



November 4, 2021

Mr. Gil Pridmore  
c/o Mr. Cameron Pridmore, PE, PLS  
CMP Civil Engineering  
1607 Capell Valley Road  
Napa, CA 94558

## **Focused Traffic Study for the 1191 Capell Valley Road Tourist Lodging Project (P20-00222)**

Dear Mr. Pridmore;

As requested, W-Trans has prepared a focused analysis of the potential transportation impacts and effects on traffic operation associated with the proposed Tourist Lodging project to be located at 1191 Capell Valley Road in the County of Napa. The following analysis was completed in accordance with the criteria established by Napa County, is consistent with standard traffic engineering techniques, and reflects a scope of work approved by County staff.

### **Project Description**

The proposed project would redevelop an existing site on the north side of Capell Valley Road that previously housed the Capell Valley Elementary School into a tourist lodging facility. As proposed, the project would include a maximum of nine small lodging units (four single-room and five double-room units), one caretaker unit, an office/storage building and a barn type structure where local 4-H members could showcase a variety of their farming projects to educate tourists about the farm-to-table process as well as the importance of agriculture in Napa County. It is envisioned that the existing schoolhouse and accessory structures would be retained but modified, as necessary, to support the proposed uses. The permit for the tourist lodging facility would also include six events per year with a maximum of 150 people per event as well as 12 smaller monthly events with a maximum of 60 people. A staff of four full-time employees is anticipated to be needed to run the lodging facility. The proposed site map is enclosed for reference.

### **Existing Conditions**

Capell Valley Road (SR 128) is a rural two-lane roadway that is oriented on a skewed northwest-southeast alignment between Knoxville Road and SR 121, though for the purposes of this analysis the roadway was assumed to run east-west in keeping with its even numbered highway designation. The roadway has a posted speed limit of 40 miles per hour (mph) and is approximately 30 feet wide adjacent to the project site with two 11- to 12-foot vehicle travel lanes and paved shoulders that vary in width between three and four feet. The roadway also has a gravel shoulder of approximately five feet in width in both directions of travel. Based on traffic count data provided by Caltrans, the section of Capell Valley Road between Old Capell Valley Road and Steele Canyon Road has an average daily traffic (ADT) volume of 1,775 vehicles.

## **Trip Generation**

The anticipated trip generation for the proposed project was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10<sup>th</sup> Edition, 2017. Consideration was given to application of rates for the Hotel land use (LU #310); however, doing so would result in 75 daily trips on average which would likely overestimate the trip generation for the project. Given the type of lodging proposed, application of rates for a Motel (LU #320) provides results that appear more reasonable given the location of the site and anticipated activity. Based on application of these rates, the proposed project is expected to generate an average of 30 trips on a typical day, including three trips during the weekday p.m. peak hour and five trips during the weekend midday peak hour.

The site has existing uses consisting of home school activities, walking group meetings, parking for a Napa County School District bus, and weekly maintenance crew visits. On average, these existing uses are estimated to result in 22 daily trips, though these trips generally do not occur during the weekday or weekend peak hours.

Until about 2008, this five-acre parcel was the Capell Valley Elementary School and has been used for many events and fundraisers over the years, some of which were the Annual Jog-a-thon, Cake Walks, Auction Fundraisers, EMS Rural Training Days, 4-H meetings, Easter Egg Hunts, Book Fairs, Bike Rodeos, etc. Although not allowed to be considered for evaluating impacts under CEQA, for comparative purposes, the historical trip generation for the previous use of the site as an elementary school was investigated. Based on standard ITE rates for “Elementary School” (LU #520) with an enrollment of 90 students, the site would have been expected to generate an average of 170 trips on a typical weekday, with 60 trips during the a.m. peak hour and 15 trips during the p.m. peak hour, though being a school, the site would have been expected to generate few trips on weekend days outside of the events that were held at the property.

