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Traffic Impact Study
Duckhorn Vineyards Winery Major Modification
P19-00097-MOD

Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Prepared for the County of Napa

File Number: P19-00097

Submitted by

W-Trans

June 10, 2021

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Executive Summary

The proposed project is an update to the current Conditional Use Permit for Duckhorn Vineyards located at 1000 Lodi Lane to allow for an increase in visitation from a maximum of 82 to 219 daily guests and an increase in production from 160,000 to 300,000 gallons annually. As part of the project, a new wine production building would be constructed on the west parcel and the existing hospitality areas on the east parcel would be expanded.

The change in operation resulting from the proposed CUP modification would be expected to result in a net increase of 120 daily trips on a Friday during harvest, including 17 new trips during the p.m. peak hour, and a net increase of 112 new trips on a Saturday during harvest, with 17 new trips during the peak hour. Adjusting the number of net new trips anticipated on Friday to a typical weekday average, and accounting for a two-month harvest season, the project would be expected to result in an average of approximately 79 new daily trips per weekday over the course of the year.

Analysis indicates that the study roadway segments of SR 29, Lodi Lane, and Silverado Trail and the study intersection of Silverado Trail/Lodi Lane are projected to operate acceptably at LOS D or better under Existing, Near-Term, and Cumulative Conditions, and would continue to do so with the addition of project-generated traffic. The study intersection of SR 29/Lodi Lane would operate unacceptably at LOS E or F under Existing and Near-Term Conditions, though the project would result in less than five seconds of additional delay, so the effect is considered acceptable. However, under Cumulative Conditions, the stop-controlled approach at SR 29/Lodi Lane would operate at LOS F and the project would result in an adverse effect since project trips represent more than 10 percent of the anticipated growth during each peak hour. To offset the project's effect under Cumulative volumes, it is recommended that the westbound approach at SR 29/Lodi Lane be restriped to include a dedicated right-turn lane. The cost for this improvement could be shared with the Inn at the Abbey since it was also recommended for that project.

As of the date of this analysis, the County of Napa has not yet established thresholds of significance related to Vehicle Miles Traveled (VMT) so the project was assessed based on guidance provided by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory*. Under this guidance, the project can be presumed to have a less-than-significant impact on VMT since it would result in fewer than 110 new daily trips per typical weekday.

Existing pedestrian and transit facilities serving the site are limited, though given the rural location of the site and anticipated demand for these modes, this is considered an acceptable condition. The existing Class II bike lanes on Silverado Trail along with the shared use of Lodi Lane with motorists and planned facilities consisting of the Vine Trail and a Class III bike route on SR 29 would provide adequate access for bicyclists. The proposed vehicular parking supply is adequate to accommodate the anticipated peak parking demand, though it is recommended that secure parking facilities for ten bicycles be provided on-site.

Access to the Estate House and hospitality areas would continue to occur via the existing driveway on Lodi Lane approximately 200 feet west of Silverado Trail. The new West Winery would be accessed from an existing driveway on Lodi Lane approximate halfway between SR 29 and Silverado Trail. Sight distances were field measured at each driveway location and determined to be adequate for the posted speed limit.

A left-turn lane is warranted at the east driveway under existing volumes based on application of the County's criterion but, even with project trips added, would not be warranted at the west driveway. Although a left-turn lane is warranted at the east driveway, a review of the roadside conditions indicates that numerous trees would need to be removed to accommodate the turn lane, which conflicts with the County's policies to retain heritage trees; conditions to request an exception are therefore satisfied. The driveway to the West Winery should be improved to meet the County's design standards for rural commercial driveways.

Given that study intersection of Silverado Trail/Lodi Lane as well as the study segments of Silverado Trail both north and south of the intersection have calculated collision rates above the statewide average for similar facilities, it is recommended that whichever project is approved first between the Inn at the Abbey or Duckhorn Vineyards work with the County to install a northbound speed feedback sign on Silverado Trail near the Melka Estates Winery driveway. Additionally, the applicant should work with the County to install a speed feedback sign in the southbound direction near Glass Mountain Road.

Introduction

This report presents an analysis of the potential transportation impacts that would be associated with the proposed modification to the Conditional Use Permit (CUP) for Duckhorn Vineyards located at 1000 Lodi Lane in the County of Napa. The traffic study was completed in accordance with the criteria established by the County of Napa, reflects a scope of work requested by County staff, and is consistent with standard traffic engineering techniques.

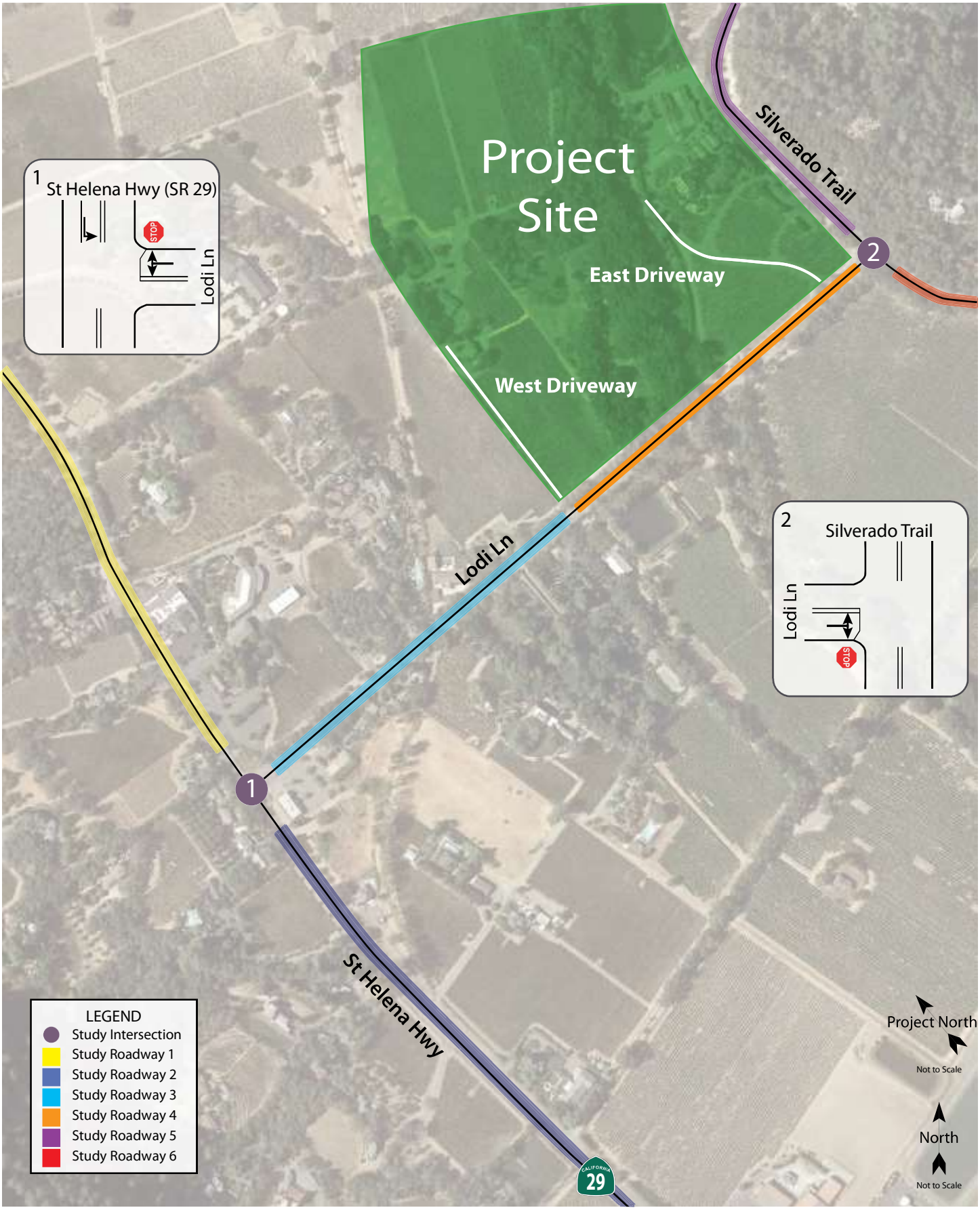
Prelude

The purpose of a traffic impact study is to provide County staff and policy makers with data that they can use to make an informed decision regarding the potential transportation impacts of a proposed project, and any associated improvements that would be required in order to mitigate these impacts to an acceptable level under the California Environmental Quality Act (CEQA), the County's General Plan, or other policies. Impacts relative to access for pedestrians, bicyclists, and to transit are addressed in the context of the CEQA criteria. Consistent with Senate Bill (SB) 743, the project's transportation impacts were analyzed using Vehicle Miles Traveled (VMT). While no longer a part of the CEQA review process, vehicular traffic service levels at key intersections and on affected roadway segments were evaluated for consistency with General Plan policies by determining the number of new trips that the proposed project would be expected to generate, distributing these trips to the surrounding street system based on anticipated travel patterns specific to the proposed project, then analyzing the effect the new traffic would be expected to have on the study intersections and roadway segments.

Project Profile

The proposed project would include construction of a new wine production building on the recently acquired adjacent parcel, expansion of the existing Estate House, and development of additional outdoor hospitality areas. As part of the project, the current Use Permit would be updated to allow for an increase in maximum daily visitation from 82 to 219 guests and an increase in production from 160,000 to 300,000 gallons annually. The largest marketing event would be decreased from 600 to 400 guests. No changes are proposed to staffing levels. The County of Napa file number for this project is P19-00097.

The project site is located on the north side of Lodi Lane, as shown in Figure 1.



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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Figure 1 – Study Area and Existing Lane Configurations

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Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the following intersections and roadway segments. Operating conditions during the Friday and Saturday afternoon peak periods were evaluated as these time periods reflect the highest trip generation potential for the proposed project based on a review of count data collected at the driveway of the existing winery and tasting room. In the study area, the Friday afternoon peak hour generally occurred between 2:30 p.m. and 3:30 p.m., while the Saturday afternoon peak hour generally occurred between 2:00 p.m. and 3:00 p.m. Consistent with the County's *Administrative Draft Traffic Impact Study Guidelines*, dated August 3, 2020, six analysis scenarios were evaluated as is typical for winery analyses, including Existing, Existing plus Project, Baseline (Existing plus Approved), Baseline plus Project, Future, and Future plus Project Conditions.

Study Intersections

1. St. Helena Highway (SR 29)/Lodi Lane
2. Silverado Trail/Lodi Lane

Study Roadways

1. SR 29 – North of Lodi Lane
2. SR 29 – South of Lodi Lane
3. Lodi Lane – West of Project Driveway
4. Lodi Lane – East of Project Driveway
5. Silverado Trail – North of Lodi Lane
6. Silverado Trail – South of Lodi Lane

Study Intersections

For the purposes of this study, SR 29 and Silverado Trail were considered to run north-south and Lodi Lane was considered to run east-west.

SR 29/Lodi Lane is an unsignalized tee-intersection stop-controlled on the westbound Lodi Lane approach. A left-turn lane is provided on the southbound SR 29 approach and the Lodi Lane approach has a flared right-turn area with storage space to accommodate approximately two vehicles.

Silverado Trail/Lodi Lane is an unsignalized tee-intersection stop-controlled on the eastbound Lodi Lane approach. The eastbound approach has a flared right-turn area with storage space to accommodate approximately one vehicle.

The locations of the study intersections and the existing lane configurations and controls are shown in Figure 1.

Study Roadways

SR 29 runs northwest-southeast in the project vicinity and has two 12-foot travel lanes with a posted speed limit of 50 miles per hour (mph). The roadway is mostly straight near Lodi Lane; however, there is a grade of approximately four percent in the northbound direction. The roadway varies in width between approximately 36 and 46 feet depending on the width of the shoulders and the presence of a left-turn lane. Based on count data collected during harvest in August 2017, the average daily traffic (ADT) near Lodi Lane is approximately 15,000 on weekdays and 14,000 on weekend days.

Lodi Lane is a rural two-lane roadway that runs southwest-northeast between SR 29 and Silverado Trail. The roadway varies in width between approximately 24 and 30 feet, has a marked centerline and a posted speed limit of 40 mph, except for the bridge over the Napa River which has a width of 16 feet and functions as a one-lane bridge. Based on traffic counts collected specifically for this study in October 2019, the roadway has an ADT of approximately 1,470 on weekdays and 1,000 on weekend days to the west of the Duckhorn Vineyards driveway.

Silverado Trail is a two-lane roadway that winds its way mostly parallel to SR 29 throughout the Napa Valley. The segment between Bournemouth Road and Glass Mountain Road has a 12-foot travel lane and five-foot bike lane in each direction, is approximately 34 feet wide, and has a posted speed limit of 50 mph, though the horizontal curves to the south of Lodi Lane have a posted advisory speed of 40 mph and the curve to the north has a posted advisory speed of 35 mph.

Collision History

The collision history for the study area was reviewed to determine any trends or patterns that may indicate a safety issue. Collision rates for the study intersections and roadway segments were calculated based on records available from the California Highway Patrol (CHP) as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available at the time of the analysis is October 1, 2014 through September 30, 2019.

As presented in Table 1, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2016 Collision Data on California State Highways*, California Department of Transportation (Caltrans). The intersection of SR 29/Lodi Lane had a collision rate below the statewide average indicating that the intersection is operating acceptably with regards to safety; however, the intersection of Silverado Trail/Lodi Lane had a collision rate slightly higher than the statewide average despite having only three incidents in five years, which warranted further analysis. The collision rate calculations for the study intersections and segments are provided in Appendix A.

Table 1 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2014-2019)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. SR 29/Lodi Ln	3	0.11	0.16
2. Silverado Trail/Lodi Ln	3	**0.22**	0.16

Note: c/mve = collisions per million vehicles entering; **bold** text denotes collision rate exceeds statewide average

Further review of the individual collisions that occurred at Silverado Trail/Lodi Lane revealed that all three of the collisions involved a motorist travelling northbound on Silverado Trial. Two of the collisions involved a following motorist traveling at an unsafe speed and rear-ending a preceding motorist slowing to turn left onto Lodi Lane. The other collision was a broadside due to travelling on the wrong side of the road. The same collision pattern was noted in the *Traffic Impact Study for the Inn at the Abbey*, W-Trans, 2019, which included the following language.

> *"Physical improvements such as installation of a left-turn lane are not feasible due to lack of right-of-way and geographic constraints, including drainage facilities on one side and a hill on the other. Consideration was given to installation of all-way stop-controls but doing so would result in LOS F operation so is not recommended. The two horizontal curves to the south of the intersection have a posted advisory speed of 40 mph and there is approximately 300 feet of stopping sight distance available in the northbound direction while traversing the curves, which is the exact amount recommended by Caltrans for speeds of 40 mph, so adequate stopping sight distance is provided for vehicles traveling at the advisory speed. However, if motorists travel at speeds above the posted advisory speed, sight distance is less than the recommended minimum. Installation of a speed feedback sign near the curves would make motorists more aware of their speed and encourage them to travel at a more appropriate speed for the amount of stopping sight distance available. It is recommended that the applicant work with County staff to install a speed feedback sign on Silverado Trail in the northbound direction between the driveway to Melka Estates Winery and the horizontal curve. Additionally, increased enforcement may reduce unsafe speeds on Silverado Trail and consequently the frequency of rear-end collisions."*

It is recommended that whichever project is approved first between the Inn at the Abbey and Duckhorn Vineyards work with the County to install a speed feedback sign at the location identified above.

Collision rates for the study roadway segments are compared to statewide averages for similar facilities in Table 2. It is noted that Ehlers Lane was used as the northern boundary for SR 29 while Glass Mountain Road was used as the northern boundary for Silverado Trail and Deer Park Road was used as the southern boundary for both SR 29 and Silverado Trail. SR 29 experienced collisions at below-average rates and Silverado Trail had calculated collision rates higher than the statewide average; there were no collisions reported on Lodi Lane during the evaluation period.

Table 2 – Collision Rates for the Study Roadway Segments

Study Roadway Segment	Number of Collisions (2014-2019)	Calculated Collision Rate (c/mvm)	Statewide Average Collision Rate (c/mvm)
1. SR 29 – North of Lodi Ln	9	0.61	1.10
2. SR 29 – South of Lodi Ln	15	0.97	1.10
3. Lodi Ln – West of Project Dwy	0	0.00	0.98
4. Lodi Ln – East of Project Dwy	0	0.00	0.98
5. Silverado Trail – North of Lodi Ln	10	**1.69**	1.12
6. Silverado Trail – South of Lodi Ln	10	**1.64**	1.12

Note: c/mvm = collisions per million vehicles miles; **bold** text denotes collision rate exceeds statewide average

A total of 10 collisions were reported on each segment of Silverado Trail, to both the north and south of Lodi Lane. Considering both segments, 11 of the 20 collisions involved a motorist travelling southbound and nine involved a motorist travelling northbound, resulting in no particular trend in terms of directionality. Approximately 70 percent of the collisions were attributed to unsafe speed or improper turning, which is consistent with the collisions that occurred at the intersection of Silverado Trail/Lodi Lane, and is likely due to the fact that the 1.1-mile roadway segment between Glass Mountain Road and Deer Park Road has five horizontal curves. Installation of a speed feedback sign near the Melka Estates Winery driveway would not just help to reduce collisions at the Lodi Lane intersection, but along the segment in general in the northbound direction. To address collisions in the southbound direction, it is recommended that the applicant work with the County to install a speed feedback sign facing southbound traffic near the 45-mph speed limit sign posted south of Glass Mountain Road.

Alternative Modes

Pedestrian Facilities

Pedestrian facilities include sidewalks, crosswalks, pedestrian signal phases, curb ramps, curb extensions, and various streetscape amenities such as lighting, benches, etc. As might be expected given the rural location of Duckhorn Winery, a connected pedestrian network is lacking, though such facilities would not be appropriate in this setting.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2017, classifies bikeways into four categories:

- **Class I Multi-Use Path** – a completely separated right-of-way for the exclusive use of bicycles and pedestrians with cross flows of motorized traffic minimized.
- **Class II Bike Lane** – a striped and signed lane for one-way bike travel on a street or highway.
- **Class III Bike Route** – signing only for shared use with motor vehicles within the same travel lane on a street or highway.
- **Class IV Bikeway** – also known as a separated bikeway, a Class IV Bikeway is for the exclusive use of bicycles and includes a separation between the bikeway and the motor vehicle traffic lane. The separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking.

There are existing Class II bike lanes on Silverado Trail in the project study area and there are plans to provide a Class III bike route on SR 29 and a Class I regional trail (the Vine Trail) parallel to SR 29 that would ultimately connect Vallejo to Calistoga. A 12.5-mile segment of the Vine Trail has already been constructed between south Napa and Yountville; the Napa Valley Vine Trail Coalition (NVVTC) has stated that they are hoping to complete the rest of the trail network by 2022. Table 3 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *Napa Countywide Bicycle Plan*, Napa Valley Transportation Authority (NVTA), 2019.

Table 3 – Existing and Planned Bicycle Facilities in the Project Vicinity				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Silverado Trail	II	2.9	Bale Ln	Deer Park Rd
Planned				
Vine Trail	I	3.1	Lodi Ln	Deer Park Rd
SR 29	III	6.2	Calistoga City Limit	Deer Park Rd

Source: *Napa Countywide Bicycle Plan,* Napa Valley Transportation Authority, 2019

Transit Facilities

Transit services throughout Napa County are provided by Napa Valley Transit (VINE). There are no transit routes that stop within one-quarter mile, which is considered a comfortable walking distance, of the project site. The closest transit access is approximately 0.7 miles from the Duckhorn property on SR 29 at Lodi Lane. VINE Route 10 provides service between Napa Valley College and Calistoga seven days a week and stops on SR 29 to the north of Lodi Lane in both directions. Both stops are equipped with benches and the southbound stop has an overhead shelter. While these bus stops are not within acceptable walking distance of the project site, employees could reasonably bike between the project site and the bus stops.

All vehicles used by VINE are wheelchair accessible and conform to standards set forth by the Americans with Disabilities Act (ADA). However, dial-a-ride, also known as paratransit or door-to-door service, is available for those who are unable to independently use the transit system due to a physical or mental disability. VINE Go is VINE's paratransit service and is designed to serve the needs of individuals with disabilities in the cities of Calistoga, St. Helena, Napa, American Canyon, the Town of Yountville, and the unincorporated areas of Napa County. Reservations are required and, while can be made the same day of the trip, are recommended to be made in advance.

Capacity Analysis

Intersection Level of Service Methodologies

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, Level of Service A represents free flow conditions and Level of Service F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

The study intersections were analyzed using the "Two-Way Stop-Controlled" methodology published in the *Highway Capacity Manual*, 6th Edition, Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The "Two-Way Stop-Controlled" intersection capacity methodology determines a level of service for each minor turning movement by estimating the level of average delay in seconds per vehicle. Results are presented for individual movements together with the weighted overall average delay for the intersection.

The ranges of delay associated with the various levels of service are indicated in Table 4.

Table 4 – Two-Way Stop-Controlled Intersection Level of Service Criteria

LOS A	Delay of 0 to 10 seconds. Gaps in traffic are readily available for drivers exiting the minor street.
LOS B	Delay of 10 to 15 seconds. Gaps in traffic are somewhat less readily available than with LOS A, but no queuing occurs on the minor street.
LOS C	Delay of 15 to 25 seconds. Acceptable gaps in traffic are less frequent, and drivers may approach while another vehicle is already waiting to exit the side street.
LOS D	Delay of 25 to 35 seconds. There are fewer acceptable gaps in traffic, and drivers may enter a queue of one or two vehicles on the side street.
LOS E	Delay of 35 to 50 seconds. Few acceptable gaps in traffic are available, and longer queues may form on the side street.
LOS F	Delay of more than 50 seconds. Drivers may wait for long periods before there is an acceptable gap in traffic for exiting the side streets, creating long queues.

Reference: *Highway Capacity Manual*, 6th Edition, Transportation Research Board, 2018

Two-Lane Highway Segment Level of Service Methodology

The roadway segment Level of Service methodology found in Chapter 15, "Two-Lane Highways," of the *Highway Capacity Manual* is the basis of the automobile LOS analysis. The methodology considers traffic volumes, terrain, roadway cross-section, the proportion of heavy vehicles, and the availability of passing zones. The LOS criteria for two-lane highways differs depending on whether the highway is considered "Class I," "Class II," or "Class III." Class I highways are typically long-distance routes connecting major traffic generators or national highway networks where motorists expect to travel at high speeds. Motorists do not necessarily expect to travel at high speeds on Class II highways, which often function as scenic or recreational routes and typically serve shorter trips. Class III highways may be

portions of Class I or Class II highways that pass through towns and communities and have a mix of local traffic and through traffic.

The measure of effectiveness by which Level of Service is determined on Class I highways is average travel speed (ATS) and percent time spent following (PTSF), or the proportion of time that drivers on the highway are limited in their speed by a driver in front of them. Class II highways are also assessed in terms of PTSF. Class III highways are measured by percent of free-flow speed (PFFS), which represents the ability of vehicles to travel at or near the posted speed limit. SR 29, Silverado Trail, and Lodi Lane were all defined as a Class II highway for the purposes of this analysis. A summary of the PTSF breakpoints for Class II highways are shown in Table 5.

Table 5 – Automobile Level of Service Criteria

LOS	Class II Highways PTSF (%)
A	≤40
B	>40-55
C	>55-70
D	>70-85
E	>85

Notes: LOS = Level of Service; PTSF = Percent Time Spent Following
Reference: *Highway Capacity Manual*, 6th Edition, Transportation Research Board, 2018

Traffic Operation Standards

Napa County

In the Circulation Element of the *Napa County General Plan*, the following policies have been adopted:

- **Policy CIR-31** – The County seeks to provide a roadway system that maintains current roadway capacities in most locations and is efficient in providing local access.

- **Policy CIR-38** – The County seeks to maintain operations of roads and intersections in the unincorporated County area that minimize travel delays and promote safe access for all users. Operational analysis shall be conducted according to the latest version of the *Highway Capacity Manual* and as described in the current version of the County's Transportation Impact Study Guidelines. In general, the County seeks to maintain Level of Service (LOS) D on arterial roadways and at signalized intersections, as the service level that best aligns with the County's desire to balance its rural character with the needs of supporting economic vitality and growth.

  In situations where the County determines that achieving LOS D would cause an unacceptable conflict with other goals and objectives, minimizing collisions and the adequacy of local access will be the County's priorities. Mitigating operational impacts should first focus on reducing the project's vehicular trips through modifying the project definition, applying TDM strategies, and/or applying new technologies that could reduce vehicular travel and associated delays; then secondarily should consider physical infrastructure changes. Proposed mitigations will be evaluated for their effect on

collisions and local access, and for their effectiveness in achieving the maximum potential reduction in the project's operational impacts (see the County's Transportation Impact Study Guidelines for a list of potential mitigation measures).

The following roadway segments are exceptions to the LOS D standard described above:

- *State Route 29 in the unincorporated areas between Yountville and Calistoga: LOS F is acceptable.*
- *Silverado Trail between State Route 128 and Yountville Cross Road: LOS E is acceptable.*
- *State Route 12/121 between the Napa/Sonoma county line and Carneros Junction: LOS F is acceptable.*
- *American Canyon Road from I-80 to American Canyon City Limit: LOS E is acceptable.*

To provide a more quantitative method of adhering to the above standards, the County refers to a memorandum titled G*uidelines for Application of Updated General Plan Circulation Policies on Significance Criteria Related to Vehicle Level of Service* (Fehr & Peers, 2020). The document establishes thresholds for road segments and different intersection control types. The memorandum states a project would cause an adverse effect requiring mitigation if, for Existing Conditions:

- An arterial segment operates at LOS A, B, C or D during the selected peak hours without Project trips, and deteriorates to LOS E or F with the addition of Project trips; or

- An arterial segment operates at LOS E or F during the selected peak hours without Project trips, and the addition of Project trips increases the total segment volume by **one percent** or more. The following equation should be used if the arterial segment operates at LOS E or F without the Project:

  - *Project Contribution % = Project Trips ÷ Existing Volumes*

- A signalized intersection operates at LOS A, B, C, or D during the selected peak hours without Project trips, and the LOS deteriorates to LOS E or F with the addition of Project trips; or

- A signalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the addition of Project trips increases the total entering volume by **one percent** or more. The following equation should be applied:

  - *Project Contribution % = Project Trips ÷ Existing Volumes*

- An unsignalized intersection operates at LOS A, B, C, or 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 traffic signal warrant criteria should also be evaluated and presented for informational purposes; or

- An unsignalized intersection operates at LOS E or F during the selected peak hours without Project trips, and the Project increases the delay be **five seconds** or more; the peak hour traffic signal warrant criteria should also be evaluated and presented for informational purposes.

  - *<u>All-Way Stop-Controlled Intersections</u> – The increase in delay should be calculated based on the overall average delay for the intersection.*

- *<u>Side-Street Stop-Controlled Intersections</u> – The increase in delay should be calculated based on the delay for the worst-case approach(es). Each stop-controlled approach that operates at LOS E or F should be analyzed individually.*

A project would cause an adverse effect requiring mitigation if, for Future (Cumulative) Conditions, the Project's volume is equal to, or greater than **one percent** of the difference between Future and Existing volumes for an arterial, signalized intersection, or all-way stop-controlled intersection and **10 percent** for the impacted approach at two-way stop-controlled intersections.

- <u>Cumulative Conditions</u> – A Project's contribution to a cumulative condition would be calculated as the Project's percentage contribution to the total growth in traffic. This calculation applies to arterials, signalized intersections, and unsignalized intersections.
  - *Project Contribution % = Project Trips ÷ (Cumulative Volumes – Existing Volumes)*

Significance threshold for failing intersections: General Plan policy accepts LOS E and F in certain instances. If an unsignalized intersection is operating acceptably (LOS A through LOS D), and the project would cause the intersection to fall to LOS E or LOS F, the applicant must mitigate the impact to restore to LOS D at minimum, or the project is considered to adversely affect operation of the intersection. If an intersection is already LOS E or LOS F, and the project would increase delay by five or more seconds, the applicant must mitigate the impact to lower the increase in delay, or else the project would be considered to adversely affect the intersection. The same standards apply to the analysis of minor approaches to unsignalized intersections. As CEQA Guidelines have shifted away from LOS and toward VMT as the determining factor in identifying significant transportation impacts, adverse effects to intersections may still be the basis for conditioning transportation improvements to improve or maintain existing LOS or denying a project for the project's potentially negative effects on public safety.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the afternoon p.m. peak hour on both Fridays and Saturdays. Volume data collected at the winery driveway during harvest in October 2019 indicates that the site generates the highest percentage of trips in the afternoon period on both Fridays and Saturdays so intersection turning movement volumes were collected at both study intersections between 2:00 and 5:00 p.m. on Fridays and between 2:00 and 4:00 p.m. on Saturdays. All count data was collected during typical harvest operations and clear weather conditions. Consistent with the TIS Guidelines, intersection turning movement counts were collected on two separate Fridays and Saturdays and the higher of the two counts was retained for the analysis. Peak hour segment volumes for each of the six study roadway segments were derived from the intersection counts.

Peak hour factors (PHFs) were calculated based on the counts obtained and used in the level of service calculations. Additionally, the percentage of heavy vehicles at each intersection was calculated based on previous data collected during harvest in September 2017. For the purpose of this study, heavy vehicles were considered to be trucks hauling grapes or those with five or more axles. The data indicates that heavy vehicles represent four percent of all vehicles through the intersection of SR 29/Lodi Lane during the Friday p.m. peak hour and two percent during the Saturday p.m. peak hour. At Silverado Trail/Lodi Lane, heavy vehicles represent two and three percent of vehicles during the Friday p.m. and Saturday p.m.

peak hours, respectively. The PHFs are included in the traffic counts in Appendix B along with the heavy vehicle volume data.

Intersection Levels of Service

The stop-controlled minor street approaches are operating acceptably under Existing Conditions at both study intersections during both peak periods evaluated, except for SR 29/Lodi Lane during the Friday p.m. peak hour. The Existing traffic volumes are shown in Figure 2. A summary of the intersection level of service calculations is contained in Table 6, and copies of the intersection Level of Service calculations for all evaluated scenarios are provided in Appendix C.

