Attachment J

PLL's Good Cause Request to
Augment the Record

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August 17, 2023

Via Email and FedEx

Napa County Board of Supervisors
1195 Third Street,
Room 310
Napa, CA 94559

Re: Appeal of Planning Commission Approval of Duckhorn Vineyards Winery Use Permit Major Modification P19-00097; Augmentation of Record on Appeal

Honorable Supervisors:

On behalf of Preserve Lodi Lane and John Murphy (Appellants), we request the Board augment the record in the appeal of the Planning Commission approval of the Duckhorn Vineyards Winery Use Permit Major Modification (P19-00097). Good cause exists for the record to be augmented with new evidence in support of issues identified in Preserve Lodi Lane and John Murphy's appeal packet (Appeal Packet) because this evidence either did not exist at the time of the appeal or it was referenced in the appeal, but a physical copy was not attached to the appeal.

1. **Additional Cumulative Project.**

Appellants identified a number of cumulative projects within one half mile of Duckhorn that were granted a use permit major modification in the last five years. Subsequent to the submission of the Appeal Packet on June 1, 2023, additional information became available about another cumulative project in the area near Duckhorn. As identified in the attached project description document (**Attachment 1**), the Napa de Oro Winery has applied to increase annual production from 5,000 gallons to 20,000 gallons. They are also seeking to allow public tours, tastings and marketing events. The winery trip generation form for the Napa de Oro project shows it will generate 21,355 new annual trips. (**Attachment 2**.) These additional trips are cumulatively considerable along with the trips generated by Duckhorn, Inn at the Abbey

and other cumulative projects identified in the Appeal Packet. They will add to cumulative traffic congestion and traffic safety hazards.

Good cause exists to add the Napa de Oro project description document (**Attachment 1**) and winery trip generation document (**Attachment 2**) to the record for this Appeal. These documents were not made available on the County's Current Projects Explorer website (https://www.countyofnapa.org/2876/Current-Projects-Explorer) until June 2023 ***after*** the Appeal Packet was filed. Thus, these documents could not have been produced as part of the Appeal Packet in the exercise of reasonable diligence.

2. **Documentation Referenced in Appeal Packet.**

The Appeal Packet extensively discussed the dated traffic study prepared for the proposed Inn at the Abbey project. The Appeal Packet also incorporated this and other documentation for the Inn at the Abby project into the record, thus is should already be included in the record for the Duckhorn Project. For ease of reference by the Board, the following attachments are included as part of the record for the Appeal:

- Inn at the Abbey Initial Study (**Attachment 3**)
- Inn at the Abbey Traffic Impact Study (**Attachment 4**)
- Inn at the Abbey Traffic Impact Study Addendum (**Attachment 5**)

Conclusion

For all of the reasons set forth herein, we urge the Board to augment the record for this appeal with the attached evidence and the evidence set forth above.

Thank you for your time and consideration in this matter.

Sincerely,

Amy Minteer

Enclosures:

Attachment 1: Napa de Oro Project Description

Attachment 2: Napa de Oro Trip Generation

Attachment 3: Inn at the Abbey Initial Study

Attachment 4: Inn at the Abbey Traffic Impact Study

Attachment 5: Inn at the Abbey Traffic Impact Study Addendum

ATTACHMENT 1

USE PERMIT APPLICATION

PROJECT DESCRIPTION
NAPA DE ORO WINERY

APPLICANT:
Summit Engineering, Inc
575 W. College Ave, Suite 201
Santa Rosa, CA 95401

OWNER:
Napa de Oro
1015 Big Tree Rd
St. Helena, CA 94574

APN: 022-060-011, -010

ACREAGE: +/- 10 acres

Existing conditions:
The site is in zoning district agricultural preserve (AP) and has the general plan designation of agricultural resource. The site has an average slope of 1% from north to south. The surrounding land uses to the north, east, and south are vineyards. The land uses to the west are vineyards and a winery. The nearest residence is about 600 feet east of the parcel boundary. The Napa River abuts the eastern property line, and the FEMA floodway cuts across the southeastern corner of the property. Most of the parcel is within the 100-year flood zone. The property contains an existing +/-1,250 sq ft winery, a +/- 850 sq ft storage barn, and parking for up to five vehicles along the southern parcel boundary.

Proposed project:
The proposed project is to maximize the winery uses under the Napa County small winery exemption. Napa de Oro proposes to increase annual production from 5,000 gallons to 20,000 gallons per year. The grapes will be sourced from onsite vineyards or other sources in Napa County. The existing winery and storage barn are proposed to be demolished and replaced with two buildings totaling +/- 7,489 sq ft connected by a +/- 1,205 sq ft covered crush pad. The existing 469 sq ft mechanical yard is proposed to be enclosed and attached to the northern end of the facility. The maximum height of the winery building will be 25 ft.

The main point of access to the winery will be from an access road to the south of the proposed winery with a secondary access off Big Tree Road. The winery is outside of the 300 ft road setback and FEMA floodway. The winery is outside of the 20-foot side yard setback.

The proposed number of employees is three full-time and two part-time. Public tours and tastings by appointment are requested for an average of 25 visitors daily and up to 30 visitors daily, Monday through Sunday from 10am to 5pm. Napa de Oro requests 11 marketing events per year with a maximum of 30 attendees. Marketing events will occur between Friday and Sunday from 10am to 9pm with cleanup concluding by 10pm and will include events such as wine promotional dinner and lunches, VIP barrel tastings, and two industry wide events that are two days each. Daily tours and tastings will be closed and unavailable during marketing events.

Daily tasting and tours will not have food pairings. All marketing events will be catered. We calculated parking requirements for visitors and employees at a rate of 1 stall per employee and 1 stall per 2.5 guests. Based upon this calculation, we propose to have a total of 17 parking spaces onsite for winery guest and employee use. Parking will be placed along the driveway, west of the tasting room. There is an existing parking area in the eastern parcel boundary setback. This parking area will be revised to include an accessible parking space and route to the winery building. The revision will not increase the existing parking square footage.

A minimum of 75% of the grapes used to create the wine will be sourced from Napa County. At least 30 tons of grapes will be produced on-site from parcels 022-060-011 and 022-060-010. The remaining 25% of grapes will be brought in from nearby Napa County vineyards.

The total annual water demand of Napa de Oro for process, domestic, and irrigation uses is projected to be 3.06 ac-ft/yr., which is equivalent to the assumed water allocation of 3.06 ac-ft/yr. at the 0.3 ac-ft/ac/year allotment for Napa Valley Floor properties. The anticipated peak daily potable water demand for the property will be met by the existing on-site wells. For more details, please see the Water Availability Analysis associated with this application.

Process wastewater will go through an on-site wastewater treatment system that includes a settling tank, septic tank, textile filter, and discharge pumps at a peak design flowrate of 1,000 gallons per day(gpd). Treated process wastewater will be then temporarily stored in an approximately 10,000-gallon polyethylene storage tank for use as either vineyard drip irrigation or for hold and haul disposal. The treatment system will be located on the northwest side of the property. Domestic wastewater produced at the winery will be treated and disposed of in a standard septic system to the west of the winery at a design flowrate of 150 gpd. For more details, please see the Wastewater Feasibility Study associated with this application.

ATTACHMENT 2

WINERY TRIP GENERATION WORKSHEET

Planning, Building & Environmental Services
1195 Third Street, Suite 210
Napa, CA 94559-3082
(707) 253-4417

A Tradition of Stewardship
A Commitment to Service

Clear Form

PROJECT DESCRIPTION

Winery Name: Napa De Oro Winery **Date Prepared:** 3/6/23

Existing Entitled Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	0	0
	Weekend	0	0
Number of Part Time Employees*	Weekday	0	0
	Weekend	0	0
Maximum Daily Visitation	Weekday	0	0
	Weekend	0	0
Annual Gallons of Production		5,000	5,000
Annual Tons of Grape Haul		31.3	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	0	0
	Weekend	0	0

Proposed Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	3	3
	Weekend	3	3
Number of Part Time Employees*	Weekday	2	2
	Weekend	2	2
Maximum Daily Visitation	Weekday	30	30
	Weekend	30	30
Annual Gallons of Production		20,000	20,000
Annual Tons of Grape Haul		125.0	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	30	30
	Weekend	30	30

*Number of full time and part time employees should represent the max number of employees that will be working on any given day (including all vendors and contractors employed for the largest event that occurs two or more times per month on average).

Napa De Oro Winery
TRIP GENERATION

Existing Winery					**Harvest**	**Non-Harvest**
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	0	0	3.05 one way trips/employee	FT Employee Daily Trips	0.0	0.0
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	0	0	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	0.0	0.0
Max Event	0	0	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	5,000		0.000018 truck trips	Production Daily Trips	0.1	0.1
Tons of Grape Haul#	31.3		0.013889 truck trips	Grape Haul Daily Trips	0.4	0.0
				Total Weekday Daily Trips	1	1
				Total Weekday Peak Hour Trips*	1	1
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	0	0	3.05 one way trips/employee	FT Employee Daily Trips	0.0	0.0
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	0	0	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	0.0	0.0
Max Event	0	0	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
Gallons of Production	5,000		0.000018 truck trips	Production Daily Trips	0.1	0.1
Tons of Grape Haul#	31.3		0.013889 truck trips	Grape Haul Daily Trips	0.4	0.0
				Total Weekend Daily Trips	1	1
				Total Weekend Peak Hour Trips*	1	1
Maximum Annual Traffic						
				Total Annual Trips**	365	

Proposed Winery					**Harvest**	**Non-Harvest**
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	3	3	3.05 one way trips/employee	FT Employee Daily Trips	9.2	9.2
PT Employees	2	2	1.9 one way trips/employee	PT Employee Daily Trips	3.8	3.8
Max Visitors	30	30	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	23.1	23.1
Max Event	30	30	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	23.1	23.1
Gallons of Production	20,000		0.000018 truck trips	Production Daily Trips	0.4	0.4
Tons of Grape Haul#	125.0		0.013889 truck trips	Grape Haul Daily Trips	1.7	0.0
				Total Weekday Daily Trips	62	60
				Total Weekday Peak Hour Trips*	14	13
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	3	3	3.05 one way trips/employee	FT Employee Daily Trips	9.2	9.2
PT Employees	2	2	1.9 one way trips/employee	PT Employee Daily Trips	3.8	3.8
Max Visitors	30	30	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	21.4	21.4
Max Event	30	30	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	21.4	21.4
Gallons of Production	20,000		0.000018 truck trips	Production Daily Trips	0.4	0.4
Tons of Grape Haul#	125.0		0.013889 truck trips	Grape Haul Daily Trips	1.7	0.0
				Total Weekend Daily Trips	58	57
				Total Weekend Peak Hour Trips*	18	17
Maximum Annual Traffic						
				Total Annual Trips**	21,720	

Net New Trips		**Harvest**	**Non-Harvest**
Maximum Weekday Traffic (Friday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekday Daily Trips**	61	59
	Net New Weekday Peak Hour Trips*	13	12
Maximum Weekend Traffic (Saturday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekend Daily Trips**	57	56
	Net New Weekend Peak Hour Trips*	17	16
Maximum Annual Traffic			
Please Prepare a Traffic Impact Study	**Net New Annual Trips****	21,355	

#Trips associated with Grape Haul represent harvest season only.

*Weekday peak hour trips are calculated as 38% of daily trips associated with visitors and production plus one trip per employee. Weekend peak hour trips are calculated as 57% of daily trips associated with visitors and production plus one trip per employee.

**Annual trips represent a conservative calculation that assumes 11 weeks of harvest, all weekdays are Fridays, all weekends are Saturdays, and assumes that the largest event that occurs two or more times per month on average occurs every day.

ATTACHMENT 3

COUNTY OF NAPA
PLANNING, BUILDING AND ENVIRONMENTAL SERVICES DEPARTMENT
1195 THIRD STREET, SUITE 210
NAPA, CA 94559
(707) 253-4417

Initial Study Checklist

1. **Project Title:** Inn at the Abbey, Use Permit Major Modification Application No. P19-00038-MOD
2. **County Contact Person, Phone Number and Email:** Trevor Hawkes, Planner III, (707) 253-4388, Trevor.Hawkes@countyofnapa.org
3. **Project Location and Assessor's Parcel No. (APN):** 3018/3020 N. St. Helena Highway; 3010 N. St. Helena Highway; 3022 N. St. Helena Highway; 1189 Lodi Lane (also known as 3000 State Route [SR] 29); and 1157, 1160, 1165, 1179, and 1191 Lodi Lane; APNs 022-130-027, 022-130-028, 022-130-023, 022-130-024, 022-220-028, and 022-220-029
4. **Project Sponsor's Name and Address:** Jackson Family Investments III, LLC, Geoff Scott, 421 Aviation Boulevard, Santa Rosa, CA 95403
5. **Property Owner:** Jackson Family Investments III, LLC
6. **General Plan Designation:** Agriculture, Watershed & Open Space (AWOS)
7. **Zoning:** Commercial Limited (CL) and Agricultural Watershed (AW)
8. **Background/Project History:** The property that is the subject of this application is a 15-acre site composed of six parcels located at Lodi Lane along SR 29, approximately one-half mile north of the city limits of St. Helena, in unincorporated Napa County (Figure 1). The project site includes land zoned for CL and AW uses.
   The project site is currently used as the Freemark Abbey Winery complex and has been used for a blend of agricultural and commercial uses since the 1960s. There are also six residences on the site. For more than 50 years, the site has been entitled for multiple winery, retail, restaurant, and motel uses through several use permits and modifications. Current operations include the Freemark Abbey Winery production and wine tasting facilities, retail uses, a restaurant, a café, a motel, and residential units (Figure 2).
9. **Description of Project:** The applicant has submitted a use permit major modification request (P19-00038-MOD) to demolish three structures (a restaurant, a commercial building, and a motel) and redevelop the site with a 79-room hotel and associated guest amenities, including a spa with treatment rooms, a fitness studio, a rooftop lounge and back-of-house uses totaling approximately 78,400 square feet (sq. ft.) (Figure 3). Other site features would include a parking garage, a swimming pool, a plunge pool, and an outdoor lawn area. The existing residences would be used for on-site employee housing. Major modification of a use permit by Napa County is a discretionary action subject to the California Environmental Quality Act (CEQA). The applicant is also seeking approval of a development agreement with Napa County.
   The 15-acre project site includes six parcels owned by the project applicant. Three of these parcels are zoned for AW, two are zoned CL, and one parcel includes both AW and CL zoning. The four parcels located north of Lodi Lane are referred to as the "North Parcel," and the two parcels south of Lodi Lane are known as the "South Parcel." The North Parcel totals 1.84 acres of land zoned CL and 8.43 acres of land zoned AW. The South Parcel includes 1.70 acres zoned CL and 4.83 acres zoned AW.

Source: Adapted by Ascent Environmental in 2020

Figure 1 Project Location

Source: Adapted by Ascent Environmental in 2020.

Figure 2 Existing Project Site

Source: Adapted by Ascent Environmental in 2020.

Figure 3 Proposed Site Plan

The project would involve demolition of three buildings totaling 10,048 sq. ft. These buildings are currently used as a restaurant, retail wine shop, art gallery, and five-room motel. Demolition activities would also include removal of asphalt concrete driveways and parking areas, as well as concrete slabs.

The proposed hotel would include 79 rooms that would be split between the North Parcel (50 rooms) and the South Parcel (29 rooms). The existing Stone Building on the North Parcel is currently used for winery, retail, retail wine, and restaurant uses. Under the proposed project, there would be no physical change to the building's structure, but the interior may require minor renovations to serve as the hotel's main lobby, which may include a retail component, meeting space, and/or a bar/lounge component. Current barrel storage, wine lab, and bottle storage spaces in this building would be removed, and this space would be used for hotel conference space and back-of-house needs. The Stone Building has nearly 13,000 sq. ft. of floor space split between the basement and ground levels.

The project involves constructing a new North Hotel Building on the North Parcel in approximately the same location as the existing restaurant building, which would be demolished as part of this project. The North Hotel Building would have approximately 55,000 sq. ft. of floor area. Of this amount, approximately 21,000 sq. ft. would be used for the 50 guest rooms, and the remaining 34,000 sq. ft. would be used for the spa, retail operations, a rooftop terrace and other public areas, circulation, and back-of-house uses. An underground parking garage would be located below the North Hotel Building and would include 54 stalls for valet parking. The North Hotel Building would be a split-level structure with four levels, with a maximum building height of 45 feet.

On the South Parcel, the existing restaurant and five-room motel buildings would be demolished and replaced with a two-story South Hotel Main Building, a two-story South Hotel Barn Building, a freestanding single-story fitness studio, and two separate two-story bungalow buildings. The South Hotel Main Building would include 11 guest rooms, a support kitchen, a library, and back-of-house uses for a total of approximately 11,100 sq. ft. The South Hotel Barn Building would include 12 guestrooms totaling approximately 7,500 sq. ft. and an adjacent plunge pool. The 350-sq. ft. fitness studio would be proximate to the plunge pool. A lawn area would be located between the South Hotel Main Building and the South Hotel Barn Building. Each of the two bungalow buildings would include three rooms for a total of approximately 4,000 sq. ft. between the two buildings. Buildings on the South Parcel would be connected by a series of walkways, breezeways, patios, courtyards, and landscaped areas. The South Parcel also includes six existing on-site residential dwelling units that would be used to house workers employed on the property.

Overall, the project would involve 10,048 sq. ft. of demolition and 78,481 sq. ft. of new construction. Current uses on the project site have 55 employees, and the project is expected to add 48 new employees for the new hotel use, for a total of 103 employees at the project site.

The City of St. Helena has provided water service to the project site since at least the 1930s. Under an agreement modification executed in March 2000, Freemark Abbey Winery receives up to 2.7 million gallons per year (mgy), or 8.3 acre-feet per year (AFY), of water from the City of St. Helena. The North Parcel uses water from two on-site groundwater wells and a connection to the City of St. Helena water system. A separate public water system serves the South Parcel. The project would integrate the proposed hotel development on the South Parcel with the public water system on the North Parcel. The projected annual water demand, including demand for irrigation, the winery process, and domestic water, is 7.1 mgy, or 21.79 AFY. Up to 2.7 mgy, or 8.3 AFY, of water from the City of St. Helena would reduce the demand on project wells to 4.4 mgy, or 13.5 AFY. The daily average well water demand would be 12,055 gallons with a peak demand estimate (200 percent of average) of 24,110 gallons.

The North Parcel currently collects and conveys its wastewater to a Combined Wastewater Management System (CWMS). This system, known as the Markham CWMS, is located on the adjacent Markham Vineyards property and is operated under a waste discharge order approved by the San Francisco Regional Water Quality Control Board. The CWMS currently serves Markham Vineyards, Freemark Abbey, the Culinary Institute, and Wine Country Inn. The Freemark Abbey allocation under the CWMS is 4.0 mgy. Domestic wastewater from the North Parcel, which is estimated to be 3.5 mgy, would be disposed of through the Markham CWMS.

The South Parcel's existing commercial and residential use buildings are served by on-site wastewater treatment systems. Historically, uses in the CL-zoned areas of the South Parcel have disposed of 0.93 mgy of wastewater in systems on the AW-zoned areas of the site. This legacy of shared wastewater disposal would be preserved with the new development. Wastewater from the new South Parcel hotel buildings would be disposed of through discharge to the existing underground septic system and disposal to a new on-site gray water treatment system. The existing shared septic system, which has a capacity is 0.55 mgy, would serve an existing residence at the south end of the parcel (0.13 mgy) and would be used to dispose of black water from the proposed hotel and meeting space (0.42 mgy). Gray water from the hotel would be reclaimed for landscape irrigation (0.60 mgy). A maximum of 0.51 mgy of gray water would be used for irrigation on the AW-zoned areas of the site to maintain the historic balance of 0.93 mgy of CL-zoned wastewater on AW-zoned areas of the site. The gray water treatment would meet NSF 350 requirements for gray water systems in jurisdictions with no local requirements for these systems. Treated gray water would be stored and reused through surface drip irrigation on-site.

Runoff from the project site flows via roof gutters and surface flow to on-site storm drains and natural flow lines that ultimately discharge to the Napa River. The project would include improvements throughout the project site to install new bioretention basins, vegetated buffer strips, and self-retaining areas. The project design incorporates low-impact development design strategies, including stormwater treatment elements, minimization of impervious surfaces, and stormwater control measures. Additionally, the project would be subject to the National Pollutant Discharge Elimination System (NPDES) General Permit because more than 1 acre of land would be disturbed through project construction activities. Pursuant to the NPDES General Permit, a stormwater pollution prevention plan (SWPPP) would be developed and implemented at the project site. In addition to the SWPPP, source control best management practices (BMPs) would be designed and implemented as recommended by the California Stormwater Quality Association's BMP handbooks.

Project information is available online at https://www.countyofnapa.org/2876/Current-Projects-Explorer. Project materials, including the application and technical reports, can be viewed online at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

10. **Describe the Environmental Setting and Surrounding Land Uses:** The project site is located on six parcels totaling approximately 15 acres owned by Jackson Family Investments III, LLC. It includes vineyards, winery operations, wine tasting, retail sales, a restaurant, a café, a five-room motel, commercial buildings, and six residential structures. Vineyards and wineries surround much of the project site, with scattered residential units, including a small mobile home park, located west across SR 29 from the project site. SR 29 and the Vine Trail border the western edge of the project site, and Lodi Lane bisects the site as it travels east from SR 29. The project site and surrounding properties are generally flat.
11. **Tribal Cultural Resources:** Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code Section 21080.3.1? If so, has consultation begun?

    Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code Section 21083.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality.

    Consultation with Native American tribes pursuant to Public Resources Code Section 21080.3.1 has been initiated. On March 19, 2020, Napa County extended invitations to consult to Middletown Rancheria, Mishewal Wappo, and Yocha Dehe Wintun Nation. Middletown Rancheria has requested consultation on the project and has been in contact with County staff. The Yocha Dehe Wintun Nation responded to the letter, informing the County that the project was not within the aboriginal territories and the tribe declined to comment on the project. The letter to the Mishewal Wappo was returned to the County, and County staff is attempting to resend the letter to the

tribe. The outcome of the consultation process will be discussed in the draft environmental impact report (EIR) for this project.

12. Other Agencies Whose Approval Is Required (e.g., Permits, Financing Approval, or Participation Agreement):

State

- **Bay Area Air Quality Management District:** Authority to construct (for devices that emit air pollutants); permit to operate.
- **California Regional Water Quality Control Board, Region 2 (San Francisco):** Permits for the on-site gray water treatment and reuse system.

Local

- **Napa County:** Approval of a use permit major modification and various ministerial approvals, including building permits and grading permits. The applicant is also seeking approval of a development agreement.

ENVIRONMENTAL IMPACTS AND BASIS OF CONCLUSIONS:

The conclusions and recommendations contained herein are professional opinions derived in accordance with current standards of professional practice. They are based on a review of the Napa County Environmental Resource Maps, the other sources of information listed in the file, and the comments received, conversations with knowledgeable individuals; the preparer's personal knowledge of the area; and, where necessary, a visit to the site. For further information, see the environmental background information contained in the permanent file on this project.

On the basis of this initial evaluation:

☐ I find that the project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.

☒ I find that the project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, or 2) has been addressed by mitigation measures based on the analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature Trevor Hawkes Date 7/23/2020

Name Trevor Hawkes, Planner III

Napa County Planning, Building and Environmental Services Department

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. Aesthetics.				
Except as provided in Public Resources Code Section 21099 (where aesthetic impacts shall not be considered significant for qualifying residential, mixed-use residential, and employment centers), would the project:				
a) Have a substantial adverse effect on a scenic vista?	☒	☐	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☒	☐	☐	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☒	☐	☐	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐

DISCUSSION

a-c) The project site is located in a vineyard setting surrounded by rural residences, vineyards, and winery operations, and it contains relatively flat topography. Existing development on the property includes vineyards, winery operations, retail and restaurant buildings, a motel, and residential units. The project would include construction and operation of a 79-room hotel and associated guest amenities, such as a spa, fitness room, and pool. Maximum building height for new structures would be 45 feet. Three buildings would be demolished as part of the project. The project would be visible from off-site public viewpoints, including along adjacent SR 29 and the Vine Trail.

Scenic vistas of Napa Valley ridgelines and vineyards are located east and west of the project site. There are no designated scenic resources in the project vicinity. However, SR 29 is a County-designated scenic road and is eligible for designation as a state scenic highway (Caltrans 2020).

Although the project site is currently developed with existing commercial and residential buildings, implementing the project would result in a change in the visual character of the project site by replacing generally single-story commercial development with multiple multilevel structures and by increasing the overall number of structures on-site. The project design is intended to maintain and complement the existing rural character of unincorporated Napa County and the existing winery operations; however, construction and operation of the project would result in a change to the visual character of and views within the project area and could contribute to aesthetic impacts. Project renderings are included in the project plan set available for review on the County website. Therefore, this is a potentially significant impact and will be analyzed further in the EIR.

d) The project site includes sources of nighttime lighting associated with existing uses. The project would introduce additional nighttime lighting consistent with the hotel use on-site. This new source of light could contribute to adverse effects on nighttime views in the area. This is a potentially significant impact and will be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
II. Agriculture and Forest Resources.				
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997, as updated) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.				
Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☒	☐	☐	☐
b) Conflict with existing zoning for agricultural use or a Williamson Act contract?	☐	☐	☒	☐
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	☒	☐	☐	☐

DISCUSSION

a) The project site includes lands designated as Prime Farmland and Urban and Built-Up Land by the Farmland Mapping and Monitoring Program (California Department of Conservation 2016a). Because the project site includes Prime Farmland, this impact would be potentially significant and will be analyzed in detail in the EIR.

b) The project site is not subject to a Williamson Act contract (California Department of Conservation 2015). The project site includes lands zoned for AW and CL, with the proposed 79-room hotel and associated guest amenities to be constructed in the CL-zoned parcels. Some site improvements may occur in the AW-zoned land, but they would not interfere with existing agricultural uses. Therefore, impacts related to conflicts with agricultural zoning would be less than significant. This issue will not be analyzed further in the EIR.

c, d) The site is developed with existing buildings, including a winery, restaurant, retail wine shop, art gallery, and small motel, and it is not used or zoned for timber harvest. Although minimal tree removal may be required for the project, no forestland exists on the site. Therefore, there would be no impact on forestland. This issue will not be analyzed further in the EIR.

e) The project would include several new buildings, including the proposed hotel and associated facilities, but would not result in any direct impacts on agricultural resources. Given the proximity of the Prime Farmland and agricultural uses to the proposed development, construction and operation of the 79-room hotel and associated amenities could affect the agricultural uses. Therefore, this impact would be potentially significant and will be analyzed in detail in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
III. Air Quality.				
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied on to make the following determinations.				
Are significance criteria established by the applicable air district available to rely on for significance determinations?	☒ Yes	☐ No		
Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☒	☐	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☒	☐	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☒	☐	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☒	☐	☐	☐

The project applicant has submitted an air quality and greenhouse gas assessment, which will be utilized in preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a) Construction of the project would result in construction- and operation-related emissions of criteria air pollutants. These project-generated emissions could potentially exceed significance criteria established by the Bay Area Air Quality Management District (BAAQMD) and could potentially conflict with BAAQMD regulations and air quality plans. This potentially significant impact will be analyzed further in the EIR.

b) In Napa County, ozone and particulate matter are the most problematic pollutants (Napa County 2007:4.8-6). Construction of the project would result in construction- and operation-related emissions of criteria air pollutants, including ozone and particulate matter, for which the County is currently in nonattainment (BAAQMD 2017). These project-generated emissions, along with emissions from other development in the region, could potentially exceed significance criteria established by BAAQMD for criteria air pollutants. This potentially significant impact will be analyzed further in the EIR.

c) Construction and operation of the project would generate pollutants near existing rural residences. Use of diesel equipment during construction would be limited in scope and duration. After construction, automobiles would be the primary source of air pollutants. Further analysis of the potential for these anticipated emissions to affect area residents is necessary to determine whether a significant impact would result. This issue will be analyzed in detail in the EIR.

d) Construction of the project would not be expected to generate substantial objectionable odors. The project would involve the operation of a 79-room hotel and associated hotel facilities, as well as a retail space, two pools, a parking garage, and on-site employee housing. None of these uses is expected to generate substantial objectionable odors. However, the project would include on-site bioretention basins, vegetated buffer strips, and self-retaining water areas, all of which could result in operational odor emissions. This potentially significant impact will be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. Biological Resources. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☒	☐	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

DISCUSSION

a) The project site is in a rural area. The project would involve demolition and construction adjacent to existing agricultural uses and west of the Napa River. Special-status plant or wildlife species could potentially occur in the project area and could be directly or indirectly affected by demolition of existing structures or project construction and operation. Further analysis of the potential for the site and surrounding area to support special-status species is necessary to determine whether a significant impact would result. This issue will be analyzed further in the EIR.

b) The project site is fully developed with existing uses and is in an area identified as developed and agricultural cropland (Napa County 2007:4.5-4). No riparian habitat or sensitive natural communities are located on the project site. Therefore, the project would have no impact on riparian habitat or sensitive natural communities. This issue will not be analyzed further in the EIR.

c) The project would be constructed in an area that is currently entirely paved and disturbed, and it would not include disturbance of or placement of fill into any waterways. As discussed further in Section X, "Hydrology and Water Quality," the existing hydrology of the site would be maintained, and the site's contribution to surface water flows into the Napa River would not be affected. Therefore, this impact would be less than significant. This issue will not be analyzed further in the EIR.

d) As discussed above, the project would be located on a property that is currently disturbed, paved, and used for winery, commercial, retail, and restaurant uses. Because the site has been previously developed with buildings and parking areas, implementation of the project is not anticipated to interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established wildlife corridors, nor would it impede the use of native wildlife nursery sites. This impact would be less than significant and will not be analyzed further in the EIR.

e) The Napa County General Plan Conservation Element contains natural resource goals and policies that specifically address protection of biological resources. Construction of the project would be confined to existing disturbed areas within the project boundaries, and it is not anticipated to result in impacts on biological resources or conflict with any policies pertaining to the protection of such resources. However, further analysis is necessary to determine whether a significant impact would result. This issue will be analyzed further in the EIR.

f) The project site is not located in any habitat conservation or natural community conservation plan area (Napa County 2007:4.5-13). Therefore, the project would not conflict with a habitat conservation or natural community conservation plan. This issue will not be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
V. Cultural Resources. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

DISCUSSION

a) A cultural resources study (Tom Origer & Associates 2019) prepared for the project site indicates that the existing buildings on-site are not historic resources. However, a review of the indicates that physical evidence of human activities more than 45 years old may be recorded for purposes of inclusion in the Office of Historic Preservation's filing system. Because some of the buildings are more than 45 years old, impacts related to historical resources on-site could be potentially significant. This issue will be analyzed further in the EIR.

b) Known cultural or archaeological resources are located on the project site, and many regions of Napa County are highly sensitive for the presence of archaeological resources because of the settlement pattern of indigenous populations (Napa County 2007:4.12-17). Such archaeological resources could be undisturbed beneath the project site, and removal of the existing surface material during grading and excavation activities could expose (and possibly damage or destroy) sensitive resources. This impact would be potentially significant. Implementing Mitigation Measure CUL-1, described below, would reduce this impact to less than significant. Therefore, this issue will not be analyzed further in the EIR.

d) No human remains have been found previously on the project site. However, the potential for human remains to occur below the ground surface in the project area is currently unknown. Implementation of the project would involve soil disturbance during construction, which could result in impacts on any interred on-site human remains. This impact would be potentially significant. Implementing Mitigation Measure CUL-1, described below, would reduce this impact to less than significant. Therefore, this issue will not be analyzed further in the EIR.

