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Traffic Study

Davis Estates, P14-00411
Planning Commission Hearing Date - October 3, 2018

UPDATED TRAFFIC ANALYSIS FOR THE PROPOSED

DAVIS ESTATES WINERY USE PERMIT MODIFICATION #P14-00411

IN
NAPA COUNTY, CA

February 2, 2018

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UPDATED TRAFFIC ANALYSIS FOR THE DAVIS ESTATES WINERY USE PERMIT MODIFICATION

The following report presents the findings of an updated traffic analysis conducted for the proposed Davis Estates Winery Use Permit modification. This report has incorporated additional data and analyses regarding traffic issues that were obtained subsequent to the previously submitted report (Traffic Analysis for the Proposed Davis Estates Winery Use Permit Modification, May 12, 2017) as identified by County staff.

The report includes updated information regarding the supply and location of parking spaces and the associated vehicle circulation. Additional arterial level-of-service analyses were conducted and the most recent Napa County Significance Standards were incorporated for the analysis. There are no changes to the operating conditions and findings from the previous report.

1. INTRODUCTION

This report provides a focused traffic impact analysis for the proposed Use Permit modification associated with the Davis Estates Vineyards Winery located at 4060 Silverado Trail in Napa County (see Figure 1 for site location map). The proposed use modification would increase annual production to 100,000 gallons (from 30,000 gallons); increase employment to 25 full-time employees (from five full-time employees); increase daily visitation to a seasonal maximum of 800 per week/200 maximum per day (from 40 average weekly, 20 maximum weekday/34 maximum weekend); and increase the allowable number of marketing events.

The vehicle trip generating components of the proposed project evaluated in this study include:

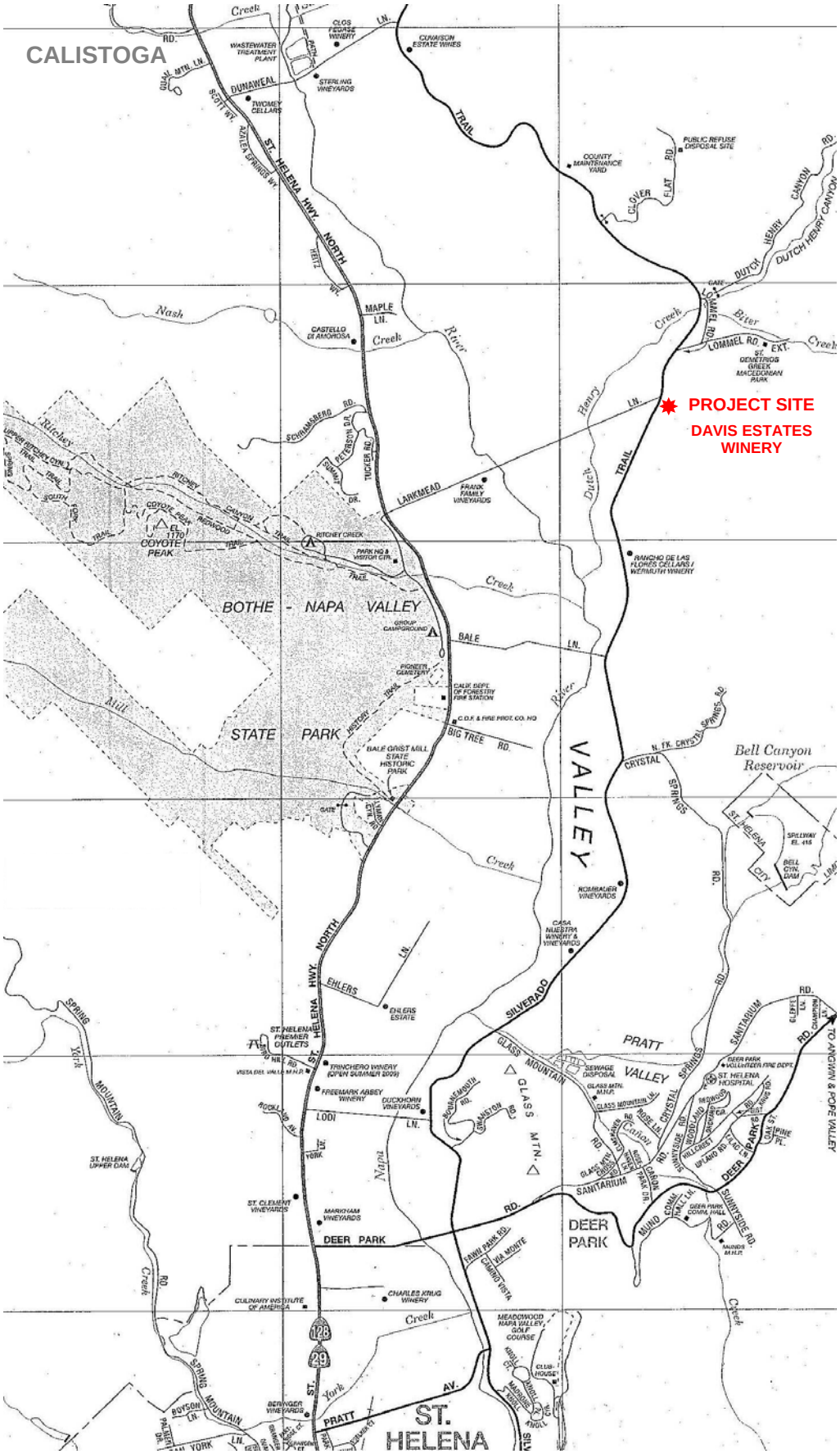
- Existing, near term, and long term cumulative traffic operations on Silverado Trail at the Davis Estates Winery access driveways;
- The vehicle trip generation and associated operating conditions related to the proposed changes in winery production, employment, and visitation;
- Site access at the project driveways along Silverado Trail.

The analysis has determined that the winery project would not significantly impact traffic level of service conditions based on the Napa County significance thresholds and the proposed access plan. The daily volumes on the middle driveway and Silverado Trail under “plus project” conditions would warrant a left turn lane based on the Napa County warrants. The installation of a southbound left turn lane on Silverado Trail to access the site’s middle driveway is proposed as part of the project.

The project was calculated to generate 109-151 new weekday/weekend daily trips and 38-41 new weekday/weekend peak hour trips. Daily and peak hour arterial volumes on Silverado Trail are indicative of acceptable ‘B’-‘C’ levels of service for existing and near term conditions, and would remain unchanged under existing plus project and near term plus project conditions.

Under the current Use Permit, the property’s three driveways allocate access with delivery trucks and employees using the north driveway, visitors using the middle driveway, and the residents using the southern driveway. The proposed winery access plan would move employee access to the middle driveway, thus sharing this driveway with visitor trips.

Based on the allocation of trips at the project driveways, levels of service would remain unchanged with the project and continue to operate at acceptable LOS ‘C’ or better under existing and near term conditions. Long term cumulative conditions, based on the Napa County General Plan Update transportation model volume forecasts, would continue to operate at acceptable LOS ‘C’ or better conditions.



Project Vicinity Map

North

omni-means

figure 1

2. EXISTING TRAFFIC CONDITIONS

Site Location / Roadways

The Davis Estates winery is located at 4060 Silverado Trail on the east side of the road across from Larkmead Lane. The property frontage extends south from the Larkmead Lane intersection for approximately 1,100 feet. The property has three access driveways: one located opposite of Larkmead Lane; one approximately 600 feet south of Larkmead Lane; and one approximately 1,000 feet south of Larkmead Lane. Silverado Trail is a rural two lane undivided arterial road oriented in a north-south direction through Napa County. Silverado Trail near the project site consists of two 12-feet wide travel lanes and 3-4 feet paved shoulders plus drainage swales or slopes in some areas. Larkmead Lane is also a two lane undivided road extending west from Silverado Trail. The Silverado Trail/Larkmead Lane intersection consists of single lane approaches with stop controls for the Larkmead Lane and Davis Estates Winery driveway approaches. The other two Winery driveway/Silverado Trail intersections also consist of single lane approaches with stop control for the driveway approaches.

Existing Traffic Operations

Traffic operating conditions are measured by Level of Service (LOS), which applies a letter ranking to successive levels of roadway and intersection traffic performance. LOS 'A' represents optimum conditions with free-flow travel and no congestion. LOS 'F' represents congested conditions with long delays. When applied to unsignalized intersections with minor street stop controls, the LOS reflects the delays experienced by the minor street approach. (LOS definitions, calculations, and volume worksheets are provided in the Appendix.)

For this study, new traffic counts were conducted on Silverado Trail at all of the site driveways and Larkmead Lane. The counts were conducted during a weekday p.m. peak commute period (4:00-6:00 p.m.) and a Saturday afternoon peak period (1:00-3:00 p.m.).[1] The counts were conducted in February. Caltrans traffic data for Highway 29 indicates peak month volumes are approximately nine percent above average traffic levels.[2] Therefore, the volumes were increased nine percent to conservatively reflect higher summer conditions.

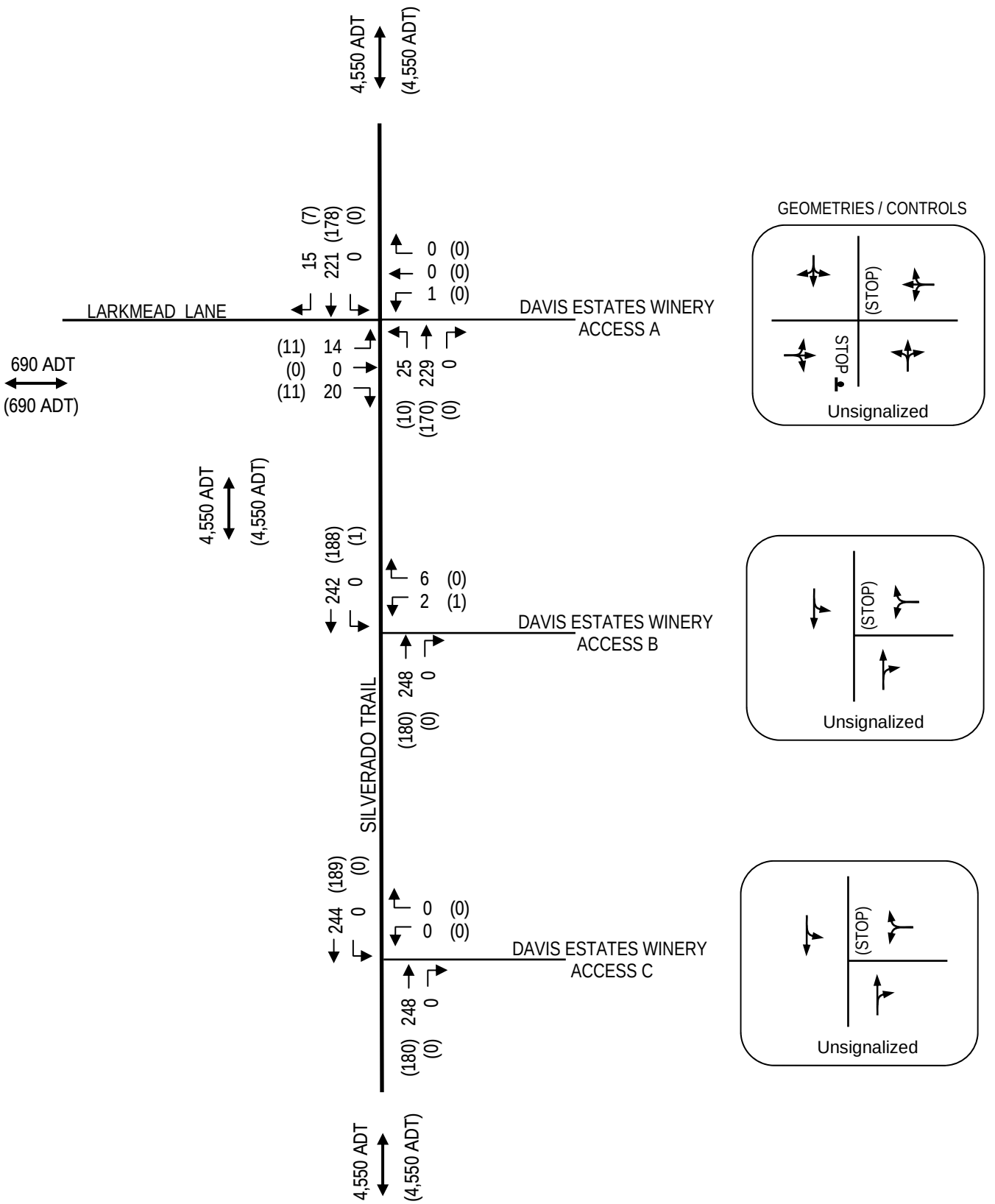
Daily volumes were calculated by comparing Napa County traffic counts on Silverado Trail of peak hour and daily volumes, then applying the ratio (10.8 times the peak hour volumes) to the recent counts.[3] Based on the calculations, daily volumes along Silverado Trail at the winery location are approximately 4,550 average daily trips (ADT). Although the Saturday volumes on Silverado Trail are somewhat lower than the weekday volumes, it has been conservatively assumed that the 4,550 daily volume reflects both weekday and Saturday conditions. The existing volumes are shown in Figure 2.

The daily volume on Silverado Trail is indicative of Level of Service 'B' conditions (less than 5,300 ADT) for a two lane rural arterial. Peak hour volumes during the weekday peak period (496 trips) and weekend peak period (369 trips) are also indicative of LOS 'B' conditions (less than 530 trips). (LOS volume thresholds are provided in the Appendix).[4]

All three driveway intersection approaches operate at LOS 'B' or better (with 14 seconds of delay or less). The eastbound Larkmead Lane intersection approach operates at LOS 'B' (11.9 seconds delay or less) during the weekday and weekend peak hours. The existing levels of service are shown in Table 1.

TABLE 1
EXISTING PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour	Saturday Afternoon Peak Hour
	Existing LOS Delay	Existing LOS Delay
Silverado Trail / Larkmead Lane (North Winery Driveway) *Unsignalized (minor street stops)*		
North Driveway westbound approach	B 14.4”	A < 1”
Larkmead Lane eastbound approach	B 11.9”	B 10.7”
Silverado Trail southbound approach	A < 1”	A < 1”
Silverado Trail northbound approach	A < 1”	A < 1”
Silverado Trail / Middle Driveway *Unsignalized (minor street stop)*		
Middle Driveway westbound approach	B 10.5”	B 11.0”
Silverado Trail southbound approach	A < 1”	A < 1”
Silverado Trail / South Driveway *Unsignalized (minor street stop)*		
South Driveway westbound approach	A < 1”	A < 1”
Silverado Trail southbound approach	A < 1”	A < 1”



Existing Weekday PM and (Weekend) Peak Hour Volumes

North

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figure 2

3. PROPOSED PROJECT

Project Description

The proposed Davis Estates Winery expansion project would consist of modifications to wine production, visitation, employment, and marketing events. The existing facility operates under a current use permit allowing wine production of 30,000 gallons per year; maximum visitation of 20 weekday and 34 weekend visitors (with an average of 40 weekly visitors); five full-time employees (weekday and weekend); and marketing events consisting of two per month with up to 50 guests and two with up to 100 guests.

The proposed use modification would consist of the following vehicle trip generating components:

- Expanding the winery production to 100,000 gallons per year. The winery anticipates up to 562 tons of grapes/juice on-haul from offsite.
- Increasing employment to 25 full-time employees consisting of production, administration, and tasting/tours personnel.
- Increase visitation to 200 daily maximum visitors with an average of 800 maximum weekly seasonally June-October. (November and February-May is 100 maximum per day / 350 maximum per week, and December-January is 75 average per day / 250 maximum per week.) Tastings and tours by appointment, 10:00 am - 6:30 pm daily.
- Increase marketing events to comprise up to 24 annual events with a maximum of 100 guests and up to 15 annual events with a maximum of 200 guests. (Tours and tastings visitation would not occur during marketing event periods.)
- The proposed project includes the construction of a southbound left turn lane on Silverado Trail to access the middle driveway.

The existing site provides access to employees and delivery trucks via the north driveway opposite Larkmead Lane, visitor access via the middle driveway, and private residential access via the southern driveway. With the proposed use permit, access for employees would shift to the middle driveway, therefore the middle driveway would serve employees and visitors (delivery vehicles and residential access would remain at the north and south driveways, respectively).

Project Trip Generation & Distribution

The proposed winery use permit traffic generation has been calculated in Table 2 with the total trips and added new trips above the current use permit shown. The trip generating components are based on information provided by the project applicant. Standard trip generation rates utilized for wineries by Napa County (Napa County Conservation, Development, and Planning Department Use Permit trip rates)[5] were applied to all of the trip generating components, except the weekend peak hour rate. Based on historical count data collected by Omni-Means at wineries throughout Napa Valley, a weekend peak hour rate of 25% of the daily trips was applied instead of the standard rate of 57% listed in the County's trip rate worksheet.

The proposed use permit is calculated to generate 109 new weekday daily trips and 41 new weekday peak hour trips (10 in, 31 out) above the current use permit. On a typical Saturday the project is calculated to generate 151 daily trips and 38 afternoon peak hour trips (19 in, 19 out) above the current use permit. During the six-week harvest season, the project would generate 182 new daily trips and 45 new peak hour trips (23 in, 22 out).

The project trips were distributed onto Silverado Trail based on the existing turning movements at the winery and the Silverado Trail/Larkmead Lane intersection. The project trips were distributed with 45% to/from the north and 45% to/from the south on Silverado Trail and 10% to/from the west on Larkmead Lane. The project trips are shown in Figure 3.

TABLE 2
TRIP GENERATION:
PROPOSED DAVIS ESTATES WINERY USE MODIFICATION

Typical Weekday Daily Traffic:

Current Use Permit:		
20 visitors / 5 f-t employees / 30,000 gallons	=	31 daily winery trips
Two residences (20 daily trips)	=	20 daily residential trips
	=	51 daily total trips
Proposed Use Permit:		
80 visitors/2.6 per vehicle x 2 one-way trips	=	62 daily trips
25 full-time employees x 3.05 one-way trips	=	76 daily trips
Trucks: (100,000 gls/1,000 x .009 x 2 o-w trips)	=	2 daily trips
	=	140 daily winery trips
Two residences	=	20 daily residential trips
	=	160 daily total trips
Added Weekday Daily Trips	**=**	**109 daily trips**

Typical Weekday PM Peak Hour Traffic:

Current Use Permit:		
(31 daily trips x .38)	=	12 pk. hr. winery trips (2 in, 10 out)
Two residences (2 peak hour trips)	=	2 pk. hr. residential trips (1 in, 1 out)
	=	14 pk. hr. total trips (3 in, 11 out)
Proposed Use Permit:		
(140 daily trips x .38)	=	53 pk. hr. winery trips (12 in, 41 out)
Two residences	=	2 pk. hr. residential trips (1 in, 1 out)
	=	55 total pk. hr. trips (13 in, 42 out)
Added Weekday PM Peak Hour Trips	**=**	**41 pk. hr. trips (10 in, 31 out)**

Typical Saturday Daily Traffic:

Current Use Permit:		
34 visitors / 5 f-t employees / 30,000 gallons	=	40 daily winery trips
Two residences	=	20 daily residential trips
	=	60 daily total trips
Proposed Use Permit:		
200 visitors/2.8 per vehicle x 2 one-way trips	=	143 daily trips
15 full-time employees x 3.05 one-way trips	=	46 daily trips
Trucks: (100,000 gls/1,000 x .009 x 2 o-w trips)	=	2 daily trips
	=	191 daily winery trips
Two residences	=	20 daily residential trips
	=	211 daily total trips
Added Saturday Daily Trips	**=**	**151 daily trips**

TABLE 2 Continued

Typical Saturday Peak Hour Traffic:

Current Use Permit:		
(40 daily trips x 25%)	=	10 pk. hr. winery trips (5 in, 5 out)
Two residences	=	2 pk. hr. residential trips (1 in, 1 out)
	=	12 pk. hr. total trips (6 in, 6 out)
Proposed Use Permit:		
(191 daily trips x 25%)	=	48 pk. hr. winery trips (24 in, 24 out)
Two residences	=	2 pk. hr. residential trips (1 in, 1 out)
	=	50 total pk. hr. trips (25 in, 25 out)
Added Saturday Peak Hour Trips	**=**	**38 pk. hr. trips (19 in, 19 out)**

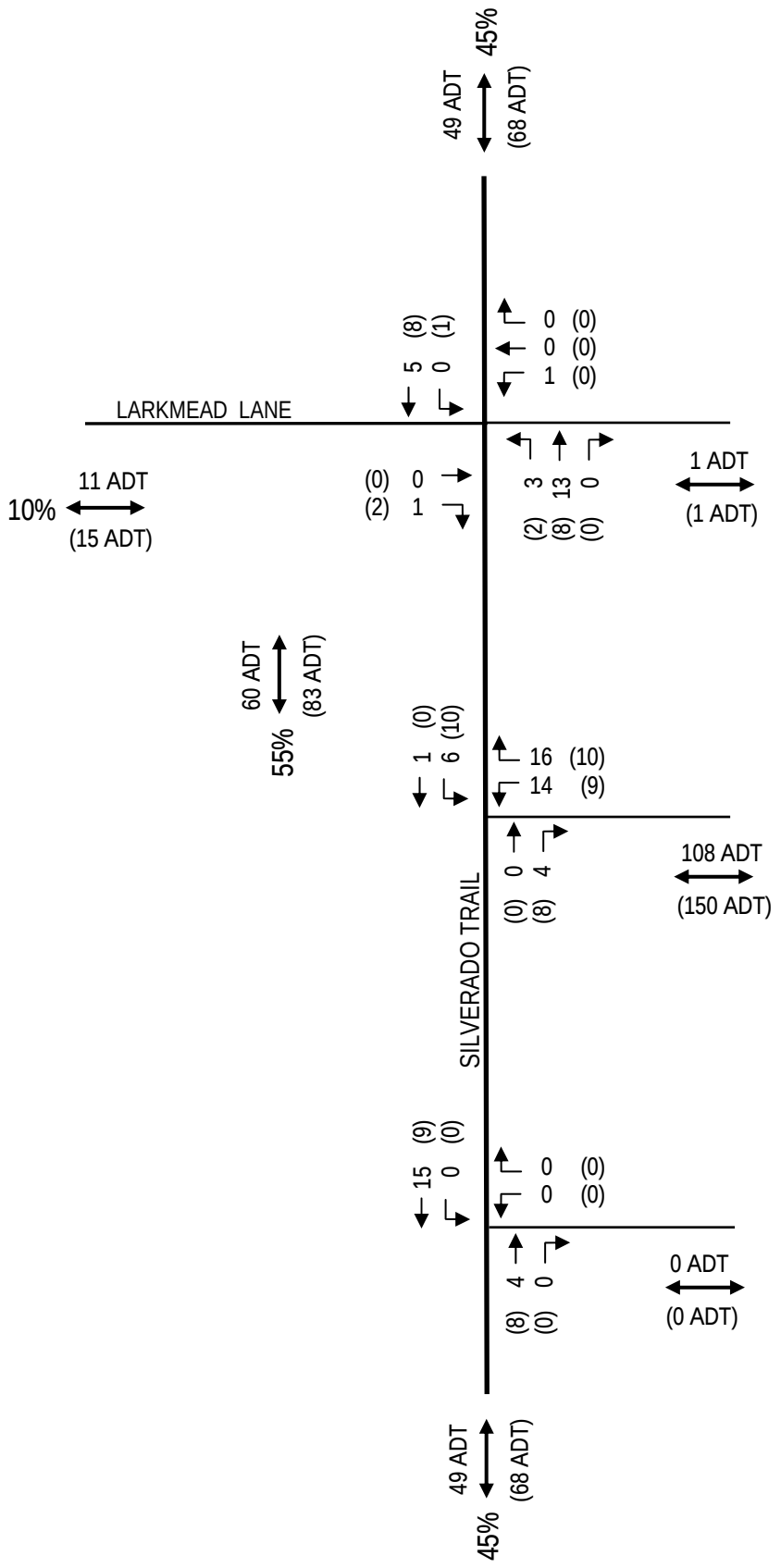
Weekend (Saturday) Daily Traffic During Crush:

Current Use Permit:		
34 visitors / 7 f-t employees / 30,000 glns / 95 tons on-haul	=	47 daily winery trips
Two residences	=	20 daily residential trips
	=	67 daily total trips
Proposed Use Permit:		
200 visitors/2.8 per vehicle x 2 one-way trips	=	143 daily trips
25 full time employees x 3.05 one-way trips	=	76 daily trips
Trucks: (100,000 gls/1,000 x .009 x 2 trips)	=	2 daily trips
562 annual tons grape on-haul/4 tons per truck/36 days x 2 trips	=	8 daily trips
	=	229 daily winery trips
Two residences	=	20 daily residential trips
	=	249 total daily trips
Added Saturday Daily Trips During Crush	**=**	**182 daily trips**

Weekend (Saturday) Peak Hour Traffic During Crush:

Current Use Permit:		
(47 daily trips x 25%)	=	12 pk hr winery trips (6 in, 6 out)
Two residences	=	2 pk. hr. residential trips (1 in, 1 out)
	=	14 pk. hr. total trips (7 in, 7 out)
Proposed Use Permit:		
(229 daily trips x 25%)	=	57 pk. hr. winery trips (29 in, 28 out)
Two residences	=	2 pk. hr. residential trips (1 in, 1 out)
	=	59 total pk. hr. trips (30 in, 29 out)
Added Saturday Peak Hour Trips During Crush	**=**	**45 pk. hr. trips (23 in, 22 out)**

Production, visitor, and employee data provided by Dickenson, Peatman & Fogarty (project representative).
Trip rates for daily and weekday peak hour derived from Napa County, Conservation, Planning, & Development Department, "Use Permit Application Package", Napa County Winery Traffic Generation Characteristics, 2015.
Trip rate for weekend peak hour of 25% is based on winery counts collected by Omni-Means which have found weekend peak hour rates to be lower than the standard Napa County rate.
Residential trips based on Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012.