As shown in Table 1, the proposed project would be expected to result in an average of eight new trips per day over existing conditions, including three new trips during the weekday p.m. peak hour and five new trips during the weekend p.m. peak hour. Compared to the highest historical use of the site as an elementary school, the project would be expected to generate 140 fewer trips on a typical weekday, including 12 fewer trips during the weekday p.m. peak hour, though with five additional trips during the weekend p.m. peak hour. Because the project would be expected to result in fewer than 40 new daily trips on average, even without consideration of existing site uses, a full Transportation Impact Study (TIS) with an operational analysis is not required under the County’s *Revised Transportation Impact Study Guidelines*, dated August 3, 2020.

**Table 1 – Trip Generation Summary**

Land Use	Units	Daily		Weekday PM Peak Hour				Weekend PM Peak Hour			
		Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
<b>Previous</b>											
Elementary School	90 Students	1.89	170	0.67	15	7	8	-	-	-	-
<b>Existing</b>											
Various Uses	n/a		22	-	-	-	-	-	-	-	-
<b>Proposed</b>											
Motel	9 Rooms	3.35	30	0.38	3	2	1	0.60	5	3	2
Net Difference from Previous			-140		-12	-5	-7		5	3	2
<b>Net Difference from Existing</b>			<b>8</b>		<b>3</b>	<b>2</b>	<b>1</b>		<b>5</b>	<b>3</b>	<b>2</b>

Consideration was also given to the number of trips associated with the largest proposed event, one with 150 guests. Using the standard Napa County vehicle occupancy rate that is typically applied to winery events of 2.8 persons per vehicle, the guests would be expected to result in approximately 54 vehicles or generate 108 daily trips. For the purposes of estimating the peak hour trip generation, it was assumed that all trips would be arriving at the site before an event to reflect the worst-case need for a left-turn lane. Based on these assumptions, an event with 150 persons would be expected to result in an additional 108 daily trips over the typical operation described in Table 1, including the potential for an additional 54 inbound trips during the weekday and weekend p.m. peak hours, depending on when events are scheduled. As fewer than two events per month, on average, are proposed, event trips are not included as part of the project's trip generation per the County's winery trip generation form.

## Vehicle Miles Traveled

Senate Bill (SB) 743 established a change in the metric to be applied for determining transportation impacts associated with development projects. Rather than the delay-based criteria associated with a Level of Service (LOS) analysis, the increase in Vehicle Miles Traveled (VMT) as a result of a project is now the basis for determining California Environmental Quality Act (CEQA) impacts with respect to transportation and traffic. As of the date of this analysis, the County of Napa has not yet established thresholds of significance related to VMT. As a result, the project-related VMT impacts were assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*, 2018.

The OPR Technical Advisory identifies several criteria that may be used to identify certain types of projects that are unlikely to have a significant VMT impact and can be "screened" from further analysis. One of these screening criteria pertains to small projects, which OPR defines as generating fewer than 110 new vehicle trips per day on average. The proposed project is anticipated to result in eight new daily vehicle trips on a typical weekday over existing conditions and only 30 without considering the existing use; therefore, it is reasonable to conclude that the project can be presumed to have a less-than-significant transportation impact on VMT.

**Finding** – Based on OPR guidance, the project would be expected to have a less-than-significant transportation impact on VMT.

## **Alternative Modes**

### **Pedestrian Facilities**

Consistent with expectations for a rural area, there are limited existing pedestrian facilities in the project vicinity and pedestrian trips to and from the site are not anticipated so this condition is considered acceptable. In the rare instance that an employee or guest should walk to the site, the gravel roadway shoulders could be used, which are approximately five feet wide on both sides of Capell Valley Road along the project frontage, and there is an existing marked crosswalk at the project driveway with associated school crossing signage. Because the site is not currently used as an elementary school and would not be used as one with the proposed project, it is recommended that the existing school crossing signage at the crosswalk and the advanced warning school crossing signage be removed and replaced with standard pedestrian crossing signage.

### **Bicycle Facilities**

There are currently no bicycle facilities on Capell Valley Road nor are there anticipated to be any project-related bicycle trips, though there are plans for the roadway to be a future Class III bike route between Steele Canyon Road and Berryessa Knoxville Road, as contained in the *Napa Countywide Bicycle Plan*, 2019. The implementation of the proposed project would have no effect on this planned future facility.