Mitigation Measure CUL-1:

- In accordance with State CEQA Guidelines Subsection 15064.5(f), if site contractors encounter cultural resources during ground-disturbing activities of the project, the permittee and his or her contractors shall halt work within 50 feet of the find and immediately contact a qualified archaeologist (36 Code of Federal Regulations Part 61) to assess the significance of the find. Construction activities could continue in other areas. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted and would be discussed in consultation with the applicant, Napa County, and/or any other relevant regulatory agency, as appropriate.

- If site contractors encounter human remains during ground-disturbing activities of the project, the permittee and his or her contractors shall immediately notify the Napa County coroner of the find to determine whether an investigation of the cause of death is required and/or if the remains are of Native American origin. Pursuant to Public Resources Code Section 5097.98, if such remains are of Native American origin, the coroner will notify the Native American Heritage Commission, which will determine and notify a most likely descendent (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

- The permittee shall ensure that all persons working on-site shall be bound by contract and instructed in the field to adhere to these provisions and restrictions.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. Energy. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☒	☐	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐

DISCUSSION

a, b) Project construction and operation activities would require energy resources, such as fuel and electricity. The EIR will include calculation of potential energy use for construction and operation (mobile and stationary sources). This issue is potentially significant and will be analyzed in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. Geology and Soils. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to California Geological Survey Special Publication 42.)	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994, as updated), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☒	☐
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The project applicant has submitted a geotechnical report, which will be utilized in preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a) The project site is not located in an Alquist-Priolo active fault zone; however, several active faults are located in the region, including the Green Valley, West Napa, and Rogers Creek Faults (California Department of Conservation 2016b). The project would include construction of several buildings associated with hotel, retail, and residential uses that would be occupied by humans. The buildings would be constructed in conformance

with the standards contained in California Building Code Title 24, which identifies specific design requirements to reduce damage from strong seismic ground shaking, ground failure, landslides, soil erosion, and expansive soils. The project itself would not increase the risk of seismic events or exacerbate hazards from such events. Therefore, this impact would be less than significant and will not be analyzed further in the EIR.

b) The project would involve soil disturbance, including grading and excavation activities, associated with construction of new hotel and other on-site buildings, as well as the underground parking garage. Potential impacts related to erosion are discussed further in Section X, "Hydrology and Water Quality," below, and can be addressed using common and accepted practices to manage runoff and prevent pollution of stormwater. With incorporation of standard measures required by the County, in addition to conformance with standards required through SWPPP and BMP implementation, the effect of soil disturbance during construction would be less than significant. Project design includes minimization of impervious surfaces and stormwater control measures, as well as incorporation of landscaping, lawn, gravel, and decomposed granite and permeable paved surfaces that would reduce the potential for erosive stormwater flows. Therefore, the potential for the project to result in substantial erosion or loss of topsoil during operation would be less than significant. This issue will not be analyzed further in the EIR.

c) As described for item a) above, the project site is located in a seismically active area. However, the project site and the surrounding area are flat. For this reason, the project would not be expected to be prone to landslides, lateral spread, subsidence, liquefaction, or collapse. Furthermore, the project would not increase the risk of such events. Therefore, this impact would be less than significant and will not be analyzed further in the EIR.

d) Expansive soils are soils that are high in clays or silts and that swell and shrink with wetting and drying, respectively. This shrinking and swelling can result in differential ground movement, which can cause damage to foundations. However, proper fill selection, moisture control, and compaction during construction can prevent these types of soils from causing significant damage. In compliance with Section 1803 of the California Building Code, the project applicant would be required to arrange for soil investigations to be performed by a registered engineer to determine the presence of expansive soils before construction. If the project site is determined to contain expansive soils, the project applicant would be required to provide design and construction solutions to reduce the risks associated with unstable and expansive soils. Therefore, the project would result in less-than-significant impacts related to expansive soils, and this issue will not be analyzed further in the EIR.

e) The North Parcel of the project site is served by the existing Markham CWMS, whereas the South Parcel is served by on-site wastewater treatment systems. No new septic tanks are proposed as part of the project. The project does, however, propose a gray water treatment system wherein reclaimed gray water would be treated and reused on-site for landscape irrigation. The project applicant has submitted a geotechnical report that concluded that the project site is suitable from a geotechnical perspective for the planned improvements (Miller Pacific 2019:8). Because site soils would be appropriate for the planned project, this impact would be less than significant. This issue will not be analyzed further in the EIR.

f) No known paleontological resources are located on the project site; however, the potential for discovery of such resources exists because of the high biodiversity in the Napa Valley region (Napa County 2007:4.12-17). This impact would be potentially significant because paleontological resources could be discovered during project construction. Implementing Mitigation Measure GEO-1, described below, would reduce effects on previously unknown paleontological resources if any are discovered during project construction. With implementation of this mitigation, the impact would be less than significant. Therefore, this issue will not be analyzed further in the EIR.

Mitigation Measure GEO-1

- If site contractors discover paleontological resources during ground-disturbing activities of the project, the permittee and his or her contractors shall halt work in that area and within 50 feet of the find and immediately contact a qualified paleontologist to evaluate the find. Construction activities could continue in other areas. If the discovery proves to be significant under Society of Vertebrate Paleontology criteria, additional work, such as fossil recovery excavation, may be warranted and would be discussed in consultation with the applicant, Napa County, and/or any other relevant regulatory agency, as appropriate.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. Greenhouse Gas Emissions. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☒	☐	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☒	☐	☐	☐

The project applicant has submitted an air quality and greenhouse gas assessment, which will be utilized during preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a) Construction and operation of the project would result in the emission of greenhouse gases (GHGs), which could contribute considerably to cumulative climate change impacts. This potentially significant impact will be analyzed further in the EIR.

b) The emission of GHGs associated with project construction and operation could conflict with General Plan policies and local and regional plans for reduction of GHG emissions. This potentially significant impact will be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. Hazards and Hazardous Materials. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☒	☐

DISCUSSION

a) Construction and operation of the project would not be expected to involve the use of or generate large quantities of hazardous materials. However, construction activities, including demolition, would involve the use of commercially available hazardous materials, such as solvents, gasoline, and oil. During operation, hazardous materials, such as cleaners, solvents, and fuels, would be used during hotel operations. The use of hazardous materials and disposal of hazardous wastes are subject to numerous laws and regulations at all levels of government. Although it is not anticipated that the routine use of these materials, handled in accordance with laws and regulations, would create a significant hazard to the public or the environment, the facility operator would be required to file a hazardous materials business plan with the County Environmental Health Division if the quantity of hazardous materials on-site reach reportable levels during construction or,

subsequently, as part of hotel operations. This impact would be less than significant and will not be analyzed further in the EIR.

b) Data on historic and documented releases of hazardous materials in the surrounding area were obtained through internet searches, including review of the State Water Resources Control Board GeoTracker database, the U.S. Environmental Protection Agency Envirofacts/Enviromapper website, and the state Cortese list via the California Department of Toxic Substances Control (DTSC) EnviroStor database (DTSC 2020). No hazards were identified on-site. However, buildings on the project site that would be demolished may be constructed of materials containing lead and/or asbestos. Removal of these materials must be done in compliance with applicable local, state, and federal laws regarding the safe removal and disposal of materials. This impact would be less than significant and will not be analyzed further in the EIR.

c) No schools are located within 0.25 mile of the project site. Therefore, there would be no impact on nearby schools. This issue will not be analyzed further in the EIR.

d) As described for b) above, the project site does not contain known hazards, and it is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5. Therefore, there would be no impact related to hazardous materials sites. This issue will not be analyzed further in the EIR.

e) The project site is not located within 2 miles of a public airport and is not located in an airport land use plan. No impact would occur; therefore, this issue will not be analyzed further in the EIR.

f) As described for e) above, the project site is not located in the vicinity of a private airstrip or within 2 miles of a private airstrip. No impact would occur; therefore, this issue will not be analyzed further in the EIR.

g) The project, which includes construction of multiple structures on-site, would be required to comply with standard County conditions of approval related to the provision of adequate access for emergency vehicles and secure evacuation routes.

The Napa County Emergency Operations Plan (EOP) outlines procedures, including those related to establishing the leadership roles and responsibilities of various agency staff, that guide local preparedness, response, recovery, and resource management efforts associated with occurrence of a natural disaster, significant emergency, or other threats to public safety. The project would not modify any County-owned roads or access points to the project site from SR 29.

No component of the implementation of the EOP would be impaired by the proposed project, nor would the project impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan. This impact would be less than significant. Therefore, this issue will not be analyzed further in the EIR. See Section XV, "Public Services," for more detailed discussion regarding emergency response.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
X. Hydrology and Water Quality. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☒	☐	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) Result in substantial on- or offsite erosion or siltation;	☒	☐	☐	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☒	☐	☐	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☒	☐	☐	☐
iv) Impede or redirect flood flows?	☒	☐	☐	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☒	☐	☐	☐

The project applicant has submitted a stormwater control plan, which will be utilized during preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a; c-i, ii, iii, iv)

All earth-disturbing activities during construction would be subject to the County's Stormwater Ordinance, which requires applicants and contractors to implement measures to prevent erosion, sedimentation, and waste materials from entering waterways both during and after any construction activities. With implementation of the SWPPP and the County's BMPs, which comply with regional water quality control board requirements, the project would not have the potential to significantly affect water quality and discharge standards during construction.

During operation, the project has the potential to generate polluted runoff associated with storage of cleaning chemicals, as well as vehicle leaks. The Napa County Post-Construction Runoff Management Requirements and Provision E.12 (Post-Construction Stormwater Management Plan) of the Small Municipal Regional Stormwater Permit, Order No. 2013-0001-DWQ, include postconstruction stormwater BMPs. The goal of Provision E.12 is to include appropriate source control, site design, and stormwater treatment measures in development projects to address both soluble and insoluble stormwater runoff pollutant discharges and prevent increases in runoff flows from new development and redevelopment projects.

The project applicant has submitted a technical report regarding stormwater and the project's anticipated provisions for stormwater and water quality. A peer review of this technical report will be conducted, and the resulting impact analysis will be included in the EIR. Because operation of the project has the potential to result in impacts related to water quality, this issue is potentially significant and will be analyzed in the EIR.

b, e) The project would use a combination of public water provided by the City of St. Helena, groundwater, and gray water. The project applicant has submitted a report documenting the availability of water for the project. This report will be evaluated and used for the analysis in the EIR. Because the project would require groundwater, the project could decrease groundwater supplies. Therefore, this issue is potentially significant and will be analyzed in the EIR.

d) According to Napa County Geographic Information System online interactive mapping, the project site is not located in or adjacent to a floodway and is in an area of minimal flood hazard. Also, the terrain of the project site and surrounding area is generally flat. The project site is not in a flood hazard, tsunami, or seiche zone, thereby reducing the risk of release of pollutants from inundation in one of those zones. There would be no impact related to being in a flood hazard, tsunami, or seiche zone; therefore, this issue will not be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XI. Land Use and Planning. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☒	☐	☐	☐

DISCUSSION

a) The project would be located on private property in a rural agricultural portion of the Napa Valley. Because the project would be limited to construction and operation within a previously developed property situated between residences and vineyards, the project would not divide an established community. Therefore, there would be no impact. This issue will not be analyzed further in the EIR.

b) Requests for discretionary permits in Napa County are subject to review for compliance and consistency with a variety of policy and regulatory programs that have been adopted to avoid or reduce the severity of potential environmental effects. Such regulations include the General Plan policies and adopted mitigation measures of the General Plan EIR; area specific plans, where applicable; subdivision, zoning, and other ordinances incorporated into the Napa County Code; and various other resolutions and policy documents adopted by County decision-making bodies. The project is subject to review for compliance and consistency with the County zoning ordinance and General Plan EIR mitigation measures adopted as policies in the General Plan. This impact is potentially significant; therefore, the EIR will analyze the project's consistency with applicable plans, policies, and regulations.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. Mineral Resources. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

DISCUSSION

a, b) Napa County contains four active mines (rock quarries), two of which are not presently being mined but serve only as mineral storage areas. These quarries produce construction materials. The only significant mine currently in operation in Napa County is the Syar Napa Quarry, operated by Syar Industries, which is more than 20 miles south of the project site (WICC 2005).

The project site is not located in a mapped mineral resource zone. No loss of availability of a known mineral resource that would be of value to the region and the residents of the state would occur. There are no locally important mineral resource recovery sites delineated on a local general plan, specific plan, or other land use plan that includes the project area. Therefore, there would be no impact related to mineral resources. This issue will not be analyzed further in EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. Noise. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or in other applicable local, state, or federal standards?	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The project applicant has submitted an environmental noise and vibration assessment, which will be utilized during preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a) Project construction would result in a temporary increase in noise levels. Construction-related noise sources would include both mobile and stationary on-site equipment (e.g., bulldozers, backhoes, front end loaders, graders, pavers, generators, and compressors), as well as impact tools. Construction would also generate vehicle noise associated with the delivery of building supplies and hauling away of construction debris. Construction activities would be limited to daylight hours using properly muffled vehicles; noise generated during this time is not anticipated to be significant. All construction activities would be required to be conducted in compliance with the Napa County Noise Ordinance (County Code Chapter 8.16), which establishes noise limits for construction activities during permissible hours and prohibits nonemergency noise-generating construction activities between the hours of 7:00 p.m. and 7:00 a.m.

The Napa County Noise Ordinance sets the maximum permissible received sound level for a rural residence at 45 decibels (dB) between the hours of 10:00 p.m. and 7:00 a.m. Although the 45-dB limitation is strict (45 dB is roughly equivalent to the sound generated by a quiet conversation), the area surrounding the subject property is not densely developed. The project's consistency with applicable County regulations and the potential to expose people working or residing in the area to excessive noise levels will be analyzed in the EIR.

The project would include a 79-room hotel, retail space, a spa, and other hotel-associated facilities. Occupants of nearby rural residences located north, east, south, and west of the project site could be affected by the traffic noise and noise generated from operation of the project, as well as any periodic events that could be hosted on-site. The project applicant has submitted an environmental noise and vibration assessment, which will be used in the analysis of project impacts. This potentially significant impact will be analyzed further in the EIR.

b) Equipment used during demolition and construction of the project may generate ground-borne vibration that could affect existing sensitive land uses. This impact would be potentially significant and will be analyzed further in the EIR.

c) The project site is not within an airport land use plan and is more than 17 miles east of the nearest major airport, Charles M. Schultz – Sonoma County Airport. Additionally, the project site is more than 24 miles north of the Napa County Airport. The project site is outside of the boundaries of both the Sonoma County Airport Land Plan and the Napa County Airport Land Use Plan. No impact would result; therefore, this issue will not be analyzed further in the EIR.

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV.	Population and Housing. Would the project:				
a)	Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☒	☐	☐	☐
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c)	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

DISCUSSION

a) The project includes the construction of a new hotel and associated guest amenities, including a spa, a fitness studio, and gathering spaces. The six residential units on the project site would be retained to house employees during project operation. New employment positions generated by project construction and operation would likely be filled by workers already in the region. Napa County, like much of California, has a shortage of housing, particularly housing for employees in the region who must often commute from outside the county. Because it is possible that the new jobs generated by the project could attract workers to the area, there is the potential to induce population growth. This potentially significant impact will be analyzed in the EIR.

b, c) The project would not remove any existing homes. Therefore, the project would have no impact related to the displacement of homes or people. This issue will not be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. Public Services. Would the project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☒	☐	☐	☐
Police protection?	☒	☐	☐	☐
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

DISCUSSION

a) The project does not include new residential units, so it would not generate new residents. Because residents are associated with additional demand for schools and park facilities, these public services would not be affected by the project.

The project would include operation of a new 79-room hotel and associated guest amenities. Although police and fire staffing ratios are generally associated with the number of new residents, additional commercial development may also generate additional need for fire and police services. Because the demand for fire or law enforcement protection may increase with implementation of the project, this impact would be potentially significant and will be analyzed further in the EIR.

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI.	Recreation. Would the project:				
a)	Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b)	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☐	☒

DISCUSSION

a) The project would not increase the number of residents in the area, but it would increase the number of employees at the project site. As previously discussed, new employment at the project site would be filled by workers currently living in the Napa County region; thus, an increase in recreational use resulting from employment generated at the site is not anticipated, and impacts related to the use of existing recreational facilities would be less than significant. This issue will not be analyzed further in the EIR.

b) The project does not include public recreational facilities. Therefore, there would be no impact related to the construction or expansion of public recreational facilities. The project includes on-site recreational facilities (e.g., pool, fitness center, and spa) that would be used exclusively by hotel guests. Because these private on-site facilities are part of the project description, their construction would not result in physical effects not discussed in this initial study. This issue will not be analyzed further in the EIR.

	ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII.	**Transportation. Would the project:**				
a)	Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☒	☐	☐	☐
b)	Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?	☒	☐	☐	☐
c)	Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d)	Result in inadequate emergency access?	☒	☐	☐	☐

The project applicant has submitted a traffic impact study, which will be utilized during preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a, d) The project site is located east of SR 29 and occupies property north and south of Lodi Lane. Primary access would be provided by existing entrances on SR 29 and Lodi Lane. The project includes a paved driveway and turnaround/drop-off area adjacent to the North Hotel Building, as well as on the southeastern portion of the site near the South Hotel Main Building. Because the project site offers multiple entrance and egress points and is located on a major county road (SR 29) and a large arterial (Lodi Lane), emergency vehicle access is currently provided and would continue to be maintained through project construction and operation.

The project applicant has provided a traffic impact study, which includes analysis of alternative transportation modes, access, and circulation. This study will be used to evaluate project impacts in the EIR. This potentially significant impact will be analyzed further in the EIR.

b) CEQA Guidelines Section 15064.3(b) sets forth criteria for analyzing transportation impacts and determining level of significance. The appropriate metric to be used to determine whether a project would result in significant transportation impacts is vehicle miles traveled (VMT). The project would induce VMT from worker commute trips and guest trips to and from the project site. Therefore, this impact is potentially significant and will be analyzed in the EIR.

c) The project does not include any changes to existing road, bicycle, or pedestrian infrastructure and would not introduce any transportation design features that would be considered hazardous. The Vine Trail bike path is located along the project site frontage on SR 29. The project would not add additional points of ingress and egress from SR 29 and would therefore not increase hazards to users of the Vine Trail. If any modification to site access points is needed, such modifications would be required to comply with California Department of Transportation and County standards. Therefore, the project will not result in any impacts related increased traffic hazards or incompatible uses, and this issue will not be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. Tribal Cultural Resources.				
Has a California Native American Tribe requested consultation in accordance with Public Resources Code Section 21080.3.1(b)?	☒ Yes	☐ No		
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?	☒	☐	☐	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☒	☐	☐	☐

DISCUSSION

a, b) Assembly Bill (AB) 52, signed by Governor Edmund G. Brown, Jr., in September 2014 and effective on July 1, 2015, established a new class of resources under CEQA: "tribal cultural resources." AB 52, as provided in Public Resources Code Sections 21080.3.1, 21080.3.2, and 21082.3, requires that lead agencies undertaking CEQA review must, upon receiving a written request from a California Native American tribe, begin tribal consultation after the lead agency determines that the application for the project is complete or before the release of an EIR or notice of intent to adopt a negative declaration or mitigated negative declaration.

The requirements of AB 52 apply to the project and its EIR process. On March 19, 2020, Napa County extended invitations to consult to Middletown Rancheria, Mishewal Wappo, and Yocha Dehe Wintun Nation. Middletown Rancheria has requested consultation on the project and has been in contact with County staff. The Yocha Dehe Wintun Nation responded to the letter, informing the County that the project was not within the aboriginal territories and the tribe declined to comment on the project. The letter to the Mishewal Wappo was returned to the County, and County staff is attempting to resend the letter to the tribe.. Because consultation is ongoing, this impact is potentially significant and will be analyzed in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. Utilities and Service Systems. Would the project:				
a) Require or result in the relocation or construction of construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunication facilities, the construction or relocation of which could cause significant environmental effects?	☒	☐	☐	☐
b) Have insufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand, in addition to the provider's existing commitments?	☒	☐	☐	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Fail to comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

The project applicant has submitted a water availability analysis and wastewater feasibility report, which will be utilized during preparation of the Draft EIR. Project materials, including the application and technical reports, can be found on the County website at: https://pbes.cloud/index.php/s/5ybiJ33kpd7S7Yf.

DISCUSSION

a) The project includes a 79-room hotel with associated guest amenities such as lounge space, a spa with treatment rooms, a main pool and a small plunge pool, a parking garage, a rooftop terrace, a fitness room, an outdoor lawn and gathering space, back-of-house uses, and on-site employee housing. Although the project would use existing infrastructure for water supply, wastewater/stormwater conveyance, and electricity where feasible, it is possible that existing water conveyance infrastructure would be upgraded and/or replaced. As previously described, the project would integrate the proposed hotel development on the South Parcel with the public water system on the North Parcel. Additionally, a new on-site gray water treatment system would be constructed to treat wastewater produced by the South Parcel hotel buildings. The gray water treatment would meet NSF 350 requirements for gray water systems in jurisdictions with no local requirements for these systems. The project would also involve construction of new stormwater management infrastructure, including installation of new bioretention basins, vegetated buffer strips, and self-retaining areas.

The potential environmental effects of construction activities on the project site are evaluated throughout this initial study as part of the proposed project. Any utility-related construction activities would occur in compliance with BMPs set forth in the NPDES General Permit and as recommended by the California

Stormwater Quality Association's BMP handbooks. The potentially significant impact related to construction or relocation of new or expanded utility infrastructure will be analyzed further in the EIR.

b) Existing water supply is provided by two on-site groundwater wells and a connection to the City of St. Helena water system on the North Parcel, whereas a separate public water system serves the South Parcel. Implementation of the project would generate increased water demand from the existing entitlement of 2.7 mgy (8.3 AFY) to 7.1 mgy (21.79 AFY). Therefore, the net increase in water demand would be 4.4 mgy (13.5 AFY). This projection includes demand for irrigation, the winery process, and domestic water. As previously described, project implementation would integrate the proposed hotel development on the South Parcel with the public water system, on the North Parcel. The project applicant has submitted a water availability analysis, which will be used in the EIR. Because the project would increase water demand, this issue is potentially significant and will be analyzed in the EIR.

c) As previously described, wastewater at the North Parcel is served by the Markham CWMS. The South Parcel's existing commercial and residential use buildings are served by on-site wastewater treatment systems. Through project implementation, domestic wastewater from the North Parcel would continue to be disposed of through the Markham CWMS while wastewater from the new South Parcel hotel buildings would be disposed of through discharge to the existing underground septic system and disposal to a new on-site gray water treatment system. Any treated gray water would be stored and reused through surface drip irrigation on-site. The impact related to wastewater is potentially significant and will be analyzed further in the EIR.

d, e) The project would include demolition of three buildings on the site. These structures total 10,048 sq. ft. Demolition activities would also include removal of existing asphalt concrete driveways and parking areas, as well as concrete slabs. In addition, operation of the project would result in the production of waste related to the proposed hotel and associated facilities, as well as retail uses. The nearest waste disposal site is the Clover Flat Landfill, which is approximately 4 miles north of the project site. Upper Valley Disposal and Recycling, which is located approximately 4.75 miles southeast of the project site, provides waste, recycle, and compost services in the county. Waste disposed of at this facility is ultimately disposed of at the Clover Flat Landfill, which is permitted to receive 600 tons of waste per day. As of September 2012, the landfill had a remaining capacity of more than 4.5 million cubic yards. The landfill is expected to remain in operation until the end of 2047 (CalRecycle 2019). In accordance with Section 5.408 of the California Green Building Standards Code, the project would implement a construction waste management plan for recycling and/or salvaging for reuse a minimum of 65 percent of construction and demolition debris generated during project construction. Additionally, project implementation would comply with all federal, state, and local regulations related to the disposal of waste. This less-than-significant impact will not be analyzed further in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. Wildfire.				
Is the project located in or near state responsibility areas or lands classified as high fire hazard severity zones?	☒ Yes	☐ No		
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☒	☐	☐	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☒	☐	☐	☐
c) Require the installation of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☒	☐	☐	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☒	☐	☐	☐

DISCUSSION

a-d) The project site is not within a State Responsibility Area (SRA) or on lands classified as High Fire Hazard Severity Zones, but there are SRA areas opposite the project site, on the other side of SR 29 (CAL FIRE 2007). Although the project site is in a Local Responsibility Area and not in a High Fire Hazard Severity Zone, wildfire activity in the Napa Valley is of concern for all development. Because of the project site's proximity to SRAs, impacts related to wildfire are potentially significant and will be analyzed in the EIR.

ENVIRONMENTAL ISSUES	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. Mandatory Findings of Significance.				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare, or threatened species, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

DISCUSSION

a) Additional evaluation is necessary to determine whether the project would affect sensitive and special-status biological resources. This potentially significant impact will be analyzed further in the EIR.

b) Generally, because of the limited scope of the project, implementation would not result in cumulatively considerable contributions to the cumulative effects of development in the area. Evaluation of the project's contribution to cumulative impacts related to agricultural resources, aesthetics, air quality and GHG emissions, biological resources, cultural and tribal cultural resources, energy, hydrology and water quality, noise, population and housing, public services and utilities, transportation, and wildfire will be evaluated after the project impacts are characterized in the EIR. This potentially significant impact will be analyzed further in the EIR.

c) The EIR will evaluate environmental effects that could cause substantial adverse effects on human beings associated with the operation of this project, either directly or indirectly. This potentially significant impact will be analyzed further in the EIR.