Access A
Delivery Trucks

Weekday Daily Trips	Weekend Daily Trips
1	1
Weekday Pk. Hr. Trips	**Weekend Pk. Hr. Trips**
1 (0, 1)	1 (1, 0)

Access B
Visitors & Employees

Weekday Daily Trips	Weekend Daily Trips
108	150
Weekday Pk. Hr. Trips	**Weekend Pk. Hr. Trips**
40 (10, 30)	37 (18, 19)

Access C
Residents

Weekday Daily Trips	Weekend Daily Trips
Residential 0	Residential 0
Weekday Pk. Hr. Trips	**Weekend Pk. Hr. Trips**
Residential 0	Residential 0

Total Added Trips

Weekday Daily Trips	Weekend Daily Trips
109	151
Weekday Pk. Hr. Trips	**Weekend Pk. Hr. Trips**
41 (10, 31)	38 (19, 19)

Added Trips and Distribution With Proposed Use Permit
Weekday PM & (Weekend Saturday) Peak Hour and Daily Trips

North

omni-means

figure 3

4. NAPA COUNTY SIGNIFICANCE CRITERIA

The County of Napa's significance criteria has been based on a review of the Napa County Transportation & Planning Agency and Napa County General Plan documentation on roadway and intersection operations. In addition, updated criteria for unsignalized intersections based on adopted criteria in the "Guidelines for Interpretation of General Plan Circulation Policies on Significance Criteria" have been applied to arterials and minor street stop-sign controlled intersections.(6) Specifically, the Circulation Element of the County's General Plan and new guidelines for significance criteria provide the following significance criteria specific to intersection operation:

Intersections:

- The County shall seek to maintain a Level of Service D or better at all intersections, except where the level of service already exceeds this standard (i.e. Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way.

  No single level of service standard is appropriate for unsignalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met.

  If an unsignalized intersection operates at LOS A-D during the selected peak hours without Project trips, and the LOS deteriorates to LOS E or F with the addition of Project traffic, the Peak Hour Signal Warrant criteria should also be evaluated and presented for informational purposes;
  or
  If an unsignalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the project contributes one percent or more of the total entering traffic for all-way stop-controlled intersections, or ten percent or more of the traffic on a side-street approach for side-street stop controlled intersections; the Peak Hour Signal Warrant Criteria should also be evaluated and presented for informational purposes.

Further significance criteria are based on County and CEQA guidelines and apply mainly to intersection operation and access. A significant impact occurs if project traffic would result in the following:

- Cause an increase in traffic which is substantial in relation to existing traffic load and capacity of the street system (i.e. result in a substantial increase in either the number of vehicle trips, the volume capacity ratio on roads, or congestion at intersections);
- Exceed either individually or cumulatively, an LOS standard established by the county congestion management agency for designated roads or highways;
- Result in a change of traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency vehicle access;
- Project site or internal circulation on the site is not adequate to accommodate pedestrians and bicycles.

5. EXISTING PLUS PROJECT CONDITIONS

The proposed use permit conditions relative to existing conditions would reflect winery trips up to the current use permit volumes plus the new volumes from the proposed use permit.

The distribution of trips would add approximately 50 weekday and 70 Saturday daily trips on Silverado Trail north and south of the winery. Approximately 10-15 weekday/weekend daily trips would be added to Larkmead Lane. The existing daily volume of 4,550 trips on Silverado Trail would increase to approximately 4,620 weekday trips (1.5% increase) and 4,640 weekend trips (2% increase). During the peak hours, arterial volumes on Silverado Trail would increase from 496 weekday PM trips without the project to 522 trips with the project (5% increase), and from 369 weekend mid-day trips to 396 trips (7% increase). Daily and peak hour arterial conditions on Silverado Trail would continue to function at LOS 'B' conditions with the project.

The peak hour LOS conditions were evaluated for the study intersections on Silverado Trail and are listed in Table 3. At the north intersection, the Larkmead Lane approach would remain at LOS 'B' conditions and the winery driveway approach would remain at LOS 'A'-'B' conditions during the weekday and weekend peak hours. The middle and south driveways would also remain at LOS 'A'-'B' conditions. All of the intersections would continue to operate acceptably. The existing plus project volumes are shown in Figure 4.

Turn Lane Warrants (Existing Plus Project Conditions)

The volumes associated with the current use permit do not warrant turn lanes at any of the site driveways.

Based on the number of users allocated to each driveway, the existing plus project volumes (current use plus proposed use) were compared with the Napa County guidelines for installing a left turn lane on Silverado Trail.(7) (The warrant graphs for weekday and Saturday conditions are provided in the Appendix.)

- The total daily winery volumes on the middle driveway (138 weekday & 189 weekend trips) would warrant a separate left turn lane based on the Napa County volume thresholds. The winery proposes to construct a left turn lane on Silverado Trail for the middle driveway.

With a left turn lane on Silverado Trail at the middle driveway, the southbound left turn movement would operate at LOS 'A' for the southbound left turn movement during the weekday and weekend peak hours.

The north driveway volumes (serving only delivery trucks) and the southern driveway volumes (20 weekday/weekend residential daily trips) would not warrant a left turn lane at either driveway.

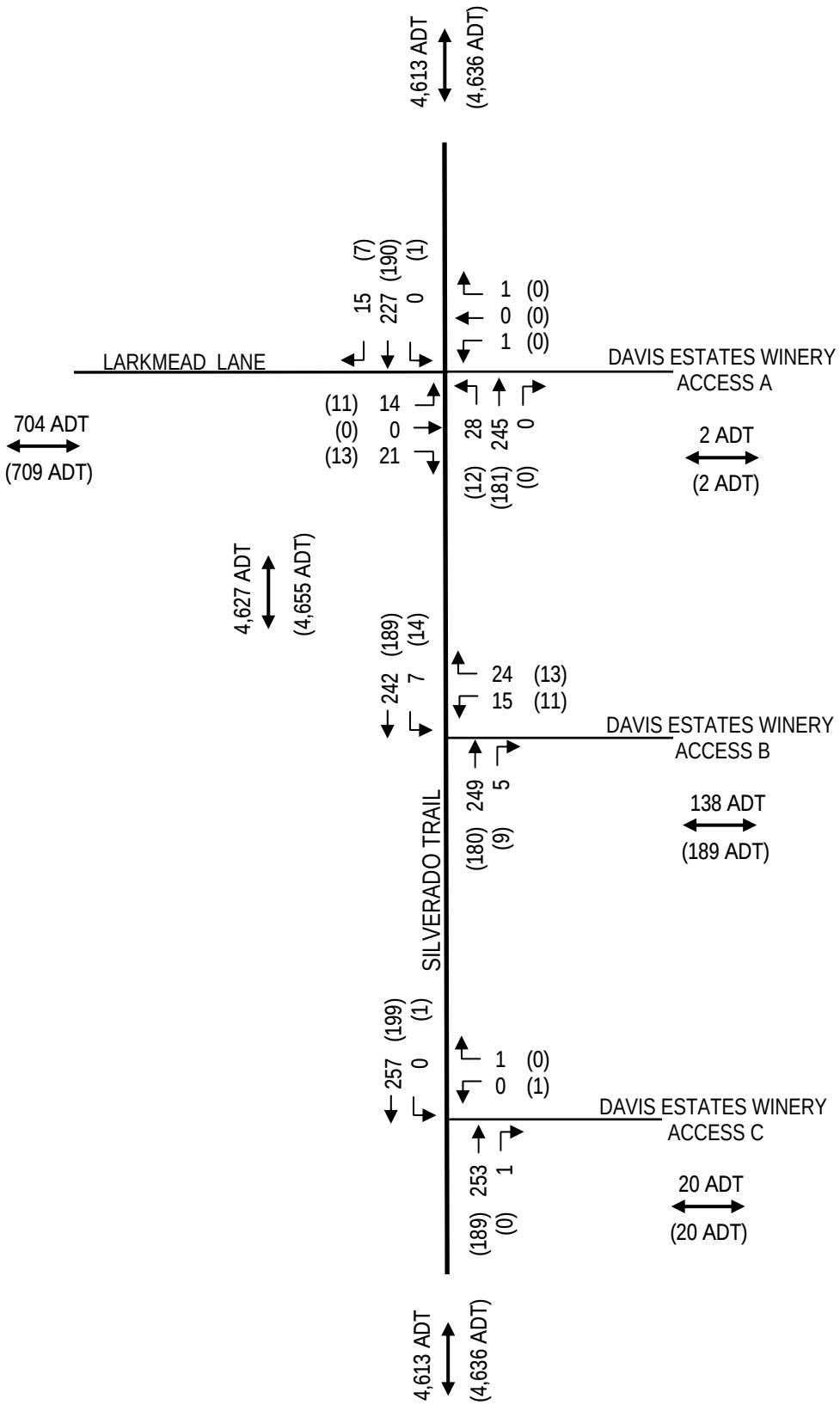
The existing plus project right turn volumes at the site driveways would be less than the minimum thresholds at which right turn lanes would be required (right turn lane warrant graphs are included in the Appendix).(8)

A vehicle queuing analysis was conducted for the study intersection approaches. The 95th-percentilte vehicle queue lengths for the proposed southbound left turn lane are calculated to be one vehicle (less than 25 feet). The left turn lane would provide 60 feet of storage (plus deceleration taper distance). Vehicle queues for the winery driveway approaches are calculated to be two vehicles or less. The vehicle queues would be accommodated within the available lane storage lengths at all of the intersections.

TABLE 3
EXISTING AND EXISTING + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Existing LOS Delay	Existing + Project LOS Delay	Existing LOS Delay	Existing + Project LOS Delay
Silverado Trail / Larkmead Lane (North Winery Driveway) *Unsignalized (minor street stops)*				
North Driveway westbound approach:	B 14.4"	B 14.4"	A < 1"	A < 1"
Larkmead Lane eastbound approach:	B 11.9"	B 12.1"	B 10.7"	B 10.9"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
Silverado Trail northbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
Silverado Trail / Middle Driveway *Unsignalized (minor street stop)*				
Middle Driveway westbound approach:	B 10.5"	B 11.4"	B 11.0"	B 11.0"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
With southbound left turn lane:		A 7.9"		A 7.7"
Silverado Trail / South Driveway *Unsignalized (minor street stop)*				
South Driveway westbound approach:	A < 1"	A 9.9"	A < 1"	B 11.2"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"

Based on Highway Capacity Manual (HCM) Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds.



Existing Plus Project
Weekday PM and (Weekend) Peak Hour Volumes

North

omni-means

figure 4

6. NEAR TERM CONDITIONS

Near term conditions reflect existing volumes plus any additional volumes expected to be generated by approved developments within the project study area. The approved developments were provided by the County of Napa and City of Calistoga planning departments for a previous traffic study conducted for the Davis Estates Winery, as well as newer approved developments provided in recent traffic studies in the project vicinity.[9, 10] The vehicle trips for these developments were taken from their traffic studies when available or generated based on the type of development and distributed onto the street network. A recent study conducted for the City of Calistoga's Development Traffic Impact Fee was also reviewed, which includes approved/pending project trips.[11] (A list of the developments is provided in the Appendix.) For the near term conditions analysis, the Davis Estates winery traffic reflecting the currently permitted use level was also added to the background volumes.

Near Term Without Project Operating Conditions

Near term volumes were calculated to generate 650 daily trips on Silverado Trail adjacent to the site. Added to the existing volume of 4,550 daily trips results in approximately 5,200 daily trips on Silverado Trail for near term conditions. Daily volumes on Silverado Trail would continue to function at LOS 'B' conditions under near term without project conditions. Peak hour arterial volumes would be approximately 558 trips during the weekday PM peak hour and 448 trips during the weekend mid-day peak hour. These volumes would represent LOS 'C' and LOS 'B' conditions, respectively.

The peak hour trips associated with near term conditions were added to the existing intersection volumes. The near term volumes are shown in Figure 5. The north driveway intersection would operate at LOS 'C' or better during the weekday peak hour and LOS 'B' or better during the weekend peak hour. The middle and south driveway intersections would operate at LOS 'B' or better during the weekday and weekend peak hours. The near term LOS are shown in Table 4.

Near Term Plus Project Operating Conditions

The new winery trips associated with the proposed use permit were added to the near term volumes (shown in Figure 6). The project would add approximately 67 weekday and 80 Saturday daily trips to the highest volume segment of Silverado Trail fronting the site, resulting in about 5,267 weekday daily trips and 5,280 weekend daily trips. The project traffic would add 1.5 % to the near term daily volumes on Silverado Trail. Daily volume conditions on Silverado Trail would continue to function at LOS 'B' and operate at acceptable conditions with the project. During the weekday and weekend peak hours, arterial volumes on Silverado Trail would increase to 582 trips (4% increase) and 470 trips (5% increase), respectively. Peak hour arterial LOS would remain unchanged at LOS 'C' during the weekday peak hour and LOS 'B' during the weekend peak hour.

The peak hour intersection operating conditions were evaluated for near term plus project conditions and are shown in Table 4. LOS would remain unchanged with the project. The north driveway intersection would continue to operate at LOS 'C' or better during the weekday and Saturday peak hours and the middle and south driveway intersections would continue to operate at LOS 'B' or better. With a southbound left turn lane at the middle driveway intersection, conditions would remain at LOS 'A' for the southbound left turn approach. The intersections would continue to operate at acceptable conditions under near term plus project conditions.

Turn Lane Warrants (Near Term Plus Project Conditions)

The near term plus project volumes were compared with the Napa County guidelines for installing a left turn lane on Silverado Trail.

- Under near term conditions with the proposed project, the daily winery volumes on the middle driveway (138 weekday & 189 weekend trips) would warrant a separate left turn lane based on the Napa County volume thresholds. The winery proposes to construct a left turn lane on Silverado Trail for the middle driveway.

The projected right turn volumes at the site driveways would remain well below minimum thresholds at which right turn lanes would be required.

Vehicle queue lengths for the southbound left turn lane are calculated to be one vehicle (less than 25 feet), and queue lengths for the winery driveways are two vehicles or less. The vehicle queues would be accommodated within the available lane storage lengths at all of the intersections.

TABLE 4
NEAR TERM AND NEAR TERM + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Near Term LOS Delay	Near Term + Project LOS Delay	Near Term LOS Delay	Near Term + Project LOS Delay
Silverado Trail / Larkmead Lane (North Winery Driveway) *Unsignalized (minor street stops)*				
North Driveway westbound approach:	C 15.7"	C 15.7"	A < 1"	A < 1"
Larkmead Lane eastbound approach:	B 12.4"	B 12.6"	B 11.2"	B 11.3"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
Silverado Trail northbound approach:	A 1.1"	A 1.1"	A < 1"	A < 1"
Silverado Trail / Middle Driveway *Unsignalized (minor street stop)*				
Middle Driveway westbound approach:	B 11.2"	B 11.9"	B 10.9"	B 11.0"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
With southbound left turn lane:		A 8.0"		A 7.8"
Silverado Trail / South Driveway *Unsignalized (minor street stop)*				
South Driveway westbound approach:	B 10.0"	B 10.1"	B 11.8"	B 11.9"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"

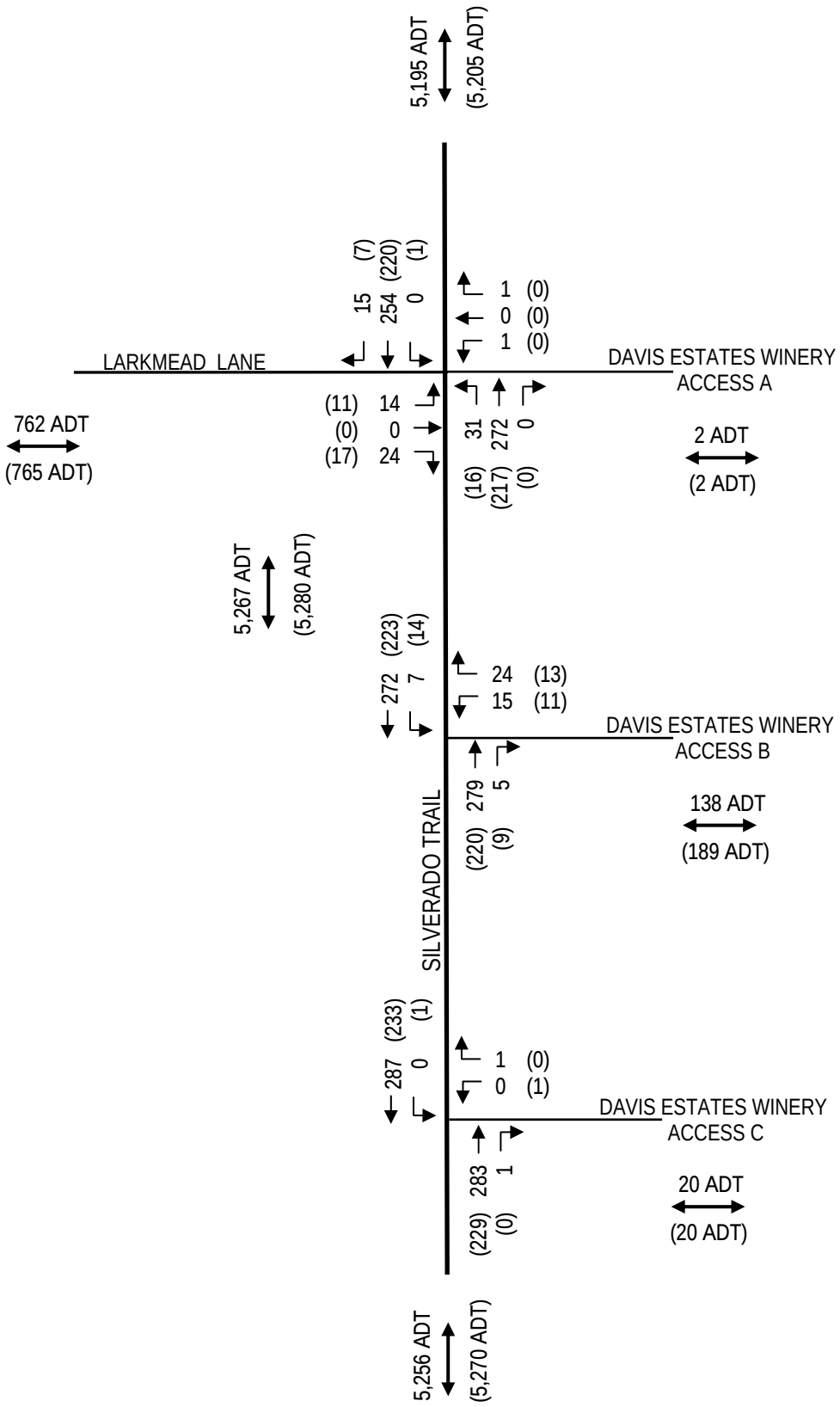
Based on Highway Capacity Manual (HCM) Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds.

Near Term Without Project
Weekday PM and (Weekend) Peak Hour Volumes

North

omni-means

figure 5



Near Term Plus Project
Weekday PM and (Weekend) Peak Hour Volumes

North

omni-means

figure 6

7. SITE ACCESS / DESIGN PARAMETERS

Project Access and Circulation

A project site plan is provided in Figure 7. Each driveway would be designated for specific users. The north driveway would serve delivery truck trips, the middle driveway would serve visitor and employee trips, and the south driveway would serve the private residential trips. The driveways are connected onsite by internal drive aisles which provide access to parking areas.

As described in the previous sections, the middle driveway would qualify for installation of a southbound left turn lane on Silverado Trail based on the Napa County left turn lane standards.

- **As part of the use modification request, the winery will install a southbound left turn lane on Silverado Trail serving the middle driveway with appropriate acceleration and deceleration tapers approved by the Napa County Public Works Department. This would mitigate the left turn lane requirement to acceptable conditions.**

In order to guide vehicles to the proper driveways and onsite parking areas, the following measures, which have been established in consultation with County staff, should be implemented:

- **Signs should be installed at the driveway entrances stating the intended purpose and direct all guests to use the middle driveway.**

- **Signs should be installed on the winery property directing guests where to park once on site.**

- **In order to inform employees to use the middle driveway and not the north driveway during peak periods, a formal policy should be implemented by the winery that instructs employees who arrive or depart during the peak periods of the day of 7:00-9:00 am and 4:00-6:00 pm to use only the middle driveway.**

- **As a condition of approval, Napa County will require monitoring of the driveways one year after the project is complete. Traffic counts at all three driveways will be conducted to determine if there are access or volume issues, particularly at the north driveway, regarding vehicle trips to/from the site.**

Parking

This report includes increased parking supply numbers that supersede the parking supply provided in the previous (May 12, 2017) traffic report. 76 designated spaces would be available, plus additional temporary parking could be provided on the winery property. There would be 25 spaces near the Utility Barn building on the northeast side of the property for daily employee parking. There would be 31 spaces near the Historic Barn building in the middle of the property for daily visitor parking. The parking supply in these areas would accommodate the daily employee and visitor parking demand. The daily parking areas would be located toward the east side of the property and accessible via the middle driveway. There are 20 additional spaces located along the north driveway, but these would not be utilized on a daily basis.

Alternative Transportation Modes

The Napa County Transportation & Planning Agency (NCTPA) in cooperation with Napa County and local City agencies is developing bicycle routes as outlined in the Napa Countywide Bicycle Plan.[12] The plan encourages new developments to incorporate bicycle friendly design. Silverado Trail has striped shoulder area bike lanes (Class II) in both directions. Some visitors may utilize bicycles to access the proposed project.

- The project states it will provide bicycle racks for visitors to the proposed winery.

- In keeping with the County policy to encourage alternative fuels, the winery states it will also provide an electric vehicle charging station.

Sight Distances on Silverado Trail

Vehicle sight distances along Silverado Trail to/from the project driveways were evaluated. The required vehicle visibility or "corner sight distance" is a function of travel speeds on Silverado Trail. Caltrans design standards indicate that for appropriate corner sight distance, "a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the cross road and the driver of an approaching vehicle in the right lane of the main highway". Caltrans design guidelines also indicate that at private access intersections the minimum corner sight distance “shall be equal to the stopping sight distance”.

Silverado Trail has a posted speed limit of 55 mph. Radar speed surveys of Silverado Trail were also conducted at the project site. The "critical" vehicle speed (the speed at which 85% of all surveyed vehicles travel at or below) along Silverado Trail was measured at 59 mph. Caltrans’ design standards indicate that these vehicle speeds require a stopping sight distance of 500-564 feet measured along the travel lanes on Silverado Trail.[13] Based on field measurements, sight distances from the driveway locations are in excess of this distance in both directions on Silverado Trail. Therefore, the sight distance recommendations are met for the speed limit and measured vehicle speeds. (Keeping vegetation trimmed along the east side of Silverado Trail to the extent possible will help retain sight distance from the south driveway.)