### **Transit Facilities**

There are no transit facilities near the project site nor is there anticipated to be any demand.

**Finding** – The limited facilities in the vicinity for pedestrians and bicyclists and lack of access to transit service is considered acceptable for the rural location and type of project proposed.

**Recommendation** – The existing school crossing signage for the crossing at the project driveway should be removed and replaced with standard pedestrian crossing signage since Capell Valley Elementary School is no longer located at the site.

## **Vehicle Access**

The pattern used to allocate new project trips to the street network was determined based on familiarity with the area and surrounding region as well as likely origins and destinations for patrons of the project. Because the proposed project is located on the east side of the Napa Valley, it is likely that nearly all the project-related trips would be to and from destinations to the west either via Capell Valley Road to Monticello Road (SR 121) to the east initially or to the west on Capell Valley Road where it becomes Sage Canyon Road and eventually returns to the northern part of the Napa Valley. Given the more direct route to the east, a distribution of 80 percent to this direction and 20 percent to the west was applied. Based on this trip assignment, there would be two westbound right-turns and no eastbound left-turns at the project driveway during the weekday p.m. peak hour; during the weekend p.m. peak hour there would be two westbound right-turns and one eastbound left-turn at the driveway.

## Sight Distance

At driveways, a substantially clear line of sight should be maintained between the driver of a vehicle waiting to enter the street and the driver of an approaching vehicle. Sight distances along Capell Valley Road at the project driveway were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distance for driveway approaches is based on stopping sight distance and uses the approach travel speed as the basis for determining the recommended sight distance.

For the posted speed limit of 40 mph, the recommended minimum stopping sight distance is 300 feet. Based on a review of field conditions, over 300 feet of sight distance was measured in each direction to and from the project driveway, which is adequate for the posted speed limit. Additionally, adequate sight distance is available for a following driver to observe and react to a preceding motorist slowing or stopped waiting to turn into the project driveway.

**Finding** – Sight distances at the project driveway are adequate to accommodate all turns into and out of the project site.

## Left-Turn Lane Warrants

The need for a left-turn lane on Capell Valley Road at the project driveway was evaluated based on criteria contained in the *Guidelines for Reconstruction of Intersections*, Caltrans, 1985 as this roadway is a State Highway. Table V-1 provides guidance as to when volumes indicate the need for a left-turn pocket. During a 150-person event, which generates the highest volumes at the project driveway, it is estimated that there would be 11 left turns during the weekday p.m. peak hour, with 152 vehicles in the same direction (or the advancing volume) and 65 vehicles in the opposing direction. During the weekend p.m. peak hour, there would also be 11 left turns, though the advancing and opposing volume would both be 76 vehicles. Based on the data provided in Table V-1, for an opposing volume of less than 100 vehicles, up to 30 percent of the advancing traffic could be left turns before a turn pocket would be needed. The project volume of 11 turns is less than 10 percent of the advancing volume during the weekday p.m. peak hour and approximately 23 percent during the weekend p.m. peak hour, and therefore below the 30-percent threshold. Based on this data, a left-turn lane is not warranted. A copy of the warrant spreadsheet based on the Caltrans criteria is enclosed for reference.

**Finding** – Upon the addition of project and event trips to existing volumes, a left-turn lane would not be warranted at the project driveway.

## Queueing

A queuing analysis was performed to determine the maximum queue that would be expected to form on eastbound Capell Valley Road at the project driveway during an event with 150 guests. Using a methodology developed by the Oregon Department of Transportation, which is the most current widely-used methodology available, it was determined that the maximum queue would be 50 feet, or two vehicles, during each of the weekday p.m. and weekend p.m. peak hours. This would be representative of a motorist waiting for an acceptable gap in opposing traffic before turning left into the project site and a following motorist waiting to continue straight or also turn left, which is considered typical operation for a driveway on a two-lane highway. The queuing calculations are enclosed for reference.

**Finding** – Based on Existing Plus Project Plus 150-Person Event traffic volumes, it was determined that the maximum queue on eastbound Capell Valley Road at the project driveway would be two vehicles during the weekday p.m. and weekend p.m. peak hours.