Table 6 – Existing Peak Hour Intersection Levels of Service

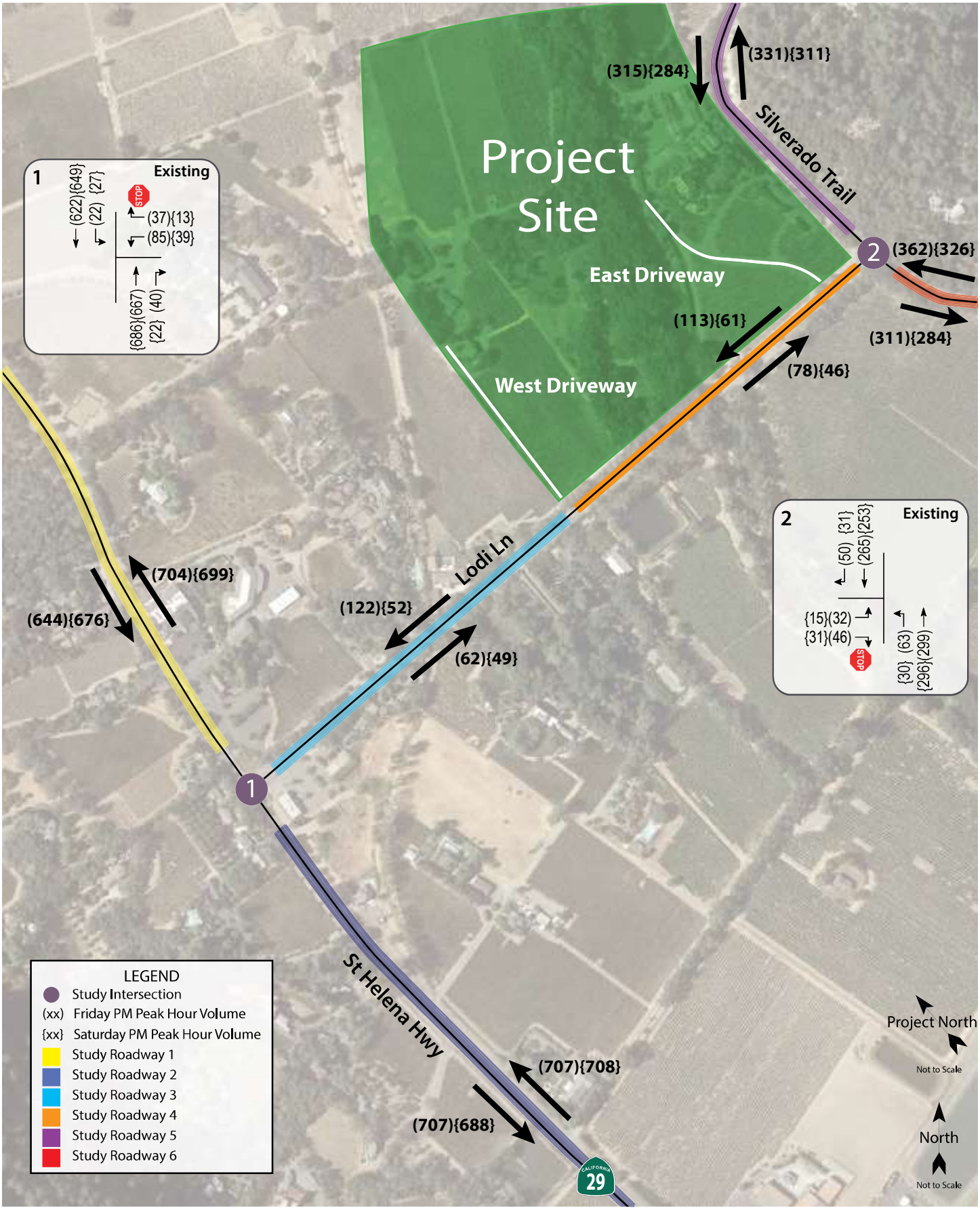
Study Intersection *Approach*	Friday PM Peak		Saturday MD Peak	
	Delay	**LOS**	**Delay**	**LOS**
1. SR 29/Lodi Ln	4.4	A	1.5	A
Westbound (Lodi Ln) Approach	***51.1***	***F***	*34.7*	*D*
2. Silverado Trail/Lodi Ln	2.0	A	1.2	A
Eastbound (Lodi Ln) Approach	*12.4*	*B*	*11.4*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation

The County's General Plan does not specify an LOS standard for unsignalized intersections, which are to be evaluated on case-by-case basis, so for the purposes of this analysis and to be consistent with the recommendations in the County's TIS Guidelines, LOS D was considered the target threshold for stop-controlled approaches at unsignalized intersections. The TIS Guidelines also recommend that peak hour signal warrants be evaluated for unsignalized intersections that operate at LOS E or F; however, based on previous discussions with County and Caltrans staff, it is understood that installation of a traffic signal would not be appropriate at either of the study intersections so warrants were not evaluated.

Roadway Segment Levels of Service

Under Existing Conditions, the study segments all operate at LOS C or better during both peak hours, which meets the County's standard of LOS D. The Existing segment volumes are shown in Figure 2 with the intersection volumes. A summary of the roadway segment level of service calculations is shown in Table 7, and copies of the roadway segment Level of Service calculations for all evaluated scenarios are provided in Appendix D.



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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Figure 2 – Existing Traffic Volumes

Table 7 – Existing Peak Hour Roadway Segment Levels of Service				
Study Segment Direction	**Friday PM Peak**		**Saturday PM Peak**	
	PTSF	**LOS**	**PTSF**	**LOS**
1. SR 29 - North of Lodi Ln				
Northbound	65.1	C	64.9	C
Southbound	63.0	C	64.4	C
2. SR 29 - South of Lodi Ln				
Northbound	65.3	C	65.3	C
Southbound	65.6	C	64.8	C
3. Lodi Ln - West of Project Dwy				
Eastbound	17.6	A	15.1	A
Westbound	27.0	A	15.7	A
4. Lodi Ln - East of Project Dwy				
Eastbound	20.4	A	14.5	A
Westbound	25.2	A	17.5	A
5. Silverado Trail - North of Lodi Ln				
Northbound	46.6	B	46.3	B
Southbound	45.1	B	43.9	B
6. Silverado Trail - South of Lodi Ln				
Northbound	48.8	B	47.5	B
Southbound	44.8	B	43.9	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Near-Term Conditions

Trips associated with the pending Inn at the Abbey project to be located on the Freemark Abbey Winery property at the west end of Lodi Lane were added to Existing intersection and segment volumes in order to develop volumes that would be representative of conditions once the lodging project is open. The Inn at the Abbey project consists of 79 hotel rooms and is expected to generate an average of 645 new trips per day, including 33 weekday p.m. peak hour trips and 57 trips during the weekend peak hour, as documented in the *Traffic Impact Study for the Inn at the Abbey*, W-Trans, 2019. The "Project" volumes from this prior analysis were used to evaluate the Near-Term Conditions scenario, which is also known as Baseline or Existing plus Approved Conditions.

Intersection Levels of Service

Under Near-Term Conditions, the stop-controlled approach at SR 29/Lodi Lane would continue to operate at LOS F during the Friday p.m. peak hour and would deteriorate from LOS D to LOS E during the Saturday p.m. peak hour. The intersection of Silverado Trail/Lodi Lane would operate acceptably during both peak

hours. The Near-Term intersection volumes are shown in Figure 3 and a summary of the intersection Level of Service calculations is contained in Table 8.

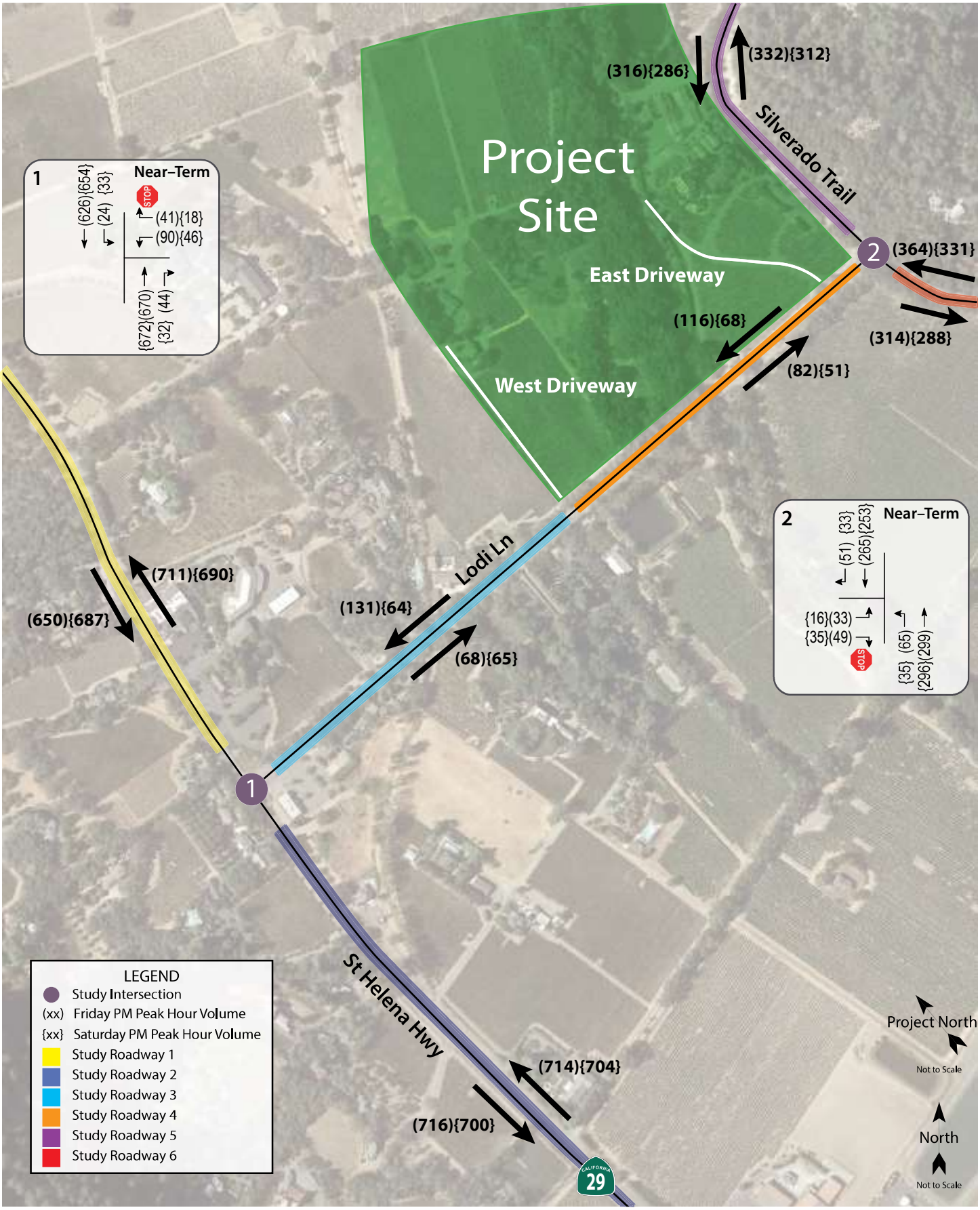
Table 8 – Near-Term Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Friday PM Peak		Saturday PM Peak	
	Delay	**LOS**	**Delay**	**LOS**
1. SR 29/Lodi Ln	5.1	A	1.8	A
Westbound (Lodi Ln) Approach	***56.6***	***F***	***36.5***	***E***
2. Silverado Trail/Lodi Ln	2.0	A	1.3	A
Eastbound (Lodi Ln) Approach	*12.4*	*B*	*11.4*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation

Roadway Segment Levels of Service

Under Near-Term Conditions, all six study roadway segments are expected to operate at LOS C or better during both peak hours. Near-Term segment volumes are shown in Figure 3 and a summary of the roadway segment Level of Service calculations is shown in Table 9.



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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Figure 3 – Near–Term Traffic Volumes

Table 9 – Near-Term Peak Hour Roadway Segment Levels of Service				
Study Segment Direction	**Friday PM Peak**		**Saturday PM Peak**	
	PTSF	**LOS**	**PTSF**	**LOS**
1. SR 29 - North of Lodi Ln				
Northbound	65.4	C	64.6	C
Southbound	63.3	C	64.8	C
2. SR 29 - South of Lodi Ln				
Northbound	65.5	C	65.1	C
Southbound	65.9	C	65.3	C
3. Lodi Ln - West of Project Dwy				
Eastbound	18.7	A	18.2	A
Westbound	28.2	A	17.9	A
4. Lodi Ln - East of Project Dwy				
Eastbound	21.1	A	15.6	A
Westbound	25.6	A	18.8	A
5. Silverado Trail - North of Lodi Ln				
Northbound	46.6	B	46.4	B
Southbound	45.2	B	44.1	B
6. Silverado Trail - South of Lodi Ln				
Northbound	48.9	B	47.9	B
Southbound	45.0	B	44.2	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Cumulative (Future) Conditions

Future volumes for the horizon year 2040 were calculated based on output from the *Napa Solano Travel Demand Model*, maintained by the Solano Transportation Authority (STA). Base year (2015) and future (2040) segment volumes for the weekday p.m. peak hour were used to calculate growth factors for SR 29 and Silverado Trail; it is noted that Lodi Lane is not included in the model so the growth on this roadway was assumed to increase at one-half percent annually given that there are limited opportunities for growth on the segment.

The growth factors projected by the model were adjusted to account for the four years of growth that had already occurred between the base year (2015) and existing (2019) count data, resulting in a growth factor of 1.46 for SR 29 and 1.37 for Silverado Trail. The existing counts were then multiplied by the adjusted growth factors to project likely Future Friday p.m. peak hour turning movement volumes at the study intersections. The same growth factors used for the Friday p.m. peak hour were used for the Saturday p.m. peak hour as the model does not contain information for weekend days. Roadway segment volumes for each segment were then derived from the projected Future intersection turning movement volumes.

Intersection Levels of Service

Under Cumulative Conditions, and with no changes to the intersection's configuration or controls, the stop-controlled approach at SR 29/Lodi Lane would be expected to operate at LOS F during both peak hours with calculated delays well above what is considered reliable within the bounds of the HCM methodology. However, the intersection of Silverado Trail/Lodi Lane would operate acceptably during both peak hours. The Cumulative intersection volumes are shown in Figure 4 and a summary of the intersection level of service calculations is contained in Table 10.

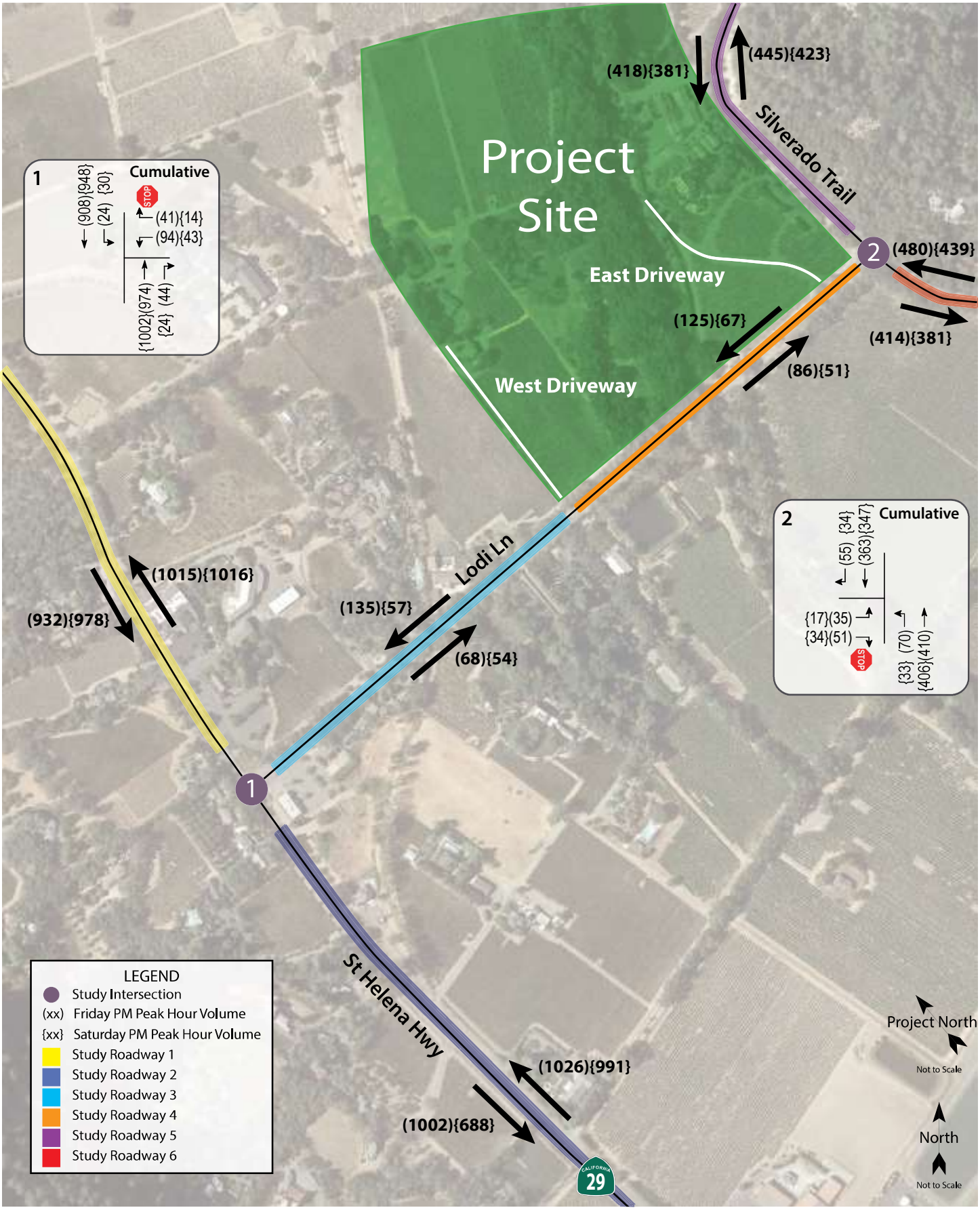
Table 10 – Cumulative Peak Hour Intersection Levels of Service

Study Intersection	**Friday PM Peak**		**Saturday PM Peak**	
Approach	**Delay**	**LOS**	**Delay**	**LOS**
1. SR 29/Lodi Ln	23.6	C	3.7	A
Westbound (Lodi Ln) Approach	***361.8***	***F***	***126.9***	***F***
2. Silverado Trail/Lodi Ln	1.9	A	1.0	A
Eastbound (Lodi Ln) Approach	*14.5*	*B*	*12.5*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation

Roadway Segment Levels of Service

Under Cumulative Conditions, all six study roadway segments are expected to operate at LOS D or better during both peak hours. Cumulative segment volumes are shown in Figure 4 and a summary of the roadway segment level of service calculations is shown in Table 11.



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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Figure 4 – Cumulative Traffic Volumes

Table 11 – Cumulative Peak Hour Roadway Segment Levels of Service				
Study Segment Direction	**Friday PM Peak**		**Saturday PM Peak**	
	PTSF	**LOS**	**PTSF**	**LOS**
1. SR 29 - North of Lodi Ln				
Northbound	73.9	D	74.0	D
Southbound	72.0	D	73.2	D
2. SR 29 - South of Lodi Ln				
Northbound	74.0	D	74.2	D
Southbound	73.9	D	73.6	D
3. Lodi Ln - West of Project Dwy				
Eastbound	18.2	A	15.7	A
Westbound	28.0	A	16.2	A
4. Lodi Ln - East of Project Dwy				
Eastbound	21.2	A	14.6	A
Westbound	26.2	A	17.5	A
5. Silverado Trail - North of Lodi Ln				
Northbound	53.0	B	51.7	B
Southbound	51.2	B	48.8	B
6. Silverado Trail - South of Lodi Ln				
Northbound	55.0	C	52.7	B
Southbound	51.2	B	48.8	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Project Description

The proposed project includes construction of a new wine production building on the recently acquired adjacent parcel (to be known as the "West Winery"), expansion of the existing Estate House, and development of additional outdoor hospitality areas. As part of the project, the current Use Permit would be updated to allow for an increase in daily visitation as well as production. No changes are proposed to staffing levels at this time. One of the main goals for the proposed modification is to allow for the efficient processing of grapes so that fruit that would otherwise be trucked to a Duckhorn Wine Company (DWC) facility in Hopland, CA (approximately 60 miles away) can be processed on-site. The following activities are proposed that would affect trip generation, and would be the same for both non-harvest and harvest seasons:

- An increase in production from 160,000 to 300,000 gallons annually;
- An increase in maximum daily visitation during both weekdays and weekend days from 82 to 219;
- A decrease in the largest marketing event from 600 to 400 guests.

Access to the Estate House and all hospitality areas would continue to occur via the existing driveway on Lodi Lane near Silverado Trail. The new West Winery would be accessed from an existing driveway on Lodi Lane approximate halfway between SR 29 and Silverado Trail; no visitation would occur at the West Winery as it would serve production activities only. The project site plan is shown in Figure 5.

Trip Generation

The County of Napa's Winery Traffic Information/Trip Generation Sheet, updated in August 2019, was used to determine the anticipated trip generation for the existing and proposed conditions. The form estimates the number of daily trips for Fridays and Saturdays during typical operation and harvest season based on the number of full- and part-time employees, maximum daily visitors, and production.

The County's methodology assigns 38 percent of Friday trips to the p.m. peak hour and 57 percent of Saturday trips to the p.m. peak hour. However, recent updates to the County's policy have provided alternatives to using these standard temporal distributions, which is Option A per the policy. The County now allows the use of standard ITE rates (Option B) or site-specific peak-hour data (Option C) to estimate the number of peak hour trips expected to be generated by a proposed project as a percent of the daily trips estimated using the County's standard form. Because the winery is already in operation, it was determined that actual, site-specific data would provide the most accurate representation of the project's potential peak hour trips, so Option C was selected.

Based on actual site data collected during harvest in October 2019, approximately 14 and 15 percent of the total daily trips occur during the peak hour of the generator on Fridays and Saturdays, respectively, which generally occurred in the afternoon on both days. The percentages for the peak hour of the generator were used to estimate the number of trips generated during both the Friday and Saturday afternoon p.m. peak hours as a function of total daily trips calculated using the formulas on the County's form. The inbound versus outbound ratios for both peak hours were also reviewed based on the actual driveway counts, and it was determined that the site experiences a 54/46 percent split between inbound and outbound trips during the Friday p.m. peak hour and a 53/47 percent split during the Saturday p.m. peak hour. Copies of the Napa County Winery Traffic Information/Trip Generation Sheets are enclosed in Appendix E, along with supporting calculations for the applied peak hour percentages and inbound/outbound ratios.

Based on application of these assumptions, operation with the proposed modification would be expected to generate a maximum of 356 trips on a Friday during harvest, with 50 trips occurring during the peak hour and 344 trips on a Saturday with 52 trips during the peak hour. As shown in Table 12, this would result in a net increase of 120 trips per Friday, including 17 new trips during the p.m. peak hour, and a net increase of 112 new trips per Saturday also with 17 new trips during the peak hour.

Table 12 – Trip Generation Summary During Harvest

Scenario	Daily		Friday PM Peak			Saturday PM Peak		
	Friday	Saturday	Trips	In	Out	Trips	In	Out
Existing	236	232	33	17	16	35	19	16
Proposed	356	344	50	27	23	52	28	24
Net Increase	**120**	**112**	**17**	**10**	**7**	**17**	**9**	**8**

Note: Daily trips taken from Napa County Winery Traffic Information/Trip Generation Sheet; Peak hour trips determined based on site-specific trip generation data.

KEYED NOTES

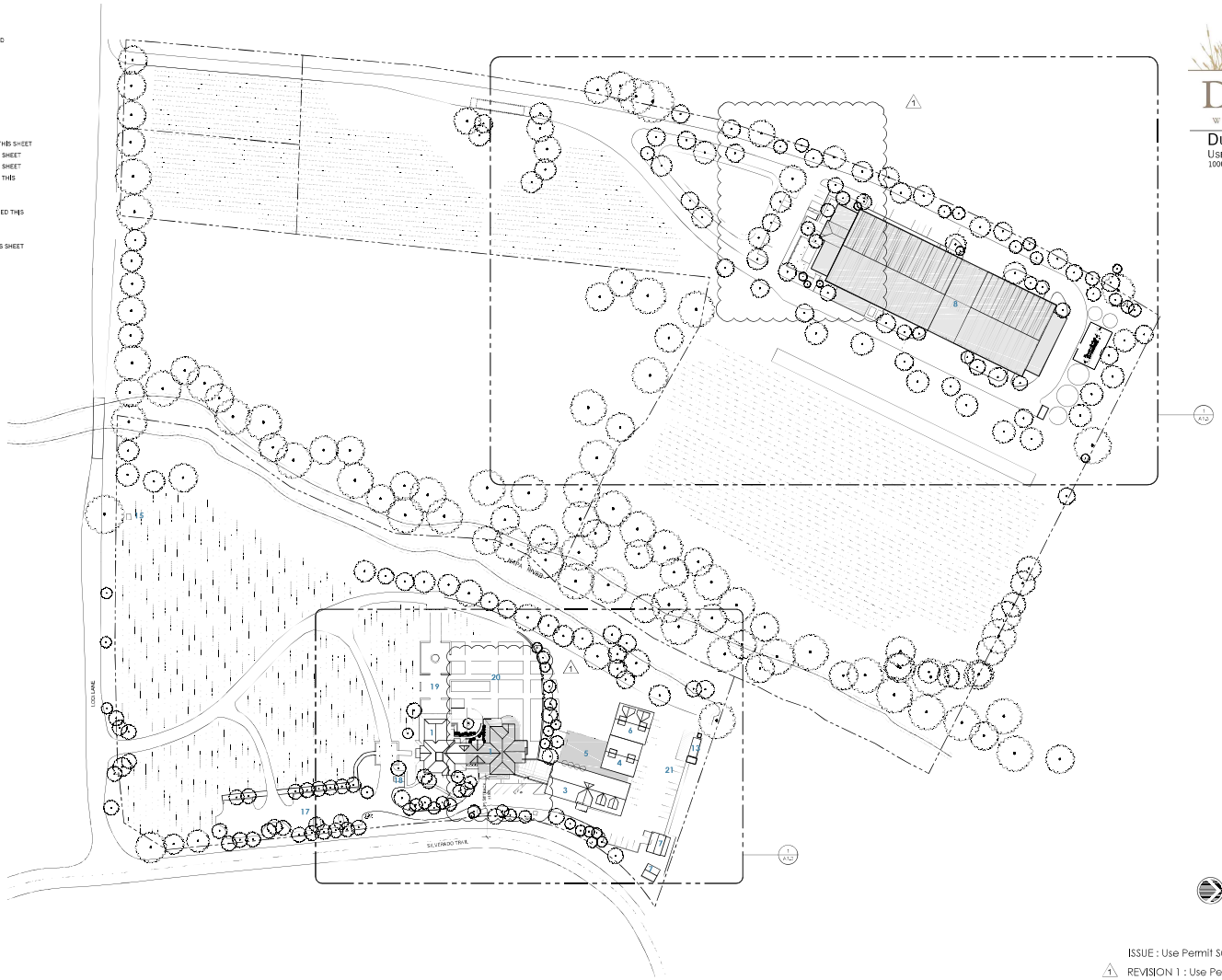
STRUCTURES

1 ESTATE HOUSE: TO REMAIN, SEE A2.1 AND A2.2 FOR PROPOSED ALTERATION
2 NOT USED
3 CHAI 5: STRUCTURE TO REMAIN.
4 CHAI 6: STRUCTURE TO REMAIN
5 CRUSH CANOPY : STRUCTURE TO BE REPLACED / ENLARGED
6 CHAI 7: STRUCTURE TO REMAIN
7 WINERY MAINTENANCE BUILDINGS : STRUCTURES TO REMAIN
8 PROPOSED WINERY, SEE A4.1 AND 4.2
9 CHAI 1 & 2: STRUCTURE TO BE REMOVED, NOT REFERENCED THIS SHEET
10 CHAI 3: STRUCTURE TO BE REMOVED, NOT REFERENCED THIS SHEET
11 CHAI 4: STRUCTURE TO BE REMOVED, NOT REFERENCED THIS SHEET
12 TANK SHED: STRUCTURE TO BE REMOVED, NOT REFERENCED THIS SHEET
13 PUMP HOUSE AND WATER TANK: STRUCTURE TO REMAIN
14 GARDEN SHED: STRUCTURE TO BE REMOVED, NOT REFERENCED THIS SHEET
15 PUMP HOUSE: STRUCTURE TO REMAIN
16 EXISTING RESIDENCE: TO BE REMOVED, NOT REFERENCED THIS SHEET

SITE FEATURES

17 EXISTING VISITOR PARKING: TO REMAIN
18 EXISTING ACCESSIBLE PARKING: TO REMAIN
19 EXISTING GARDENS: TO BE RECONFIGURED

20 PROPOSED GARDENS
21 PROPOSED EMPLOYEE PARKING



DUCKHORN
WINE COMPANY

DUCKHORN VINEYARDS WINERY
USE PERMIT MODIFICATION
1000 Lodi Lane, St. Helena, CA 94574

A1.1

PROPOSED CONDITION SITE PLAN

Scale: 1:80

0 40 80 160

ISSUE : Use Permit Submittal DATE: 03.21.19
1 REVISION 1 : Use Permit Resubmittal DATE: 06.30.20

ARCHITECTURE | PLANNING | DESIGN | CONSULTING

108 Petaluma Blvd N., Ste. 200
Petaluma, California 94952
Ph: (707) 765-4006

Source: VRA Architects 1/25

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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification
Figure 5 – Site Plan

While the LOS analysis was based on the anticipated trip generation during harvest, it should be noted that during typical non-harvest conditions the project would be expected to result in 108 new daily trips on a Friday and 101 new daily trips on a Saturday.

Trip Distribution

The pattern used to allocate the new project trips to the street network was determined by reviewing existing turning movements at the study intersections as well as anticipated travel patterns for tasting room visitors and current operations. As part of the proposed changes to the Use Permit, employees and visitors will be instructed via signage at the driveway exits to use SR 29 to travel north and Silverado Trail to travel south in an effort to avoid making time-consuming left-turn movements from Lodi Lane onto either SR 29 or Silverado Trail during peak hours, so this operational parameter was incorporated into the distribution assumptions. The applied distribution assumptions are shown in Table 13.