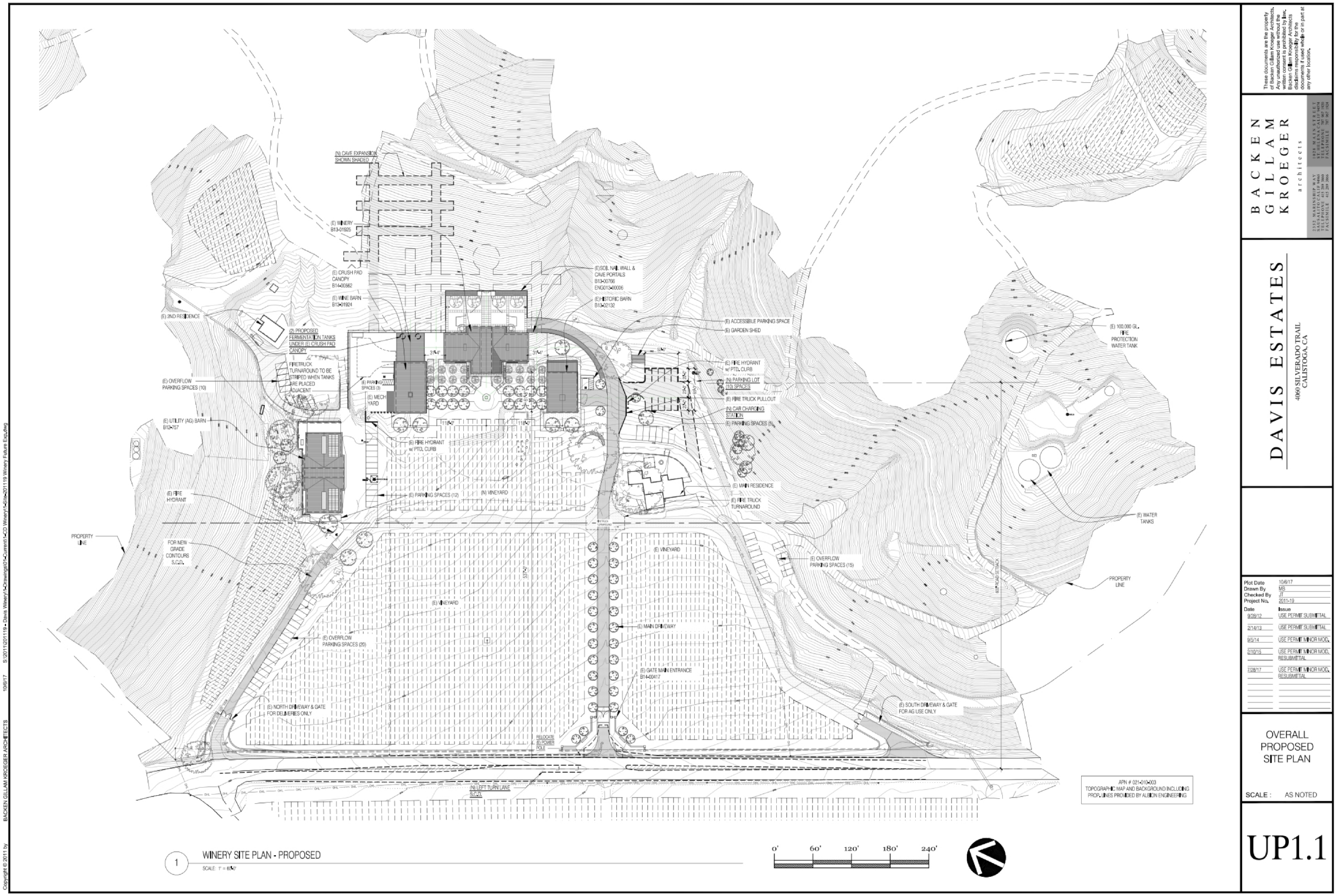
Marketing Events

The winery proposes to host the following marketing events: up to 24 events annually with a maximum of 100 guests and up to 15 events annually with a maximum of 200 guests.

Based on standard auto occupancy rates, a 100-person event would be expected to generate approximately 86 trips (43 in, 43 out) including visitors and staff (100 visitors = 72 trips; 5 staff = 10 trips; 2 trucks = 4 trips). The largest events with 200 people would generate up to 164 trips (82 in, 82 out) including visitors and staff (200 visitors = 142 trips; 8 staff = 16 trips; 3 trucks = 6 trips). The parking supply of 76 designated spaces plus additional areas available for temporary parking on the winery property would accommodate parking demand (approximately 82 vehicles associated with a 200 person event). Valet service, with stacked parking to increase capacity, could also be utilized for the largest events.

These events are typically of sufficient duration in length that the inbound and outbound trips occur in separate hours, thus the number of trips on the street network at one time are half of the total volume. These events are also usually held outside of typical peak traffic periods and therefore generally do not impact peak hour operations.

- The project applicant states that the marketing events would be scheduled to occur outside of peak weekday and weekend traffic periods. Also, if an event is held during normal visitation hours, normal visitation would not occur during that period.



Project Site Plan

omni-means

figure 7

8. CUMULATIVE CONDITIONS

Cumulative Year 2030 Projections

Cumulative (Year 2030) volume projections on Silverado Trail were derived from the Napa County Transportation & Planning Agency's traffic volume forecasts in the Napa County General Plan Update EIR.[14] The forecast increase in volume-to-capacity (v/c) ratio from Year 2003 to Year 2030 on Silverado Trail in the project vicinity was applied to the provided Year 2003 peak hour two-way volume (559 trips) on Silverado Trail, yielding a volume of 1,342 weekday PM peak hour trips on Silverado Trail in Year 2030. The projected cumulative volume equates to an increase of 3.3 percent per year. Applying the annual percentage rate increase to the existing daily volume of 4,550 trips on Silverado Trail results in approximately 6,920 daily trips under cumulative conditions.

For comparison, average annual daily traffic volumes on SR 29 south of Larkmead Lane over the previous twenty years between 1995 and 2015 were reviewed. The increase in volumes equates to an annual increase of ½ percent per year. However, to remain conservative, the annual rate of 3.3 percent was utilized for the cumulative analysis.

In order to identify weekend cumulative conditions, the General Plan Update provides a ratio of weekday to weekend peak hour volumes on key streets within the valley. Several segments on SR 29 in the vicinity of the project were shown to have an average ratio of 0.76-0.80, indicating weekend peak hour volumes are expected to be about 80% of weekday volumes. This corresponds with the volumes counted for this study which found the weekend peak hour volumes to be 75% of the weekday peak hour volumes. Therefore the future weekday vs. weekend peak hour volumes would be expected to remain in the same ratio as the existing volumes.

The cumulative and cumulative plus project volumes are shown in Figures 8 and 9.

Cumulative Operating Conditions

The forecast cumulative daily volumes of 6,920 ADT (without project) and 7,000 ADT (with project) would yield acceptable LOS 'C' conditions (less than 8,600 ADT) on Silverado Trail. Peak hour arterial volumes are forecast to be approximately 753 trips (without project) and 777 trips (with project) during the weekday peak hour, and 566 trips (without project) and 588 trips (with project) during the weekend peak hour, reflecting acceptable LOS 'C' peak hour arterial conditions without the project and with the project trips.

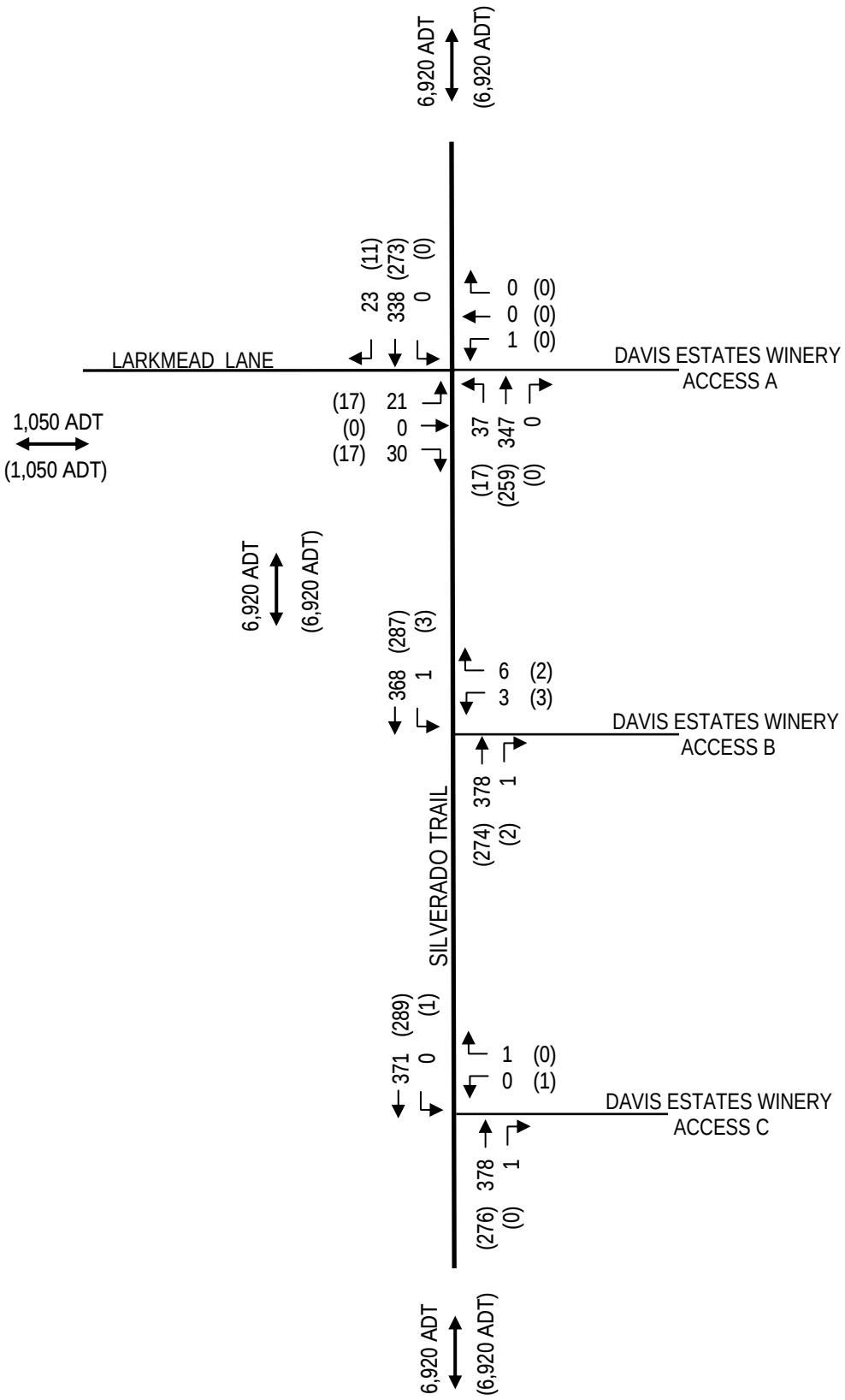
Weekday and weekend peak hour cumulative conditions without the project would operate acceptably at all three driveway intersections (LOS 'C' or better at the north driveway and LOS 'B' or better at the middle and south driveways). With the added project trips, LOS would remain unchanged. The north driveway intersection would continue to operate at LOS 'C' or better and the middle and south driveways would continue to function at LOS 'B' or better during the weekday and weekend peak hours.

Vehicle queue lengths for the southbound left turn lane are calculated to be one vehicle (25 feet or less), and vehicle queue lengths for the winery driveways are calculated to be two vehicles or less. The vehicle queues would be accommodated within the available lane storage lengths at all of the intersections.

TABLE 5
CUMULATIVE AND CUMULATIVE + PROJECT PEAK HOUR INTERSECTION OPERATIONS
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Cumulative LOS Delay	Cumulative + Project LOS Delay	Cumulative LOS Delay	Cumulative + Project LOS Delay
Silverado Trail / Larkmead Lane (North Winery Driveway) *Unsignalized (minor street stops)*				
North Driveway westbound approach:	C 20.9"	C 20.9"	A < 1"	A < 1"
Larkmead Lane eastbound approach:	C 15.7"	C 16.1"	B 12.8"	B 12.9"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
Silverado Trail northbound approach:	A 1.2"	A 1.2"	A < 1"	A < 1"
Silverado Trail / Middle Driveway *Unsignalized (minor street stop)*				
Middle Driveway westbound approach:	B 12.7"	B 13.8"	B 11.9"	B 11.9"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"
With southbound left turn lane:		A 8.3"		A 7.9"
Silverado Trail / South Driveway *Unsignalized (minor street stop)*				
South Driveway westbound approach:	B 10.8"	B 10.9"	B 13.0"	B 13.2"
Silverado Trail southbound approach:	A < 1"	A < 1"	A < 1"	A < 1"

Based on Highway Capacity Manual (HCM) Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds.

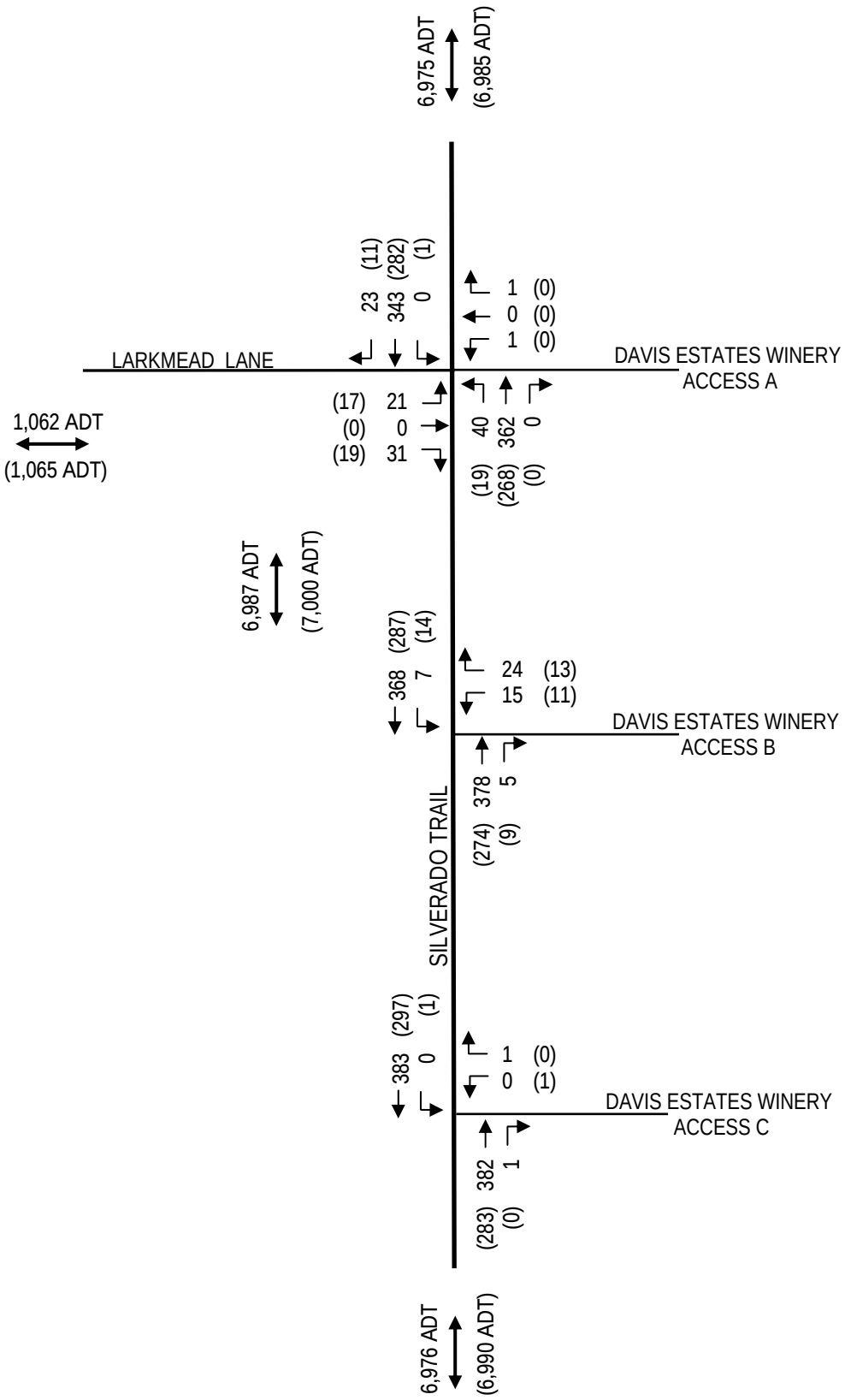


Cumulative Without Project
Weekday PM and (Weekend) Peak Hour Volumes

North

omni-means

figure 8



Cumulative Plus Project
Weekday PM and (Weekend) Peak Hour Volumes

North

omni-means

figure 9

9. FINDINGS AND CONCLUSIONS

The proposed Davis Estates Winery Use Permit modification was calculated to generate 109-151 daily trips above the current use permit volumes. The project would add approximately 60-80 new daily trips to arterial volumes on Silverado Trail, resulting in existing-plus-project volumes of approximately 4,650 trips and near-term-plus-project volumes of approximately 5,280 trips. The project would add approximately 20-23 peak hour trips to the arterial volumes on Silverado Trail. Daily and peak hour arterial volumes on Silverado Trail would operate at acceptable LOS 'B'-'C' for existing, near term, and cumulative conditions.

All three study intersections would continue to operate acceptably with the added project trips under existing and near term conditions. The northern winery driveway/Larkmead Lane intersection would operate at LOS 'C' or better during weekday p.m. and weekend peak hours. The middle and southern winery driveways would operate at LOS 'B' or better.

Cumulative (Year 2030) conditions were assessed based on a review of volume forecasts from the Napa County General Plan Update transportation model and historical volume data. The forecast volumes with the project represent acceptable LOS 'C' or better conditions.

The project trips would be distributed at the three driveways with truck trips using the north driveway, visitor and employee trips using the middle driveway, and the private residential trips using the south driveway.

The winery will implement additional measures to guide visitors and employees to the proper driveways and parking areas, including directional signs at the entrances and onsite, as well as instructing employees to use the middle driveway.

The winery volumes at the middle driveway would warrant a left turn lane on Silverado Trail based on Napa County standards for installation of a left turn lane. The winery proposes to construct a left turn lane on Silverado Trail for the middle driveway in conjunction with the use permit request.

The volumes at all three driveways would be below the thresholds at which right turn lanes would be needed. The vehicle queue lengths would be accommodated within the available lane storage lengths.

To confirm the acceptable volume of trips at each of the winery driveways, the winery will be required to have traffic counts conducted one year after the project is approved with the results submitted to Napa County. If the County determines that there is an issue regarding access and/or volumes at the site driveways, additional measures or additional monitoring may be required to address any such access issues.

References:

(1) Omni-Means Engineers & Planners, traffic counts on February 10, 2017 (4:00-6:00 p.m.) and February 11, 2017 (1:00-3:00 p.m.).

(2) Caltrans, 2015 Traffic Volumes Book, Average and Peak Traffic Volumes, State Route 29 south of Larkmead Lane.

(3) Napa County volume counts, March 2003.

(4) Napa County Baseline Data Report, Transportation and Circulation, Tables 11-1 and 11-2, Napa County Roadway Segment LOS Volume Thresholds, November 2005.

(5) Napa County, Conservation, Development, and Planning Department, "Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2015.

(6) Fehr and Peers, "Guidelines for Interpretation of General Plan Circulation Policies on Significance Criteria", December, 2015.

(7) Napa County, *Adopted Road and Street Standards*, revised November 22, 2016.

(8) Transportation Research Board, National Cooperative Highway Research Program Report 279, "Intersection Channelization Design Guide", November, 1985.

(9) Omni-Means Engineers & Planners, "Updated Traffic Study for the Proposed Davis Estates Winery Project", in Napa County, CA, May 20, 2013.

(10) Omni-Means Engineers & Planners, "Focused Traffic Analysis for the Jericho Canyon Vineyard Use Modification Project", December, 2016, and "Focused Traffic Analysis for the Proposed Melka Winery Project", June 10, 2014.

(11) Economic and Planning Systems, Inc. and W-Trans, "City of Calistoga Development Impact Fee Study", Draft Report, June 2014.

(12) Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.

(13) Caltrans, Highway Design Manual, Corner/Stopping Sight Distance, Chapters 201 and 405, Corner/Stopping Sight Distance, 2014.

(14) Napa County, *The Napa County General Plan Update EIR*, prepared by Dowling Associates, Inc., February 9, 2007.

APPENDIX

- Level of Service Definitions
- Level of Service Calculations
- Vehicle Queuing Calculations
- Left Turn Lane Warrant Graphs
- Right Turn Lane Warrant Graphs
- Approved Developments List
- Existing Volume Counts
- Radar Speed Surveys

INTERSECTION LEVEL-OF-SERVICE DEFINITIIONS

Level of Service	Type of Flow	Delay	Maneuverability	Stopped Delay/Vehicle (sec)	
				Signalized/ Roundabouts	Unsignalized/ All-Way Stop
A	Stable Flow	Very slight delay. Progression is very favorable, with most vehicles arriving during the green phase not stopping at all.	Turning movements are easily made, and nearly all drivers find freedom of operation.	< 10.0	< 10.0
B	Stable Flow	Good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	Vehicle platoons are formed. Many drivers begin to feel somewhat restricted within groups of vehicles.	>10.0 and < 20.0	>10.0 and < 15.0
C	Stable Flow	Higher delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	Back-ups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20.0 and < 35.0	>15.0 and < 25.0
D	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	Maneuverability is severely limited during short periods due to temporary back-ups.	>35.0 and < 55.0	>25.0 and < 35.0
E	Unstable Flow	Generally considered to be the limit of acceptable delay. Indicative of poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.	There are typically long queues of vehicles waiting upstream of the intersection.	>55.0 and < 80.0	>35.0 and < 50.0
F	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	Jammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-up conditions.	> 80.0	> 50.0

References: 2010 Highway Capacity Manual

Napa County Roadway Segment Daily LOS Volume Thresholds

Facility Class	Lanes	Area Type	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	All	23,800	39,600	55,200	67,100	74,600
	6	All	36,900	61,100	85,300	103,600	115,300
	8	All	49,900	82,700	115,300	140,200	156,000
Arterial[1]	2	Rural[2]	2,600	5,300	8,600	13,800	22,300
	2	Urban[3]	1,000	1,900	11,200	15,400	16,300
	4	Rural[2]	17,500	28,600	40,800	52,400	58,300
	4	Urban[3]	1,500	4,100	26,000	32,700	34,500
	6	Urban[3]	2,275	6,500	40,300	49,200	51,800
Collector[1]	2	All	1,067	3,049	9,100	14,600	15,600
	4	All	2,509	7,169	21,400	31,100	32,900

Notes:

[1] All two-lane roads are assumed to be undivided. Four- and six-lane roads are assumed to be divided.

[2] Rural roads are assumed as uninterrupted flow highways; FDOT Capacity Table 4-3.

[3] Urban arterials are assumed to be Class III with >4.5 signals per mile; FDOT Capacity Table 4.1

Source: Adapted from Florida Department of Transportation 2002; and Fehr & Peers 2005

Napa County Roadway Segment Peak-hour LOS Volume Thresholds

Facility Class	Lanes	Area Type	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	All	2,380	3,960	5,520	6,710	7,460
	6	All	3,690	6,110	8,530	10,360	11,530
	8	All	4,990	8,270	11,530	14,020	15,600
Arterial[1]	2	Rural[2]	260	530	860	1,380	2,230
	2	Urban[3]	100	180	1,070	1,460	1,550
	4	Rural[2]	1,750	2,860	4,080	5,240	5,830
	4	Urban[3]	150	390	2,470	3,110	3,270
	6	Urban[3]	228	620	3,830	4,680	4,920
Collector[1]	2	All	70	180	870	1,390	1,480
	4	All	140	900	2,030	2,950	3,120

Notes:

[1] All two-lane roads are assumed to be undivided. Four-lane and six-lane roads are assumed to be divided.

[2] Rural roads are assumed as uninterrupted flow highways; FDOT Capacity Table 4-3.