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ATTACHMENT 4

Traffic Impact Study for the Inn at the Abbey

Prepared for the County of Napa

Submitted by
W-Trans

August 16, 2019

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Executive Summary

The proposed project is the development of a 79-room hotel on the existing Freemark Abbey Winery site located at 3022 St. Helena Highway North (SR 29) in the County of Napa. The site is currently occupied by a winery, tasting room, restaurant, café, and retail space, and hosts events, all of which would remain with the project. The site has additional permitted uses consisting of a second restaurant, a motel, a retail wine shop, an art gallery, and commercial retail space that would be replaced by the proposed resort. Altogether, the site is permitted for 1,586 daily trips including 158 trips during the weekday p.m. peak hour and 240 trips during the weekend midday peak hour, though based on driveway counts collected in April 2017, the existing uses generate 366 daily trips on average including 32 weekday p.m. peak-hour trips and 33 weekend midday peak-hour trips, meaning the site is operating well below permitted levels.

The proposed hotel would be expected to result in 645 new daily trips on average, including 33 trips during the weekday p.m. peak hour and 57 trips during the weekend midday peak hour; however, when added to the existing trips, the site would still generate 575 less daily trips on average than if all the permitted uses were operational, including 93 fewer trips during the weekday p.m. peak hour and 150 fewer trips during the weekend midday peak hour.

The study area included the intersections of Lodi Lane with SR 29 and Silverado Trail. Analysis indicates that under Existing Conditions, which includes traffic associated with all the existing uses on-site, the study intersections are currently operating acceptably overall and on all side-street approaches based on both Caltrans and County of Napa standards. Upon the addition of project-related traffic to existing volumes, both study intersections would be expected to continue operating acceptably at the same levels of service as Existing Conditions. Further, the delays would be less than those experienced under Permitted Conditions and a traffic signal would not be warranted.

Under Future Conditions, the intersection of Silverado Trail/Lodi Lane would be expected to continue operating acceptably during both peak hours based on County standards, without or with the addition of project-related traffic. SR 29/Lodi Lane would be expected to operate acceptably overall during both peak hours based on Caltrans standards; however, operation on the Lodi Lane approach would be expected to deteriorate to LOS E, which would be considered unacceptable based on County standards. The project would be responsible for more than ten percent of the anticipated increase in traffic on the Lodi Lane approach by the year 2030 so the project's impact would be considered *significant*. Striping to provide separate left- and right-turn lanes on the Lodi Lane approach to SR 29 would reduce the project's impacts under Future Conditions to *less-than-significant*, and this improvement is recommended as a project mitigation. Despite the large growth expected to occur by the future year 2030, a traffic signal would not be warranted under the anticipated future volumes, without or with the addition of project-generated traffic.

The existing storage length in the southbound left-turn lane on SR 29 at Lodi Lane is adequate to accommodate the addition of project traffic under all evaluated scenarios. Neither a right-turn lane nor right-turn taper would be warranted at the main entrance on SR 29; however, a left-turn lane would be warranted under the anticipated future volumes, without or with the proposed project. Rather than constructing a left-turn lane that complies with Caltrans highway design standards, which would require a transition length of 600 feet and relocating the alignment of SR 29 to avoid the historic stone wall along the property frontage, it is recommended that left-turn movements be prohibited at the main entrance; drivers accessing the site from the north should use the existing left-turn lane at Lodi Lane to enter the site.

Pedestrian, bicycle, and transit facilities are adequate to serve the project site given the location and anticipated demand and the applicant has been coordinating with NVVTC and NVTA to ensure that sufficient right-of-way is being dedicating along the project frontage to accommodate the planned Vine Trail alignment. Adequate sight distance is available along SR 29 and Lodi Lane to accommodate all turns into and out of site driveways. Based on shared parking concepts, the proposed parking supply of 198 spaces would be adequate for the peak demand of 196 spaces.

Introduction

This report presents an analysis of the potential traffic impacts that would be associated with the proposed development of a hotel on the Freemark Abbey Winery site located at 3022 St. Helena Highway North (State Route (SR) 29) in the County of Napa. The traffic study was completed in accordance with the criteria established by the County of Napa 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 traffic impacts of a proposed project, and any associated improvements that would be required to mitigate these impacts to a level of insignificance as defined by the County's General Plan or other policies. Vehicular traffic impacts are typically evaluated by determining the number of new trips that the proposed use would be expected to generate, distributing these trips to the surrounding street system based on existing travel patterns or anticipated travel patterns specific to the proposed project, then analyzing the impact the new traffic would be expected to have on critical intersections or roadway segments. Impacts relative to access for pedestrians, bicyclists, and to transit are also addressed.

Project Profile

The proposed project includes the development of a 79-room hotel on the existing Freemark Abbey site, which is occupied by a winery, tasting room, restaurant, café, and retail space and is permitted for additional uses, although not operating, consisting of a second restaurant, a motel, a retail wine shop, an art gallery, and commercial retail space. No changes are proposed to the existing uses; however, the proposed hotel would be constructed in lieu of the permitted uses that are not in operation. As proposed, 50 rooms would be in a single building on the parcel north of Lodi Lane and 29 rooms would be located south of Lodi Lane. The site would continue to be accessed via the existing driveways on SR 29 and Lodi Lane, though the driveway to the southern parcel would be modified to include a one-way drive aisle with a designated drop-off area. Parking would be provided in a combination of surface lots and an underground parking garage.

The location of the project site is shown in Figure 1.

Permitted Traffic Levels

Because the Freemark Abbey site is permitted for additional uses beyond the existing winery, tasting room, restaurant, café, and retail space, trips associated with all the permitted uses (both existing and non-operational) were calculated to develop volumes that would be expected if all the use permits were fully implemented and the site was operating at full capacity. While only existing uses are relevant to the environmental review process, the permitted traffic levels were developed for the purpose of comparing traffic volumes for what is already permitted to what is proposed. The site is permitted for the following existing uses and intensities, though not all are fully operational:

- 60,000-gallon winery (existing);
- Public tasting room (existing);
- 6,500 square-foot restaurant (existing);
- 950 square-foot café (existing);
- 985 square feet of retail wine space (existing);
- 5-room motel;
- 5,100 square-foot restaurant;

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Figure 1– Study Area and Lane Configurations

W-Trans

- 1,800 square-foot retail wine shop;
- 1,700 square-foot art gallery; and
- 3,500 square feet of commercial retail space.

Trip Generation

The anticipated trip generations for all the permitted uses except the winery and tasting room were estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 9th Edition, 2012. Rates for "Quality Restaurant" (Land Use #931) and "Motel" (Land Use #320) were applied to the restaurant and motel uses, respectively, while rates for "Specialty Retail Center" (Land Use #310) were applied to the café, commercial retail space, art gallery, and wine shop as this was determined to be the most similar land use. It should be noted that because none of these land uses include rates for the weekend midday peak hour, the rates for the weekday p.m. peak hour of the generator were applied to the weekend midday peak hour. The trip generation for the winery and tasting room was developed using the Napa County Winery Traffic Information/Trip Generation Sheet, which is provided in Appendix A. Based on these rates and sources, the site is permitted for a total of 1,586 daily trips, including 158 trips during the weekday p.m. peak hour and 240 trips during the weekend midday peak hour. These results are summarized in Table 1.

Table 1 – Trip Generation Summary for Existing and Permitted Uses

Land Use	Units	Daily		Weekday PM Peak			Weekend MD Peak		
		Rate	Trips	Trips	In	Out	Trips	In	Out
Winery & Tasting Room*	n/a	n/a	119	45	15	30	66	33	33
Quality Restaurant	11.600 ksf	89.95	1,043	87	58	29	126	74	52
Motel	5 rooms	5.63	28	2	1	1	3	2	1
Specialty Retail	8.395 ksf	44.32	396	24	11	13	45	25	20
Total Permitted			**1,586**	**158**	**85**	**73**	**240**	**134**	**106**

Note: * = Developed using the County of Napa Winery Traffic Information/ Trip Generation Sheet; ksf = 1,000 square feet

Transportation Setting

Operational Analysis

Study Area and Periods

The study area consists of the sections of SR 29 between York Lane and Ehlers Lane, Lodi Lane between SR 29 and Silverado Trail, Silverado Trail between Bournemouth Road and Glass Mountain Road, the project access points, and the following intersections:

1. SR 29/Lodi Lane
2. Silverado Trail/Lodi Lane

Operating conditions during the weekday p.m. and weekend midday peak periods were evaluated to capture the highest potential impacts for the proposed project as well as the highest volumes on the local transportation network. The weekday p.m. peak period occurs between 4:00 and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute; the weekend midday peak period generally occurs between 12:00 and 2:00 p.m. At the study intersections the weekday p.m. peak hour occurred between 4:15 and 5:15 p.m. and the weekend midday peak hour occurred between 12:45 and 1:45 p.m.

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 lane 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 lane 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 adjacent to the project site predominantly runs north-south and has two 12-foot travel lanes with a posted speed limit of 50 miles per hour (mph). The roadway is mostly straight adjacent to the site; however, there is a horizontal curve approximately 500 feet north of the site and the roadway has about a four percent grade in the northbound direction. Along the project frontage 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 traffic counts collected in April 2017 specifically for this study, the average daily traffic (ADT) along the project frontage is approximately 15,600 on weekdays and 13,600 on weekend days.

Lodi Lane is a two-lane roadway that runs northeast-southwest between SR 29 and Silverado Trail, though as noted above the roadway was considered to run east-west for the purpose of this study. The roadway is approximately 30 feet wide and has a posted speed limit of 40 mph. Based on traffic counts collected in April 2017 specifically for this study, the ADT adjacent to the site is approximately 1,100 on weekdays and 900 on weekend days.

Silverado Trail is a two-lane roadway that winds its way northwest-southwest 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 as published in their Statewide Integrated Traffic Records System (SWITRS) reports. The most current five-year period available is January 1, 2014 through December 31, 2018.

As presented in Table 2, the calculated collision rates for the study intersections were compared to average collision rates for similar facilities statewide, as indicated in *2014 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 has a collision rate substantially higher than the statewide average which warranted further analysis.

Table 2 – Collision Rates at the Study Intersections

Study Intersection	Number of Collisions (2014-2018)	Calculated Collision Rate (c/mve)	Statewide Average Collision Rate (c/mve)
1. SR 29/Lodi Ln	3	0.13	0.16
2. Silverado Trail/Lodi Ln	5	0.46	0.16

Note: c/mve = collisions per million vehicles entering

Further review of the individual collisions that occurred at Silverado Trail/Lodi Lane revealed that of the five total collisions, three were rear-ends attributed to unsafe speeds and four of the five occurred in the northbound direction. The other two collisions were an overturn attributed to unsafe speed and a broadside. 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.

Collision rates for the study segments are compared to statewide averages for similar facilities in Table 3. SR 29 experienced collisions at a below-average rate and Silverado Trail had a calculated collision rate higher than the statewide average; there were no collisions reported on Lodi Lane during the evaluation period. The collision rate calculations for the study intersections and segments are provided in Appendix B.

Table 3 – Collision Rates for the Study Roadway Segments			
Study Roadway Segment	**Number of Collisions (2014-2018)**	**Calculated Collision Rate (c/mvm)**	**Statewide Average Collision Rate (c/mvm)**
1. SR 29 – York Ln to Ehlers Ln	12	0.55	1.16
2. Lodi Ln – SR 29 to Silverado Trail	0	0.00	1.16
3. Silverado Trail – Bournemouth Rd to Glass Mtn Rd	15	2.10	1.20

Note: c/mvm = collisions per million vehicles miles

Of the 15 total collisions that occurred on the study segment of Silverado Trail, more than half had unsafe speed as the primary collision factor, which is consistent with the collisions that occurred at the intersection of Silverado Trail/Lodi Lane. Five collisions were attributed to improper turning or wrong side of the road and are likely due to the fact that the 0.7-mile roadway segment 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.

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 Freemark Abbey Winery, a connected pedestrian network is lacking, though such facilities would not be appropriate in this setting with the exception of a regional trail to which connectivity would be appropriate.

Bicycle Facilities

The *Highway Design Manual*, Caltrans, 2012, classifies bikeways into three 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.

There are existing Class II bike lanes on Silverado Trail in the project study area and there are plans to provide Class II bike lanes on SR 29 along the project frontage and a Class I 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. The existing and planned bicycle and transit facilities serving the site are shown in Figure 2. Table 4 summarizes the existing and planned bicycle facilities in the project vicinity, as contained in the *NCTPA Countywide Bicycle Plan*, Napa County Transportation and Planning Agency (NCTPA), 2012. It should be noted that the Napa Valley Transportation Authority (NVTA) has retained a consultant firm that is currently in the process of updating the countywide bike plan. A draft version of the updated plan was prepared in February 2019 and is available on the NVTA website, but the plan has not yet been adopted so the 2012 plan was used for this analysis.

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Figure 2– Alternative Modes

Table 4 – Planned Bicycle Facilities Summary				
Status **Facility**	**Class**	**Length (miles)**	**Begin Point**	**End Point**
Existing				
Silverado Trail	II	2.9	Bale Ln	Deer Park Rd
Planned				
Vine Trail	I	47.0	Calistoga	Vallejo
SR 29	II	1.8	Deer Park Rd	Bothe State Park

Source: *NCTPA Countywide Bicycle Plan*, Napa County Transportation and Planning Agency, 2012

Transit Facilities

Transit Services throughout Napa County are provided by Napa Valley Transit (VINE). VINE Route 10 provides service between Napa Valley College and Calistoga seven days a week and stops on SR 29 just north of the site in the southbound direction and along the project frontage in the northbound direction. Both stops are equipped with benches and the stop north of the site has an overhead shelter.

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* (HCM), Transportation Research Board, 2010. 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 5.

Table 5 – 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*, Transportation Research Board, 2010

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 G*uidelines for Interpretation of General Plan Circulation Policies on Significance Criteria* (Fehr & Peers, 2015). The document establishes thresholds of significance for road segments and different intersection control types. The memorandum states a project would cause a significant impact requiring mitigation if, for existing conditions:

- *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.*
  - *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 contributes one percent or more of the total entering traffic for all-way stop-controlled intersections, or ten percent or more of the traffic on a side-street approach for side-street stop-controlled intersections; the peak hour traffic signal criteria should also be evaluated and presented for informational purposes. Both of those volumes are for the stop-controlled approaches only. Each stop-controlled approach that operates at LOS E or F should be analyzed individually*
  - *<u>All-Way Stop-Controlled Intersections</u> – The following equation should be used if the all-way stop-controlled intersection operates at LOS E or F without the Project:*
    - *Project Contribution % = Project Trips ÷ Existing Volumes*
  - *<u>Side-Street Stop-Controlled Intersections</u> – The following equation should be used if the side-street stop-controlled intersection operates at LOS E or F without the Project:*
    - *Project Contribution % = Project Trips ÷ Existing Volumes*

- *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*

Further, a project would cause a significant impact requiring mitigation if, for cumulative (future) conditions, the Project's volume is equal to, or greater than five percent of the difference between cumulative (future) and existing volumes.

- <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)*

Caltrans

The Caltrans standard was used for the intersection of SR 29/Lodi Lane. In the *Guide for the Preparation of Traffic Impact Studies*, Caltrans indicates that they endeavor to maintain operation at the transition from LOS C to LOS D. Based on previous discussions with Caltrans staff, it is understood that the standard is to be applied to the overall average intersection delay, and *not* that associated with any single movement or approach. Under this approach, if one movement experiences very high delay and has moderate to high traffic volumes, the overall delay and level of service should reflect the critical nature of this condition. However, if one movement is expected to experience high delay, but has very low traffic volumes, the overall intersection operation will likely still meet Caltrans standards.

Existing Conditions

The Existing Conditions scenario provides an evaluation of current operation based on existing traffic volumes during the weekday p.m. and weekend midday peak periods. This condition does not include project-generated traffic volumes. Traffic volumes at the study intersections and driveways were obtained in April 2017 during clear weather conditions and normal site operations. Count data was also collected in August 2017 to capture harvest activity; however, three of the four peak periods had volumes the same as or lower than the April volumes, so to provide conservative results the spring counts were retained for the analysis.

Peak hour factors (PHFs) were calculated based on the counts obtained and used in the levels of service calculations, except where the calculated PHF was below 0.90, in which case 0.90 was used as a "floor" to avoid overly conservative results. It should be noted that based on the counts, the calculated PHF at SR 29/Lodi Lane was 0.98 during the p.m. peak hour which is considered high but is due to the fact that the demand at the intersection is consistent throughout the hour. Additionally, the percentage of heavy vehicles at each intersection was calculated based on 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 weekday p.m. peak hour and two percent during the weekend midday peak hour. At Silverado Trail/Lodi Lane, heavy vehicles represent two and three percent of vehicles during the weekday p.m. and weekend midday peak hours, respectively. The PHF's are included in the traffic counts in Appendix C along with a summary of the existing volumes collected at the site's driveways and the heavy vehicle data.

Intersection Levels of Service

The Lodi Lane approach to SR 29 is operating at LOS C and the Lodi Lane approach to Silverado Trail is operating at LOS B, during both peak hours. The Existing traffic volumes are shown in Figure 3. A summary of the

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Figure 3– Traffic Volumes

intersection level of service calculations is contained in Table 6, and copies of the Level of Service calculations for all evaluated scenarios are provided in Appendix D.

Table 6 – Existing Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Weekday PM Peak		Weekend MD Peak	
	Delay	LOS	Delay	LOS
1. SR 29/Lodi Ln	0.8	A	1.2	A
Westbound (Lodi Ln) Approach	*22.3*	*C*	*24.3*	*C*
2. Silverado Trail/Lodi Ln	1.1	A	1.2	A
Eastbound (Lodi Ln) Approach	*10.9*	*B*	*12.3*	*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*

Because County LOS standards state that signal warrants should be evaluated for unsignalized intersections, a signal warrants analysis was performed for both intersections during both peak hours. Chapter 4C of the *California Manual on Uniform Traffic Control Devices for Streets and Highways* (CA-MUTCD) provides guidance on when a traffic signal should be considered based on nine different warrants, or criteria. For the purposes of this study, Warrant 3, the Peak Hour volume warrant, which determines the need for traffic control based on the highest volume hour of the day, was used as an initial indication of traffic control needs. The use of this signal warrant is common practice for planning studies. Based on Existing volumes, a traffic signal is not warranted at either of the study intersections during either of the peak hours evaluated. A copy of the signal warrants analysis for all evaluated scenarios in included in Appendix E.

Future Conditions

Future volumes for the horizon year 2030 were calculated based on output from the *Napa Solano Travel Demand Model*, maintained by the Solano Transportation Authority (STA). Base year (2010) and future (2030) segment volumes for the weekday p.m. peak hour were used to calculate growth factors for SR 29, Silverado Trail and Lodi Lane; it is noted that Lodi Lane is not included in the model, so the growth anticipated on Deer Park Road was assumed to be representative of Lodi Lane which is conservative in nature.

The growth factors projected by the model were then adjusted to account for the seven years of growth that occurred between the 2010 base year and 2017 existing volumes and multiplied by the existing counts to project likely Future weekday p.m. turning movement volumes at the study intersections. The same growth factors used for the weekday p.m. peak hour were used for the weekend midday peak hour as the model does not contain information for weekend days. A spreadsheet indicating derivation of the growth factors used to develop future volumes is provided in Appendix C.

Intersection Levels of Service

Under the anticipated Future volumes, the study intersections are expected to continue operating acceptably overall; however, the side street approach at SR 29/Lodi Lane would be expected to operate at LOS E during both peak hours. This operation would be considered acceptable under Caltrans standards, which apply to the overall operation of the intersection, but would be considered unacceptable based on the County of Napa's LOS standards. Despite the substantial growth anticipated by the travel demand model, a traffic signal would still not be warranted at either of the study intersections based on volumes during either of these peak hours. Operating conditions are summarized in Table 7 and future volumes are shown in Figure 3.

Table 7 – Future Peak Hour Intersection Levels of Service					
Study Intersection ***Approach***		**Weekday PM Peak**		**Weekend MD Peak**	
		Delay	**LOS**	**Delay**	**LOS**
1.	SR 29/Lodi Ln	1.3	A	1.5	A
	Westbound (Lodi Ln) Approach	***39.5***	***E***	***37.6***	***E***
2.	Silverado Trail/Lodi Ln	0.8	A	1.3	A
	Eastbound (Lodi Ln) Approach	*19.7*	*C*	*34.0*	*D*

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** = Deficient operation

Project Description

As proposed, the project includes the development of a 79-room hotel on the existing Freemark Abbey site, which is occupied by a winery, tasting room, restaurant, café, and retail space and is permitted for additional uses, although not operating, consisting of a second restaurant, a motel, a retail wine shop, an art gallery, and commercial retail space. No changes are proposed to the existing uses or to events; however, the site would forgo the additional permitted uses not currently in operation to make room for the proposed hotel. As proposed in the site plan, 50 rooms would be located on the parcel north of Lodi Lane and 29 rooms would be located south of Lodi Lane. The site would continue to be accessed via the existing driveways on SR 29 and Lodi Lane, though the driveway to the southern parcel would be modified to include a one-way drive aisle with a designated drop-off area. Self-parking would be provided in surface lots and valet parking would occur in an underground parking garage.

The proposed project site plan is shown in Figure 4 and the locations of the project driveways are highlighted in Figure 5.

Trip Generation

Existing

Based on driveway counts collected in April 2017, the existing winery, tasting room, restaurant, café, and retail uses collectively generate an average of 366 trips per day, including 32 trips during the weekday p.m. peak hour and 33 trips during the weekend midday peak hour.

Proposed

To estimate the anticipated trip generation associated with the proposed hotel, standard rates for "Resort Hotel" (Land Use #330) were applied; however, it is noted that the manual does not include weekday daily or weekend peak hour rates for "Resort Hotel" so rates for "Hotel" (Land Use #310) were used for these periods. Based on these rates, the proposed project would be expected to generate an average of 645 trips per day, including 33 weekday p.m. peak hour trips and 57 trips during the weekend peak hour. When added to the existing trips, this translates to a total of 1,011 trips per day for the project site, including 65 trips during the a.m. peak hour and 90 trips during the p.m. peak hour. It is worth noting that this would be 575 fewer daily trips on average than if all the permitted uses were operational, including 93 less trips during the weekday p.m. peak hour and 150 less trips during the weekend midday peak hour. The existing and proposed trip generations are summarized in Table 8.

Source: Girvin Associates, Inc. 10/17

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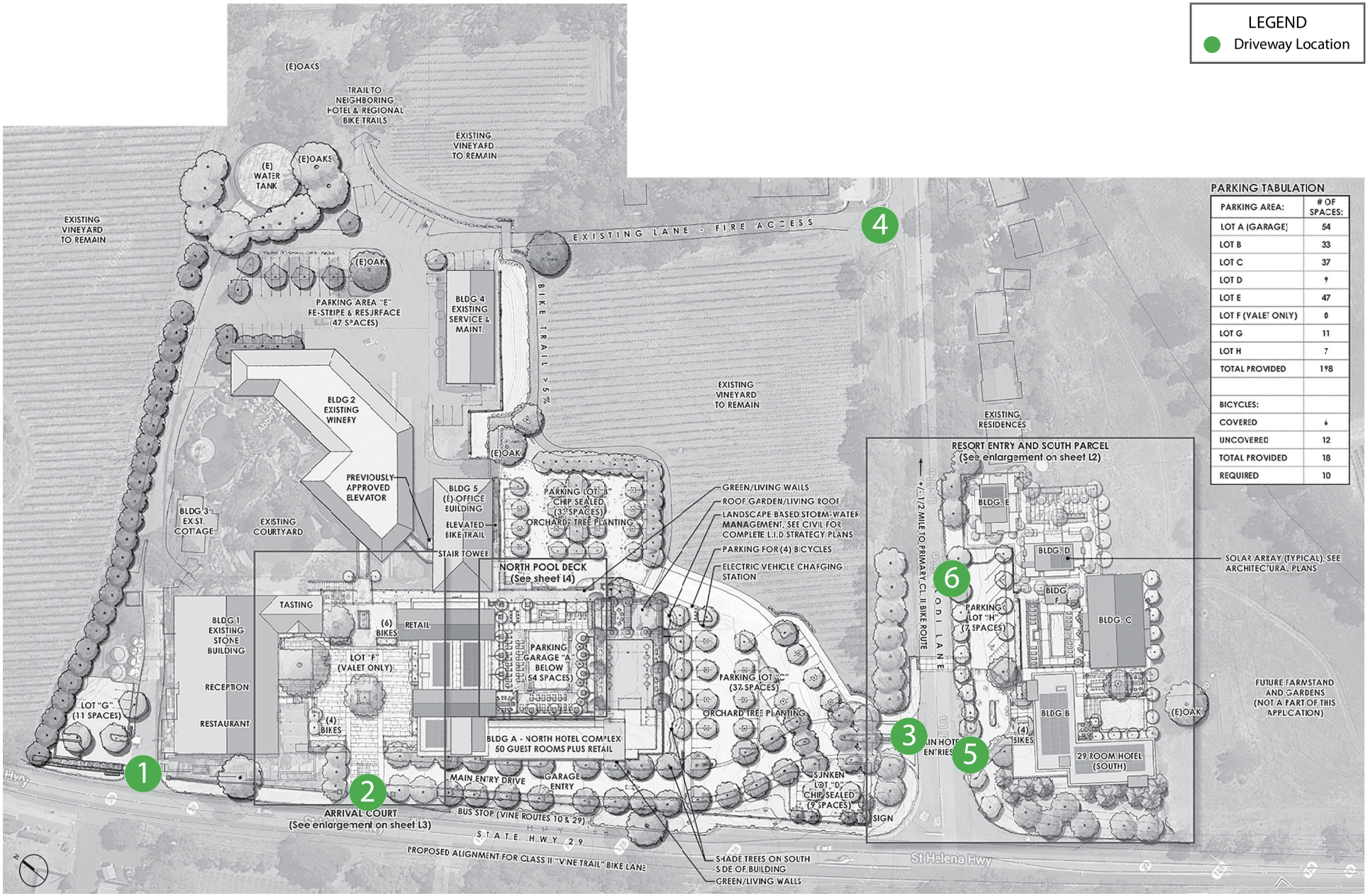
Figure 4 – Site Plan



Source: Girvin Associates, Inc. 10/17

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Figure 5 – Project Driveway Locations

Table 8 – Trip Generation Summary for Existing and Proposed Uses									
Land Use	**Units**	**Daily**		**Weekday PM Peak**			**Weekend MD Peak**		
		Rate	**Trips**	**Trips**	**In**	**Out**	**Trips**	**In**	**Out**
Existing									
Winery/Tasting Room/Restaurant/ Café/Retail*			366	32	13	19	33	21	12
Proposed									
Resort Hotel	79 rooms	-	-	33	14	19	-	-	-
Hotel	79 rooms	8.17	645	-	-	-	57	32	25
Total Proposed			645	33	14	19	57	32	25
Existing + Proposed			**1,011**	**65**	**27**	**38**	**90**	**53**	**37**

Note: * = Based on actual driveway counts collected in April 2017

Trip Distribution

The pattern used to allocate 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 patrons of the uses. The applied distribution assumptions are shown in Table 9.

Table 9 – Trip Distribution Assumptions	
Route	**Percent**
SR 29 (To/From North)	30%
SR 29 (To/From South)	50%
Silverado Trail (To/From North)	5%
Silverado Trail (To/From South)	15%
TOTAL	**100%**

Intersection Operation

Existing plus Project Conditions

Upon the addition of project-related traffic to the Existing volumes, the study intersections are expected to continue operating acceptably at the same levels of service as under Existing Conditions. These results are summarized in Table 10 and project traffic volumes are shown in Figure 3.

Table 10 – Existing and Existing plus Project Peak Hour Intersection Levels of Service

	Study Intersection *Approach*	Existing Conditions				Existing plus Project			
		Weekday PM Peak		Weekend MD Peak		Weekday PM Peak		Weekend MD Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	SR 29/Lodi Ln	0.8	A	1.2	A	1.1	A	1.6	A
	Westbound (Lodi Ln) Approach	*22.3*	*C*	*24.3*	*C*	*23.5*	*C*	*27.5*	*C*
2.	Silverado Trail/Lodi Ln	1.1	A	1.2	A	1.2	A	1.3	A
	Eastbound (Lodi Ln) Approach	*10.9*	*B*	*12.3*	*B*	*11.0*	*B*	*12.3*	*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*

Finding – The study intersections are expected to continue operating acceptably at the same levels of service upon the addition of project-generated traffic to existing volumes and a traffic signal would not be warranted at either intersection.

Future plus Project Conditions

Upon the addition of project-related traffic to the anticipated future volumes, the study intersections are expected to continue operating at LOS A overall and the Lodi Lane approach to SR 29 would continue to operate at LOS E during both peak hours while the Lodi Lane approach to Silverado Trail would continue to operate at LOS C during the weekday p.m. peak hour and LOS D during the weekend midday peak hour. The Future plus Project operating conditions are summarized in Table 11.

