other at all other signalized study intersections, condition of LOS D and below would be maintained. Chapter IV discusses a variety of potential improvements at the Truxel Road/San Juan Road (#3) and San Juan Road/Fong Ranch Road (#11) intersections to provide more vehicle storage and/or reduce queuing levels. The project should make a financial contribution and/or installation on the preferred set of improvements in coordination with the City. These improvements may include signal retiming, turn pocket extensions, striping, and signal modifications.

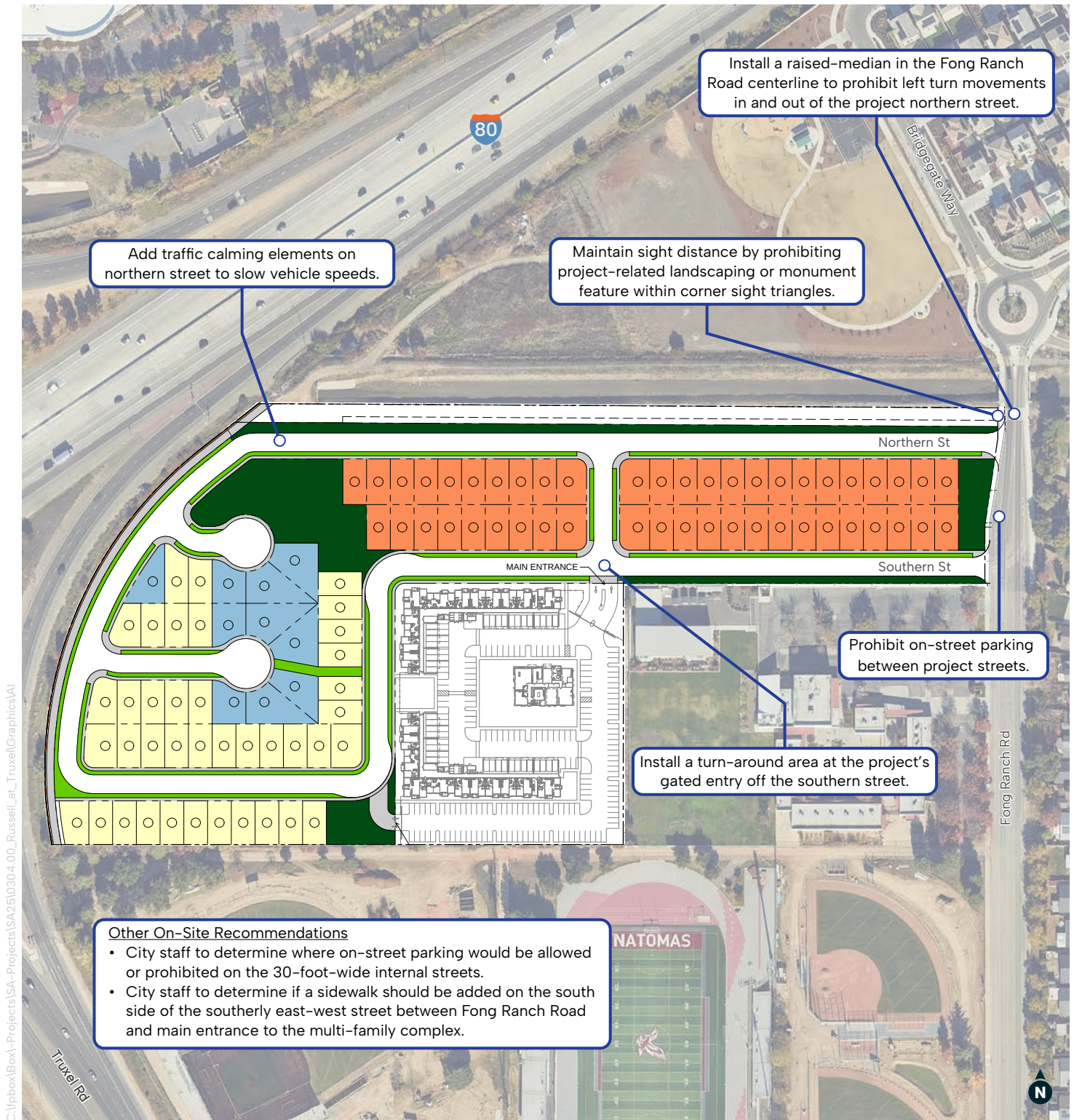
Neighborhood Traffic Effects

The neighborhood east of Fong Ranch Road features several residential streets that connect directly to San Juan Road. A variety of traffic calming elements have already been implemented on local streets including Bridgeford Drive, Pony Express Drive, Zenobia Drive, Old West Drive, and Chuckwagon Drive. Elements include speed humps, lumps, and undulations, centerline striping, and crosswalks with median islands.

When students arrive or depart Natomas High School, congestion on Fong Ranch Road and San Juan Road becomes severe, lasting for about 20 to 30 minutes. During those periods, residents of the proposed project may find it slightly quicker (though much more circuitous) to travel through these neighborhood streets versus using Fong Ranch Road. Over the course of a weekday, it is estimated that about 5% of the project's 1,530 daily trips (about 77 vehicles per day) would utilize these streets. As those streets are already highly 'traffic calmed' and the increase in traffic would not exceed their comfortable carrying capacity, no further traffic calming features or other actions are recommended.

Project Access and On-Site Circulation

A detailed review of project access and on-site circulation was conducted using the City of Sacramento *Street Design Standards* (2023) and applicable design standards from its municipal code. Several recommendations were made, which are illustrated on **Figure ES-1**.



Study Area (Off-Site): Recommendations:

Truxel Road / San Juan Road (Intersection #3)

- Lengthen the southbound left-turn lanes by about 100 feet.

San Juan Road / Fong Ranch Road (Intersection #11)

- Lengthen the eastbound left-turn lane by about 100 feet.
- Modify traffic signal timing/phasing to allocate a greater percentage of green time to eastbound left-turn lane.

FIGURE ES-1

Recommendations

I. Introduction

Purpose

This study analyzes transportation operations associated with implementation of the proposed Russell at Truxel residential project located in the Natomas area of the City of Sacramento. This study describes existing conditions, analyzes the project's expected travel characteristics, reviews how the project would affect travel conditions under a baseline setting, and recommends improvements to better accommodate all modes of travel and on-site circulation.

Project Description

The project site is located at 3625 Fong Ranch Road north of San Juan Road. The site is bounded by Fong Ranch Road on the east, the Interstate 80/Truxel Road interchange to the west, a drainage canal to the north, and Discovery High School and Natomas High School to the south. Currently, the project site is vacant. The proposed project would develop 119 affordable multi-family residential units and 100 single-family detached dwelling units. Refer to **Figure 1** for the project site plan.

Study Area and Peak Travel Periods

This study analyzes the following study intersections during weekday AM and PM peak hour conditions. These intersections were selected for analysis due to their likelihood of being affected by project trips. Operations are also evaluated at the project streets (#14 and 15).

1. Truxel Road / I-80 Westbound Ramps
2. Truxel Road / I-80 Eastbound Ramps
3. Truxel Road / San Juan Road
4. Fong Ranch Road / Bridgegate Way
5. Fong Ranch Road / Discovery High School Northern Driveway
6. Fong Ranch Road / Discovery High School Middle Driveway
7. Fong Ranch Road / Discovery High School Southern Driveway
8. Fong Ranch Road / Natomas High School Northern Driveway
9. Fong Ranch Road / Natomas High School Middle Driveway
10. Fong Ranch Road / Natomas High School Southern Driveway
11. San Juan Road / Fong Ranch Road
12. San Juan Road / Pony Express Drive
13. San Juan Road / Bridgeford Drive
14. Fong Ranch Road / Project Northern Street (future)
15. Fong Ranch Road / Project Southern Street (future)

Traffic counts were conducted on Thursday, May 1, 2025 at a subset of study intersections during the AM (7:00 AM to 9:00 AM) and PM (3:00 PM to 6:00 PM) peak periods. The data collection periods covered the morning drop-off and afternoon pick-up at the adjacent Natomas High School and Discovery High School.

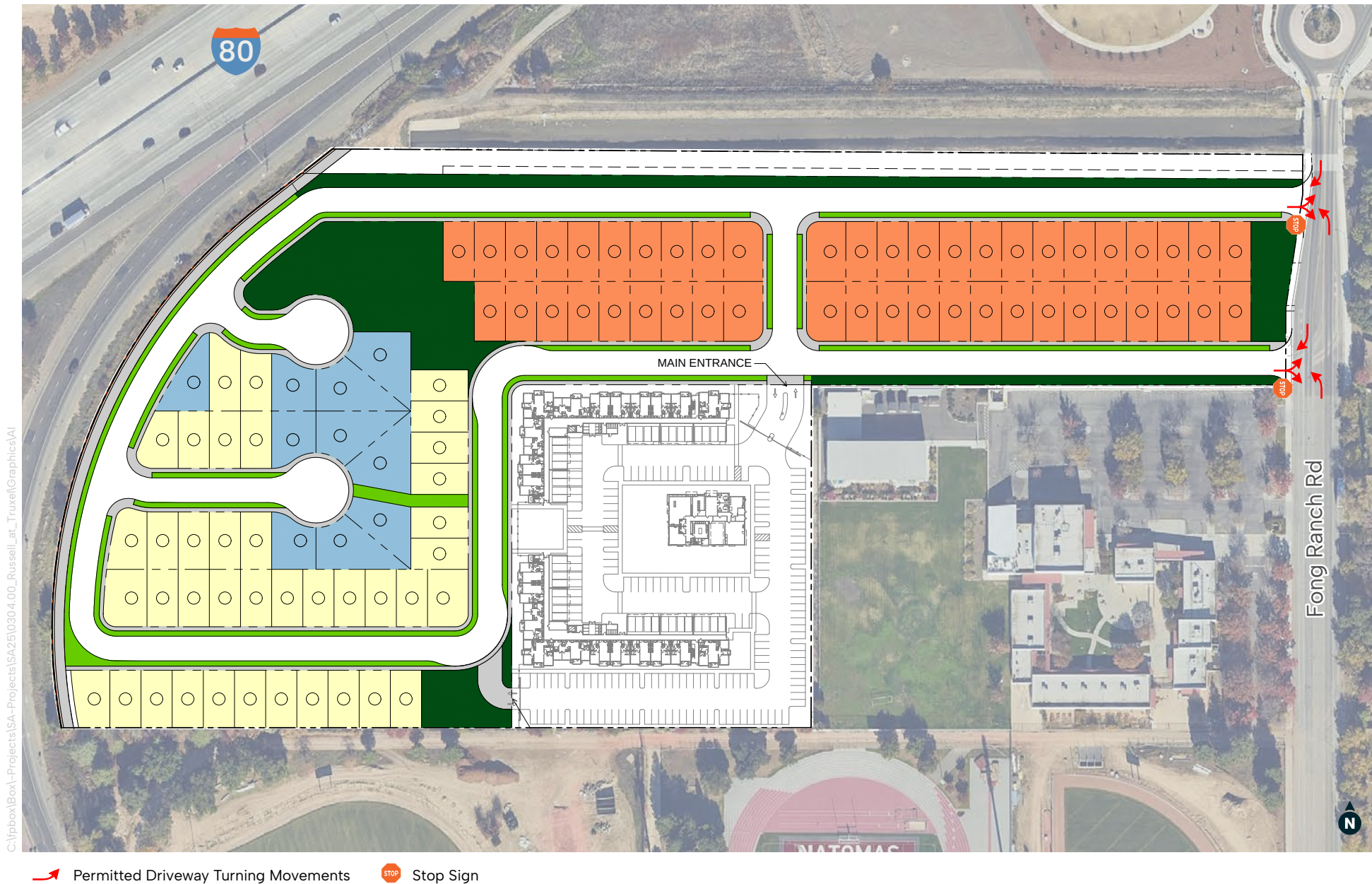


FIGURE 1
Project Site Plan

In early 2023, Fehr & Peers completed a transportation analysis for a different residential use on the project site. As part of that study, traffic counts were conducted at all intersections listed above. But since 2 ½ years have elapsed since those counts and background conditions have likely changed, it was decided that new counts should be conducted at the following eight study intersections:

1. Truxel Road / I-80 Westbound Ramps
2. Truxel Road / I-80 Eastbound Ramps
3. Truxel Road / San Juan Road
4. Fong Ranch Road / Bridgegate Way
8. Fong Ranch Road / Natomas High School Northern Driveway
9. Fong Ranch Road / Natomas High School Middle Driveway
11. San Juan Road / Fong Ranch Road
13. San Juan Road / Bridgeford Drive

Traffic volumes measured at the locations above were used in this analysis. At the seven intersections that were not counted (the majority of which are school access driveways), minor street movements from the prior study counts were used and through traffic on the major street was updated by link balancing from adjacent intersections that were recounted.

Analysis Scenarios

The following scenarios are analyzed in this study:

- **Baseline Conditions:** represent Spring 2025 conditions, plus the addition of vehicle trips generated by the ParkeBridge East Residential project, which has been approved by the City of Sacramento on a vacant parcel on the east side of Havenparke Circle. This is the baseline condition upon which project effects are evaluated.
- **Baseline Plus Project Conditions:** represent changes in travel conditions from baseline conditions associated with implementation of the proposed Russell at Truxel project.

Analysis Methodology

This study utilizes many of the same technical analysis approaches and prior analyses (to the extent still applicable) from the 2022/2023 study of the project site.

This study uses the SimTraffic microsimulation software to analyze traffic operations (i.e., delay, level of service, and queuing) at the study intersections. SimTraffic considers the effects of lane utilization, heavy vehicle composition, turn pocket storage lengths, upstream/downstream queue spillbacks, and coordinated signal timings on intersection queuing and delays. Reported results are based on an average of 10 runs. The following procedures and assumptions were applied in the development of the SimTraffic model:

- Roadway geometric data were gathered using aerial photographs and field observations.
- Peak hour traffic volumes were entered into the model according to the peak hour of the study area.
- The peak hour factor (PHF) was set at 0.91 for AM peak hour and 0.92 for PM peak hour, in accordance with the 2023 City of Sacramento Traffic Impact Study Guidelines with the assessment of collected traffic counts at study intersections.
- Counted pedestrian and bicycle volumes were entered into the model according to peak hour measurements.
- Signal phasing and timings were based on existing signal timing plans provided by the City of Sacramento and field observations.
- Roadway speeds for the model network were based on posted speed limits.