[3] Urban arterials are assumed to be Class III with >4.5 signals per mile; FDOT Capacity Table 4.1

Source: Adapted from Florida Department of Transportation 2002; and Fehr & Peers 2005

Napa County Baseline Data Report, Chapter 11 Transportation and Circulation, November 2005.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	0	20	1	0	0	25	229	0	0	221	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	0	23	1	0	0	28	260	0	0	251	17
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	587	587	270	609	595	270	273			265		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	587	587	270	609	595	270	273			265		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	97	100	100	100	98			100		
cM capacity (veh/h)	408	409	763	382	405	762	1285			1293		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	1	289	268
Volume Left	16	1	28	0
Volume Right	23	0	0	17
cSH	562	382	1285	1293
Volume to Capacity	0.07	0.00	0.02	0.00
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	11.9	14.4	1.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	11.9	14.4	1.0	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	2	6	248	0	0	242
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	2	7	282	0	0	275
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	562	287			287	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	562	287			287	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	99			100	
cM capacity (veh/h)	486	749			1270	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	9	282	275
Volume Left	2	0	0
Volume Right	7	0	0
cSH	660	1700	1270
Volume to Capacity	0.01	0.17	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.5	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.5	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	248	0	0	244
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	282	0	0	277
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	564	287			287	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564	287			287	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	485	749			1270	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	282	277
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1270
Volume to Capacity	0.00	0.17	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	0	11	0	0	0	10	170	0	0	178	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	12	0	0	0	11	185	0	0	193	8
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	414	414	207	426	418	195	206			190		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	414	414	207	426	418	195	206			190		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	100	100	100	99			100		
cM capacity (veh/h)	538	520	826	520	518	840	1359			1378		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	0	196	201
Volume Left	12	0	11	0
Volume Right	12	0	0	8
cSH	651	1700	1359	1378
Volume to Capacity	0.04	0.00	0.01	0.00
Queue Length 95th (ft)	3	0	1	0
Control Delay (s)	10.7	0.0	0.5	0.0
Lane LOS	B	A	A	
Approach Delay (s)	10.7	0.0	0.5	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	180	0	1	188
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	196	0	1	204
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	407	201			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	407	201			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	597	837			1366	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	196	205
Volume Left	1	0	1
Volume Right	0	0	0
cSH	597	1700	1366
Volume to Capacity	0.00	0.12	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.0	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	20.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	0	180	0	0	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	196	0	0	205
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	406	201			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	406	201			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	598	837			1366	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	0	196	205
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1366
Volume to Capacity	0.00	0.12	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS	A		
Approach Delay (s)	0.0	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	0	21	1	0	1	28	245	0	0	227	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	0	24	1	0	1	32	278	0	0	258	17
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	620	619	276	642	627	288	280			283		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	620	619	276	642	627	288	280			283		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	97	100	100	100	98			100		
cM capacity (veh/h)	387	391	756	362	387	744	1277			1274		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	40	2	310	275
Volume Left	16	1	32	0
Volume Right	24	1	0	17
cSH	547	487	1277	1274
Volume to Capacity	0.07	0.00	0.02	0.00
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	12.1	12.4	1.0	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.1	12.4	1.0	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	249	5	7	242
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	283	6	8	275
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	582	291			294	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582	291			294	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			99	
cM capacity (veh/h)	470	745			1263	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	289	283
Volume Left	17	0	8
Volume Right	27	6	0
cSH	609	1700	1263
Volume to Capacity	0.07	0.17	0.01
Queue Length 95th (ft)	6	0	0
Control Delay (s)	11.4	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.4	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		28.4%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	249	5	7	242
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	283	6	8	275
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	582	291			294	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582	291			294	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			99	
cM capacity (veh/h)	470	745			1263	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	44	289	8	275
Volume Left	17	0	8	0
Volume Right	27	6	0	0
cSH	609	1700	1263	1700
Volume to Capacity	0.07	0.17	0.01	0.16
Queue Length 95th (ft)	6	0	0	0
Control Delay (s)	11.4	0.0	7.9	0.0
Lane LOS	B		A	
Approach Delay (s)	11.4	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	23.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	1	253	1	0	257
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1	288	1	0	292
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	585	293			294	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	585	293			294	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	471	743			1263	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	289	292
Volume Left	0	0	0
Volume Right	1	1	0
cSH	743	1700	1263
Volume to Capacity	0.00	0.17	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	9.9	0.0	0.0
Lane LOS	A		
Approach Delay (s)	9.9	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	0	13	0	0	0	12	181	0	1	190	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	14	0	0	0	13	197	0	1	207	8
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	445	445	220	459	449	207	219			202		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	445	445	220	459	449	207	219			202		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	100	100	100	99			100		
cM capacity (veh/h)	511	498	813	492	496	827	1345			1364		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	26	0	210	215
Volume Left	12	0	13	1
Volume Right	14	0	0	8
cSH	640	1700	1345	1364
Volume to Capacity	0.04	0.00	0.01	0.00
Queue Length 95th (ft)	3	0	1	0
Control Delay (s)	10.9	0.0	0.6	0.0
Lane LOS	B	A	A	A
Approach Delay (s)	10.9	0.0	0.6	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	180	9	14	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	196	10	15	205
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	206			210	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	206			210	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	565	832			1355	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	205	221
Volume Left	12	0	15
Volume Right	14	10	0
cSH	683	1700	1355
Volume to Capacity	0.04	0.12	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	10.5	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	31.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	180	9	14	189
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	196	10	15	205
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	441	206			210	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	441	206			210	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	565	832			1355	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	205	15	205
Volume Left	12	0	15	0
Volume Right	14	10	0	0
cSH	683	1700	1355	1700
Volume to Capacity	0.04	0.12	0.01	0.12
Queue Length 95th (ft)	3	0	1	0
Control Delay (s)	10.5	0.0	7.7	0.0
Lane LOS	B		A	
Approach Delay (s)	10.5	0.0	0.5	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	21.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	189	0	1	199
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	205	0	1	216
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	429	210			210	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429	210			210	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	580	826			1355	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	205	217
Volume Left	1	0	1
Volume Right	0	0	0
cSH	580	1700	1355
Volume to Capacity	0.00	0.12	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	21.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	0	23	1	0	0	28	257	0	0	249	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	0	26	1	0	0	32	292	0	0	283	17
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	657	657	301	683	666	302	305			297		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	657	657	301	683	666	302	305			297		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	96	100	100	100	97			100		
cM capacity (veh/h)	365	372	732	338	368	731	1251			1259		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	42	1	324	300
Volume Left	16	1	32	0
Volume Right	26	0	0	17
cSH	531	338	1251	1259
Volume to Capacity	0.08	0.00	0.03	0.00
Queue Length 95th (ft)	6	0	2	0
Control Delay (s)	12.4	15.7	1.0	0.0
Lane LOS	B	C	A	
Approach Delay (s)	12.4	15.7	1.0	0.0
Approach LOS	B	C		

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	6	279	1	1	272
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	7	317	1	1	309
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	634	323			323	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634	323			323	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	441	715			1231	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	318	310
Volume Left	3	0	1
Volume Right	7	1	0
cSH	592	1700	1231
Volume to Capacity	0.02	0.19	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.2	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	1	279	1	0	275
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1	317	1	0	312
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	635	323			323	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	635	323			323	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	441	715			1231	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	318	312
Volume Left	0	0	0
Volume Right	1	1	0
cSH	715	1700	1231
Volume to Capacity	0.00	0.19	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	10.0	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay		0.0	
Intersection Capacity Utilization		24.7%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	0	15	0	0	0	14	208	0	0	211	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	16	0	0	0	15	226	0	0	229	8
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	500	500	243	516	503	236	242			231		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	500	500	243	516	503	236	242			231		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	100	100	100	99			100		
cM capacity (veh/h)	470	464	789	449	461	796	1319			1331		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	28	0	241	237
Volume Left	12	0	15	0
Volume Right	16	0	0	8
cSH	613	1700	1319	1331
Volume to Capacity	0.05	0.00	0.01	0.00
Queue Length 95th (ft)	4	0	1	0
Control Delay (s)	11.2	0.0	0.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	11.2	0.0	0.6	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	34.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	2	220	2	3	223
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	239	2	3	242
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	494	245			246	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	494	245			246	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	531	790			1314	

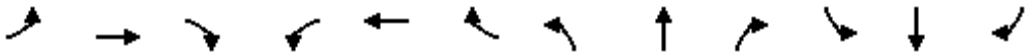
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	241	246
Volume Left	3	0	3
Volume Right	2	2	0
cSH	611	1700	1314
Volume to Capacity	0.01	0.14	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	10.9	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	10.9	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		24.1%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	222	0	1	225
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	241	0	1	245
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	493	246			246	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	493	246			246	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	533	789			1314	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	241	246
Volume Left	1	0	1
Volume Right	0	0	0
cSH	533	1700	1314
Volume to Capacity	0.00	0.14	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.8	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.8	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	22.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	14	0	24	1	0	1	31	272	0	0	254	15
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	16	0	27	1	0	1	35	309	0	0	289	17
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	688	687	307	714	695	319	311			314		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	688	687	307	714	695	319	311			314		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	96	100	100	100	97			100		
cM capacity (veh/h)	347	356	727	321	352	716	1245			1241		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	43	2	344	306
Volume Left	16	1	35	0
Volume Right	27	1	0	17
cSH	518	444	1245	1241
Volume to Capacity	0.08	0.01	0.03	0.00
Queue Length 95th (ft)	7	0	2	0
Control Delay (s)	12.6	13.2	1.1	0.0
Lane LOS	B	B	A	
Approach Delay (s)	12.6	13.2	1.1	0.0
Approach LOS	B	B		

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	45.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	279	5	7	272
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	317	6	8	309
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	650	325			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	325			328	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			99	
cM capacity (veh/h)	429	713			1227	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	323	317
Volume Left	17	0	8
Volume Right	27	6	0
cSH	569	1700	1227
Volume to Capacity	0.08	0.19	0.01
Queue Length 95th (ft)	6	0	0
Control Delay (s)	11.9	0.0	0.3
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.3
Approach LOS	B		

Intersection Summary			
Average Delay		0.9	
Intersection Capacity Utilization		29.9%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	279	5	7	272
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	317	6	8	309
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	650	325			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	325			328	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	96			99	
cM capacity (veh/h)	429	713			1227	

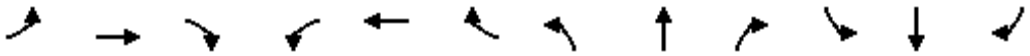
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	44	323	8	309
Volume Left	17	0	8	0
Volume Right	27	6	0	0
cSH	569	1700	1227	1700
Volume to Capacity	0.08	0.19	0.01	0.18
Queue Length 95th (ft)	6	0	0	0
Control Delay (s)	11.9	0.0	8.0	0.0
Lane LOS	B		A	
Approach Delay (s)	11.9	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	25.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	1	283	1	0	287
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1	322	1	0	326
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	653	327			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	653	327			328	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	430	711			1227	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	323	326
Volume Left	0	0	0
Volume Right	1	1	0
cSH	711	1700	1227
Volume to Capacity	0.00	0.19	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	10.1	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.1	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	11	0	17	0	0	0	16	217	0	1	220	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	18	0	0	0	17	236	0	1	239	8
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	526	526	253	544	530	246	252			241		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	526	526	253	544	530	246	252			241		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	98	100	100	100	99			100		
cM capacity (veh/h)	451	447	779	428	445	786	1308			1320		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	30	0	253	248
Volume Left	12	0	17	1
Volume Right	18	0	0	8
cSH	606	1700	1308	1320
Volume to Capacity	0.05	0.00	0.01	0.00
Queue Length 95th (ft)	4	0	1	0
Control Delay (s)	11.3	0.0	0.6	0.0
Lane LOS	B	A	A	A
Approach Delay (s)	11.3	0.0	0.6	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	34.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	220	9	14	223
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	239	10	15	242
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	522	249			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	249			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	507	786			1306	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	249	258
Volume Left	12	0	15
Volume Right	14	10	0
cSH	628	1700	1306
Volume to Capacity	0.04	0.15	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	11.0	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	11.0	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		33.2%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	220	9	14	223
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	239	10	15	242
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	522	249			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	522	249			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			99	
cM capacity (veh/h)	507	786			1306	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	249	15	242
Volume Left	12	0	15	0
Volume Right	14	10	0	0
cSH	628	1700	1306	1700
Volume to Capacity	0.04	0.15	0.01	0.14
Queue Length 95th (ft)	3	0	1	0
Control Delay (s)	11.0	0.0	7.8	0.0
Lane LOS	B		A	
Approach Delay (s)	11.0	0.0	0.5	
Approach LOS	B			

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	22.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	229	0	1	233
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	249	0	1	253
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	509	254			254	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	509	254			254	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	521	781			1306	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	249	254
Volume Left	1	0	1
Volume Right	0	0	0
cSH	521	1700	1306
Volume to Capacity	0.00	0.15	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	11.9	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	23.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	0	30	1	0	0	37	347	0	0	338	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	24	0	34	1	0	0	42	394	0	0	384	26
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	886	886	407	920	899	404	415			399		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	886	886	407	920	899	404	415			399		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	91	100	95	100	100	100	96			100		
cM capacity (veh/h)	254	271	639	228	266	641	1139			1154		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	58	1	436	410
Volume Left	24	1	42	0
Volume Right	34	0	0	26
cSH	393	228	1139	1154
Volume to Capacity	0.15	0.00	0.04	0.00
Queue Length 95th (ft)	13	0	3	0
Control Delay (s)	15.7	20.9	1.2	0.0
Lane LOS	C	C	A	
Approach Delay (s)	15.7	20.9	1.2	0.0
Approach LOS	C	C		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	6	378	1	1	368
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	3	7	430	1	1	418
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	856	435			436	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	856	435			436	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	99			100	
cM capacity (veh/h)	327	618			1119	

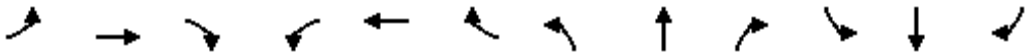
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	10	431	419
Volume Left	3	0	1
Volume Right	7	1	0
cSH	477	1700	1119
Volume to Capacity	0.02	0.25	0.00
Queue Length 95th (ft)	2	0	0
Control Delay (s)	12.7	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	12.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	1	378	1	0	371
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1	430	1	0	422
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	857	435			436	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	857	435			436	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	326	618			1119	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	431	422
Volume Left	0	0	0
Volume Right	1	1	0
cSH	618	1700	1119
Volume to Capacity	0.00	0.25	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	10.8	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.8	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	17	0	17	0	0	0	17	259	0	0	273	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	18	0	0	0	18	282	0	0	297	12
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	631	631	313	650	637	292	314			287		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	631	631	313	650	637	292	314			287		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	97	100	100	100	99			100		
cM capacity (veh/h)	383	389	721	363	386	741	1241			1270		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	37	0	300	309
Volume Left	18	0	18	0
Volume Right	18	0	0	12
cSH	501	1700	1241	1270
Volume to Capacity	0.07	0.00	0.01	0.00
Queue Length 95th (ft)	6	0	1	0
Control Delay (s)	12.8	0.0	0.6	0.0
Lane LOS	B	A	A	
Approach Delay (s)	12.8	0.0	0.6	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	3	2	274	2	3	287
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	2	298	2	3	312
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	622	304			305	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	622	304			305	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	447	733			1251	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	5	300	315
Volume Left	3	0	3
Volume Right	2	2	0
cSH	530	1700	1251
Volume to Capacity	0.01	0.18	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	11.9	0.0	0.1
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.1
Approach LOS	B		

Intersection Summary			
Average Delay		0.2	
Intersection Capacity Utilization		27.5%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	276	0	1	289
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	300	0	1	314
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	621	305			305	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	621	305			305	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	449	732			1251	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	300	315
Volume Left	1	0	1
Volume Right	0	0	0
cSH	449	1700	1251
Volume to Capacity	0.00	0.18	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	13.0	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	13.0	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	21	0	31	1	0	1	40	362	0	0	343	23
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	24	0	35	1	0	1	45	411	0	0	390	26
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	916	915	413	950	928	421	421			416		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	916	915	413	950	928	421	421			416		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	100	94	99	100	100	96			100		
cM capacity (veh/h)	241	260	634	216	255	627	1133			1138		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	59	2	457	416
Volume Left	24	1	45	0
Volume Right	35	1	0	26
cSH	382	322	1133	1138
Volume to Capacity	0.15	0.01	0.04	0.00
Queue Length 95th (ft)	14	1	3	0
Control Delay (s)	16.1	16.3	1.2	0.0
Lane LOS	C	C	A	
Approach Delay (s)	16.1	16.3	1.2	0.0
Approach LOS	C	C		

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	378	5	7	368
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	430	6	8	418
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	437			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	437			440	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	318	617			1115	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	44	435	426
Volume Left	17	0	8
Volume Right	27	6	0
cSH	453	1700	1115
Volume to Capacity	0.10	0.26	0.01
Queue Length 95th (ft)	8	0	1
Control Delay (s)	13.8	0.0	0.2
Lane LOS	B		A
Approach Delay (s)	13.8	0.0	0.2
Approach LOS	B		

Intersection Summary			
Average Delay		0.8	
Intersection Capacity Utilization		35.0%	ICU Level of Service
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	15	24	378	5	7	368
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	17	27	430	6	8	418
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	871	437			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	437			440	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	96			99	
cM capacity (veh/h)	318	617			1115	

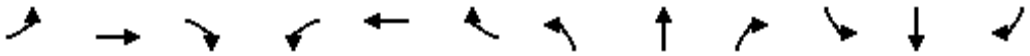
Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	44	435	8	418
Volume Left	17	0	8	0
Volume Right	27	6	0	0
cSH	453	1700	1115	1700
Volume to Capacity	0.10	0.26	0.01	0.25
Queue Length 95th (ft)	8	0	1	0
Control Delay (s)	13.8	0.0	8.3	0.0
Lane LOS	B		A	
Approach Delay (s)	13.8	0.0	0.2	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	0	1	382	1	0	383
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	0	1	434	1	0	435
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	875	440			440	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	875	440			440	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	318	615			1115	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	435	435
Volume Left	0	0	0
Volume Right	1	1	0
cSH	615	1700	1115
Volume to Capacity	0.00	0.26	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	10.9	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.9	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	30.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	17	0	19	0	0	0	19	268	0	1	282	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	21	0	0	0	21	291	0	1	307	12
Pedestrians		5			5			5			5	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			0			0			0	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	657	657	322	678	663	301	323			296		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	657	657	322	678	663	301	323			296		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	100	97	100	100	100	98			100		
cM capacity (veh/h)	367	375	712	346	372	732	1231			1260		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	0	312	320
Volume Left	18	0	21	1
Volume Right	21	0	0	12
cSH	494	1700	1231	1260
Volume to Capacity	0.08	0.00	0.02	0.00
Queue Length 95th (ft)	6	0	1	0
Control Delay (s)	12.9	0.0	0.7	0.0
Lane LOS	B	A	A	A
Approach Delay (s)	12.9	0.0	0.7	0.0
Approach LOS	B	A		

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	39.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	274	9	14	287
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	298	10	15	312
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	650	308			313	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	308			313	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			99	
cM capacity (veh/h)	427	729			1243	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	308	327
Volume Left	12	0	15
Volume Right	14	10	0
cSH	550	1700	1243
Volume to Capacity	0.05	0.18	0.01
Queue Length 95th (ft)	4	0	1
Control Delay (s)	11.9	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	11.9	0.0	0.5
Approach LOS	B		

Intersection Summary			
Average Delay		0.7	
Intersection Capacity Utilization		36.5%	ICU Level of Service A
Analysis Period (min)		15	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	11	13	274	9	14	287
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	14	298	10	15	312
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	650	308			313	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	650	308			313	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	98			99	
cM capacity (veh/h)	427	729			1243	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	26	308	15	312
Volume Left	12	0	15	0
Volume Right	14	10	0	0
cSH	550	1700	1243	1700
Volume to Capacity	0.05	0.18	0.01	0.18
Queue Length 95th (ft)	4	0	1	0
Control Delay (s)	11.9	0.0	7.9	0.0
Lane LOS	B		A	
Approach Delay (s)	11.9	0.0	0.4	
Approach LOS	B			

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	25.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	1	0	283	0	1	297
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1	0	308	0	1	323
Pedestrians	5					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	638	313			313	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	638	313			313	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	100			100	
cM capacity (veh/h)	439	725			1243	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	1	308	324
Volume Left	1	0	1
Volume Right	0	0	0
cSH	439	1700	1243
Volume to Capacity	0.00	0.18	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	13.2	0.0	0.0
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	26.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	36	25	36	10
Average Queue (ft)	16	2	5	0
95th Queue (ft)	37	14	22	5
Link Distance (ft)	1671	400	549	2071
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Access B & Silverado Trail

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	50	25
Average Queue (ft)	26	2
95th Queue (ft)	49	12
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	18
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Nework Summary

Network wide Queuing Penalty: 0

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	NB
Directions Served	LR	LTR
Maximum Queue (ft)	30	25
Average Queue (ft)	13	1
95th Queue (ft)	33	11
Link Distance (ft)	1671	549
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Access B & Silverado Trail

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	44	25
Average Queue (ft)	17	2
95th Queue (ft)	44	13
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	12
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Nework Summary

Network wide Queuing Penalty: 0

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	41	31	55	10
Average Queue (ft)	18	2	7	0
95th Queue (ft)	39	14	30	7
Link Distance (ft)	1671	400	549	2071
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Access B & Silverado Trail

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	59	21
Average Queue (ft)	27	1
95th Queue (ft)	53	11
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	19
Average Queue (ft)	1
95th Queue (ft)	11
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Nework Summary

Network wide Queuing Penalty: 0

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	NB
Directions Served	LR	LTR
Maximum Queue (ft)	35	26
Average Queue (ft)	15	3
95th Queue (ft)	36	17
Link Distance (ft)	1671	549
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 2: Access B & Silverado Trail

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	45	26
Average Queue (ft)	18	3
95th Queue (ft)	45	16
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	12
Average Queue (ft)	1
95th Queue (ft)	8
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Nework Summary

Network wide Queuing Penalty: 0

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	47	25	51	10
Average Queue (ft)	23	2	9	0
95th Queue (ft)	44	16	35	8
Link Distance (ft)	1671	400	549	2071
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Access B & Silverado Trail

Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	45	25
Average Queue (ft)	22	2
95th Queue (ft)	47	12
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	6
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Nework Summary

Network wide Queuing Penalty: 0

Intersection: 1: Larkmead Ln. & Silverado Trail

Movement	EB	NB	SB
Directions Served	LR	LTR	LTR
Maximum Queue (ft)	41	50	25
Average Queue (ft)	18	4	1
95th Queue (ft)	39	24	10
Link Distance (ft)	1671	549	2071
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Access B & Silverado Trail

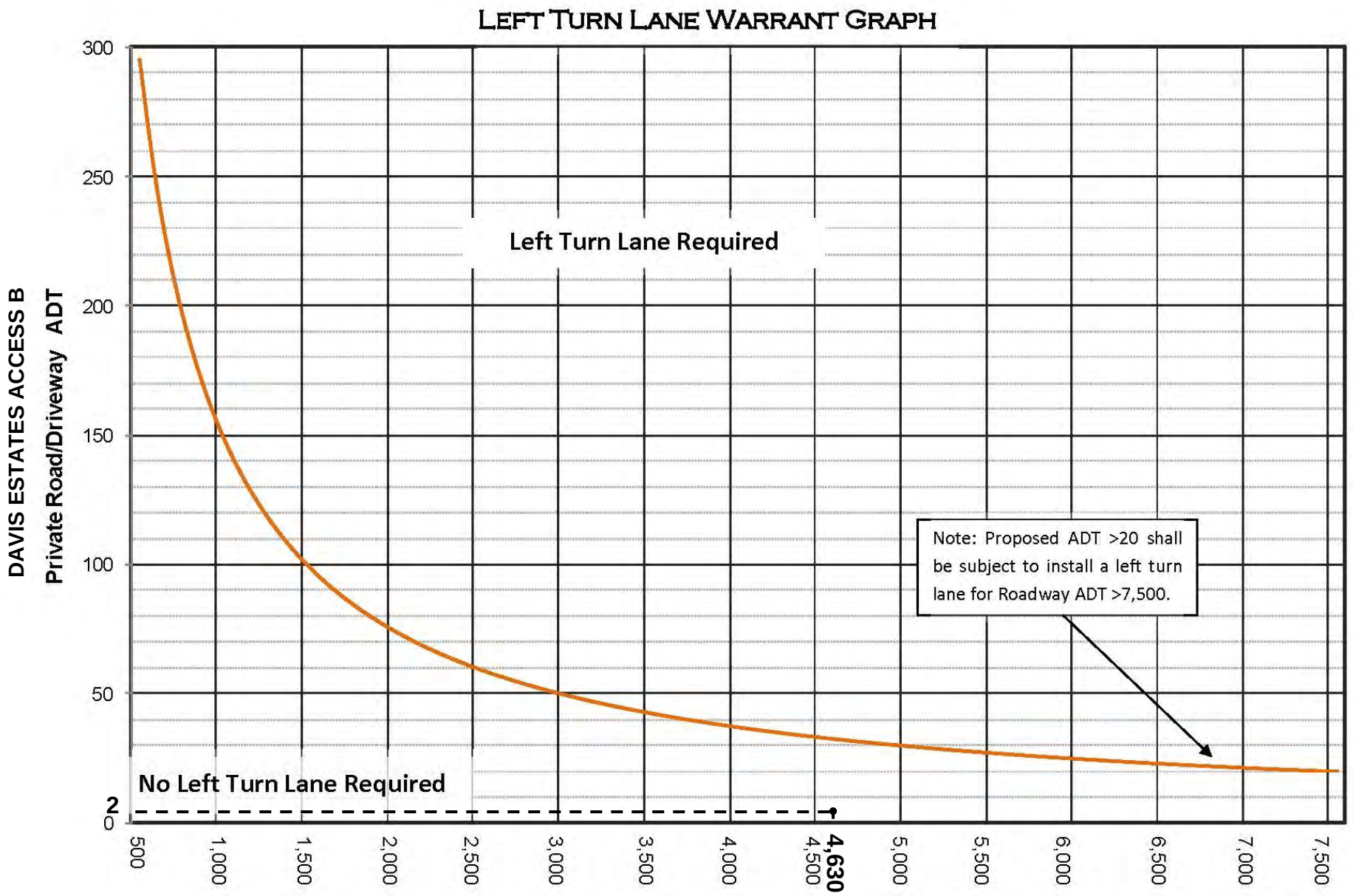
Movement	WB	SB
Directions Served	LR	L
Maximum Queue (ft)	45	15
Average Queue (ft)	18	1
95th Queue (ft)	45	11
Link Distance (ft)	350	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		100
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Access C & Silverado Trail

Movement	WB
Directions Served	LR
Maximum Queue (ft)	24
Average Queue (ft)	1
95th Queue (ft)	10
Link Distance (ft)	370
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