Table 11 – Future and Future plus Project Peak Hour Intersection Levels of Service

	Study Intersection *Approach*	Future Conditions				Future plus Project			
		Weekday PM Peak		Weekend MD Peak		Weekday PM Peak		Weekend MD Peak	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1.	SR 29/Lodi Ln	1.3	A	1.5	A	1.6	A	2.1	A
	Westbound (Lodi Ln) Approach	***39.5***	***E***	***37.6***	***E***	***43.7***	***E***	***44.3***	***E***
	Restripe to Provide RT Lane	-	-	-	-	***37.2***	***E***	***37.0***	***E***
2.	Silverado Trail/Lodi Ln	0.8	A	1.3	A	0.9	A	1.5	A
	Eastbound (Lodi Ln) Approach	*19.7*	*C*	*34.0*	*D*	*20.2*	*C*	*34.9*	*D*

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** = Deficient operation; Shaded cells = Cells with recommended improvements

Finding – Upon the addition of project-related traffic to Future volumes, the intersection of Silverado Trail/Lodi Lane would be expected to operate acceptably during both peak hours based on County standards. SR 29/Lodi Lane would be expected to operate acceptably during both peak hours based on Caltrans standards; however, the Lodi Lane approach would continue to operate at LOS E which would be considered unacceptable based on County standards. The project would be responsible for more than ten percent of the anticipated growth on the Lodi Lane approach by the year 2030, so the project's impact would be considered *significant* based on the County

standards applied. A traffic signal would still not be warranted at either intersection during either of the peak hours evaluated.

Recommendation – To mitigate the project's impact on the Lodi Lane approach to SR 29 under Future Conditions, it is recommended that the project restripe the approach to provide a dedicated right-turn lane. As seen in Table 11 above, doing so would reduce the delay on the Lodi Lane approach to less than the delay expected under Future Conditions without the project.

Queuing

Queuing in the southbound left-turn lane on SR 29 at Lodi Lane was evaluated to determine if the existing storage length would be adequate for the maximum anticipated queue. The two-way stop-controlled intersection queuing methodology developed by the Oregon Department of Transportation is the most current widely used methodology available and is accepted by Caltrans District 4. Based on Future plus Project volumes, which represents worst-case conditions, the maximum queue in the southbound left-turn lane was determined to be 75 feet, or three vehicles, during both the weekday evening and weekend midday peak hours, which could be accommodated within the existing turn pocket. The Queuing calculations are provided in Appendix E.

Queuing was also evaluated at the western driveway on Lodi Lane (Driveway 3) to see if there would be adequate space on eastbound Lodi Lane between the driveway and SR 29 to accommodate potential queuing from those waiting to turn left into the project site. Based on the same worst-case Future plus Project volumes, the maximum queue on eastbound Lodi Lane was determined to be 50 feet, or two vehicles, at the driveway during both the weekday p.m. and weekend midday peak hours. As proposed, there would be approximately 90 feet of stacking space on Lodi Lane eastbound between SR 29 and Driveway 3 which would be adequate room for queuing to occur without spilling into SR 29.

Finding – The existing storage capacity of 90 feet, or approximately three to four vehicles, in the southbound left-turn lane on SR 29 at Lodi Lane is adequate for the maximum anticipated queue under Future plus Project Conditions. Additionally, there would be adequate space for queues to form on Lodi Lane eastbound at Driveway 3 without spilling into SR 29.

Alternative Modes

Pedestrian Facilities

Given its rural location, lack of existing facilities, and the nature of the project site, project patrons are not expected to want to walk to the site. However, given the sprawling layout of the site and the presence of Lodi Lane separating the northern parcel from the southern parcel, there is a need for a connected pedestrian network within the site and from one side of Lodi Lane to the other.

Based on the project site plan, the existing and proposed facilities on-site would be connected via sidewalks and dedicated pedestrian paths. Additionally, there would be a crosswalk on Lodi Lane to facilitate pedestrian crossings between the northern and southern parcels. As shown in the site plan, the crosswalk would be located 150 feet east of SR 29, which would provide adequate stopping sight distance for drivers turning onto Lodi Lane from SR 29. Additionally, the crosswalk as proposed would include a Rectangular Rapid Flashing Beacon (RRFB) system that would provide a strobe-like warning to drivers when pedestrians are in the crosswalk.

Finding – The lack of pedestrian facilities serving the project site on SR 29 and Lodi Lane are consistent with the surrounding area and expected for the type of land use; however pedestrian facilities within the site and connecting facilities are adequate.

Bicycle Facilities

Because of the proximity to the future Vine Trail, which would mostly run parallel to SR 29 between Vallejo and Calistoga, the project has included bicycle facilities to ensure the site is accessible for bicyclists. The project would provide a total of 18 bicycle parking spaces on-site, six of which would be covered and a connection to the future Vine Trail is planned but is not yet finalized. The applicant has been working with the Napa Valley Vine Trail Coalition (NVVTC) and the Napa Valley Transportation Authority (NVTA) to ensure that sufficient right-of-way is being dedicated along the project frontage to accommodate the Vine Trail alignment. Although the current bike plan identifies the need for Class II bike lanes on SR 29 along the project frontage, the bike lanes have been removed and replaced with a Class III bike route in the February 2019 draft version of the updated bike plan. The Class III bike route would not require any additional right-of-way to be dedicated by the project beyond the Vine Trail, but the Class II bike lanes would so it is recommended that the applicant coordinate with NVVTC and NVTA to monitor the progress of the bike plan update and the status of the planned facilities on SR 29. The applicant has discussed constructing the section of the Vine Trail along the property frontage as part of the hotel project and obtaining credits toward the required traffic impact fees.

Finding – The shared use of minor streets, along with the planned projects in the vicinity, would provide adequate access for bicyclists.

Recommendation – The applicant should continue to work with NVVTC and NVTA to ensure that sufficient right-of-way is being dedicated for the planned facilities along the project frontage. If the planned facilities are not constructed before the hotel project, the applicant should explore the option of constructing the bike facilities as part of the project and obtaining traffic impact fee credits.

Bicycle Storage

Although the County does not specify bicycle parking requirements for wineries, since the project site is occupied with uses that do have specific requirements (Restaurant and Hotel), the site was evaluated based on Chapter 18.110 of the County's Municipal Code, "Off Street Parking and Loading Facilities." The County requires all

nonresidential uses that provide more than ten vehicle parking spaces to provide at least ten bicycle parking spaces. Additionally, if the site is required to provide 20 or more vehicle spaces then one-half of the total provided bicycle parking spaces should be covered.

Finding – The proposed bicycle parking supply exceeds County requirements.

Transit

The existing transit stops on SR 29 adjacent to the site are within acceptable walking distance and are adequate for the anticipated demand, though there are currently no amenities for transit riders such as a shelter or bench at the northbound stop on the east side of the highway. Although the southbound transit stop on SR 29 is on the opposite side of the highway as the project site, the stop has been accessed safely by pedestrians for some time and there is nothing proposed by the project that would impact its accessibility or safety. While it is understood that pedestrians may experience delays waiting for a gap in traffic to cross SR 29, installation of a crosswalk adjacent to the project site is not advised as it would generally result in less safe conditions for pedestrians due to the false sense of security associated with crosswalks. Pedestrians tend to be less cautious about watching approaching traffic when entering a crosswalk versus crossing without one. The existing condition wherein pedestrians understand that they must carefully observe oncoming traffic is therefore considered the best safety option for this specific location. The Vine Trail is planning a crossing north of the project site that will ultimately provide controlled pedestrian and bicycle access to the west side of SR 29, and although the specific location is undetermined, it will be in the vicinity so could be used by those uncomfortable with crossing adjacent to the project site.

Finding – Transit facilities serving the project site are adequate.

Recommendation – As part of the frontage improvements, a shelter and bench should be added to the transit stop on the east side of SR 29.

Access and Circulation

Site Access

The northern parcel has four existing driveways, two on SR 29 and two on Lodi Lane, all of which would remain with the project; the southern parcel is currently served by a single driveway that would be replaced with two new driveways. The project driveways are shown in Figure 5 and are numbered to correspond with the existing count data contained in Appendix C. Driveways 1 and 4 would primarily be used by employees, while the remaining driveways would be used by employees and guests. Driveways 2 and 3 would be the main entrances to the site and Driveway 2 would be the designated entrance for valet parking. Driveways on the northern parcel would be connected by a drive aisle that would provide access to the surface parking lots located south and east of the proposed resort as well as the underground parking garage. The southern parcel would include a one-way drive aisle, to which proposed Driveway 5 would be the entrance and the proposed Driveway 6 would be the exit. The drive aisle would include a designated drop-off area and access to surface parking on the northern edge of the parcel; no other vehicular circulation would be provided on the southern parcel.

Finding – Site access and circulation are expected to operate acceptably.

Sight Distance

At driveways, a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross, turn left, or turn right, without requiring the through traffic to radically alter their speed.

Sight distances along SR 29 and Lodi Lane at the main driveways (2 and 3 as shown in Figure 5) were evaluated based on sight distance criteria contained in the *Highway Design Manual* (HDM) published by Caltrans. The recommended sight distances for minor street approaches that are either a private road or a driveway are based on stopping sight distance. Both use the approach travel speeds as the basis for determining the recommended sight distance. Sight distance should be measured from a 3.5-foot height at the location of the driver on the minor road to a 4.25-foot object height in the center of the approaching lane of the major road. Setback for the driver on the crossroad should be a minimum of 15 feet, measured from the edge of the traveled way.

For the posted 50-mph speed limit on SR 29, the recommended stopping sight distance is 430 feet. Based on a review of field conditions, sight distance at Driveway 2 extends more than 500 feet to the south and approximately 440 feet to the north to Byrd Hill Road. Because sight distance to the north is close to the recommended amount, radar speed samples were obtained in the southbound direction on SR 29 to determine if the available sight distance is adequate for actual travel speeds. Based on radar samples, the 85th percentile speed in the southbound direction is 49 mph, so the available sight distance is adequate for actual approach speeds. The speed survey data is included in Appendix F.

For the posted 40-mph speed limit on Lodi Lane, the recommended sight distance is 300 feet. Based on a review of field conditions, sight distance at Driveway 3 extends approximately 350 feet to the east, which is adequate for the posted speed limit, but is limited due to the presence of tall grass along the project frontage. To the west, sight distance was measured with respect to the proximity of the driveway to SR 29. Because of its position, sight distance must extend onto SR 29 to avoid potential conflicts with drivers pulling out of the driveway and drivers turning onto Lodi Lane from SR 29. Based on a review of field conditions, sight distance extends approximately 200 feet on SR 29 to the south and approximately 150 feet to the north, which would be adequate for speeds of 30 and 25 mph, respectively. Oncoming traffic would be navigating a turn and would be expected to travel well below 25 mph.

Finding – Adequate sight distance is available in each direction along SR 29 and Lodi Lane to accommodate all turns, though landscaping could affect sight lines.

Recommendation – To ensure that sight lines remain adequate, any landscaping along the street frontages should be planted and maintained such that it is less than three feet or more than seven feet in height to maximize clear sight lines.

Emergency Access

As proposed in the site plan, all drive aisles meet County design standards and the driveways would be of enough width to accommodate emergency response vehicles.

Finding – Emergency access is adequate.

Access Analysis

Left-Turn Lane Warrants

The need for a left-turn lane on SR 29 at Driveway 2 was evaluated based on criteria contained in the *Intersection Channelization Design Guide*, National Cooperative Highway Research Program (NCHRP) Report No. 279, Transportation Research Board, 1985, as well as a more recent update of the methodology developed by the Washington State Department of Transportation. The NCHRP report references a methodology developed by M. D. Harmelink that includes equations that can be applied to expected or actual traffic volumes to determine the need for a left-turn pocket based on safety issues. Based on our research and discussions with Caltrans staff, this methodology is consistent with the "Guidelines for Reconstruction of Intersections," August 1985, which was referenced in Section 405.2, Left-turn Channelization, of previous editions of the Caltrans HDM, though this reference has been deleted from the most recent edition of this manual.

The need for left-turn channelization in the form of a left-turn pocket was evaluated for Existing and Future Conditions without, and with, the proposed project during both peak hours. A left-turn lane would not be warranted during either of the peak hours under Existing volumes without or with the project; however, due to the large growth anticipated on SR 29, a left-turn lane would be warranted during both peak hours without or with the proposed project based on Future volumes. The required turn-lane dimensions based on Chapter 400 of the HDM are included in Appendix G.

Finding – Based on the anticipated Future volumes during weekday evening and weekend midday peak hours, a left-turn lane would be warranted on SR 29 at Driveway 2 without or with the proposed project.

Recommendation Because the site has multiple access points, rather than constructing a left-turn lane that meets current Caltrans highway design standards it is recommended that left-turns be prohibited at Driveway 2. The applicant should install signage in the southbound direction that reads "Freemark Abbey Winery and Resort Use Lodi Lane" or something similar to be reviewed and approved by County and Caltrans staff before installation. Additionally, a mini "pork-chop" island should be installed at Driveway 2 to restrict access to right-turn movements only at this location.

Right-Turn Lane Warrants

The need for a right-turn lane or taper at Driveway 2 was also evaluated and would consist of a lane installed to the right of the travel lane and would be a minimum of ten feet wide, plus a shoulder where not adjacent to a curb. A right-turn taper is a shoulder area that gets progressively wider as the motorist drives toward the intersection. Both improvements are meant to provide an area for motorists turning right to move out of the traffic lane without impeding through traffic.

The need for a right-turn lane or taper on SR 29 at Driveway 2 was evaluated using Existing and Future volumes both with and without the project. Based on these scenarios, no additional facilities in the form of either a right-turn lane or right-turn taper would be warranted during either of the peak hours. The turn lane analysis sheets are contained in Appendix G.

Finding – Neither a right-turn lane nor right-turn taper would be warranted at Driveway 2 on SR 29.

Transportation Demand Management

Transportation Demand Management (TDM) measures aim to reduce single-occupancy vehicle trips, parking demand, and total vehicle miles traveled (VMT) through use of alternative modes of transportation and more efficiently planned trips. Although VMT analysis is not required as part of the California Environmental Quality Act (CEQA) review process until July 2020, in recognition of the statewide goal to reduce VMT the applicant has included numerous TDM measures as part of the project. Due to the project's rural location, the site does not have as many options to reduce VMT as one located in an urban environment, but the site is accessible via bicycle and transit and would employ a relatively large number of people so there is potential to reduce vehicular trips and parking demand with implementation of a TDM program.

Proposed TDM Program

The project's TDM Program would provide information, encouragement, and access to non-motorized travel options to reduce the number of vehicle trips, shifting these trips to other modes and thus reducing VMT. The following measures are proposed as part of the project and are consistent with the goals of Caltrans' *Smart Mobility 2010: A Call to Action for the New Decade*. It is recommended that the incentives offered as part of the program be available for the first two years of operation, after which the effectiveness of the program should be reevaluated and modified, if needed.

- **Carpool Incentives:** The project site would have up to 112 employees on-site across all uses at peak times so there is a substantial opportunity for employees to carpool to work, especially considering that the winery, tasting room, hotel, and restaurant would require numerous employees to work the same shift. Financial incentives can be an effective way to encourage employees to carpool to work. The applicant would provide an incentive of $50 per month to employees who agree to carpool to work a minimum of 75 percent of the time. This program would be offered to the existing employees as well as new employees of the hotel.

- **Preferred Parking:** Providing dedicated parking stalls for those employees that carpool to work can be an effective incentive to encourage employees to carpool. As part of the program, the applicant would reserve five parking spaces immediately adjacent to the wine production building for use by carpool vehicles only.

- **Guaranteed Ride Home:** One of the reasons that many employees do not carpool to work is the fear of being stranded should they need to leave in an emergency. Employees who carpool to work should be guaranteed a ride home in the case of an emergency or unique situation. As part of the V-Commute program offered by the Napa Valley Transportation Authority (NVTA), employees who carpool or commute via alternative modes are be able to use a taxi, rental car, Lyft, Uber, or other means to get home in an emergency and are reimbursed for the full cost of the service. The program is available to all who work or attend college in Napa County and is free to join, but registration is required. As part of the project's TDM program, employees would be provided information about V-Commute and would be encouraged to register for the service.

- **Subsidized Transit Passes:** The project site is conveniently located next to two Vine Transit stops on SR 29 and is therefore accessible via transit. Employees wishing to use transit to reach the site would be provided a monthly pass for Vine Transit free of charge.

- **Bicycle Trip-end Facilities:** The proposed project includes long-term covered bicycle storage for six bicycles and an additional 12 normal spaces to accommodate a total of 18 bicycles, which exceeds County requirements. Showers and changing rooms would be provided on-site to further encourage employees to ride their bicycles to and from work.

VMT Reduction

Based on the California Air Pollution Officers Association (CAPCOA) report *Quantifying Greenhouse Gas Mitigation Measures*, CAPCOA 2010, it is estimated that the inclusion of voluntary commute trip reduction measures with incentives to carpool can reduce a project's total VMT by approximately 1.0 to 6.2 percent. CAPCOA also estimates that the anticipated range of effectiveness for implementation of a subsidized transit program is a VMT reduction of anywhere between 0.3 and 20.0 percent. According to the CAPCOA report, the provision of long-term bicycle storage has a minimal effect on trip generation but supports the greater trip reduction program by providing opportunities for non-motorized travel. The report does not address VMT reduction associated with connectivity to a Class I regional trail, but because the project site would be located on the Vine Trail, it is reasonable to expect some reduction in VMT due to employees and guests accessing the site via bicycle, especially when combined with the on-site trip-end bicycle facilities proposed.

Parking

Because the County of Napa does not specify parking rates for wineries or tasting rooms, the project was analyzed to determine whether the proposed parking supply would be sufficient based on the anticipated peak parking demand. The project site, as proposed, would provide a total of 198 parking spaces via a combination of self and valet parking; self-parking would be provided in multiple surface lots and valet parking would occur in an underground parking garage.

Parking demand for new developments is typically projected using empirically-derived rates established by agencies or organizations; these standardized, single-use parking demand rates do not consider the potential for "shared parking" and assume that each separate use located on the same site must provide its own contained parking supply. The concept of shared parking is based on the fact that different land uses often experience peak parking demand at different times, be it by time of day or even month of the year and is particularly applicable to the proposed project as it includes multiple components that would experience their respective peak demands at different times. Without taking shared parking demand into consideration, an oversupply of parking could result in expanses of empty asphalt on the project site.

Shared Parking Demand

A parking demand methodology that considers "shared parking" principles can significantly improve the accuracy of determining actual parking demand. The Urban Land Institute (ULI) publication *Shared Parking*, 2nd Edition, 2005, includes state-of-the-practice methodologies for determining parking demand based on the various components of a specific project. The ULI shared parking methodology focuses on temporal data, determining when the overall peak demand for various land uses occurs, including what time of day, whether it is a weekday or weekend, and what month of the year. The recommended parking supply is then tied to that maximum demand period. The ULI model considers the proposed mix of land uses, including quantities of each type of use.

Initial analysis determined that for the proposed project the peak parking demand for the site as a whole would be anticipated to occur midday on a weekend during the months of July and August. This time period reflects conditions when check-out and check-in would be occurring at the hotel, the restaurant would be open for lunch, the winery would be operating, and the tasting room and retail operations would be busiest. Additionally, it would be possible for a special event to be occurring during this time period which would further increase demand.

To determine the maximum demand for the hotel and restaurant uses the ULI *Shared Parking Model* was used, which, in addition to temporal demand, considers mode adjustment and non-captive ratios. Mode adjustment is the estimated number of employees and visitors who will access the site using a mode of transportation other than a private automobile, such as biking, walking, and transit. The model can also apply a non-captive ratio, which is the number of people who will travel from outside the site to the various land uses. Since this is a mixed-use project, it is reasonable to assume that some parking demand may be reduced as patrons park once and then visit multiple land uses. For example, a hotel guest may visit the winery and eat at the restaurant, which would not require an additional parking space for each subsequent land use beyond the first one. The model starts by assuming that 100 percent of people accessing the site will travel by a private automobile and are traveling from outside the site; deductions are then applied based on commuting behaviors, land uses, and regional knowledge of the area being studied.

For employees of the hotel, restaurant, café, and retail uses, mode adjustments were determined based on the US Census 2014 American Community Survey (ACS) using commuting to work patterns for Census Tract 2015, which is the census tract in which the project site is located. This data showed that approximately 86 percent of residents living in Census Tract 2015 drive alone to and from work. Approximately 14 percent of resident's commute via other means such as walking, bicycling, carpooling, transit, etc. The mode adjustment was therefore reduced by

14 percent, which equates to a mode adjustment of 86 percent. Similarly, because many patrons of the restaurant are anticipated to be hotel guests, it was assumed that 30 percent of the restaurant patrons would come from within the project site; the other 70 percent would travel to the site for the sole purpose of visiting the restaurant. Based on these assumptions, the ULI model anticipates a parking demand of 113 total spaces between the restaurant, hotel, retail, and cafe on a weekend in July and/or August from 12:00 noon to 1:00 p.m. A summary of the ULI estimated shared parking demand by time of day is included in Appendix H.

The parking demand for the other uses on-site were developed based on site-specific characteristics, as the ULI model does not have data that can be used to analyze wineries, tasting rooms, or special events. To determine the demand generated by the tasting room, it was assumed that 2.8 persons would occupy each vehicle on average and that 57 percent of the total daily visitors would be on-site during the peak hour; both assumptions are consistent with the County of Napa Winery Traffic Information/Trip Generation Sheet. Further, it was assumed that 30 percent of the tasting room guests would be generated from the hotel or restaurant and would not require an additional parking space. To determine the demand generated by a 100-person event, the County's standard event occupancy rate of three persons per vehicle was used. Lastly, it was assumed that 0.86 parking spaces would be needed per employee, as mentioned above relative to the data for Census Tract 2015 that indicates that approximately 86 percent of employees drive alone to work.

Based on these assumptions and the anticipated operational parameters for each specific use provided by the project applicant, the site would need to provide a total of 196 parking spaces to accommodate the peak demand, which would occur on weekends in July and August from approximately 12:00 noon to 1:00 p.m. A summary of the parking analysis is included in Table 12.

Table 12 – Peak Demand Parking Analysis

Land Use	Units	Employee Demand	Guest Demand	Total Demand
Hotel	79 rooms, 32 empl	28	29	57
Restaurant	6,500 sf, 30 empl	26	25	51
Café and Retail	1,935 sf, 2 empl	2	3	5
Winery and Tasting Room	54 daily guests, 25 empl	22	8	30
Maintenance, Valet Parking, & Spa Empl	14 empl	12	-	12
Special Event	100 guests, *9 empl	8	33	41
Total Peak Demand		*98*	*98*	*196*
Proposed Parking Supply				**198**

Notes: empl = employee; sf = square feet; *Events would require a total of 22 employees, 13 of which would already be on-site for their regular shift

Finding – Based on shared parking concepts, the proposed parking supply of 198 spaces would be adequate to meet the peak demand of 196 spaces.

Conclusions and Recommendations

Conclusions

- The proposed project is expected to generate an average of 645 new daily vehicle trips, including 33 trips during the weekday evening peak hour and 57 trips during the weekend midday peak hour. When added to the existing trips, the site would still generate 575 less daily trips on average than if all the permitted uses were operational, including 93 fewer trips during the weekday p.m. peak hour and 150 fewer trips during the weekend midday peak hour.

- The study intersections of Lodi Lane with SR 29 and Silverado Trail are currently operating acceptably at LOS A overall during both peak hours. Upon the addition of project-related traffic to the Existing volumes, the study intersections would continue operating at the same levels of service during both peak hours.

- Upon the addition of project-related traffic to Future volumes, the intersection of Silverado Trail/Lodi Lane would be expected to operate acceptably during both peak hours based on County standards. The impact of adding project-generated traffic would therefore be *less-than-significant*.

- Under Future Conditions, SR 29/Lodi Lane would be expected to operate acceptably overall during both peak hours based on Caltrans standards; however, the Lodi Lane approach would operate at LOS E which would be considered unacceptable based on County standards. The project would be responsible for more than ten percent of the anticipated growth on the Lodi Lane approach by the year 2030 so the project's impact would be considered *significant*. Striping to provide separate left- and right-turn lanes on the Lodi Lane approach to SR 29 would reduce the project's impacts under Future Conditions to *less-than-significant*.

- Volumes would not meet peak hour signal warrants at SR 29/Lodi Lane or Silverado Trail/Lodi Lane under Existing or Future Conditions, without or with the project.

- The existing storage length in the southbound left-turn lane on SR 29 at Lodi Lane is adequate to accommodate the proposed project under all evaluated scenarios. There would be adequate space for stacking to occur on Lodi Lane at Driveway 3 without spilling into SR 29.

- Pedestrian, bicycle, and transit facilities are adequate to serve the anticipated demand.

- As proposed in the project site plan, site access and circulation are expected to operate acceptably for both passenger and emergency response vehicles.

- Adequate sight distance is available in each direction along SR 29 and Lodi Lane to accommodate all turns into and out of site driveways.

- Neither a right-turn lane nor right-turn taper would be warranted at Driveway 2 on SR 29. A left-turn lane would be warranted with or without the proposed project under the anticipated Future volumes; however, would not be necessary if left turns are prohibited at this location.

- Based on shared parking concepts, the proposed parking supply of 198 spaces would be adequate for the peak demand of 196 spaces.

Recommendations

- To mitigate the project's impact on the Lodi Lane approach to SR 29 under Future Conditions, it is recommended that the project restripe the approach to provide a dedicated right-turn lane. This improvement would reduce the delay on the Lodi Lane approach to less than the delay expected under Future Conditions without the project.

- The applicant should install signage or other appropriate measures in the southbound direction on SR 29 that prohibits left-turns at Driveway 2. All southbound left-turns into the site should occur via the existing left-turn lane at Lodi Lane. Additionally, the applicant should construct a mini pork-chop island or other similar features to delineate that only right-turns are allowed at Driveway 2.

- The applicant should be responsible for installing a speed feedback sign on Silverado Trail in the northbound direction between the driveway to Melka Estates Winery and the horizontal curve. The exact location of the sign should be coordinated with County staff.

- The applicant should continue to work with NVVTC and NVTA to ensure that sufficient right-of-way is being dedicated for the planned bicycle facilities along the project frontage. If the facilities are not constructed before the hotel project, the applicant should consider constructing the facilities as part of the project in exchange for traffic impact fee credits.

- As part of the project, a shelter and bench should be installed at the northbound transit stop along the property frontage with SR 29.

- To ensure that existing sight lines remain adequate, any landscaping within the vision triangles at the driveways on SR 29 or Lodi Lane should be planted and maintained such that it is less than three feet or more than seven feet in height to maximize clear sight lines.

- As proposed, the project should implement the TDM measures identified in this report, including carpool incentives, a guaranteed ride home program, subsidized transit passes, and bicycle trip-end facilities.

Study Participants and References

Study Participants

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Appendix A

Winery Traffic Information/Trip Generation Sheet

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Winery Traffic Information / Trip Generation Sheet

Project Name: Inn at the Abbey Project Scenario: Permitted

Traffic during a Typical Weekday

Number of FT employees: 25 x 3.05 one-way trips per employee = 76 daily trips.

Number of PT employees: 0 x 1.90 one-way trips per employee = 0 daily trips.

Average number of weekday visitors: 54 / 2.6 visitors per vehicle x 2 one-way trips = 42 daily trips.

Gallons of production: 60000 / 1,000 x .009 truck trips daily[3] x 2 one-way trips = 1 daily trips.

Total = 119 **daily trips.**

Number of total weekday trips x .38 = 45 **PM peak trips.**

Traffic during a Typical Saturday

Number of FT employees (on Saturdays): 25 x 3.05 one-way trips per employee = 76 daily trips.

Number of PT employees (on Saturdays): 0 x 1.90 one-way trips per employee = 0 daily trips.

Average number of weekend visitors: 54 / 2.8 visitors per vehicle x 2 one-way trips = 39 daily trips.

Total = 115 **daily trips.**

Number of total Saturday trips x .57 = 66 **PM peak trips.**

Traffic during a Crush Saturday

Number of FT employees (during crush): 25 x 3.05 one-way trips per employee = 76 daily trips.

Number of PT employees (during crush): 0 x 1.90 one-way trips per employee = 0 daily trips.

Average number of weekend visitors: 54 / 2.8 visitors per vehicle x 2 one-way trips = 39 daily trips.

Gallons of production: 60000 / 1,000 x .009 truck trips daily x 2 one-way trips = 1 daily trips.

Avg. annual tons of grape on-haul: 500 x .11 truck trips daily [4] x 2 one-way trips = 7 daily trips.