Table 13 – Trip Distribution Assumptions

Route	Inbound	Outbound
SR 29 (To/From the North)	25%	35%
SR 29 (From the South)	25%	0%
Silverado Trail (From the North)	10%	0%
Silverado Trail (To/From the South)	40%	65%
TOTAL	**100%**	**100%**

Intersection Operation

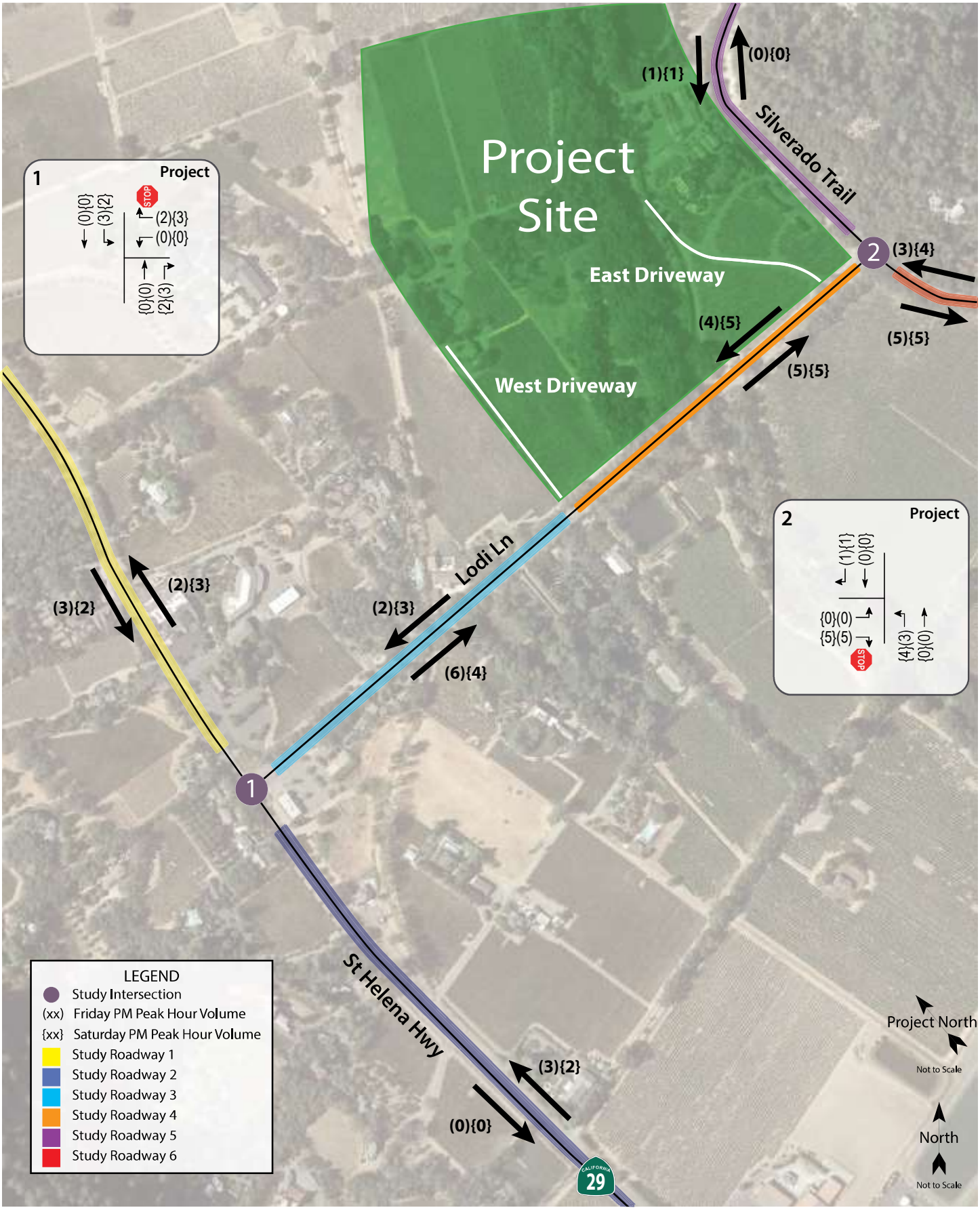
Existing plus Project Conditions

Upon the addition of project trips to existing volumes, both study intersections are expected to continue operating at the same service levels as under Existing Conditions. Silverado Trail/Lodi Lane would continue to operate acceptably, and SR 29/Lodi Lane would continue to operate unacceptably as LOS F on the stop-controlled approach during the Friday p.m. peak hour. These results are summarized in Table 14 and intersection project traffic volumes are shown in Figure 6.

Table 14 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Existing Conditions				Existing plus Project			
	Friday PM		Saturday PM		Friday PM		Saturday PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 29/Lodi Ln	4.4	A	1.5	A	4.6	A	1.5	A
Westbound (Lodi Ln) Approach	***51.1***	***F***	*34.7*	*D*	***52.1***	***F***	*33.9*	*D*
2. Silverado Trail/Lodi Ln	2.0	A	1.2	A	2.0	A	1.3	A
Eastbound (Lodi Ln) Approach	*12.4*	*B*	*11.4*	*B*	*12.3*	*B*	*11.3*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation



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Traffic Impact Study for the Duckhorn Vineyards Use Permit Modification

Figure 6 – Project Traffic Volumes

It should be noted that with the addition of project traffic, calculated delays on the stop-controlled approaches decreases slightly during some scenarios compared to conditions without the project. While this is counter-intuitive, this condition occurs because, based on the applicant's proposal to use SR 29 and Silverado Trial as a one-way couplet for outbound trips, the project would add only right-turn movements to the stop-controlled approaches at each intersection, which movements have delays that are lower than the approach average, resulting in a slight reduction in the overall average delay for that approach. The conclusion could incorrectly be drawn that operation would improve with the addition of project trips based on this data alone; however, it is more appropriate to conclude that the project trips are expected to make use of excess capacity in the right-turn movements, so drivers will experience little, if any, change in conditions as a result of the project.

Finding – Although the stop-controlled approach at SR 29/Lodi Lane would continue to operate at LOS F during the Friday p.m. peak hour with the addition of project trips, the project's effect would be considered acceptable under County criterion since the increase in delay on the approach would be less than five seconds.

Near-Term plus Project Conditions

Upon the addition of project trips to Near-Term volumes, both study intersections are expected to continue operating at the same service levels as without the project. Silverado Trail/Lodi Lane would continue to operate acceptably, and SR 29/Lodi Lane would continue to operate unacceptably as LOS F on the stop-controlled approach during the Friday p.m. peak hour and LOS E during the Saturday p.m. peak hour. These results are summarized in Table 15.

Table 15 – Near-Term and Near-Term plus Project Peak Hour Intersection Levels of Service

Study Intersection ***Approach***	**Near-Term Conditions**				**Near-Term plus Project**			
	Friday PM		**Saturday PM**		**Friday PM**		**Saturday PM**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. SR 29/Lodi Ln	5.1	A	1.8	A	5.3	A	1.9	A
Westbound (Lodi Ln) Approach	***56.6***	***F***	***36.5***	***E***	***57.9***	***F***	***35.9***	***E***
2. Silverado Trail/Lodi Ln	2.0	A	1.3	A	2.1	A	1.4	A
Eastbound (Lodi Ln) Approach	*12.4*	*B*	*11.4*	*B*	*12.4*	*B*	*11.4*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation

Finding – Consistent with Existing plus Project Conditions, although the stop-controlled approach at SR 29/Lodi Lane would continue to operate at LOS E and F with the addition of project trips, the project's effect would be considered acceptable under County criterion since the increase in delay on the approach would be less than five seconds

Cumulative (Future) plus Project Conditions

Upon the addition of project trips to the projected Cumulative volumes, both study intersections are expected to continue operating at the same service levels as without the project. Silverado Trail/Lodi Lane would continue to operate acceptably, and SR 29/Lodi Lane would continue to operate unacceptably

as LOS F on the stop-controlled approach during both peak hours. These results are summarized in Table 16.

Table 16 – Cumulative and Cumulative plus Project Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Cumulative Conditions				Cumulative plus Project			
	Friday PM		Saturday PM		Friday PM		Saturday PM	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. SR 29/Lodi Ln	23.6	C	3.7	A	24.6	C	3.8	A
Westbound (Lodi Ln) Approach	***361.8***	***F***	***126.9***	***F***	***373.2***	***F***	***125.7***	***F***
Restripe to Provide Right-Turn Lane	-	-	-	-	***255.7***	***F***	***114.9***	***F***
2. Silverado Trail/Lodi Ln	1.9	A	1.0	A	1.9	A	1.1	A
Eastbound (Lodi Ln) Approach	*14.5*	*B*	*12.5*	*B*	*14.4*	*B*	*12.4*	*B*

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* **Bold** text denotes unacceptable operation; Shaded cells represent recommended improvements

Under the County's criterion, a project's effect is considered adverse in the Cumulative Conditions scenario if the project's volume is equal to, or greater than, ten percent of the difference between Future and Existing volumes on the impacted approach at two-way stop-controlled intersections calculated using the following equation:

- Project Contribution % = Project Trips ÷ (Cumulative Volumes – Existing Volumes)

Based on this criterion, the project's effect would be considered adverse during both peak hours even though the project would only result in two new trips during the Friday peak hour and three new trips during the Saturday peak hour, as shown below.

- Friday PM Project Contribution % = 2 ÷ (135 – 122) = 15%
- Saturday PM Project Contribution % = 3 ÷ (57 – 52) = 60%

The *Traffic Impact Study for the Inn at the Abbey* also identified an adverse effect at SR 29/Lodi Lane under Cumulative Conditions and recommended restriping the stop-controlled approach to include a separate right-turn lane. With this improvement, the stop-controlled delays would be reduced to less than the delays without the project, as shown in the table above. It is recommended that Duckhorn work with the applicant for the Inn at the Abbey to share the restriping improvements. Based on the number of trips that each project would be expected to add to the impacted approach during the critical Friday p.m. peak hour, a proportional share of the improvements would be 18 percent for Duckhorn and 82 percent for the Inn at the Abbey.

Finding – The project would result in an adverse effect at SR 29/Lodi Lane since the intersection would operate at LOS F on the minor street approach and project trips represent more than 10 percent of the anticipated growth during each peak hour.

Recommendation – It is recommended that the westbound approach at SR 29/Lodi Lane be restriped to include a dedicated right-turn lane. The cost for this improvement could be shared with the Inn at the Abbey since the improvement was also recommended for that project.

Roadway Segment Operation

Existing plus Project Conditions

Under Existing plus Project Conditions, the study roadway segments are expected to continue operating acceptably at the same levels of service as without project traffic in both directions during both peak hours. These results are summarized in Table 17 and project segment volumes are shown in Figure 6.

Table 17 – Existing and Existing plus Project Peak Hour Roadway Segment Levels of Service

Study Segment Direction	Existing Conditions				Existing plus Project			
	Friday PM		Saturday PM		Friday PM		Saturday PM	
	PTSF	LOS	PTSF	LOS	PTSF	LOS	PTSF	LOS
1. SR 29 - North of Lodi Ln								
Northbound	65.1	C	64.9	C	65.2	C	65.0	C
Southbound	63.0	C	64.4	C	63.3	C	64.4	C
2. SR 29 - South of Lodi Ln								
Northbound	65.3	C	65.3	C	65.4	C	65.4	C
Southbound	65.6	C	64.8	C	65.6	C	64.8	C
3. Lodi Ln - West of Project Dwy								
Eastbound	17.6	A	15.1	A	18.7	A	15.5	A
Westbound	27.0	A	15.7	A	27.2	A	16.3	A
4. Lodi Ln - East of Project Dwy								
Eastbound	20.4	A	14.5	A	21.3	A	15.6	A
Westbound	25.2	A	17.5	A	25.8	A	18.1	A
5. Silverado Trail - North of Lodi Ln								
Northbound	46.6	B	46.3	B	46.6	B	46.3	B
Southbound	45.1	B	43.9	B	45.2	B	44.0	B
6. Silverado Trail - South of Lodi Ln								
Northbound	48.8	B	47.5	B	49.0	B	47.8	B
Southbound	44.8	B	43.9	B	45.2	B	44.2	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Finding – The study roadways are expected to continue operating acceptably upon the addition of project-generated traffic to Existing volumes and the project's effect would be considered acceptable.

Near-Term plus Project Conditions

Under Near-Term plus Project Conditions, the study roadway segments are expected to continue operating acceptably at the same levels of service as without project traffic in both directions during both peak hours. These results are summarized in Table 18.

Table 18 – Near-Term and Near-Term plus Project Peak Hour Roadway Segment Levels of Service

Study Segment Direction	Near-Term Conditions				Near-Term plus Project			
	Friday PM		Saturday PM		Friday PM		Saturday PM	
	PTSF	LOS	PTSF	LOS	PTSF	LOS	PTSF	LOS
1. SR 29 - North of Lodi Ln								
Northbound	65.4	C	64.6	C	65.5	C	64.7	C
Southbound	63.3	C	64.8	C	63.4	C	64.9	C
2. SR 29 - South of Lodi Ln								
Northbound	65.5	C	65.1	C	65.6	C	65.2	C
Southbound	65.9	C	65.3	C	65.9	C	65.3	C
3. Lodi Ln - West of Project Dwy								
Eastbound	18.7	A	18.2	A	19.8	A	18.5	A
Westbound	28.2	A	17.9	A	28.4	A	18.5	A
4. Lodi Ln - East of Project Dwy								
Eastbound	21.1	A	15.6	A	21.9	A	16.6	A
Westbound	25.6	A	18.8	A	26.2	A	19.4	A
5. Silverado Trail - North of Lodi Ln								
Northbound	46.6	B	46.4	B	46.6	B	46.4	B
Southbound	45.2	B	44.1	B	45.3	B	44.2	B
6. Silverado Trail - South of Lodi Ln								
Northbound	48.9	B	47.9	B	49.1	B	48.2	B
Southbound	45.0	B	44.2	B	45.4	B	44.6	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Finding – The study roadways are expected to continue operating acceptably upon the addition of project-generated traffic to Near-Term volumes and the project's effect would be considered acceptable.

Cumulative (Future) plus Project Conditions

Under Cumulative plus Project Conditions, the study roadway segments are expected to continue operating acceptably at LOS D or better in both directions during both peak hours. These results are summarized in Table 19.

Table 19 – Cumulative and Cumulative plus Project Peak Hour Roadway Segment Levels of Service								
Study Segment Direction	**Cumulative Conditions**				**Cumulative plus Project**			
	Friday PM		**Saturday PM**		**Friday PM**		**Saturday PM**	
	PTSF	**LOS**	**PTSF**	**LOS**	**PTSF**	**LOS**	**PTSF**	**LOS**
1. SR 29 - North of Lodi Ln								
Northbound	73.9	D	74.0	D	74.0	D	74.0	D
Southbound	72.0	D	73.2	D	72.1	D	73.3	D
2. SR 29 - South of Lodi Ln								
Northbound	74.0	D	74.2	D	74.1	D	74.3	D
Southbound	73.9	D	73.6	D	73.9	D	73. 6	D
3. Lodi Ln - West of Project Dwy								
Eastbound	18.2	A	15.7	A	19.2	A	16.1	A
Westbound	28.0	A	16.2	A	28.2	A	16.8	A
4. Lodi Ln - East of Project Dwy								
Eastbound	21.2	A	14.6	A	22.0	A	15.6	A
Westbound	26.2	A	17.5	A	26.7	A	18.0	A
5. Silverado Trail - North of Lodi Ln								
Northbound	53.0	B	51.7	B	53.0	B	51.7	B
Southbound	51.2	B	48.8	B	51.2	B	48.9	B
6. Silverado Trail - South of Lodi Ln								
Northbound	55.0	C	52.7	B	55.2	C	52.9	B
Southbound	51.2	B	48.8	B	51.2	B	49.1	B

Notes: PTSF = Percent Time Spent Following; LOS = Level of Service

Finding – The study roadway segments are expected to continue operating at LOS D or better upon the addition of project-generated traffic to Cumulative volumes, and the project's effect would be considered acceptable.

Vehicle Miles Traveled

Background and Threshold of Significance

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

Project Impact

The OPR Technical Advisory identifies several criteria that may be used to identify certain types of projects that are unlikely to have a significant VMT impact and can be "screened" from further analysis. One of these screening criteria pertains to small projects, which OPR defines as generating fewer than 110 new vehicle trips per day on average. OPR specifies that VMT should be based on a typical weekday and should take into consideration seasonal fluctuations. The proposed project is anticipated to result in 120 new daily vehicle trips on harvest Friday and 108 new daily vehicle trips on a non-harvest Friday, though based on count data collected at the existing driveway the winery generates approximately 36 percent fewer trips on the other weekdays compared to Friday. Adjusting the number of net new trips anticipated on Friday to a typical weekday average, and accounting for a two-month harvest season, the project would be expected to result in approximately 79 new daily trips per weekday over the course of the year. Since this is below the small project threshold of 110 trips, it is reasonable to conclude that the project can be presumed to have a less-than-significant transportation impact on VMT.

It should also be noted that one of the main goals of the proposed production expansion is to allow for more Napa Valley fruit to be processed on-site that would otherwise be trucked to a Duckhorn Wine Company (DWC) facility in Hopland approximately 60 miles away. So, while the project would increase the number of truck trips in the immediate vicinity, the project has the potential to decrease Duckhorn's total VMT associated with grape hauling in Napa, Sonoma, and Mendocino counties.

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

Alternative Modes

Pedestrian Facilities

Consistent with expectations for a rural area, there are no existing pedestrian facilities in the project vicinity and pedestrian trips to and from the site are not expected so this condition is acceptable.

Finding – The lack of pedestrian facilities serving the project site is acceptable.

Bicycle Facilities

While rural wineries are not typically a high generator of bicycle trips, the existing Class II bike lanes on Silverado Trail along with the shared use of Lodi Lane with motorists and planned facilities consisting of the Vine Trail and a Class III bike route on SR 29 would provide adequate access for bicyclists.

Finding – Access for bicyclists would be adequate considering the limited demand.

Bicycle Storage

The County does not have specific bicycle parking requirements for wineries; however, the project should provide bicycle parking consistent with the requirements outlined in Chapter 18.110.040 of the Napa County Code of Ordinances which states that ten bicycle parking spaces should be provided for all nonresidential uses where ten or more automobile parking spaces are required. With a proposed supply of 76 permanent vehicle parking spaces, the project would need to provide ten bicycle spaces on-site.

Recommendation – The applicant should ensure parking for a minimum of ten bicycles is provided somewhere on-site, preferably near the tasting room.

Transit

The nearest transit stops approximately 0.7 miles from the project site on SR 29 are adequate for the limited anticipated demand. While 0.7 miles is not considered a comfortable walking distance for most, this distance is well within the range of comfort for a bicyclist so transit could be used and accompanied with a bicycle, if needed.

Finding – The lack of convenient transit access does not result in an impact given the limited potential demand.

Access and Circulation

Site Access

Access to the Estate House and all hospitality areas would continue to occur via the existing east driveway on Lodi Lane approximately 200 feet west of Silverado Trail. The new West Winery would be accessed from an existing driveway on Lodi Lane approximate halfway between SR 29 and Silverado Trail and would be used for winery production activities only; no visitation would occur at the West Winery.

Sight Distance

Sight distances along Lodi Lane at the existing driveways were evaluated based on sight distance criteria contained in the *Highway Design Manual* published by Caltrans. The recommended sight distances for minor street approaches that are driveways are based on stopping sight distance, with approach travel speeds used as the basis for determining the recommended sight distance.

For the posted 40-mph speed limit on Lodi Lane, the recommended stopping sight distance is 300 feet. Based on a review of field conditions, sight distance at each driveway extends more than 300 feet in both directions, which is adequate for the posted speed limit. Adequate sight distance is also available for following drivers to see and react to a vehicle stopped to make a turn into either driveway, though given the low traffic volume on Lodi Lane it is unlikely that there would be a vehicle stopped in the travel lane while waiting to turn into the driveway.

Finding – Sight distances on Lodi Lane are adequate to meet the applied criteria for both entering and exiting turning movements.

Turn Lane Warrants

The need for a left-turn lane on Lodi Lane at the project driveways was evaluated using the County of Napa's published guidance considering the average daily traffic (ADT) volume projected to use the driveway as a function of roadway ADT. A left-turn lane meets warrants when the corresponding value plots above the curve indicated on the Left Turn Lane Warrant Graph from the *Napa County Road and Street Standards* and is unwarranted if the value plots below the curve.

Count data collected during harvest in October 2019 indicates that the east driveway has an ADT of 300 vehicles and Lodi Lane has an ADT of 1,357 vehicles. Based on these volumes, a left-turn lane would be warranted under Existing Conditions without even considering project trips according to the County's methodology. Of the 79 new daily trips generated on a typical weekday, approximately two-thirds are expected to occur via the east driveway and one-third at the west driveway. Upon the addition of project trips, a left-turn lane would continue to be warranted at the east driveway, though a left-turn lane would not be warranted at the west driveway. Copies of the left-turn lane warrant graphs are provided in Appendix F.

Since a left-turn lane would be warranted at the east driveway, the design requirements and feasibility of constructing a turn lane were explored. The Napa County left-turn lane design standard defaults to the Caltrans *Highway Design Manual* (HDM) for speeds other than 55 miles per hour (mph). Section 405.2

"Left-turn Channelization" of the HDM sets the design requirements for left-turn lanes, including the required length of the bay taper and deceleration lane so that turning vehicles have sufficient space to decelerate as they approach the turn without impacting through traffic. There are two separate sets of design criteria specified in the HDM, one for rural high speed, high volume facilities and another for urban facilities with constraints and low traffic volumes and speeds. Although Lodi Lane is not in an urban setting, there are constraints such as the bridge over the Napa River approximately 410 feet west of the driveway and the intersection with Silverado Trail approximately 200 feet to the east. Further, the volumes and speeds observed on Lodi Lane indicate that the less-restrictive criteria for constrained settings are more appropriate.

For a design speed of 40 mph, a total of 578 feet of roadway widening (365 feet for deceleration and storage and 213 feet for transition) would be needed to accommodate a left-turn lane if all of the widening were to occur on one side of the roadway. If the widening were to be split evenly on both sides of the facility, then 472 feet would be required, including 365 feet for deceleration and storage and 107 feet for transition. Neither of these options could be accomplished within the space available between the Napa River bridge and the driveway; however the HDM states that partial deceleration is permitted in the through lane and the design speed for the facility may be reduced by up to 20 mph for design of the deceleration lane. Using a design speed of 20 mph, a total of 418 feet of widening (205 for deceleration and storage and 213 for transition) would be needed for the one-side condition and 312 feet (205 feet for deceleration and storage and 107 feet for transition) would be needed to widen on both sides.

While the latter design alternative could be accommodated geometrically within the space available between the Napa River bridge and the east driveway, the improvement would require removal of at least three trees on the north side of Lodi Lane for widening to one side and numerous heritage oak trees on the south side of the roadway if widening to both sides were to occur. Design exceptions are allowed per the *Napa County Road and Street Standards* if one of the following findings can be made:

i. *The exception will preserve unique features of the natural environment which includes, but is not limited to, natural water courses, steep slopes, geological features, heritage oak trees, or other trees of least six inches in diameter at breast height and found by the decision-maker to be of significant importance, but does not include human altered environmental features such as vineyards and ornamental or decorative landscaping, or artificial features such as, rock walls, fences or the like;*
ii. *The exception is necessary to accommodate physical site limitations such as grade differentials; and/or*
iii. *The exception is necessary to accommodate other limiting factors such as recorded historical sites or legal constraints.*

Based on the number of trees greater than six inches in diameter that would need to be removed to accommodate construction of a left-turn lane at the east driveway, including numerous heritage oak trees, an exception to the requirements for a left-turn lane may be appropriate.

Finding – Upon the addition of project trips to Existing volumes, a left-turn lane would continue to be warranted at the east driveway but would not be warranted at the west driveway.

Recommendation – Although the left-turn lane warrant is met based on volumes alone, a review of the roadside conditions indicates that numerous trees would need to be removed to accommodate the turn lane; therefore, conditions to request an exception are satisfied.

Truck Access

The AutoTURN application of AutoCAD was used to simulate the travel path for a standard 53-foot semi-truck and trailer, which is the largest vehicle that would be anticipated to access the site via the western driveway. Turing movements into and out of the western driveway were overlayed on the project site plan and it was determined that the driveway would be inadequate to accommodate trucks of this size. It is recommended that the driveway to the new West Winery be improved per Standard Detail P-2 of the *Napa County Road and Street Standards*, which calls for a minimum return radius and driveway width of 20 feet. Four access exhibits simulating inbound and outbound access to and from both directions are provided in Appendix G.

Finding – Based on the site plan, access for a 53-foot semi-trailer is not adequate at the western driveway in its existing condition.

Recommendation – The western driveway should be designed and improved per the requirements outlined in the *Napa County Road and Street Standards* for a rural commercial driveway.

Parking

The project was analyzed to determine whether the proposed parking supply would be sufficient for the anticipated daily demand during harvest conditions. The project site, as proposed, would have a total of 76 parking spaces between both parcels.

To accommodate the daily parking demand for the winery and tasting room, there should be at least one space provided for every employee, as well as parking stalls for about 25 percent of the expected daily tasting room visitors. During harvest, there would be up to 56 full- and part-time employees and a maximum of 219 daily visitors to the tasting room. Assuming the County's standard occupancy rate of 2.8 guests per vehicle, a total of 78 guest vehicles would visit the site over the course of the day. Therefore, the proposed project would need at least 76 parking spaces, consisting of 56 for employees and 20 for guests assuming one-quarter of the guests would be there at any one time. The proposed supply of 76 spaces would be adequate to accommodate the approximate day-to-day peak demand.

Finding – The proposed permanent parking supply is adequate for the anticipated peak demand during typical harvest operations.

Conclusions and Recommendations

Conclusions

- The proposed modification to the Use Permit would be expected to result in a net increase of 120 daily trips on a Friday during harvest, including 17 new trips during the p.m. peak hour, and a net increase of 112 new trips on a Saturday during harvest, with 17 new trips during the peak hour.
- The study roadway segments of SR 29, Lodi Lane, and Silverado Trail are projected to operate acceptably at LOS D or better under Existing, Near-Term, and Cumulative Conditions, and would continue to do so with the addition of project traffic.
- The intersection of Silverado Trail/Lodi Lane is projected to operate acceptably at LOS B or better under Existing, Near-Term, and Cumulative Conditions, and would continue to do so with the addition of project traffic.
- Upon the addition of project trips to Existing and Near-Term volumes, the stop-controlled approach at SR 29/Lodi Lane would continue to operate unacceptably at LOS E or F, though the project would result in less than five seconds of additional delay so the effect is considered acceptable.
- Upon the addition of project trips to the anticipated Cumulative volumes, the stop-controlled approach at SR 29/Lodi Lane would continue to operate at LOS F with substantial delays and the project would result in an adverse effect since project trips represent more than 10 percent of the anticipated growth during each peak hour.
- Based on OPR guidance, the project would be expected to have a less-than-significant transportation impact on VMT.
- The lack of pedestrian facilities serving the project site does not result in an impact given the rural location and type of project.
- Similarly, the lack of convenient transit service does not result in an impact due to the lack of demand for such services, though employees could use a bicycle to travel between the project site and transit stops on SR 29 north of Lodi Lane.
- The existing Class II bike lanes on Silverado Trail along with the shared use of Lodi Lane with motorists and planned facilities consisting of the Vine Trail and a Class III bike route on SR 29 would provide adequate access for bicyclists, though such demand is expected to be limited.
- Sight distances on Lodi Lane are adequate at each driveway to meet the applied HDM criteria for both entering and exiting turning movements.
- Upon the addition of project trips to existing volumes, a left-turn lane would continue to be warranted at the east driveway based on application of the County's criterion but would not be warranted at the west driveway.

- As currently constructed, the western driveway is not adequate to accommodate turning movements for a 53-foot semi-truck and trailer.

- The proposed parking supply is adequate to accommodate the anticipated peak parking demand during harvest conditions.

- The intersection of Silverado Trail/Lodi Lane as well as the segments of Silverado Trail both north and south of the intersection have calculated collision rates above the statewide average for similar facilities.

Recommendations

- It is recommended that whichever project is approved first between the Inn at the Abbey or Duckhorn Vineyards work with the County to install a northbound speed feedback sign on Silverado Trail near the Melka Estates Winery driveway. Additionally, the applicant should work with the County to install a speed feedback sign in the southbound direction near Glass Mountain Road.

- It is recommended that the westbound approach at SR 29/Lodi Lane be restriped to include a dedicated right-turn lane. The cost for this improvement could be shared with the Inn at the Abbey since it was also recommended for that project.

- Secure parking facilities for at least ten bicycles should be provided on-site.

- Although a left-turn lane is warranted at the east driveway and would continue to be warranted with the addition of project-generated traffic, a review of the roadside conditions indicates that numerous trees would need to be removed to accommodate the turn lane; therefore, conditions to request an exception are satisfied.

- The driveway to the west winery should be improved per the County's Road and Street Standards to accommodate large semi-trucks.