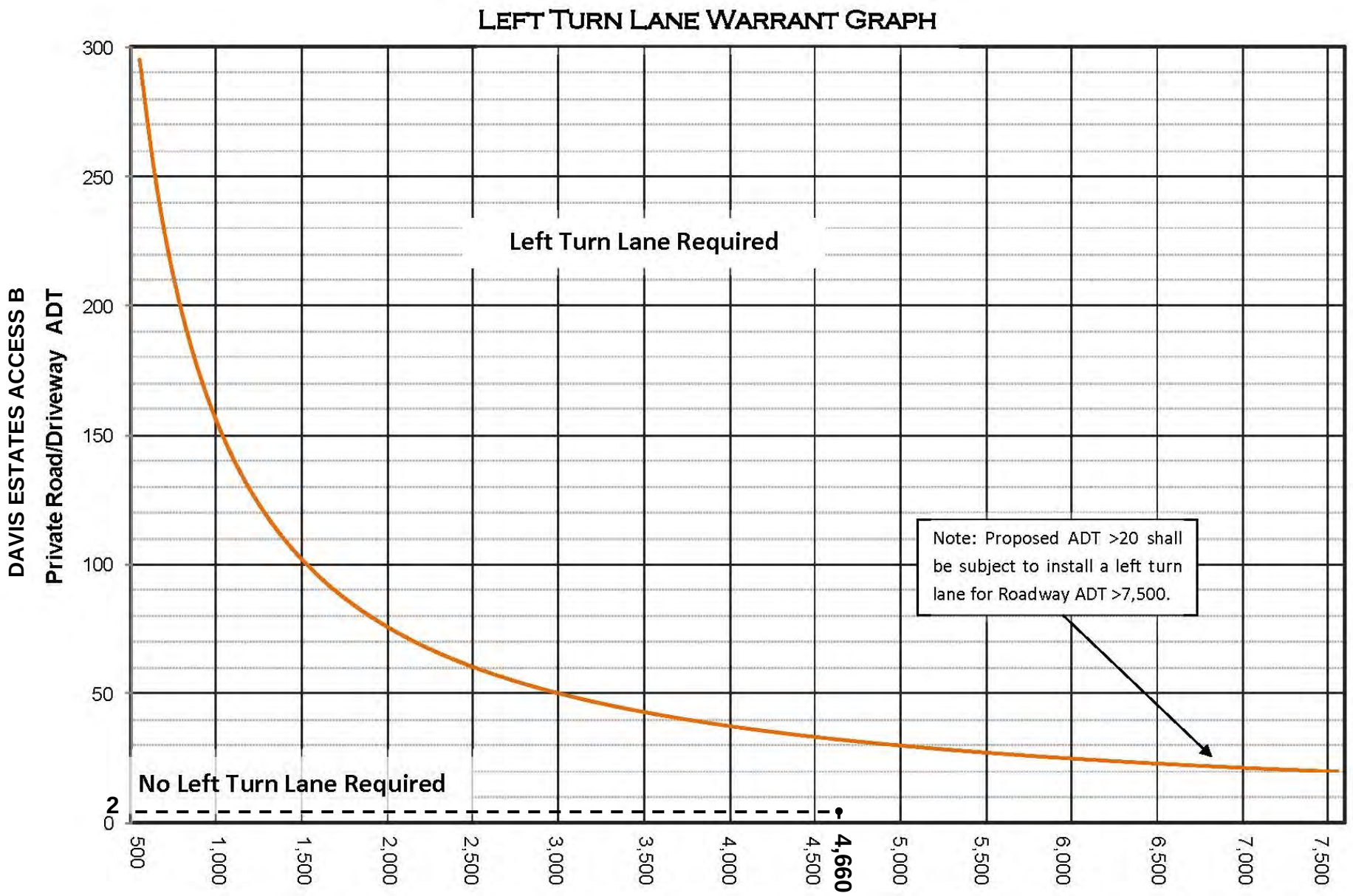
Nework Summary

Network wide Queuing Penalty: 0



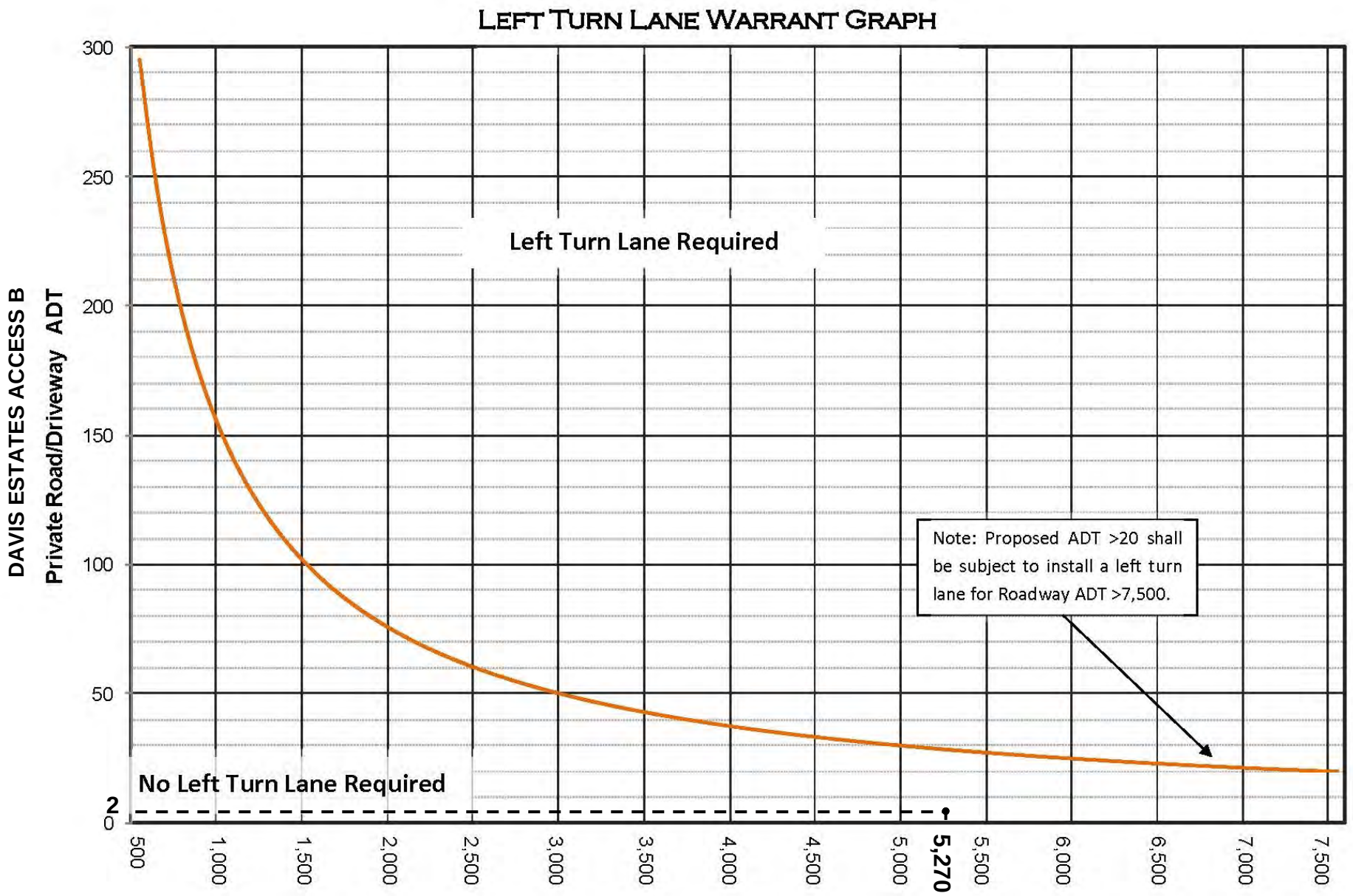
Davis Estates Winery 2017 Use Permit App.
Weekday Existing + Project Conditions:
Access A:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



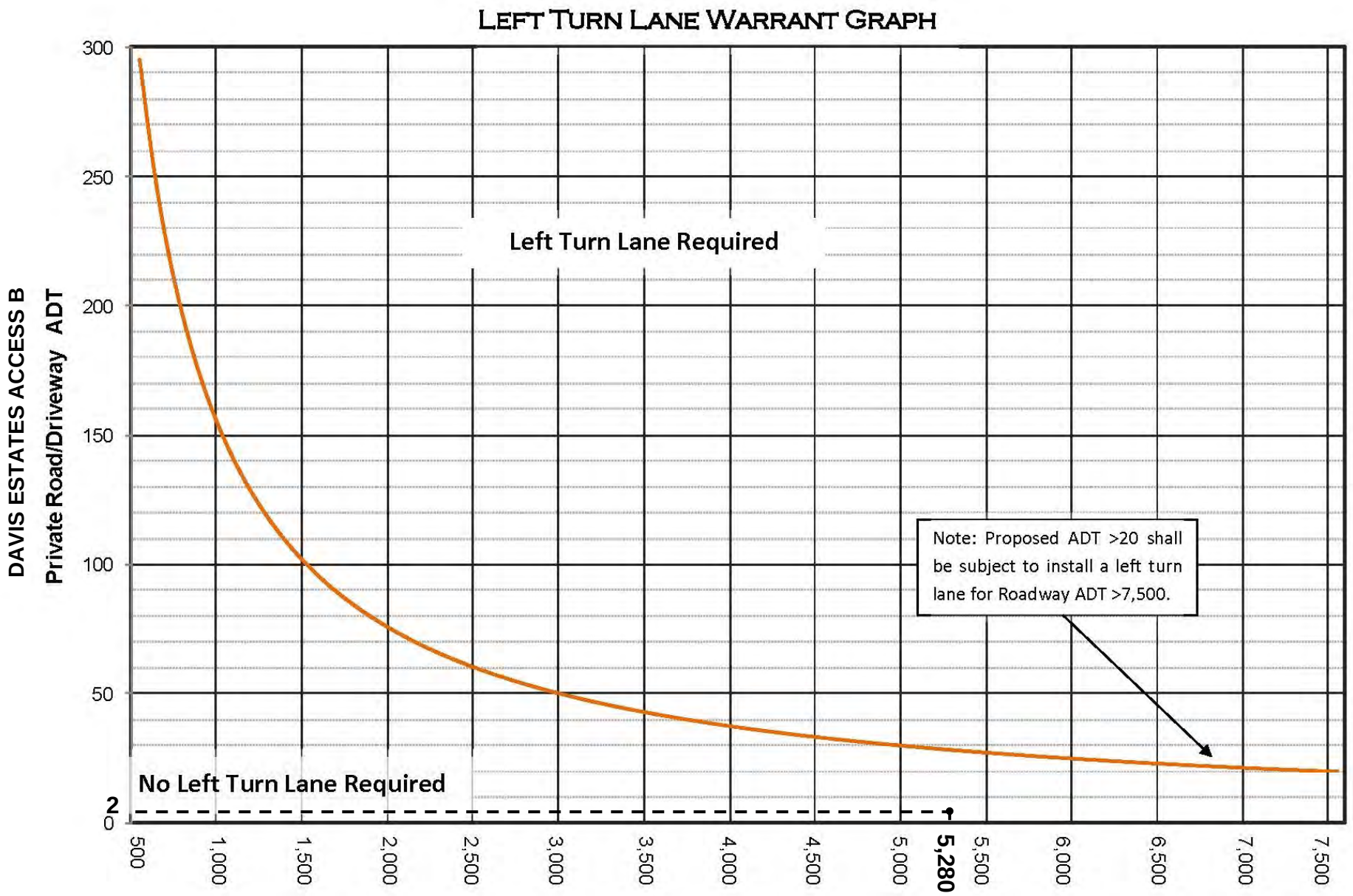
Davis Estates Winery 2017 Use Permit App.
Weekend Existing + Project Conditions:
Access A:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



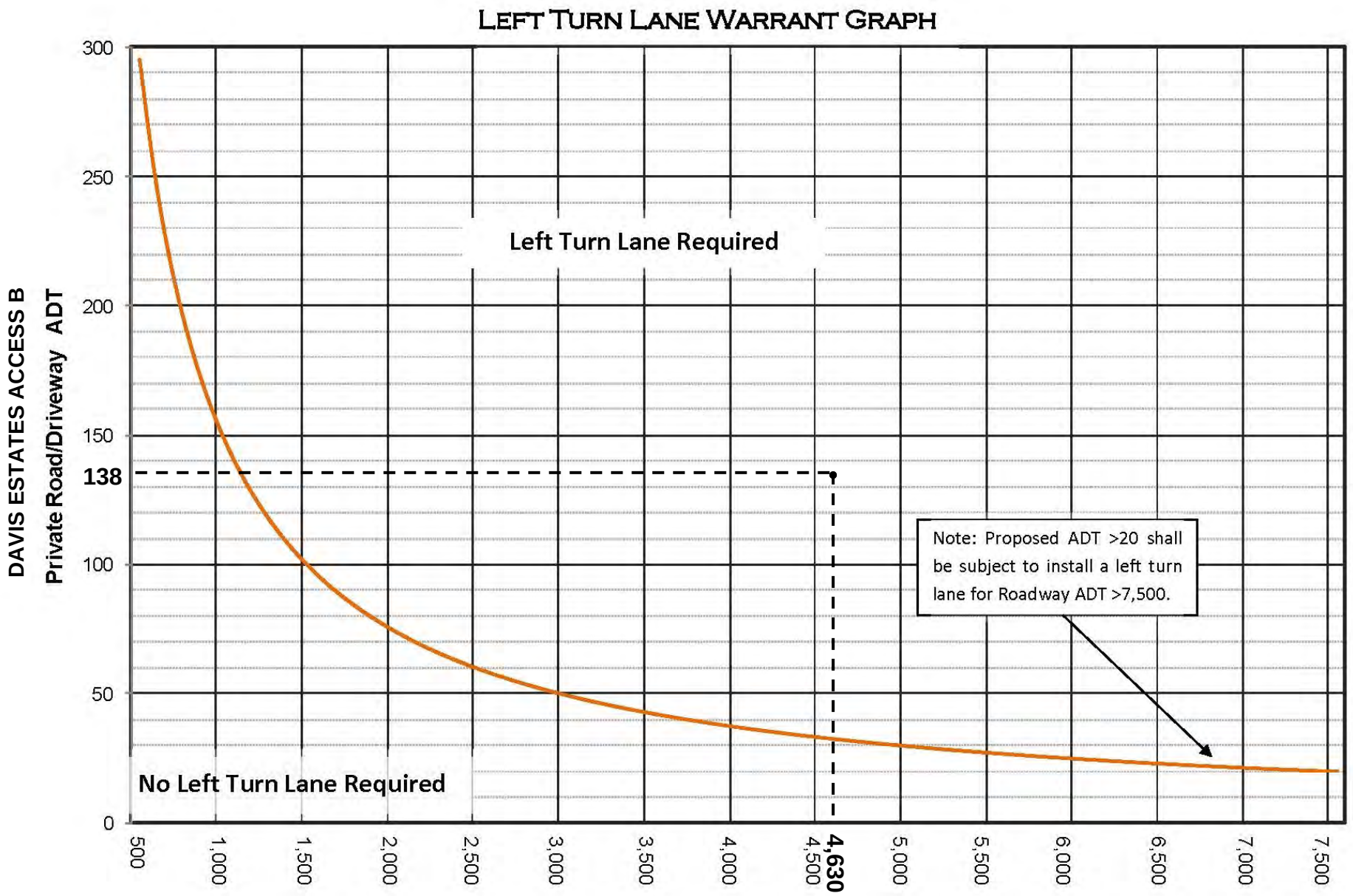
Davis Estates Winery 2017 Use Permit App.
Weekday Near Term + Project Conditions:
Access A:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



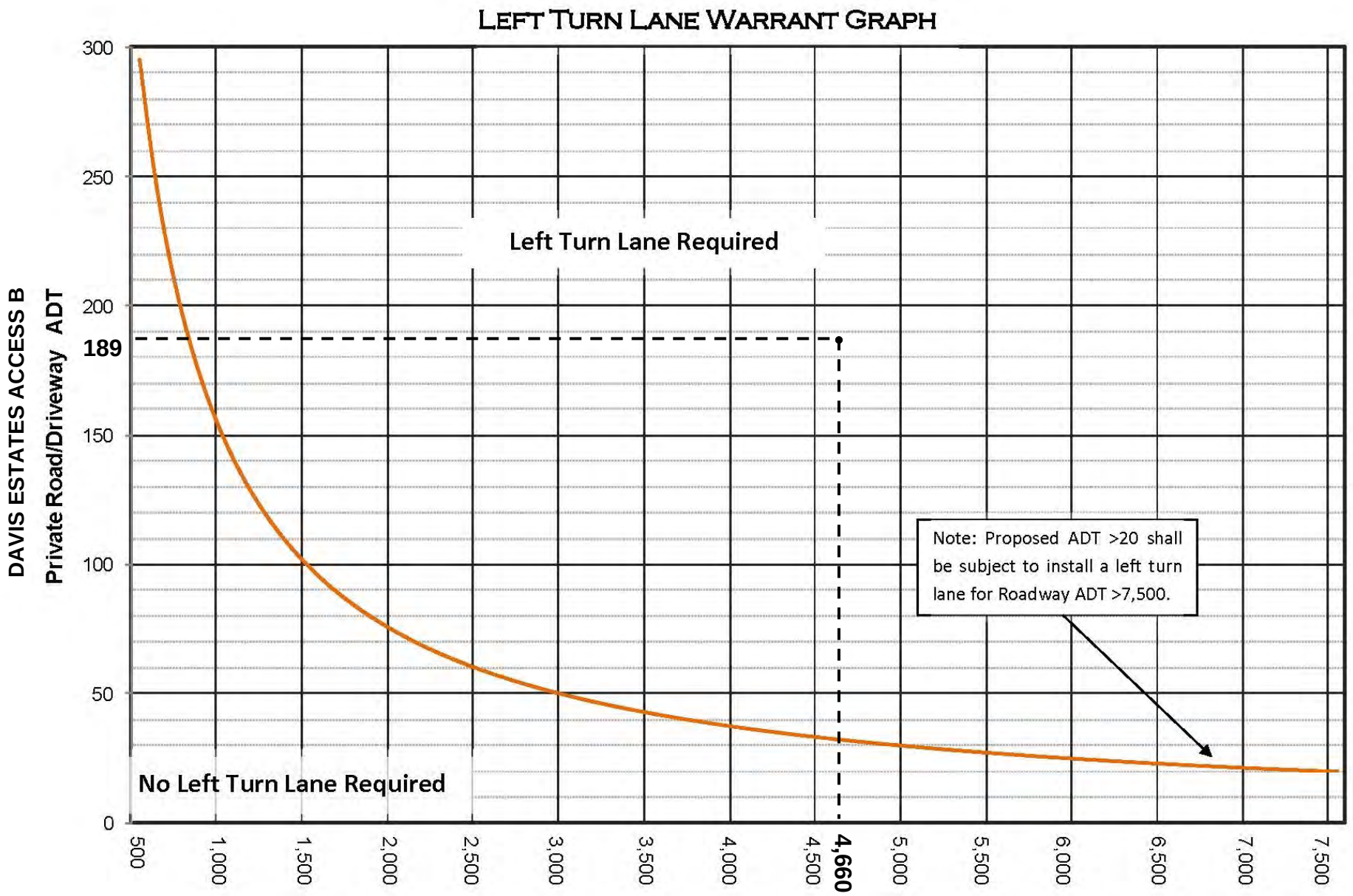
Davis Estates Winery 2017 Use Permit App.
Weekend Near Term + Project Conditions:
Access A:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



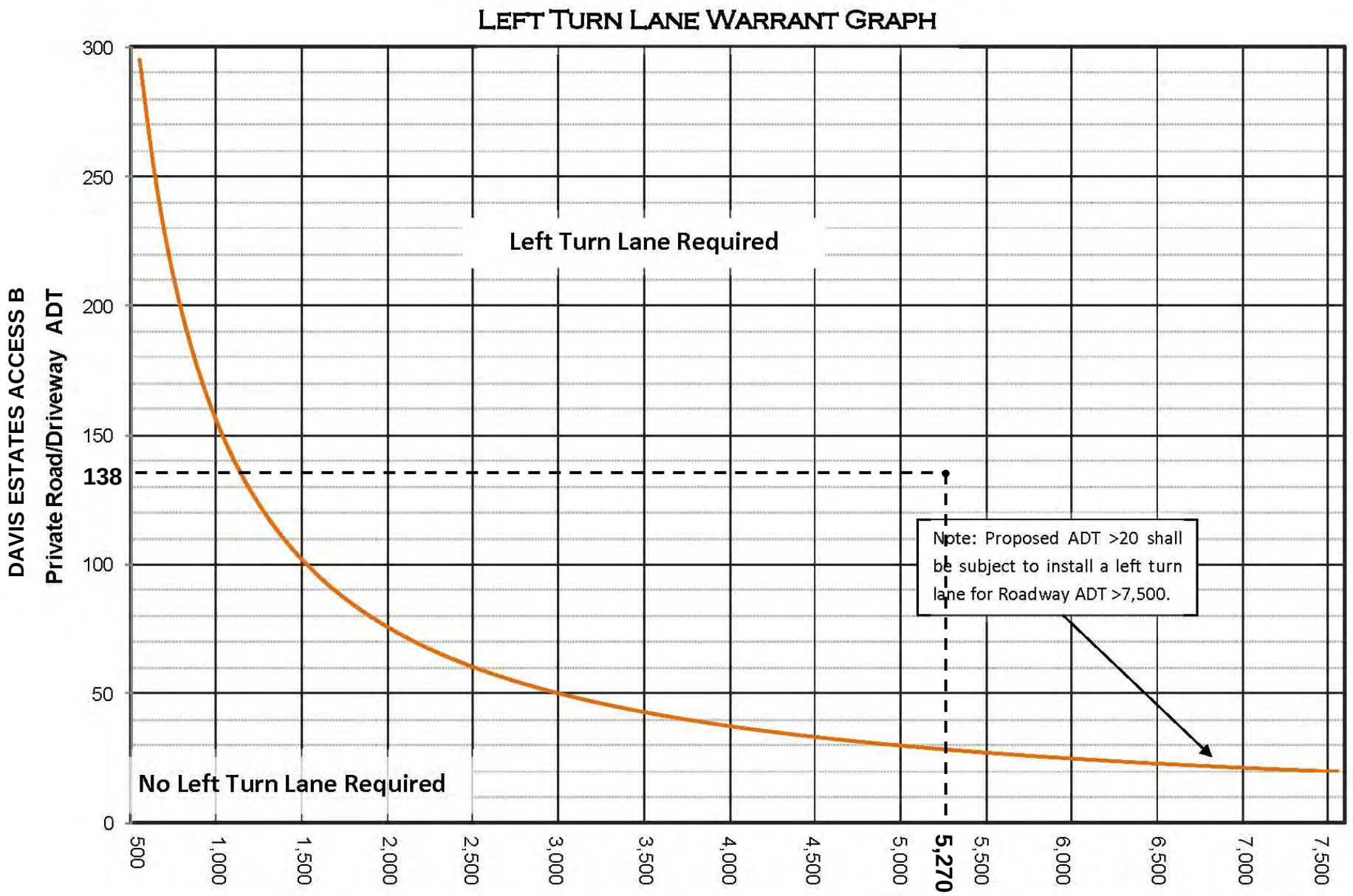
Davis Estates Winery 2017 Use Permit App.
Weekday Existing + Project Conditions:
Access B:
Left Turn Lane IS Warranted