Total = 123 **daily trips.**

Number of total Saturday trips x .57 = 70 **PM peak trips.**

Largest Marketing Event- Additional Traffic

Number of event staff (largest event): 9 x 2 one-way trips per staff person = 18 trips.

Number of visitors (largest event): 100 / 2.8 visitors per vehicle x 2 one-way trips = 71 trips.

Number of special event truck trips (largest event): 0 x 2 one-way trips = 0 trips.

[3] Assumes 1.47 materials & supplies trips + 0.8 case goods trips per 1,000 gallons of production / 250 days per year (see *Traffic Information Sheet Addendum* for reference).

[4] Assumes 4 tons per trip / 36 crush days per year (see *Traffic Information Sheet Addendum* for reference).

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Appendix B

Collision Rate Calculations

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Intersection Collision Rate Calculations

Inn at the Abbey

Intersection # 1: SR 29 & Lodi Ln

Date of Count: Tuesday, June 25, 2019

Number of Collisions: 3
Number of Injuries: 2
Number of Fatalities: 0
ADT: 12800
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

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

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{3 \times 1{,}000{,}000}{12{,}800 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.13 c/mve**	**0.0%**	**66.7%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2014 Collision Data on California State Highways, Caltrans

Intersection # 2: Silverado Trail & Lodi Ln

Date of Count: Tuesday, June 25, 2019

Number of Collisions: 5
Number of Injuries: 2
Number of Fatalities: 0
ADT: 6000
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

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

$$\text{collision rate} = \frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Number of Years}}$$

$$\text{collision rate} = \frac{5 \times 1{,}000{,}000}{6{,}000 \times 365 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Intersection	**0.46 c/mve**	**0.0%**	**40.0%**
Statewide Average*	**0.16 c/mve**	**1.7%**	**39.2%**

ADT = average daily total vehicles entering intersection
c/mve = collisions per million vehicles entering intersection
* 2014 Collision Data on California State Highways, Caltrans

SEGMENT COLLISION RATE CALCULATIONS

Inn at the Abbey

Location: SR 29 - York Ln to Ehlers Ln

Date of Count: Tuesday, June 25, 2019
ADT: 15,000

Number of Collisions: 12
Number of Injuries: 5
Number of Fatalities: 0
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

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

Segment Length: 0.8 miles
Direction: North/South

$$\frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Segment Length x Number of Years}}$$

$$\frac{12 \times 1{,}000{,}000}{15{,}000 \times 365 \times 0.8 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.55 c/mvm**	**0.0%**	**41.7%**
Statewide Average*	**1.16 c/mvm**	**2.2%**	**44.8%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2014 Collision Data on California State Highways, Caltrans

Location: Lodi Ln - SR 29 to Silverado Trail

Date of Count: Tuesday, June 25, 2019
ADT: 1,000

Number of Collisions: 0
Number of Injuries: 0
Number of Fatalities: 0
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

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

Segment Length: 0.5 miles
Direction: East/West

$$\frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Segment Length x Number of Years}}$$

$$\frac{0 \times 1{,}000{,}000}{1{,}000 \times 365 \times 0.5 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**0.00 c/mvm**	**0.0%**	**0.0%**
Statewide Average*	**1.16 c/mvm**	**2.4%**	**40.1%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2014 Collision Data on California State Highways, Caltrans

SEGMENT COLLISION RATE CALCULATIONS

Inn at the Abbey

Location: Silverado Trail - Bournemouth Rd to Glass Mountain Rd
Date of Count: Tuesday, June 25, 2019
ADT: 5,600

Number of Collisions: 15
Number of Injuries: 3
Number of Fatalities: 0
Start Date: January 1, 2014
End Date: December 31, 2018
Number of Years: 5

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

Segment Length: 0.7 miles
Direction: North/South

$$\frac{\text{Number of Collisions x 1 Million}}{\text{ADT x 365 Days per Year x Segment Length x Number of Years}}$$

$$\frac{15 \times 1{,}000{,}000}{5{,}600 \times 365 \times 0.7 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
Study Segment	**2.10 c/mvm**	**0.0%**	**20.0%**
Statewide Average*	**1.20 c/mvm**	**2.2%**	**44.8%**

ADT = average daily traffic volume
c/mvm = collisions per million vehicle miles
* 2014 Collision Data on California State Highways, Caltrans

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Appendix C

Traffic Count Data, Existing Driveway Volumes, Heavy Vehicle Data, Future Volumes Projections

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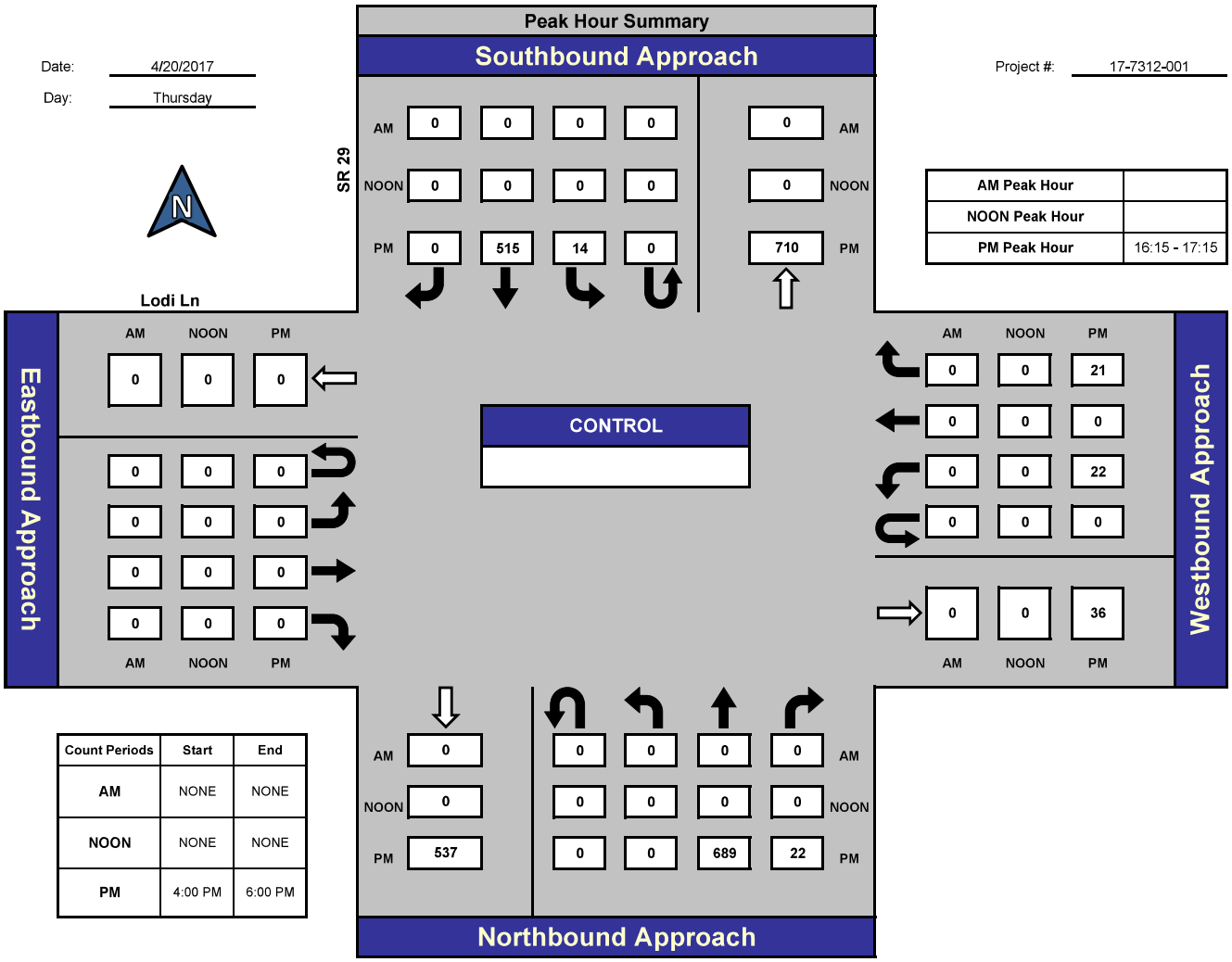
SR 29 & Lodi Ln

Date: 4/20/2017

Day: Thursday

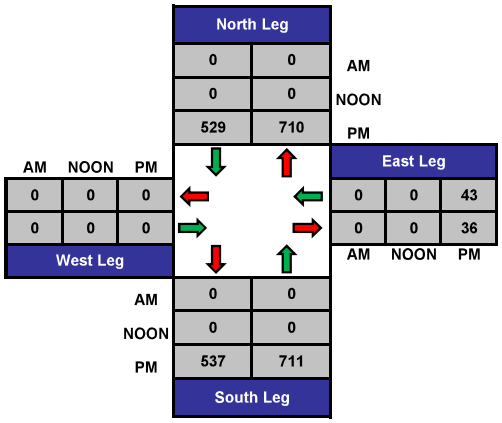
Project #: 17-7312-001



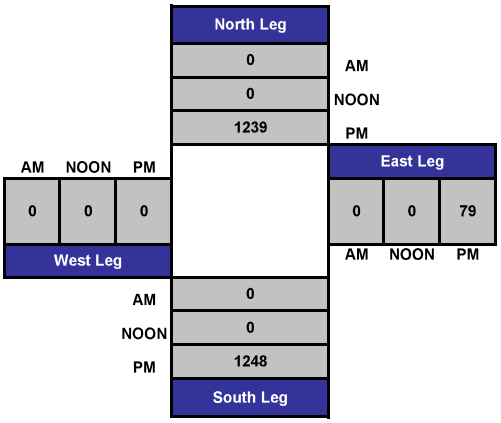
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	16:15 - 17:15

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg

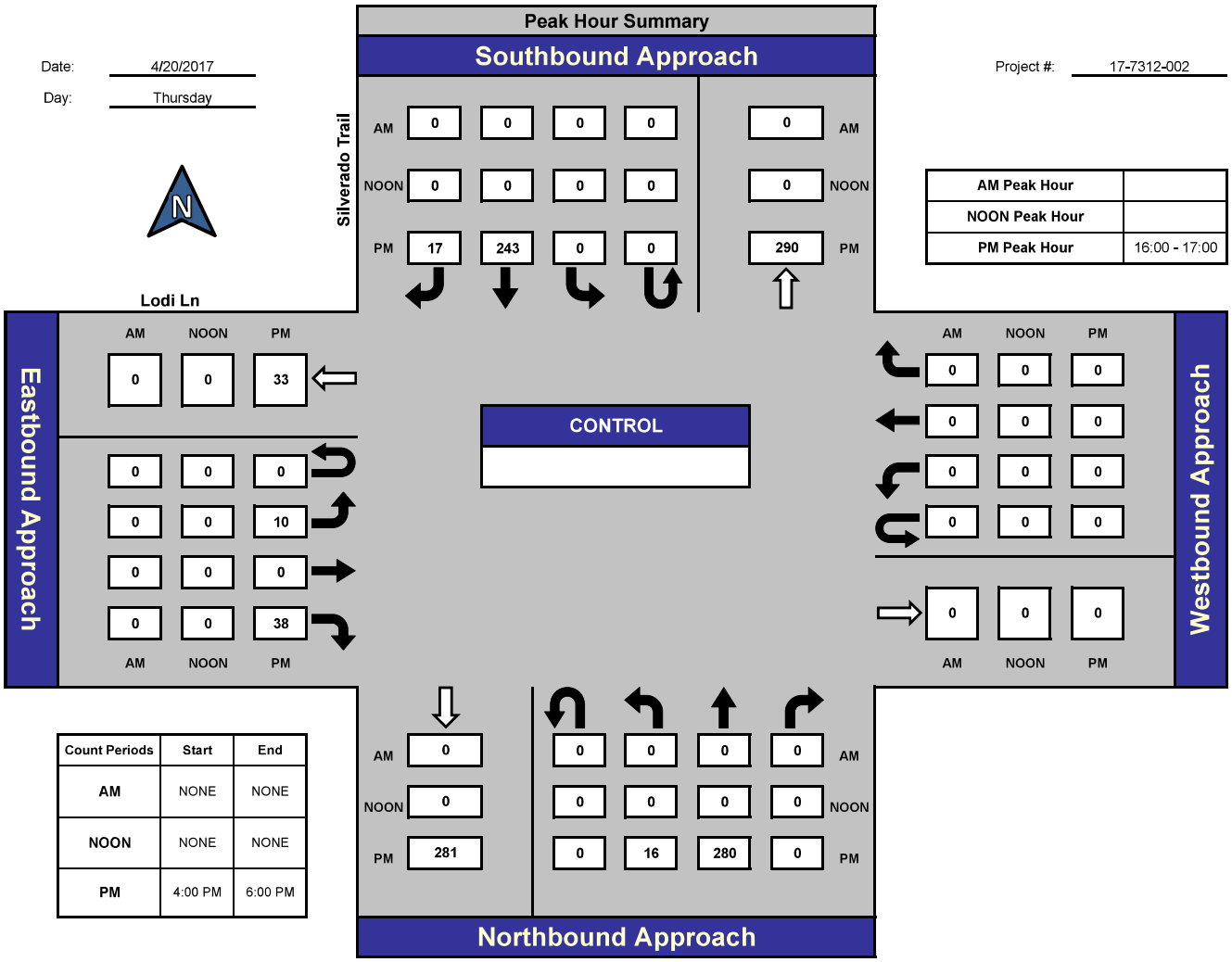


Silverado Trail & Lodi Ln

Date: 4/20/2017

Day: Thursday

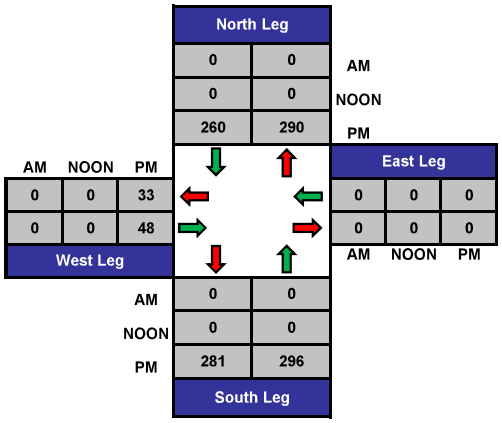
Project #: 17-7312-002



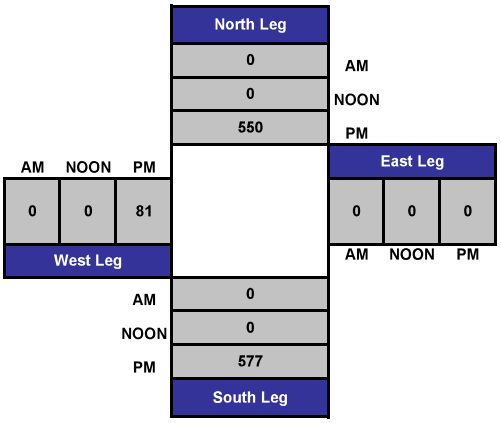
AM Peak Hour	
NOON Peak Hour	
PM Peak Hour	16:00 - 17:00

Count Periods	Start	End
AM	NONE	NONE
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Total Ins & Outs



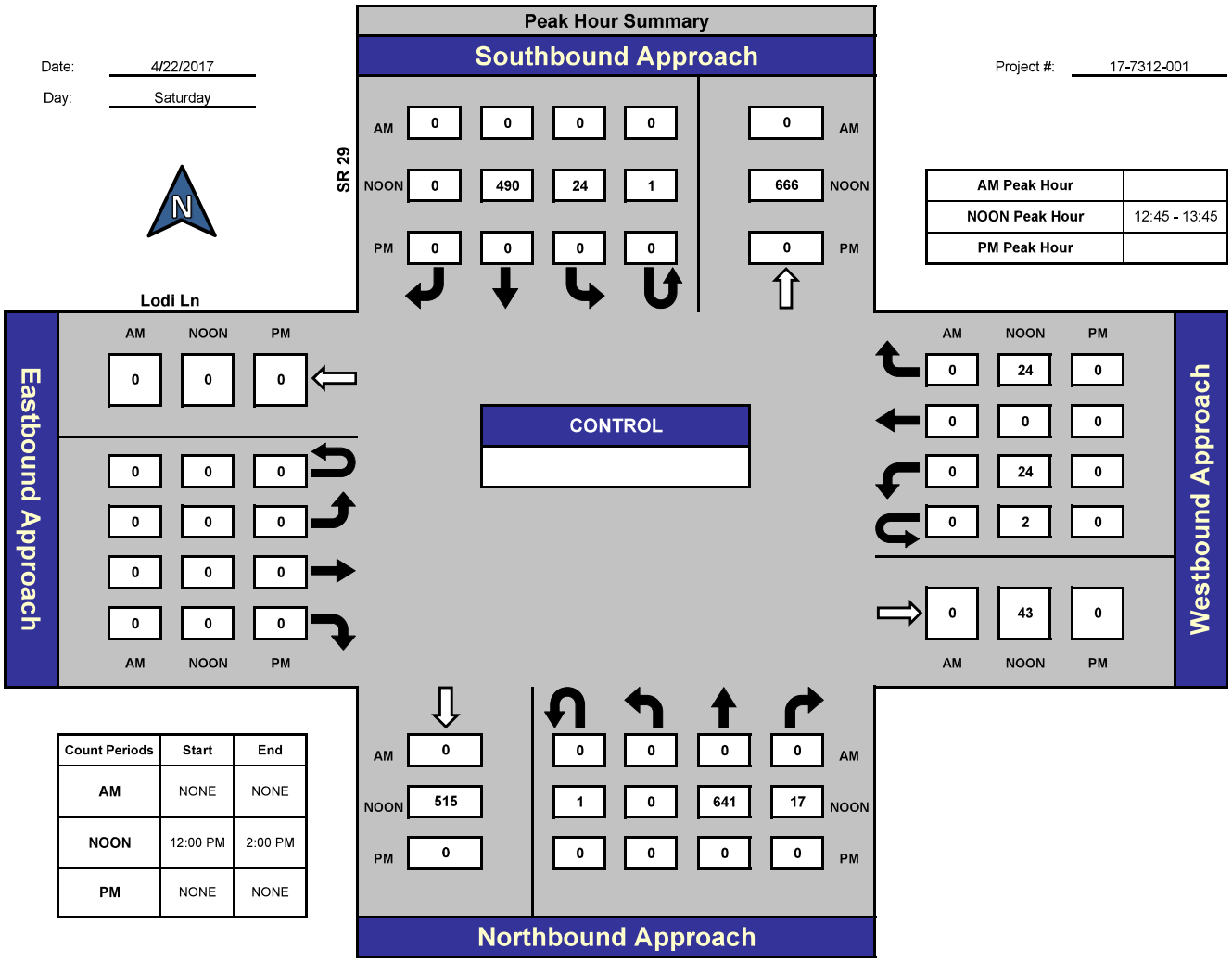
Total Volume Per Leg



SR 29 & Lodi Ln

Date: 4/22/2017
Day: Saturday

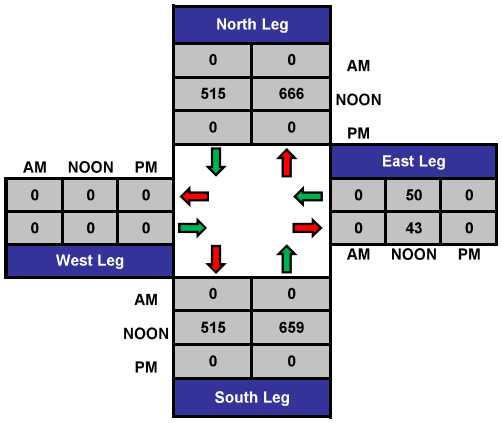
Project #: 17-7312-001



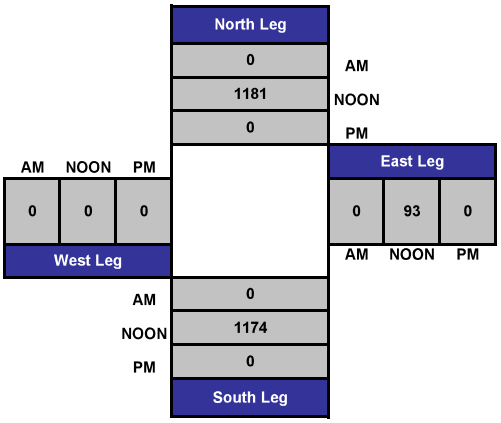
AM Peak Hour	
NOON Peak Hour	12:45 - 13:45
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:00 PM	2:00 PM
PM	NONE	NONE

Total Ins & Outs



Total Volume Per Leg

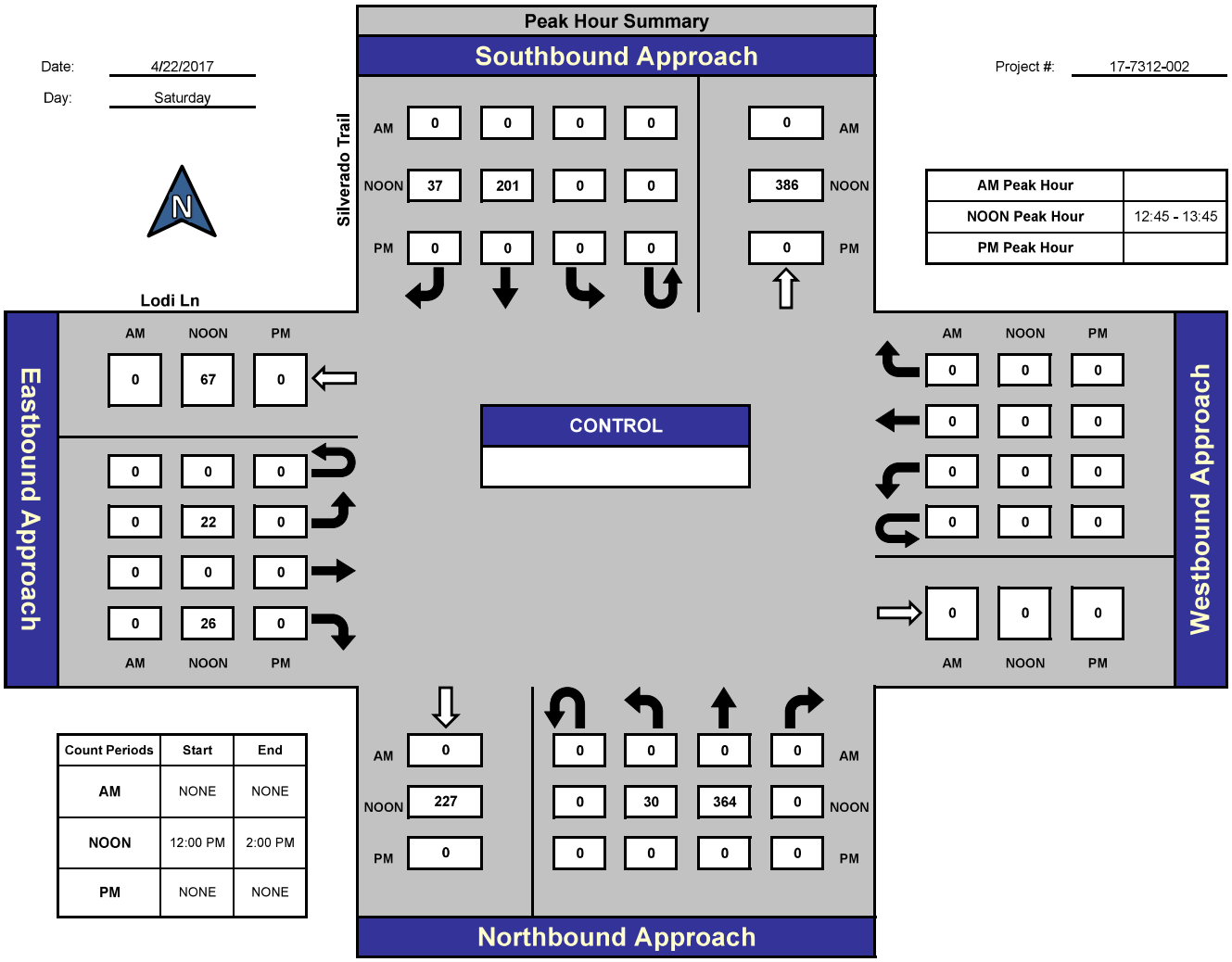


Silverado Trail & Lodi Ln

Date: 4/22/2017

Day: Saturday

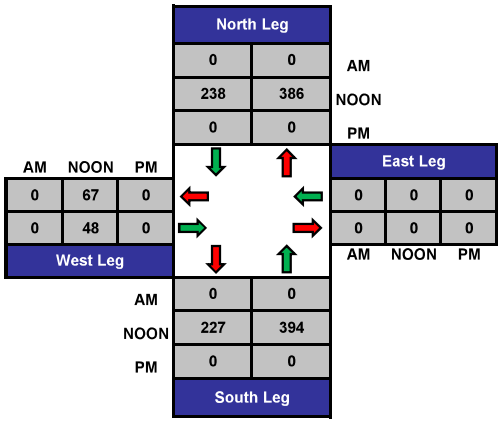
Project #: 17-7312-002



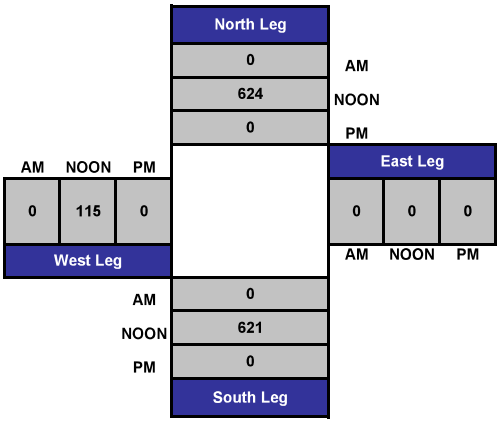
AM Peak Hour	
NOON Peak Hour	12:45 - 13:45
PM Peak Hour	

Count Periods	Start	End
AM	NONE	NONE
NOON	12:00 PM	2:00 PM
PM	NONE	NONE

Total Ins & Outs



Total Volume Per Leg



Prepared by NDS/ATD

VOLUME

SR 29 N/O Lodi Ln

Day: Thursday
Date: 4/20/2017

City: St Helena
Project #: CA17_7313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	7,731	7,523	0	0	15,254

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	5		4				9		12:00	155		106				261	
00:15	7		5				12		12:15	130		114				244	
00:30	5		6				11		12:30	141		117				258	
00:45	5	22	4	19			9	41	12:45	134	560	121	458			255	1018
01:00	4		4				8		13:00	140		131				271	
01:15	4		5				9		13:15	131		135				266	
01:30	2		8				10		13:30	123		130				253	
01:45	1	11	5	22			6	33	13:45	137	531	142	538			279	1069
02:00	2		5				7		14:00	155		122				277	
02:15	5		2				7		14:15	145		131				276	
02:30	4		1				5		14:30	153		138				291	
02:45	4	15	5	13			9	28	14:45	139	592	121	512			260	1104
03:00	3		4				7		15:00	176		132				308	
03:15	5		5				10		15:15	187		133				320	
03:30	3		8				11		15:30	163		186				349	
03:45	9	20	3	20			12	40	15:45	175	701	181	632			356	1333
04:00	6		5				11		16:00	168		141				309	
04:15	7		13				20		16:15	179		140				319	
04:30	13		10				23		16:30	176		128				304	
04:45	21	47	19	47			40	94	16:45	180	703	137	546			317	1249
05:00	20		26				46		17:00	179		131				310	
05:15	20		26				46		17:15	202		101				303	
05:30	32		46				78		17:30	183		120				303	
05:45	35	107	86	184			121	291	17:45	159	723	101	453			260	1176
06:00	62		104				166		18:00	118		116				234	
06:15	80		119				199		18:15	107		94				201	
06:30	88		139				227		18:30	94		99				193	
06:45	85	315	174	536			259	851	18:45	87	406	92	401			179	807
07:00	76		105				181		19:00	72		67				139	
07:15	101		128				229		19:15	57		71				128	
07:30	77		159				236		19:30	80		53				133	
07:45	88	342	133	525			221	867	19:45	53	262	60	251			113	513
08:00	101		134				235		20:00	59		71				130	
08:15	97		156				253		20:15	64		56				120	
08:30	100		144				244		20:30	43		50				93	
08:45	122	420	124	558			246	978	20:45	47	213	31	208			78	421
09:00	111		128				239		21:00	40		47				87	
09:15	120		121				241		21:15	43		35				78	
09:30	106		114				220		21:30	27		26				53	
09:45	117	454	141	504			258	958	21:45	32	142	26	134			58	276
10:00	110		108				218		22:00	25		23				48	
10:15	123		99				222		22:15	39		23				62	
10:30	105		96				201		22:30	27		17				44	
10:45	137	475	127	430			264	905	22:45	14	105	18	81			32	186
11:00	124		112				236		23:00	24		12				36	
11:15	127		101				228		23:15	21		14				35	
11:30	101		97				198		23:30	18		10				28	
11:45	137	489	92	402			229	891	23:45	13	76	13	49			26	125
TOTALS		2717		3260				5977	TOTALS		5014		4263				9277
SPLIT %		45.5%		54.5%				39.2%	SPLIT %		54.0%		46.0%				60.8%