Study Participants and References

Study Participants

Principal in Charge	Dalene J. Whitlock, PE, PTOE
Associate Engineer	Cameron Nye, EIT
Assistant Engineer	Kim Tellez
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References

2016 Collision Data on California State Highways, California Department of Transportation, 2018
City of Napa Traffic Impact Study Guidelines, City of Napa, 2004
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Traffic Impact Study for the Inn at the Abbey, W-Trans, 2019
VINE Transit, http://www.ridethevine.com

NAX142-1

Appendix A

Collision Rate Calculations

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Intersection Collision Rate Worksheet

Duckhorn Vineyards Use Permit Modification

Intersection # 1: SR 29 & Lodi Ln
Date of Count: Friday, November 20, 2020

Number of Collisions: 3
Number of Injuries: 2
Number of Fatalities: 0
Average Daily Traffic (ADT): 14700
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{3 \times 1{,}000{,}000}{14{,}700 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.11 c/mve**	**0.0%**	**66.7%**
Statewide Average*	**0.16 c/mve**	**1.8%**	**39.5%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Intersection # 2: Silverado Trail & Lodi Ln
Date of Count: Friday, November 20, 2020

Number of Collisions: 3
Number of Injuries: 2
Number of Fatalities: 0
Average Daily Traffic (ADT): 7600
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Intersection Type: Tee
Control Type: Stop & Yield Controls
Area: Rural

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Number of Years}}$$

$$\text{Collision Rate} = \frac{3 \times 1{,}000{,}000}{7{,}600 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.22 c/mve**	**0.0%**	**66.7%**
Statewide Average*	**0.16 c/mve**	**1.8%**	**39.5%**

Notes
ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2016 Collision Data on California State Highways, Caltrans

Roadway Segment Collision Rate Worksheet

Duckhorn Vineyards Use Permit Modification TIS

Location: SR 29 - Ehlers Ln to Lodi Ln

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 13,500

Number of Collisions: 9
Number of Injuries: 3
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Rolling/Mountain

Segment Length: 0.6 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{9 \times 1{,}000{,}000}{13{,}500 \times 365 \times 0.6 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.61 c/mvm**	**0.0%**	**33.3%**
Statewide Average*	**1.10 c/mvm**	**2.5%**	**46.6%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Location: SR 29 - Lodi Ln to Deer Park Rd

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 14,100

Number of Collisions: 15
Number of Injuries: 4
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Rolling/Mountain

Segment Length: 0.6 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{15 \times 1{,}000{,}000}{14{,}100 \times 365 \times 0.6 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.97 c/mvm**	**0.0%**	**26.7%**
Statewide Average*	**1.09 c/mvm**	**2.5%**	**46.6%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Roadway Segment Collision Rate Worksheet

Duckhorn Vineyards Use Permit Modification TIS

Location: Lodi Ln - SR 29 to West Driveway

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 1,800

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Flat

Segment Length: 0.3 miles
Direction: East/West

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{1{,}800 \times 365 \times 0.3 \times 5}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Segment	**0.00**	**c/mvm**	**0.0%**	**0.0%**
Statewide Average*	**0.98**	**c/mvm**	**1.1%**	**39.5%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Location: Lodi Ln - West Driveway to Silverado Trail

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 1,900

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: <=55
Terrain: Flat

Segment Length: 0.3 miles
Direction: East/West

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{0 \times 1{,}000{,}000}{1{,}900 \times 365 \times 0.3 \times 5}$$

	Collision Rate		Fatality Rate	Injury Rate
Study Segment	**0.00**	**c/mvm**	**0.0%**	**0.0%**
Statewide Average*	**0.97**	**c/mvm**	**1.1%**	**39.5%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Roadway Segment Collision Rate Worksheet

Duckhorn Vineyards Use Permit Modification TIS

Location: Silverado Trail - Glass Mtn Rd to Lodi Ln

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 6,500

Number of Collisions: 10
Number of Injuries: 1
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: ≤55
Terrain: Rolling/Mountain

Segment Length: 0.5 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{10 \times 1{,}000{,}000}{6{,}500 \times 365 \times 0.5 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**1.69 c/mvm**	**0.0%**	**10.0%**
Statewide Average*	**1.12 c/mvm**	**2.5%**	**46.6%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Location: Silverado Trail - Lodi Ln to Deer Park Rd

Date of Count: Friday, November 20, 2020
Average Daily Traffic (ADT): 6,700

Number of Collisions: 10
Number of Injuries: 1
Number of Fatalities: 0
Start Date: October 1, 2014
End Date: September 30, 2019
Number of Years: 5

Highway Type: Conventional 2 lanes or less
Area: Rural
Design Speed: <=55
Terrain: Rolling/Mountain

Segment Length: 0.5 miles
Direction: North/South

$$\text{Collision Rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x Days per Year x Segment Length x Number of Years}}$$

$$\text{Collision Rate} = \frac{10 \times 1{,}000{,}000}{6{,}700 \times 365 \times 0.5 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**1.64 c/mvm**	**0.0%**	**10.0%**
Statewide Average*	**1.12 c/mvm**	**2.5%**	**46.6%**

Notes
ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2016 Collision Data on California State Highways, Caltrans

Appendix B

Traffic Counts and Heavy Vehicle Data

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Prepared by National Data & Surveying Services

SR 29 and St Helena Hwy & Lodi Ln

Peak Hour Turning Movement Count

ID: 19-08530-001
City: St Helena

Day: Friday
Date: 10/18/2019

PEAK HOURS		COUNT PERIODS
NONE		NONE
NONE		NONE
02:30 PM - 03:30 PM		01:45 PM - 05:00 PM

SR 29 and St Helena Hwy — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	622	22	0	704	PM

EASTBOUND — Lodi Ln

AM	NOON	PM	
0	0	0	⇦
0	0	0	↶ 0
0	0	0	↱ 0
0	0	0	→ 0
0	0	0	↳ 0
AM	NOON	PM	

WESTBOUND — Lodi Ln

PM	NOON	AM	
37	0	0	0 ↰
0	0	0	0 ←
85	0	0	0 ↲
0	0	0	0 ↺
62	0	0	⇨
PM	NOON	AM	

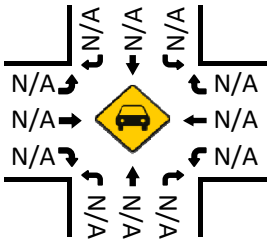
CONTROL

	0		
TEV	0 AM	0 NOON	1473 PM
PHF			0.96

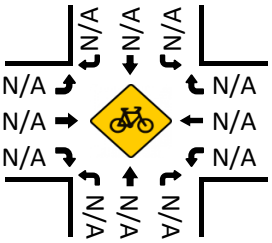
SR 29 and St Helena Hwy — NORTHBOUND

PM	707	0	0	667	40	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

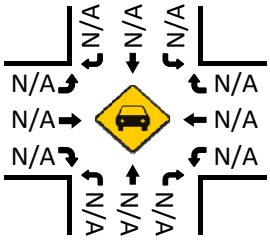
Total Vehicles (AM)



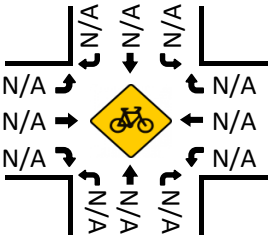
Bikes (AM)



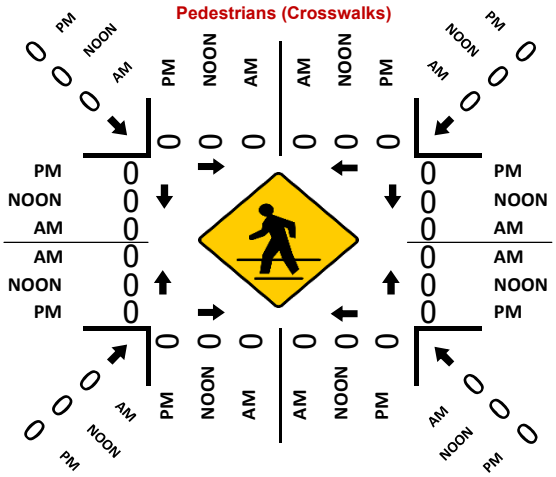
Total Vehicles (Noon)



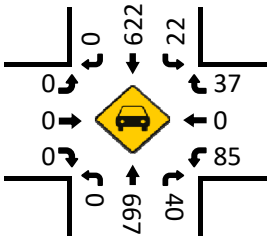
Bikes (NOON)



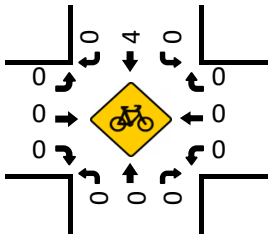
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

SR 29/St Helena Hwy & Lodi Ln

Peak Hour Turning Movement Count

ID: 19-08530-001
City: St Helena

Day: Saturday
Date: 10/19/2019

PEAK HOURS		COUNT PERIODS
NONE		NONE
NONE		NONE
03:00 PM - 04:00 PM		01:45 PM - 04:00 PM

SR 29/St Helena Hwy — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	0	649	27	0	699	PM

0 0 0 0

Lodi Ln — EASTBOUND

AM	NOON	PM	
0	0	0	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
AM	NOON	PM	

Lodi Ln — WESTBOUND

	PM	NOON	AM
0	13	0	0
0	0	0	0
0	39	0	0
0	0	0	0
	49	0	0
	PM	NOON	AM

CONTROL

0

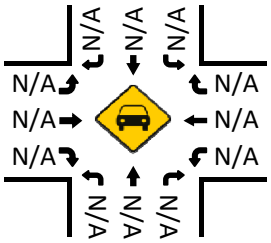
TEV	0 AM	0 NOON	1436 PM
PHF			0.96

0 0 0 0

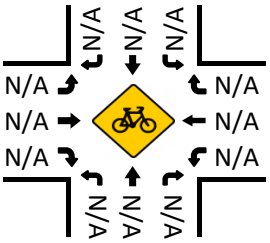
PM	688	0	0	686	22	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

NORTHBOUND — SR 29/St Helena Hwy

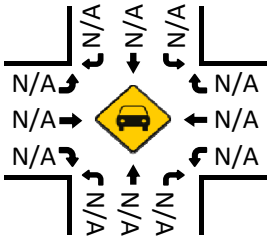
Total Vehicles (AM)



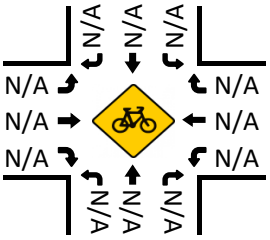
Bikes (AM)



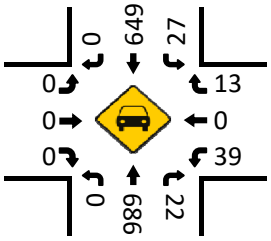
Total Vehicles (Noon)



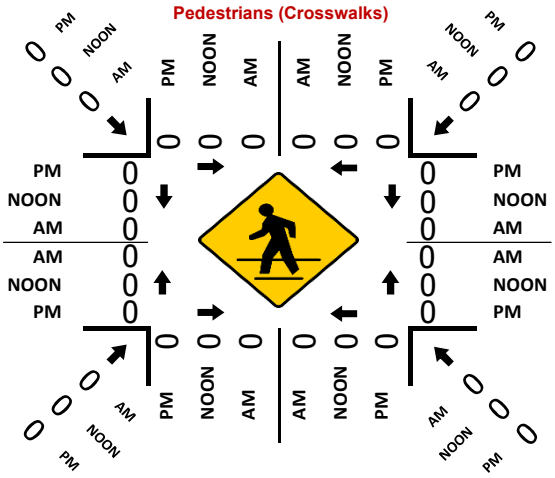
Bikes (NOON)



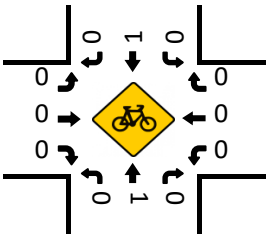
Total Vehicles (PM)



Pedestrians (Crosswalks)



Bikes (PM)



Prepared by National Data & Surveying Services

Silverado Trail N & Lodi Ln

Peak Hour Turning Movement Count

ID: 19-08530-002
City: St Helena

Day: Friday
Date: 10/18/2019

PEAK HOURS	
	NONE
	NONE
	02:45 PM - 03:45 PM

COUNT PERIODS	
	NONE
	NONE
	01:45 PM - 05:00 PM

Silverado Trail N — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	50	265	0	0	331	PM

Lodi Ln — EASTBOUND

AM	NOON	PM	
0	0	112	⇦
0	0	0	↩ 0
0	0	32	↱ 0
0	0	0	→ 0
0	0	46	↳ 0
AM	NOON	PM	

Lodi Ln — WESTBOUND

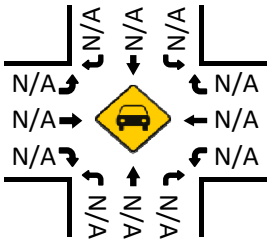
PM	NOON	AM	
0	0	0	0 ↰
0	0	0	0 ←
0	0	0	0 ↲
0	0	0	0 ↳
0	0	0	⇨
PM	NOON	AM	

Silverado Trail N — NORTHBOUND

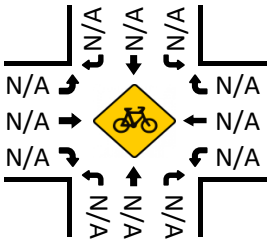
PM	312	1	62	299	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

CONTROL			
	0		
TEV	0 AM	0 NOON	755 PM
PHF			0.96

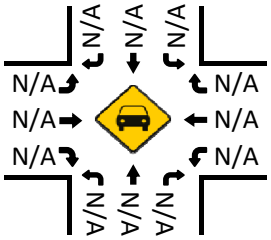
Total Vehicles (AM)



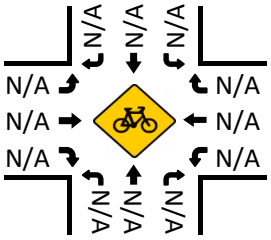
Bikes (AM)



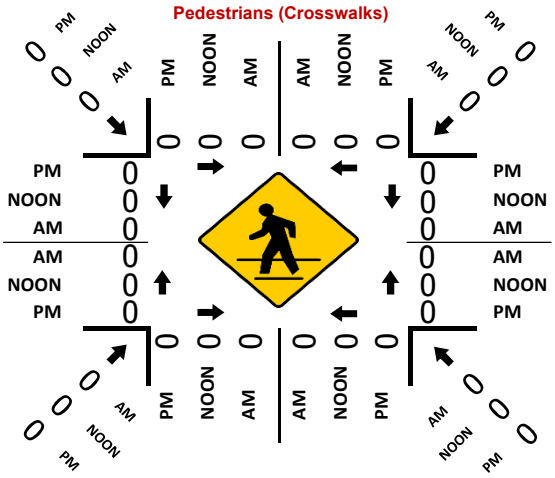
Total Vehicles (Noon)



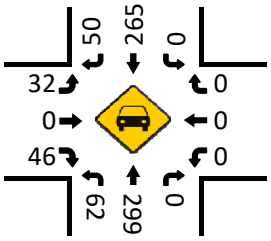
Bikes (NOON)



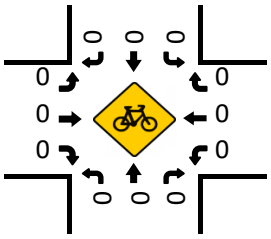
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by National Data & Surveying Services

Silverado Trail N & Lodi Ln

Peak Hour Turning Movement Count

ID: 19-08530-002
City: St Helena

Day: Saturday
Date: 10/19/2019

PEAK HOURS	COUNT PERIODS
NONE	NONE
NONE	NONE
02:00 PM - 03:00 PM	01:45 PM - 04:00 PM

Silverado Trail N — SOUTHBOUND

AM	0	0	0	0	0	AM
NOON	0	0	0	0	0	NOON
PM	31	253	0	0	311	PM

Lodi Ln — EASTBOUND

AM	NOON	PM	
0	0	61	
0	0	0	0
0	0	15	0
0	0	0	0
0	0	31	0

Lodi Ln — WESTBOUND

PM	NOON	AM	
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	0
0	0	0	

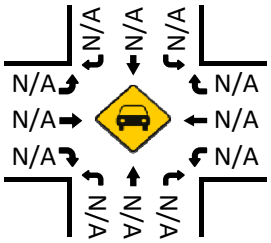
CONTROL

	0		
TEV	0 AM	0 NOON	656 PM
PHF			0.91

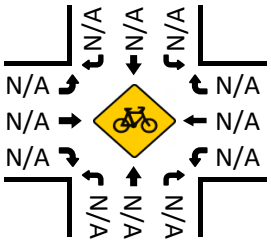
Silverado Trail N — NORTHBOUND

PM	284	0	30	296	0	PM
NOON	0	0	0	0	0	NOON
AM	0	0	0	0	0	AM

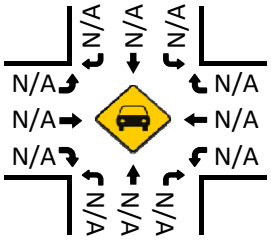
Total Vehicles (AM)



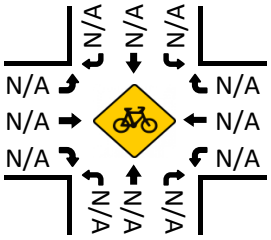
Bikes (AM)



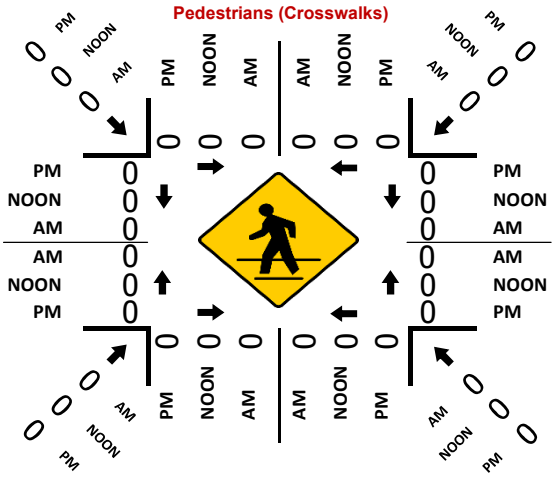
Total Vehicles (Noon)



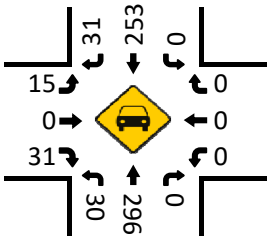
Bikes (NOON)



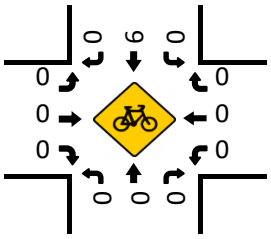
Pedestrians (Crosswalks)



Total Vehicles (PM)



Bikes (PM)



Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Friday
Date: 10/18/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	202	221	423

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					3		5		8	
00:15					0		0		0		12:15					3		5		8	
00:30					0		0		0		12:30					8		4		12	
00:45					0		0		0		12:45					8	22	12	26	20	48
01:00					0		0		0		13:00					5		6		11	
01:15					0		0		0		13:15					9		6		15	
01:30					0		0		0		13:30					7		7		14	
01:45					0		0		0		13:45					8	29	9	28	17	57
02:00					0		0		0		14:00					4		6		10	
02:15					0		0		0		14:15					9		7		16	
02:30					0		0		0		14:30					4		9		13	
02:45					0		0		0		14:45					11	28	7	29	18	57
03:00					0		0		0		15:00					6		6		12	
03:15					1		0		1		15:15					3		7		10	
03:30					0		3		3		15:30					9		2		11	
03:45					0	1	0	3	0	4	15:45					8	26	5	20	13	46
04:00					2		0		2		16:00					8		5		13	
04:15					0		0		0		16:15					11		2		13	
04:30					0		0		0		16:30					9		2		11	
04:45					0	2	0		0	2	16:45					8	36	1	10	9	46
05:00					1		0		1		17:00					12		0		12	
05:15					0		0		0		17:15					6		0		6	
05:30					0		0		0		17:30					2		0		2	
05:45					0	1	0		0	1	17:45					0	20	0		0	20
06:00					0		0		0		18:00					0		0		0	
06:15					0		0		0		18:15					2		1		3	
06:30					0		5		5		18:30					0		0		0	
06:45					0		11	16	11	16	18:45					0	2	0	1	0	3
07:00					2		2		4		19:00					0		0		0	
07:15					1		4		5		19:15					0		0		0	
07:30					0		2		2		19:30					0		0		0	
07:45					1	4	1	9	2	13	19:45					0		0		0	
08:00					0		3		3		20:00					0		0		0	
08:15					0		2		2		20:15					0		0		0	
08:30					1		5		6		20:30					0		0		0	
08:45					0	1	5	15	5	16	20:45					0		0		0	
09:00					2		5		7		21:00					0		0		0	
09:15					1		0		1		21:15					0		0		0	
09:30					2		5		7		21:30					0		0		0	
09:45					1	6	1	11	2	17	21:45					0		0		0	
10:00					0		4		4		22:00					0		0		0	
10:15					1		9		10		22:15					0		0		0	
10:30					1		7		8		22:30					0		0		0	
10:45					2	4	3	23	5	27	22:45					1	1	0		1	1
11:00					2		5		7		23:00					0		0		0	
11:15					6		5		11		23:15					0		0		0	
11:30					7		10		17		23:30					0		0		0	
11:45					4	19	10	30	14	49	23:45					0		0		0	
TOTALS						38		107		145	TOTALS						164		114		278
SPLIT %						26.2%		73.8%		34.3%	SPLIT %						59.0%		41.0%		65.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	202	221	423

AM Peak Hour				11:15	11:00	11:15	PM Peak Hour			16:15	12:45	12:45
AM Pk Volume				20	30	50	PM Pk Volume			40	31	60
Pk Hr Factor				0.714	0.750	0.735	Pk Hr Factor			0.833	0.646	0.750
7 - 9 Volume	0		0	5	24	29	4 - 6 Volume	0	0	56	10	66
7 - 9 Peak Hour				07:00	08:00	08:00	4 - 6 Peak Hour			16:15	16:00	16:00
7 - 9 Pk Volume	0		0	4	15	16	4 - 6 Pk Volume	0	0	40	10	46
Pk Hr Factor	0.000		0.000	0.500	0.750	0.667	Pk Hr Factor	0.000	0.000	0.833	0.500	0.885

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Saturday
Date: 10/19/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	183	209	392

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			7		7		14	
00:15			0		0		0		12:15			3		8		11	
00:30			0		0		0		12:30			10		7		17	
00:45			0		0		0		12:45			8	28	13	35	21	63
01:00			0		0		0		13:00			7		8		15	
01:15			0		0		0		13:15			9		10		19	
01:30			0		0		0		13:30			6		9		15	
01:45			0		0		0		13:45			6	28	5	32	11	60
02:00			0		0		0		14:00			8		7		15	
02:15			0		0		0		14:15			2		9		11	
02:30			0		0		0		14:30			8		9		17	
02:45			0		0		0		14:45			5	23	4	29	9	52
03:00			0		0		0		15:00			7		5		12	
03:15			0		0		0		15:15			10		6		16	
03:30			0		0		0		15:30			11		1		12	
03:45			0		0		0		15:45			4	32	2	14	6	46
04:00			0		0		0		16:00			7		3		10	
04:15			0		0		0		16:15			5		1		6	
04:30			0		0		0		16:30			6		2		8	
04:45			0		0		0		16:45			13	31	0	6	13	37
05:00			0		0		0		17:00			3		0		3	
05:15			0		0		0		17:15			1		0		1	
05:30			0		0		0		17:30			0		0		0	
05:45			0		0		0		17:45			1	5	0		1	5
06:00			0		0		0		18:00			2		1		3	
06:15			0		0		0		18:15			0		0		0	
06:30			0		2		2		18:30			0		0		0	
06:45			0		3	5	3	5	18:45			0	2	0	1	0	3
07:00			1		0		1		19:00			4		0		4	
07:15			0		0		0		19:15			0		0		0	
07:30			0		0		0		19:30			0		0		0	
07:45			0	1	0		0	1	19:45			0	4	0		0	4
08:00			0		1		1		20:00			0		0		0	
08:15			0		2		2		20:15			0		0		0	
08:30			0		2		2		20:30			0		0		0	
08:45			3	3	15	20	18	23	20:45			0		0		0	
09:00			1		2		3		21:00			0		0		0	
09:15			1		2		3		21:15			0		0		0	
09:30			1		0		1		21:30			0		0		0	
09:45			1	4	8	12	9	16	21:45			0		0		0	
10:00			0		4		4		22:00			1		0		1	
10:15			0		4		4		22:15			0		0		0	
10:30			2		11		13		22:30			0		0		0	
10:45			4	6	7	26	11	32	22:45			0	1	0		0	1
11:00			1		6		7		23:00			0		0		0	
11:15			4		10		14		23:15			0		0		0	
11:30			2		5		7		23:30			0		0		0	
11:45			8	15	8	29	16	44	23:45			0		0		0	
TOTALS				29		92		121	TOTALS				154		117		271
SPLIT %				24.0%		76.0%		30.9%	SPLIT %				56.8%		43.2%		69.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	183	209	392

AM Peak Hour			11:45	10:30	11:45	PM Peak Hour			12:30	12:45	12:30
AM Pk Volume			28	34	58	PM Pk Volume			34	40	72
Pk Hr Factor			0.700	0.773	0.853	Pk Hr Factor			0.850	0.769	0.857
7 - 9 Volume	0	0	4	20	24	4 - 6 Volume	0	0	36	6	42
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	3	20	23	4 - 6 Pk Volume	0	0	31	6	37
Pk Hr Factor	0.000	0.000	0.250	0.333	0.319	Pk Hr Factor	0.000	0.000	0.596	0.500	0.712

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Sunday
Date: 10/20/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	126	123	249

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			5		2		7	
00:15			0		0		0		12:15			3		7		10	
00:30			0		0		0		12:30			6		5		11	
00:45			0		0		0		12:45			4	18	4	18	8	36
01:00			0		0		0		13:00			7		6		13	
01:15			0		0		0		13:15			4		4		8	
01:30			0		0		0		13:30			6		2		8	
01:45			0		0		0		13:45			7	24	2	14	9	38
02:00			0		0		0		14:00			4		9		13	
02:15			0		0		0		14:15			6		2		8	
02:30			0		0		0		14:30			1		3		4	
02:45			0		0		0		14:45			4	15	7	21	11	36
03:00			0		0		0		15:00			3		4		7	
03:15			0		0		0		15:15			5		3		8	
03:30			0		0		0		15:30			6		1		7	
03:45			0		0		0		15:45			0	14	1	9	1	23
04:00			0		0		0		16:00			6		0		6	
04:15			0		0		0		16:15			6		0		6	
04:30			0		0		0		16:30			1		1		2	
04:45			0		0		0		16:45			6	19	2	3	8	22
05:00			0		0		0		17:00			14		0		14	
05:15			0		0		0		17:15			4		0		4	
05:30			0		0		0		17:30			2		0		2	
05:45			0		0		0		17:45			0	20	0		0	20
06:00			0		0		0		18:00			0		0		0	
06:15			0		0		0		18:15			0		1		1	
06:30			0		0		0		18:30			0		0		0	
06:45			0		0		0		18:45			0		0	1	0	1
07:00			0		0		0		19:00			0		0		0	
07:15			0		0		0		19:15			0		0		0	
07:30			0		0		0		19:30			0		0		0	
07:45			0		0		0		19:45			0		0		0	
08:00			0		1		1		20:00			0		1		1	
08:15			0		0		0		20:15			1		1		2	
08:30			0		1		1		20:30			1		0		1	
08:45			2	2	12	14	14	16	20:45			1	3	0	2	1	5
09:00			0		0		0		21:00			0		0		0	
09:15			0		0		0		21:15			0		0		0	
09:30			0		0		0		21:30			0		0		0	
09:45			0		3	3	3	3	21:45			0		0		0	
10:00			0		2		2		22:00			0		0		0	
10:15			0		5		5		22:15			0		0		0	
10:30			4		5		9		22:30			0		0		0	
10:45			1	5	7	19	8	24	22:45			0		0		0	
11:00			1		3		4		23:00			0		0		0	
11:15			1		5		6		23:15			0		0		0	
11:30			3		7		10		23:30			0		0		0	
11:45			1	6	4	19	5	25	23:45			0		0		0	
TOTALS				13		55		68	TOTALS				113		68		181
SPLIT %				19.1%		80.9%		27.3%	SPLIT %				62.4%		37.6%		72.7%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	126	123	249

AM Peak Hour			11:45	10:45	11:45	PM Peak Hour			16:15	12:15	12:15
AM Pk Volume			15	22	33	PM Pk Volume			27	22	42
Pk Hr Factor			0.625	0.786	0.750	Pk Hr Factor			0.482	0.786	0.808
7 - 9 Volume	0	0	2	14	16	4 - 6 Volume	0	0	39	3	42
7 - 9 Peak Hour			08:00	08:00	08:00	4 - 6 Peak Hour			16:15	16:00	16:15
7 - 9 Pk Volume	0	0	2	14	16	4 - 6 Pk Volume	0	0	27	3	30
Pk Hr Factor	0.000	0.000	0.250	0.292	0.286	Pk Hr Factor	0.000	0.000	0.482	0.375	0.536

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Monday
Date: 10/21/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	136	135	271

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			3		3		6	
00:15			0		0		0		12:15			3		4		7	
00:30			0		0		0		12:30			5		1		6	
00:45			0		0		0		12:45			7	18	4	12	11	30
01:00			0		0		0		13:00			2		4		6	
01:15			0		0		0		13:15			3		7		10	
01:30			0		0		0		13:30			3		3		6	
01:45			0		0		0		13:45			0	8	2	16	2	24
02:00			0		0		0		14:00			0		5		5	
02:15			1		0		1		14:15			5		3		8	
02:30			0		0		0		14:30			1		2		3	
02:45			0	1	0		0	1	14:45			7	13	4	14	11	27
03:00			0		0		0		15:00			5		4		9	
03:15			0		0		0		15:15			8		4		12	
03:30			0		0		0		15:30			5		3		8	
03:45			0		0		0		15:45			2	20	4	15	6	35
04:00			0		0		0		16:00			7		0		7	
04:15			0		0		0		16:15			4		2		6	
04:30			0		1		1		16:30			8		2		10	
04:45			0		1	2	1	2	16:45			4	23	2	6	6	29
05:00			1		0		1		17:00			8		2		10	
05:15			1		0		1		17:15			2		0		2	
05:30			0		1		1		17:30			3		0		3	
05:45			0	2	1	2	1	4	17:45			4	17	0	2	4	19
06:00			4		1		5		18:00			3		0		3	
06:15			0		0		0		18:15			1		1		2	
06:30			0		3		3		18:30			1		0		1	
06:45			0	4	7	11	7	15	18:45			0	5	0	1	0	6
07:00			1		4		5		19:00			0		0		0	
07:15			0		0		0		19:15			0		0		0	
07:30			1		2		3		19:30			0		0		0	
07:45			0	2	1	7	1	9	19:45			1	1	0		1	1
08:00			0		2		2		20:00			0		1		1	
08:15			2		3		5		20:15			1		0		1	
08:30			0		3		3		20:30			0		0		0	
08:45			1	3	7	15	8	18	20:45			0	1	0	1	0	2
09:00			0		1		1		21:00			0		0		0	
09:15			2		0		2		21:15			0		0		0	
09:30			0		3		3		21:30			0		0		0	
09:45			0	2	1	5	1	7	21:45			1	1	0		1	1
10:00			2		4		6		22:00			0		0		0	
10:15			2		2		4		22:15			0		0		0	
10:30			0		4		4		22:30			0		0		0	
10:45			1	5	2	12	3	17	22:45			0		0		0	
11:00			2		3		5		23:00			0		0		0	
11:15			1		2		3		23:15			0		0		0	
11:30			1		7		8		23:30			0		0		0	
11:45			6	10	2	14	8	24	23:45			0		0		0	
TOTALS				29		68		97	TOTALS				107		67		174
SPLIT %				29.9%		70.1%		35.8%	SPLIT %				61.5%		38.5%		64.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	136	135	271

AM Peak Hour			11:45	11:30	11:30	PM Peak Hour			14:45	12:45	14:45
AM Pk Volume			17	16	29	PM Pk Volume			25	18	40
Pk Hr Factor			0.708	0.571	0.906	Pk Hr Factor			0.781	0.643	0.833
7 - 9 Volume	0	0	5	22	27	4 - 6 Volume	0	0	40	8	48
7 - 9 Peak Hour			07:30	08:00	08:00	4 - 6 Peak Hour			16:15	16:15	16:15
7 - 9 Pk Volume	0	0	3	15	18	4 - 6 Pk Volume	0	0	24	8	32
Pk Hr Factor	0.000	0.000	0.375	0.536	0.563	Pk Hr Factor	0.000	0.000	0.750	1.000	0.800