### **Emergency Access**

The AutoTURN application of AutoCAD was used to simulate the travel path of a typical Napa County fire truck to evaluate the adequacy of emergency vehicle access. As designed, a typical fire truck with a length of 29.5 feet would be able to enter, circulate, and exit the site with no anticipated obstructions. Access for emergency response vehicles is therefore expected to function acceptably. Two access exhibits, one simulating inbound access to the project site and the other simulating outbound access, are enclosed.

**Finding** – Emergency access is expected to function acceptably.

### **Parking**

The project was analyzed to determine whether the proposed vehicle parking supply would be adequate to satisfy County parking requirements and be sufficient for the anticipated peak demand during events. In addition to the 17 existing parking spaces that would be retained, the project would add 15 new spaces on-site resulting in a new supply of 32 parking spaces, two of which would be Americans with Disability Act (ADA) accessible.

Section 18.110 of the Napa County Municipal Code requires hotels and motels to provide parking at a rate of one space per unit plus one space per nonresident manager. This translates to a required supply of 13 parking spaces based on nine lodging rooms and four employees; therefore, the proposed supply of 32 spaces would be more than adequate to meet County code.

The number of parking spaces that would be needed on-site to accommodate employees and visitors during events was also estimated using the County's standard vehicle occupancies of one employee or 2.8 visitors per vehicle. Based on these operational parameters, a total of 25 parking spaces would be needed for events with 60 guests, including 21 spaces for guests and four for employees. During events with 150 guests, a total of 58 parking spaces would be needed, including 54 for guests and four for employees. As proposed, the on-site parking supply would be adequate for events with 60 guests but would be deficient by 26 spaces for events with 150 guests. As a result, it is recommended that an overflow parking area with room to park at least 26 vehicles be added to the site plan, or off-site parking should be secured for events with 150 guests and shuttles used to transport guests between the off-site parking area and the project site.

**Finding** – The proposed parking supply is adequate for the anticipated demand during typical operation and 60-person events, but inadequate for 150-person events.

**Recommendation** – The applicant should identify an overflow parking area on the site plan with room to park a minimum of 26 vehicles or provide a shuttle service and arrange for guests to park off-site during events with 150 guests.

## **Bicycle Parking**

The required bicycle parking supply was calculated to ensure adequacy under County requirements. Napa County Municipal Code Section 18.110.040 requires nonresidential uses with a requirement of 5-10 vehicle parking spaces to provide two bicycle parking spaces. Projects are required to provide 10 bicycle spaces if 10 or more vehicle parking spaces are required. Considering that thirteen vehicle parking spaces are required for the proposed project, ten bicycle spaces should be provided. The location of these bicycle parking spaces should be added to the site plan.

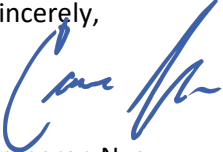
**Finding** – To comply with County Code at least ten bicycle parking spaces need to be provided for the proposed project.

## **Conclusions and Recommendations**

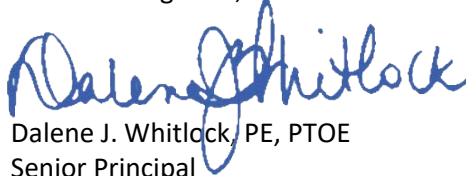
- The proposed project is expected to generate an average of 30 trips on a typical weekday, including three trips during the weekday p.m. peak hour and five trips during the weekend p.m. peak hour. This would result in eight new daily trips on average over existing conditions.
- Pedestrian, bicycle, and transit facilities serving the project site are considered acceptable for the rural location and type of project proposed.
- It is recommended that the existing school crossing signage for the pedestrian crossing at the project driveway be removed and replaced with standard pedestrian crossing signage since Capell Valley Elementary School is no longer operating at the site.
- Sight distances at the project driveway are adequate to accommodate all turns into and out of the project site.
- Emergency access is expected to function acceptably.
- A left-turn lane is not warranted on Capell Valley Road at the project driveway under worst-case volumes that would occur during a 150-person event.
- Based on Existing plus Project plus 150-Person Event traffic volumes, it was determined that the maximum queue on eastbound Capell Valley Road at the project driveway would be two vehicles during each peak hour, which is reasonable for a driveway located on a two-lane highway.
- The project would be expected to have a less-than-significant transportation impact on vehicle miles traveled.
- The proposed parking supply is adequate for the anticipated demand during typical operation and 60-person events, but inadequate for 150-person events. It is recommended that the applicant identify an overflow parking area on the site plan with room to park a minimum of 26 vehicles or provide a shuttle service and arrange for guests to park off-site during events with 150 guests.
- To satisfy bicycle parking requirements under County Code, at least ten bicycle parking spaces need to be provided for the proposed project. This information should be added to the site plan.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,