DAILY TOTALS	NB	SB	EB	WB	Total
	7,731	7,523	0	0	15,254

AM Peak Hour	11:45	07:30				11:45	PM Peak Hour	16:45	15:30				15:15
AM Pk Volume	563	582				992	PM Pk Volume	744	648				1334
Pk Hr Factor	0.908	0.915				0.950	Pk Hr Factor	0.921	0.871				0.937
7 - 9 Volume	762	1083	0	0		1845	4 - 6 Volume	1426	999	0	0		2425
7 - 9 Peak Hour	08:00	07:30				08:00	4 - 6 Peak Hour	16:45	16:00				16:15
7 - 9 Pk Volume	420	582	0	0		978	4 - 6 Pk Volume	744	546	0	0		1250
Pk Hr Factor	0.861	0.915	0.000	0.000		0.966	Pk Hr Factor	0.921	0.968	0.000	0.000		0.980

Prepared by NDS/ATD

VOLUME

SR 29 N/O Lodi Ln

Day: Friday
Date: 4/21/2017

City: St Helena
Project #: CA17_7313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	8,130	7,814	0	0	15,944

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	9		12				21		12:00	126		122				248	
00:15	8		5				13		12:15	150		138				288	
00:30	7		4				11		12:30	138		124				262	
00:45	11	35	3	24			14	59	12:45	156	570	107	491			263	1061
01:00	6		5				11		13:00	143		164				307	
01:15	1		2				3		13:15	157		116				273	
01:30	5		2				7		13:30	134		129				263	
01:45	2	14	5	14			7	28	13:45	151	585	142	551			293	1136
02:00	2		3				5		14:00	139		124				263	
02:15	4		2				6		14:15	161		135				296	
02:30	7		2				9		14:30	163		123				286	
02:45	4	17	5	12			9	29	14:45	190	653	147	529			337	1182
03:00	3		7				10		15:00	180		160				340	
03:15	3		3				6		15:15	173		129				302	
03:30	7		9				16		15:30	177		158				335	
03:45	5	18	7	26			12	44	15:45	177	707	144	591			321	1298
04:00	9		6				15		16:00	178		154				332	
04:15	8		7				15		16:15	172		154				326	
04:30	16		11				27		16:30	185		149				334	
04:45	26	59	19	43			45	102	16:45	175	710	151	608			326	1318
05:00	14		31				45		17:00	191		135				326	
05:15	20		34				54		17:15	190		132				322	
05:30	28		53				81		17:30	165		141				306	
05:45	34	96	100	218			134	314	17:45	163	709	126	534			289	1243
06:00	50		113				163		18:00	121		114				235	
06:15	77		118				195		18:15	129		109				238	
06:30	89		166				255		18:30	81		66				147	
06:45	70	286	128	525			198	811	18:45	96	427	93	382			189	809
07:00	73		111				184		19:00	83		70				153	
07:15	82		100				182		19:15	75		68				143	
07:30	100		143				243		19:30	72		63				135	
07:45	75	330	154	508			229	838	19:45	56	286	47	248			103	534
08:00	106		137				243		20:00	58		69				127	
08:15	91		135				226		20:15	52		52				104	
08:30	90		131				221		20:30	86		39				125	
08:45	110	397	153	556			263	953	20:45	56	252	45	205			101	457
09:00	115		133				248		21:00	61		43				104	
09:15	115		137				252		21:15	52		37				89	
09:30	121		105				226		21:30	41		27				68	
09:45	120	471	130	505			250	976	21:45	41	195	45	152			86	347
10:00	132		99				231		22:00	40		41				81	
10:15	140		107				247		22:15	39		32				71	
10:30	129		112				241		22:30	27		26				53	
10:45	127	528	104	422			231	950	22:45	35	141	24	123			59	264
11:00	141		105				246		23:00	34		20				54	
11:15	133		130				263		23:15	29		15				44	
11:30	134		104				238		23:30	24		16				40	
11:45	128	536	145	484			273	1020	23:45	21	108	12	63			33	171
TOTALS		2787		3337				6124	TOTALS		5343		4477				9820
SPLIT %		45.5%		54.5%				38.4%	SPLIT %		54.4%		45.6%				61.6%

DAILY TOTALS	NB	SB	EB	WB	Total
	8,130	7,814	0	0	15,944

AM Peak Hour	11:45	07:30					11:45		PM Peak Hour	16:30	15:30					16:00		
AM Pk Volume	542	569					1071		PM Pk Volume	741	610					1318		
Pk Hr Factor	0.903	0.924					0.930		Pk Hr Factor	0.970	0.965					0.987		
7 - 9 Volume	727	1064	0	0			1791		4 - 6 Volume	1419	1142	0	0			2561		
7 - 9 Peak Hour	08:00	07:30					08:00		4 - 6 Peak Hour	16:30	16:00					16:00		
7 - 9 Pk Volume	397	569	0	0			953		4 - 6 Pk Volume	741	608	0	0			1318		
Pk Hr Factor	0.902	0.924	0.000	0.000			0.906		Pk Hr Factor	0.970	0.987	0.000	0.000			0.987		

Prepared by NDS/ATD

VOLUME

SR 29 N/O Lodi Ln

Day: Saturday
Date: 4/22/2017

City: St Helena
Project #: CA17_7313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	7,308	7,172	0	0	14,480

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	17		17				34		12:00	160		125				285	
00:15	8		10				18		12:15	156		136				292	
00:30	5		11				16		12:30	142		118				260	
00:45	10	40	8	46			18	86	12:45	153	611	138	517			291	1128
01:00	10		15				25		13:00	177		129				306	
01:15	7		8				15		13:15	168		97				265	
01:30	4		9				13		13:30	170		149				319	
01:45	3	24	13	45			16	69	13:45	146	661	143	518			289	1179
02:00	8		5				13		14:00	177		144				321	
02:15	1		8				9		14:15	144		141				285	
02:30	6		6				12		14:30	171		168				339	
02:45	4	19	3	22			7	41	14:45	175	667	122	575			297	1242
03:00	4		5				9		15:00	159		181				340	
03:15	3		2				5		15:15	178		160				338	
03:30	5		6				11		15:30	166		187				353	
03:45	3	15	7	20			10	35	15:45	168	671	201	729			369	1400
04:00	8		8				16		16:00	160		191				351	
04:15	5		3				8		16:15	143		136				279	
04:30	6		5				11		16:30	124		168				292	
04:45	9	28	14	30			23	58	16:45	142	569	139	634			281	1203
05:00	11		9				20		17:00	134		156				290	
05:15	15		24				39		17:15	135		156				291	
05:30	19		23				42		17:30	106		135				241	
05:45	26	71	64	120			90	191	17:45	125	500	133	580			258	1080
06:00	40		72				112		18:00	111		127				238	
06:15	43		51				94		18:15	108		105				213	
06:30	36		63				99		18:30	73		93				166	
06:45	64	183	49	235			113	418	18:45	62	354	88	413			150	767
07:00	53		41				94		19:00	65		83				148	
07:15	49		58				107		19:15	53		64				117	
07:30	50		71				121		19:30	55		71				126	
07:45	58	210	67	237			125	447	19:45	55	228	69	287			124	515
08:00	61		58				119		20:00	48		47				95	
08:15	66		54				120		20:15	61		77				138	
08:30	75		69				144		20:30	42		64				106	
08:45	95	297	79	260			174	557	20:45	49	200	67	255			116	455
09:00	109		77				186		21:00	40		107				147	
09:15	105		104				209		21:15	40		46				86	
09:30	111		92				203		21:30	39		38				77	
09:45	145	470	97	370			242	840	21:45	30	149	51	242			81	391
10:00	146		82				228		22:00	50		34				84	
10:15	104		87				191		22:15	47		38				85	
10:30	129		110				239		22:30	22		47				69	
10:45	144	523	105	384			249	907	22:45	35	154	21	140			56	294
11:00	128		112				240		23:00	30		34				64	
11:15	140		105				245		23:15	31		21				52	
11:30	124		110				234		23:30	20		19				39	
11:45	168	560	102	429			270	989	23:45	23	104	10	84			33	188
TOTALS		2440		2198				**4638**	**TOTALS**		4868		4974				**9842**
SPLIT %		52.6%		47.4%				**32.0%**	**SPLIT %**		49.5%		50.5%				**68.0%**

DAILY TOTALS	NB	SB	EB	WB	Total
	7,308	7,172	0	0	14,480

AM Peak Hour	11:45	11:45					**11:45**		**PM Peak Hour**	14:30	15:15					**15:15**		
AM Pk Volume	626	481					**1107**		**PM Pk Volume**	683	739					**1411**		
Pk Hr Factor	0.932	0.884					**0.948**		**Pk Hr Factor**	0.959	0.919					**0.956**		
7 - 9 Volume	507	497	0	0			**1004**		**4 - 6 Volume**	1069	1214	0	0			**2283**		
7 - 9 Peak Hour	08:00	08:00					**08:00**		**4 - 6 Peak Hour**	16:00	16:00					**16:00**		
7 - 9 Pk Volume	297	260	0	0			**557**		**4 - 6 Pk Volume**	569	634	0	0			**1203**		
Pk Hr Factor	0.782	0.823	0.000	0.000			**0.800**		**Pk Hr Factor**	0.889	0.830	0.000	0.000			**0.857**		

Prepared by NDS/ATD

VOLUME

SR 29 N/O Lodi Ln

Day: Sunday
Date: 4/23/2017

City: St Helena
Project #: CA17_7313_001

DAILY TOTALS	NB	SB	EB	WB	Total
	5,982	6,682	0	0	12,664

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	19		19				38		12:00	113		131				244	
00:15	16		13				29		12:15	121		143				264	
00:30	15		7				22		12:30	129		151				280	
00:45	12	62	13	52			25	114	12:45	141	504	117	542			258	1046
01:00	17		13				30		13:00	129		153				282	
01:15	7		5				12		13:15	122		146				268	
01:30	4		6				10		13:30	116		159				275	
01:45	5	33	4	28			9	61	13:45	133	500	126	584			259	1084
02:00	4		2				6		14:00	141		152				293	
02:15	3		8				11		14:15	138		117				255	
02:30	2		5				7		14:30	117		134				251	
02:45	6	15	4	19			10	34	14:45	140	536	143	546			283	1082
03:00	3		5				8		15:00	131		148				279	
03:15	2		4				6		15:15	136		151				287	
03:30	3		3				6		15:30	126		140				266	
03:45	0	8	10	22			10	30	15:45	130	523	138	577			268	1100
04:00	1		5				6		16:00	120		160				280	
04:15	0		5				5		16:15	103		139				242	
04:30	6		6				12		16:30	104		124				228	
04:45	8	15	7	23			15	38	16:45	104	431	145	568			249	999
05:00	9		7				16		17:00	121		124				245	
05:15	6		8				14		17:15	84		133				217	
05:30	9		11				20		17:30	86		123				209	
05:45	10	34	22	48			32	82	17:45	90	381	146	526			236	907
06:00	34		14				48		18:00	71		124				195	
06:15	17		22				39		18:15	96		104				200	
06:30	20		29				49		18:30	64		84				148	
06:45	34	105	29	94			63	199	18:45	63	294	70	382			133	676
07:00	54		24				78		19:00	39		73				112	
07:15	46		27				73		19:15	54		68				122	
07:30	50		51				101		19:30	64		49				113	
07:45	38	188	49	151			87	339	19:45	59	216	58	248			117	464
08:00	57		49				106		20:00	49		61				110	
08:15	60		75				135		20:15	37		52				89	
08:30	81		87				168		20:30	56		29				85	
08:45	136	334	67	278			203	612	20:45	50	192	51	193			101	385
09:00	83		105				188		21:00	40		38				78	
09:15	100		119				219		21:15	38		23				61	
09:30	107		120				227		21:30	30		26				56	
09:45	97	387	132	476			229	863	21:45	38	146	26	113			64	259
10:00	105		120				225		22:00	29		21				50	
10:15	98		144				242		22:15	20		20				40	
10:30	103		131				234		22:30	28		21				49	
10:45	117	423	125	520			242	943	22:45	20	97	17	79			37	176
11:00	108		146				254		23:00	19		10				29	
11:15	128		147				275		23:15	17		10				27	
11:30	133		142				275		23:30	11		11				22	
11:45	130	499	134	569			264	1068	23:45	12	59	13	44			25	103
TOTALS		2103		2280				4383	TOTALS		3879		4402				8281
SPLIT %		48.0%		52.0%				34.6%	SPLIT %		46.8%		53.2%				65.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	5,982	6,682	0	0	12,664

AM Peak Hour	11:15	11:00			11:00	PM Peak Hour	14:00	15:15			14:45
AM Pk Volume	504	569			1068	PM Pk Volume	536	589			1115
Pk Hr Factor	0.947	0.968			0.971	Pk Hr Factor	0.950	0.920			0.971
7 - 9 Volume	522	429	0	0	951	4 - 6 Volume	812	1094	0	0	1906
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:15	16:00			16:00
7 - 9 Pk Volume	334	278	0	0	612	4 - 6 Pk Volume	432	568	0	0	999
Pk Hr Factor	0.614	0.799	0.000	0.000	0.754	Pk Hr Factor	0.893	0.888	0.000	0.000	0.892

Prepared by NDS/ATD

VOLUME

Lodi Ln E/O SR 29

Day: Thursday
Date: 4/20/2017

City: St Helena
Project #: CA17_7313_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	499	571	1,070

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		1		1		12:00			9		12		21	
00:15			0		0		0		12:15			6		17		23	
00:30			2		0		2		12:30			6		15		21	
00:45			0	2	0	1	0	3	12:45			7	28	15	59	22	87
01:00			1		0		1		13:00			16		6		22	
01:15			0		0		0		13:15			10		13		23	
01:30			0		0		0		13:30			12		11		23	
01:45			0	1	0		0	1	13:45			14	52	4	34	18	86
02:00			0		0		0		14:00			7		6		13	
02:15			1		1		2		14:15			12		14		26	
02:30			2		1		3		14:30			9		12		21	
02:45			0	3	0	2	0	5	14:45			10	38	11	43	21	81
03:00			0		0		0		15:00			12		17		29	
03:15			0		0		0		15:15			6		10		16	
03:30			0		0		0		15:30			4		21		25	
03:45			2	2	0		2	2	15:45			11	33	10	58	21	91
04:00			1		0		1		16:00			10		19		29	
04:15			2		1		3		16:15			8		9		17	
04:30			0		0		0		16:30			10		10		20	
04:45			0	3	0	1	0	4	16:45			3	31	8	46	11	77
05:00			0		0		0		17:00			11		13		24	
05:15			2		2		4		17:15			12		10		22	
05:30			1		1		2		17:30			10		11		21	
05:45			1	4	2	5	3	9	17:45			10	43	8	42	18	85
06:00			6		3		9		18:00			7		6		13	
06:15			4		3		7		18:15			2		8		10	
06:30			9		2		11		18:30			7		4		11	
06:45			10	29	5	13	15	42	18:45			5	21	4	22	9	43
07:00			4		5		9		19:00			5		5		10	
07:15			3		6		9		19:15			5		9		14	
07:30			6		4		10		19:30			2		4		6	
07:45			11	24	13	28	24	52	19:45			1	13	1	19	2	32
08:00			7		9		16		20:00			4		3		7	
08:15			11		10		21		20:15			4		3		7	
08:30			8		12		20		20:30			4		4		8	
08:45			9	35	17	48	26	83	20:45			4	16	2	12	6	28
09:00			5		9		14		21:00			4		1		5	
09:15			11		8		19		21:15			0		4		4	
09:30			9		11		20		21:30			3		1		4	
09:45			6	31	13	41	19	72	21:45			3	10	0	6	3	16
10:00			6		12		18		22:00			6		2		8	
10:15			10		16		26		22:15			2		1		3	
10:30			9		8		17		22:30			2		1		3	
10:45			6	31	6	42	12	73	22:45			2	12	1	5	3	17
11:00			8		12		20		23:00			2		0		2	
11:15			11		8		19		23:15			1		0		1	
11:30			6		16		22		23:30			0		1		1	
11:45			9	34	7	43	16	77	23:45			0	3	0	1	0	4
TOTALS				199		224		**423**	**TOTALS**				300		347		**647**
SPLIT %				47.0%		53.0%		**39.5%**	**SPLIT %**				46.4%		53.6%		**60.5%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	499	571	1,070

AM Peak Hour				07:45		09:30		**08:00**	**PM Peak Hour**				13:00		15:15		**14:15**
AM Pk Volume				37		52		**83**	**PM Pk Volume**				52		60		**97**
Pk Hr Factor				0.841		0.813		**0.798**	**Pk Hr Factor**				0.813		0.714		**0.836**
7 - 9 Volume	0	0		59		76		**135**	**4 - 6 Volume**	0	0		74		88		**162**
7 - 9 Peak Hour				07:45		08:00		**08:00**	**4 - 6 Peak Hour**				17:00		16:00		**17:00**
7 - 9 Pk Volume	0	0		37		48		**83**	**4 - 6 Pk Volume**	0	0		43		46		**85**
Pk Hr Factor	0.000	0.000		0.841		0.706		**0.798**	**Pk Hr Factor**	0.000	0.000		0.896		0.605		**0.885**

Prepared by NDS/ATD

VOLUME

Lodi Ln E/O SR 29

Day: Friday
Date: 4/21/2017

City: St Helena
Project #: CA17_7313_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	537	646	1,183

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			12		16		28	
00:15			0		0		0		12:15			14		17		31	
00:30			1		1		2		12:30			9		21		30	
00:45			0	2	0	1	0	3	12:45			11	46	16	70	27	116
01:00			0		0		0		13:00			11		14		25	
01:15			0		0		0		13:15			9		7		16	
01:30			0		0		0		13:30			16		9		25	
01:45			1	1	0		1	1	13:45			15	51	8	38	23	89
02:00			0		0		0		14:00			8		14		22	
02:15			0		0		0		14:15			7		16		23	
02:30			2		1		3		14:30			9		9		18	
02:45			1	3	0	1	1	4	14:45			13	37	12	51	25	88
03:00			0		0		0		15:00			15		13		28	
03:15			0		0		0		15:15			12		13		25	
03:30			1		0		1		15:30			5		15		20	
03:45			0	1	0		0	1	15:45			6	38	24	65	30	103
04:00			1		1		2		16:00			8		14		22	
04:15			2		0		2		16:15			20		14		34	
04:30			3		4		7		16:30			8		15		23	
04:45			0	6	1	6	1	12	16:45			9	45	14	57	23	102
05:00			0		0		0		17:00			5		15		20	
05:15			0		0		0		17:15			10		10		20	
05:30			0		2		2		17:30			8		10		18	
05:45			5	5	2	4	7	9	17:45			9	32	5	40	14	72
06:00			9		2		11		18:00			9		4		13	
06:15			4		6		10		18:15			8		6		14	
06:30			6		3		9		18:30			3		4		7	
06:45			11	30	2	13	13	43	18:45			2	22	4	18	6	40
07:00			1		2		3		19:00			8		3		11	
07:15			3		14		17		19:15			3		0		3	
07:30			6		10		16		19:30			4		5		9	
07:45			9	19	11	37	20	56	19:45			4	19	0	8	4	27
08:00			8		12		20		20:00			2		3		5	
08:15			9		11		20		20:15			6		2		8	
08:30			3		7		10		20:30			2		3		5	
08:45			6	26	23	53	29	79	20:45			4	14	4	12	8	26
09:00			12		11		23		21:00			8		3		11	
09:15			8		14		22		21:15			3		4		7	
09:30			10		9		19		21:30			2		0		2	
09:45			8	38	6	40	14	78	21:45			4	17	2	9	6	26
10:00			6		27		33		22:00			2		2		4	
10:15			5		17		22		22:15			2		2		4	
10:30			10		6		16		22:30			4		2		6	
10:45			13	34	8	58	21	92	22:45			3	11	1	7	4	18
11:00			11		10		21		23:00			1		2		3	
11:15			6		15		21		23:15			0		1		1	
11:30			15		14		29		23:30			2		0		2	
11:45			5	37	16	55	21	92	23:45			0	3	0	3	0	6
TOTALS				202		268		**470**	**TOTALS**				335		378		**713**
SPLIT %				43.0%		57.0%		**39.7%**	**SPLIT %**				47.0%		53.0%		**60.3%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	537	646	1,183

AM Peak Hour			11:30	11:45	**11:45**	**PM Peak Hour**			13:00	12:00	**12:00**
AM Pk Volume			46	70	**110**	**PM Pk Volume**			51	70	**116**
Pk Hr Factor			0.767	0.833	**0.887**	**Pk Hr Factor**			0.797	0.833	**0.935**
7 - 9 Volume	0	0	45	90	**135**	**4 - 6 Volume**	0	0	77	97	**174**
7 - 9 Peak Hour			07:30	08:00	**08:00**	**4 - 6 Peak Hour**			16:00	16:15	**16:00**
7 - 9 Pk Volume	0	0	32	53	**79**	**4 - 6 Pk Volume**	0	0	45	58	**102**
Pk Hr Factor	0.000	0.000	0.889	0.576	**0.681**	**Pk Hr Factor**	0.000	0.000	0.563	0.967	**0.750**

Prepared by NDS/ATD

VOLUME

Lodi Ln E/O SR 29

Day: Saturday
Date: 4/22/2017

City: St Helena
Project #: CA17_7313_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	436	524	960

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			1		0		1		12:00			5		18		23	
00:15			0		0		0		12:15			7		19		26	
00:30			1		0		1		12:30			5		7		12	
00:45			0	2	0		0	2	12:45			12	29	8	52	20	81
01:00			0		0		0		13:00			6		13		19	
01:15			0		0		0		13:15			6		13		19	
01:30			2		0		2		13:30			12		9		21	
01:45			0	2	1	1	1	3	13:45			10	34	8	43	18	77
02:00			1		0		1		14:00			10		14		24	
02:15			1		0		1		14:15			4		9		13	
02:30			0		0		0		14:30			6		5		11	
02:45			1	3	1	1	2	4	14:45			8	28	12	40	20	68
03:00			0		0		0		15:00			12		11		23	
03:15			0		0		0		15:15			5		15		20	
03:30			0		0		0		15:30			9		12		21	
03:45			0		0		0		15:45			13	39	11	49	24	88
04:00			0		0		0		16:00			11		7		18	
04:15			0		0		0		16:15			13		12		25	
04:30			0		0		0		16:30			6		8		14	
04:45			0		0		0		16:45			7	37	14	41	21	78
05:00			0		0		0		17:00			8		11		19	
05:15			1		0		1		17:15			11		10		21	
05:30			0		0		0		17:30			8		6		14	
05:45			2	3	2	2	4	5	17:45			6	33	4	31	10	64
06:00			1		2		3		18:00			14		12		26	
06:15			1		0		1		18:15			5		6		11	
06:30			5		1		6		18:30			3		2		5	
06:45			7	14	2	5	9	19	18:45			4	26	3	23	7	49
07:00			3		5		8		19:00			10		5		15	
07:15			2		7		9		19:15			3		3		6	
07:30			0		5		5		19:30			4		6		10	
07:45			3	8	4	21	7	29	19:45			7	24	3	17	10	41
08:00			8		8		16		20:00			8		3		11	
08:15			9		3		12		20:15			7		2		9	
08:30			7		5		12		20:30			3		2		5	
08:45			5	29	5	21	10	50	20:45			5	23	4	11	9	34
09:00			1		12		13		21:00			0		3		3	
09:15			9		7		16		21:15			2		2		4	
09:30			6		7		13		21:30			4		3		7	
09:45			8	24	9	35	17	59	21:45			2	8	3	11	5	19
10:00			7		16		23		22:00			3		1		4	
10:15			9		10		19		22:15			3		3		6	
10:30			9		15		24		22:30			2		1		3	
10:45			5	30	8	49	13	79	22:45			0	8	2	7	2	15
11:00			6		15		21		23:00			0		0		0	
11:15			6		14		20		23:15			3		2		5	
11:30			5		17		22		23:30			0		2		2	
11:45			11	28	13	59	24	87	23:45			1	4	1	5	2	9
TOTALS				143		194		**337**	**TOTALS**				293		330		**623**
SPLIT %				42.4%		57.6%		**35.1%**	**SPLIT %**				47.0%		53.0%		**64.9%**

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	436	524	960

AM Peak Hour			09:45	11:30	**11:30**	**PM Peak Hour**			15:30	12:00	**15:00**
AM Pk Volume			33	67	**95**	**PM Pk Volume**			46	52	**88**
Pk Hr Factor			0.917	0.882	**0.913**	**Pk Hr Factor**			0.885	0.684	**0.917**
7 - 9 Volume	0	0	37	42	**79**	**4 - 6 Volume**	0	0	70	72	**142**
7 - 9 Peak Hour			08:00	07:15	**08:00**	**4 - 6 Peak Hour**			16:00	16:15	**16:15**
7 - 9 Pk Volume	0	0	29	24	**50**	**4 - 6 Pk Volume**	0	0	37	45	**79**
Pk Hr Factor	0.000	0.000	0.806	0.750	**0.781**	**Pk Hr Factor**	0.000	0.000	0.712	0.804	**0.790**

Prepared by NDS/ATD

VOLUME

Lodi Ln E/O SR 29

Day: Sunday
Date: 4/23/2017

City: St Helena
Project #: CA17_7313_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	401	384	785

AM Period	NB		SB		EB		WB		TOTAL	
00:00					0		1		1	
00:15					0		3		3	
00:30					0		0		0	
00:45					0		0	4	0	4
01:00					1		1		2	
01:15					1		0		1	
01:30					1		0		1	
01:45					0	3	0	1	0	4
02:00					0		0		0	
02:15					2		0		2	
02:30					0		0		0	
02:45					1	3	1	1	2	4
03:00					0		0		0	
03:15					0		2		2	
03:30					0		0		0	
03:45					1	1	0	2	1	3
04:00					0		0		0	
04:15					0		0		0	
04:30					0		0		0	
04:45					0		0		0	
05:00					0		0		0	
05:15					0		0		0	
05:30					1		1		2	
05:45					1	2	1	2	2	4
06:00					0		1		1	
06:15					0		1		1	
06:30					1		0		1	
06:45					2	3	2	4	4	7
07:00					2		1		3	
07:15					2		1		3	
07:30					4		2		6	
07:45					3	11	7	11	10	22
08:00					7		5		12	
08:15					5		8		13	
08:30					14		10		24	
08:45					9	35	16	39	25	74
09:00					4		6		10	
09:15					13		5		18	
09:30					13		6		19	
09:45					12	42	9	26	21	68
10:00					14		9		23	
10:15					8		7		15	
10:30					8		10		18	
10:45					8	38	7	33	15	71
11:00					11		17		28	
11:15					8		12		20	
11:30					5		12		17	
11:45					7	31	9	50	16	81
TOTALS						169		173		342
SPLIT %						49.4%		50.6%		43.6%

PM Period	NB		SB		EB		WB		TOTAL	
12:00					4		7		11	
12:15					6		12		18	
12:30					6		14		20	
12:45					8	24	4	37	12	61
13:00					10		7		17	
13:15					5		4		9	
13:30					10		11		21	
13:45					8	33	7	29	15	62
14:00					14		8		22	
14:15					7		3		10	
14:30					4		13		17	
14:45					5	30	7	31	12	61
15:00					15		7		22	
15:15					7		6		13	
15:30					4		11		15	
15:45					9	35	9	33	18	68
16:00					4		4		8	
16:15					10		5		15	
16:30					5		5		10	
16:45					6	25	5	19	11	44
17:00					4		6		10	
17:15					4		4		8	
17:30					4		6		10	
17:45					8	20	3	19	11	39
18:00					4		10		14	
18:15					2		4		6	
18:30					1		3		4	
18:45					5	12	1	18	6	30
19:00					1		3		4	
19:15					6		4		10	
19:30					2		7		9	
19:45					4	13	1	15	5	28
20:00					2		1		3	
20:15					3		1		4	
20:30					8		0		8	
20:45					1	14	1	3	2	17
21:00					7		3		10	
21:15					4		2		6	
21:30					3		0		3	
21:45					1	15	0	5	1	20
22:00					1		0		1	
22:15					3		0		3	
22:30					3		2		5	
22:45					2	9	0	2	2	11
23:00					1		0		1	
23:15					0		0		0	
23:30					0		0		0	
23:45					1	2	0		1	2
TOTALS						232		211		443
SPLIT %						52.4%		47.6%		56.4%