Source: Napa County Road & Street Standards, 2016



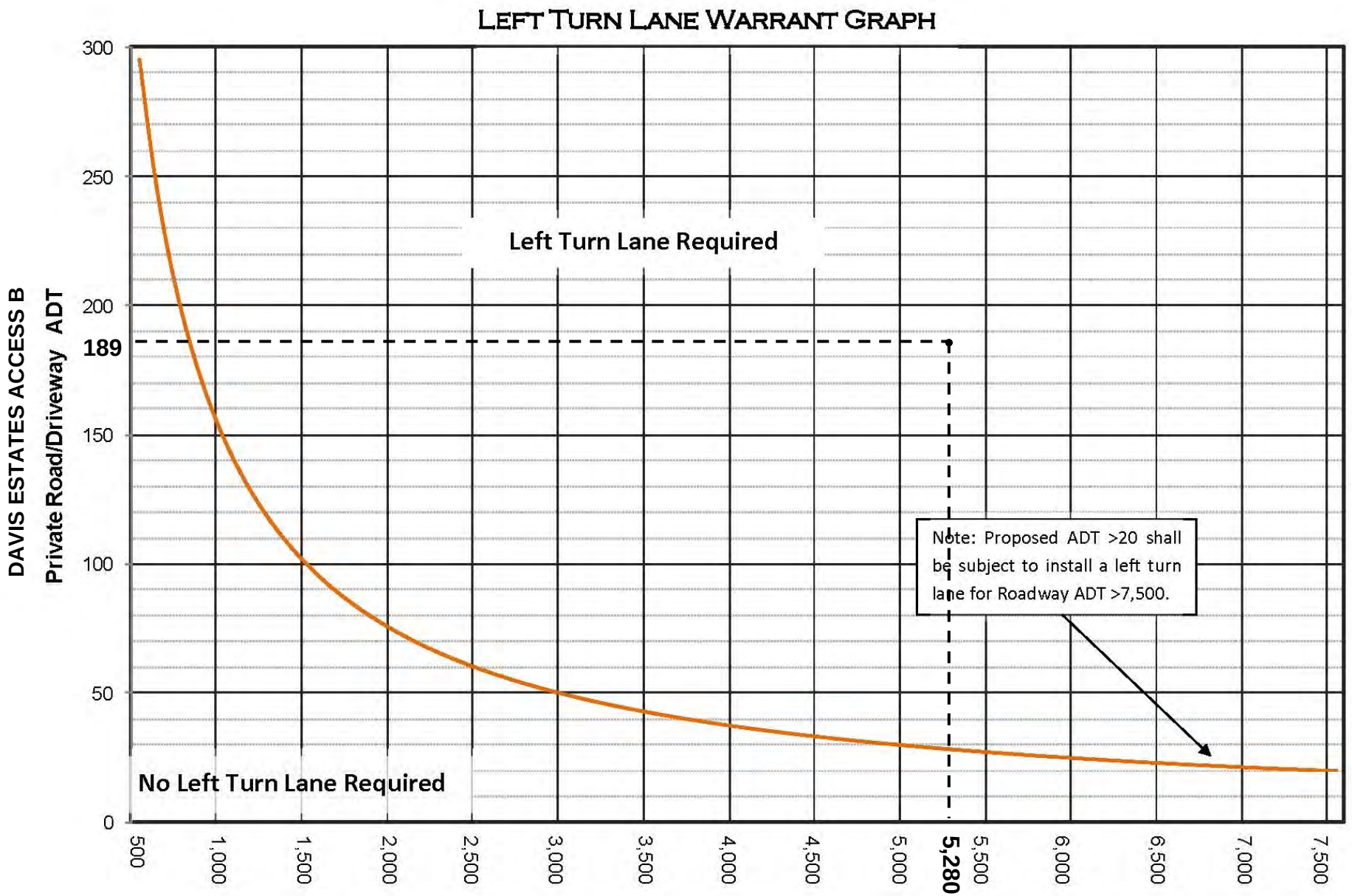
Davis Estates Winery 2017 Use Permit App.
Weekend Existing + Project Conditions:
Access B:
Left Turn Lane IS Warranted

Source: Napa County Road & Street Standards, 2016



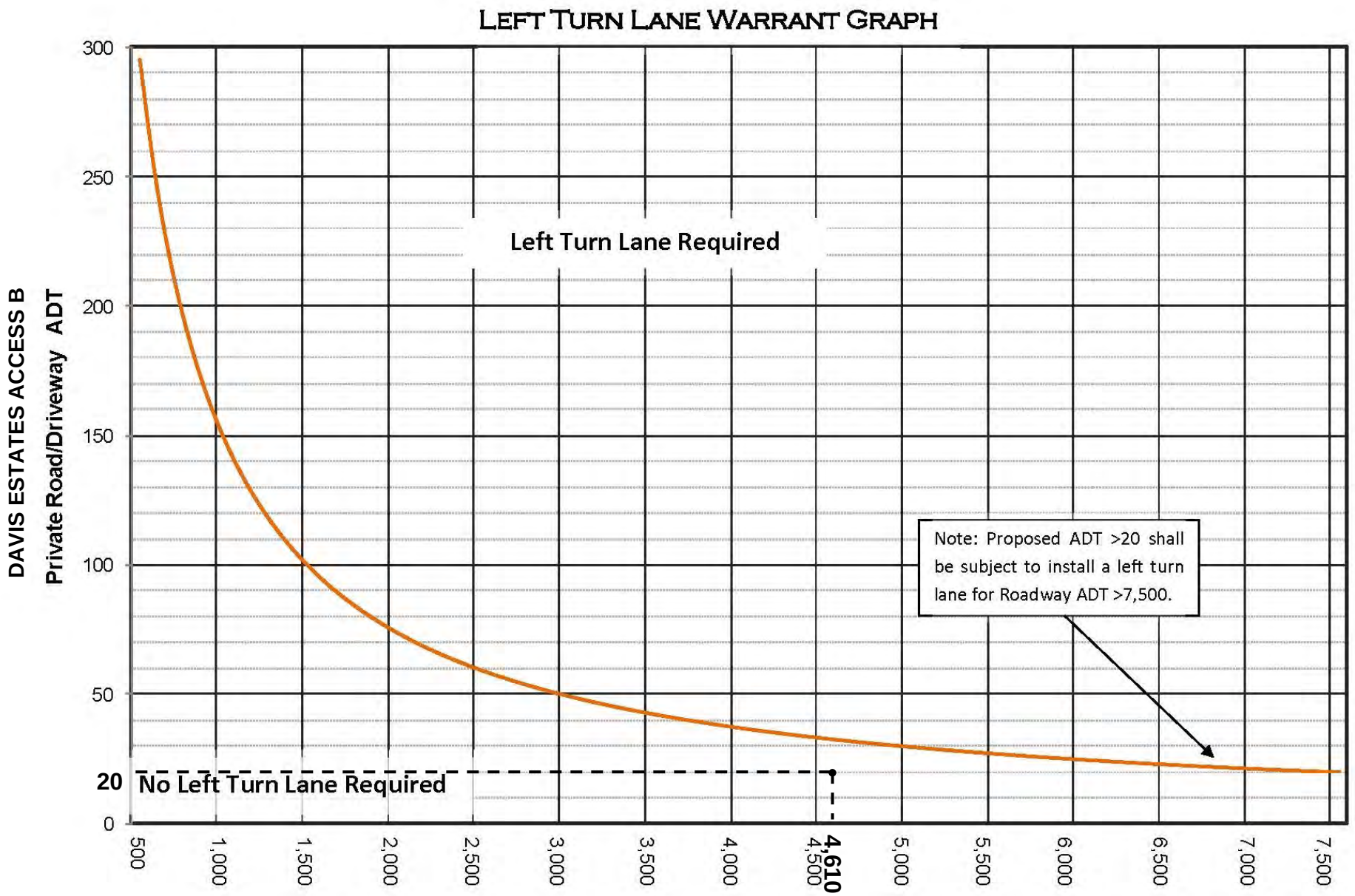
Davis Estates Winery 2017 Use Permit App.
Weekday Near Term + Project Conditions:
Access B:
Left Turn Lane IS Warranted

Source: Napa County Road & Street Standards, 2016



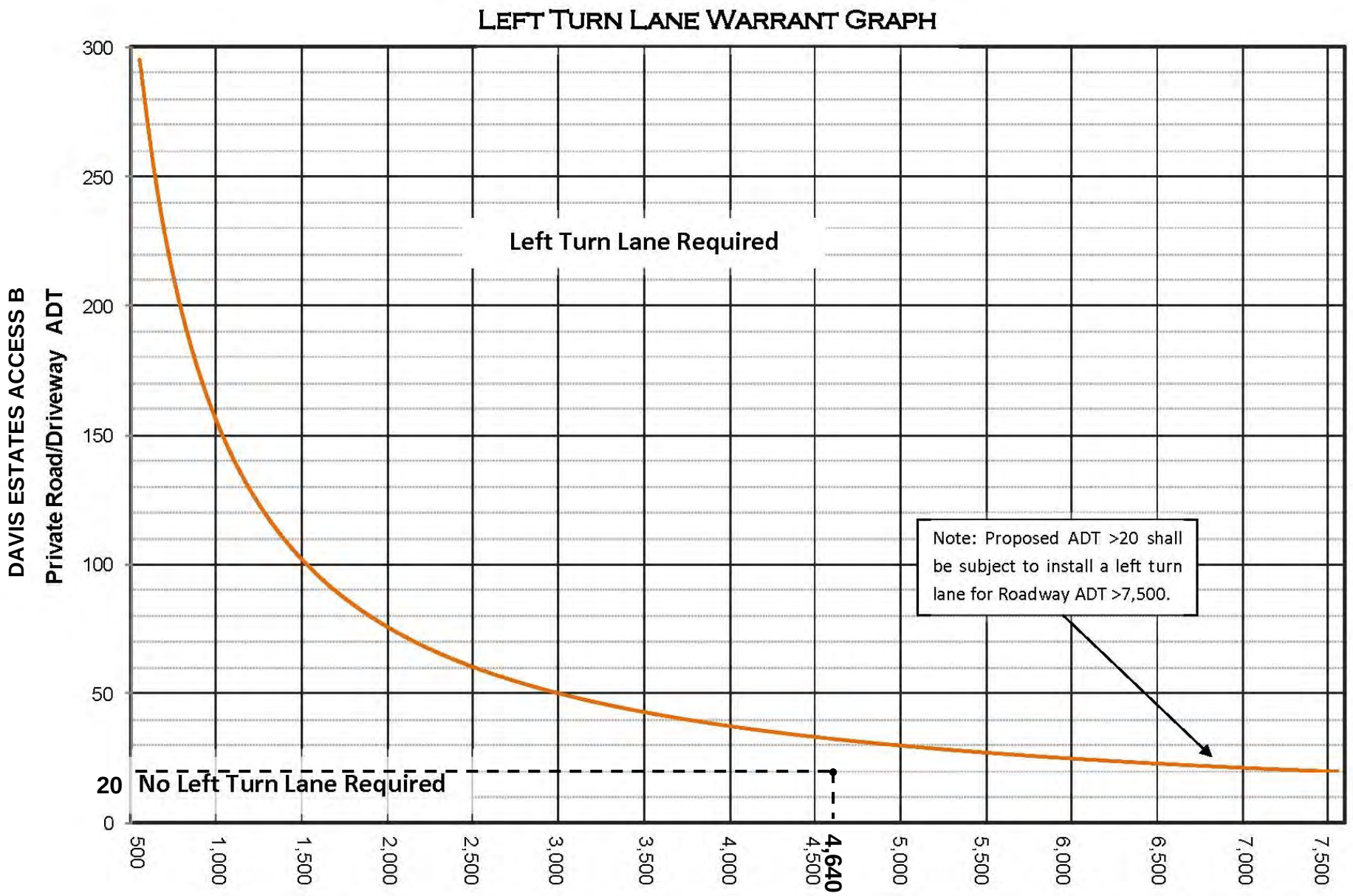
Davis Estates Winery 2017 Use Permit App.
Weekend Near Term + Project Conditions:
Access B:
Left Turn Lane IS Warranted

Source: Napa County Road & Street Standards, 2016



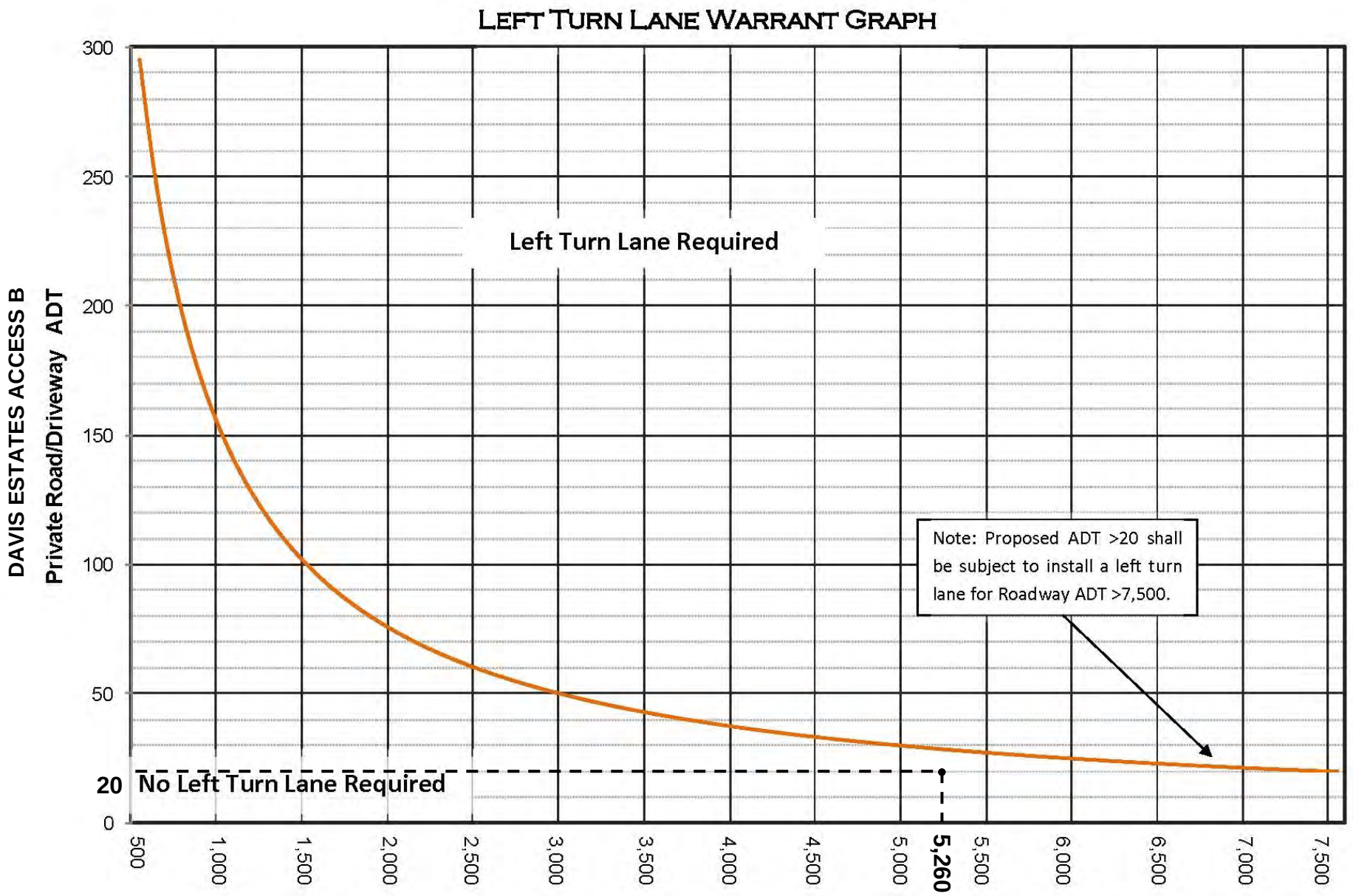
Davis Estates Winery 2017 Use Permit App.
Weekday Existing + Project Conditions:
Access C:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



Davis Estates Winery 2017 Use Permit App.
Weekend Existing + Project Conditions:
Access C:
Left Turn Lane IS NOT Warranted

Source: Napa County Road & Street Standards, 2016



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Weekday Near Term + Project Conditions:
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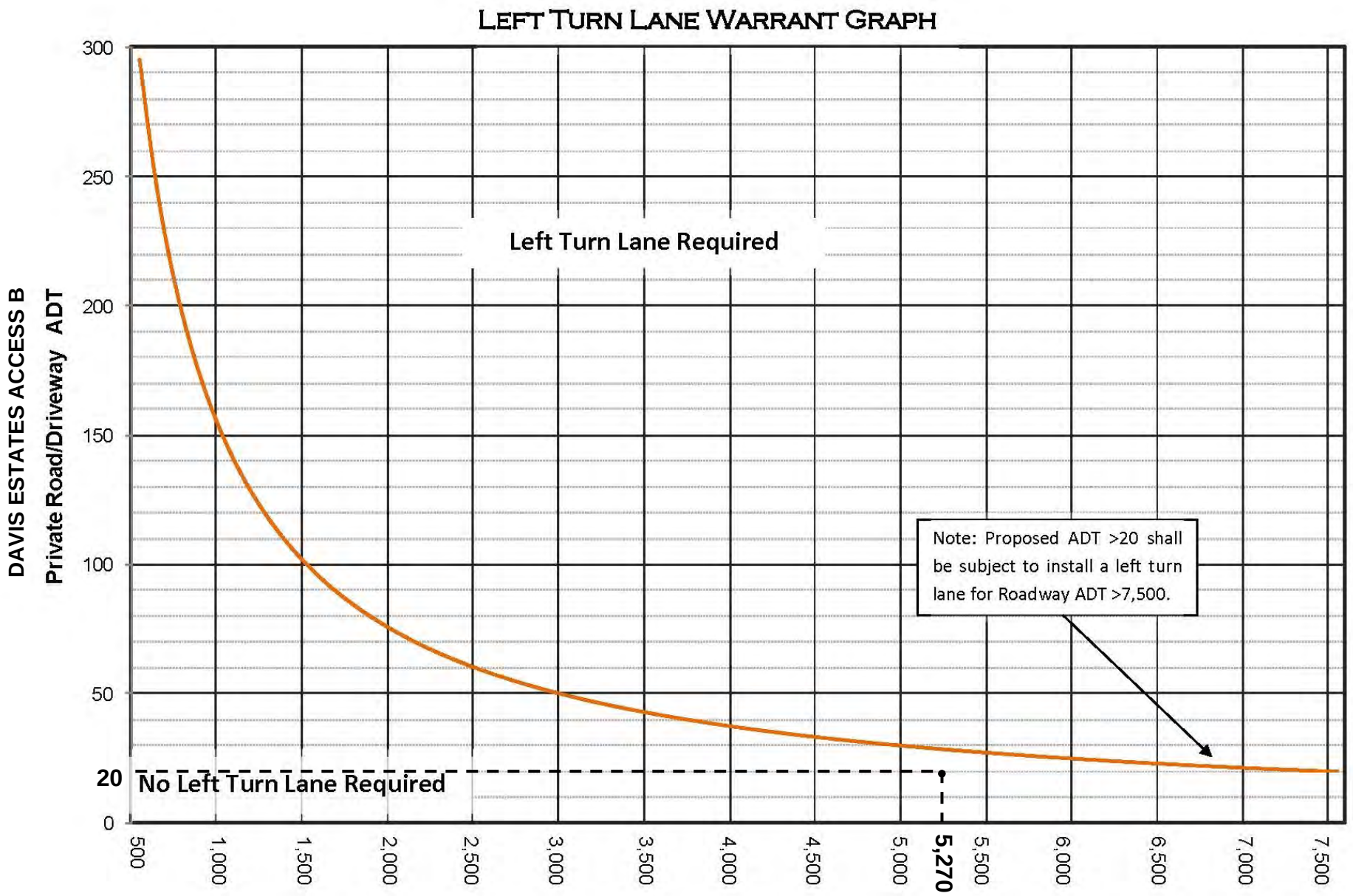

Davis Estates Winery 2017 Use Permit App.
Weekend Near Term + Project Conditions:
Access C:
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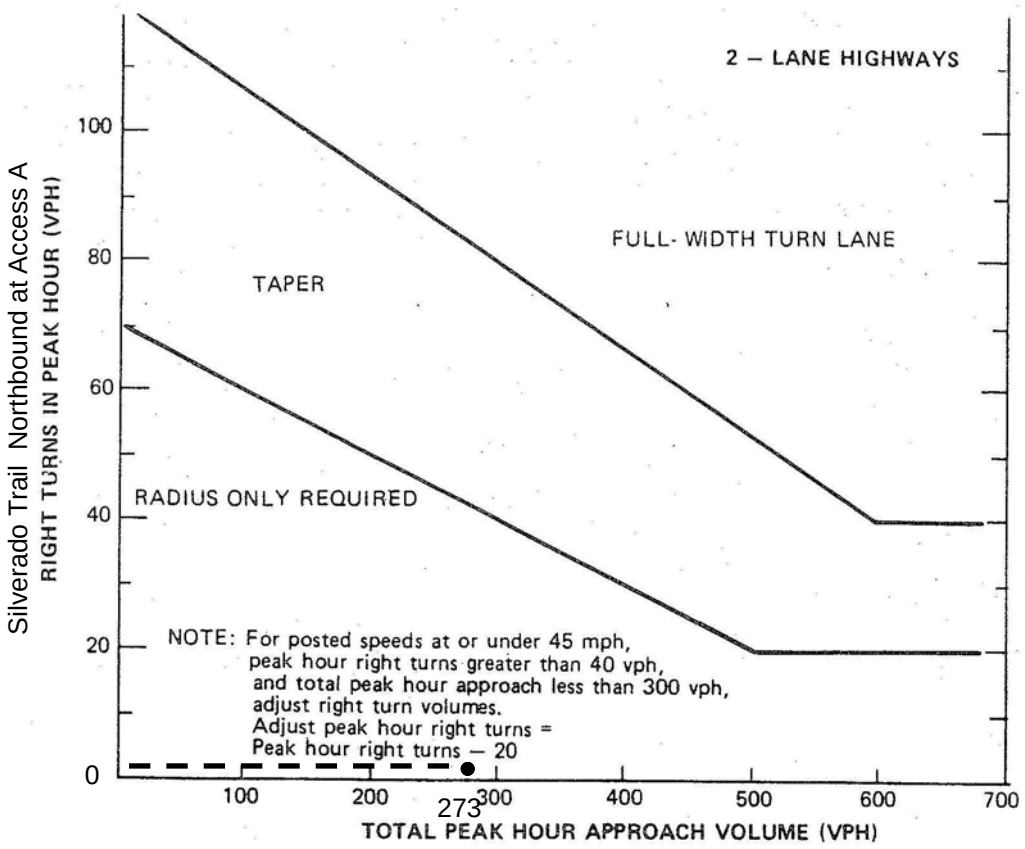
Source: Napa County Road & Street Standards, 2016

CALTRANS RIGHT TURN LANE WARRANTS



Silverado Trail Northbound at Access A

Davis Estates Winery 2017 Use Permit App.

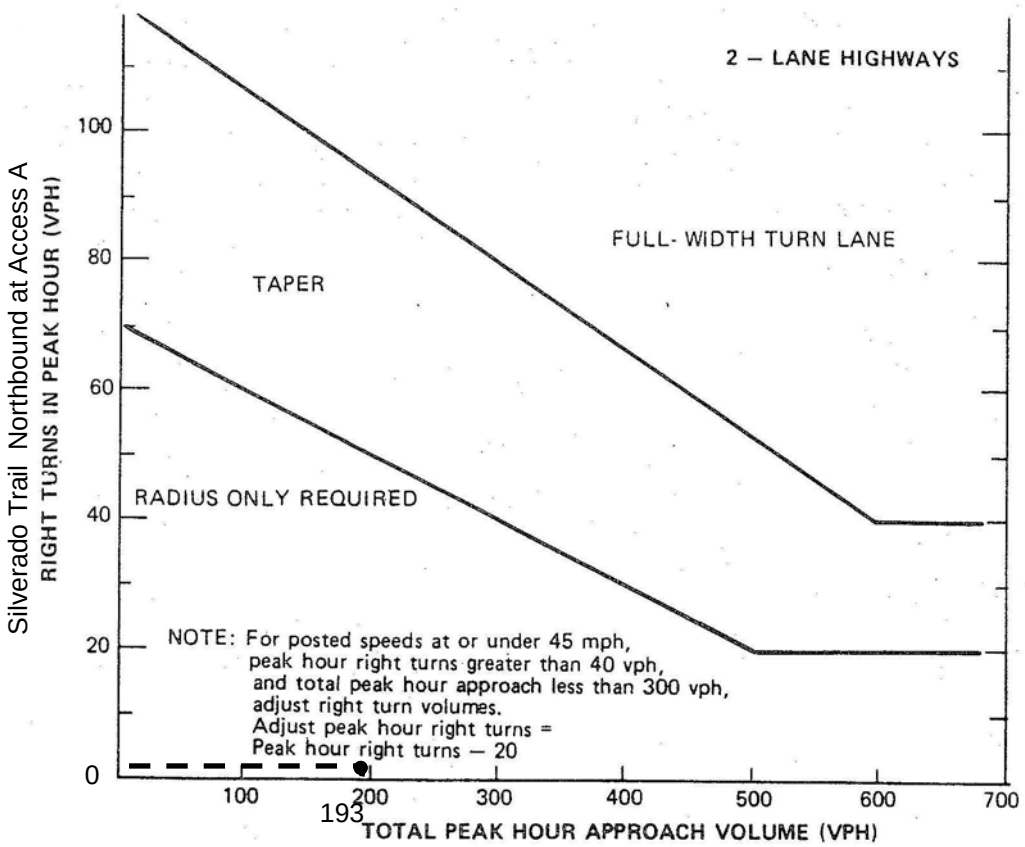
Silverado Trail / Winery Access A Intersection

EXISTING + PROJECT WEEKDAY PM PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

Transportation Research Board, National Cooperative Highway Research Program Report 279, "Intersection Channelization Design Guide", November, 1985.