Cameron Nye  
Associate Engineer, EIT



Dalene J. Whitlock, PE, PTOE  
Senior Principal



DJW/cn-kt/NAX165.L1

Enclosures: Site Plan

Turn Lane Warrant Spreadsheet

Queuing Calculations

Emergency Access Exhibits



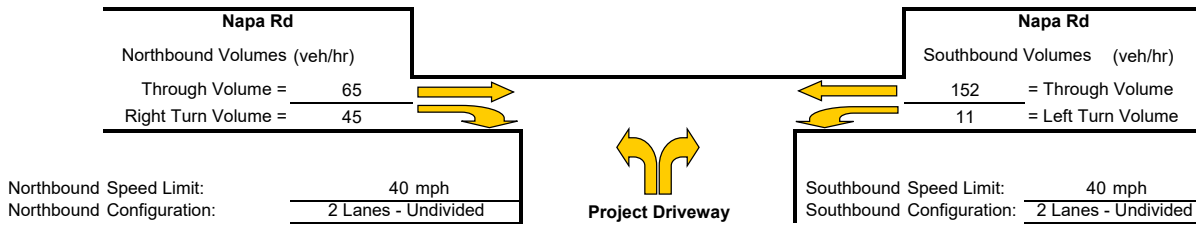


# Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Capell Valley Road/Project Driveway  
 Study Scenario: Weekday PM Peak Hour plus Event

Direction of Analysis Street: North/South

Cross Street Intersects: From the East



## Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

**Thresholds not met, continue to next step**

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	712.5
Advancing Volume	Va =	110
If $AV < Va$ then warrant is met		
		No

**Right Turn Lane Warranted: NO**

## Northbound Right Turn Taper Warrants (evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

**Thresholds not met, continue to next step**

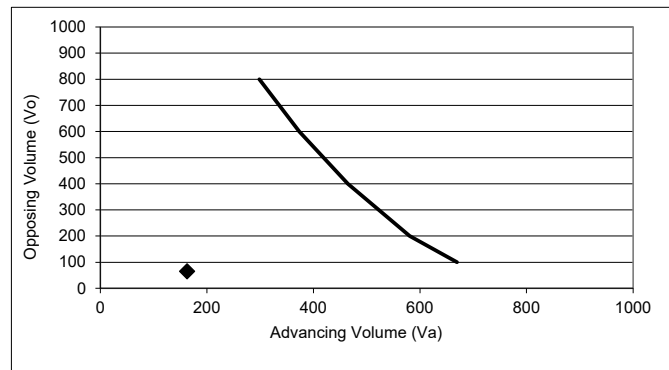
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	450
Advancing Volume	Va =	110
If $AV < Va$ then warrant is met		
		No

**Right Turn Taper Warranted: NO**

## Southbound Left Turn Lane Warrants

Percentage Left Turns %lt	6.7 %
Advancing Volume Threshold AV	669 veh/hr
If $AV < Va$ then warrant is met	



◆ Study Intersection

Two lane roadway warrant threshold for: 40 mph

Turn lane warranted if point falls to right of warrant threshold line

**Left Turn Lane Warranted: NO**

The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.

The left turn lane analysis uses a regression based on work conducted by M.D. Harmelink in 1967, as presented in the California Department of Transportation's Guide of Intersections (1985) and AASHTO's Policy on Geometric Design of Highways and Streets (7th ed.).