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Tuesday
Date: 10/22/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	124	132	256

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			2		2		4	
00:15			0		0		0		12:15			7		5		12	
00:30			0		0		0		12:30			1		4		5	
00:45			0		0		0		12:45			5	15	1	12	6	27
01:00			0		0		0		13:00			1		7		8	
01:15			0		0		0		13:15			2		4		6	
01:30			0		0		0		13:30			2		3		5	
01:45			0		0		0		13:45			2	7	5	19	7	26
02:00			0		0		0		14:00			4		3		7	
02:15			0		0		0		14:15			1		1		2	
02:30			0		0		0		14:30			2		2		4	
02:45			0		0		0		14:45			5	12	2	8	7	20
03:00			0		0		0		15:00			2		3		5	
03:15			0		0		0		15:15			0		2		2	
03:30			0		0		0		15:30			13		3		16	
03:45			0		0		0		15:45			4	19	0	8	4	27
04:00			0		0		0		16:00			10		1		11	
04:15			0		0		0		16:15			4		1		5	
04:30			0		0		0		16:30			8		1		9	
04:45			1	1	0		1	1	16:45			5	27	0	3	5	30
05:00			0		1		1		17:00			6		2		8	
05:15			1		0		1		17:15			0		0		0	
05:30			0		0		0		17:30			3		0		3	
05:45			0	1	0	1	0	2	17:45			0	9	0	2	0	11
06:00			0		1		1		18:00			0		0		0	
06:15			1		1		2		18:15			0		0		0	
06:30			0		3		3		18:30			0		0		0	
06:45			0	1	8	13	8	14	18:45			0		0		0	
07:00			1		6		7		19:00			0		0		0	
07:15			3		2		5		19:15			0		0		0	
07:30			2		2		4		19:30			0		1		1	
07:45			1	7	1	11	2	18	19:45			0		1	2	1	2
08:00			1		2		3		20:00			2		0		2	
08:15			0		3		3		20:15			1		0		1	
08:30			0		2		2		20:30			0		0		0	
08:45			0	1	6	13	6	14	20:45			0	3	0		0	3
09:00			1		4		5		21:00			0		0		0	
09:15			0		3		3		21:15			0		0		0	
09:30			1		2		3		21:30			0		0		0	
09:45			0	2	6	15	6	17	21:45			0		0		0	
10:00			2		3		5		22:00			0		0		0	
10:15			1		5		6		22:15			0		0		0	
10:30			2		0		2		22:30			0		0		0	
10:45			1	6	2	10	3	16	22:45			0		0		0	
11:00			2		9		11		23:00			0		0		0	
11:15			4		3		7		23:15			0		0		0	
11:30			5		2		7		23:30			0		0		0	
11:45			2	13	1	15	3	28	23:45			0		0		0	
TOTALS				32		78		110	TOTALS				92		54		146
SPLIT %				29.1%		70.9%		43.0%	SPLIT %				63.0%		37.0%		57.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	124	132	256

AM Peak Hour			11:30	06:30	10:45	PM Peak Hour			15:30	13:00	15:30
AM Pk Volume			16	19	28	PM Pk Volume			31	19	36
Pk Hr Factor			0.571	0.594	0.636	Pk Hr Factor			0.596	0.679	0.563
7 - 9 Volume	0	0	8	24	32	4 - 6 Volume	0	0	36	5	41
7 - 9 Peak Hour			07:00	08:00	07:00	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	7	13	18	4 - 6 Pk Volume	0	0	27	4	30
Pk Hr Factor	0.000	0.000	0.583	0.542	0.643	Pk Hr Factor	0.000	0.000	0.675	0.500	0.682

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Wednesday
Date: 10/23/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	125	130	255

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			5		3		8	
00:15			0		0		0		12:15			1		1		2	
00:30			1		0		1		12:30			1		3		4	
00:45			1	2	0		1	2	12:45			7	14	6	13	13	27
01:00			0		0		0		13:00			4		3		7	
01:15			0		0		0		13:15			5		4		9	
01:30			0		0		0		13:30			4		3		7	
01:45			0		0		0		13:45			4	17	2	12	6	29
02:00			0		0		0		14:00			3		6		9	
02:15			0		0		0		14:15			1		2		3	
02:30			0		0		0		14:30			4		4		8	
02:45			0		2	2	2	2	14:45			1	9	5	17	6	26
03:00			0		0		0		15:00			4		2		6	
03:15			2		0		2		15:15			5		4		9	
03:30			0		0		0		15:30			6		2		8	
03:45			0	2	0		0	2	15:45			7	22	0	8	7	30
04:00			0		0		0		16:00			1		1		2	
04:15			0		0		0		16:15			13		3		16	
04:30			0		0		0		16:30			9		0		9	
04:45			0		2	2	2	2	16:45			6	29	0	4	6	33
05:00			0		0		0		17:00			3		0		3	
05:15			0		0		0		17:15			1		0		1	
05:30			0		0		0		17:30			1		0		1	
05:45			0		1	1	1	1	17:45			1	6	0		1	6
06:00			0		1		1		18:00			0		0		0	
06:15			0		0		0		18:15			1		1		2	
06:30			0		1		1		18:30			0		0		0	
06:45			0		6	8	6	8	18:45			0	1	0	1	0	2
07:00			0		6		6		19:00			0		0		0	
07:15			0		3		3		19:15			0		0		0	
07:30			1		1		2		19:30			0		0		0	
07:45			1	2	1	11	2	13	19:45			0		0		0	
08:00			0		1		1		20:00			0		0		0	
08:15			1		2		3		20:15			0		0		0	
08:30			1		4		5		20:30			0		0		0	
08:45			0	2	3	10	3	12	20:45			1	1	0		1	1
09:00			1		5		6		21:00			0		0		0	
09:15			0		0		0		21:15			0		0		0	
09:30			1		2		3		21:30			0		0		0	
09:45			3	5	3	10	6	15	21:45			0		0		0	
10:00			1		4		5		22:00			0		0		0	
10:15			1		3		4		22:15			0		0		0	
10:30			1		2		3		22:30			0		0		0	
10:45			3	6	5	14	8	20	22:45			0		0		0	
11:00			1		6		7		23:00			0		0		0	
11:15			2		5		7		23:15			0		0		0	
11:30			3		1		4		23:30			0		0		0	
11:45			1	7	5	17	6	24	23:45			0		0		0	
TOTALS				26		75		101	TOTALS				99		55		154
SPLIT %				25.7%		74.3%		39.6%	SPLIT %				64.3%		35.7%		60.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	125	130	255

AM Peak Hour			11:15	10:30	10:45	PM Peak Hour			16:15	14:00	12:45
AM Pk Volume			11	18	26	PM Pk Volume			31	17	36
Pk Hr Factor			0.550	0.750	0.813	Pk Hr Factor			0.596	0.708	0.692
7 - 9 Volume	0	0	4	21	25	4 - 6 Volume	0	0	35	4	39
7 - 9 Peak Hour			07:30	07:00	07:00	4 - 6 Peak Hour			16:15	16:00	16:15
7 - 9 Pk Volume	0	0	3	11	13	4 - 6 Pk Volume	0	0	31	4	34
Pk Hr Factor	0.000	0.000	0.750	0.458	0.542	Pk Hr Factor	0.000	0.000	0.596	0.333	0.531

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Thursday
Date: 10/24/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	125	126	251

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					6		7		13	
00:15					0		0		0		12:15					4		3		7	
00:30					0		0		0		12:30					3		2		5	
00:45					0		0		0		12:45					4	17	4	16	8	33
01:00					0		0		0		13:00					1		3		4	
01:15					0		0		0		13:15					1		3		4	
01:30					0		0		0		13:30					5		8		13	
01:45					1	1	0		1	1	13:45					1	8	3	17	4	25
02:00					0		0		0		14:00					3		3		6	
02:15					0		0		0		14:15					6		5		11	
02:30					0		1		1		14:30					0		1		1	
02:45					0		0	1	0	1	14:45					6	15	5	14	11	29
03:00					1		0		1		15:00					6		4		10	
03:15					0		0		0		15:15					5		2		7	
03:30					0		0		0		15:30					4		1		5	
03:45					0	1	0		0	1	15:45					6	21	0	7	6	28
04:00					0		0		0		16:00					8		2		10	
04:15					0		1		1		16:15					7		1		8	
04:30					1		1		2		16:30					7		1		8	
04:45					0	1	1	3	1	4	16:45					11	33	0	4	11	37
05:00					2		0		2		17:00					2		0		2	
05:15					0		0		0		17:15					1		0		1	
05:30					0		1		1		17:30					2		0		2	
05:45					0	2	1	2	1	4	17:45					1	6	0		1	6
06:00					0		2		2		18:00					0		0		0	
06:15					0		1		1		18:15					0		1		1	
06:30					0		0		0		18:30					0		0		0	
06:45					0		6	9	6	9	18:45					0		0	1	0	1
07:00					1		2		3		19:00					0		0		0	
07:15					1		8		9		19:15					0		0		0	
07:30					1		1		2		19:30					0		0		0	
07:45					1	4	1	12	2	16	19:45					0		0		0	
08:00					1		0		1		20:00					0		1		1	
08:15					0		2		2		20:15					0		0		0	
08:30					1		2		3		20:30					1		0		1	
08:45					0	2	4	8	4	10	20:45					0	1	0	1	0	2
09:00					0		0		0		21:00					0		0		0	
09:15					1		0		1		21:15					0		0		0	
09:30					1		2		3		21:30					0		0		0	
09:45					0	2	11	13	11	15	21:45					0		0		0	
10:00					1		1		2		22:00					0		0		0	
10:15					0		3		3		22:15					0		0		0	
10:30					1		1		2		22:30					1		0		1	
10:45					0	2	2	7	2	9	22:45					0	1	0		0	1
11:00					1		5		6		23:00					0		0		0	
11:15					4		3		7		23:15					0		0		0	
11:30					2		2		4		23:30					0		0		0	
11:45					1	8	1	11	2	19	23:45					0		0		0	
TOTALS						23		66		89	TOTALS						102		60		162
SPLIT %						25.8%		74.2%		35.5%	SPLIT %						63.0%		37.0%		64.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	125	126	251

AM Peak Hour			11:45	06:45	11:45	PM Peak Hour			16:00	13:30	16:00
AM Pk Volume			14	17	27	PM Pk Volume			33	19	37
Pk Hr Factor			0.583	0.531	0.519	Pk Hr Factor			0.750	0.594	0.841
7 - 9 Volume	0	0	6	20	26	4 - 6 Volume	0	0	39	4	43
7 - 9 Peak Hour			07:00	07:00	07:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	4	12	16	4 - 6 Pk Volume	0	0	33	4	37
Pk Hr Factor	0.000	0.000	1.000	0.375	0.444	Pk Hr Factor	0.000	0.000	0.750	0.500	0.841

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Friday
Date: 10/25/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	185	194	379

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					2		5		7	
00:15					0		0		0		12:15					10		5		15	
00:30					0		0		0		12:30					6		8		14	
00:45					0		0		0		12:45					7	25	8	26	15	51
01:00					0		0		0		13:00					4		3		7	
01:15					0		0		0		13:15					5		6		11	
01:30					0		0		0		13:30					3		6		9	
01:45					0		0		0		13:45					7	19	7	22	14	41
02:00					0		0		0		14:00					7		3		10	
02:15					0		0		0		14:15					2		7		9	
02:30					0		0		0		14:30					6		10		16	
02:45					1	1	0		1	1	14:45					8	23	11	31	19	54
03:00					0		0		0		15:00					3		7		10	
03:15					0		0		0		15:15					3		3		6	
03:30					0		0		0		15:30					12		2		14	
03:45					0		0		0		15:45					3	21	0	12	3	33
04:00					0		0		0		16:00					8		3		11	
04:15					0		0		0		16:15					6		0		6	
04:30					0		0		0		16:30					10		1		11	
04:45					0		0		0		16:45					9	33	0	4	9	37
05:00					1		0		1		17:00					7		0		7	
05:15					0		0		0		17:15					8		0		8	
05:30					0		0		0		17:30					1		1		2	
05:45					0	1	4	4	4	5	17:45					3	19	0	1	3	20
06:00					0		0		0		18:00					2		0		2	
06:15					0		1		1		18:15					0		1		1	
06:30					0		5		5		18:30					0		0		0	
06:45					0		9	15	9	15	18:45					0	2	0	1	0	3
07:00					3		4		7		19:00					0		0		0	
07:15					1		1		2		19:15					0		0		0	
07:30					0		0		0		19:30					0		0		0	
07:45					0	4	1	6	1	10	19:45					0		0		0	
08:00					0		3		3		20:00					0		0		0	
08:15					0		2		2		20:15					0		1		1	
08:30					1		5		6		20:30					1		0		1	
08:45					0	1	9	19	9	20	20:45					0	1	0	1	0	2
09:00					1		3		4		21:00					0		0		0	
09:15					2		1		3		21:15					0		0		0	
09:30					1		2		3		21:30					0		0		0	
09:45					0	4	6	12	6	16	21:45					0		0		0	
10:00					2		5		7		22:00					0		0		0	
10:15					2		4		6		22:15					0		0		0	
10:30					3		2		5		22:30					1		0		1	
10:45					2	9	4	15	6	24	22:45					0	1	0		0	1
11:00					2		5		7		23:00					0		0		0	
11:15					6		9		15		23:15					0		0		0	
11:30					4		5		9		23:30					0		0		0	
11:45					9	21	6	25	15	46	23:45					0		0		0	
TOTALS						41		96		137	TOTALS						144		98		242
SPLIT %						29.9%		70.1%		36.1%	SPLIT %						59.5%		40.5%		63.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	185	194	379

AM Peak Hour			11:45	11:00	11:45	PM Peak Hour			16:30	14:15	14:00
AM Pk Volume			27	25	51	PM Pk Volume			34	35	54
Pk Hr Factor			0.675	0.694	0.850	Pk Hr Factor			0.850	0.795	0.711
7 - 9 Volume	0	0	5	25	30	4 - 6 Volume	0	0	52	5	57
7 - 9 Peak Hour			07:00	08:00	08:00	4 - 6 Peak Hour			16:30	16:00	16:00
7 - 9 Pk Volume	0	0	4	19	20	4 - 6 Pk Volume	0	0	34	4	37
Pk Hr Factor	0.000	0.000	0.333	0.528	0.556	Pk Hr Factor	0.000	0.000	0.850	0.333	0.841

Prepared by NDS/ATD

VOLUME

Duckhorn Vineyards Dwy N/O Lodi Ln

Day: Saturday
Date: 10/26/2019

City: St Helena
Project #: CA19_8531_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	178	185	363

AM Period	NB		SB		EB		WB		TOTAL		PM Period	NB		SB		EB		WB		TOTAL	
00:00					0		0		0		12:00					10		5		15	
00:15					0		0		0		12:15					7		6		13	
00:30					0		0		0		12:30					6		6		12	
00:45					0		0		0		12:45					1	24	7	24	8	48
01:00					0		0		0		13:00					1		6		7	
01:15					0		0		0		13:15					8		2		10	
01:30					0		0		0		13:30					6		2		8	
01:45					1	1	0		1	1	13:45					5	20	9	19	14	39
02:00					0		0		0		14:00					7		10		17	
02:15					0		0		0		14:15					4		6		10	
02:30					0		0		0		14:30					6		6		12	
02:45					0		2	2	2	2	14:45					8	25	1	23	9	48
03:00					0		2		2		15:00					4		9		13	
03:15					2		0		2		15:15					5		4		9	
03:30					2		1		3		15:30					6		0		6	
03:45					1	5	0	3	1	8	15:45					13	28	4	17	17	45
04:00					0		0		0		16:00					9		2		11	
04:15					0		1		1		16:15					5		1		6	
04:30					0		0		0		16:30					6		2		8	
04:45					0		1	2	1	2	16:45					11	31	5	10	16	41
05:00					0		0		0		17:00					1		5		6	
05:15					4		1		5		17:15					2		1		3	
05:30					0		0		0		17:30					0		0		0	
05:45					0	4	0	1	0	5	17:45					0	3	0	6	0	9
06:00					0		0		0		18:00					0		0		0	
06:15					0		0		0		18:15					2		0		2	
06:30					0		2		2		18:30					1		0		1	
06:45					0		3	5	3	5	18:45					6	9	0		6	9
07:00					0		2		2		19:00					4		0		4	
07:15					0		0		0		19:15					0		0		0	
07:30					0		0		0		19:30					0		0		0	
07:45					0		1	3	1	3	19:45					0	4	0		0	4
08:00					0		1		1		20:00					0		0		0	
08:15					0		2		2		20:15					0		0		0	
08:30					0		9		9		20:30					0		0		0	
08:45					0		7	19	7	19	20:45					0		0		0	
09:00					0		2		2		21:00					0		0		0	
09:15					0		1		1		21:15					0		0		0	
09:30					0		2		2		21:30					1		0		1	
09:45					0		4	9	4	9	21:45					0	1	0		0	1
10:00					3		6		9		22:00					0		0		0	
10:15					1		5		6		22:15					0		0		0	
10:30					2		5		7		22:30					0		0		0	
10:45					1	7	4	20	5	27	22:45					0		0		0	
11:00					3		6		9		23:00					0		0		0	
11:15					2		4		6		23:15					0		0		0	
11:30					4		5		9		23:30					0		0		0	
11:45					7	16	7	22	14	38	23:45					0		0		0	
TOTALS						33		86		119	TOTALS						145		99		244
SPLIT %						27.7%		72.3%		32.8%	SPLIT %						59.4%		40.6%		67.2%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	178	185	363

AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			15:15	13:45	13:45
AM Pk Volume			30	24	54	PM Pk Volume			33	31	53
Pk Hr Factor			0.750	0.857	0.900	Pk Hr Factor			0.635	0.775	0.779
7 - 9 Volume	0	0	0	22	22	4 - 6 Volume	0	0	34	16	50
7 - 9 Peak Hour				08:00	08:00	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	0	19	19	4 - 6 Pk Volume	0	0	31	13	41
Pk Hr Factor	0.000	0.000	0.000	0.528	0.528	Pk Hr Factor	0.000	0.000	0.705	0.650	0.641

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Friday
Date: 10/18/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	781	953	1,734

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			15		19		34	
00:15			1		2		3		12:15			15		17		32	
00:30			0		0		0		12:30			12		18		30	
00:45			1	2	0	2	1	4	12:45			16	58	18	72	34	130
01:00			2		3		5		13:00			14		21		35	
01:15			3		2		5		13:15			18		29		47	
01:30			0		0		0		13:30			20		28		48	
01:45			2	7	3	8	5	15	13:45			23	75	23	101	46	176
02:00			0		0		0		14:00			17		23		40	
02:15			1		1		2		14:15			22		35		57	
02:30			0		0		0		14:30			20		51		71	
02:45			0	1	0	1	0	2	14:45			23	82	51	160	74	242
03:00			0		1		1		15:00			17		23		40	
03:15			0		0		0		15:15			23		21		44	
03:30			1		1		2		15:30			16		28		44	
03:45			1	2	1	3	2	5	15:45			31	87	30	102	61	189
04:00			2		2		4		16:00			24		22		46	
04:15			2		2		4		16:15			8		9		17	
04:30			0		0		0		16:30			20		21		41	
04:45			3	7	3	7	6	14	16:45			12	64	15	67	27	131
05:00			0		0		0		17:00			15		15		30	
05:15			4		4		8		17:15			11		14		25	
05:30			4		3		7		17:30			5		7		12	
05:45			2	10	2	9	4	19	17:45			6	37	5	41	11	78
06:00			7		6		13		18:00			8		5		13	
06:15			6		5		11		18:15			12		12		24	
06:30			8		8		16		18:30			0		4		4	
06:45			14	35	10	29	24	64	18:45			1	21	0	21	1	42
07:00			5		5		10		19:00			6		5		11	
07:15			12		7		19		19:15			7		5		12	
07:30			5		7		12		19:30			5		3		8	
07:45			11	33	17	36	28	69	19:45			3	21	5	18	8	39
08:00			14		22		36		20:00			2		3		5	
08:15			16		16		32		20:15			3		4		7	
08:30			9		12		21		20:30			2		2		4	
08:45			14	53	16	66	30	119	20:45			2	9	2	11	4	20
09:00			13		15		28		21:00			2		1		3	
09:15			10		15		25		21:15			1		1		2	
09:30			10		11		21		21:30			1		0		1	
09:45			5	38	8	49	13	87	21:45			2	6	0	2	2	8
10:00			14		12		26		22:00			6		4		10	
10:15			17		20		37		22:15			0		0		0	
10:30			17		20		37		22:30			2		1		3	
10:45			18	66	21	73	39	139	22:45			2	10	1	6	3	16
11:00			13		21		34		23:00			1		0		1	
11:15			13		16		29		23:15			0		0		0	
11:30			9		14		23		23:30			1		1		2	
11:45			20	55	17	68	37	123	23:45			0	2	0	1	0	3
TOTALS				309		351		660	TOTALS				472		602		1074
SPLIT %				46.8%		53.2%		38.1%	SPLIT %				43.9%		56.1%		61.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	781	953	1,734

AM Peak Hour			10:00	10:15	10:15	PM Peak Hour			15:15	14:00	14:00
AM Pk Volume			66	82	147	PM Pk Volume			94	160	242
Pk Hr Factor			0.917	0.976	0.942	Pk Hr Factor			0.758	0.784	0.818
7 - 9 Volume	0	0	86	102	188	4 - 6 Volume	0	0	101	108	209
7 - 9 Peak Hour			08:00	07:45	08:00	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	53	67	119	4 - 6 Pk Volume	0	0	64	67	131
Pk Hr Factor	0.000	0.000	0.828	0.761	0.826	Pk Hr Factor	0.000	0.000	0.667	0.761	0.712

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Saturday
Date: 10/19/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	625	674	1,299

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		1		3		12:00			13		17		30	
00:15			1		1		2		12:15			16		26		42	
00:30			0		0		0		12:30			21		27		48	
00:45			0	3	0	2	0	5	12:45			14	64	18	88	32	152
01:00			0		0		0		13:00			22		19		41	
01:15			0		0		0		13:15			14		24		38	
01:30			0		0		0		13:30			14		17		31	
01:45			1	1	1	1	2	2	13:45			15	65	19	79	34	144
02:00			0		0		0		14:00			14		19		33	
02:15			0		0		0		14:15			12		12		24	
02:30			0		1		1		14:30			13		12		25	
02:45			0		0	1	0	1	14:45			8	47	14	57	22	104
03:00			0		0		0		15:00			19		17		36	
03:15			0		1		1		15:15			14		12		26	
03:30			0		0		0		15:30			17		17		34	
03:45			0		0	1	0	1	15:45			17	67	14	60	31	127
04:00			0		0		0		16:00			21		21		42	
04:15			0		0		0		16:15			15		12		27	
04:30			0		0		0		16:30			8		14		22	
04:45			0		0		0		16:45			14	58	14	61	28	119
05:00			0		0		0		17:00			12		10		22	
05:15			0		0		0		17:15			15		12		27	
05:30			2		1		3		17:30			10		6		16	
05:45			1	3	1	2	2	5	17:45			3	40	5	33	8	73
06:00			1		2		3		18:00			9		5		14	
06:15			1		1		2		18:15			6		8		14	
06:30			4		3		7		18:30			3		3		6	
06:45			7	13	9	15	16	28	18:45			5	23	4	20	9	43
07:00			3		3		6		19:00			8		3		11	
07:15			2		1		3		19:15			4		3		7	
07:30			3		4		7		19:30			7		5		12	
07:45			5	13	7	15	12	28	19:45			5	24	5	16	10	40
08:00			6		8		14		20:00			7		6		13	
08:15			10		7		17		20:15			3		3		6	
08:30			15		14		29		20:30			0		0		0	
08:45			17	48	14	43	31	91	20:45			5	15	5	14	10	29
09:00			8		9		17		21:00			4		3		7	
09:15			9		13		22		21:15			4		3		7	
09:30			6		8		14		21:30			1		0		1	
09:45			9	32	11	41	20	73	21:45			1	10	0	6	1	16
10:00			10		7		17		22:00			1		2		3	
10:15			8		12		20		22:15			0		0		0	
10:30			11		18		29		22:30			2		1		3	
10:45			10	39	11	48	21	87	22:45			1	4	2	5	3	9
11:00			9		9		18		23:00			0		0		0	
11:15			15		16		31		23:15			2		2		4	
11:30			14		12		26		23:30			1		3		4	
11:45			14	52	23	60	37	112	23:45			1	4	1	6	2	10
TOTALS				204		229		**433**	**TOTALS**				421		445		**866**
SPLIT %				47.1%		52.9%		**33.3%**	**SPLIT %**				48.6%		51.4%		**66.7%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	625	674	1,299

AM Peak Hour			11:45	11:45	**11:45**	**PM Peak Hour**			12:15	12:15	**12:15**
AM Pk Volume			64	93	**157**	**PM Pk Volume**			73	90	**163**
Pk Hr Factor			0.762	0.861	**0.818**	**Pk Hr Factor**			0.830	0.833	**0.849**
7 - 9 Volume	0	0	61	58	**119**	**4 - 6 Volume**	0	0	98	94	**192**
7 - 9 Peak Hour			08:00	08:00	**08:00**	**4 - 6 Peak Hour**			16:00	16:00	**16:00**
7 - 9 Pk Volume	0	0	48	43	**91**	**4 - 6 Pk Volume**	0	0	58	61	**119**
Pk Hr Factor	0.000	0.000	0.706	0.768	**0.734**	**Pk Hr Factor**	0.000	0.000	0.690	0.726	**0.708**

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Sunday
Date: 10/20/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	348	353	701

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			5		4		9		12:00			7		6		13	
00:15			0		0		0		12:15			5		7		12	
00:30			0		2		2		12:30			8		9		17	
00:45			0	5	0	6	0	11	12:45			14	34	16	38	30	72
01:00			0		0		0		13:00			7		7		14	
01:15			2		2		4		13:15			4		9		13	
01:30			0		0		0		13:30			9		11		20	
01:45			0	2	0	2	0	4	13:45			5	25	7	34	12	59
02:00			0		0		0		14:00			13		11		24	
02:15			0		0		0		14:15			3		4		7	
02:30			0		0		0		14:30			9		9		18	
02:45			1	1	1	1	2	2	14:45			7	32	8	32	15	64
03:00			0		0		0		15:00			11		13		24	
03:15			0		0		0		15:15			12		12		24	
03:30			1		1		2		15:30			9		14		23	
03:45			0	1	0	1	0	2	15:45			6	38	5	44	11	82
04:00			0		0		0		16:00			5		6		11	
04:15			0		0		0		16:15			3		8		11	
04:30			0		0		0		16:30			12		10		22	
04:45			1	1	1	1	2	2	16:45			7	27	7	31	14	58
05:00			0		0		0		17:00			7		7		14	
05:15			0		0		0		17:15			5		4		9	
05:30			2		2		4		17:30			10		9		19	
05:45			0	2	0	2	0	4	17:45			10	32	7	27	17	59
06:00			1		0		1		18:00			9		10		19	
06:15			0		0		0		18:15			3		2		5	
06:30			3		2		5		18:30			3		5		8	
06:45			3	7	4	6	7	13	18:45			0	15	0	17	0	32
07:00			1		0		1		19:00			2		2		4	
07:15			1		0		1		19:15			2		1		3	
07:30			2		2		4		19:30			0		0		0	
07:45			4	8	2	4	6	12	19:45			1	5	2	5	3	10
08:00			3		6		9		20:00			2		1		3	
08:15			6		5		11		20:15			1		1		2	
08:30			0		0		0		20:30			1		0		1	
08:45			9	18	3	14	12	32	20:45			0	4	2	4	2	8
09:00			6		7		13		21:00			4		3		7	
09:15			1		1		2		21:15			3		4		7	
09:30			7		6		13		21:30			1		0		1	
09:45			8	22	6	20	14	42	21:45			0	8	1	8	1	16
10:00			5		6		11		22:00			2		2		4	
10:15			12		8		20		22:15			1		0		1	
10:30			6		9		15		22:30			1		2		3	
10:45			5	28	3	26	8	54	22:45			3	7	1	5	4	12
11:00			8		5		13		23:00			0		0		0	
11:15			7		9		16		23:15			1		1		2	
11:30			3		2		5		23:30			0		1		1	
11:45			7	25	7	23	14	48	23:45			0	1	0	2	0	3
TOTALS				120		106		226	TOTALS				228		247		475
SPLIT %				53.1%		46.9%		32.2%	SPLIT %				48.0%		52.0%		67.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	348	353	701

AM Peak Hour			09:30	09:45	09:45	PM Peak Hour			14:30	14:45	14:45
AM Pk Volume			32	29	60	PM Pk Volume			39	47	86
Pk Hr Factor			0.667	0.806	0.750	Pk Hr Factor			0.813	0.839	0.896
7 - 9 Volume	0	0	26	18	44	4 - 6 Volume	0	0	59	58	117
7 - 9 Peak Hour			08:00	07:30	08:00	4 - 6 Peak Hour			17:00	16:15	16:15
7 - 9 Pk Volume	0	0	18	15	32	4 - 6 Pk Volume	0	0	32	32	61
Pk Hr Factor	0.000	0.000	0.500	0.625	0.667	Pk Hr Factor	0.000	0.000	0.800	0.800	0.693

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Monday
Date: 10/21/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	604	725	1,329