CALTRANS RIGHT TURN LANE WARRANTS



Silverado Trail Northbound at Access A

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access A Intersection

EXISTING + PROJECT WEEKEND PEAK HOUR

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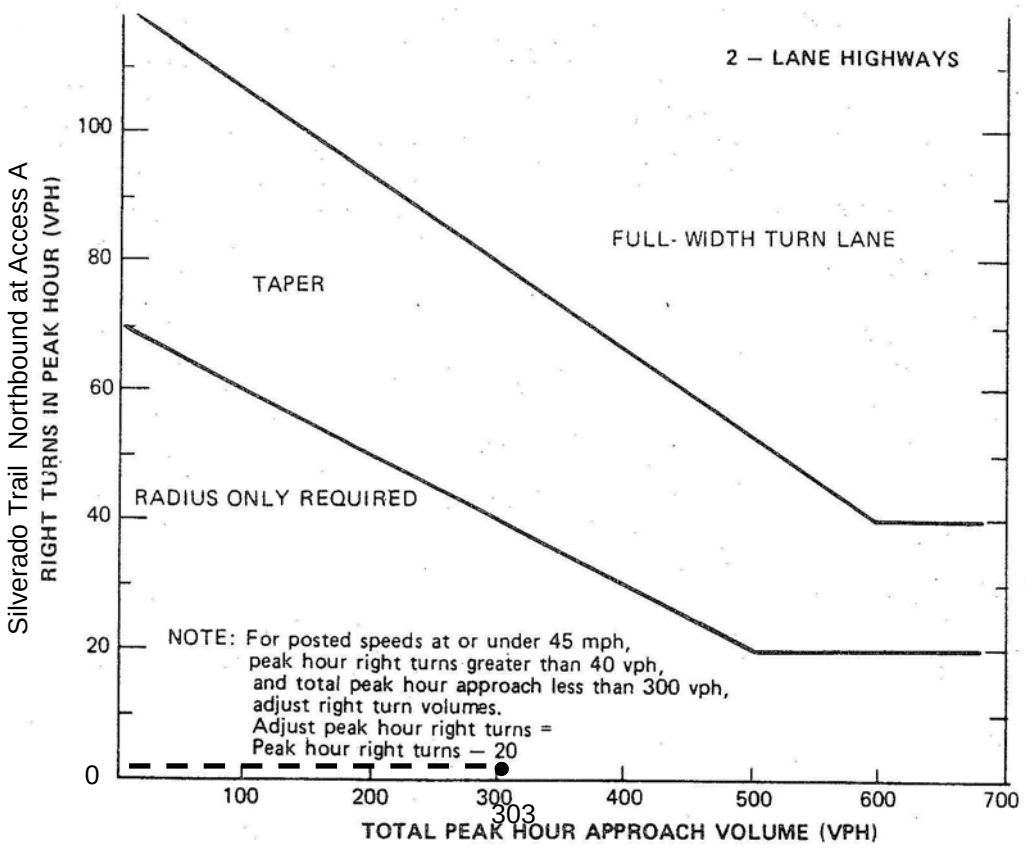

Silverado Trail Northbound at Access A

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access A Intersection

NEAR TERM + PROJECT WEEKDAY PM PEAK HOUR

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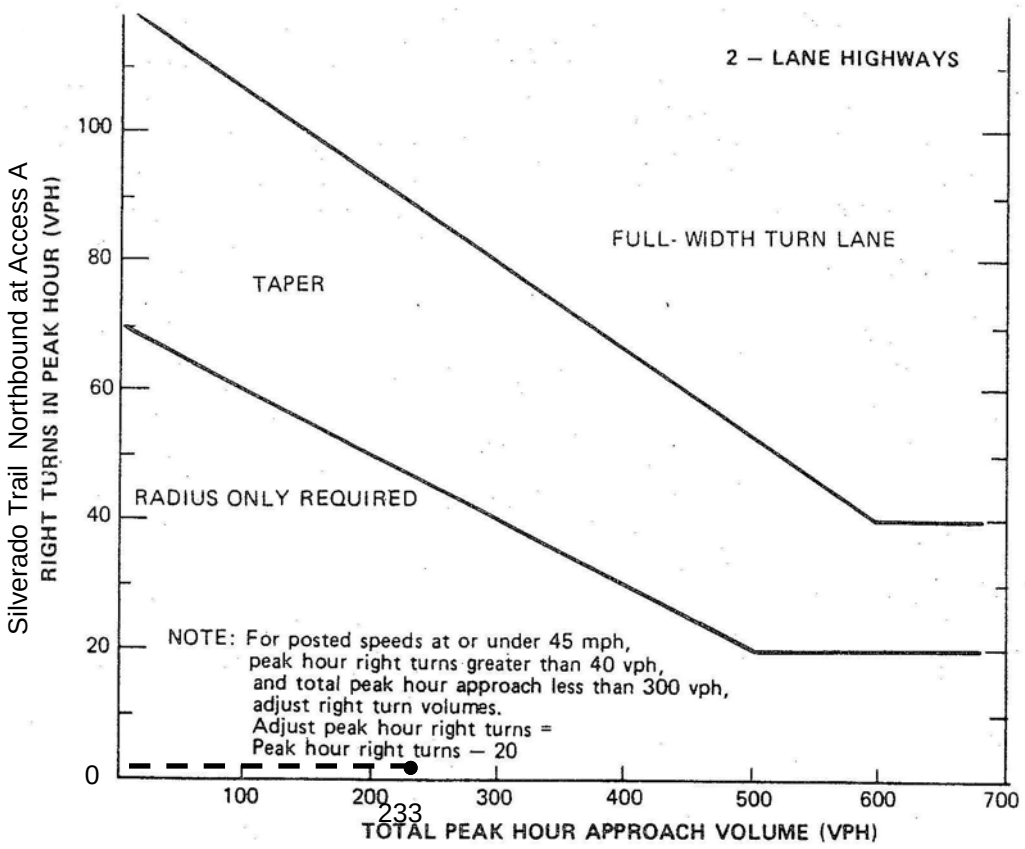

Silverado Trail Northbound at Access A

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access A Intersection

NEAR TERM + PROJECT WEEKEND PEAK HOUR

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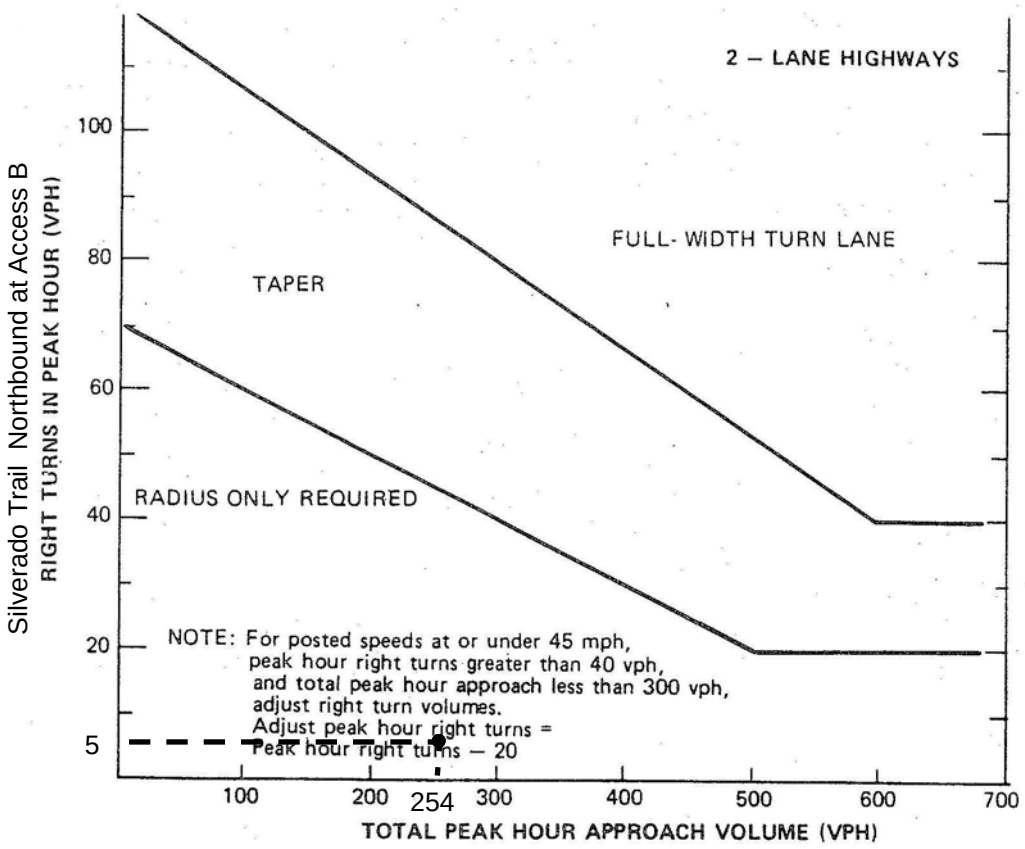


Silverado Trail Northbound at Access B

Davis Estates Winery 2017 Use Permit App.

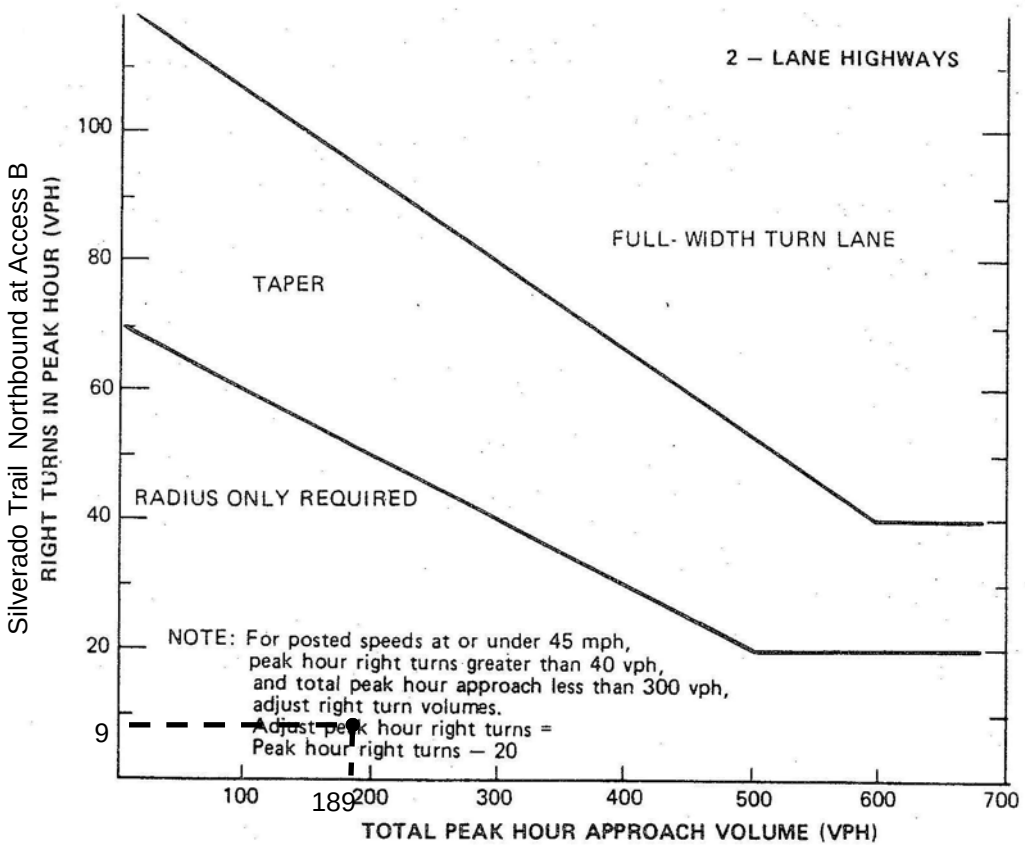
Silverado Trail / Winery Access B Intersection

EXISTING + PROJECT WEEKDAY PM PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

Transportation Research Board, National Cooperative Highway Research Program Report 279, "Intersection Channelization Design Guide", November, 1985.

CALTRANS RIGHT TURN LANE WARRANTS



Silverado Trail Northbound at Access B

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access B Intersection

EXISTING + PROJECT WEEKEND PEAK HOUR

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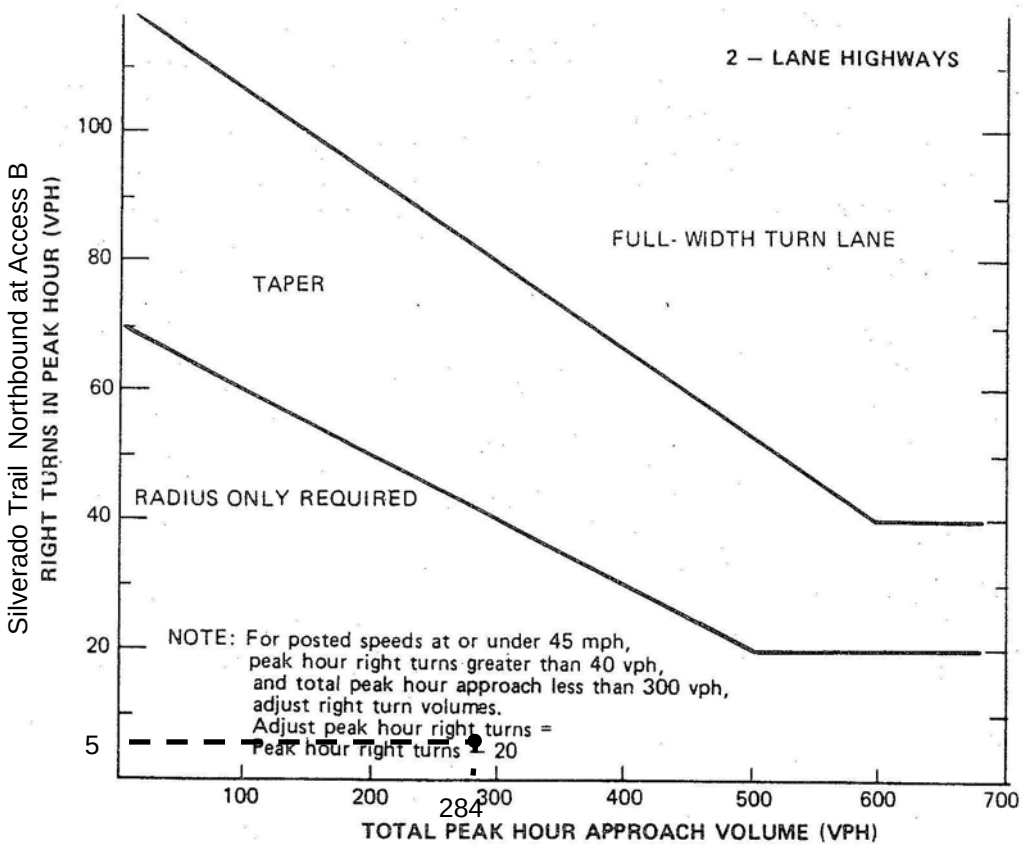

Silverado Trail Northbound at Access B

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access B Intersection

NEAR TERM + PROJECT WEEKDAY PM PEAK HOUR

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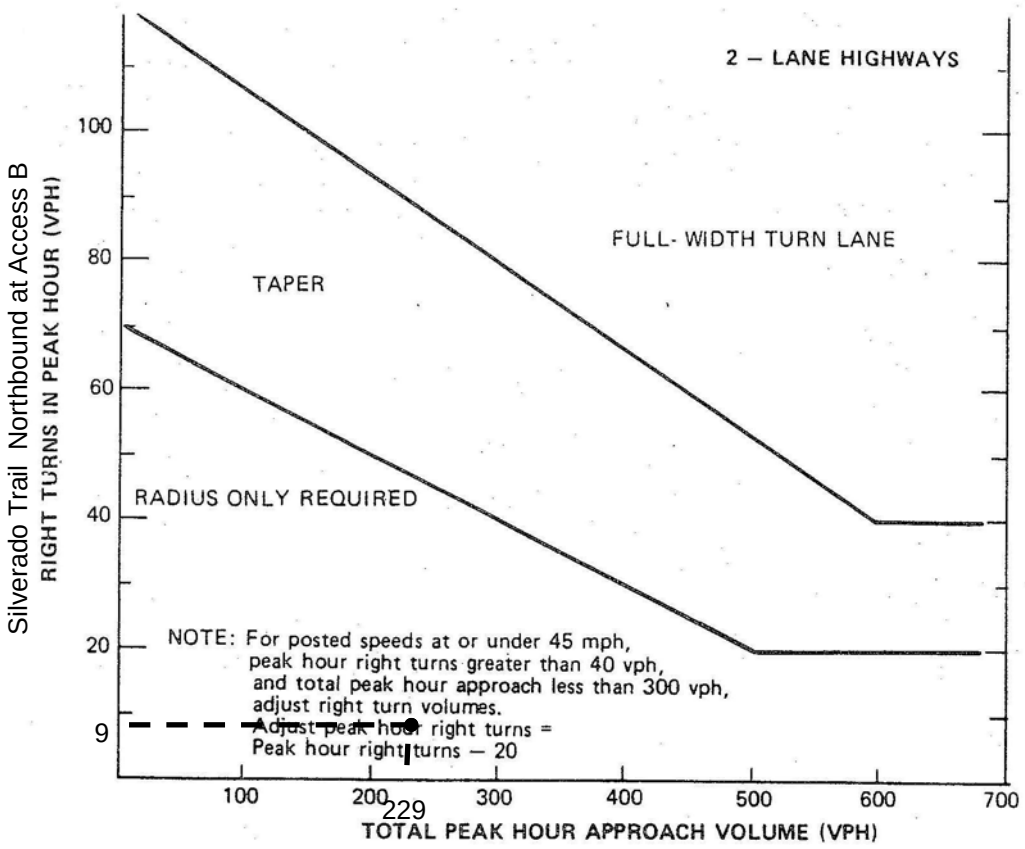

Silverado Trail Northbound at Access B

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access B Intersection

NEAR TERM + PROJECT WEEKEND PEAK HOUR

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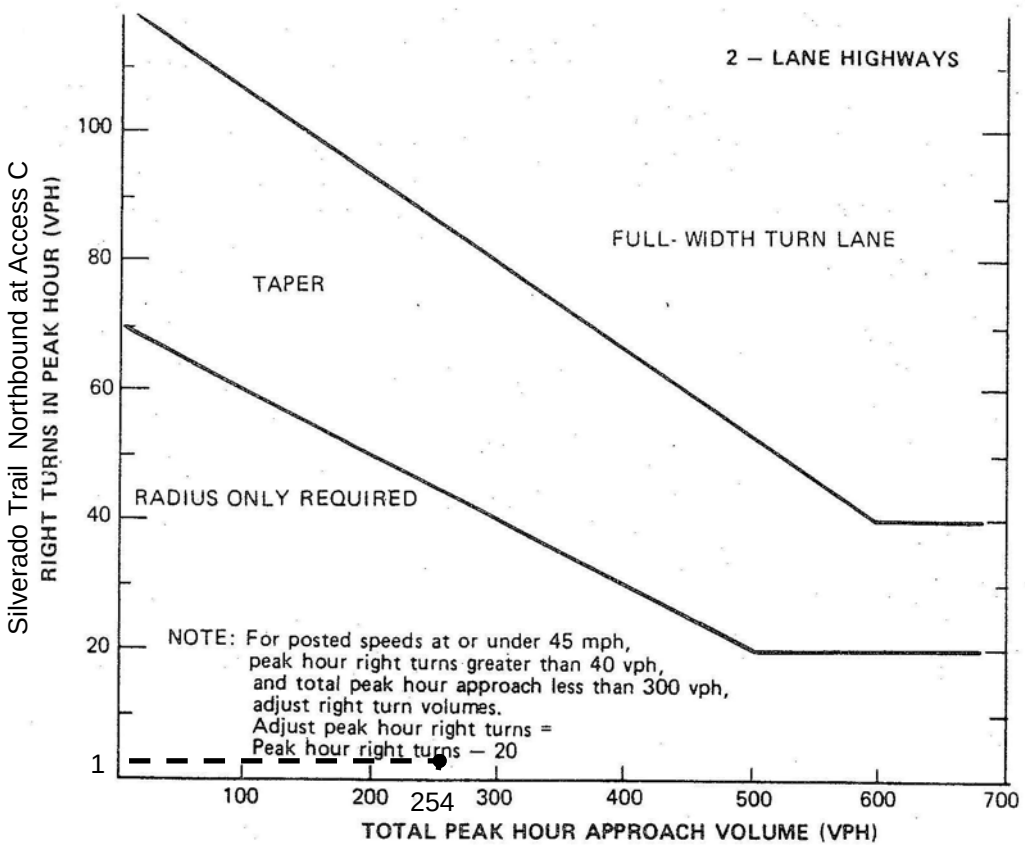


Silverado Trail Northbound at Access C

Davis Estates Winery 2017 Use Permit App.

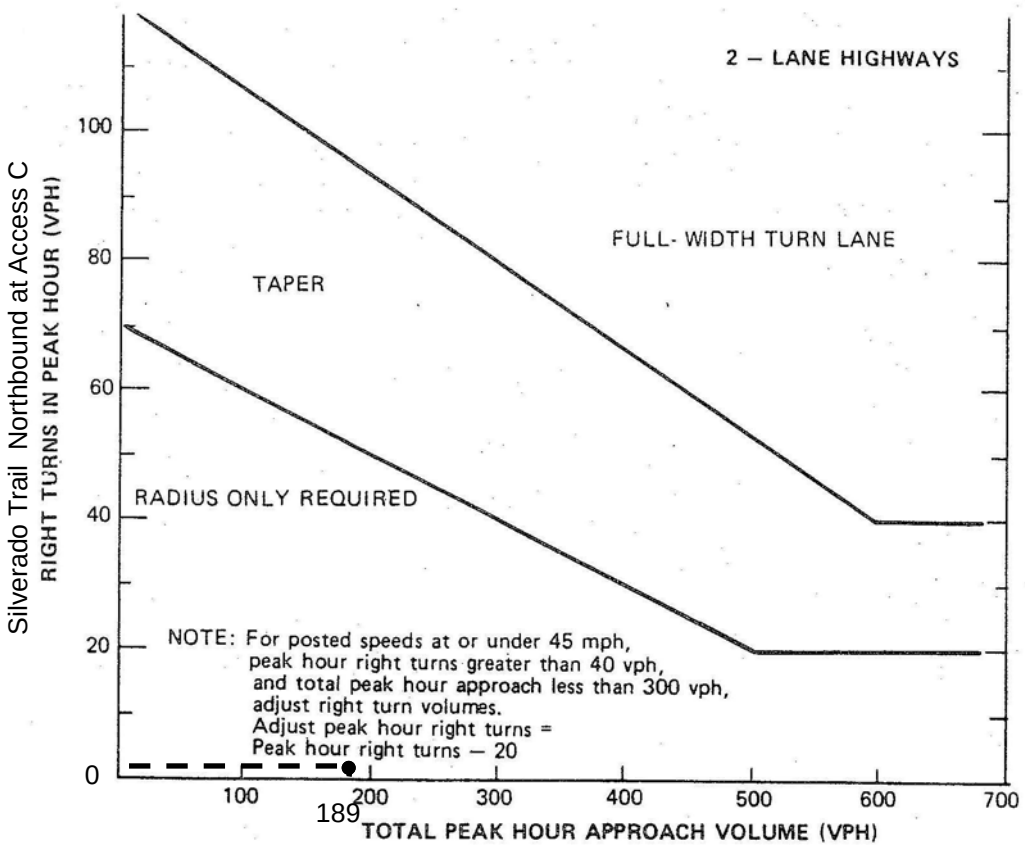
Silverado Trail / Winery Access C Intersection

EXISTING + PROJECT WEEKDAY PM PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

Transportation Research Board, National Cooperative Highway Research Program Report 279, "Intersection Channelization Design Guide", November, 1985.