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	401	384	785

AM Peak Hour			09:15	11:00	09:15
AM Pk Volume			52	50	81
Pk Hr Factor			0.929	0.735	0.880
7 - 9 Volume	0	0	46	50	96
7 - 9 Peak Hour			08:00	08:00	08:00
7 - 9 Pk Volume	0	0	35	39	74
Pk Hr Factor	0.000	0.000	0.625	0.609	0.740

PM Peak Hour			13:30	12:00	13:30
PM Pk Volume			39	37	68
Pk Hr Factor			0.696	0.661	0.773
4 - 6 Volume	0	0	45	38	83
4 - 6 Peak Hour			16:00	16:15	16:15
4 - 6 Pk Volume	0	0	25	21	46
Pk Hr Factor	0.000	0.000	0.625	0.875	0.767

FREEMARK ABBEY DRIVEWAY COUNT SUMMARY

SPRING 2017

PEAK HOUR VOLUMES

	Thursday			Friday			Saturday			Sunday		
	Total	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
1 SR 29 North	4	1	3	1	0	1	2	2	0	1	1	0
2 SR 29 South	10	4	6	19	7	12	23	14	9	13	7	6
3 Lodi Ln West	10	2	8	11	7	4	7	4	3	5	3	2
4 Lodi Ln East	3	1	2	6	3	3	1	1	0	0	0	0
	27	**8**	**19**	**37**	**17**	**20**	**33**	**21**	**12**	**19**	**11**	**8**

Weekday PM Peak Average	**32**	**13**	**19**
Saturday MD Peak Average	**33**	**21**	**12**

DAILY VOLUMES

	Thursday			Friday			Saturday			Sunday		
	Total	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**
1 SR 29 North	34	14	20	39	17	22	19	9	10	20	10	10
2 SR 29 South	148	75	73	184	84	100	225	105	120	155	76	79
3 Lodi Ln West	99	51	48	126	71	55	114	63	51	107	57	50
4 Lodi Ln East	56	30	26	65	33	32	30	16	14	17	8	9
	337	**170**	**167**	**414**	**205**	**209**	**388**	**193**	**195**	**299**	**151**	**148**

Daily Average **366**

Napa County Peak Hour Heavy Vehicle Percentages

September and October - 2017 and 2018

1. SR29/Lodi Ln		**Vehicles**	**5+ Axle Trucks**	**Grape Trucks**	**Total Trucks**	**%Total 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		**Vehicles**	**5+ Axle Trucks**	**Grape Trucks**	**Total Trucks**	**%Total 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

GROWTH FACTOR CALCULATIONS

Facility	PM 2010	PM 2030	PM Growth Factor	Adjusted for 2017	
SR 29	1819	2772	1.52	1.34	
Silverado Trail	276	1012	3.67	2.74	
Deer Park Rd	918	1174	1.28	1.18	Applied to Lodi Ln

*PM Growth Factors used to calculate the PM and Wknd 2030 volumes from existing volumes

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Appendix D

Intersection Level of Service Calculations

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Intersection	
Int Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	22	21	689	22	14	515
Future Vol, veh/h	22	21	689	22	14	515
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	22	21	703	22	14	526

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1268	714	0	0	725	0
Stage 1	714	-	-	-	-	-
Stage 2	554	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	184	428	-	-	869	-
Stage 1	482	-	-	-	-	-
Stage 2	572	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	181	428	-	-	869	-
Mov Cap-2 Maneuver	181	-	-	-	-	-
Stage 1	482	-	-	-	-	-
Stage 2	563	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.3	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	252	869	-
HCM Lane V/C Ratio	-	-	0.174	0.016	-
HCM Control Delay (s)	-	-	22.3	9.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	38	16	280	243	17
Future Vol, veh/h	10	38	16	280	243	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	42	18	311	270	19

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	627	280	289	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	347	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	447	759	1273	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	716	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	439	759	1273	-	-	-
Mov Cap-2 Maneuver	439	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	716	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1273	-	659	-	-
HCM Lane V/C Ratio	0.014	-	0.081	-	-
HCM Control Delay (s)	7.9	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	24	642	17	25	490
Future Vol, veh/h	26	24	642	17	25	490
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	26	705	19	27	538

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1307	715	0	0	724	0
Stage 1	715	-	-	-	-	-
Stage 2	592	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	176	431	-	-	879	-
Stage 1	485	-	-	-	-	-
Stage 2	553	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	171	431	-	-	879	-
Mov Cap-2 Maneuver	171	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	24.3	0	0.4
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	241	879	-
HCM Lane V/C Ratio	-	-	0.228	0.031	-
HCM Control Delay (s)	-	-	24.3	9.2	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.9	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	26	30	364	201	37
Future Vol, veh/h	22	26	30	364	201	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	24	28	32	391	216	40

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	691	236	256	0	-	0
Stage 1	236	-	-	-	-	-
Stage 2	455	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	409	801	1303	-	-	-
Stage 1	801	-	-	-	-	-
Stage 2	637	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	396	801	1303	-	-	-
Mov Cap-2 Maneuver	396	-	-	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	637	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1303	-	545	-	-
HCM Lane V/C Ratio	0.025	-	0.095	-	-
HCM Control Delay (s)	7.8	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	25	923	26	17	690
Future Vol, veh/h	26	25	923	26	17	690
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	26	25	923	26	17	690

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1660	936	0	0	949	0
Stage 1	936	-	-	-	-	-
Stage 2	724	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	106	319	-	-	715	-
Stage 1	378	-	-	-	-	-
Stage 2	476	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	103	319	-	-	715	-
Mov Cap-2 Maneuver	103	-	-	-	-	-
Stage 1	378	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	39.5	0	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	154	715	-
HCM Lane V/C Ratio	-	-	0.331	0.024	-
HCM Control Delay (s)	-	-	39.5	10.2	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.3	0.1	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	45	19	767	666	20
Future Vol, veh/h	12	45	19	767	666	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	45	19	767	666	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1481	676	686	0	-	0
Stage 1	676	-	-	-	-	-
Stage 2	805	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	138	453	908	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	440	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	133	453	908	-	-	-
Mov Cap-2 Maneuver	133	-	-	-	-	-
Stage 1	487	-	-	-	-	-
Stage 2	440	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	908	-	301	-	-
HCM Lane V/C Ratio	0.021	-	0.189	-	-
HCM Control Delay (s)	9	0	19.7	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	-	-

Intersection	
Int Delay, s/veh	1.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	28	860	20	30	657
Future Vol, veh/h	31	28	860	20	30	657
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	28	860	20	30	657

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1587	870	0	0	880	0
Stage 1	870	-	-	-	-	-
Stage 2	717	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	119	351	-	-	768	-
Stage 1	410	-	-	-	-	-
Stage 2	484	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	114	351	-	-	768	-
Mov Cap-2 Maneuver	114	-	-	-	-	-
Stage 1	410	-	-	-	-	-
Stage 2	465	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.6	0	0.4
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	168	768	-
HCM Lane V/C Ratio	-	-	0.351	0.039	-
HCM Control Delay (s)	-	-	37.6	9.9	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	1.5	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	31	35	997	551	44
Future Vol, veh/h	26	31	35	997	551	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	26	31	35	997	551	44

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1640	573	595	0	-	0
Stage 1	573	-	-	-	-	-
Stage 2	1067	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	110	517	976	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	329	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	101	517	976	-	-	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	517	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	976	-	180	-	-
HCM Lane V/C Ratio	0.036	-	0.317	-	-
HCM Control Delay (s)	8.8	0	34	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	25	692	26	16	519
Future Vol, veh/h	27	25	692	26	16	519
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	28	26	706	27	16	530

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1282	720	0	0	733	0
Stage 1	720	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	181	425	-	-	863	-
Stage 1	478	-	-	-	-	-
Stage 2	567	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	178	425	-	-	863	-
Mov Cap-2 Maneuver	178	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	556	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.5	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	247	863	-
HCM Lane V/C Ratio	-	-	0.215	0.019	-
HCM Control Delay (s)	-	-	23.5	9.3	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.8	0.1	-

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	41	18	280	243	18
Future Vol, veh/h	11	41	18	280	243	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	46	20	311	270	20

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	631	280	290	0	-	0
Stage 1	280	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	445	759	1272	-	-	-
Stage 1	767	-	-	-	-	-
Stage 2	713	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	437	759	1272	-	-	-
Mov Cap-2 Maneuver	437	-	-	-	-	-
Stage 1	752	-	-	-	-	-
Stage 2	713	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1272	-	657	-	-
HCM Lane V/C Ratio	0.016	-	0.088	-	-
HCM Control Delay (s)	7.9	0	11	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	29	648	27	31	495
Future Vol, veh/h	33	29	648	27	31	495
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	36	32	712	30	34	544

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1339	727	0	0	742	0
Stage 1	727	-	-	-	-	-
Stage 2	612	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	168	424	-	-	865	-
Stage 1	478	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	161	424	-	-	865	-
Mov Cap-2 Maneuver	161	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	520	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.5	0	0.5
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	227	865	-
HCM Lane V/C Ratio	-	-	0.3	0.039	-
HCM Control Delay (s)	-	-	27.5	9.3	-
HCM Lane LOS	-	-	D	A	-
HCM 95th %tile Q(veh)	-	-	1.2	0.1	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	30	35	364	201	39
Future Vol, veh/h	23	30	35	364	201	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	25	32	38	391	216	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	704	237	258	0	-	0
Stage 1	237	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	402	800	1301	-	-	-
Stage 1	800	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	387	800	1301	-	-	-
Mov Cap-2 Maneuver	387	-	-	-	-	-
Stage 1	770	-	-	-	-	-
Stage 2	629	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1301	-	547	-	-
HCM Lane V/C Ratio	0.029	-	0.104	-	-
HCM Control Delay (s)	7.8	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	29	926	30	19	694
Future Vol, veh/h	31	29	926	30	19	694
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	31	29	926	30	19	694

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1673	941	0	0	956	0
Stage 1	941	-	-	-	-	-
Stage 2	732	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	104	317	-	-	711	-
Stage 1	376	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	317	-	-	711	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.7	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	151	711	-
HCM Lane V/C Ratio	-	-	0.397	0.027	-
HCM Control Delay (s)	-	-	43.7	10.2	-
HCM Lane LOS	-	-	E	B	-
HCM 95th %tile Q(veh)	-	-	1.7	0.1	-

Intersection	
Int Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	29	926	30	19	694
Future Vol, veh/h	31	29	926	30	19	694
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	31	29	926	30	19	694

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1673	941	0	0	956	0
Stage 1	941	-	-	-	-	-
Stage 2	732	-	-	-	-	-
Critical Hdwy	6.44	6.24	-	-	4.14	-
Critical Hdwy Stg 1	5.44	-	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-	-
Follow-up Hdwy	3.536	3.336	-	-	2.236	-
Pot Cap-1 Maneuver	104	317	-	-	711	-
Stage 1	376	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	101	317	-	-	711	-
Mov Cap-2 Maneuver	101	-	-	-	-	-
Stage 1	376	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37.2	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	101	317	711	-
HCM Lane V/C Ratio	-	-	0.307	0.091	0.027	-
HCM Control Delay (s)	-	-	55.7	17.5	10.2	-
HCM Lane LOS	-	-	F	C	B	-
HCM 95th %tile Q(veh)	-	-	1.2	0.3	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	48	21	767	666	21
Future Vol, veh/h	13	48	21	767	666	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	48	21	767	666	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1486	677	687	0	-	0
Stage 1	677	-	-	-	-	-
Stage 2	809	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	137	453	907	-	-	-
Stage 1	505	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	132	453	907	-	-	-
Mov Cap-2 Maneuver	132	-	-	-	-	-
Stage 1	485	-	-	-	-	-
Stage 2	438	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	907	-	298	-	-
HCM Lane V/C Ratio	0.023	-	0.205	-	-
HCM Control Delay (s)	9.1	0	20.2	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	33	866	30	36	662
Future Vol, veh/h	38	33	866	30	36	662
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	33	866	30	36	662

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1615	881	0	0	896	0
Stage 1	881	-	-	-	-	-
Stage 2	734	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	114	346	-	-	757	-
Stage 1	405	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	346	-	-	757	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	405	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.3	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	160	757	-
HCM Lane V/C Ratio	-	-	0.444	0.048	-
HCM Control Delay (s)	-	-	44.3	10	-
HCM Lane LOS	-	-	E	A	-
HCM 95th %tile Q(veh)	-	-	2	0.1	-

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	33	866	30	36	662
Future Vol, veh/h	38	33	866	30	36	662
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	75	-	-	90	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	38	33	866	30	36	662

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1615	881	0	0	896	0
Stage 1	881	-	-	-	-	-
Stage 2	734	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	114	346	-	-	757	-
Stage 1	405	-	-	-	-	-
Stage 2	475	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	109	346	-	-	757	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	405	-	-	-	-	-
Stage 2	452	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	37	0	0.5
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	109	346	757	-
HCM Lane V/C Ratio	-	-	0.349	0.095	0.048	-
HCM Control Delay (s)	-	-	54.8	16.5	10	-
HCM Lane LOS	-	-	F	C	A	-
HCM 95th %tile Q(veh)	-	-	1.4	0.3	0.1	-

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	35	40	997	551	46
Future Vol, veh/h	27	35	40	997	551	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	35	40	997	551	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1651	574	597	0	-	0
Stage 1	574	-	-	-	-	-
Stage 2	1077	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	108	516	975	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	326	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	98	516	975	-	-	-
Mov Cap-2 Maneuver	98	-	-	-	-	-
Stage 1	509	-	-	-	-	-
Stage 2	326	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.9	0.3	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	975	-	181	-	-
HCM Lane V/C Ratio	0.041	-	0.343	-	-
HCM Control Delay (s)	8.8	0	34.9	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0.1	-	1.4	-	-

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Appendix E

Signal Warrants Analysis

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Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.26 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 43 vph

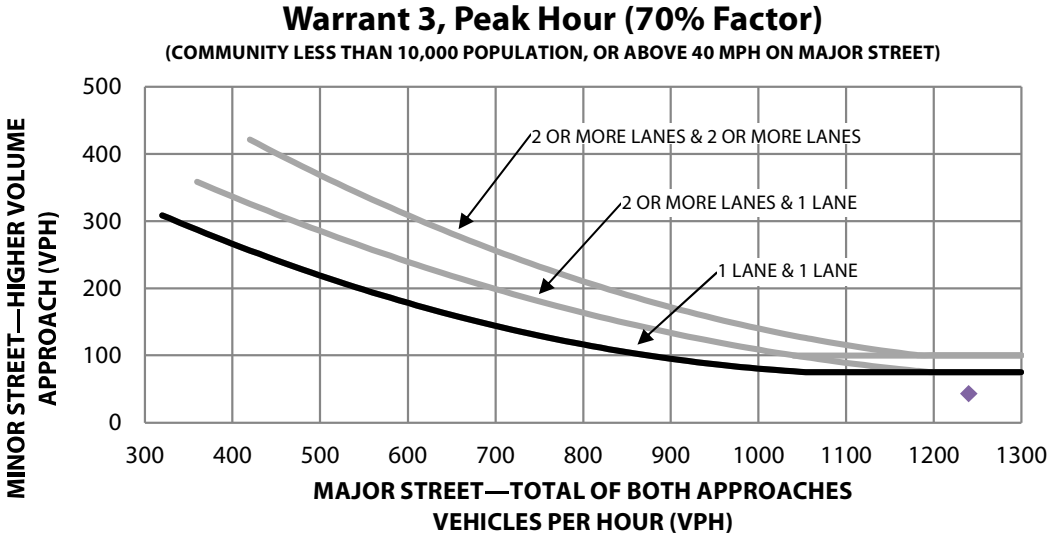
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1283 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.14 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 48 vph

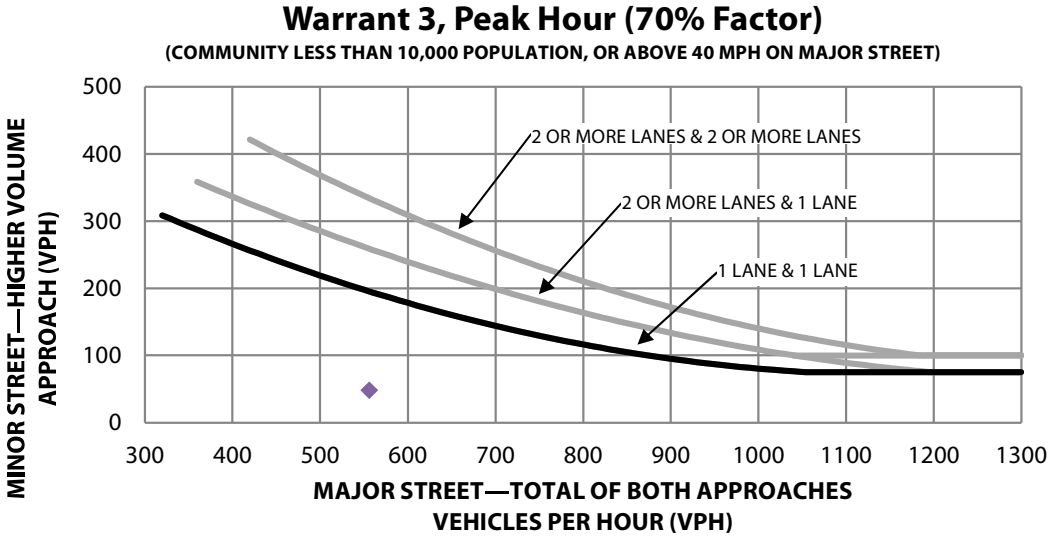
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 604 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: MD Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.34 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 50 vph

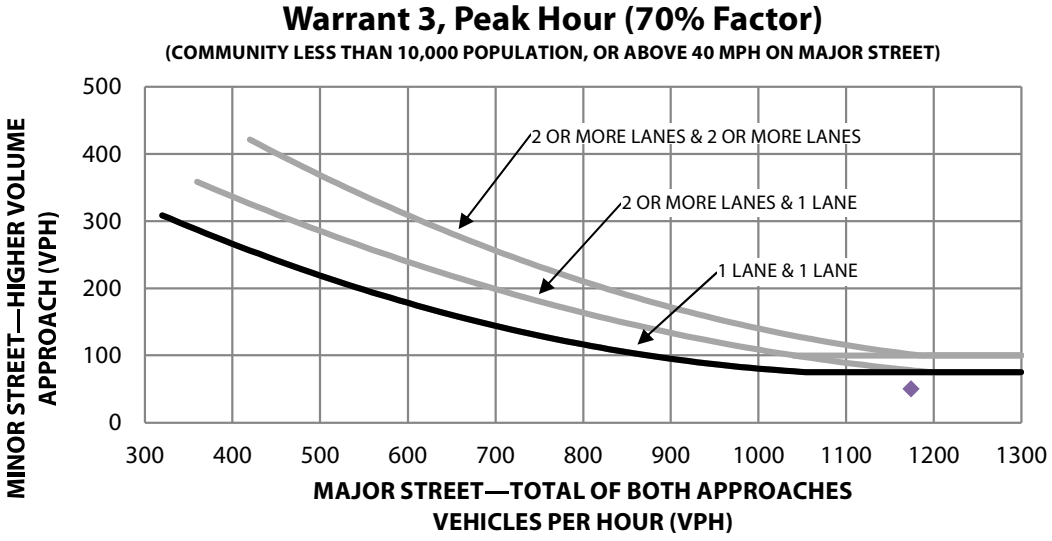
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1224 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Saturday, April 22, 2017
Scenario: Wknd MD Existing

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.16 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 48 vph

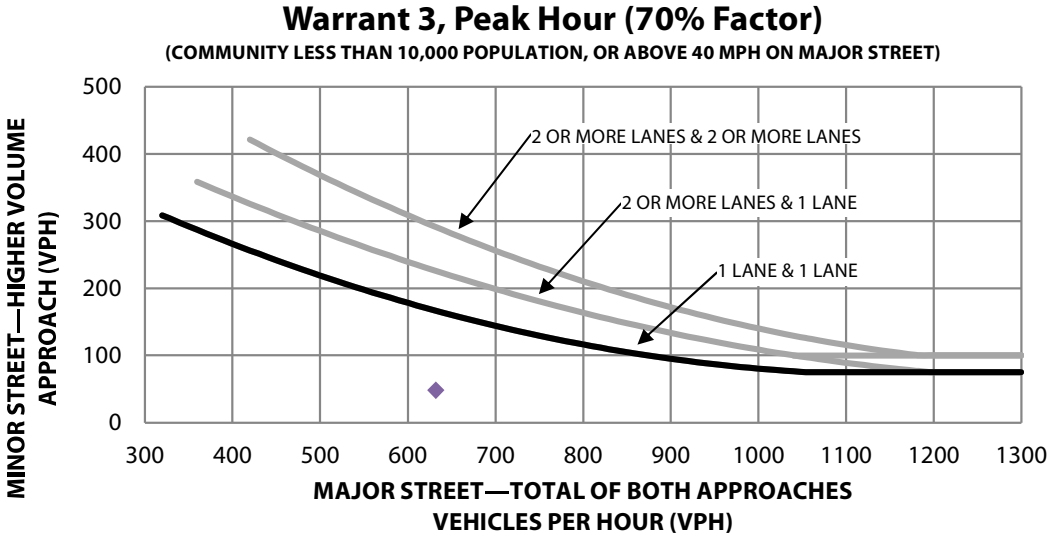
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 680 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Permitted

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.47 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 69 vph

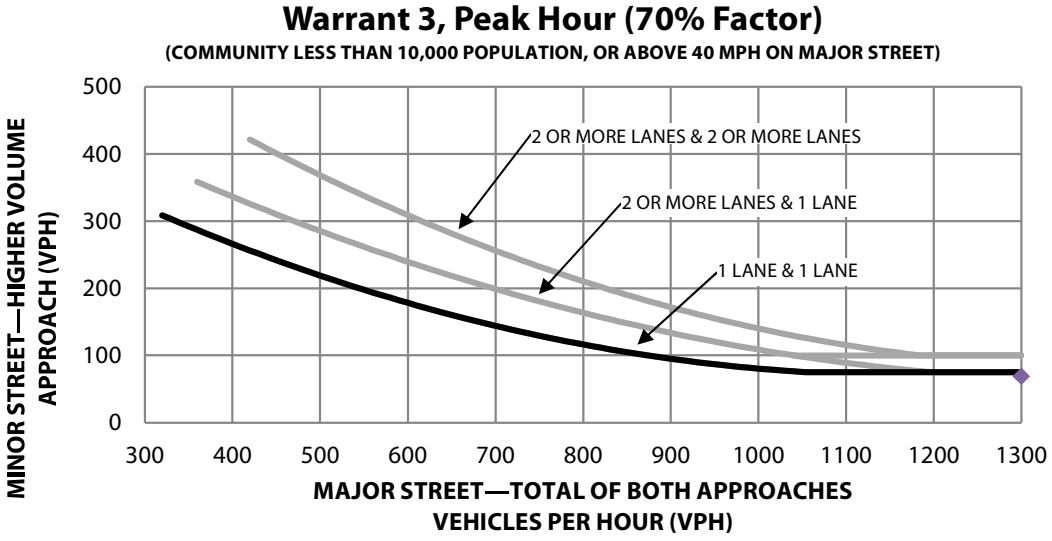
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1369 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Perrmitted

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.18 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 59 vph

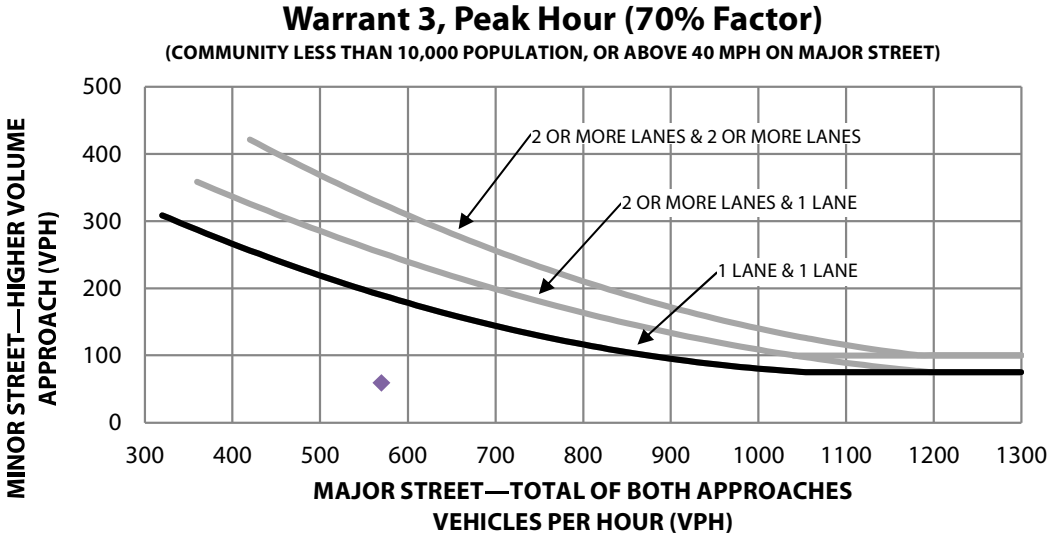
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 629 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: MD Permitted

Warrant 3 Met?: Met when either Condition A or B is met — **Yes**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.78 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 95 vph

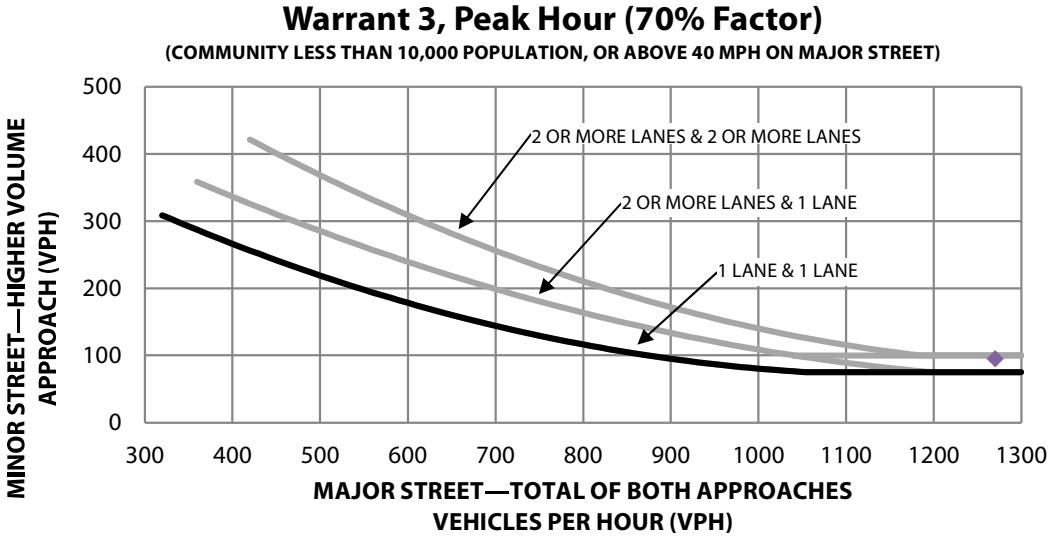
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1365 vph

Condition B — Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Saturday, April 22, 2017
Scenario: Wknd MD Permitted

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.23 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 67 vph

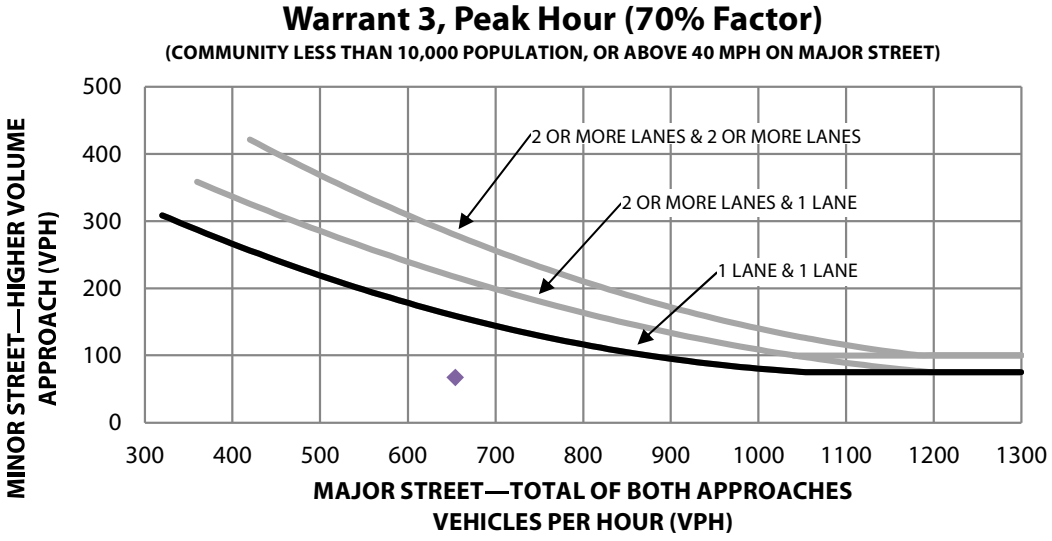
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 721 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.55 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 51 vph