## Queue Length Estimation at Two-Way STOP Controlled Intersection

### Project Information

Analyst:	KT	Agency/Co.:	W-Trans
Analysis Time Period:	Wkday PM E + P + 150	Project ID:	NAX165
Date Performed:	5/18/2021	Scenario:	
Jurisdiction:	County of Napa		
Intersection:			
East/West Street:	Capell Valley Road		
North/South Street:	Project Driveway		

### Instructions

Step 1 Input Volumes on **Volumes** sheet

Lane Group Code :	MJL	1	Major street separate left turn lane / TWLT
	MNLTR	2	Minor street shared left, through and right lane
	MNLR	3	Minor street shared left, and right lane
	MNL	4	Minor street separate left turn lane
	MNR	5	Minor street separate right turn lane

Step 2 Calculate Input Parameters

- Calculate Lane Group Volumes, % Heavy Vehicles, and Conflicting Volumes (2.0% default)
- Identify the presence of an upstream signal within 1/4 mile on major approaches (Signal, 0 default)
- Identify the presence of a separate LT lane / TWLT on major street approaches (LT, 1 default)
- Verify the input ranges to feed into the models (see QueueLengthsModels sheet)

Step 3 **Obtain** queue lengths in feet from **Results** column

**Note:** *Round off queue lengths to the next highest 25 feet when reporting*

Input							Results
Approach	Lane Group, Code	Volume, veh/hr	% Heavy Vehicles	Conflicting Volume,veh/hr	Signal (0 or 1)	Left Turn Lane (0 or 1)	Queue Length Feet
NB	MNLTR	0					
NB	MNLR	0					
NB	MNL	0					
NB	MNR	0					
SB	MNLTR	1	2.0%	612	0	0	<b>25</b>
SB	MNLR	1	2.0%	350	0	0	<b>50</b>
SB	MNL	1	2.0%	262	0	0	<b>50</b>
SB	MNR	0					
EB	MJL	11	2.0%	110	0	0	<b>50</b>
WB	MJL	0					

## Queue Length Estimation at Two-Way STOP Controlled Intersection

### Project Information

Analyst:	KT	Agency/Co.:	W-Trans
Analysis Time Period:	Wknd PM E + P + 150	Project ID:	NAX165
Date Performed:	5/18/2021	Scenario:	
Jurisdiction:	County of Napa		
Intersection:			
East/West Street:	Capell Valley Road		
North/South Street:	Project Driveway		

### Instructions

Step 1 Input Volumes on **Volumes** sheet

Lane Group Code :	MJL	1	Major street separate left turn lane / TWLT
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	MNLR	3	Minor street shared left, and right lane
	MNL	4	Minor street separate left turn lane
	MNR	5	Minor street separate right turn lane