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			8		10		18	
00:15			1		1		2		12:15			13		18		31	
00:30			0		0		0		12:30			18		16		34	
00:45			0	1	0	1	0	2	12:45			15	54	12	56	27	110
01:00			0		0		0		13:00			8		11		19	
01:15			0		1		1		13:15			10		14		24	
01:30			0		0		0		13:30			16		18		34	
01:45			0		0	1	0	1	13:45			7	41	4	47	11	88
02:00			0		0		0		14:00			20		25		45	
02:15			0		0		0		14:15			11		12		23	
02:30			0		0		0		14:30			7		7		14	
02:45			0		0		0		14:45			18	56	23	67	41	123
03:00			0		0		0		15:00			16		21		37	
03:15			0		0		0		15:15			18		30		48	
03:30			0		0		0		15:30			16		14		30	
03:45			1	1	1	1	2	2	15:45			6	56	8	73	14	129
04:00			0		1		1		16:00			9		15		24	
04:15			0		0		0		16:15			16		15		31	
04:30			0		0		0		16:30			11		15		26	
04:45			1	1	1	2	2	3	16:45			11	47	15	60	26	107
05:00			6		6		12		17:00			13		16		29	
05:15			0		0		0		17:15			14		12		26	
05:30			3		3		6		17:30			15		10		25	
05:45			0	9	0	9	0	18	17:45			10	52	13	51	23	103
06:00			7		8		15		18:00			4		9		13	
06:15			2		3		5		18:15			9		12		21	
06:30			8		5		13		18:30			3		4		7	
06:45			13	30	10	26	23	56	18:45			4	20	3	28	7	48
07:00			11		12		23		19:00			0		0		0	
07:15			14		12		26		19:15			0		0		0	
07:30			8		10		18		19:30			3		3		6	
07:45			8	41	15	49	23	90	19:45			4	7	3	6	7	13
08:00			14		25		39		20:00			5		4		9	
08:15			5		9		14		20:15			3		5		8	
08:30			8		13		21		20:30			2		2		4	
08:45			9	36	10	57	19	93	20:45			3	13	1	12	4	25
09:00			9		10		19		21:00			3		2		5	
09:15			8		9		17		21:15			1		1		2	
09:30			7		15		22		21:30			1		1		2	
09:45			10	34	16	50	26	84	21:45			0	5	1	5	1	10
10:00			13		14		27		22:00			3		3		6	
10:15			14		11		25		22:15			1		1		2	
10:30			14		16		30		22:30			1		1		2	
10:45			7	48	13	54	20	102	22:45			0	5	0	5	0	10
11:00			10		11		21		23:00			1		1		2	
11:15			6		8		14		23:15			0		0		0	
11:30			13		21		34		23:30			1		1		2	
11:45			16	45	23	63	39	108	23:45			0	2	0	2	0	4
TOTALS				246		313		559	TOTALS				358		412		770
SPLIT %				44.0%		56.0%		42.1%	SPLIT %				46.5%		53.5%		57.9%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	604	725	1,329

AM Peak Hour			11:45	11:30	11:30	PM Peak Hour			14:45	14:45	14:45
AM Pk Volume			55	72	122	PM Pk Volume			68	88	156
Pk Hr Factor			0.764	0.783	0.782	Pk Hr Factor			0.944	0.733	0.813
7 - 9 Volume	0	0	77	106	183	4 - 6 Volume	0	0	99	111	210
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			16:45	16:15	16:15
7 - 9 Pk Volume	0	0	44	62	106	4 - 6 Pk Volume	0	0	53	61	112
Pk Hr Factor	0.000	0.000	0.786	0.620	0.679	Pk Hr Factor	0.000	0.000	0.883	0.953	0.903

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Tuesday
Date: 10/22/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	590	691	1,281

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		1		2		12:00			9		18		27	
00:15			0		0		0		12:15			18		13		31	
00:30			0		0		0		12:30			7		9		16	
00:45			0	1	0	1	0	2	12:45			7	41	11	51	18	92
01:00			0		0		0		13:00			16		14		30	
01:15			0		1		1		13:15			9		14		23	
01:30			0		0		0		13:30			11		12		23	
01:45			0		0	1	0	1	13:45			10	46	13	53	23	99
02:00			0		0		0		14:00			10		12		22	
02:15			0		0		0		14:15			10		11		21	
02:30			1		1		2		14:30			7		16		23	
02:45			0	1	0	1	0	2	14:45			15	42	21	60	36	102
03:00			0		0		0		15:00			14		18		32	
03:15			0		0		0		15:15			7		16		23	
03:30			0		1		1		15:30			13		12		25	
03:45			2	2	1	2	3	4	15:45			7	41	13	59	20	100
04:00			0		0		0		16:00			10		8		18	
04:15			0		0		0		16:15			7		10		17	
04:30			0		0		0		16:30			6		7		13	
04:45			4	4	4	4	8	8	16:45			19	42	13	38	32	80
05:00			4		4		8		17:00			15		12		27	
05:15			4		5		9		17:15			9		11		20	
05:30			4		4		8		17:30			10		13		23	
05:45			2	14	2	15	4	29	17:45			4	38	3	39	7	77
06:00			4		3		7		18:00			6		8		14	
06:15			3		2		5		18:15			7		7		14	
06:30			7		8		15		18:30			2		3		5	
06:45			11	25	8	21	19	46	18:45			2	17	4	22	6	39
07:00			7		8		15		19:00			2		4		6	
07:15			11		9		20		19:15			7		5		12	
07:30			7		13		20		19:30			4		3		7	
07:45			14	39	18	48	32	87	19:45			3	16	3	15	6	31
08:00			22		31		53		20:00			4		2		6	
08:15			16		17		33		20:15			4		5		9	
08:30			7		12		19		20:30			2		1		3	
08:45			12	57	12	72	24	129	20:45			1	11	1	9	2	20
09:00			12		19		31		21:00			2		2		4	
09:15			11		18		29		21:15			3		2		5	
09:30			10		12		22		21:30			0		0		0	
09:45			19	52	14	63	33	115	21:45			0	5	0	4	0	9
10:00			8		10		18		22:00			3		1		4	
10:15			13		12		25		22:15			1		3		4	
10:30			10		12		22		22:30			1		1		2	
10:45			13	44	11	45	24	89	22:45			4	9	4	9	8	18
11:00			10		14		24		23:00			1		2		3	
11:15			12		18		30		23:15			1		0		1	
11:30			8		10		18		23:30			1		0		1	
11:45			10	40	15	57	25	97	23:45			0	3	0	2	0	5
TOTALS				279		330		609	TOTALS				311		361		672
SPLIT %				45.8%		54.2%		47.5%	SPLIT %				46.3%		53.7%		52.5%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	590	691	1,281

AM Peak Hour			07:30	07:30	07:30	PM Peak Hour			16:45	14:30	14:45
AM Pk Volume			59	79	138	PM Pk Volume			53	71	116
Pk Hr Factor			0.670	0.637	0.651	Pk Hr Factor			0.697	0.845	0.806
7 - 9 Volume	0	0	96	120	216	4 - 6 Volume	0	0	80	77	157
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	59	79	138	4 - 6 Pk Volume	0	0	53	49	102
Pk Hr Factor	0.000	0.000	0.670	0.637	0.651	Pk Hr Factor	0.000	0.000	0.697	0.942	0.797

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Wednesday
Date: 10/23/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	834	1,005	1,839

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			14		15		29	
00:15			0		0		0		12:15			18		20		38	
00:30			2		3		5		12:30			14		15		29	
00:45			1	3	1	4	2	7	12:45			18	64	21	71	39	135
01:00			0		0		0		13:00			14		13		27	
01:15			0		0		0		13:15			19		17		36	
01:30			0		0		0		13:30			7		10		17	
01:45			0		0		0		13:45			8	48	8	48	16	96
02:00			0		0		0		14:00			8		16		24	
02:15			0		0		0		14:15			13		17		30	
02:30			0		0		0		14:30			11		13		24	
02:45			2	2	2	2	4	4	14:45			14	46	11	57	25	103
03:00			0		0		0		15:00			16		17		33	
03:15			1		1		2		15:15			14		17		31	
03:30			1		1		2		15:30			11		15		26	
03:45			0	2	0	2	0	4	15:45			11	52	13	62	24	114
04:00			1		0		1		16:00			14		9		23	
04:15			0		0		0		16:15			20		12		32	
04:30			0		0		0		16:30			8		9		17	
04:45			9	10	8	8	17	18	16:45			8	50	9	39	17	89
05:00			1		1		2		17:00			10		12		22	
05:15			6		6		12		17:15			9		8		17	
05:30			2		2		4		17:30			11		16		27	
05:45			5	14	5	14	10	28	17:45			6	36	8	44	14	80
06:00			4		3		7		18:00			7		13		20	
06:15			6		7		13		18:15			5		4		9	
06:30			8		7		15		18:30			3		5		8	
06:45			20	38	19	36	39	74	18:45			6	21	6	28	12	49
07:00			33		42		75		19:00			5		6		11	
07:15			34		53		87		19:15			3		2		5	
07:30			14		52		66		19:30			3		2		5	
07:45			37	118	81	228	118	346	19:45			8	19	6	16	14	35
08:00			32		49		81		20:00			0		1		1	
08:15			34		30		64		20:15			2		3		5	
08:30			33		34		67		20:30			5		4		9	
08:45			17	116	17	130	34	246	20:45			3	10	3	11	6	21
09:00			18		20		38		21:00			5		1		6	
09:15			15		17		32		21:15			1		1		2	
09:30			16		16		32		21:30			1		0		1	
09:45			12	61	13	66	25	127	21:45			4	11	3	5	7	16
10:00			21		16		37		22:00			1		1		2	
10:15			10		14		24		22:15			2		2		4	
10:30			10		11		21		22:30			5		5		10	
10:45			9	50	24	65	33	115	22:45			2	10	1	9	3	19
11:00			11		18		29		23:00			1		0		1	
11:15			15		12		27		23:15			0		0		0	
11:30			15		14		29		23:30			2		1		3	
11:45			9	50	15	59	24	109	23:45			0	3	0	1	0	4
TOTALS				464		614		1078	TOTALS				370		391		761
SPLIT %				43.0%		57.0%		58.6%	SPLIT %				48.6%		51.4%		41.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	834	1,005	1,839

AM Peak Hour			07:45	07:15	07:15	PM Peak Hour			12:30	12:00	12:00
AM Pk Volume			136	235	352	PM Pk Volume			65	71	135
Pk Hr Factor			0.919	0.725	0.746	Pk Hr Factor			0.855	0.845	0.865
7 - 9 Volume	0	0	234	358	592	4 - 6 Volume	0	0	86	83	169
7 - 9 Peak Hour			07:45	07:15	07:15	4 - 6 Peak Hour			16:00	16:45	16:00
7 - 9 Pk Volume	0	0	136	235	352	4 - 6 Pk Volume	0	0	50	45	89
Pk Hr Factor	0.000	0.000	0.919	0.725	0.746	Pk Hr Factor	0.000	0.000	0.625	0.703	0.695

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Thursday
Date: 10/24/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	620	698	1,318

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		4		4		12:00			18		19		37	
00:15			0		0		0		12:15			6		12		18	
00:30			4		1		5		12:30			16		14		30	
00:45			0	4	0	5	0	9	12:45			7	47	14	59	21	106
01:00			0		2		2		13:00			13		13		26	
01:15			0		0		0		13:15			11		9		20	
01:30			0		0		0		13:30			18		15		33	
01:45			0		1	3	1	3	13:45			15	57	13	50	28	107
02:00			0		0		0		14:00			8		9		17	
02:15			2		1		3		14:15			17		26		43	
02:30			0		0		0		14:30			9		11		20	
02:45			0	2	0	1	0	3	14:45			15	49	24	70	39	119
03:00			0		0		0		15:00			14		17		31	
03:15			0		0		0		15:15			10		10		20	
03:30			0		0		0		15:30			13		22		35	
03:45			0		0		0		15:45			6	43	8	57	14	100
04:00			0		0		0		16:00			14		16		30	
04:15			0		0		0		16:15			12		14		26	
04:30			1		1		2		16:30			12		13		25	
04:45			3	4	3	4	6	8	16:45			7	45	10	53	17	98
05:00			1		1		2		17:00			8		4		12	
05:15			3		5		8		17:15			7		9		16	
05:30			3		2		5		17:30			8		10		18	
05:45			2	9	1	9	3	18	17:45			8	31	7	30	15	61
06:00			2		1		3		18:00			7		8		15	
06:15			2		2		4		18:15			7		6		13	
06:30			7		5		12		18:30			6		4		10	
06:45			10	21	8	16	18	37	18:45			8	28	10	28	18	56
07:00			6		6		12		19:00			5		5		10	
07:15			10		14		24		19:15			3		2		5	
07:30			11		11		22		19:30			3		3		6	
07:45			13	40	15	46	28	86	19:45			7	18	9	19	16	37
08:00			11		19		30		20:00			5		4		9	
08:15			16		20		36		20:15			5		4		9	
08:30			6		14		20		20:30			7		6		13	
08:45			8	41	11	64	19	105	20:45			7	24	5	19	12	43
09:00			9		16		25		21:00			3		3		6	
09:15			13		14		27		21:15			3		2		5	
09:30			18		16		34		21:30			0		0		0	
09:45			13	53	13	59	26	112	21:45			3	9	3	8	6	17
10:00			7		6		13		22:00			3		2		5	
10:15			8		8		16		22:15			5		2		7	
10:30			8		14		22		22:30			4		3		7	
10:45			17	40	14	42	31	82	22:45			1	13	1	8	2	21
11:00			9		11		20		23:00			0		1		1	
11:15			15		16		31		23:15			0		0		0	
11:30			11		9		20		23:30			0		0		0	
11:45			7	42	11	47	18	89	23:45			0		0	1	0	1
TOTALS				256		296		552	TOTALS				364		402		766
SPLIT %				46.4%		53.6%		41.9%	SPLIT %				47.5%		52.5%		58.1%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	620	698	1,318

AM Peak Hour			09:00	07:45	07:30	PM Peak Hour			13:30	14:15	14:15
AM Pk Volume			53	68	116	PM Pk Volume			58	78	133
Pk Hr Factor			0.736	0.850	0.806	Pk Hr Factor			0.806	0.750	0.773
7 - 9 Volume	0	0	81	110	191	4 - 6 Volume	0	0	76	83	159
7 - 9 Peak Hour			07:30	07:45	07:30	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	51	68	116	4 - 6 Pk Volume	0	0	45	53	98
Pk Hr Factor	0.000	0.000	0.797	0.850	0.806	Pk Hr Factor	0.000	0.000	0.804	0.828	0.817

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Friday
Date: 10/25/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	713	859	1,572

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			2		2		4		12:00			9		20		29	
00:15			0		1		1		12:15			16		23		39	
00:30			0		0		0		12:30			12		16		28	
00:45			1	3	1	4	2	7	12:45			22	59	23	82	45	141
01:00			0		2		2		13:00			11		25		36	
01:15			0		0		0		13:15			11		17		28	
01:30			0		0		0		13:30			20		31		51	
01:45			0		0	2	0	2	13:45			15	57	18	91	33	148
02:00			3		3		6		14:00			8		14		22	
02:15			1		1		2		14:15			14		17		31	
02:30			0		0		0		14:30			22		25		47	
02:45			1	5	1	5	2	10	14:45			23	67	18	74	41	141
03:00			0		0		0		15:00			15		22		37	
03:15			0		0		0		15:15			15		27		42	
03:30			3		3		6		15:30			12		24		36	
03:45			0	3	0	3	0	6	15:45			15	57	17	90	32	147
04:00			0		0		0		16:00			15		23		38	
04:15			0		0		0		16:15			9		10		19	
04:30			0		0		0		16:30			10		11		21	
04:45			3	3	3	3	6	6	16:45			11	45	16	60	27	105
05:00			0		0		0		17:00			13		19		32	
05:15			2		2		4		17:15			5		8		13	
05:30			2		3		5		17:30			11		11		22	
05:45			13	17	8	13	21	30	17:45			14	43	14	52	28	95
06:00			1		1		2		18:00			10		13		23	
06:15			5		5		10		18:15			17		12		29	
06:30			5		7		12		18:30			5		4		9	
06:45			13	24	8	21	21	45	18:45			6	38	6	35	12	73
07:00			7		7		14		19:00			5		6		11	
07:15			9		9		18		19:15			3		3		6	
07:30			12		9		21		19:30			4		4		8	
07:45			17	45	25	50	42	95	19:45			5	17	4	17	9	34
08:00			17		26		43		20:00			3		1		4	
08:15			7		15		22		20:15			6		7		13	
08:30			21		22		43		20:30			2		2		4	
08:45			17	62	8	71	25	133	20:45			2	13	2	12	4	25
09:00			7		10		17		21:00			3		2		5	
09:15			9		16		25		21:15			3		2		5	
09:30			11		8		19		21:30			4		4		8	
09:45			8	35	8	42	16	77	21:45			3	13	4	12	7	25
10:00			13		13		26		22:00			3		3		6	
10:15			11		13		24		22:15			1		1		2	
10:30			5		11		16		22:30			3		2		5	
10:45			10	39	12	49	22	88	22:45			4	11	1	7	5	18
11:00			12		16		28		23:00			1		1		2	
11:15			15		18		33		23:15			1		1		2	
11:30			16		17		33		23:30			1		2		3	
11:45			11	54	9	60	20	114	23:45			0	3	0	4	0	7
TOTALS				290		323		613	TOTALS				423		536		959
SPLIT %				47.3%		52.7%		39.0%	SPLIT %				44.1%		55.9%		61.0%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	713	859	1,572

AM Peak Hour			07:45	07:45	07:45	PM Peak Hour			14:30	12:45	14:30
AM Pk Volume			62	88	150	PM Pk Volume			75	96	167
Pk Hr Factor			0.738	0.846	0.872	Pk Hr Factor			0.815	0.774	0.888
7 - 9 Volume	0	0	107	121	228	4 - 6 Volume	0	0	88	112	200
7 - 9 Peak Hour			07:45	07:45	07:45	4 - 6 Peak Hour			16:00	16:00	16:00
7 - 9 Pk Volume	0	0	62	88	150	4 - 6 Pk Volume	0	0	45	60	105
Pk Hr Factor	0.000	0.000	0.738	0.846	0.872	Pk Hr Factor	0.000	0.000	0.750	0.652	0.691

Prepared by NDS/ATD

VOLUME

Lodi Ln W/O Duckhorn Vineyards Dwy

Day: Saturday
Date: 10/26/2019

City: St Helena
Project #: CA19_8531_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	523	571	1,094

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		0		0		12:00			10		19		29	
00:15			1		1		2		12:15			8		14		22	
00:30			2		2		4		12:30			7		14		21	
00:45			0	3	0	3	0	6	12:45			12	37	11	58	23	95
01:00			1		2		3		13:00			10		10		20	
01:15			1		1		2		13:15			12		13		25	
01:30			0		0		0		13:30			9		14		23	
01:45			3	5	3	6	6	11	13:45			13	44	13	50	26	94
02:00			4		4		8		14:00			17		18		35	
02:15			1		1		2		14:15			7		8		15	
02:30			0		0		0		14:30			15		19		34	
02:45			3	8	2	7	5	15	14:45			5	44	7	52	12	96
03:00			2		1		3		15:00			15		22		37	
03:15			1		2		3		15:15			12		9		21	
03:30			3		3		6		15:30			13		13		26	
03:45			2	8	2	8	4	16	15:45			7	47	10	54	17	101
04:00			0		0		0		16:00			12		11		23	
04:15			4		3		7		16:15			8		9		17	
04:30			0		0		0		16:30			8		11		19	
04:45			3	7	2	5	5	12	16:45			4	32	12	43	16	75
05:00			3		3		6		17:00			11		10		21	
05:15			2		2		4		17:15			7		4		11	
05:30			1		0		1		17:30			8		13		21	
05:45			2	8	2	7	4	15	17:45			7	33	8	35	15	68
06:00			1		1		2		18:00			14		13		27	
06:15			1		1		2		18:15			8		3		11	
06:30			6		6		12		18:30			7		4		11	
06:45			6	14	6	14	12	28	18:45			6	35	5	25	11	60
07:00			6		7		13		19:00			4		3		7	
07:15			0		0		0		19:15			2		3		5	
07:30			3		4		7		19:30			2		1		3	
07:45			5	14	6	17	11	31	19:45			2	10	3	10	5	20
08:00			3		3		6		20:00			7		6		13	
08:15			7		7		14		20:15			0		1		1	
08:30			6		3		9		20:30			0		0		0	
08:45			9	25	5	18	14	43	20:45			4	11	5	12	9	23
09:00			7		11		18		21:00			1		0		1	
09:15			7		5		12		21:15			3		3		6	
09:30			11		13		24		21:30			4		4		8	
09:45			9	34	9	38	18	72	21:45			1	9	0	7	1	16
10:00			15		18		33		22:00			1		1		2	
10:15			8		9		17		22:15			4		5		9	
10:30			7		7		14		22:30			2		3		5	
10:45			7	37	9	43	16	80	22:45			6	13	3	12	9	25
11:00			10		9		19		23:00			1		0		1	
11:15			7		11		18		23:15			5		4		9	
11:30			9		10		19		23:30			3		2		5	
11:45			8	34	9	39	17	73	23:45			2	11	2	8	4	19
TOTALS				197		205		402	TOTALS				326		366		692
SPLIT %				49.0%		51.0%		36.7%	SPLIT %				47.1%		52.9%		63.3%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	523	571	1,094

AM Peak Hour			09:30	11:45	09:30	PM Peak Hour			13:45	12:00	13:45
AM Pk Volume			43	56	92	PM Pk Volume			52	58	110
Pk Hr Factor			0.717	0.737	0.697	Pk Hr Factor			0.765	0.763	0.786
7 - 9 Volume	0	0	39	35	74	4 - 6 Volume	0	0	65	78	143
7 - 9 Peak Hour			08:00	07:30	08:00	4 - 6 Peak Hour			17:00	16:00	16:00
7 - 9 Pk Volume	0	0	25	20	43	4 - 6 Pk Volume	0	0	33	43	75
Pk Hr Factor	0.000	0.000	0.694	0.714	0.768	Pk Hr Factor	0.000	0.000	0.750	0.896	0.815

Napa County Peak Hour Heavy Vehicle Percentages
September and October - 2017 and 2018

1. SR29/Lodi Ln			**5+ Axle**	**Grape**	**Total**	**%Total**
		Vehicles	**Trucks**	**Trucks**	**Trucks**	**Trucks**
22-Sep-17 Friday	7:45-8:45 AM	1090	59	27	86	8.00
	3:45-4:45 PM	1474	43	10	53	**4.00**
23-Sep-17 Saturday	1:00-2:00 PM	1407	18	8	26	**2.00**
	3:00-4:00 PM	1430	30	1	31	2.00

2. Silverado Trail/Lodi Ln			**5+ Axle**	**Grape**	**Total**	**%Total**
		Vehicles	**Trucks**	**Trucks**	**Trucks**	**Trucks**
22-Sep-17 Friday	8:00-9:00 AM	470	12	13	25	5.00
	3:45-4:45 PM	750	10	4	14	**2.00**
23-Sep-17 Saturday	1:00-2:00 PM	592	13	4	17	**3.00**
	2:15-3:15 PM	663	11	4	15	2.00

Note: All volumes are total volumes through intersection.

Source: Crane Transportation Group

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Appendix C

Intersection Level of Service Calculations

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Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	56.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	667	40	22	622	85	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	40	22	622	85	37
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	174	10	6	162	22	10
Total Analysis Volume [veh/h]	695	42	23	648	89	39
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.61	0.09
d_M, Delay for Movement [s/veh]	0.00	0.00	9.30	0.00	56.02	39.95
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.00	3.70	3.70
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.06	0.00	92.57	92.57
d_A, Approach Delay [s/veh]	0.00		0.32		51.12	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	4.40					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	15.5
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.092

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	63	299	265	50	32	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	63	299	265	50	32	46
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	78	69	13	8	12
Total Analysis Volume [veh/h]	66	311	276	52	33	48
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.09	0.07
d_M, Delay for Movement [s/veh]	8.09	0.00	0.00	0.00	15.51	10.30
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.17	0.17	0.00	0.00	0.30	0.30
95th-Percentile Queue Length [ft/ln]	4.24	4.24	0.00	0.00	7.62	7.62
d_A, Approach Delay [s/veh]	1.42		0.00		12.42	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.96					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.297

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	686	22	27	649	39	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	686	22	27	649	39	13
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	179	6	7	169	10	3
Total Analysis Volume [veh/h]	715	23	28	676	41	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.30	0.03
d_M, Delay for Movement [s/veh]	0.00	0.00	9.29	0.00	39.15	21.52
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	1.18	1.18
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.50	0.00	29.59	29.59
d_A, Approach Delay [s/veh]	0.00		0.37		34.66	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.45					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	30	296	253	31	15	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	296	253	31	15	31
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	81	70	9	4	9
Total Analysis Volume [veh/h]	33	325	278	34	16	34
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.04	0.05
d_M, Delay for Movement [s/veh]	7.98	0.00	0.00	0.00	14.20	10.01
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.08	0.08	0.00	0.00	0.14	0.14
95th-Percentile Queue Length [ft/ln]	2.04	2.04	0.00	0.00	3.60	3.60
d_A, Approach Delay [s/veh]	0.74		0.00		11.35	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.15					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	61.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.653

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	670	44	24	626	90	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	670	44	24	626	90	41
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	174	11	6	163	23	11
Total Analysis Volume [veh/h]	698	46	25	652	94	43
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.65	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	9.34	0.00	61.80	45.27
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.09	0.00	4.23	4.23
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.26	0.00	105.75	105.75
d_A, Approach Delay [s/veh]	0.00		0.34		56.61	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	5.13					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.096

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	65	299	265	51	33	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	65	299	265	51	33	49
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	78	69	13	9	13
Total Analysis Volume [veh/h]	68	311	276	53	34	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.10	0.07
d_M, Delay for Movement [s/veh]	8.10	0.00	0.00	0.00	15.60	10.32
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.32	0.32
95th-Percentile Queue Length [ft/ln]	4.38	4.38	0.00	0.00	7.95	7.95
d_A, Approach Delay [s/veh]	1.45		0.00		12.43	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.03					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	41.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.354

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	672	32	33	654	46	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	672	32	33	654	46	18
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	175	8	9	170	12	5
Total Analysis Volume [veh/h]	700	33	34	681	48	19
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.35	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	9.30	0.00	41.64	23.45
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.12	0.00	1.50	1.50
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.04	0.00	37.44	37.44
d_A, Approach Delay [s/veh]	0.00		0.44		36.48	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.82					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	14.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.046

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	35	296	253	33	16	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	296	253	33	16	35
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	81	70	9	4	10
Total Analysis Volume [veh/h]	38	325	278	36	18	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.05	0.05
d_M, Delay for Movement [s/veh]	7.99	0.00	0.00	0.00	14.40	10.04
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	2.37	2.37	0.00	0.00	4.05	4.05
d_A, Approach Delay [s/veh]	0.84		0.00		11.44	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.29					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	374.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.400

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	667	40	22	622	85	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	974	44	24	908	94	41
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	244	11	6	227	24	10
Total Analysis Volume [veh/h]	974	44	24	908	94	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	1.40	0.14
d_M, Delay for Movement [s/veh]	0.00	0.00	10.54	0.00	374.34	332.97
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.11	0.00	10.51	10.51
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.77	0.00	262.76	262.76
d_A, Approach Delay [s/veh]	0.00		0.27		361.78	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	23.55					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	19.2
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.130

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	63	299	265	50	32	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1050	1.3700	1.3700	1.1050	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	70	410	363	55	35	51
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	103	91	14	9	13
Total Analysis Volume [veh/h]	70	410	363	55	35	51
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.13	0.08
d_M, Delay for Movement [s/veh]	8.36	0.00	0.00	0.00	19.19	11.28
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.45	0.45
95th-Percentile Queue Length [ft/ln]	4.89	4.89	0.00	0.00	11.14	11.14
d_A, Approach Delay [s/veh]	1.22		0.00		14.50	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.86					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	138.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.706

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	686	22	27	649	39	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1002	24	30	948	43	14
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	251	6	8	237	11	4
Total Analysis Volume [veh/h]	1002	24	30	948	43	14
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.71	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	10.57	0.00	138.33	91.63
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.14	0.00	3.45	3.45
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.47	0.00	86.23	86.23
d_A, Approach Delay [s/veh]	0.00		0.32		126.86	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	3.66					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	30	296	253	31	15	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.1050	1.3700	1.3700	1.1050	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	406	347	34	17	34
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	102	87	9	4	9
Total Analysis Volume [veh/h]	33	406	347	34	17	34
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.05	0.05
d_M, Delay for Movement [s/veh]	8.16	0.00	0.00	0.00	16.33	10.51
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.17	0.17
95th-Percentile Queue Length [ft/ln]	2.17	2.17	0.00	0.00	4.15	4.15
d_A, Approach Delay [s/veh]	0.61		0.00		12.45	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.04					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	57.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.614

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	667	40	22	622	85	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	3	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	667	43	25	622	85	39
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	174	11	7	162	22	10
Total Analysis Volume [veh/h]	695	45	26	648	89	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.61	0.10
d_M, Delay for Movement [s/veh]	0.00	0.00	9.33	0.00	57.31	40.91
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.09	0.00	3.81	3.81
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.34	0.00	95.14	95.14
d_A, Approach Delay [s/veh]	0.00		0.36		52.14	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	4.55					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.094

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	63	299	265	50	32	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	1	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	66	299	265	51	32	51
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	78	69	13	8	13
Total Analysis Volume [veh/h]	69	311	276	53	33	53
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.09	0.07
d_M, Delay for Movement [s/veh]	8.10	0.00	0.00	0.00	15.61	10.29
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.31	0.31
95th-Percentile Queue Length [ft/ln]	4.45	4.45	0.00	0.00	7.72	7.72
d_A, Approach Delay [s/veh]	1.47		0.00		12.33	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.04					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	39.1
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.299

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	686	22	27	649	39	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	686	23	28	649	39	15
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	179	6	7	169	10	4
Total Analysis Volume [veh/h]	715	24	29	676	41	16
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.30	0.04
d_M, Delay for Movement [s/veh]	0.00	0.00	9.29	0.00	39.08	21.34
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	1.19	1.19
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.59	0.00	29.83	29.83
d_A, Approach Delay [s/veh]	0.00		0.38		34.10	
Approach LOS	A		A		D	
d_I, Intersection Delay [s/veh]	1.47					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	14.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.040

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	30	296	253	31	15	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	1	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	296	253	32	15	35
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	81	70	9	4	10
Total Analysis Volume [veh/h]	35	325	278	35	16	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.04	0.05
d_M, Delay for Movement [s/veh]	7.98	0.00	0.00	0.00	14.30	10.04
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	2.17	2.17	0.00	0.00	4.05	4.05
d_A, Approach Delay [s/veh]	0.78		0.00		11.30	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	63.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.663

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	670	44	24	626	90	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	3	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	670	47	27	626	90	43
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	174	12	7	163	23	11
Total Analysis Volume [veh/h]	698	49	28	652	94	45
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.03	0.01	0.66	0.11
d_M, Delay for Movement [s/veh]	0.00	0.00	9.37	0.00	63.38	46.51
Movement LOS	A	A	A	A	F	E
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.10	0.00	4.35	4.35
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.54	0.00	108.72	108.72
d_A, Approach Delay [s/veh]	0.00		0.39		57.92	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	5.31					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.097