Regulatory Setting

The Mobility Element of the City's *2040 General Plan* (adopted February 27, 2024) outlines goals and policies that coordinate the transportation and circulation system with planned land uses. In contrast to older editions, the City's current General Plan does not include policy language pertaining to intersection level-of-service (LOS). Therefore, specific LOS thresholds are not used in this study to evaluate the adequacy of operations at City intersections. LOS is presented for informational purposes only.

Page 16 of the *City of Sacramento Traffic Impact Study Guidelines* (2023) explains that Local Transportation Analyses (LTAs) should identify the transportation effects of proposed projects on the surrounding roadway network based on a set of thresholds, as outlined in the guidelines. Those thresholds are developed based on the most current version of the City's policies, guidelines, and standards contained in regulatory documents such as the General Plan and Design & Procedures Manuals. Pertaining to intersections, the following thresholds are identified in the guidelines. A project is considered to result in a deficiency if it would:

Intersections

- Result in increasing the length of an existing queue beyond the available storage at any intersection's right- or left-turn storage pocket by more than one vehicle length (i.e., 25 feet).
- Result in increasing the length of an existing queue already exceeding the available storage at any intersection's right- or left-turn storage pocket by more than one vehicle length.
- Result in an unsignalized intersection that is not warranted for a signal without the addition of a project being warranted for a signal with the addition of the project.

In May 2020, the California Department of Transportation (Caltrans) published the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG)*, which replaced its *Guide for the Preparation of Traffic Impact Studies* (2002). The TISG indicates that Caltrans intends to "transition away from requesting LOS or other vehicle operations analyses of land use projects", instead placing the focus on

VMT and safety. For this reason, a specific LOS threshold is not used in this study to evaluate the adequacy of operations at Caltrans intersections. Additionally, this study does not include traffic operations analysis of freeway mainline facilities.

The *Local Development Review (LDR) Safety Review Practitioners Guidance* (Caltrans, 2024) advises practitioners how to evaluate project-related safety impacts on the state highway system. It stops short of including specific thresholds of significance. The analytical approach described in the guidance focuses on vulnerable road users (i.e., bicyclists and pedestrians) and underserved communities; enhancing safety for pedestrians, bicyclists, transit, and vehicular modes; and applying both reactive and systemic perspectives. Lastly, it reiterates Caltrans supports for shifting away from using delay-based metrics for analysis in CEQA.

The guidance outlines how queuing should be reviewed for traffic safety impacts. Appendix B, “Freeway Exit-Ramp Queuing Analysis”, provides practitioners with specific guidance on analysis of project effects on freeway off-ramp queuing. The following test is applied at freeway off-ramps:

- If the Project adds two or more car lengths to the ramp queue that will extend into the freeway mainline, then the location must be reviewed for traffic safety impacts. This review must evaluate speed differential between the off-ramp queue and the mainline of the freeway during the same period.

The guidance further advises the following:

- Traffic safety mitigation may be requested if freeway exit ramp queuing does not occur under the existing condition, but project-generated traffic volumes will cause a queue to extend onto the freeway mainline, creating a speed differential of 30 miles per hour (mph) or greater. When the speed differential increases above the 30-mph threshold, rear-end collisions increase resulting in an increase in severe injury and fatal collisions.
- Traffic safety mitigation shall not be requested under conditions where queuing already exists on a freeway exit ramp.

Based on the above, this study uses SimTraffic to analyze all study intersection vehicle queuing and LOS.

II. Baseline Conditions

This chapter describes the existing physical characteristics of the transportation system within the study area, including the roadway, bicycle, pedestrian, and transit components.

Roadway System

Figure 2 shows the study area roadway network. Regional access would be provided by Interstate 80 (I-80), which is an eight-lane east/west freeway within the study area featuring an interchange at Truxel Road. The following surface streets would provide primary access to the project:

- **Truxel Road** is a four- to six-lane, north-south arterial roadway within the study area. The road begins at Garden Highway and extends north through South Natomas. It continues north beyond I-80 into North Natomas before transitioning to Natomas Boulevard north of Del Paso Road. The posted speed limit is 45 mph north of San Juan Road and 40 mph south of San Juan Road.
- **San Juan Road** is a two- to four-lane, east-west arterial roadway within the study area. The roadway crosses both I-80 and I-5 without an interchange, terminates to the west at Garden Highway, and to the east transitions to Silver Eagle Road at the Steelhead Creek. The posted speed limit in the study area is 40 mph, with the section between Truxel Road and Tumbleweed Way (east of Fong Ranch Road) being posted as a school zone (25 mph when children are present).
- **Fong Ranch Road** is a two-lane, north-south collector street that begins at a signalized intersection on San Juan Road. It extends northerly for 0.5 miles where it intersects Bridgegate Drive at a roundabout. It then extends easterly through a residential neighborhood for about 0.5 miles, terminating at Parkechannel Street, north of San Juan Road. The north-south portion fronts along Natomas High School, Discovery High School, and the project site, featuring one lane in each direction separated by a two-way left-turn lane (TWLTL). On-street parking is permitted on the east side of the street from the southern Natomas High School driveway to the project site. On-street parking is also provided on the west side of the street for the same geographic limits, though a sign is present on between the southern and central Natomas High School driveways limiting curb use to student pick-up and drop-off between 7 AM and 4 PM. The easterly section of Fong Ranch Road features one lane in each direction and on-street parking where homes front along it.

Several residential streets are located east of Fong Ranch Road and could potentially be utilized by project trips. Among those roadways, the following would be most likely to be utilized:

- **Bridgeford Drive** intersects San Juan Road at a signalized intersection located 1,880 feet east of Fong Ranch Road. This residential street extends northwest from the signal, terminating at Harvest Glen Way just east of Fong Ranch Road. The northbound direction has a 25 mph pavement marking, while neither a sign or pavement marking is present in the southbound direction. A variety of speed lumps and undulations are present along this road as shown on Figure 2.
- **Pony Express Drive** intersects San Juan Road at a stop-controlled intersection located 240 feet east of Fong Ranch Road. The intersection featuring channelization, prohibiting outbound left-turns onto San Juan Road from Pony Express Drive and Rockhampton Drive. This residential street parallels Fong Ranch Road, terminating at Old West Drive, which itself extends easterly to Bridgeford Drive. The road features speed humps as shown on **Figure 2**.

According to the City staff, the Baseline scenarios will include the implementation of a Vision Zero School Safety Project (see **Figure 3** for illustration) on Fong Ranch Road along the frontage of Natomas High School. The project will construct of the following:

- Modify the southbound Fong Ranch Road approach to San Juan Road to consist of a shared left/through lane and a dedicated right-turn lane (currently consists of one left, one shared left/through/right, and one right-turn lane).
- Install Class II (on-street) bike lanes with solid green coloring and/or skip-striping in both directions of Fong Ranch Road. Some parts of the new bike lanes are buffered; others are not.
- Install a 2- to 6.5-foot wide concrete median on Fong Ranch Road, extending to the Natomas High School middle driveway (#9). The left turn movement will be no longer allowed at the Natomas High School northern driveway (#10) due to this concrete median installation.
- Install bollards on the west side of Fong Ranch Road at the Natomas High School middle driveway (#9). A no-turn sign will be situated in the median facing the northbound left-turn lane into this driveway.



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Project Site

Parks

Note: Speed limits, traffic calming devices, and traffic controls only shown for study area roadways.



Traffic Signal



Roundabout



Stop Sign



Speed Bump

Posted Speed Limits



25 MPH School Zone



25 MPH



40 MPH



45 MPH

Number of Travel Lanes (excluding any median or turn lanes)

2 Lanes

4 Lanes

5 Lanes

6 Lanes

7 Lanes

FIGURE 2

Existing Roadway Network

* Sign is situated only in the northbound direction approximately 300 feet north of San Juan Rd.

CAD FILE PATH: C:\Users\USJ0730644\OneDrive\WSP USA Projects (AMF)\SAC700-150022855-3556 - Vision Zero School Safety Plan - C22\Project Files\03 CAD Sheets\Civil\22855_00_Natomas HS_L001.dwg
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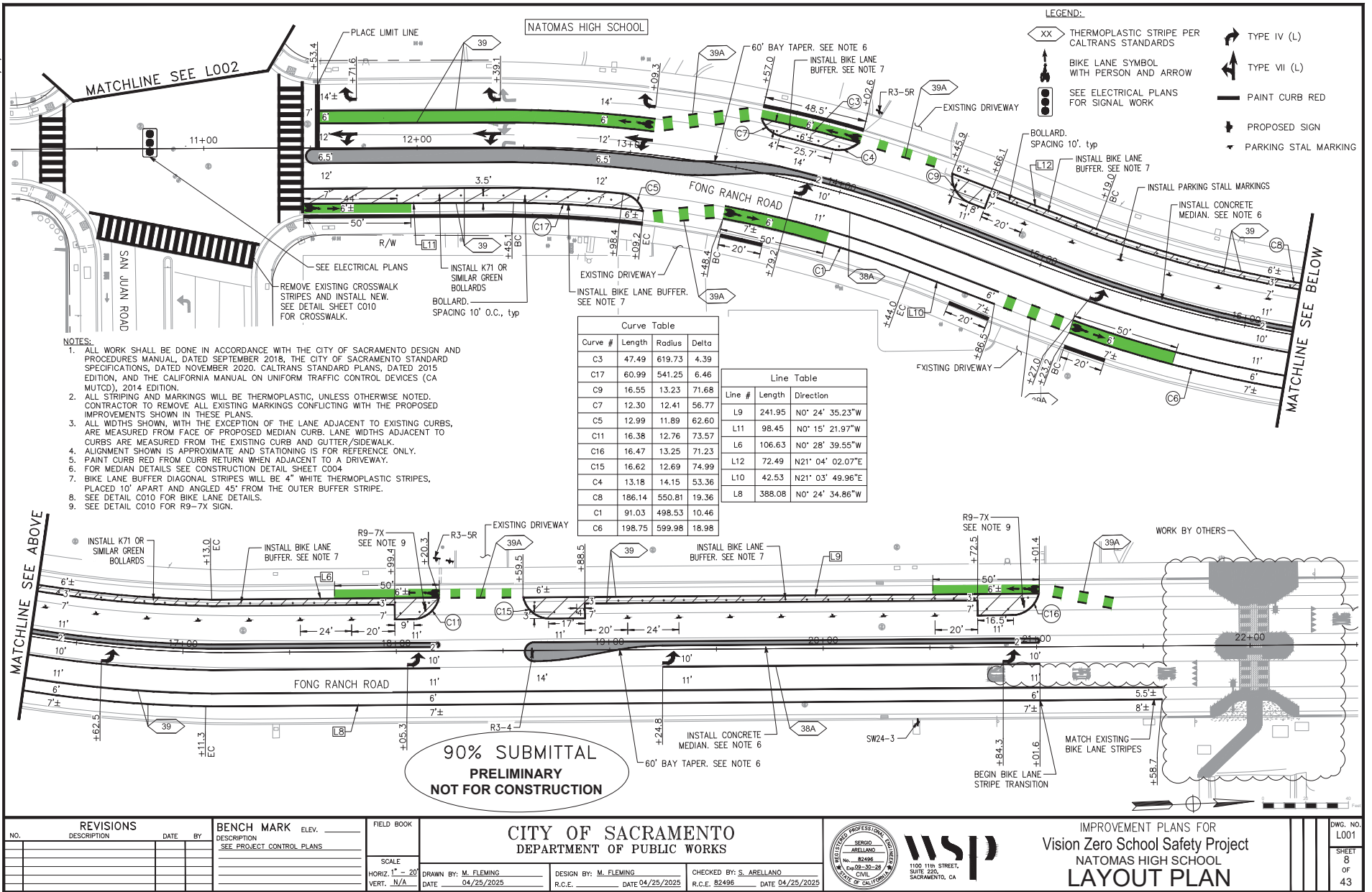


FIGURE 3
Vision Zero Project

Bicycle and Pedestrian System

Figure 4 displays the existing bicycle and pedestrian facilities in the study area. This data is derived from aerial imagery, field observations, and the City's Bikeway master Plan GIS database.¹As shown, a variety of Class I (off-street multi-use paths) and Class II (on-street with appropriate pavement markings and signage) bike lanes are present.

Sidewalks are located along the entirety of the west side of Fong Ranch Road, but are not present on the east side of the street. Signalized intersections feature crosswalks with push-button actuation.

Transit System

The nearest bus stops to the project site are situated on San Juan Road at Pony Express Drive, about a ½ mile walk from the edge of the project site (see Figure 3). Sacramento Regional Transit (SacRT) Routes 13 and 86 stop at this location. These two routes are described below:

- **Route 11 (Natomas / Land Park)** connects Natomas, Downtown Sacramento, and Land Park. The route operates every 30 minutes on weekdays, and every 45 minutes on weekends.
- **Route 13 (Natomas / Arden)** connects Natomas and Arden. The route operates every 45 minutes on weekdays and weekends.

Additionally, bus stops are situated immediately beyond all four legs of the Truxel Road/San Juan Road intersection. They serve the two routes above, as well as Route 86 described below:

- **Route 86 (Grand)** connects South Natomas, Downtown Sacramento, and Marconi/Arcade. The routes serves San Juan Road within the study area, with the nearest bus stop located at the intersection of San Juan Road / Pony Express Drive / Rockhampton Drive approximately ½ mile from the project site. The route operates every 30 minutes on weekdays, and between every 45 to 60 minutes on weekends.

¹ Source: City Bikeway Master Plan:
<https://saccity.maps.arcgis.com/apps/webappviewer/index.html?id=eef65d0able04f8e997726d1a8c84ced>.