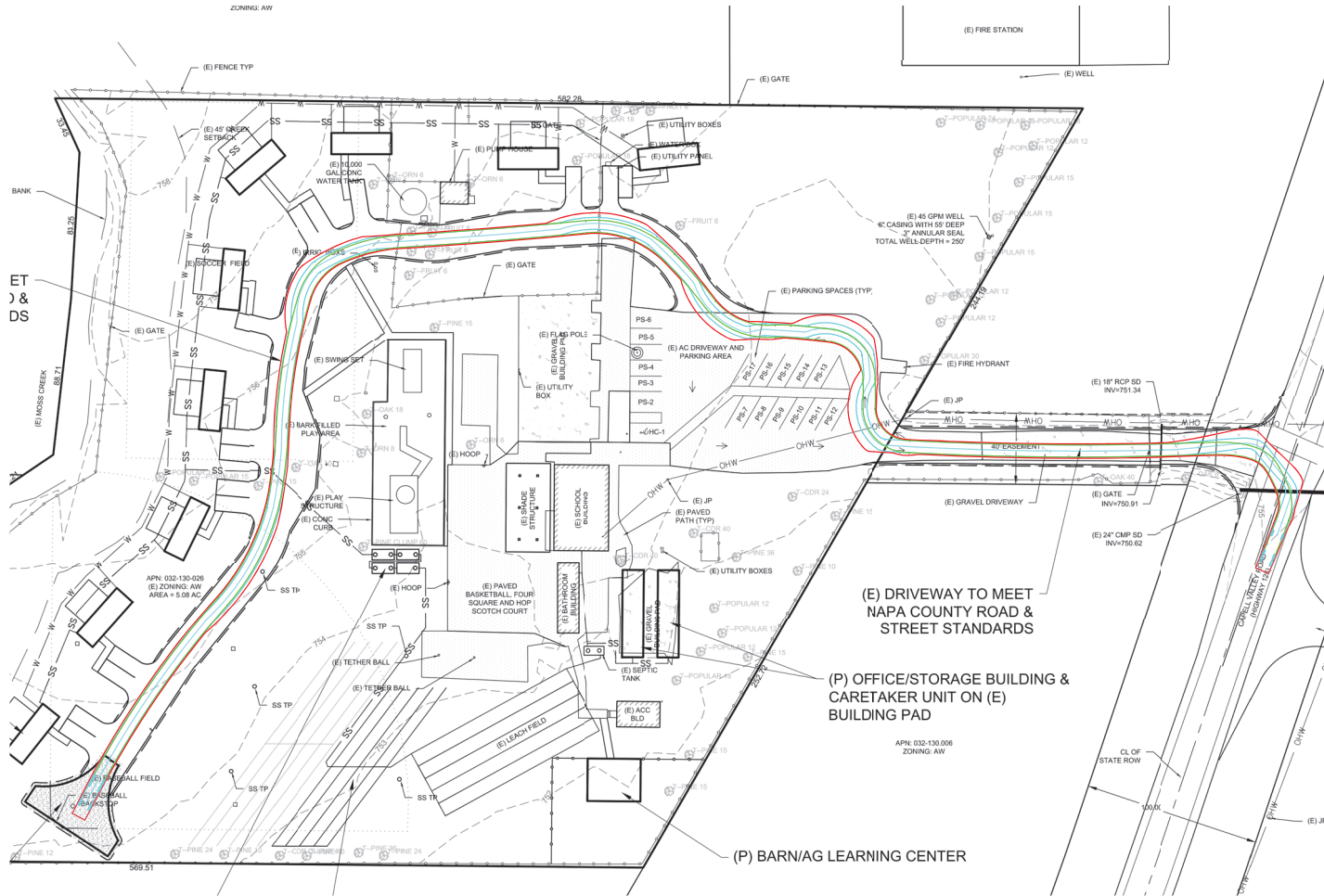
Step 2 Calculate Input Parameters

- Calculate Lane Group Volumes, % Heavy Vehicles, and Conflicting Volumes (2.0% default)
- Identify the presence of an upstream signal within 1/4 mile on major approaches (Signal, 0 default)
- Identify the presence of a separate LT lane / TWLT on major street approaches (LT, 1 default)
- Verify the input ranges to feed into the models (see QueueLengthsModels sheet)

Step 3 **Obtain** queue lengths in feet from **Results** column

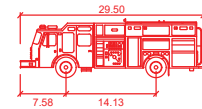
**Note:** *Round off queue lengths to the next highest 25 feet when reporting*

Input							Results
Approach	Lane Group, Code	Volume, veh/hr	% Heavy Vehicles	Conflicting Volume,veh/hr	Signal (0 or 1)	Left Turn Lane (0 or 1)	Queue Length Feet
NB	MNLTR	0					
NB	MNLR	0					
NB	MNL	0					
NB	MNR	0					
SB	MNLTR	2	2.0%	493	0	0	<b>25</b>
SB	MNLR	2	2.0%	296	0	0	<b>50</b>
SB	MNL	2	2.0%	197	0	0	<b>50</b>
SB	MNR	0					
EB	MJL	11	2.0%	122	0	0	<b>50</b>
WB	MJL	0					