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	65	299	265	51	33	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	1	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	68	299	265	52	33	54
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	78	69	14	9	14
Total Analysis Volume [veh/h]	71	311	276	54	34	56
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.10	0.08
d_M, Delay for Movement [s/veh]	8.11	0.00	0.00	0.00	15.71	10.31
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.18	0.18	0.00	0.00	0.32	0.32
95th-Percentile Queue Length [ft/ln]	4.59	4.59	0.00	0.00	8.05	8.05
d_A, Approach Delay [s/veh]	1.51		0.00		12.35	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	2.10					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	41.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.356

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	672	32	33	654	46	18
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	672	33	34	654	46	20
Peak Hour Factor	0.9600	0.9600	0.9600	0.9600	0.9600	0.9600
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	175	9	9	170	12	5
Total Analysis Volume [veh/h]	700	34	35	681	48	21
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	0.36	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	9.31	0.00	41.59	23.29
Movement LOS	A	A	A	A	E	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	1.51	1.51
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.14	0.00	37.76	37.76
d_A, Approach Delay [s/veh]	0.00		0.45		36.02	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	1.85					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	35	296	253	33	16	35
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	1	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	37	296	253	34	16	39
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	81	70	9	4	11
Total Analysis Volume [veh/h]	41	325	278	37	18	43
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.05	0.06
d_M, Delay for Movement [s/veh]	8.00	0.00	0.00	0.00	14.54	10.07
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.10	0.10	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft/ln]	2.56	2.56	0.00	0.00	4.62	4.62
d_A, Approach Delay [s/veh]	0.90		0.00		11.39	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.38					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	386.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.422

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	667	40	22	622	85	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	3	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	974	47	27	908	94	43
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	244	12	7	227	24	11
Total Analysis Volume [veh/h]	974	47	27	908	94	43
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	1.42	0.15
d_M, Delay for Movement [s/veh]	0.00	0.00	10.58	0.00	386.43	344.24
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	10.76	10.76
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.13	0.00	268.94	268.94
d_A, Approach Delay [s/veh]	0.00		0.31		373.19	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	24.56					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	19.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.132

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	63	299	265	50	32	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.1050	1.3700	1.3700	1.1050	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	1	0	5
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	410	363	56	35	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	103	91	14	9	14
Total Analysis Volume [veh/h]	73	410	363	56	35	56
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.13	0.09
d_M, Delay for Movement [s/veh]	8.37	0.00	0.00	0.00	19.33	11.26
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.20	0.20	0.00	0.00	0.45	0.45
95th-Percentile Queue Length [ft/ln]	5.12	5.12	0.00	0.00	11.31	11.31
d_A, Approach Delay [s/veh]	1.27		0.00		14.37	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.93					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	138.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	686	22	27	649	39	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1002	25	31	948	43	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	251	6	8	237	11	4
Total Analysis Volume [veh/h]	1002	25	31	948	43	16
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.01	0.71	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	10.58	0.00	138.36	91.36
Movement LOS	A	A	B	A	F	F
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.14	0.00	3.52	3.52
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.60	0.00	88.02	88.02
d_A, Approach Delay [s/veh]	0.00		0.34		125.61	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	3.75					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 2: Silverado Trail/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	16.4
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

Intersection Setup

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Silverado Trail		Silverado Trail		Lodi Ln	
Base Volume Input [veh/h]	30	296	253	31	15	31
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Factor	1.1050	1.3700	1.3700	1.1050	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	0	0	1	0	4
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	35	406	347	35	17	38
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	102	87	9	4	10
Total Analysis Volume [veh/h]	35	406	347	35	17	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			Yes
Storage Area [veh]	0	0	1
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.05	0.06
d_M, Delay for Movement [s/veh]	8.17	0.00	0.00	0.00	16.43	10.53
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.09	0.09	0.00	0.00	0.18	0.18
95th-Percentile Queue Length [ft/ln]	2.31	2.31	0.00	0.00	4.44	4.44
d_A, Approach Delay [s/veh]	0.65		0.00		12.35	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	1.10					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	363.8
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	1.422

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	667	40	22	622	85	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	4.00	4.00	4.00	4.00	4.00	4.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	3	3	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	974	47	27	908	94	43
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	244	12	7	227	24	11
Total Analysis Volume [veh/h]	974	47	27	908	94	43
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.04	0.01	1.42	0.15
d_M, Delay for Movement [s/veh]	0.00	0.00	10.58	0.00	363.82	19.36
Movement LOS	A	A	B	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.13	0.00	7.93	0.51
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.13	0.00	198.28	12.67
d_A, Approach Delay [s/veh]	0.00		0.31		255.71	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	16.87					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 1: SR 29/Lodi Ln

Control Type:	Two-way stop	Delay (sec / veh):	151.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.710

Intersection Setup

Name	SR 29		SR 29		Lodi Ln	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	1	0	0	1
Pocket Length [ft]	100.00	100.00	90.00	100.00	100.00	100.00
Speed [mph]	50.00		50.00		40.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	SR 29		SR 29		Lodi Ln	
Base Volume Input [veh/h]	686	22	27	649	39	13
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.4600	1.1050	1.1050	1.4600	1.1050	1.1050
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	1	0	0	2
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1002	25	31	948	43	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	251	6	8	237	11	4
Total Analysis Volume [veh/h]	1002	25	31	948	43	16
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	2
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.05	0.01	0.71	0.06
d_M, Delay for Movement [s/veh]	0.00	0.00	10.58	0.00	151.64	18.17
Movement LOS	A	A	B	A	F	C
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.14	0.00	3.06	0.17
95th-Percentile Queue Length [ft/ln]	0.00	0.00	3.60	0.00	76.62	4.37
d_A, Approach Delay [s/veh]	0.00		0.34		115.45	
Approach LOS	A		A		F	
d_I, Intersection Delay [s/veh]	3.46					
Intersection LOS	F					

Appendix D

Roadway Segment Level of Service Calculations

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	733	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.1
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.0
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	671	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.39

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	63.0
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	8.2
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	736	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.3
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.1
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	736	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.5

Vehicle Results

Average Speed, mi/h	51.5	Percent Followers, %	65.6
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	9.4
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	65	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	17.6
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	127	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.0

Vehicle Results

Average Speed, mi/h	45.0	Percent Followers, %	27.0
Segment Travel Time, minutes	1.33	Followers Density, followers/mi/ln	0.8
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	81	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	20.4
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
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Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	118	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.6

Vehicle Results

Average Speed, mi/h	47.6	Percent Followers, %	25.2
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.6
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	345	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	46.6
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	328	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.1
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	377	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	48.8
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing
Project Description	Silverado Trail – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	324	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.8
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	2.9
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	728	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	64.9
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	8.9
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	704	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.41

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.4
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	8.8
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	738	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	65.3
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.1
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	717	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.8
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	9.0
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	51	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	15.1
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	54	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	15.7
Segment Travel Time, minutes	1.31	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	51	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	14.5
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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4_Lodi Ln – East of Project Driveway (Eastbound) – Weekend PM.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	67	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	17.5
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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4_Lodi Ln – East of Project Driveway (Westbound) – Weekend PM.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	342	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	46.3
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	312	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	43.9
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	2.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	358	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	47.5
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.5
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	312	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	43.9
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	2.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	741	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.4
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.2
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	677	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	63.3
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	8.3
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	744	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.5
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.2
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	746	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.4

Vehicle Results

Average Speed, mi/h	51.4	Percent Followers, %	65.9
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	9.6
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	71	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	18.7
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	136	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	28.2
Segment Travel Time, minutes	1.34	Followers Density, followers/mi/ln	0.9
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	85	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	21.1
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	121	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.6

Vehicle Results

Average Speed, mi/h	47.6	Percent Followers, %	25.6
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.7
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	346	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	46.6
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	329	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.2
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	379	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	48.9
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.9
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline
Project Description	Silverado Trail – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	327	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.0
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	719	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	64.6
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	8.8
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
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Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	716	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.8
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	9.0
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	733	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	65.1
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.0
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
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Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	729	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.5

Vehicle Results

Average Speed, mi/h	51.5	Percent Followers, %	65.3
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	9.2
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	68	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	18.2
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	67	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	17.9
Segment Travel Time, minutes	1.31	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	56	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	15.6
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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4_Lodi Ln – East of Project Driveway (EB) – Saturday PM – B.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	75	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	18.8
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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4_Lodi Ln – East of Project Driveway (WB) – Saturday PM – B.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	343	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	46.4
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	314	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.1
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	2.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	364	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	47.9
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.6
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.2
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	2.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1015	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.4

Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	73.9
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	14.3
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	932	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.55

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	13.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	72.0
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	13.1
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1018	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.4

Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	74.0
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	14.4
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1002	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.59

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	73.9
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	14.5
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	68	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	18.2
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	135	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	28.0
Segment Travel Time, minutes	1.34	Followers Density, followers/mi/ln	0.8
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	86	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	21.2
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	125	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.6

Vehicle Results

Average Speed, mi/h	47.6	Percent Followers, %	26.2
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.7
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	53.0
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	4.9
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	418	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.9

Vehicle Results

Average Speed, mi/h	48.9	Percent Followers, %	51.2
Segment Travel Time, minutes	1.23	Followers Density, followers/mi/ln	4.4
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	480	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.8

Vehicle Results

Average Speed, mi/h	47.8	Percent Followers, %	55.0
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	5.5
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	414	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.24

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.0

Vehicle Results

Average Speed, mi/h	48.0	Percent Followers, %	51.2
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	4.4
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1016	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.5

Vehicle Results

Average Speed, mi/h	52.5	Percent Followers, %	74.0
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	14.3
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	978	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.2
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.0
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1026	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.5

Vehicle Results

Average Speed, mi/h	52.5	Percent Followers, %	74.2
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	14.5
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	991	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.6
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	14.3
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	54	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	15.7
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	57	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	16.2
Segment Travel Time, minutes	1.31	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	51	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	14.6
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	67	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	17.5
Segment Travel Time, minutes	1.24	Followers Density, followers/mi/ln	0.2
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	423	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	51.7
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	4.6
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	381	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.0

Vehicle Results

Average Speed, mi/h	49.0	Percent Followers, %	48.8
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	439	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	52.7
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	4.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	381	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.0

Vehicle Results

Average Speed, mi/h	49.0	Percent Followers, %	48.8
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.8
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.2
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.1
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	674	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	63.2
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	8.3
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	740	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.4
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.1
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	736	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.5

Vehicle Results

Average Speed, mi/h	51.5	Percent Followers, %	65.6
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	9.4
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	71	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	18.7
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	129	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.0

Vehicle Results

Average Speed, mi/h	45.0	Percent Followers, %	27.2
Segment Travel Time, minutes	1.33	Followers Density, followers/mi/ln	0.8
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	86	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	21.3
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	122	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.6

Vehicle Results

Average Speed, mi/h	47.6	Percent Followers, %	25.8
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.7
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	345	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	46.6
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	329	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.2
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	380	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	49.0
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.9
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Existing plus Project
Project Description	Silverado Trail – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	329	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.2
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	730	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	65.0
Segment Travel Time, minutes	1.13	Follower Density, followers/mi/ln	9.0
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.0	C

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1_SR 29 – North of Lodi Lane (NB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	706	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.4
Segment Travel Time, minutes	1.16	Follower Density, followers/mi/ln	8.8
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	8.8	C

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1_SR 29 – North of Lodi Lane (SB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	740	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	65.4
Segment Travel Time, minutes	1.13	Follower Density, followers/mi/ln	9.1
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.1	C

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	717	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.8
Segment Travel Time, minutes	1.16	Follower Density, followers/mi/ln	9.0
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.0	C

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	53	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	15.5
Segment Travel Time, minutes	1.32	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	57	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	16.3
Segment Travel Time, minutes	1.31	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	56	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	15.6
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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4_Lodi Ln – East of Project Driveway (EB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	70	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	18.1
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.3	A

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4_Lodi Ln – East of Project Driveway (WB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	342	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	46.3
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.3	B

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5_Silverado Trail – North of Lodi Lane (NB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	313	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.18

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.0
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	2.8	B

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5_Silverado Trail – North of Lodi Lane (SB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	363	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.21

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	47.8
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	3.6
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.6	B

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6_Silverado Trail – South of Lodi Lane (NB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Existing plus Project
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	316	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.2
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	2.8	B

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6_Silverado Trail – South of Lodi Lane (SB) – Saturday PM – E+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	743	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.5
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.2
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
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Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	680	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.40

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	63.4
Segment Travel Time, minutes	1.16	Followers Density, followers/mi/ln	8.4
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
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Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	747	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9

Vehicle Results

Average Speed, mi/h	52.9	Percent Followers, %	65.6
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	9.3
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
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Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	746	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.44

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.4

Vehicle Results

Average Speed, mi/h	51.4	Percent Followers, %	65.9
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	9.6
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	77	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	19.8
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	139	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	28.4
Segment Travel Time, minutes	1.34	Followers Density, followers/mi/ln	0.9
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	91	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	21.9
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Baseline plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	125	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.07

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.6

Vehicle Results

Average Speed, mi/h	47.6	Percent Followers, %	26.2
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.7
Vehicle LOS	A		

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Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	346	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	46.6
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.3
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

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Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	330	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.3
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.0
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

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Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	382	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	49.1
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	3.9
Vehicle LOS	B		

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Analyst	KT	Date	12/4/20
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Project Description	Silverado Trail – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	332	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	45.4
Segment Travel Time, minutes	1.22	Followers Density, followers/mi/ln	3.1
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
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Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	721	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	8.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	64.7
Segment Travel Time, minutes	1.13	Follower Density, followers/mi/ln	8.8
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	8.8	C

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1_SR 29 – North of Lodi Lane (NB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	718	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.42

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.0
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.6

Vehicle Results

Average Speed, mi/h	51.6	Percent Followers, %	64.9
Segment Travel Time, minutes	1.16	Follower Density, followers/mi/ln	9.0
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.0	C

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1_SR 29 – North of Lodi Lane (SB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	735	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.0

Vehicle Results

Average Speed, mi/h	53.0	Percent Followers, %	65.2
Segment Travel Time, minutes	1.13	Follower Density, followers/mi/ln	9.1
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.1	C

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	729	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.43

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	9.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.5

Vehicle Results

Average Speed, mi/h	51.5	Percent Followers, %	65.3
Segment Travel Time, minutes	1.16	Follower Density, followers/mi/ln	9.2
Vehicle LOS	C		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	9.2	C

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	70	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	18.5
Segment Travel Time, minutes	1.32	Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.3	A

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3_Lodi Ln – West of Project Driveway (EB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	70	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.96	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	18.5
Segment Travel Time, minutes	1.31	Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.3	A

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3_Lodi Ln – West of Project Driveway (WB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	62	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	16.6
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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4_Lodi Ln – East of Project Driveway (EB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	78	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	19.4
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.3	A

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4_Lodi Ln – East of Project Driveway (WB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	343	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.20

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	46.4
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	3.3
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.3	B

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5_Silverado Trail – North of Lodi Lane (NB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	315	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.2
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	2.8
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	2.8	B

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5_Silverado Trail – North of Lodi Lane (SB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	368	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.1

Vehicle Results

Average Speed, mi/h	48.1	Percent Followers, %	48.2
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	3.7
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.7	B

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6_Silverado Trail – South of Lodi Lane (NB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Baseline plus Project
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	321	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.91	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.2

Vehicle Results

Average Speed, mi/h	49.2	Percent Followers, %	44.6
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	2.9
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	2.9	B

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6_Silverado Trail – South of Lodi Lane (SB) – Saturday PM – B+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	SR 29 – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1017	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.4

Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	74.0
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	14.4
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	SR 29 – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	935	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.55

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	13.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	72.1
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	13.2
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	SR 29 – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1021	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.58815	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32983	PF Power Coefficient	0.75000
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.4

Vehicle Results

Average Speed, mi/h	52.4	Percent Followers, %	74.1
Segment Travel Time, minutes	1.15	Followers Density, followers/mi/ln	14.4
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1002	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.59

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.50685	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34047	PF Power Coefficient	0.74585
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.5
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.0

Vehicle Results

Average Speed, mi/h	51.0	Percent Followers, %	73.9
Segment Travel Time, minutes	1.18	Followers Density, followers/mi/ln	14.5
Vehicle LOS	D		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	74	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.4
Speed Slope Coefficient	3.02176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38649	PF Power Coefficient	0.71813
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.4

Vehicle Results

Average Speed, mi/h	45.4	Percent Followers, %	19.2
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.3
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	137	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	4.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03531	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38568	PF Power Coefficient	0.71899
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.9

Vehicle Results

Average Speed, mi/h	44.9	Percent Followers, %	28.2
Segment Travel Time, minutes	1.34	Followers Density, followers/mi/ln	0.9
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/2020
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	91	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.05

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	22.0
Segment Travel Time, minutes	1.32	Followers Density, followers/mi/ln	0.4
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	129	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.08

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17442	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37589	PF Power Coefficient	0.72723
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.7
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.5

Vehicle Results

Average Speed, mi/h	47.5	Percent Followers, %	26.7
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	0.7
Vehicle LOS	A		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Silverado Trail – North of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	445	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	53.0
Segment Travel Time, minutes	1.25	Followers Density, followers/mi/ln	4.9
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Silverado Trail – North of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	419	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.9

Vehicle Results

Average Speed, mi/h	48.9	Percent Followers, %	51.2
Segment Travel Time, minutes	1.23	Followers Density, followers/mi/ln	4.4
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Silverado Trail – South of Lodi Lane (NB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	483	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.28

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26927	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36736	PF Power Coefficient	0.73272
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.8

Vehicle Results

Average Speed, mi/h	47.8	Percent Followers, %	55.2
Segment Travel Time, minutes	1.26	Followers Density, followers/mi/ln	5.6
Vehicle LOS	C		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	12/4/20
Agency	W-Trans	Analysis Year	2020
Jurisdiction	County of Napa	Time Period Analyzed	Friday PM Future plus Project
Project Description	Silverado Trail – South of Lodi Lane (SB) – Friday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	419	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32347	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36191	PF Power Coefficient	0.73576
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.9

Vehicle Results

Average Speed, mi/h	48.9	Percent Followers, %	51.2
Segment Travel Time, minutes	1.23	Followers Density, followers/mi/ln	4.4
Vehicle LOS	B		

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	SR 29 – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1018	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.4
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.5

Vehicle Results

Average Speed, mi/h	52.5	Percent Followers, %	74.0
Segment Travel Time, minutes	1.14	Follower Density, followers/mi/ln	14.4
Vehicle LOS	D		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	14.4	D

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	SR 29 – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	980	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.1
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.3
Segment Travel Time, minutes	1.17	Follower Density, followers/mi/ln	14.1
Vehicle LOS	D		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	14.1	D

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	SR 29 – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	1028	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.60

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	55.9
Speed Slope Coefficient	3.59176	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.32959	PF Power Coefficient	0.74990
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.5

Vehicle Results

Average Speed, mi/h	52.5	Percent Followers, %	74.3
Segment Travel Time, minutes	1.14	Follower Density, followers/mi/ln	14.6
Vehicle LOS	D		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	14.6	D

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
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Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	SR 29 – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	50	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	991	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	54.4
Speed Slope Coefficient	3.51046	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.34026	PF Power Coefficient	0.74575
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	14.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1

Vehicle Results

Average Speed, mi/h	51.1	Percent Followers, %	73.6
Segment Travel Time, minutes	1.17	Follower Density, followers/mi/ln	14.3
Vehicle LOS	D		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	14.3	D

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HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Lodi Ln – West of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	11.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	56	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.5
Speed Slope Coefficient	3.02537	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38653	PF Power Coefficient	0.71808
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.5

Vehicle Results

Average Speed, mi/h	45.5	Percent Followers, %	16.1
Segment Travel Time, minutes	1.32	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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3_Lodi Ln – West of Project Driveway (EB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Lodi Ln – West of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	10.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	60	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	2.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	45.7
Speed Slope Coefficient	3.03892	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.38571	PF Power Coefficient	0.71894
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7

Vehicle Results

Average Speed, mi/h	45.7	Percent Followers, %	16.8
Segment Travel Time, minutes	1.31	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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3_Lodi Ln – West of Project Driveway (WB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Lodi Ln – East of Project Driveway (EB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	56	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.03

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.2
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	15.6
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.2
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.2	A

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4_Lodi Ln – East of Project Driveway (EB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Lodi Ln – East of Project Driveway (WB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	14	Shoulder Width, ft	0
Speed Limit, mi/h	45	Access Point Density, pts/mi	0.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	70	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.04

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	48.2
Speed Slope Coefficient	3.17262	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.37591	PF Power Coefficient	0.72726
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	0.3
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	48.2

Vehicle Results

Average Speed, mi/h	48.2	Percent Followers, %	18.0
Segment Travel Time, minutes	1.24	Follower Density, followers/mi/ln	0.3
Vehicle LOS	A		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	0.3	A

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4_Lodi Ln – East of Project Driveway (WB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Silverado Trail – North of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	423	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.6
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	51.7
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	4.6
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	4.6	B

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5_Silverado Trail – North of Lodi Lane (NB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Silverado Trail – North of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	382	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.22

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.8
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.0

Vehicle Results

Average Speed, mi/h	49.0	Percent Followers, %	48.9
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	3.8
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.8	B

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5_Silverado Trail – North of Lodi Lane (SB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Silverado Trail – South of Lodi Lane (NB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	5.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	443	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.26

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	50.0
Speed Slope Coefficient	3.26747	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36740	PF Power Coefficient	0.73276
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	47.9

Vehicle Results

Average Speed, mi/h	47.9	Percent Followers, %	52.9
Segment Travel Time, minutes	1.25	Follower Density, followers/mi/ln	4.9
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	4.9	B

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6_Silverado Trail – South of Lodi Lane (NB) – Saturday PM – F+P.xuf

HCS7 Two-Lane Highway Report

Project Information

Analyst	KT	Date	6/2/2021
Agency	W-Trans	Analysis Year	2021
Jurisdiction	County of Napa	Time Period Analyzed	Saturday PM Future plus Project
Project Description	Silverado Trail – South of Lodi Lane (SB) – Saturday PM	Unit	United States Customary

Segment 1

Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Lane Width, ft	12	Shoulder Width, ft	6
Speed Limit, mi/h	45	Access Point Density, pts/mi	1.0

Demand and Capacity

Directional Demand Flow Rate, veh/h	385	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	1.00	Total Trucks, %	3.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.23

Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	51.0
Speed Slope Coefficient	3.32167	Speed Power Coefficient	0.41674
PF Slope Coefficient	-1.36197	PF Power Coefficient	0.73580
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	3.9
%Improved % Followers	0.0	% Improved Avg Speed	0.0

Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	49.0

Vehicle Results

Average Speed, mi/h	49.0	Percent Followers, %	49.1
Segment Travel Time, minutes	1.22	Follower Density, followers/mi/ln	3.9
Vehicle LOS	B		

Facility Results

T	Follower Density, followers/mi/ln	LOS
1	3.9	B

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6_Silverado Trail – South of Lodi Lane (SB) – Saturday PM – F+P.xuf

Appendix E

Napa County Winery Traffic Information/Trip Generation Forms and Site-Specific Peak Hour Calculations

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Existing Conditions Winery Traffic Information / Trip Generation

Determine Winery Daily Trips. ***Complete Sections A through I below to determine your winery project's estimated baseline daily and peak hour trips.***

Project Name: Duckhorn Vineyards **Project Scenario:** **Existing**

Section A. Maximum Daily Weekday Traffic (Friday, non-harvest season)

1.	Total number of FT employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
2.	Total number of PT employees:	5	x 1.90 one-way trips per employee	=	9.5	daily trips
3.	Maximum weekday visitors:	82	/2.6 visitors per vehicle x 2 one-way trips	=	63.1	daily trips
4.	Gallons of production:	160000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	2.9	daily trips
5.			TOTAL	=	213	daily trips

Section B. Maximum Daily Weekday Traffic (Friday, harvest season)

6.	Total number of FT employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
7.	Total number of PT employees:	11	x 1.90 one-way trips per employee	=	20.9	daily trips
8.	Maximum weekday visitors:	82	/2.6 visitors per vehicle x 2 one-way trips	=	63.1	daily trips
9.	Gallons of production:	160000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	2.9	daily trips
10.	Avg. annual tons of grape on-haul:	880	/ 144 truck trips x 2 one-way trips	=	12.2	daily trips
11.			TOTAL	=	236	daily trips

Section C. Maximum Daily Weekend Traffic (Saturday, non-harvest season)

12.	Total number of FT Sat. employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
13.	Total number of PT Sat. employees:	5	x 1.90 one-way trips per employee	=	9.5	daily trips
14.	Maximum Saturday visitors:	82	/2.8 visitors per vehicle x 2 one-way trips	=	58.6	daily trips
15.	Gallons of Production:	160000	/1,000 x 0.009 daily truck trips x 2 one-way trips	=	2.9	daily trips
16.			TOTAL	=	208	daily trips

Section D. Maximum Daily Weekend Traffic (Saturday, harvest season)

17.	Total number of FT Sat. employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
18.	Total number of PT Sat. employees:	11	x 1.90 one-way trips per employee	=	20.9	daily trips
19.	Maximum Saturday visitors:	82	/2.8 visitors per vehicle x 2 one-way trips	=	58.6	daily trips
20.	Gallons of production:	160000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	2.9	daily trips
21.	Avg. annual tons of grape on-haul:	880	/ 144 truck trips x 2 one-way trips	=	12.2	daily trips
22.			TOTAL	=	232	daily trips

Section E. PM Peak Hour Trip Generation (Friday, non-harvest season)

(Sum of daily trips from Sec. A, lines 3 and 4) x 0.38 + (No. of FTE) + (line 2 / 2) = 73 PM peak trips

Section F. PM Peak Hour Trip Generation (Friday, harvest season)

(Sum of daily trips, Sec. B, lines 8, 9, 10) x 0.38 + (No. of FTE) + (line 7 / 2) = 80 PM peak trips

Section G. PM Peak Hour Trip Generation (Saturday, non-harvest season)

(Daily trips from Sec. C, line 14 and 15) x 0.57 + (No. of FTE) + (line 13 / 2) = 83 PM peak trips

Section H. PM Peak Hour Trip Generation (Saturday, harvest season)

(Sum of daily trips Sec. D, lines 19, 20, 21) x 0.57 + (No. of FTE) + (line 18 / 2) = 93 PM peak trips

Section I. Maximum Annual Trips

(Sec. A, line 5 x 206) + (Sec. B, line 11 x 55) + (Sec. C, line 16 x 82) + (Sec. D, line 22 x 22) = 79018 Annual trips

Proposed Project Winery Traffic Information / Trip Generation

Determine Winery Daily Trips. ***Complete Sections J through R below to determine your winery project's estimated future and peak hour trips.***

Project Name: Duckhorn Vineyards **Project Scenario:** **Proposed**

Section J. Maximum Daily Weekday Traffic (Friday, non-harvest season)

1.	Total number of FT employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
2.	Total number of PT employees:	5	x 1.90 one-way trips per employee	=	9.5	daily trips
3.	Maximum weekday visitors:	219	/2.6 visitors per vehicle x 2 one-way trips	=	168.5	daily trips
4.	Gallons of production:	300000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	5.4	daily trips
5.			TOTAL	=	321	daily trips

Section K. Maximum Daily Weekday Traffic (Friday, harvest season)

6.	Total number of FT employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
7.	Total number of PT employees:	11	x 1.90 one-way trips per employee	=	20.9	daily trips
8.	Maximum weekday visitors:	219	/2.6 visitors per vehicle x 2 one-way trips	=	168.5	daily trips
9.	Gallons of production:	300000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	5.4	daily trips
10.	Avg. annual tons of grape on-haul:	1700	/ 144 truck trips x 2 one-way trips	=	23.6	daily trips
11.			TOTAL	=	356	daily trips

Section L. Maximum Daily Weekend Traffic (Saturday, non-harvest season)

12.	Total number of FT Sat. employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
13.	Total number of PT Sat. employees:	5	x 1.90 one-way trips per employee	=	9.5	daily trips
14.	Maximum Saturday visitors:	219	/2.8 visitors per vehicle x 2 one-way trips	=	156.4	daily trips
15.	Gallons of Production:	300000	/1,000 x 0.009 daily truck trips x 2 one-way trips	=	5.4	daily trips
16.			TOTAL	=	309	daily trips

Section M. Maximum Daily Weekend Traffic (Saturday, harvest season)

17.	Total number of FT Sat. employees:	45	x 3.05 one-way trips per employee	=	137.3	daily trips
18.	Total number of PT Sat. employees:	11	x 1.90 one-way trips per employee	=	20.9	daily trips
19.	Maximum Saturday visitors:	219	/2.8 visitors per vehicle x 2 one-way trips	=	156.4	daily trips
20.	Gallons of production:	300000	/1,000 x 0.009 daily truck trips2 x 2 one-way trips	=	5.4	daily trips
21.	Avg. annual tons of grape on-haul:	1700	/ 144 truck trips x 2 one-way trips	=	23.6	daily trips
22.			TOTAL	=	344	daily trips

Section N. PM Peak Hour Trip Generation (Friday, non-harvest season)

(Sum of daily trips from Sec. J, lines 3 and 4) x 0.38 + (No. of FTE) + (line 2 / 2) = 114 PM peak trips

Section O. PM Peak Hour Trip Generation (Friday, harvest season)

(Sum of daily trips, Sec. K, lines 8, 9, 10) x 0.38 + (No. of FTE) + (line 7 / 2) = 126 PM peak trips

Section P. PM Peak Hour Trip Generation (Saturday, non-harvest season)

(Daily trips from Sec. L, line 14 and 15) x 0.57 + (No. of FTE) + (line 13 / 2) = 140 PM peak trips

Section Q. PM Peak Hour Trip Generation (Saturday, harvest season)

(Sum of daily trips Sec. M, lines 19, 20, 21) x 0.57 + (No. of FTE) + (line 18 / 2) = 156 PM peak trips

Section R. Maximum Annual Trips

(Sec. J, line 5 x 206) + (Sec. K, line 11 x 55) + (Sec. L, line 16 x 82) + (Sec. M, line 22 x 22) = 118612 Annual trips

SITE SPECIFIC PEAK HOUR PERCENTAGE TRIP GENERATION CALCULATIONS

Duckhorn Vineyards

Friday - Peak Hour of Generator

	Day	Date	PM Peak Hour	PM Peak Hour Vol In	Out	Daily Vol	Peak Hour % of Daily
1	Friday	10/18/2020	2:00-3:00	29	29	423	14%
8	Friday	10/25/2019	2:00-3:00	31	23	379	14%
AVERAGE			**2:00-3:00**	**30**	**26**	**401**	**14%**
Inbound/Outbound Distribution				**54%**	**46%**		