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- Notes:
1. Southbound Truxel Rd from Gateway Park Blvd to I-80 EB off-ramp and Northbound Truxel Rd from Mammoth Way to I-80 WB off-ramp are signed for Bike Route without pavement markings.
 2. Old West Dr does not connect to Fong Ranch Rd, but there is pedestrian access.
 3. San Juan Rd between Pony Express Dr and Tumbleweed Way only has a bike lane on the Eastbound side of the road.
- Bicycle, pedestrian, and transit facilities only shown on study roadways.
- | | | | |
|---|---|---|---|
| Project Site | Marked Crosswalk | Class I: Shared-Use Path | SacRT Bus Stop |
| Parks | Sidewalk | Class II: Bike Lane | Route 11 |
| | | Class III: Bike Route | Route 13 |
| | | | Route 86 |

FIGURE 4

Existing Bicycle, Pedestrian, and Transit Facilities

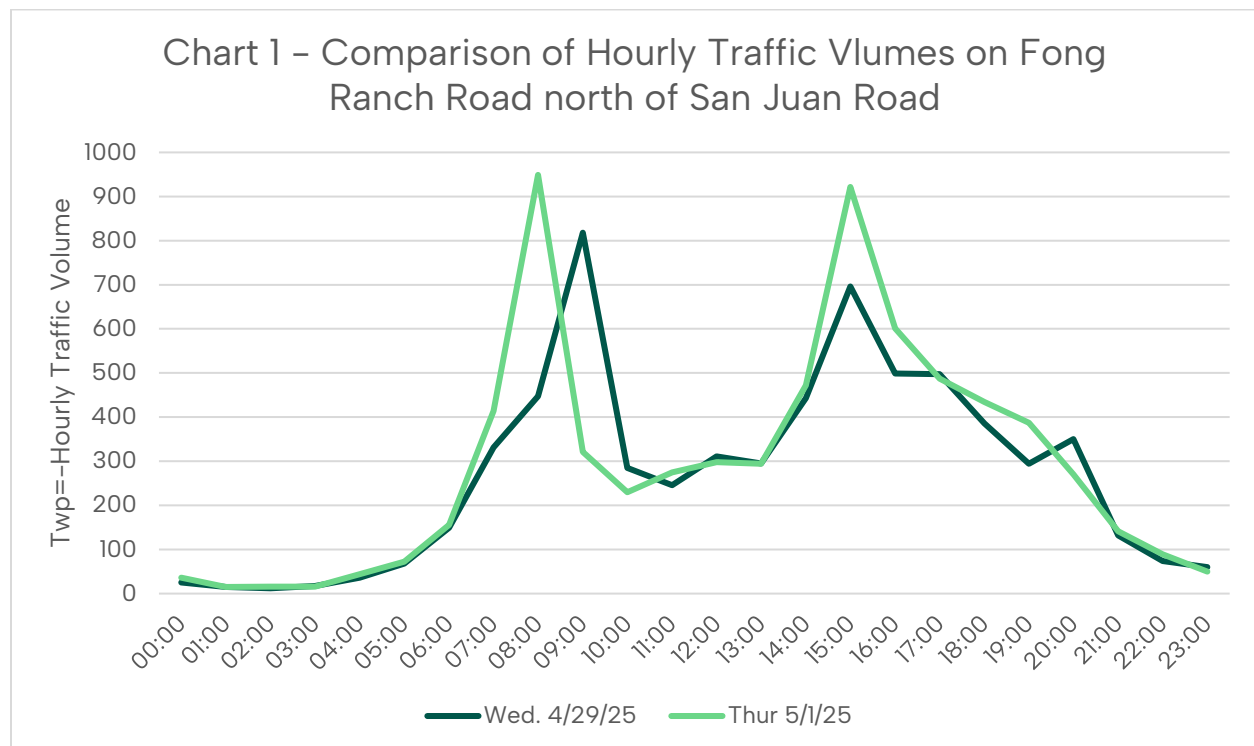
Traffic Volumes

Daily Traffic Variation

Roadway segment traffic counts were conducted over a 48-hour period on Wednesday and Thursday, on April 30, 2025 and May 1, 2025, to review variations in travel (e.g., due to the day-to-day fluctuations associated with remote or hybrid work schedules for residents in the study area). The roadway segment counts were collected at the following locations:

1. Truxel Road – between I-80 and San Juan Road
2. San Juan Road – between Truxel Road and Fong Ranch Road
3. Fong Ranch Road – North of San Juan Road

However, it was noted that Natomas High School operated on a normal bell schedule (school starts at 8:30 AM and ends at 3:30 PM). In contrast, the school started later in the morning (at 9:30 AM) on the Wednesday count and did not have the same spike in afternoon student releases, likely due to a minimum day. This is illustrated in **Chart 1**.



Fortunately, as is discussed below, all intersection counts were collected on Thursday, May 1, 2025. Collection the day prior would have resulted in atypically low volumes. The Thursday counts ensure that conditions with Natomas High School operating normally are analyzed.

During the AM and PM peak periods, there are different peak hours observed for different groups of study intersections. **Table 1** below lists the observed AM and PM peak hours for the collected study intersections.

Table 1. Observed AM and PM Peak Hours of Travel at Study Intersections

Study Intersection	AM Peak Hour	PM Peak Hour
1. Truxel Road / I-80 Westbound Ramps	07:30 AM – 08:30 AM	04:30 PM – 05:30 PM
2. Truxel Road / I-80 Eastbound Ramps	07:30 AM – 08:30 AM	04:30 PM – 05:30 PM
3. Truxel Road / San Juan Road	07:30 AM – 08:30 AM	03:30 PM – 04:30 PM
4. Fong Ranch Road / Bridgeway Cir	07:15 AM – 08:15 AM	04:45 PM – 05:45 PM
8. Fong Ranch Road / Natomas High School Northern Driveway	07:45 AM – 08:45 AM	03:15 PM – 04:15 PM
9. Fong Ranch Road / Natomas High School Middle Driveway	07:45 AM – 08:45 AM	03:15 PM – 04:15 PM
11. San Juan Road / Fong Ranch Road	07:45 AM – 08:45 AM	03:15 PM – 04:15 PM
13. San Juan Road / Bridgeford Drive	07:30 AM – 08:30 AM	03:30 PM – 04:30 PM

Notes:

This table shows each intersection's own peak (i.e., busiest) hour of travel. Refer to text below for how the overall peak hours of analysis were selected.

Source: Fehr & Peers, 2025.

As is discussed in more detail later, the San Juan Road/Fong Ranch Road (#11) intersection is a critically important intersection to the overall study. It is the primary access to both the project site and two nearby schools. That intersection is busiest from 7:45 AM to 8:45 AM and from 3:15 PM to 4:15 PM. Volumes measured during those hours were used in the analysis.

Since SimTraffic is a microsimulation model in which vehicles traverse a network, it is important that there not be volume imbalances between adjacent intersections, as this causes vehicles to appear and disappear. Accordingly, it was necessary to also use the volumes from 7:45 AM to 8:45 AM and from 3:15 PM to 4:15 PM at all other study intersections. The following compares how the volumes used in the analysis compare to each intersection's own peak hour at locations #1 – #3.

Truxel Road / I-80 Westbound Ramps (#1)

AM Peak Hour: 5,011 vehicles (07:45 AM – 08:45 AM) versus intersection's own peak hour (07:30 AM – 08:30 AM) volume of 5,018 vehicles (+0.2%).

PM Peak Hour: 5,762 vehicles (03:15 PM – 04:15 PM) versus intersection's own peak hour (04:30 PM – 05:30 PM) volume of 5,841 vehicles (+1.5%).

Truxel Road / I-80 Eastbound Ramps (#2)

AM Peak Hour: 4,304 vehicles (07:45 AM – 08:45 AM) versus intersection's own peak hour (07:30 AM – 08:30 AM) volume of 4,322 vehicles (+0.4%).

PM Peak Hour: 4,765 vehicles (03:15 PM – 04:15 PM) versus intersection's own peak hour (04:30 PM – 05:30 PM) volume of 4,969 vehicles (+4.5%).

Truxel Road/San Juan Road (#3)

AM Peak Hour: 3,923 vehicles (07:45 AM – 08:45 AM) versus intersection's own peak hour (07:30 AM – 08:30 AM) volume of 4,018 vehicles (+2.4%).

PM Peak Hour: 4,543 vehicles (03:15 PM – 04:15 PM) versus intersection's own peak hour (04:30 PM – 05:30 PM) volume of 4,657 vehicles (+2.5%).

In all instances but one, each individual intersection's peak hour volume ranges from 0 to 2.5% greater the peak hours used in the study. This is less than the variation in daily travel; hence, the difference is not meaningful. However, the PM peak hour volume at intersection #2 was 4.5% greater than the volumes used in the study. Findings of project effects at intersection #2 during the PM peak hour are discussed later, with an emphasis placed on whether a greater impact could occur during the later 4:30 – 5:30 PM peak hour.

The following comparisons the traffic volumes for three critical movements in the study area between the May 1, 2025 counts and the existing volumes from the study performed in 2023:

- Southbound left-turn at San Juan Road/Truxel Road intersection
 - AM Peak Hour: 380 in 2025 vs. 354 in the 2022/2023 study
 - PM Peak Hour: 437 in 2025 vs 493 in the 2022/2023 study
- Eastbound left-turn at San Juan Road/Fong Ranch Road intersection
 - AM Peak Hour: 296 in 2025 vs. 269 in the 2022/2023 study
 - PM Peak Hour: 354 in 2025 vs. 264 in the 2022/2023 study
- Southbound right-turn at San Juan Road Fong Ranch Road intersection
 - AM Peak Hour: 333 in 2025 vs. 307 in the 2022/2023 study
 - PM Peak Hour: 313 in 2025 vs. 209 in the 2022/2023 study

It is apparent from the comparison above that just one exception, background volumes have increased between the December 2022 counts and the new May 2025 counts. This influences some of the study outcomes described later.

Assumed Development in the Study Area

Based on discussions with City staff, a “baseline no project” conditions scenario was developed to include the addition of trips generated by the approved, but not yet constructed ParkeBridge East Residential (P24-024) project² on the east of the study area. This development consists of 41 detached single-family dwelling units at the northeast corner of the Havenparke Circle/Bridgepointe Way. As of May 2025, the parcel for this development was still vacant.

Trip Generation

The trip generation from this development was calculated using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 11th Edition*. Fehr & Peers determined the Single-Family Detached Housing land use category (ITE 210) was applicable for estimating the development’s trip generation. **Table 2** presents the estimated trips generated by the ParkeBridge East Residential development.

According to ITE *Trip Generation Manual, 11th Edition*, the ParkeBridge East Residential project will generate 33 trips during AM peak hour, 43 trips during PM peak hour, and 444 trips during the typical weekday.

Table 2: ParkeBridge East Residential Development Vehicle Trip Generation

Land Use	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily
			In	Out	Total	In	Out	Total	Total
Single-Family Detached Housing	41	Dwelling Units	8	25	33	27	16	43	444

Source: Fehr & Peers, 2025.

Trip Distribution and Assignment

The trips generated by the ParkeBridge East Residential project were assigned to the roadway network and added to existing traffic volumes to establish the baseline no-project conditions. It is assumed that the project would utilize the same access points as the existing ParkeBridge residential area. Trip distribution is consistent with that of the proposed project, based on the assumption that the land use

² The Modified Initial Study/15183 Checklist for the ParkeBridge East Residential (P24-024) project can be found on City of Sacramento website at https://www.cityofsacramento.gov/content/dam/portal/cdd/Planning/Environmental-Impact-Reports/parkebridge-east-p24-024/01_ParkeBridge%20East%20Residential%20Project%2015183%20CEQA%20Checklist_final%20P24-024.pdf

remains residential. Additional details on the trip distribution for the proposed project are provided in the following section (Section III.) about project travel characteristics.

Figure 5 displays the baseline no project AM and PM peak hour traffic volumes at the study intersections. This figure also displays the lane configurations and traffic control devices present at each intersection. Key findings from this figure include the following:

1. The eastbound left-turn movement at the San Juan Road/Fong Ranch Road intersection (#11) serves 301 vehicles (including U-turns) in a single lane during the AM peak hour. Further investigation of that volume reveals a pronounced spike from 8:00 – 8:15 AM in which 81 vehicles are served. During PM peak hour, the eastbound left-turn movement serves 370 vehicles (including U-turns) in a single lane. The pronounced spike from 3:15 – 3:30 PM serves 109 vehicles (including U-turns). The PM peak hour particularly appears to experience a surge in traffic in the left-turn lane just prior to students being released at Natomas High School.
2. The southbound right-turn lane serves 348 vehicles during the AM peak hour and 323 right-turning vehicles during the PM peak hour. This movement does not have an overlap arrow with the eastbound left-turn lane (due to the need to maintain u-turn capabilities). This right-turns operate concurrently with the west leg crosswalk, which served 54 pedestrians during the AM peak hour and 83 pedestrians during the PM peak hour.
3. The northbound Ishi Circle approach to San Juan Road (opposite Fong Ranch Road) serves 81 through movements during the AM peak hour. Ishi Circle functions effectively as a cul-de-sac, serving approximately 60 dwelling units, and includes a secondary right-in/right-out access onto San Juan Road located about 450 feet to the west. It appears that some motorists use this secondary access to bypass the queue in the eastbound left-turn lane by turning right at the western Ishi Circle intersection, traversing the local street, and then proceeding through the signal at San Juan Road onto Fong Ranch Road.

The San Juan Road/Fong Ranch Road intersection (#11) accommodated 10 to 12 total bicyclists during each of the AM and PM peak hours. Pedestrian flows at the San Juan Road/Fong Ranch Road intersection (#11) were substantial during both peak hours, with 115 total pedestrians during AM peak hour and 196 pedestrians during PM peak hour.

At the north end of Fong Ranch Road (i.e., near the roundabout), 22 pedestrians during the AM peak hour and 8 pedestrians during the PM peak hour were observed. Fewer than 5 bicyclists per hour were observed.