CALTRANS RIGHT TURN LANE WARRANTS



Silverado Trail Northbound at Access C

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access C Intersection

EXISTING + PROJECT WEEKEND PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

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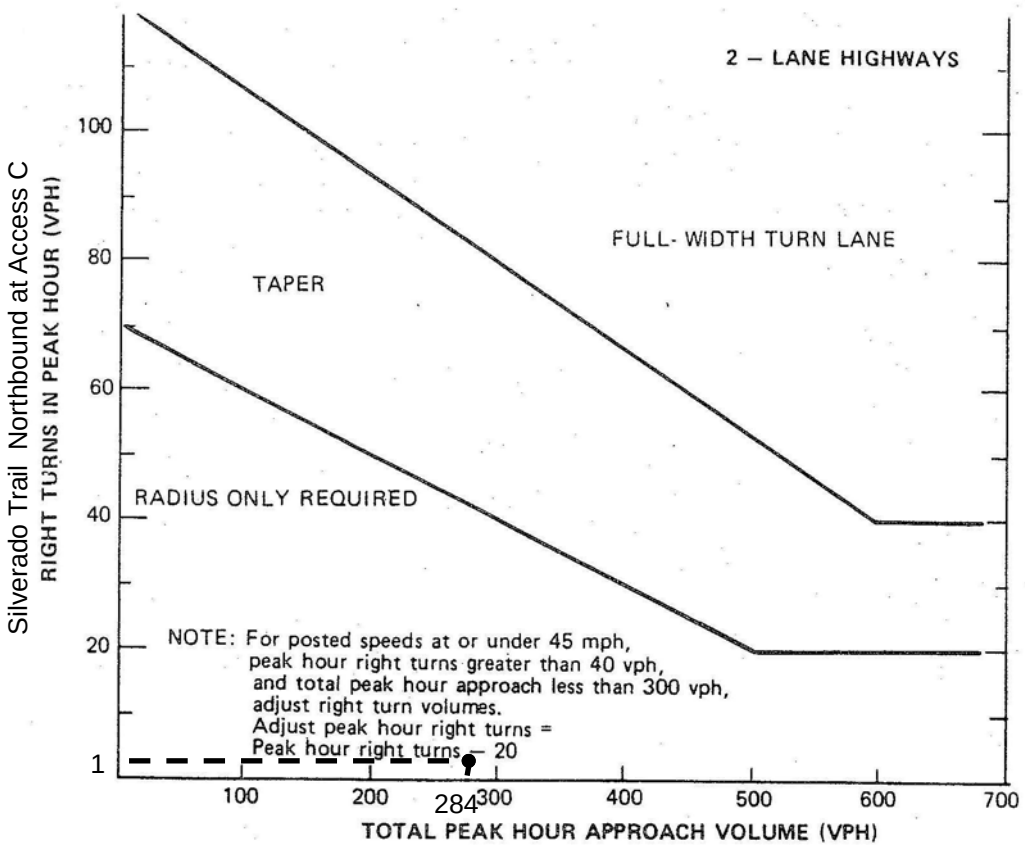
CALTRANS RIGHT TURN LANE WARRANTS



Silverado Trail Northbound at Access C

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access C Intersection

NEAR TERM + PROJECT WEEKDAY PM PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

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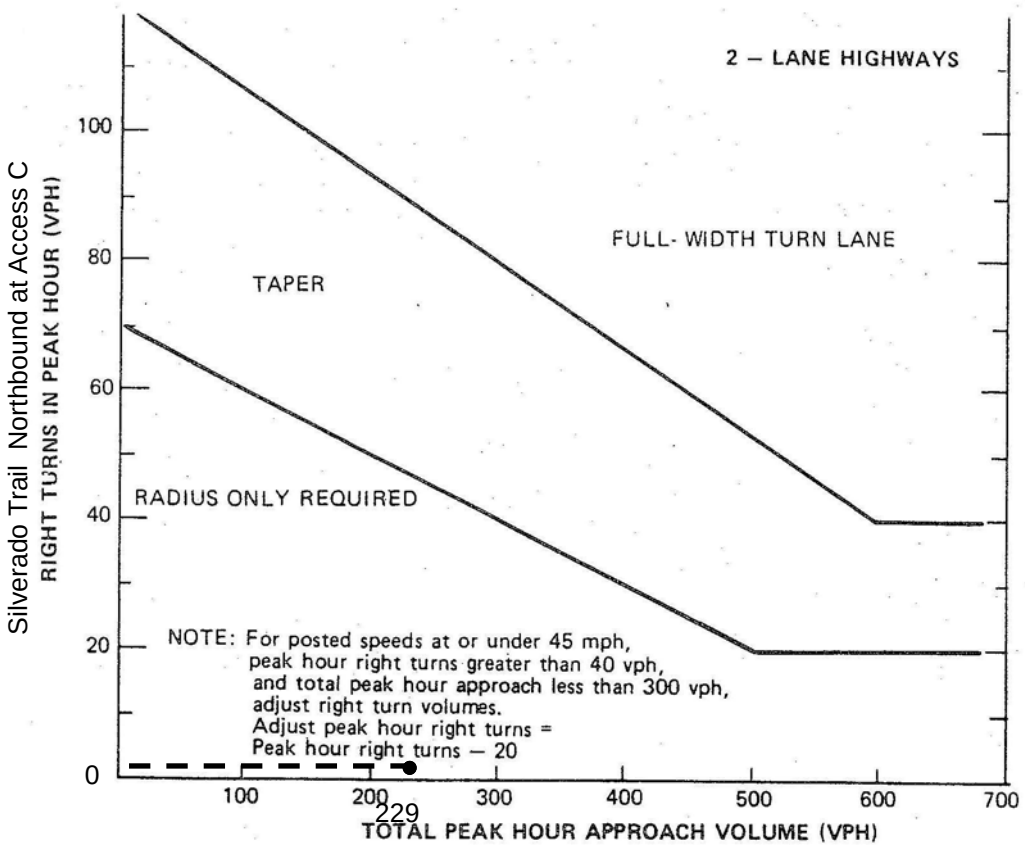


Silverado Trail Northbound at Access C

Davis Estates Winery 2017 Use Permit App.

Silverado Trail / Winery Access C Intersection

NEAR TERM + PROJECT WEEKEND PEAK HOUR

RIGHT TURN LANE NOT WARRANTED

Transportation Research Board, National Cooperative Highway Research Program Report 279, "Intersection Channelization Design Guide", November, 1985.

APPROVED/PENDING DEVELOPMENTS FOR DAVIS ESTATES 2017 USE PERMIT TRAFFIC STUDY

Larkmead Winery	1100 Larkmead Lane
Canard Winery	Dunaweal Ln. near Silverado Trail
Girard Winery	1077 Dunaweal Ln.
Lava Vine Winery	965 Silverado Trail, Calistoga
Silver Rose Winery & Resort	963 Silverado Trail
Indian Springs Resort	1712 Lincoln Avenue
Calistoga Hills (Enchanted Resort)	515 Foothill Boulevard

City of Calistoga Development Impact Fee Study

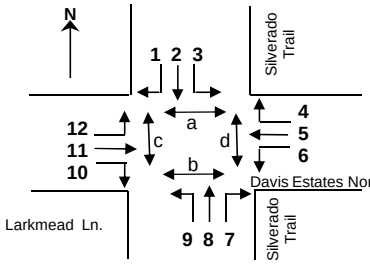
Melka Winery	2900 Silverado Trail
Titus Winery	2971 Silverado Trail

Intersection Volume Worksheet

Silverado Trail / Larkmead Ln. - North Davis Estates Driveway

Davis Estates Winery Project

Counts: 2/10,11/2017
Weather: Clear



A = Adult
T = Teen
C = Child
B = Bike

Weekday PM

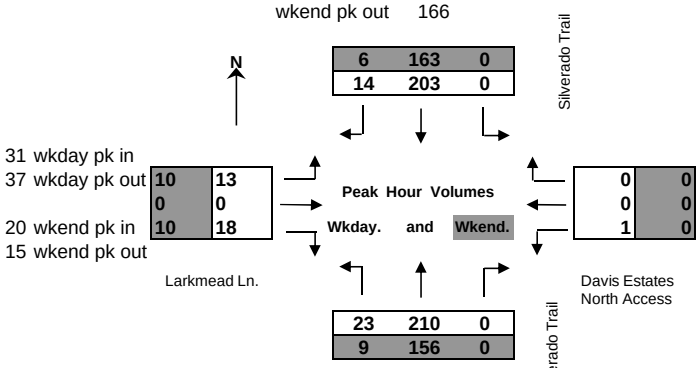
	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	North Driveway Project Access In	Out
4:00-4:15	2	32	0	0	0	0	0	38	2	2	0	0	76		0	0	0
4:15-4:30	1	39	0	1	0	1	0	36	1	4	0	1	84		0	0	2
4:30-4:45	5	50	0	0	0	1	0	47	3	6	0	3	115		0 - 0 / 2AB - 0	0	1
4:45-5:00	2	40	0	0	0	0	0	59	2	2	0	5	110	385	0	0	0
5:00-5:15	2	33	0	0	0	0	0	51	3	2	0	0	91	400	0	0	0
5:15-5:30	1	33	0	0	0	0	0	52	2	1	0	3	92	408	0 - 0 / 2AB - 0	0	0
5:30-5:45	2	34	0	0	0	0	0	50	4	6	0	3	99	392	0	0	0
5:45-6:00	0	27	0	2	0	2	0	37	2	3	0	1	74	356	0	0	4
PeakHour:																	
4:30-5:30	10	156	0	0	0	1	0	209	10	11	0	11	408	408	0 - 0 / 4AB - 0	**0**	**1**
balanced:	**14**	**203**	**0**	**0**	**0**	**1**	**0**	**210**	**23**	**18**	**0**	**13**	**482**		0 - 0 / 4 - 0		
												phf =	0.88				

Weekend Afternoon

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	North Driveway Project Access In	Out
1:00-1:15	0	33	0	0	0	0	0	34	0	2	0	0	69		0	0	0
1:15-1:30	0	42	0	0	0	0	0	41	2	2	0	3	90		0	0	0
1:30-1:45	2	41	0	0	0	0	0	39	1	3	0	2	88		0 - 0 / 0 - 1AB	0	0
1:45-2:00	0	41	0	0	0	0	0	37	2	1	0	3	84	331	1AB - 0 / 0 - 1AB	0	0
2:00-2:15	0	39	0	0	0	0	0	39	1	0	0	2	81	343	0 - 0 / 3AB -1AB	0	0
2:15-2:30	0	26	0	0	0	0	0	34	2	2	0	2	66	319	0	0	0
2:30-2:45	3	41	0	0	0	0	0	42	1	5	0	5	97	328	0 - 0 / 3AB - 0	0	0
2:45-3:00	6	35	0	0	0	0	0	39	4	3	0	3	90	334	0	0	0
PeakHour:																	
1:15-2:15	2	163	0	0	0	0	0	156	6	6	0	10	343	343	0 - 1AB / 4AB - 4AB	**0**	**0**
balanced:	**6**	**163**	**0**	**0**	**0**	**0**	**0**	**156**	**9**	**10**	**0**	**10**	**354**		0 - 1 / 4 - 4		
												phf =	0.95				

wkday pk in 217
wkday pk out 223

wkend pk in 169
wkend pk out 166



wkday pk in 233
wkday pk out 222

wkend pk in 165
wkend pk out 173

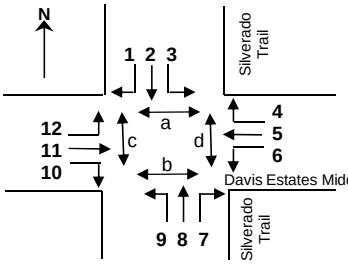
OMNI-MEANS

Intersection Volume Worksheet

Silverado Trail / Middle Davis Estates Driveway

Davis Estates Winery Project

Counts: 2/10,11/2017
Weather: Clear



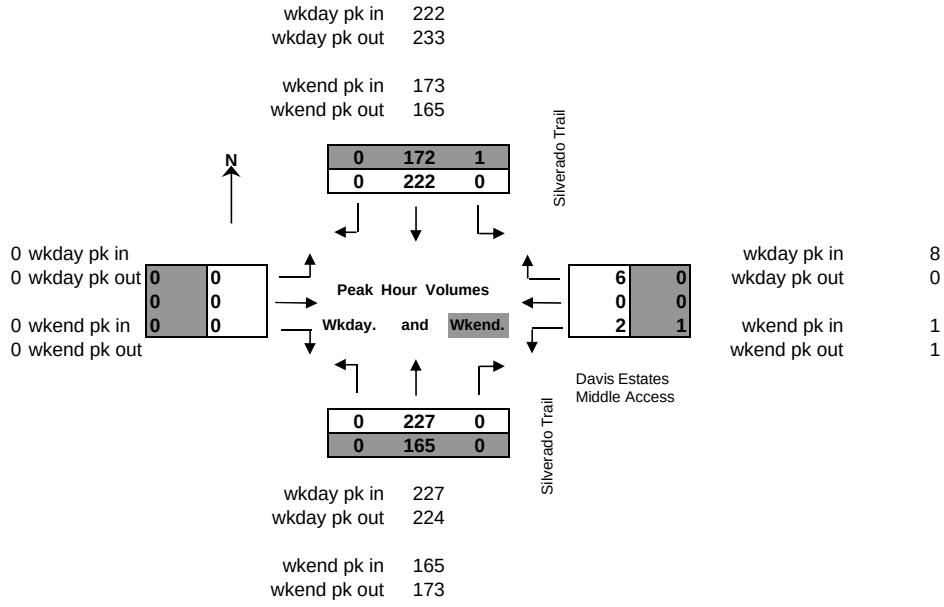
A = Adult
T = Teen
C = Child
B = Bike

Weekday PM

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	Middle Driveway Project Access In	Out
4:00-4:15			0	0		0	0						0		0	0	0
4:15-4:30			0	0		0	0						0		0	0	0
4:30-4:45			0	1		1	0						2		0 - 0 / 2AB - 0	0	2
4:45-5:00			0	2		0	0						2	4	0	0	2
5:00-5:15			0	1		1	0						2	6	0	0	2
5:15-5:30			0	2		0	0						2	8	0 - 0 / 2AB - 0	0	2
5:30-5:45			0	0		0	0						0	6	0	0	0
5:45-6:00			0	0		0	0						0	4	0	0	0
PeakHour:																	
4:30-5:30		222	0	6		2	0	227					457	8	0 - 0 / 4AB - 0	**0**	**8**
balanced:															0 - 0 / 4 - 0		

Weekend Afternoon

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	Middle Driveway Project Access In	Out
1:00-1:15			0	0		0	0						0		0	0	0
1:15-1:30			0	0		0	0						0		0	0	0
1:30-1:45			0	0		0	0						0		0 - 0 / 0 - 1AB	0	0
1:45-2:00			0	0		0	0						0	0	0 - 0 / 0 - 1AB	0	0
2:00-2:15			1	0		1	0						2	2	0 - 0 / 3AB -1AB	1	1
2:15-2:30			0	0		0	0						0	2	0	0	0
2:30-2:45			0	0		0	0						0	2	0 - 0 / 3AB - 0	0	0
2:45-3:00			0	0		0	0						0	2	0	0	0
PeakHour:																	
1:15-2:15		172	1	0		1	0	165					339	2	0 - 1AB / 4AB - 4AB	**1**	**1**
balanced:															0 - 1 / 4 - 4		



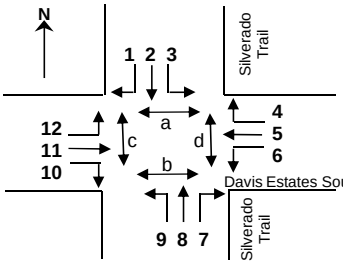
OMNI-MEANS

Intersection Volume Worksheet

Silverado Trail / Larkmead Ln. - South Davis Estates Driveway

Davis Estates Winery Project

Counts: 2/10,11/2017
Weather: Clear



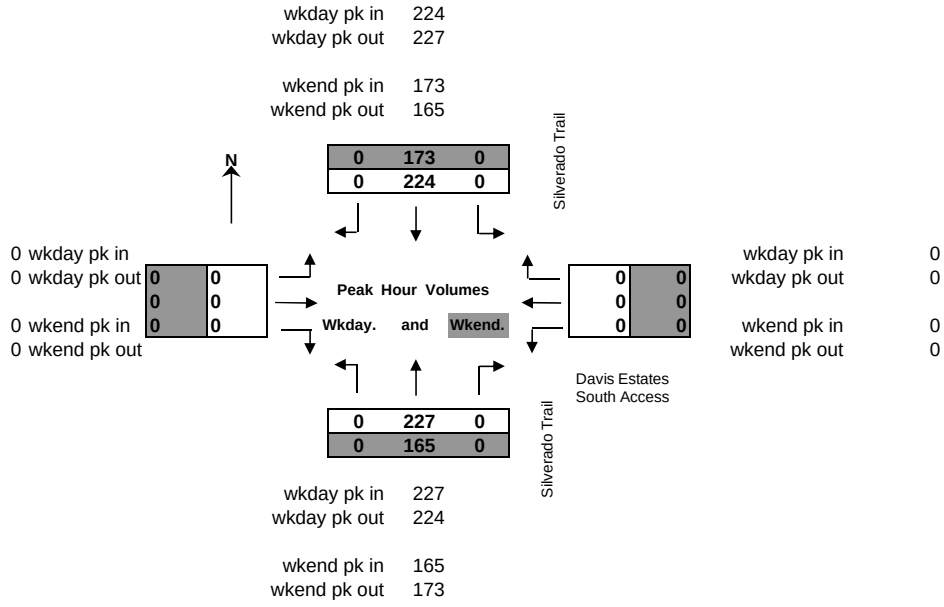
A = Adult
T = Teen
C = Child
B = Bike

Weekday PM

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	South Driveway Project Access In	Out
4:00-4:15			0	0		0	0						0		0	0	0
4:15-4:30			0	0		0	0						0		0	0	0
4:30-4:45			0	0		0	0						0		0 - 0 / 2AB - 0	0	0
4:45-5:00			0	0		0	0						0	0	0	0	0
5:00-5:15			0	0		0	0						0	0	0	0	0
5:15-5:30			0	0		0	0						0	0	0 - 0 / 2AB - 0	0	0
5:30-5:45			0	0		0	0						0	0	0	0	0
5:45-6:00			0	0		0	0						0	0	0	0	0
PeakHour:																	
4:30-5:30		224	0	0		0	0	227					451	0	0 - 0 / 4AB - 0	**0**	**0**
balanced:															0 - 0 / 4 - 0		

Weekend Afternoon

	1	2	3	4	5	6	7	8	9	10	11	12	15 MIN.	60 MIN.	Pds&Bicy a - b / c - d	South Driveway Project Access In	Out
1:00-1:15			0	0		0	0						0		0	0	0
1:15-1:30			0	0		0	0						0		0	0	0
1:30-1:45			0	0		0	0						0		0 - 0 / 0 - 1AB	0	0
1:45-2:00			0	0		0	0						0	0	0 - 0 / 0 - 1AB	0	0
2:00-2:15			0	0		0	0						0	0	0 - 0 / 3AB -1AB	0	0
2:15-2:30			0	0		0	0						0	0	0	0	0
2:30-2:45			0	0		0	0						0	0	0 - 0 / 3AB - 0	0	0
2:45-3:00			0	0		0	0						0	0	0	0	0
PeakHour:																	
1:15-2:15		173	0	0		0	0	165					338	0	0 - 1AB / 4AB - 4AB	**0**	**0**
balanced:															0 - 1 / 4 - 4		

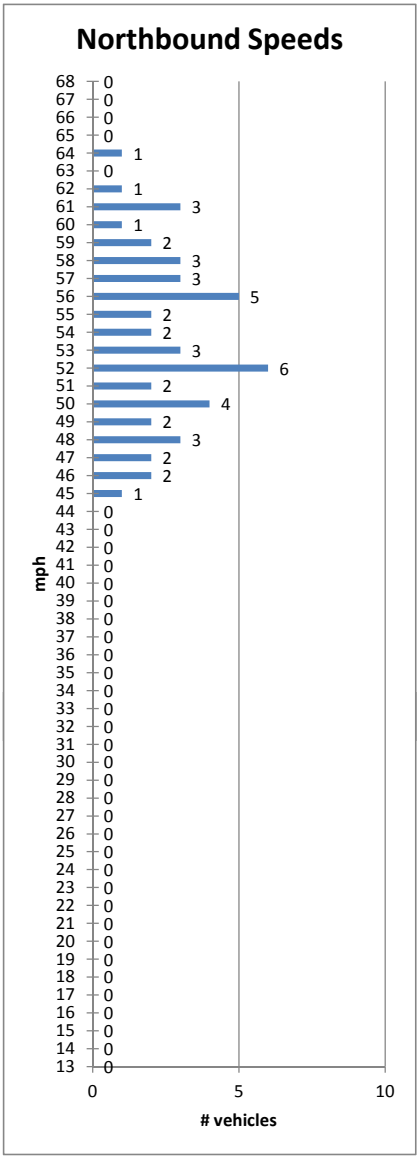


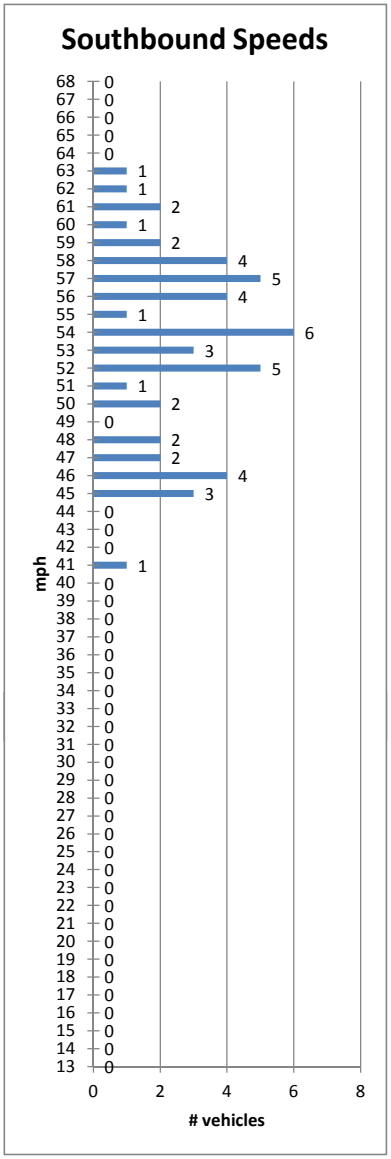
RADAR SPEED SURVEY SUMMARY

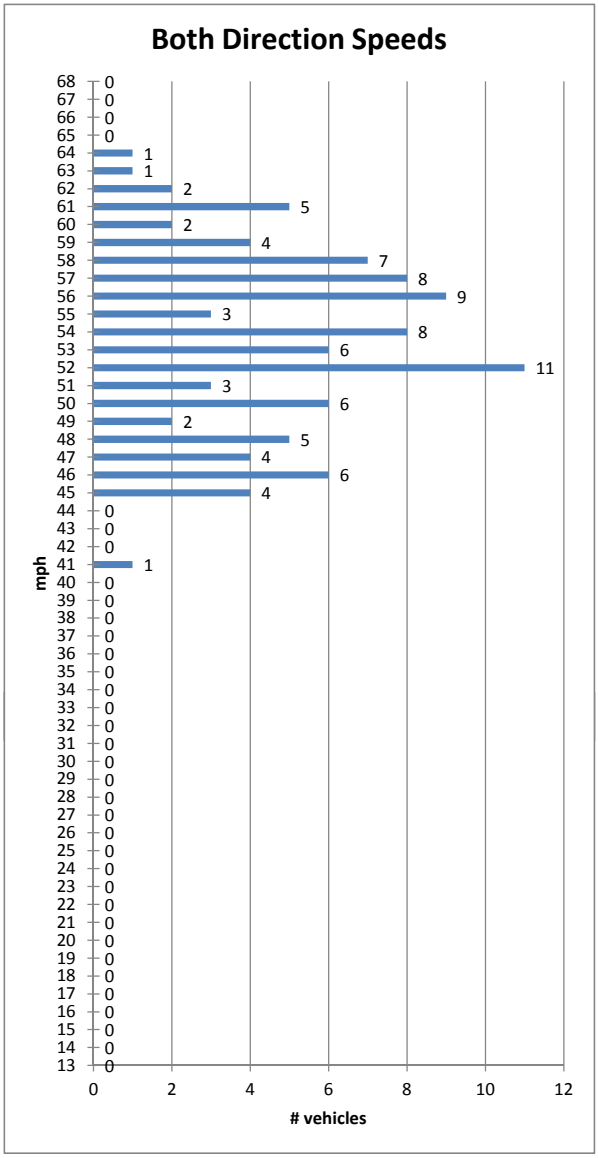
Road: Silverado Trail
Location: approaching Davis Estates Winery

Dates: 2/10,11/2017
Time: 4-5 pm, 2-3 pm
Weather: Clear

Speed Limit: 55 mph







No. of Surveys =	50
Average Speed =	54.4
50th Percentile =	53.5
85th Percentile =	59.7
90th Percentile =	61.0
95th Percentile =	63.1
Pace Speed =	34-43
% in Pace =	71
Vehicles in Pace =	71
Sample Variance =	34.90
Stndrd. Deviation =	5.91
Range 1*S =	0.70
Range 2*S =	0.96
Range 3*S =	0.98

No. of Surveys =	50
Average Speed =	53.3
50th Percentile =	54.0
85th Percentile =	58.0
90th Percentile =	59.1
95th Percentile =	61.0
Pace Speed =	35-44
% in Pace =	86
Vehicles in Pace =	86
Sample Variance =	27.19
Stndrd. Deviation =	4.99
Range 1*S =	0.62
Range 2*S =	0.98
Range 3*S =	1

No. of Surveys =	100
Average Speed =	53.9
50th Percentile =	54.0
85th Percentile =	59.0
90th Percentile =	61.0
95th Percentile =	62.0
Pace Speed =	34-43
% in Pace =	78
Vehicles in Pace =	156
Sample Variance =	31.04
Stndrd. Deviation =	5.57
Range 1*S =	0.67
Range 2*S =	0.97
Range 3*S =	0.98