Saturday - Peak Hour of Generator

	Day	Date	MD Peak Hour	MD Peak Hour Vol In	Out	Daily Vol	Peak Hour % of Daily
2	Saturday	10/19/2019	12:00-1:00	35	28	392	16%
9	Saturday	10/26/2019	12:00-1:00	24	24	363	13%
AVERAGE			**12:30-1:30**	**30**	**26**	**378**	**15%**
Inbound/Outbound Distribution				**53%**	**47%**		

Weekly - Average Daily Traffic

	Day	Date	Peak Hour	Peak Hour Vol In	Out	Daily Vol	Peak Hour % of Daily
1	Friday	10/18/2020	2:00-3:00	29	29	423	14%
2	Saturday	10/19/2019	12:00-1:00	35	28	392	16%
3	Sunday	10/20/2019	1:00-2:00	14	24	249	15%
4	Monday	10/21/2020	3:00-4:00	15	20	271	13%
5	Tuesday	10/22/2020	4:00-5:00	3	27	256	12%
6	Wednesday	10/23/2020	4:00-5:00	4	29	255	13%
7	Thursday	10/24/2020	4:00-5:00	4	33	251	15%
AVERAGE				**15**	**27**	**300**	**14%**

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Appendix F

Left-Turn Lane Warrant Graphs

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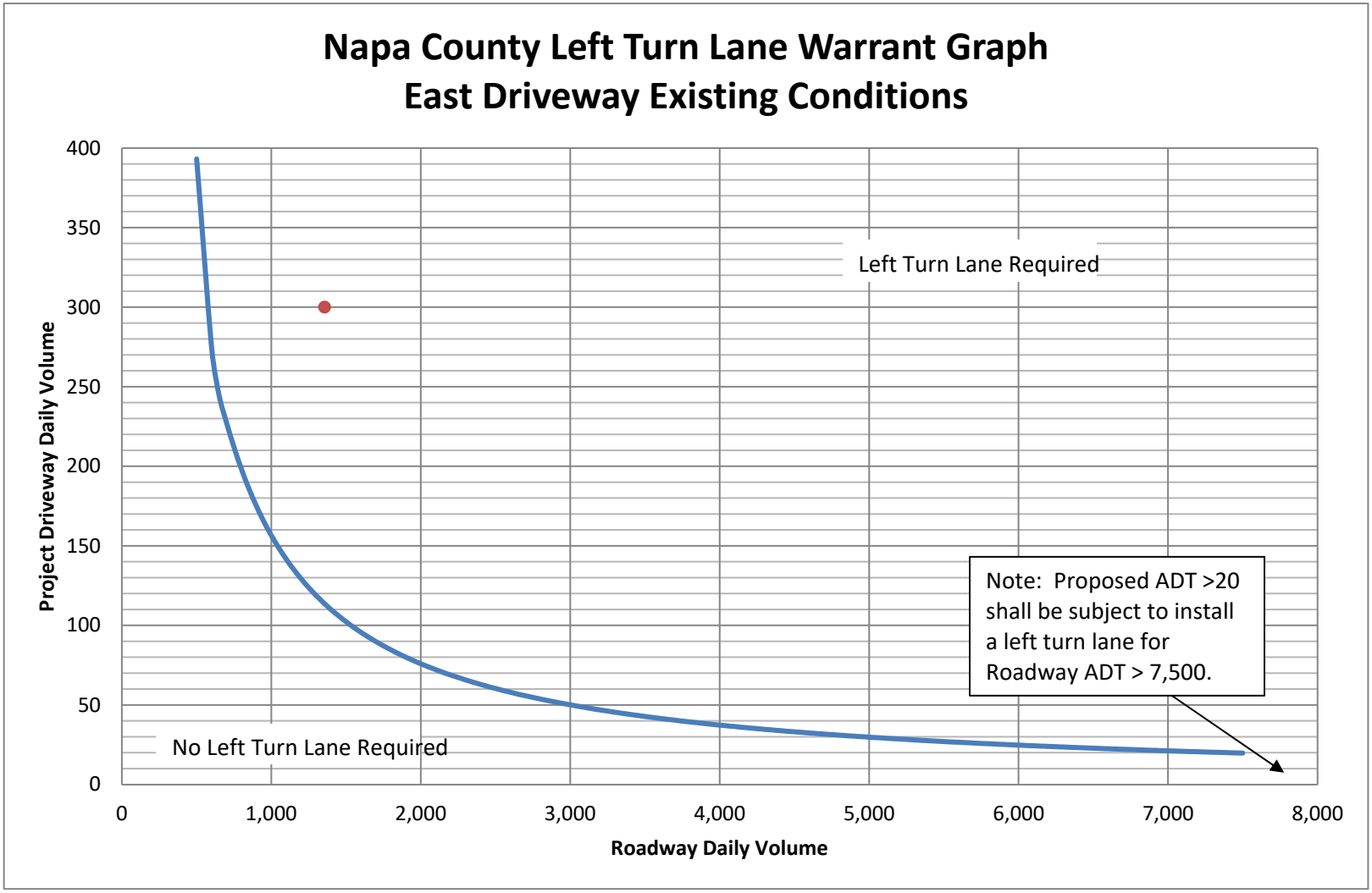
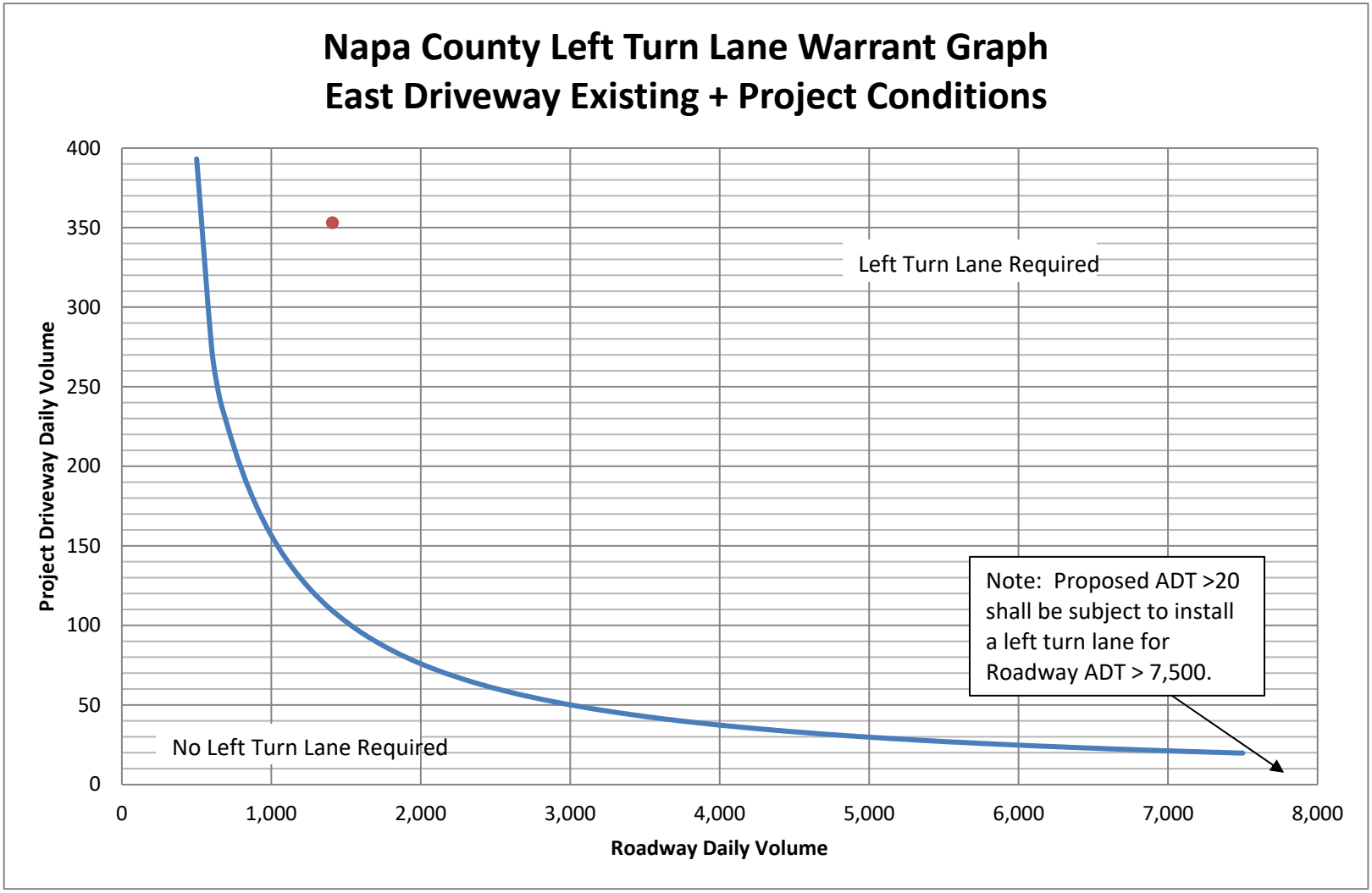
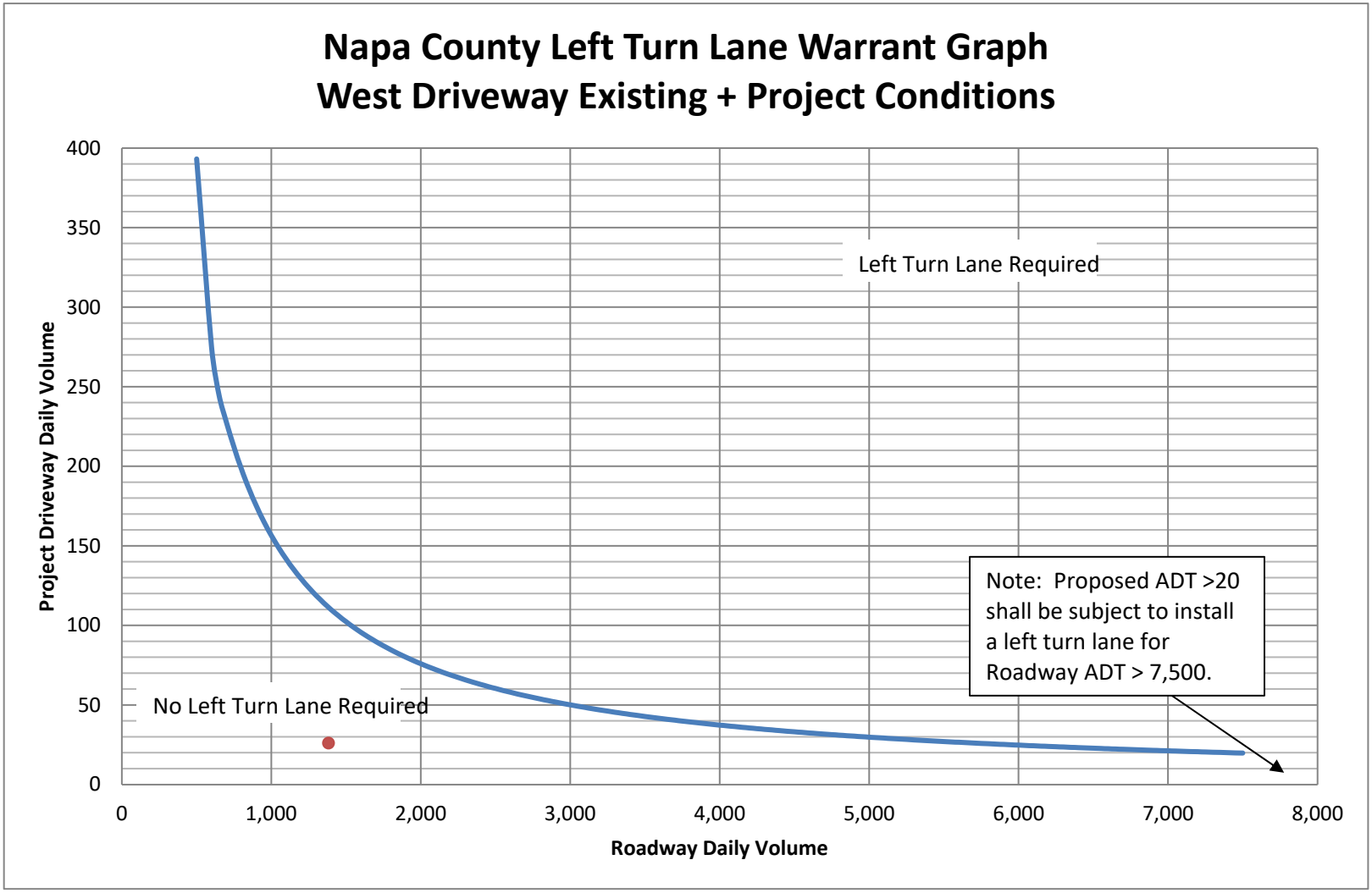

Napa County Left Turn Lane Warrant Graph
East Driveway Existing Conditions
Project Driveway Daily Volume
400
350
300
250
200
150
100
50
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Roadway Daily Volume
Left Turn Lane Required
No Left Turn Lane Required
Note: Proposed ADT >20 shall be subject to install a left turn lane for Roadway ADT > 7,500.


Napa County Left Turn Lane Warrant Graph
East Driveway Existing + Project Conditions
Project Driveway Daily Volume
400
350
300
250
200
150
100
50
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Roadway Daily Volume
Left Turn Lane Required
No Left Turn Lane Required
Note: Proposed ADT >20 shall be subject to install a left turn lane for Roadway ADT > 7,500.


Napa County Left Turn Lane Warrant Graph
West Driveway Existing + Project Conditions
Project Driveway Daily Volume
400
350
300
250
200
150
100
50
0
0
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
Roadway Daily Volume
Left Turn Lane Required
No Left Turn Lane Required
Note: Proposed ADT >20 shall be subject to install a left turn lane for Roadway ADT > 7,500.

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Appendix G

AutoTURN Exhibits

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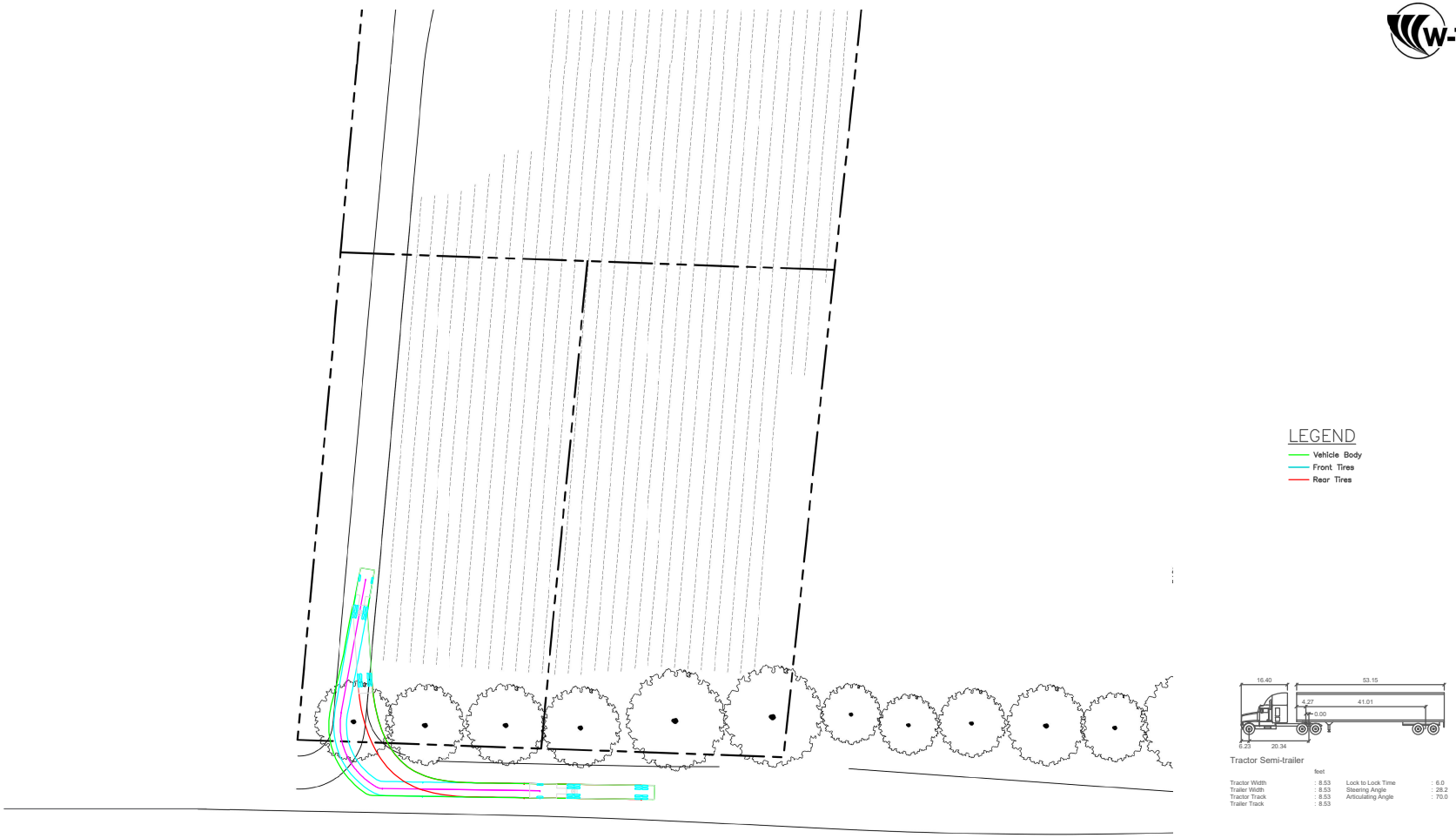
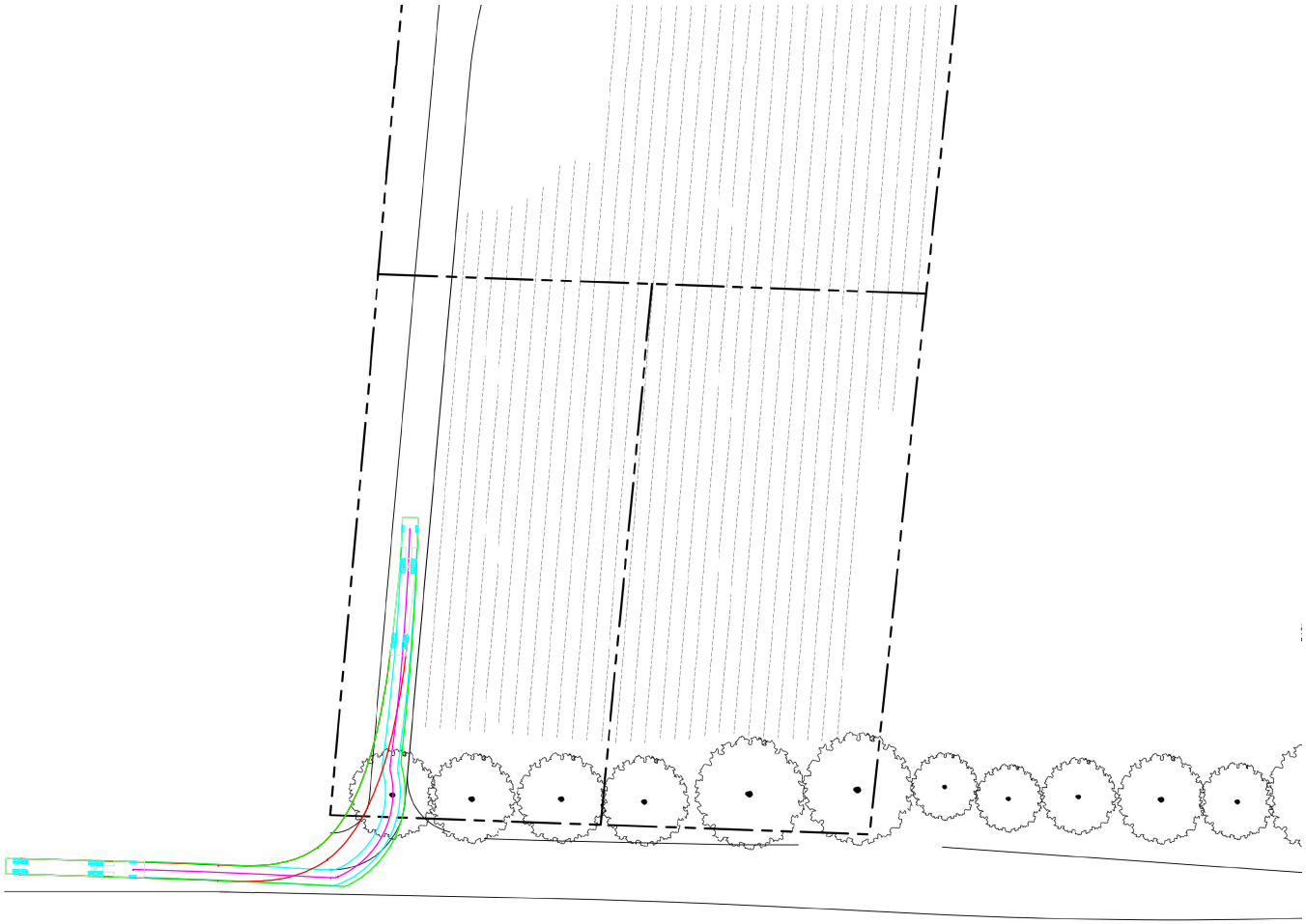
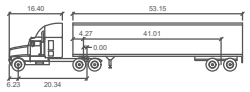


Inbound from East



LEGEND

Vehicle Body
Front Tires
Rear Tires



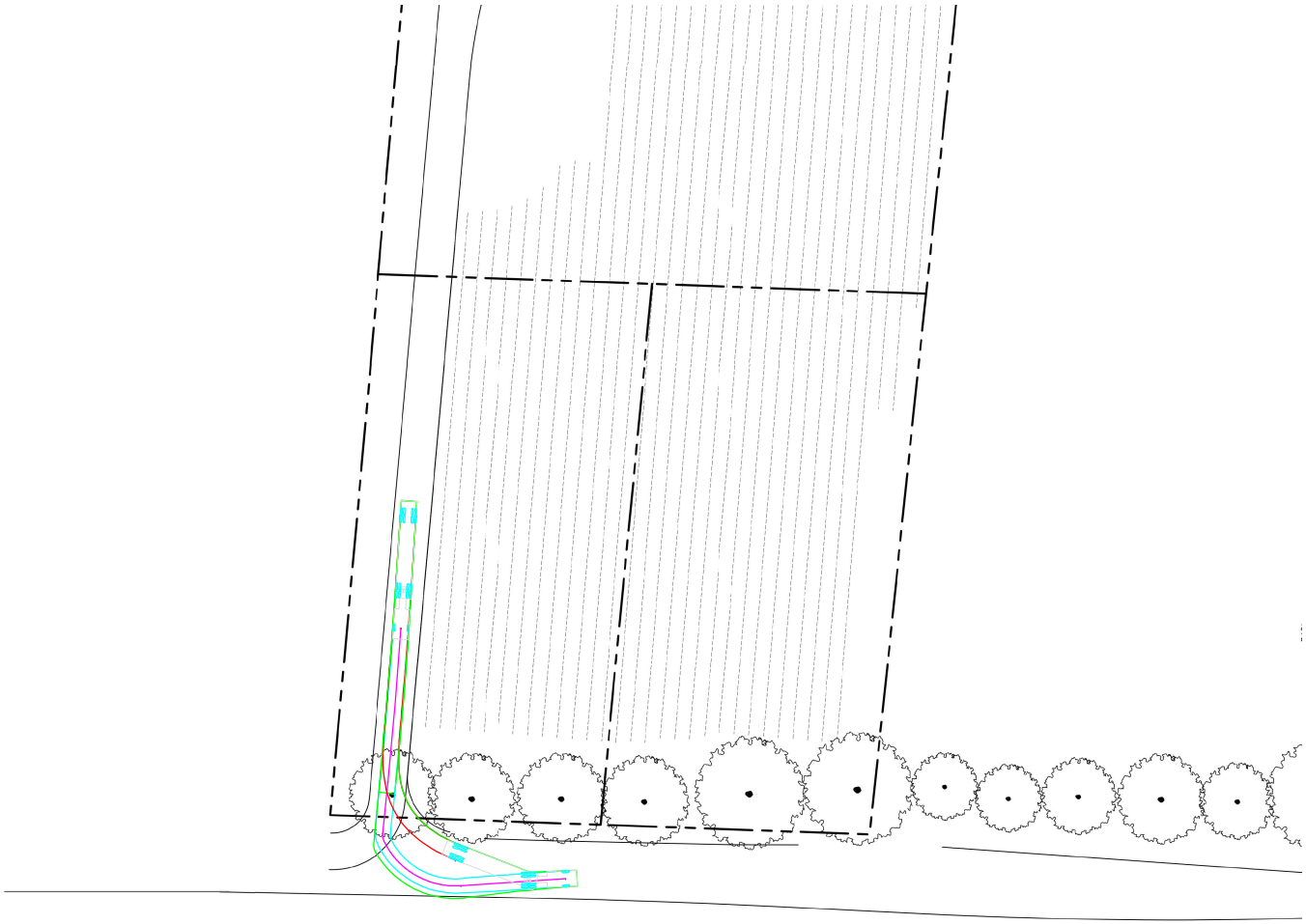
Tractor Semi-trailer

feet

Tractor Width	: 8.53	Lock to Lock Time	: 6.0
Trailer Width	: 8.53	Steering Angle	: 28.2
Tractor Track	: 8.53	Articulating Angle	: 70.0
Trailer Track	: 8.53		

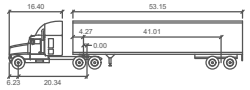
Inbound from West

53-Foot Semi-Trailer Access via Western Driveway



LEGEND

Vehicle Body
Front Tires
Rear Tires



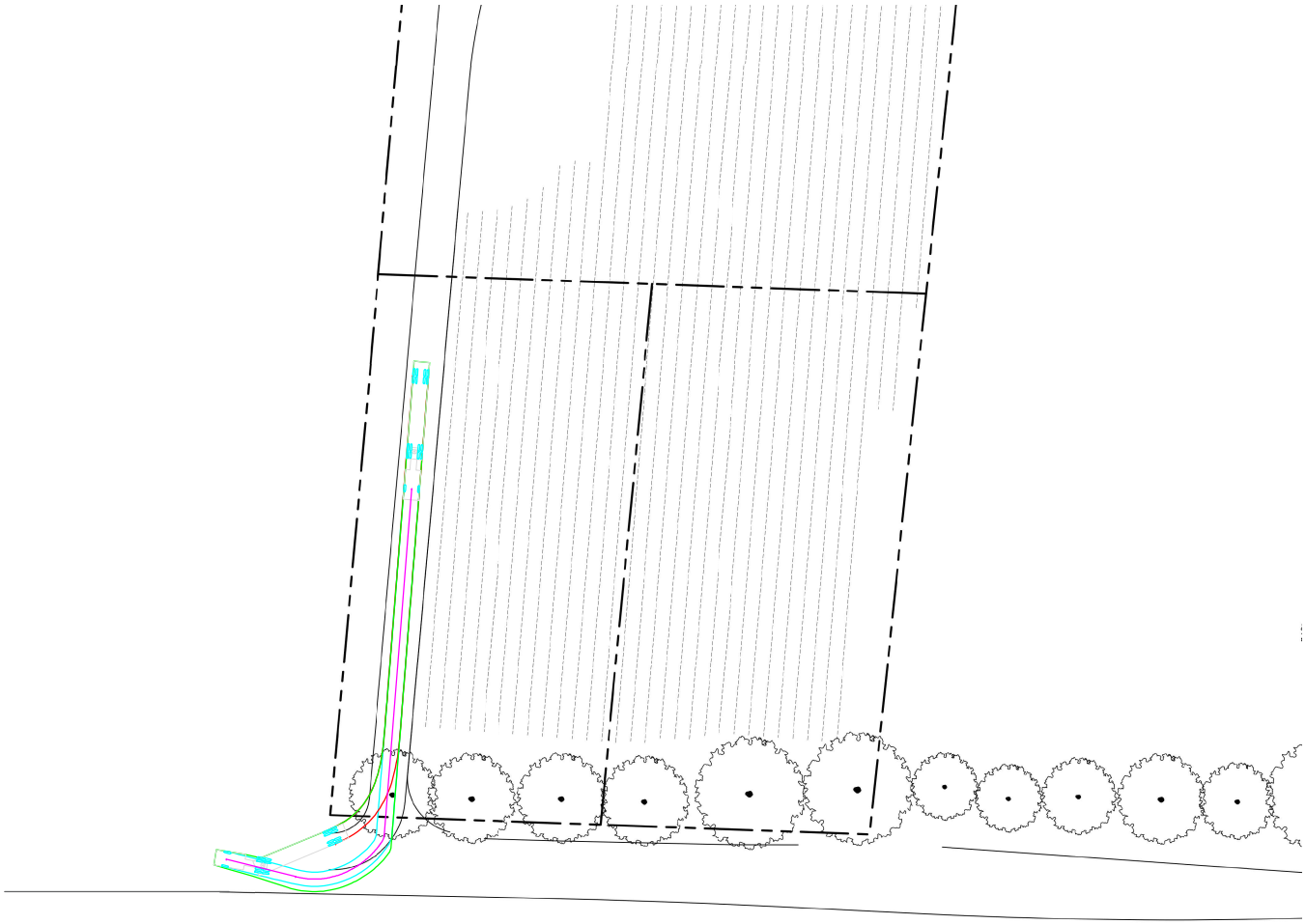
Tractor Semi-trailer

feet

Tractor Width	: 8.53	Lock to Lock Time	: 6.0
Trailer Width	: 8.53	Steering Angle	: 28.2
Tractor Track	: 8.53	Articulating Angle	: 70.0
Trailer Track	: 8.53		

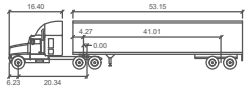
Outbound to East

53-Foot Semi-Trailer Access via Western Driveway



LEGEND

Vehicle Body
Front Tires
Rear Tires



Tractor Semi-trailer

feet

Tractor Width	: 8.53	Lock to Lock Time	: 6.0
Trailer Width	: 8.53	Steering Angle	: 28.2
Tractor Track	: 8.53	Articulating Angle	: 70.0
Trailer Track	: 8.53		

Outbound to West

TIS for the Duckhorn Vineyards Use Permit Modification

53-Foot Semi-Trailer Access via Western Driveway

NAX142

June 2021