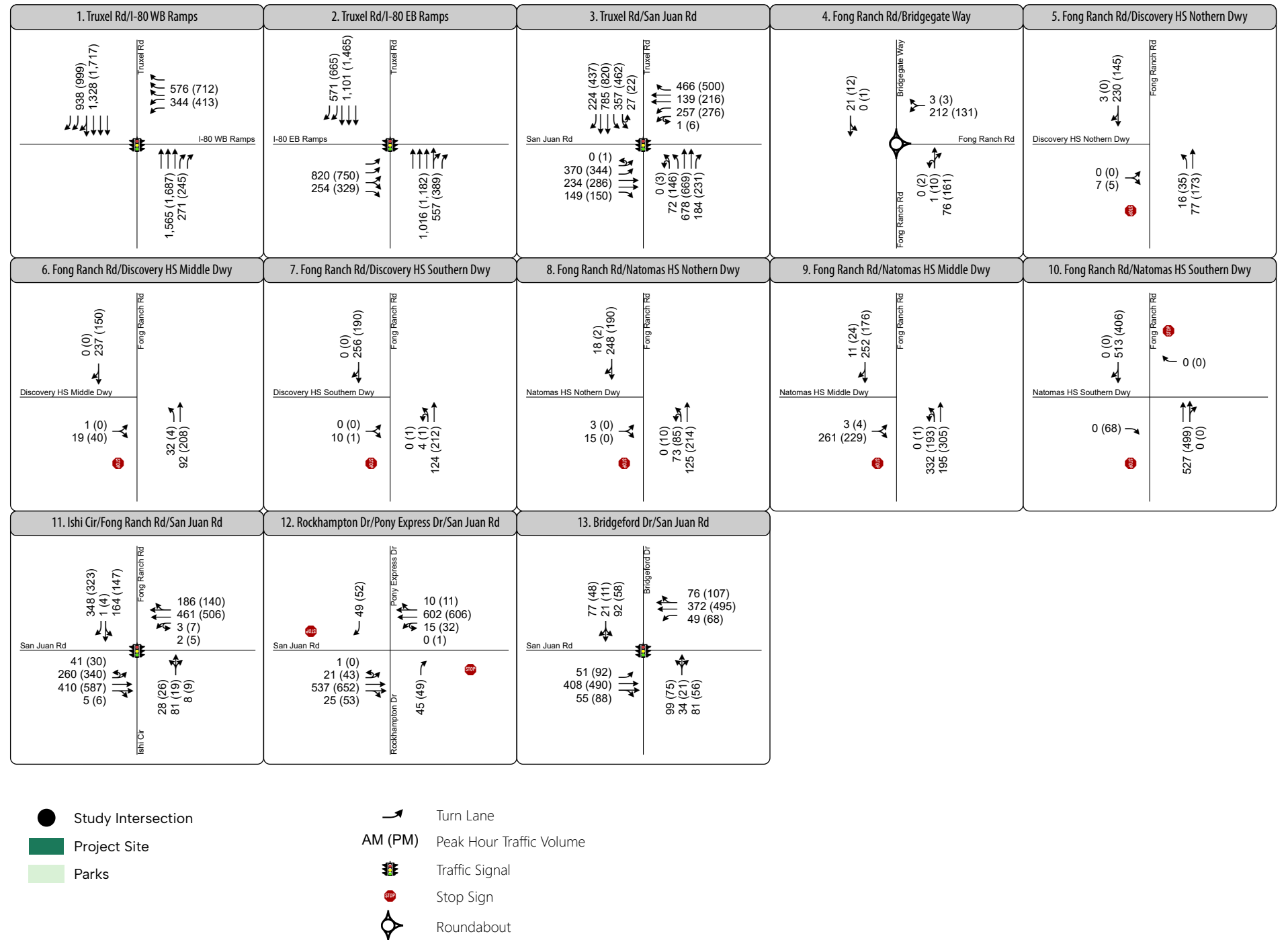


FIGURE 5

Peak Hour Traffic Volumes and Lane Configurations – Baseline No Project Conditions

Intersection Operations and Vehicle Queuing

Table 3 reports the vehicle delay and LOS during the AM and PM peak hours at the study intersections under baseline no project conditions. Refer to **Appendix A** for technical calculations. As shown, all study intersections operate at LOS C or better during the AM and PM peak hours, except for intersection #3 (Truxel Road/San Juan Road and #11 (San Juan Road/Fong Ranch Road), each of which operate at LOS D during the AM peak hour and LOS E during the PM peak hour.

Table 3: Intersection Operations – Baseline No Project Conditions

Intersection	Control	AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS
1. Truxel Road / I-80 Westbound Ramps	Signal	12	B	15	B
2. Truxel Road / I-80 Eastbound Ramps	Signal	10	A	10	B
3. Truxel Road / San Juan Road	Signal	51	D	60	E
4. Fong Ranch Road / Bridgegate Way	Roundabout	2	A	2	A
5. Fong Ranch Road / Discovery High School Northern Driveway	SSSC	3	A (EBR)	2	A (EBR)
6. Fong Ranch Road / Discovery High School Middle Driveway	SSSC	4	A (EBR)	3	A (EBR)
7. Fong Ranch Road / Discovery High School Southern Driveway	SSSC	4	A (EBR)	1	A (EBR)
8. Fong Ranch Road / Natomas High School Northern Driveway	SSSC	6	A (EBL)	2	A (NBL)
9. Fong Ranch Road / Natomas High School Middle Driveway	SSSC	8	A (EBL)	5	A (EBR)
10. Fong Ranch Road / Natomas High School Southern Driveway	SSSC	Does Not Exist			
11. San Juan Road / Fong Ranch Road	Signal	44	D	58	E
12. San Juan Road / Pony Express Drive	SSSC	20	C (SBR)	22	C (SBR)
13. San Juan Road / Bridgeford Drive	Signal	12	B	12	B

SSSC = Side Street Stop Control.

All intersections analyzed using SimTraffic microsimulation model. For signalized intersections and roundabouts, average delay (in seconds per vehicle) is the weighted average of all approaches. For side-street stop intersections, both the overall intersection delay (not in parentheses) and movement with the greatest delay (shown in parentheses) are reported. All results are to the nearest second.

Source: Fehr & Peers, 2025.

Table 4 identifies the maximum queue lengths based on SimTraffic results for the I-80 off-ramp intersections on Truxel Road, and for key turning movements in the study area likely to be impacted by the project. Refer to **Appendix A** for technical calculations. This table indicates the following:

- Maximum queues also exceed the available storage in the eastbound left-turn lane and southbound approach at the San Juan Road/Fong Ranch Road (Intersection #11) during both peak hours. **Photos 1** and **2** in the pages that follow show these queues based on May 2025 observations.
- The Truxel Road/San Juan Road (#3) intersection features maximum vehicle queues that exceed the available storage in the southbound dual left-turns and westbound through and right-turn lanes. During the PM peak hour, the southbound traffic experiences the most congested condition with queues exceeding the available storage by over 200 ft. **Photo 3** in the pages that follow show the southbound left-turn queue based on May 2025 observations.

Table 4: Vehicle Queuing – Baseline No Project Conditions

Intersection	Control	Movement	Available Storage (ft) ²	Maximum Queue (ft) ¹	
				AM Peak Hour	PM Peak Hour
1. Truxel Road / I-80 Westbound Ramps	Signal	WB Off-Ramp	1,675	150	185
2. Truxel Road / I-80 Eastbound Ramps	Signal	EB Off-Ramp	1,450	275	245
3. Truxel Road / San Juan Road	Signal	SB Left	200	285	290
		SB Through	725	345	955
		WB Right	200	310	310
		WB Through	300	425	510
11. San Juan Road / Fong Ranch Road	Signal	EB Left	275	345	515
		EB Through	375	360	640
		SB Through / Left	160	240	275
		SB Right	160	235	245

¹ Results based on SimTraffic. Maximum queue lengths are rounded to nearest 5 feet. All queues are expressed on a “per lane” basis.

² Available storage lengths based on review of aerial imagery. Distance is either length of turn lane, distance to nearest upstream intersection or distance to freeway off-ramp gore point.

Bolded text represents a queue that exceeds the available storage.

Source: Fehr & Peers, 2025.



Photo 1: AM Peak Hour queued vehicles in eastbound left-turn lane at San Juan Road/Fong Ranch Road Intersection (#11)

Source: Fehr & Peers staff



Photo 2: AM Peak Hour queued vehicles in westbound right-turn lane at Truxel Road/San Juan Road Intersection (#3)

Source: Fehr & Peers staff



Photo 3: AM Peak Hour queued vehicles in the northbound left-turn lane at Truxel Road/San Juan Road Intersection (#3)

Source: Traffic Turn Movement Count Video at Truxel Road/San Juan Road Intersection (#3) on May 1, 2025 at 08:19 AM

III. Project Travel Characteristics

Project Trip Generation

Based on the project site plan (BKF Engineers, March 2025), Fehr & Peers determined that the following two land use categories from the Institute of Transportation Engineers (ITE) *Trip Generation Manual (TGM)*, 11th Edition (2021) were most applicable to use for this study:

- Multifamily Housing (Mid-Rise), (ITE Land Use Category 221)
- Single-Family Detached Housing (ITE Land Use Category 210)

The TGM describes each land use as follows:

Multifamily Housing (Mid-Rise)– Mid-rise multifamily housing includes apartments and condominiums located in a building that has between four and ten floors of living space. Access to individual dwelling units is through an outside building entrance, a lobby, elevator, and a set of hallways. The land use subcategory specifies whether the land use site is close to rail transit or not according to the walking distance between the residential site entrance and the closest rail transit station entrance to be 0.5 mile or less.

Single-Family Detached Housing – A single-family detached housing site includes any single-family detached home on an individual lot. A typical site surveyed is a suburban subdivision.

The detailed descriptions and data plots for the two land use categories are included in **Appendix B**.

Table 5 presents the AM peak hour, PM peak hour, and daily trip rates and fitted curve equations obtained in the *TGM* for the project land use. For calculating the project's trip generation, this analysis applies the fitted curve equation for the AM peak hour, PM peak hour, and daily trips, based on the recommendations outlined in the *Trip Generation Handbook, 3rd Edition*.

Table 5: Vehicle Trip Generation Rates and Equations

Land Use	Source		AM Peak Hour	PM Peak Hour	Daily
Apartments	ITE 221: Multifamily Housing (Mid-Rise)	Average Rate	0.37	0.39	4.54
		Fitted Curve Equation	$T = 0.44(X) - 11.61$	$T = 0.39(X) + 0.34$	$T = 4.77(X) - 46.46$
Single-Family Dwelling Units (Detached)	ITE 210: Single-Family Detached Housing	Average Rate	0.7	0.94	9.43
		Fitted Curve Equation	$\ln(T) = 0.91 \ln(X) + 0.12$	$\ln(T) = 0.92 \ln(X) + 2.68$	$\ln(T) = 0.92 \ln(X) + 2.68$

Notes:

1. Average trip rates and fitted curve equations are published in ITE's *Trip Generation Manual, 11th Edition* for vehicle trips.
2. ITE 221: Multifamily Housing (Mid-Rise)
AM peak hour is noted with an average 23 percent of trips entering the site, and 77 percent of trips exiting the site.
PM peak hour is noted with an average 61 percent of trips entering the site, and 39 percent of trips exiting the site.
3. ITE 210: Single-Family Detached Housing
AM peak hour is noted with an average 25 percent of trips entering the site, and 75 percent of trips exiting the site.
PM peak hour is noted with an average 63 percent of trips entering the site, and 37 percent of trips exiting the site.
4. The method used for project trip generation is noted in bold for each time period.

Source: Fehr & Peers, 2025.

Community buildings serving the residents of the apartment complex are often accounted for within the trip generation rates; therefore, separate trip generation rates are not necessary for the site's leasing and amenity space.

Table 6 presents the estimated project vehicle trip generation during the AM peak hour, PM peak hour, and daily time periods.

Table 6. Project Vehicle Trip Generation

Land Use	Quantity	Units	AM Peak Hour			PM Peak Hour			Daily Total
			In	Out	Total	In	Out	Total	
Apartment	119	Dwelling Units	9	32	41	29	18	47	521
Single-Family Dwelling Units (Detached)	100	Dwelling Units	19	55	74	63	36	99	1,009
Project Total	219	Dwelling Units	28	87	115	92	54	146	1,530

Source: Fehr & Peers, 2025.

As shown, the project would generate 1,530 daily trips with 115 occurring during the AM peak hour and 146 occurring during the PM peak hour.

It is conceivable that some project residents would walk or bike from the project site to Natomas High School. However, no adjustments to external vehicle trip generation were made to account for this activity, as the number of high school students to reside at the project site is not known. By virtue of not taking any reductions, the analysis is considered reasonably conservative.

Project Trip Distribution and Assignment

The project would be accessed via the following two streets (spaced 200 feet apart from the street centerline) located on the west side of Fong Ranch Road:

- Southern project street would intersect Fong Ranch Road approximately 30 feet north of the Discovery High School northern driveway. This street would provide access to the single-family residential and be the primary access to the multi-family residential.
- Northern project street would be located approximately 130 feet south of the Fong Ranch Road / Bridgegate Way roundabout. This street would serve primarily the single-family residential.

The multi-family site would be gated. Its primary access would be situated along the Southern project street located 620 feet west of Fong Ranch Road. It would also have a secondary access from its southwest corner onto the same street. It would allow egress only as well as emergency vehicle access.

The expected project trip distribution is based on a combination of travel modeling using the Sacramento Area Council of Governments (SACOG) SACSIM19 activity-based travel demand model, and calibration using the existing intersection traffic counts.

The SACSIM19 model is a sophisticated activity-based model that predicts the travel demand and travel patterns for residents, workers, students, visitors, and commercial vehicles throughout the SACOG region. The model requires inputs such as population and employment to represent the land use and

transportation network associated with each scenario. The SACSIM19 model includes a base year version representing 2016 conditions in the Sacramento region and study area, and a cumulative version reflecting a future horizon that includes planned land use development and transportation network improvements in the region expected to occur by 2040. A select zone analysis was performed in the previous 2023 analysis for the traffic analysis zone (TAZ) representing the residential area containing the project site to track trips to and from the zone.

The trips to and from the zone estimated from the SACSIM19 model were compared against the intersection turning movement traffic volumes at intersection 11 (San Juan Road / Fong Ranch Road) and intersection 13 (San Juan Road / Bridgeford Drive) to refine the expected project trip distribution eastbound and westbound on San Juan Road.

Given that the same type of land use (residential land use) is being proposed, no changes from the previous distribution percentages have been made.

Trip assignment refers to the specific routes project trips would use to travel between the project site and external locations (e.g., San Juan Road east of Bridgeford Drive). Project trips desiring to travel between the project site and to/from the west on San Juan Road (toward Truxel Road) could use either of the following routes:

- Route A: Fong Ranch Road (direct route adjacent to Discovery High School and Natomas High School)
- Route B: Fong Ranch Road to Harvest Glen Way to Bridgeford Drive to Old West Drive to Pony Express Drive (circuitous route through existing residential neighborhood)

Similarly, project trips desiring to travel between the project site and to/from the east on San Juan Road) could use either of the following routes:

- Route D: Fong Ranch Road (direct route adjacent to Discovery High School and Natomas High School)
- Route C: Fong Ranch Road to Harvest Glen Way to Bridgeford Drive (circuitous route through existing residential neighborhood)

Figure 6 through **Figure 9** display the expected overall trip distribution/assignment of project trips for AM peak hour inbound, AM peak hour outbound, PM peak hour inbound, and PM peak hour outbound conditions, respectively. These figures indicate that between 85% and 93% of project trips would access Fong Ranch Road via San Juan Road to travel to/from the project.

Figure 10 shows a project-only traffic assignment at the study intersections. Key findings from this figure include:

- The project would add 107 vehicle trips during the AM peak hour and 125 vehicle trips during the PM peak hour to the San Juan Road/Fong Ranch Road intersection (#11). This includes 18 AM peak hour and 56 PM peak hour vehicles added to the eastbound left-turn movement.
- The project would add 39 AM peak hour vehicles and 21 PM peak hour vehicles to the westbound right-turn movement at the Truxel Road/San Juan Road intersection (#3).