**LEGEND**

- Vehicle Body
- Front Tires
- Rear Tires



**Napa County Fire Truck**

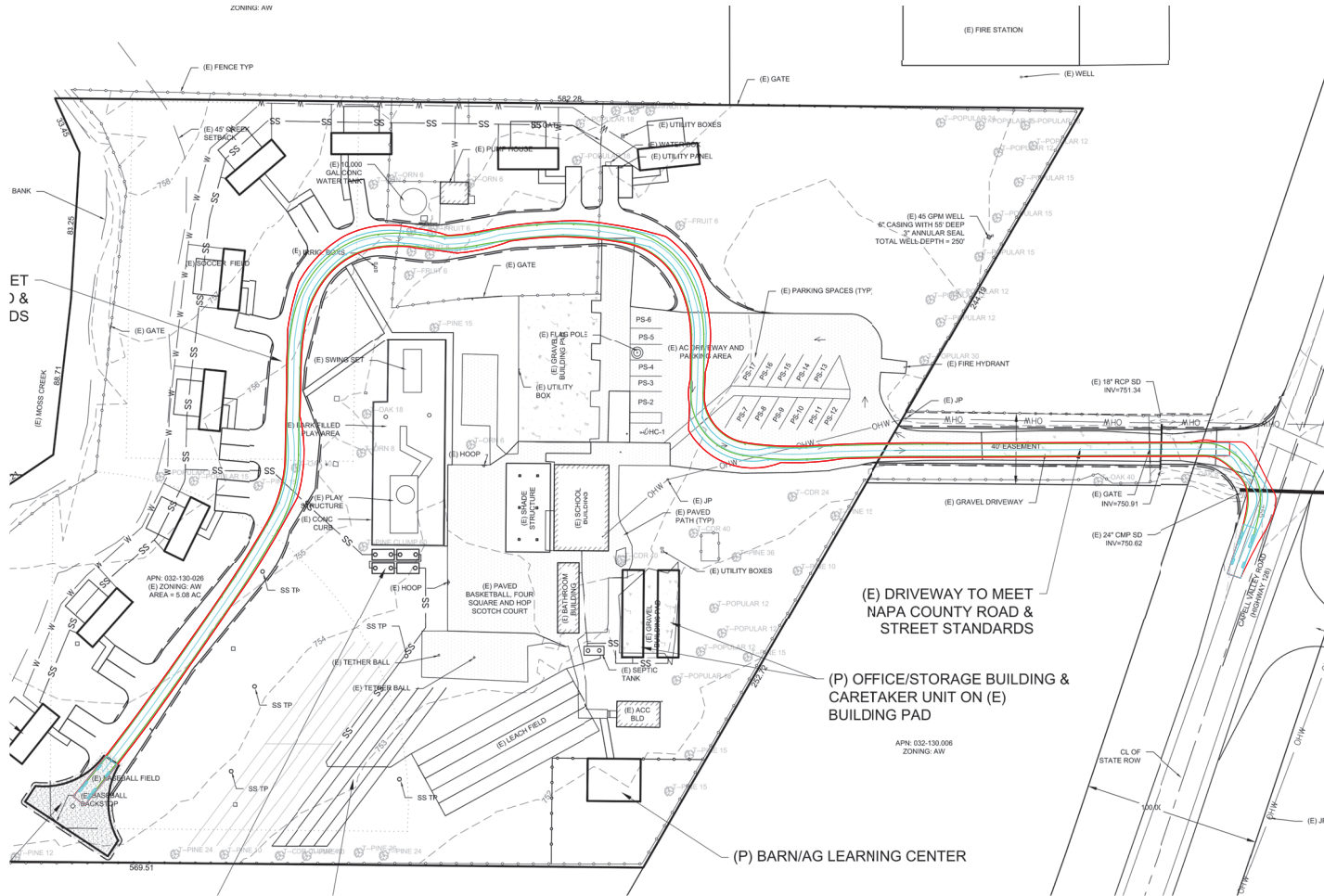
	feet
Width	: 8.00
Track	: 6.91
Lock to Lock Time	: 6.0
Steering Angle	: 38.8

Entering the Project Site

1191 Capell Valley Road  
NAX165

Fire Truck Access

April 2021



Exiting the Project Site

1191 Capell Valley Road  
NAX165

Fire Truck Access  
April 2021