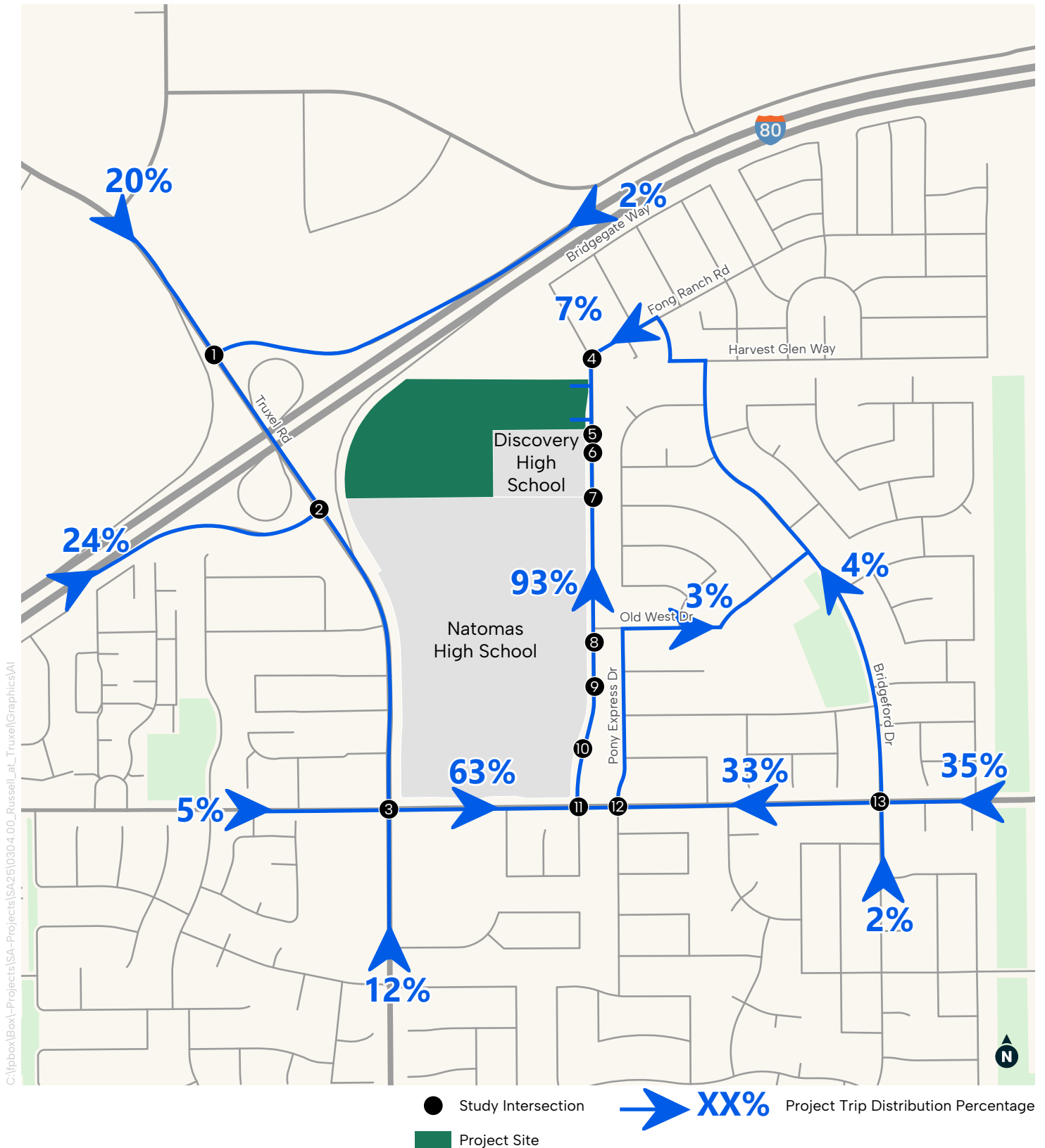


FIGURE 6

Project Trip Distribution – Inbound AM Peak Hour Conditions

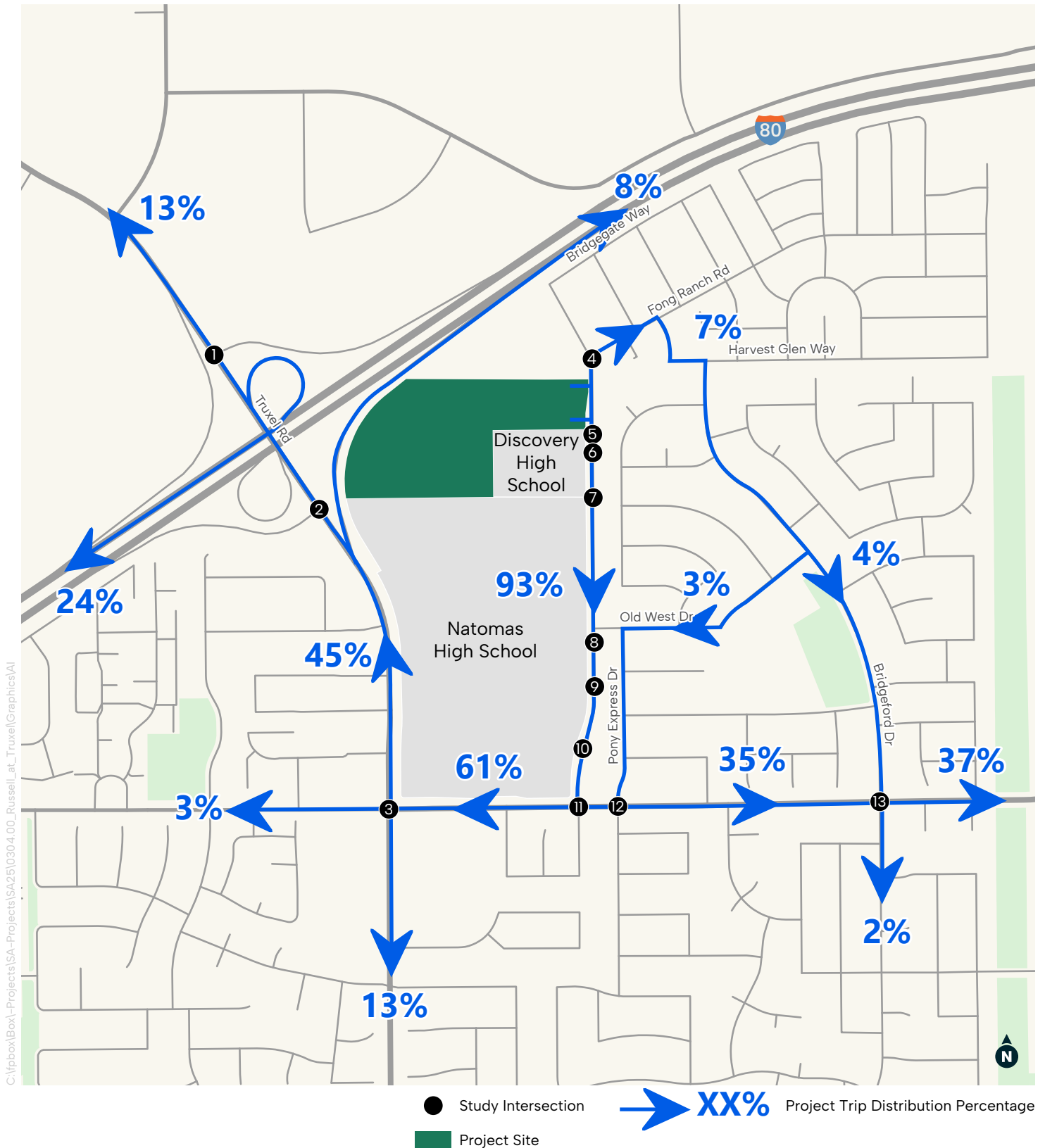


FIGURE 7

Project Trip Distribution – Outbound AM Peak Hour Conditions

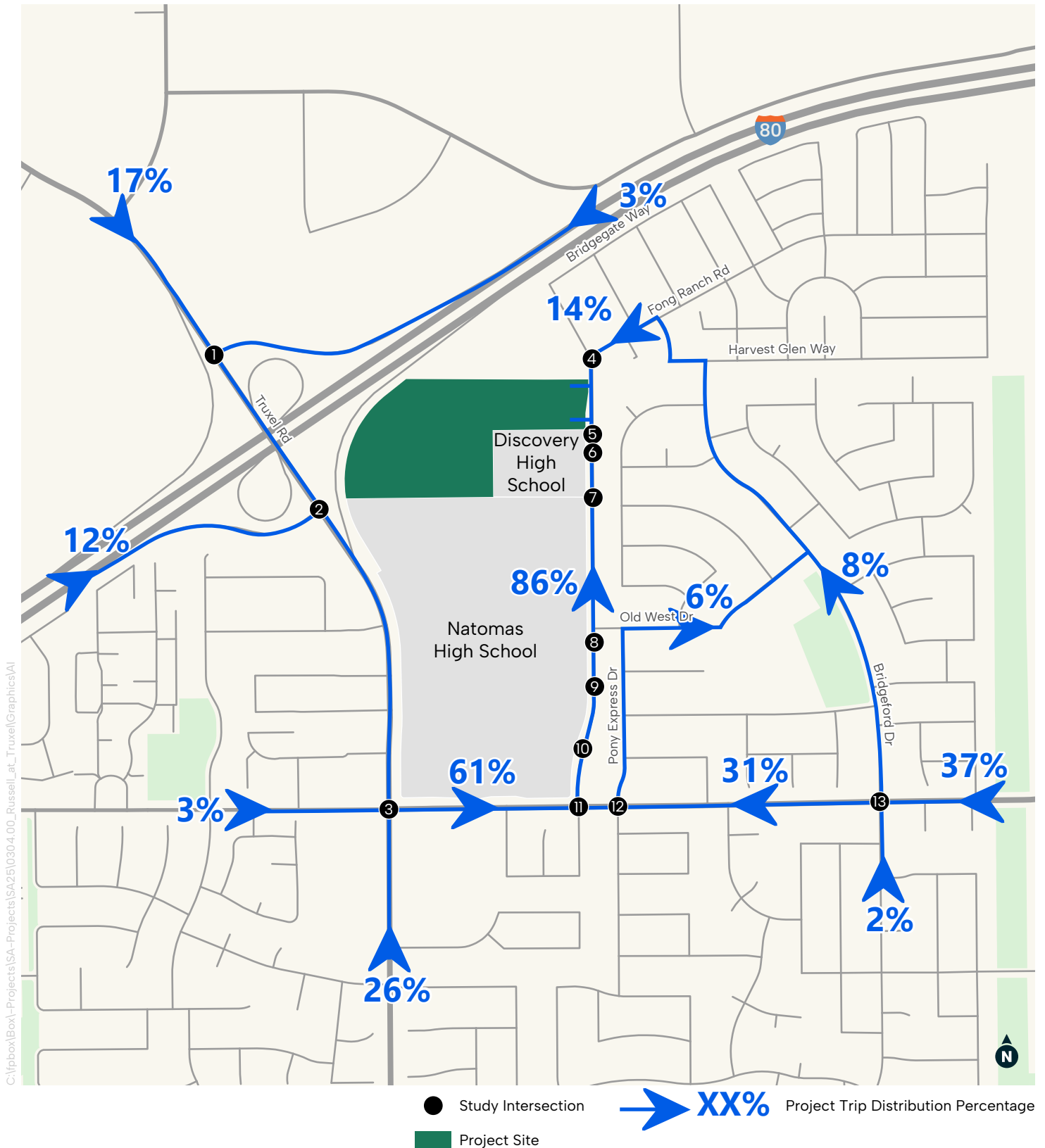


FIGURE 8

Project Trip Distribution – Inbound PM Peak Hour Conditions

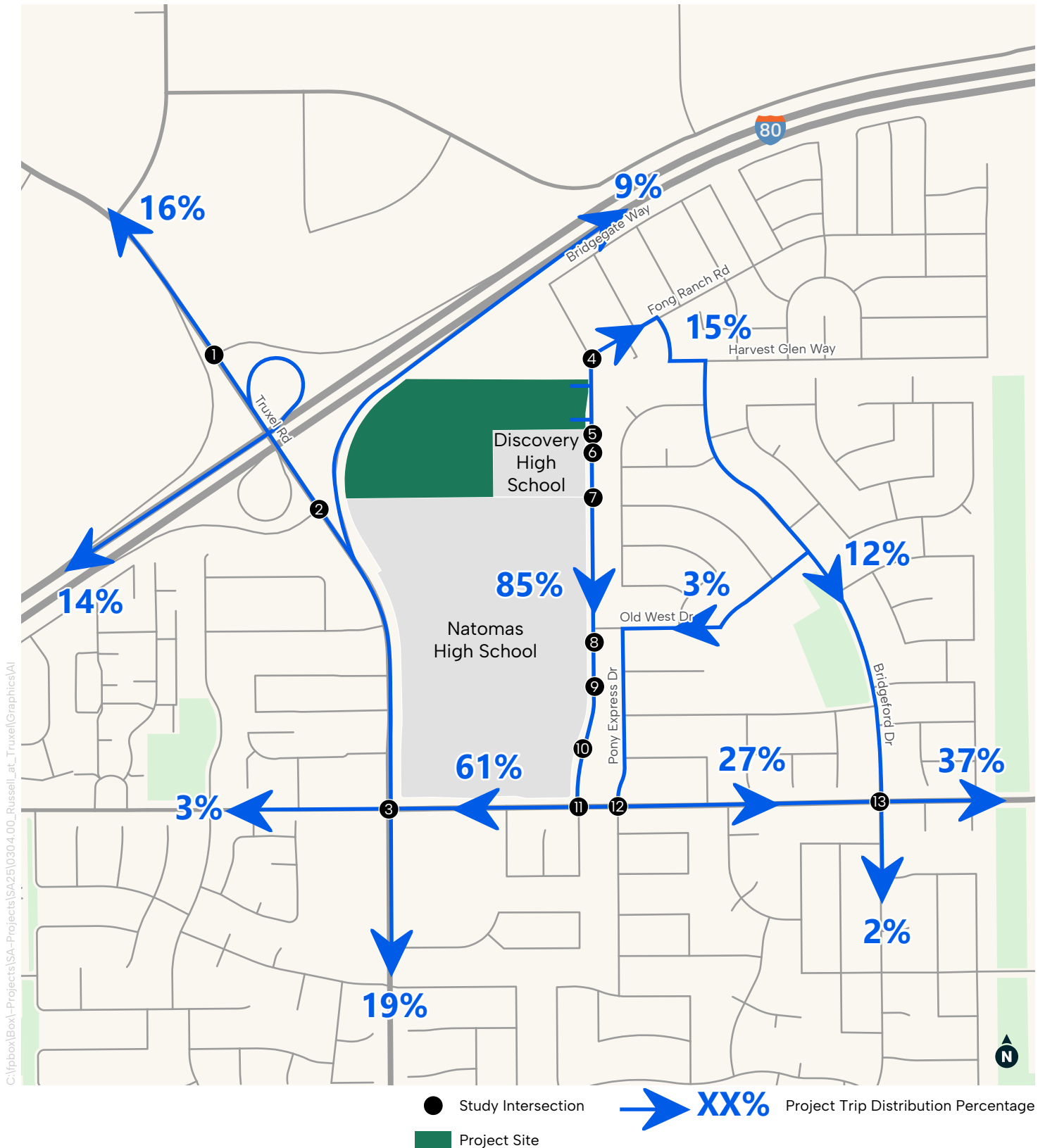


FIGURE 9

Project Trip Distribution - Outbound PM Peak Hour Conditions

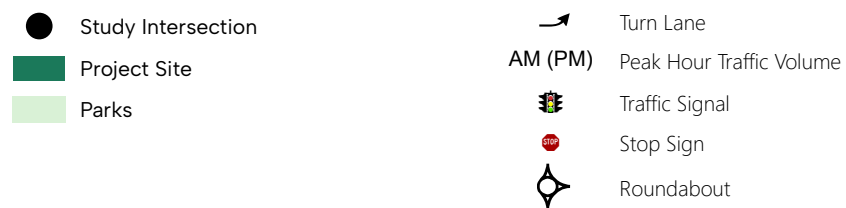
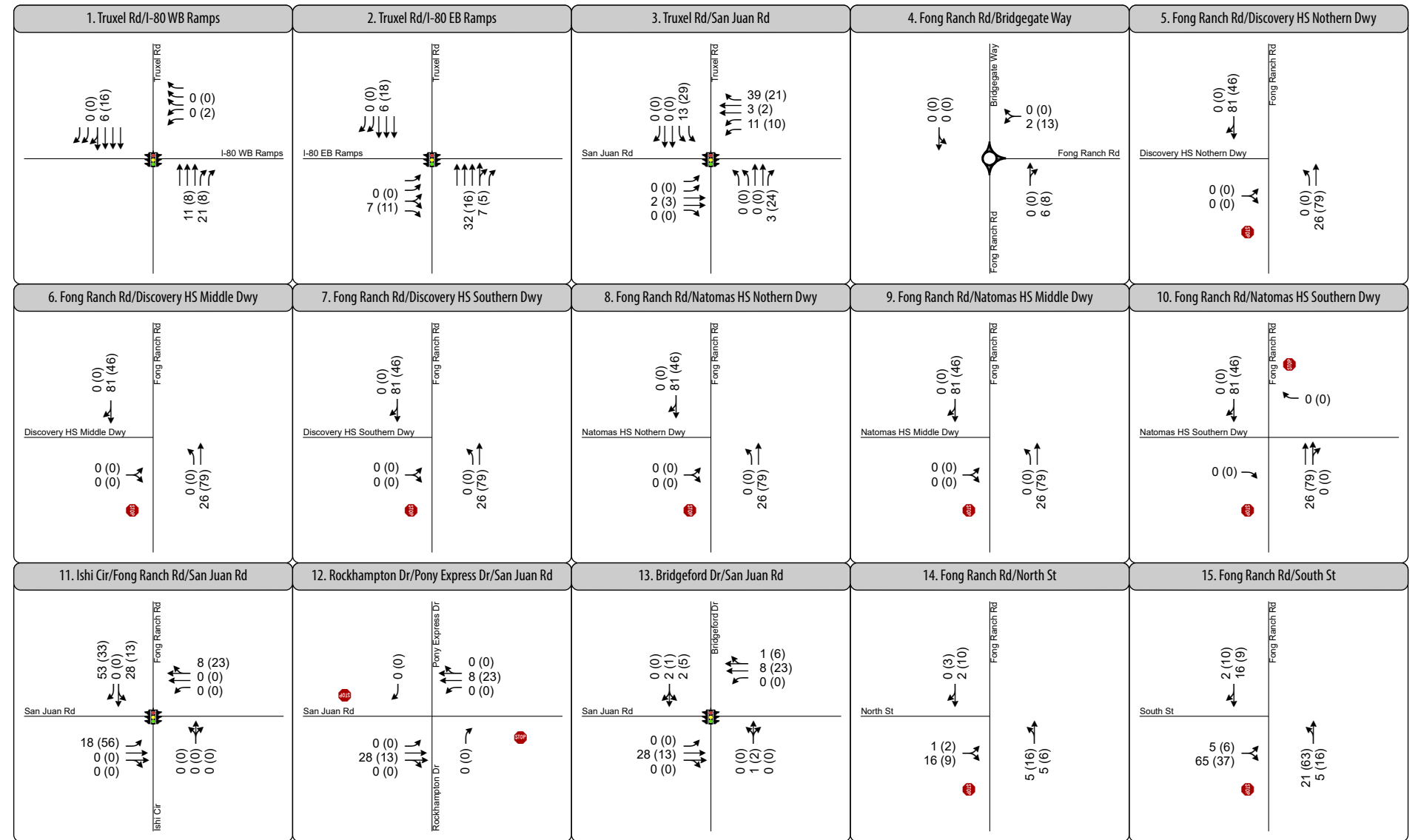


FIGURE 10
**Peak Hour Traffic Volumes and
 Lane Configurations – Project Only Trips**

IV. Baseline Plus Project Conditions

This chapter describes the effects of the proposed project on the surrounding transportation system.

Traffic Forecasts

Project trips shown on Figure 10 were added to the baseline no project volumes to yield the Baseline Plus Project forecasts shown on **Figure 11**. The project would cause a 6% increase in total AM traffic and 7% increase in total PM peak hour traffic at the San Juan Road/Fong Ranch Road intersection (#11). When considering only trips using Fong Ranch Road directly north of San Juan Road, the project would cause a 18% increase in AM peak hour traffic and a 13% increase in PM peak hour traffic.

While school trips are highly focused during the instruction start/end times, residential trips occur in a more dispersed manner across the day.

Intersection Operations and Vehicle Queuing

Table 7 reports the weekday AM and PM peak hour intersection operations at the study intersections under Baseline Plus project conditions. See **Appendix C** for technical calculations. As shown, the project would cause substantial increases in delays at the Truxel Road / San Juan Road intersection (#3), San Juan Road/Fong Ranch Road intersection (#11), and San Juan Road/Pony Express Drive intersection (#12).

Table 8 identifies the maximum queue lengths for the I-80 off-ramp intersections on Truxel Road, and for key turning movements in the study area likely to be impacted by the project, during the AM and PM peak hours under Baseline Plus Project Conditions. See **Appendix C** for technical calculations.

As shown, substantial increases in maximum queues occur on multiple approaches to the Truxel Road/San Juan Road (#3) and San Juan Road/Fong Ranch Road (#11) intersections. **Image 1** is a SimTraffic screenshot showing how eastbound traffic on San Juan Road would spill back from Fong Ranch Road into Truxel Road during the PM peak hour.

It is readily apparent from Tables 7 and 8 that the project would not cause any operational deficiencies at the I-80 EB Ramps/Truxel Road intersection had the analysis been based on that intersection's own PM peak hour of busiest travel versus the system peak hour of travel from 3:15 to 4:15 PM.

Solutions to address the project-related increases in vehicle queues at intersections 3 and 11 are presented in the following section of this chapter.



1. Truxel Rd/I-80 WB Ramps 	2. Truxel Rd/I-80 EB Ramps 	3. Truxel Rd/San Juan Rd 	4. Fong Ranch Rd/Bridgegate Way 	5. Fong Ranch Rd/Discovery HS Nothern Dwy
6. Fong Ranch Rd/Discovery HS Middle Dwy 	7. Fong Ranch Rd/Discovery HS Southern Dwy 	8. Fong Ranch Rd/Natomas HS Nothern Dwy 	9. Fong Ranch Rd/Natomas HS Middle Dwy 	10. Fong Ranch Rd/Natomas HS Southern Dwy
11. Ishi Cir/Fong Ranch Rd/San Juan Rd 	12. Rockhampton Dr/Pony Express Dr/San Juan Rd 	13. Bridgeford Dr/San Juan Rd 	14. Fong Ranch Rd/North St 	15. Fong Ranch Rd/South St

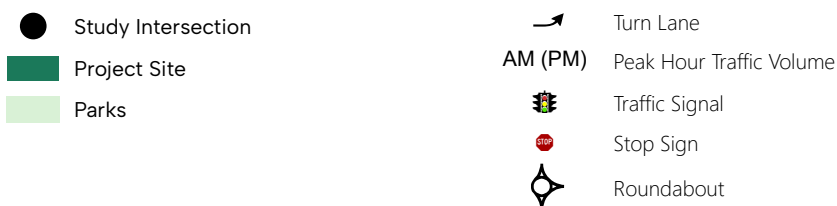


FIGURE 11
Peak Hour Traffic Volumes and Lane Configurations – Baseline Plus Project Conditions

Table 7: Intersection Operations – Baseline Plus Project Conditions

Intersection	Control	Baseline No Project Conditions				Baseline Plus Project Conditions			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Truxel Road / I-80 Westbound Ramps	Signal	12	B	15	B	11	B	16	B
2. Truxel Road / I-80 Eastbound Ramps	Signal	10	A	10	B	10	A	15	B
3. Truxel Road / San Juan Road	Signal	51	D	60	E	56	E	87	F
4. Fong Ranch Road / Bridgegate Way	RAB ¹	2	A	2	A	2	A	2	A
5. Fong Ranch Road / Discovery High School Northern Driveway	SSSC ²	3	A (EBR)	2	A (EBR)	4	A (NBL)	3	A (EBR)
6. Fong Ranch Road / Discovery High School Middle Driveway	SSSC	4	A (EBR)	3	A (EBR)	4	A (EBR)	4	A (EBR)
7. Fong Ranch Road / Discovery High School Southern Driveway	SSSC	4	A (EBR)	1	A (EBR)	3	A (EBR)	2	A (NBL)
8. Fong Ranch Road / Natomas High School Northern Driveway	SSSC	6	A (EBL)	2	A (NBL)	6	A (EBL)	3	A (NBL)
9. Fong Ranch Road / Natomas High School Middle Driveway	SSSC	8	A (EBL)	5	A (EBR)	15	A (EBL)	12	A (EBL)
10. Fong Ranch Road / Natomas High School Southern Driveway	SSSC	Does Not Exist							
11. San Juan Road / Fong Ranch Road	Signal	44	D	58	E	58	E	92	F
12. San Juan Road / Pony Express Drive	SSSC	20	C (SBR)	22	C (SBR)	22	C (SBR)	39	E (SBR)
13. San Juan Road / Bridgeford Drive	Signal	12	B	12	B	12	B	15	B
14. Fong Ranch Road / Project Northern Street	SSSC	Does Not Exist				5	A (EBR)	4	A (EBR)
15. Fong Ranch Road / Project Southern Street	SSSC	Does Not Exist				6	A (EBL)	5	A (EBL)

1 SSSC = Side-street stop control.
2 RAB = Roundabout
All intersections analyzed using SimTraffic microsimulation model. For signalized intersections and roundabouts, average delay (in seconds per vehicle) is the weighted average of all approaches. For side-street stop intersections, both the overall intersection delay (not in parentheses) and movement with the greatest delay (shown in parentheses) are reported. All results are rounded to the nearest second.
Source: Fehr & Peers, 2025.

Table 8: Vehicle Queuing – Baseline Plus Project Conditions

Intersection	Control	Movement	Available Storage (ft) ²	Maximum Queue (ft) ¹					
				Baseline No Project Conditions		Baseline Plus Project		Difference	
				AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
1. Truxel Road / I-80 Westbound Ramps	Signal	WB Off-Ramp	1,675	150	185	155	185	+5	0
2. Truxel Road / I-80 Eastbound Ramps	Signal	EB Off-Ramp	1,450	275	245	250	230	-25	-15
3. Truxel Road / San Juan Road	Signal	SB Left	200	285	290 ³	285	290 ³	0	0
		SB Through	725	345	955 ³	350	1,790 ³	+5	+835
		WB Right	200	310	310	310	310	0	0
		WB Through	300	425	510	730	575	+305	+65
11. San Juan Road / Fong Ranch Road ⁶	Signal	EB Left	275	345	515	420	670	+75	+155
		EB Through	375	360	640	490	805	+130	+165
		SB Through/Left	160	240	275	330	295	+90	+20
		SB Right	160	235	245	340	300	+105	+55

¹ Results based on SimTraffic. Maximum queue lengths are rounded to nearest 5 feet. All queues are expressed on a “per lane” basis. Includes vehicles that may queue in the taper length of a turn pocket.

² Available storage lengths based on review of aerial imagery. Distance is either length of turn lane, distance to nearest upstream intersection or distance to freeway off-ramp gore point.

³ **This queue is attributable to southbound left–turn traffic spilling into the adjacent through lane.**

In some instances, baseline plus project scenario has a shorter maximum queue than no project scenario. This occurs due to random variation within the simulation model. Bolded text represents a queue that exceeds the available storage.

Source: Fehr & Peers, 2025.



Image 1: Screenshot of vehicle queue spillbacks from San Juan Road/Fong Ranch Road to San Juan Road/Truxel Road (PM Peak Hour)

Potential Intersection Improvements

Table 8 indicated that the project would contribute to worsened vehicle queuing at the Truxel Road/San Juan Road (#3) and San Juan Road/Fong Ranch Road (#11) intersections, particularly during the PM peak hour. Lengthy queues on southbound Truxel Road approaching San Juan Road are attributable to queue spillback from the eastbound left lane at the San Juan Road/Fong Ranch Road (#11). The following discusses potential improvements at each intersection.

Truxel Road/San Juan Road (#3)

The project would increase the southbound left-turn movement at this intersection from 484 to 513 vehicles, an increase of 29 vehicles. The following improvement is recommended to be implemented by the project-only:

- *Lengthen the southbound left-turn lanes at this signalized intersection by extending the inside left-turn lane by about 100 feet using available median width on Truxel Road.*

The resulting design would be a single left-turn lane that feeds into a dual left-turn lane, a design similar to what exists on North Freeway Boulevard approaching Gateway Park Boulevard north of I-80 in the project vicinity.

Improvements to intersection #11 will also indirectly benefit this movement by virtue of less eastbound queuing back into this intersection.

- The project would increase the westbound right-turn movement at this intersection from 466 to 505 vehicles, an increase of 39 vehicles. Several improvements were considered to offset project-related queuing increases for this movement. Each improvement option is listed below along with a brief description of why it is either not feasible, practical, and/or desirable. Lengthen westbound right-turn lane – appears infeasible due to adjacent trees and school property.
- Operate westbound right-turn lane with overlap arrow – This would inconvenience residents living in the northwest quadrant of the intersection who perform u-turns to travel north on Truxel Road toward I-80. The U-turn movement is 27 AM peak hour vehicles and 22 PM peak hour vehicles.
- Convert one of the low-volume westbound through lanes to a second right-turn lane – This would result in dual westbound right lanes turning across the north leg crosswalk, which is an undesirable practice at most locations in the City of Sacramento. Additionally, that crosswalk features heavy pedestrian use during school hours.

- Convert the signal-controlled right-turn to become a channelized free-right turn – This would introduce an unprotected crossing at the right-turn where a crosswalk would be striped. This could be addressed by a signalized pedestrian crossing. However, given the number of pedestrian crossings (34 during busiest morning 30-minute period and 62 during busiest afternoon 30-minute period), the modification may not be overly effective. Note that there is a third receiving lane, but only two northbound approach lanes on Truxel Road at San Juan Road, allowing for this improvement to be completed.

San Juan Road/Fong Ranch Road (#11)

During this busier PM peak hour, the project would increase the eastbound left-turn movement at this intersection from 370 to 426 vehicles, an increase of 56 vehicles. To address the adverse queuing effects of this increase, the following are recommended:

1. Lengthen the eastbound left-turn lane by about 100 feet using available median.

This would require removal of several median trees and street paving. No street widening would be required.

2. Retime traffic signal to allocate a greater percentage of green time to eastbound left-turn lane.

The options and forms of this could include:

- Signal Retiming – reduce the maximum green times for the northbound and southbound approaches at the San Juan Road/Fong Ranch Road intersection
- Modify Signal Phasing – add both a leading and lagging (conditional) left-turn phase for the eastbound left-turn and/or introduce a special signal phase in which the eastbound left-turn operates concurrent with the second half of the east leg crosswalk.
- Signal Coordination – coordinate the San Juan Road/Fong Ranch Road intersection with the Truxel Road/San Juan Road intersection.

The screenshot below displays the effectiveness of reducing the maximum green time of the northbound and southbound phases and operating the eastbound left-turn concurrent with the east leg crosswalk. As shown, vehicle queues in the eastbound left-turn lane are much shorter under this scenario during the PM peak hour.

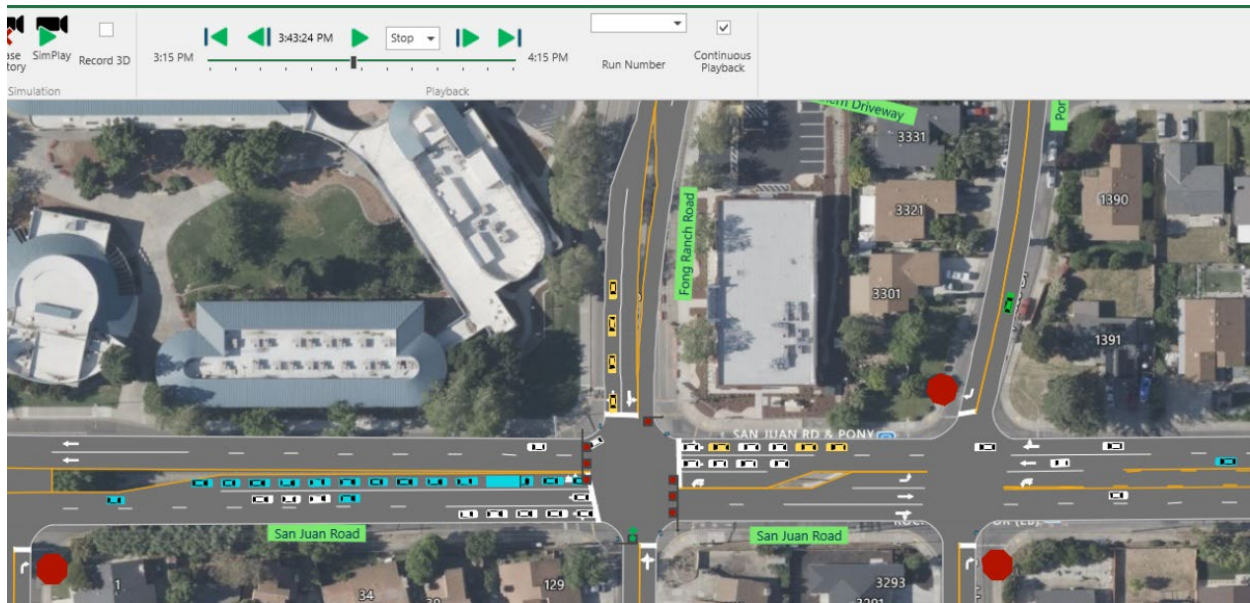


Image 2: Screenshot of vehicle queue with potential traffic signal improvements at San Juan Road/Fong Ranch Road (#11) intersection (PM Peak Hour)

V. Project Access and Circulation Evaluation

This chapter analyzes project access and on-site circulation. Topics evaluated include project street consistency with applicable City design standards, gated driveway access and operations, sight distance at project streets, and pedestrian and bicycle access. The site access recommendations are illustrated on **Figure 15**.

The proposed project includes two streets providing access to Fong Ranch Road. During the PM peak hour, approximately 90 vehicles are expected to enter the project site. Of this total, an estimated 80% would use the southern street, while the remaining 20% would access the site via the northern street assuming both streets permit all turning movements.

Project Consistency with Applicable City Design Standards

The *City of Sacramento Design and Procedures Manual: Section 15 Street Design Standard* (2009) includes various standards pertaining to the design of roadways, driveways, bicycle, pedestrian, and transit facilities. The project would not alter any existing facilities constructed along its frontage. However, it would construct two new streets. The consistency evaluation therefore focuses on street design details and pedestrian linkages to existing and planned public walkways and trails. The City's municipal code contains specific street design standards.³ Each applicable standard is described below, followed by an evaluation of the extent to which the project conforms to it.

1. *Two-way streets serving commercial properties should have street widths between 24 and 35 feet.*

Evaluation: The project's street connections to Fong Ranch Road would permit inbound and outbound travel and be about 30 feet wide.

Consistent: Yes.

According to the City's municipal code,⁴ streets are prohibited under the following conditions:

³ https://library.qcode.us/lib/sacramento_ca/pub/city_code/item/title_17-division_v-chapter_17_508-17_508_050

⁴ City's municipal code can be found at https://library.qcode.us/lib/sacramento_ca/pub/city_code/item/title_17-division_v-chapter_17_508-17_508_040

- The street would be located within 20 feet of another street, measured from the beginning of the street flair at the top of the curb, except for single unit dwellings and duplex dwellings or to create a one-way pair of streets;
- Within 10 feet of a property line between two contiguous lots that do not include dwelling units, measured from the beginning of the street flair at the top of the curb or future curb;

The project's southern street would be situated 50 feet north of the Discovery High School northern driveway (measured from street centerline). The minimum 20 feet separation is met. According to the project site plan, the south edge of the project street would be about 11 feet from the edge of the property line, which conforms with bullet 2.

Left-Turn Ingress Considerations

A two-way left-turn lane (TWLTL) is constructed along Fong Ranch Road. It extends northerly from the project's southerly property line for a distance of 95 feet, at which point the roadway begins to narrow. The TWLTL can be used by motorists to turn left into the southern street; however, the northern street would require a motorist to turn from the through lane.

The left-turn movement into the northern street would accommodate about 20 vehicles during the PM peak hour. However, those movements would need to find gaps in 160 opposing through vehicles, while an additional 180 vehicles would continue straight (heading toward the Fong Ranch Road/Bridgeway Roundabout). Based on these volumes, there is a high probability that vehicles will be required to stop in the through lane to turn left into the northern street. This unexpected movement has the potential to result in either rearend or run off road type collisions. For these reasons, the following is recommended:

- Restrict movements at the northerly street on Fong Ranch Road to prohibit left turn movements in and out of the street by installing a raised median in the Fong Ranch Road centerline. The raised median should begin just south of concrete pad supporting the drainage channel maintenance vehicle trail and extend 100 feet south of the northern street.
- Prohibit on-street parking between the northern and southern streets.

These recommendations would enable all movements to be permitted at the southern street.

Sight Distance at Project Streets

As the northern and southern streets are in the same locations as analyzed in the prior study, that study's conclusions regarding sight distance also apply to this study. The following text and figures from the 2022/23 study is provided to be comprehensive.

Corner sight distance (CSD) calculations at the project streets relied upon Wejo (i.e., Big Data) to develop 85th percentile speeds, which were then rounded up to the nearest 5 mph to represent a design speed.

Figure 12 shows the sight distance evaluation for the northern project street. This street would be situated a short distance south of the Fong Ranch Road/Bridgeway Circle roundabout. The line of sight corresponding to a 25 mph design speed for southbound motorists approaching the street is shown. However, a vehicle cannot circulate within the roundabout at much more than 15 mph. **Photo 4** shows the approximate view a motorist waiting to exit the northern project street would have of oncoming traffic coming from the left. Present in the image is a white vehicle, which is partially blocked by the wall situated on the bridge over the drainage canal. However, this vehicle is actually visible while circulating within the roundabout prior to reaching the portion where the wall temporarily obscures its visibility. Also, based on the project planting plan, the proposed trees adjacent to Fong Ranch Road might impede the corner sight distance view. No sight distance obstructions would be present for motorists at the project street viewing oncoming traffic coming from the right.

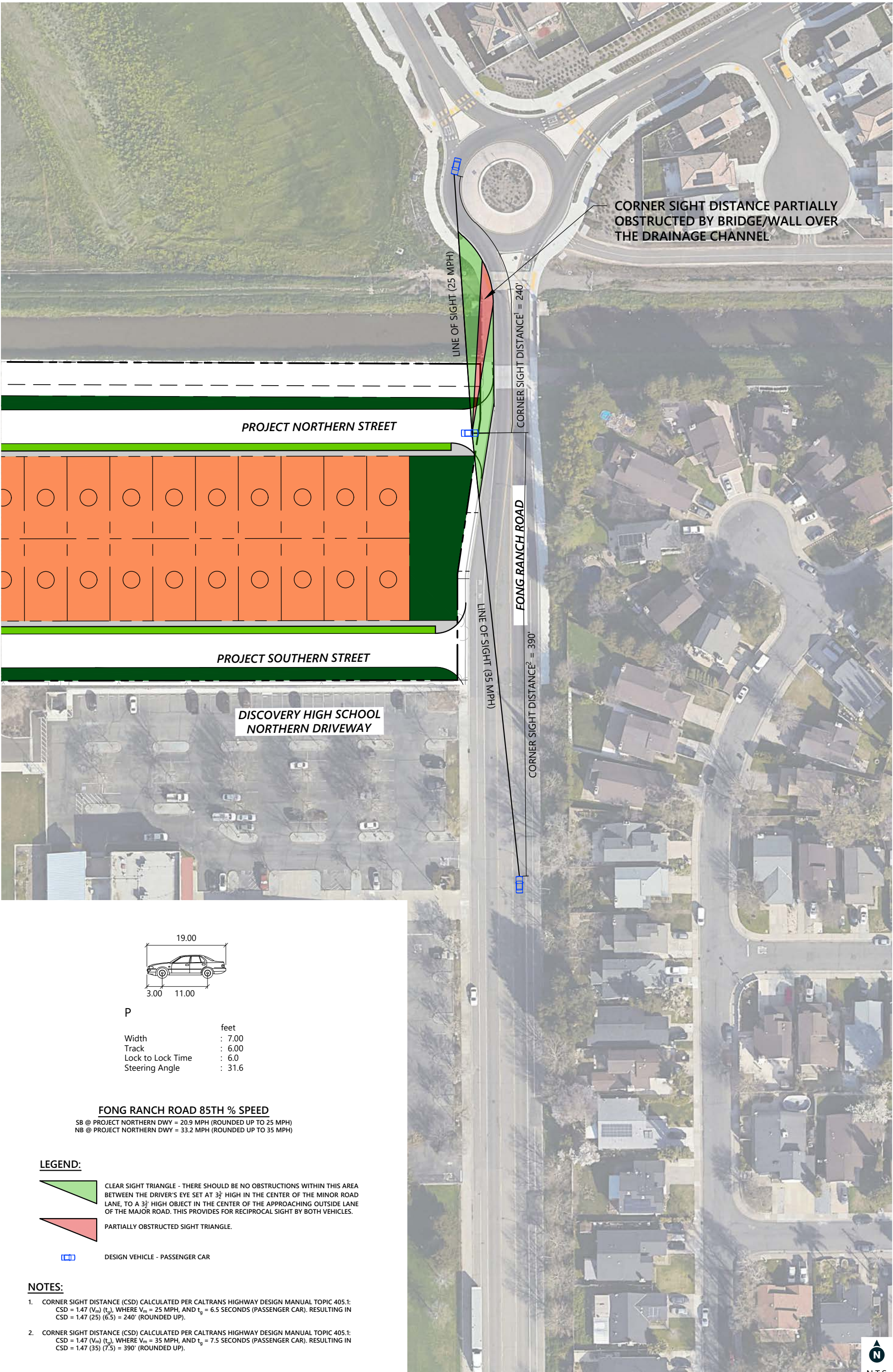
Figure 13 shows the sight distance evaluation for the southern project street. Similarly, the bridge over the drainage canal and the first proposed tree adjacent to the street may temporarily obscure visibility; however, vehicles circulating within the roundabout would still be visible before the wall obstruction. No sight distance obstructions would be present for motorists at the project street viewing oncoming traffic from the right.

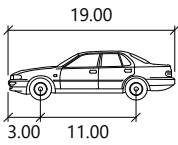
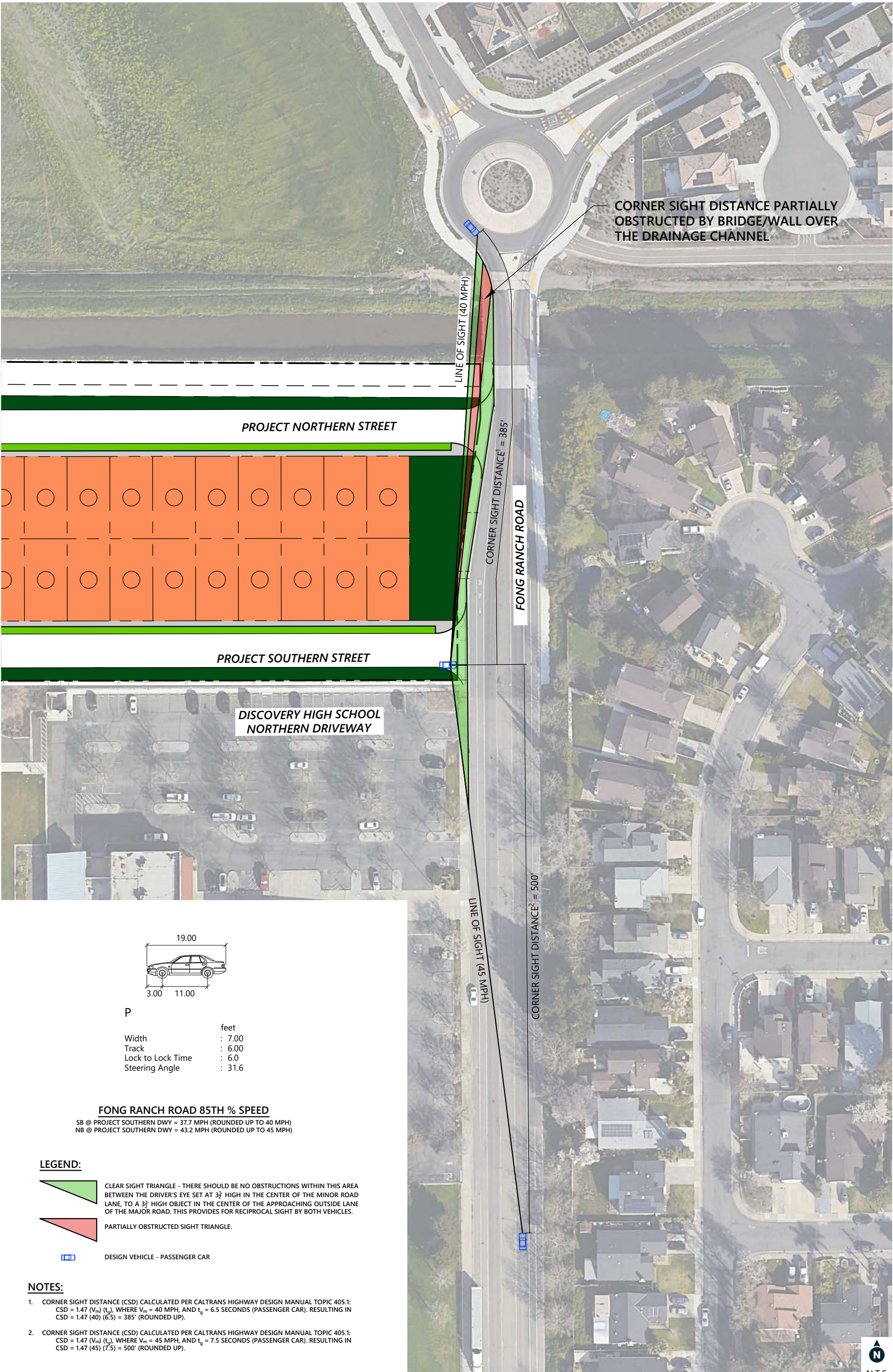
Figure 14 presents the sight distance evaluation for the Discovery High School northern street; as shown, the project does not create any new obstructions for the corner sight distance view from this location.

Recommendations to maintain sight distance at the project streets include eliminating project-related landscaping or monument features, and prohibiting curbside street parking, within the project corner sight triangles.



Photo 4: View of oncoming traffic from the left from the project's northern street.





P	feet
Width	: 7.00
Track	: 6.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.6

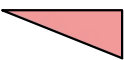
FONG RANCH ROAD 85TH % SPEED

SB @ PROJECT SOUTHERN DWY = 37.7 MPH (ROUNDED UP TO 40 MPH)
NB @ PROJECT SOUTHERN DWY = 43.2 MPH (ROUNDED UP TO 45 MPH)

LEGEND:



CLEAR SIGHT TRIANGLE - THERE SHOULD BE NO OBSTRUCTIONS WITHIN THIS AREA BETWEEN THE DRIVER'S EYE SET AT 3½' HIGH IN THE CENTER OF THE MINOR ROAD LANE, TO A 3½' HIGH OBJECT IN THE CENTER OF THE APPROACHING OUTSIDE LANE OF THE MAJOR ROAD. THIS PROVIDES FOR RECIPROCAL SIGHT BY BOTH VEHICLES.



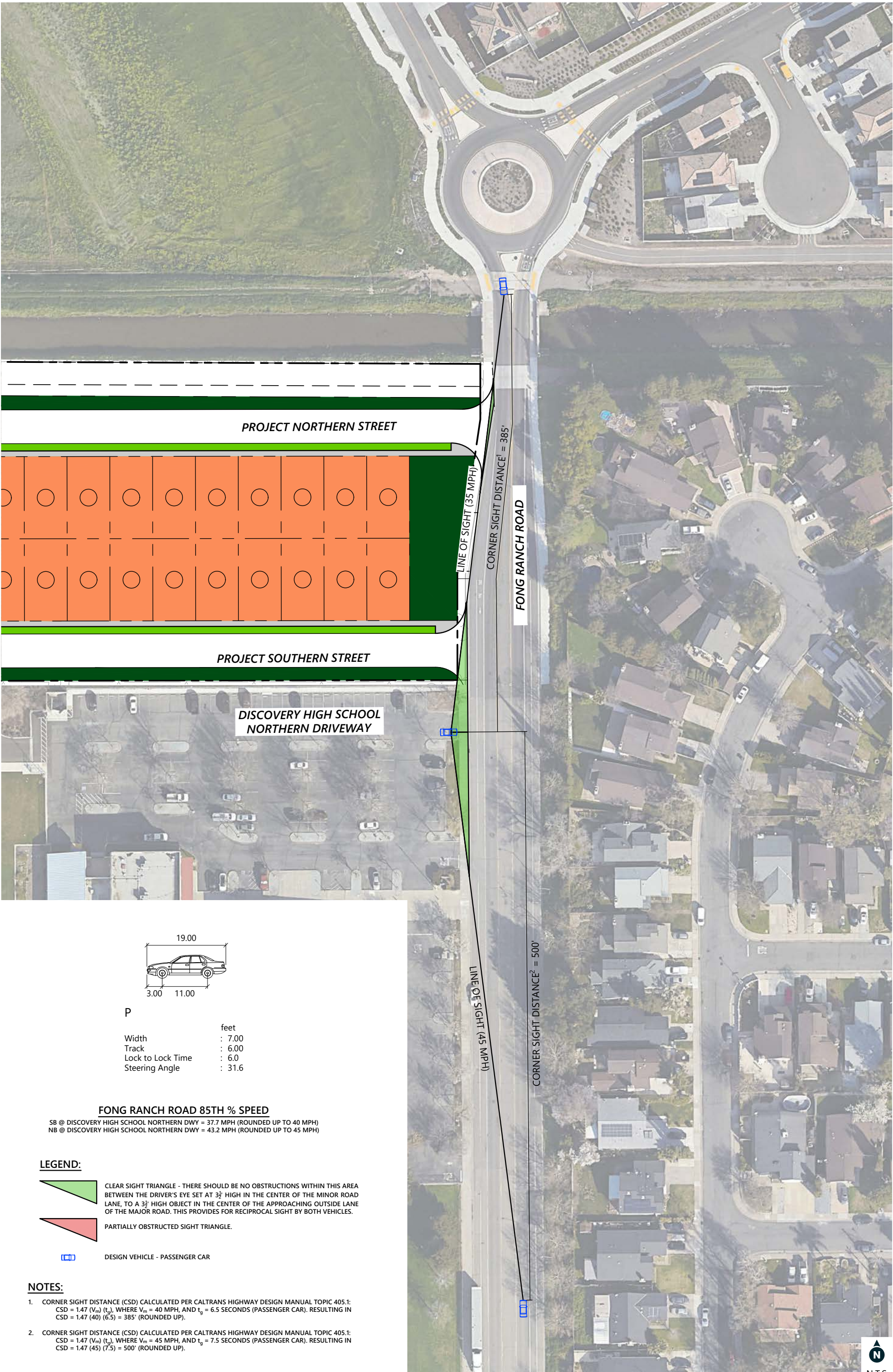
PARTIALLY OBSTRUCTED SIGHT TRIANGLE.



DESIGN VEHICLE - PASSENGER CAR

NOTES:

- CORNER SIGHT DISTANCE (CSD) CALCULATED PER CALTRANS HIGHWAY DESIGN MANUAL TOPIC 405.1: CSD = 1.47 (V_m) (t_g), WHERE V_m = 40 MPH, AND t_g = 6.5 SECONDS (PASSENGER CAR). RESULTING IN CSD = 1.47 (40) (6.5) = 385' (ROUNDED UP).
- CORNER SIGHT DISTANCE (CSD) CALCULATED PER CALTRANS HIGHWAY DESIGN MANUAL TOPIC 405.1: CSD = 1.47 (V_m) (t_g), WHERE V_m = 45 MPH, AND t_g = 7.5 SECONDS (PASSENGER CAR). RESULTING IN CSD = 1.47 (45) (7.5) = 500' (ROUNDED UP).



On-Site Circulation Review

The northern street would be nearly 1,200 feet long before turning southerly. This design could attract high vehicle speeds. Accordingly, the following is recommended:

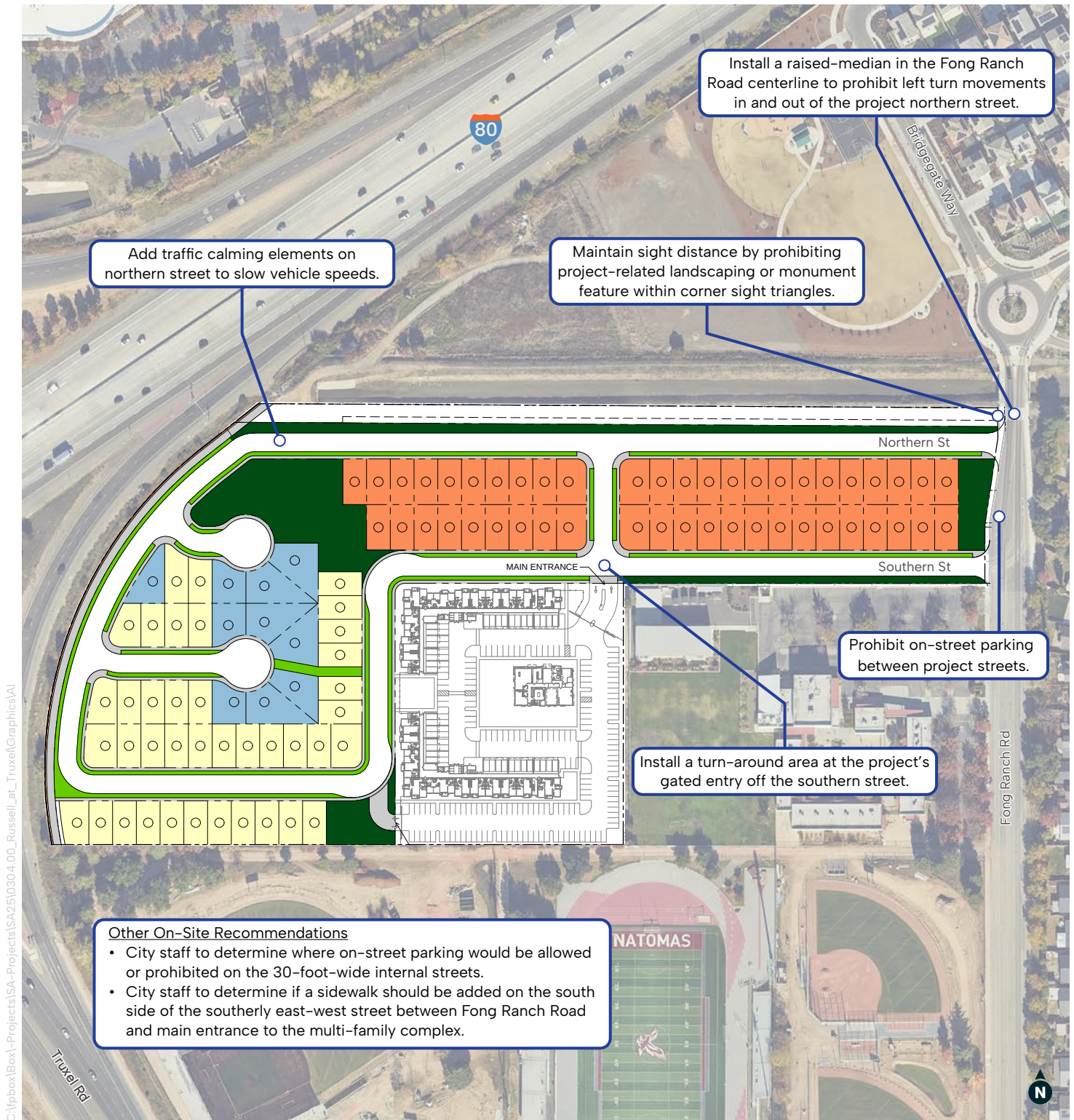
- Add traffic calming elements on northern street to slow vehicle speeds.

The gated apartment complex has a main entry off the southern street. However, it lacks any type of turn-around feature, meaning that a vehicle turned away at the gate would be required to back-out onto the southern street. The following is recommended:

- Install a turn-around area at the project's gated entry off the southern street.

Other on-site circulation recommendations include:

- Coordination with various city departments (community development, public works, fire, and refuse) should occur to determine how best to utilize the 30-foot width of the northern and southern streets. Should on-street parking be allowed, and if so, on which side of street? Should pedestrian crossings be striped at key pedestrian desire lines?
- A sidewalk may be considered on the south side of the southern street in the area where this is a 10-foot wide planter separating the street from the south property line. Although a sidewalk is shown on the north side of the southern street, apartment residents may not be inclined to cross the street to walk on the north side given the apartment location.



Study Area (Off-Site): Recommendations:

Truxel Road / San Juan Road (Intersection #3)

- Lengthen the southbound left-turn lanes by about 100 feet.

San Juan Road / Fong Ranch Road (Intersection #11)

- Lengthen the eastbound left-turn lane by about 100 feet.
- Modify traffic signal timing/phasing to allocate a greater percentage of green time to eastbound left-turn lane.

FIGURE 15

Recommendations

Appendix A – Baseline Conditions

Appendix B – ITE Trip Generation Land Use Categories

Appendix C – Baseline Plus Project Conditions

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