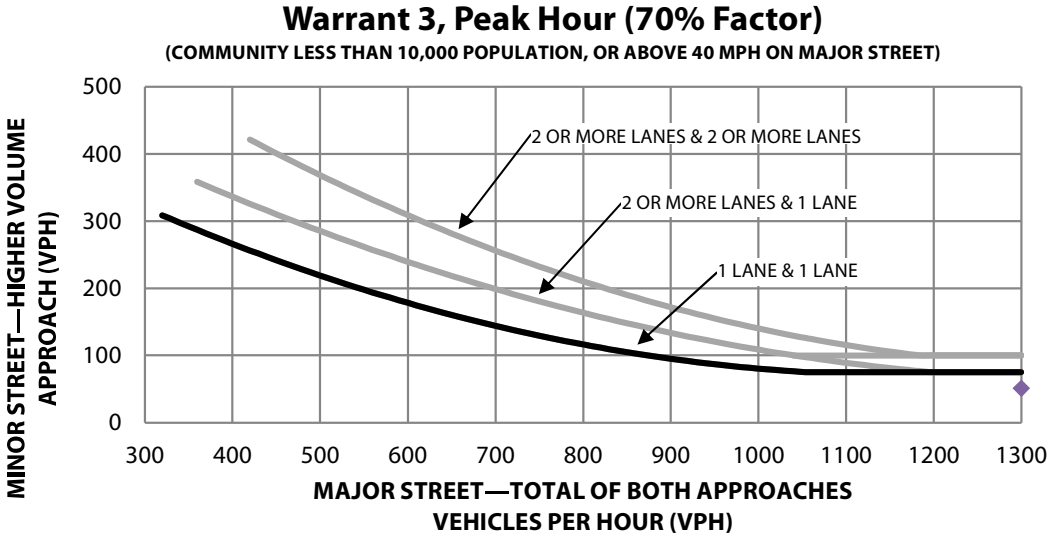
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1707 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.28 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 57 vph

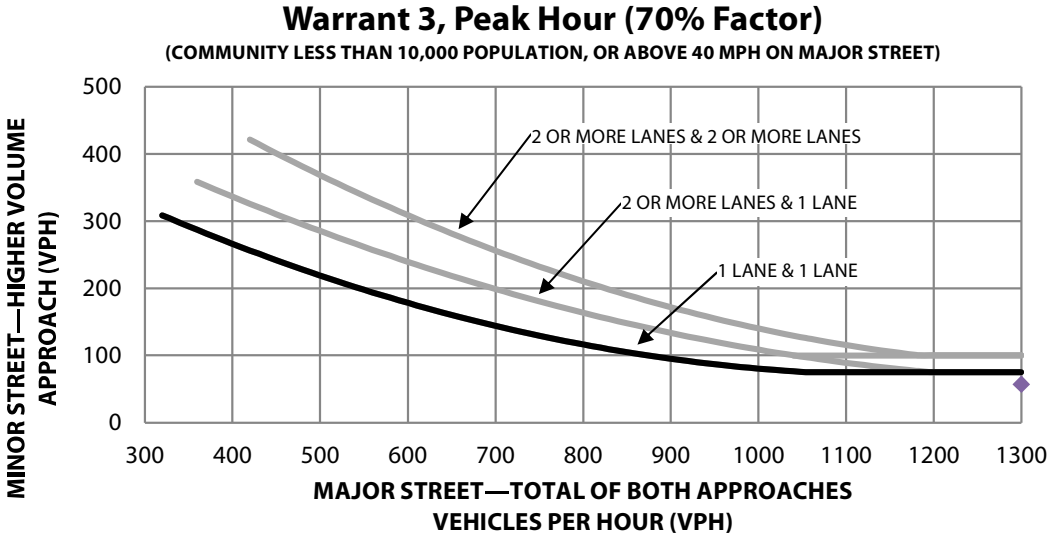
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1529 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: MD Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.62 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 59 vph

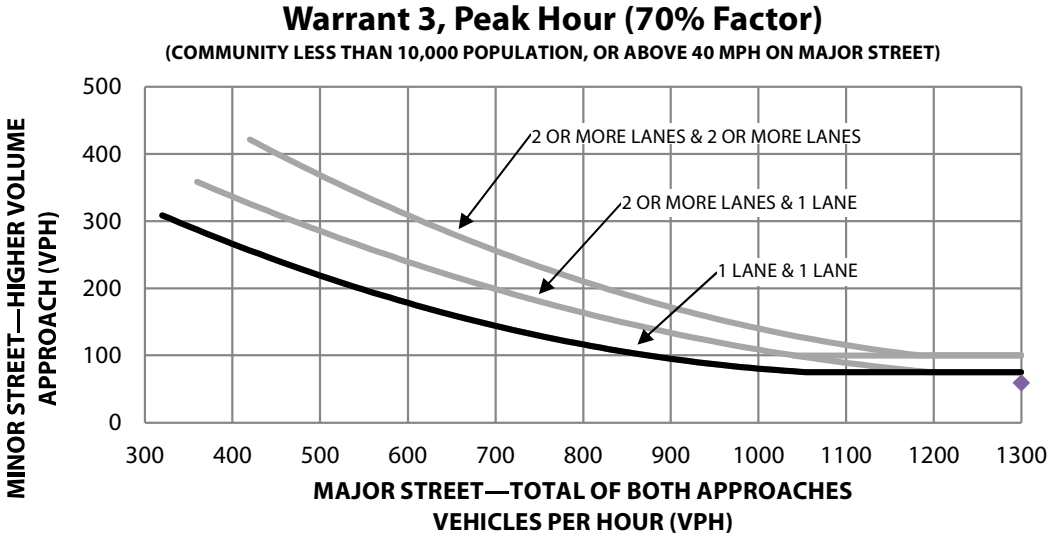
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1626 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Saturday, April 22, 2017
Scenario: Wknd MD Future

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.48 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 57 vph

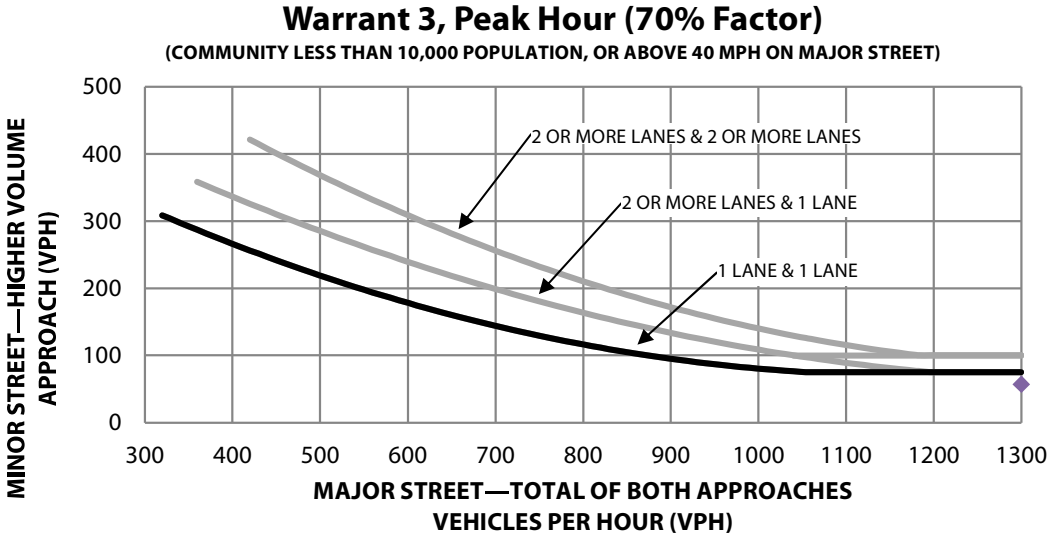
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1684 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Existing + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.34 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 52 vph

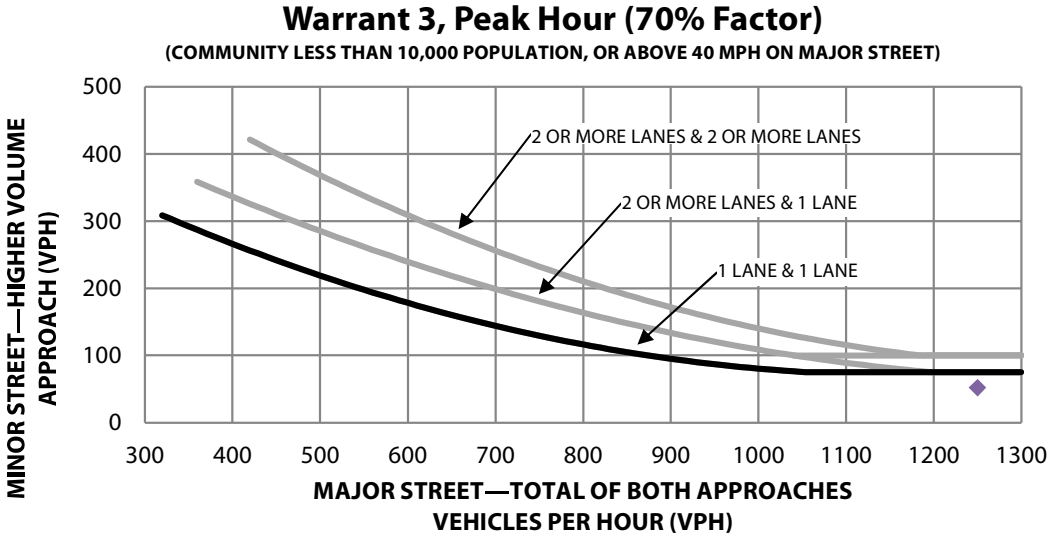
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1302 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Existing + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.15 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 52 vph

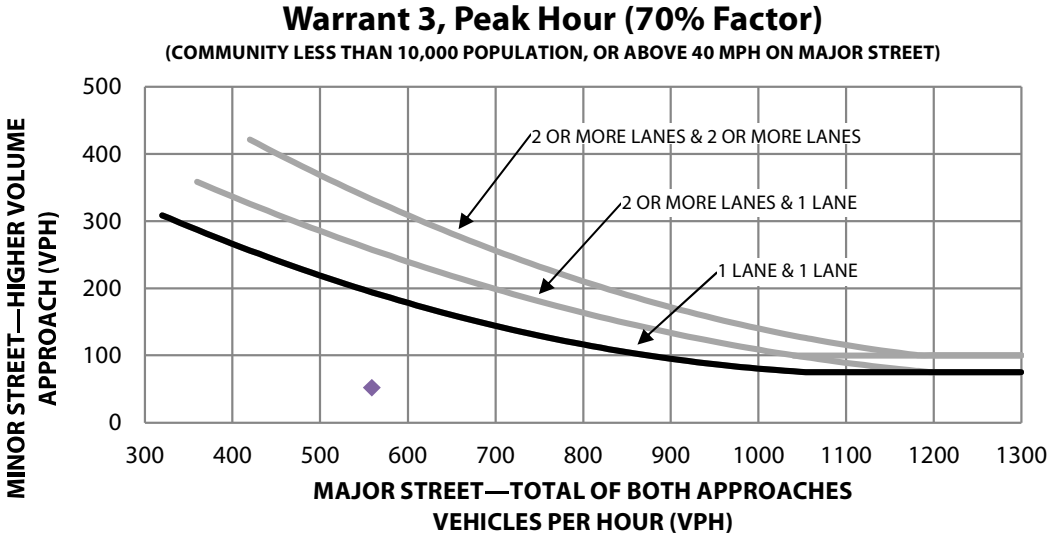
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 611 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: MD Existing + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.47 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 62 vph

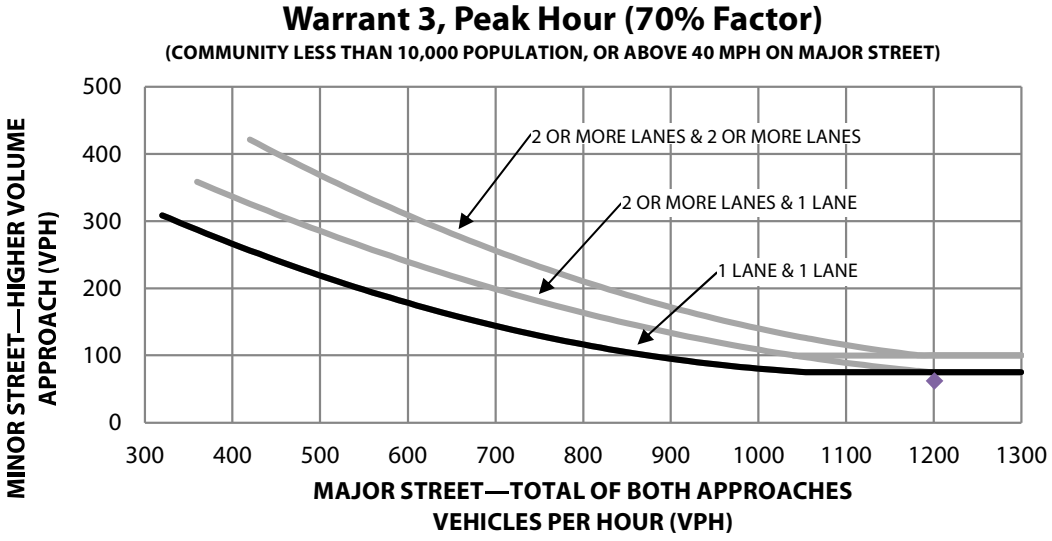
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1263 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Saturday, April 22, 2017
Scenario: Wknd MD Existing + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.18 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 53 vph

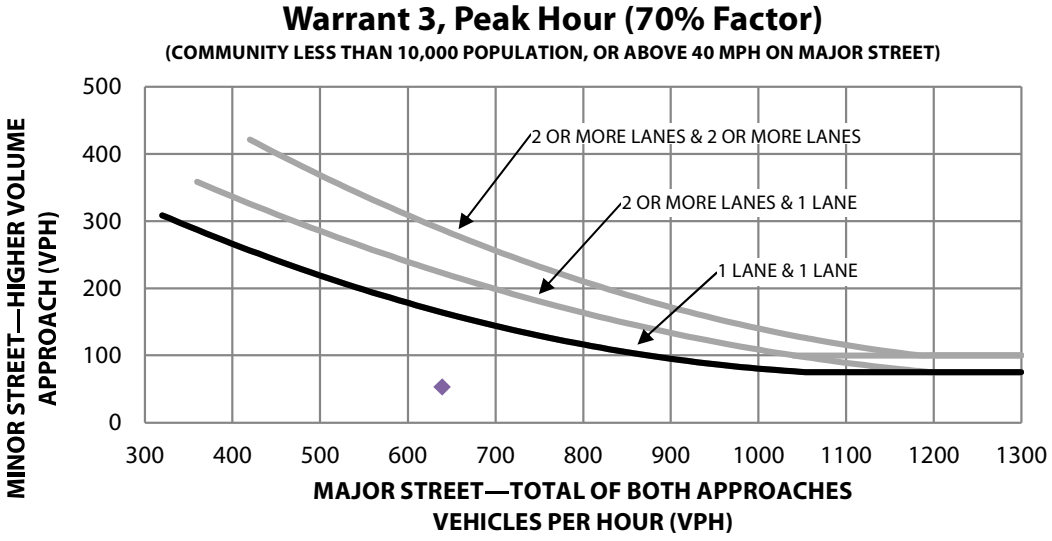
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 692 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Future + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.72 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 60 vph

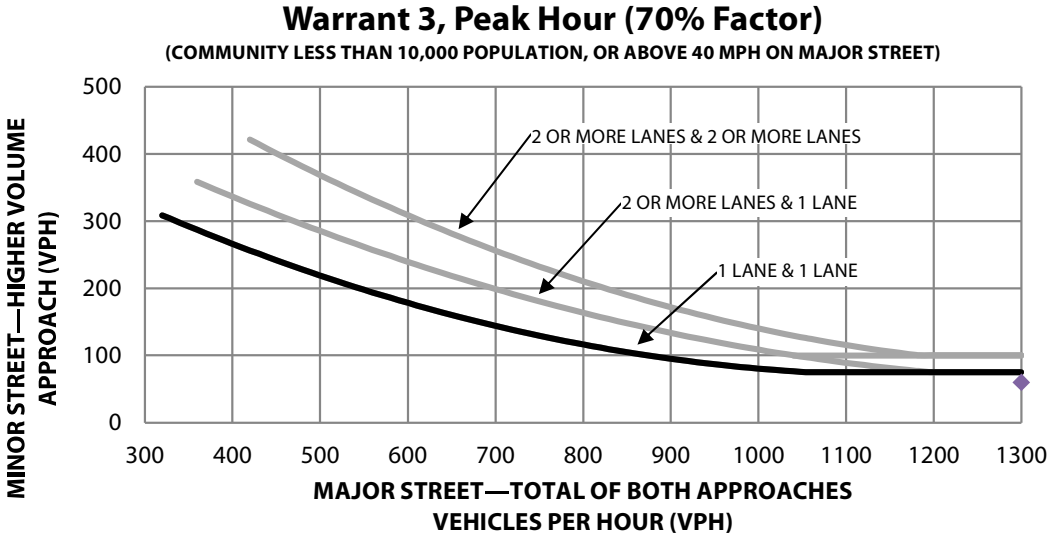
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1729 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: PM Future + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.3 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 61 vph

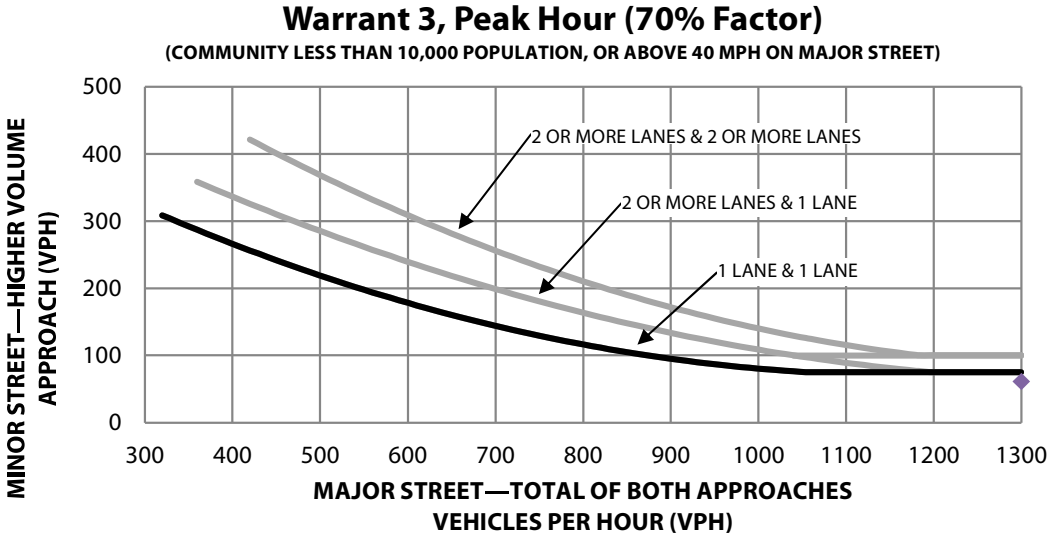
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1536 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

SR 29 & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 1

	Major Street	Minor Street
Street Name	SR 29	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Thursday, April 20, 2017
Scenario: MD Future + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.87 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 71 vph

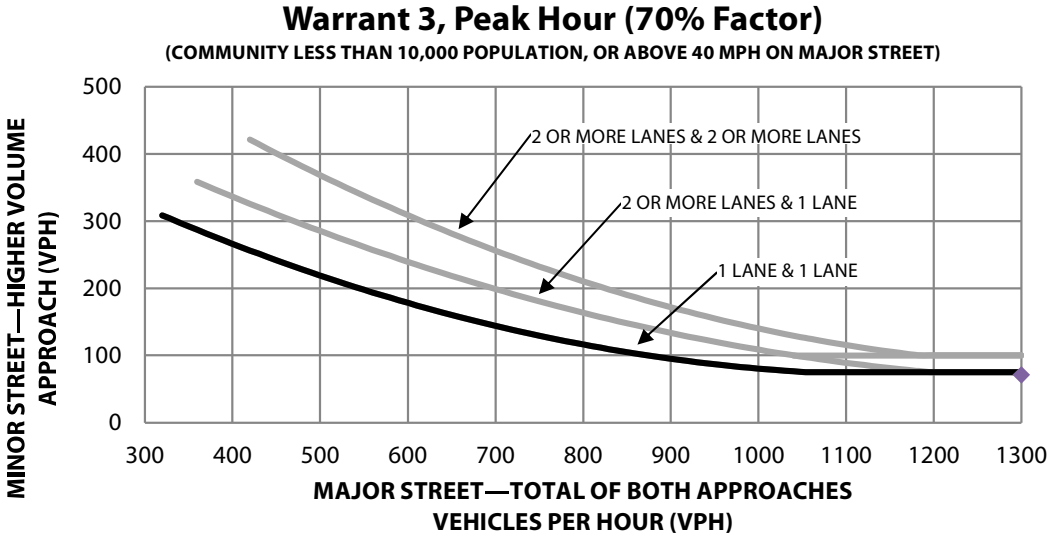
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1665 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

Silverado Trail & Lodi Ln
County of Napa

Project Name: Inn at the Abbey

Intersection: 2

	Major Street	Minor Street
Street Name	Silverado Trail	Lodi Ln
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	50	40

Population less than 10,000? No
Date of Count: Saturday, April 22, 2017
Scenario: Wknd MD Future + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.53 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 62 vph

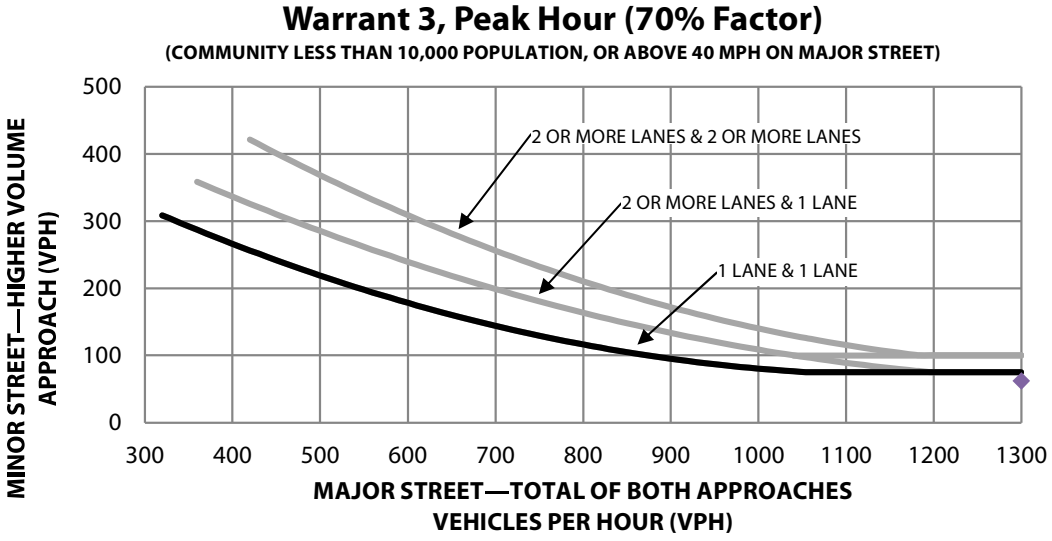
Condition A3 — Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 1696 vph

Condition B — Not Met

The plotted point falls above the curve



Appendix F

Queuing Calculations

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Queue Length Estimation at Two-Way STOP Controlled Intersection

Project Information

Analyst:	CJN	Agency/Co.:	W-Trans
Analysis Time Period:	Weekday PM	Project ID:	NAX062
Date Performed:	5/30/2017	Scenario	PM Future + Project
Jurisdiction:	County of Napa		
Intersection:	SR 29/Lodi Ln		
East/West Street:	Lodi Ln		
North/South Street:	SR 29		

Instructions

Step 1 Input Volumes on **Volumes** sheet

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

Step 2 Calculate Input Parameters

Calculate Lane Group Volumes, % Heavy Vehicles, and Conflicting Volumes (2.0% default)

Identify the presence of an upstream signal within 1/4 mile on major approches (Signal, 0 default)

Identify the presence of a separate LT lane / TWLT on major street approaches (LT, 1 default)

Verify the input ranges to feed into the models (see QueueLengthsModels sheet)

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

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

Input							Results
Approach	Lane Group, Code	Volume, veh/hr	% Heavy Vehicles	Conflicting Volume,veh/hr	Signal (0 or 1)	Left Turn Lane (0 or 1)	Queue Length Feet
EB	MNLTR	0					
EB	MNLR	0					
EB	MNL	0					
EB	MNR	0					
WB	MNLTR	60	2.0%	4287	0	0	**75**
WB	MNLR	60	2.0%	2614	0	0	**75**
WB	MNL	31	2.0%	1673	0	0	**100**
WB	MNR	29	2.0%	941	0	0	**75**
NB	MJL	0					
SB	MJL	19	2.0%	956	0	1	**75**

Queue Length Estimation at Two-Way STOP Controlled Intersection

Project Information

Analyst:	CJN	Agency/Co.:	W-Trans
Analysis Time Period:	Weekend Midday	Project ID:	NAX062
Date Performed:	5/30/2017	Scenario	PM Future + Project
Jurisdiction:	County of Napa		
Intersection:	SR 29/Lodi Ln		
East/West Street:	Lodi Ln		
North/South Street:	SR 29		

Instructions

Step 1 Input Volumes on **Volumes** sheet

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

Step 2 Calculate Input Parameters

Calculate Lane Group Volumes, % Heavy Vehicles, and Conflicting Volumes (2.0% default)

Identify the presence of an upstream signal within 1/4 mile on major approches (Signal, 0 default)

Identify the presence of a separate LT lane / TWLT on major street approaches (LT, 1 default)

Verify the input ranges to feed into the models (see QueueLengthsModels sheet)

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

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

Input							Results
Approach	Lane Group, Code	Volume, veh/hr	% Heavy Vehicles	Conflicting Volume,veh/hr	Signal (0 or 1)	Left Turn Lane (0 or 1)	Queue Length Feet
EB	MNLTR	0					
EB	MNLR	0					
EB	MNL	0					
EB	MNR	0					
WB	MNLTR	71	2.0%	4111	0	0	**75**
WB	MNLR	71	2.0%	2496	0	0	**75**
WB	MNL	38	2.0%	1615	0	0	**100**
WB	MNR	33	2.0%	881	0	0	**75**
NB	MJL	0					
SB	MJL	36	2.0%	896	0	1	**75**

Appendix G

Speed Survey Data

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SPEED SURVEY CALCULATIONS Inn at the Abbey	
Roadway:	**SR 29**
Direction of Travel:	**SB**
Speed Samples:	41
	45
	54
	37
	39
	50
	45
	42
	34
	43
	41
	34
	44
	41
	48
	42
	50
	42
	52
	36
	41
	43
	37
	40
	41
Average Speed:	42.5
85th Percentile Speed:	**48.8**
High Speed:	54.0

*Note: All speeds in miles per hour (mph).

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Appendix H

Turn Lane Warrants and Dimensions

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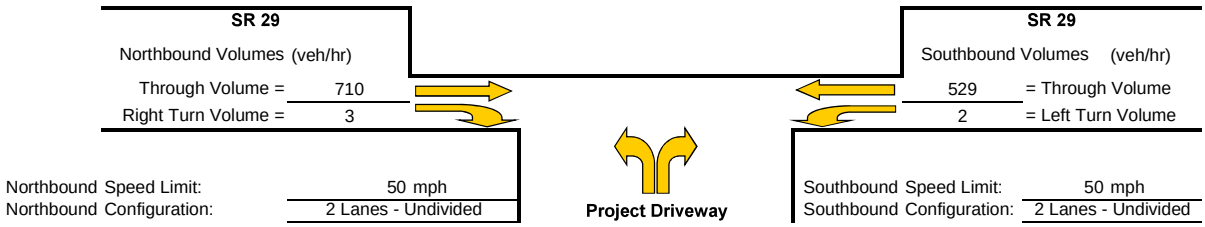
Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: PM Existing

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	713
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

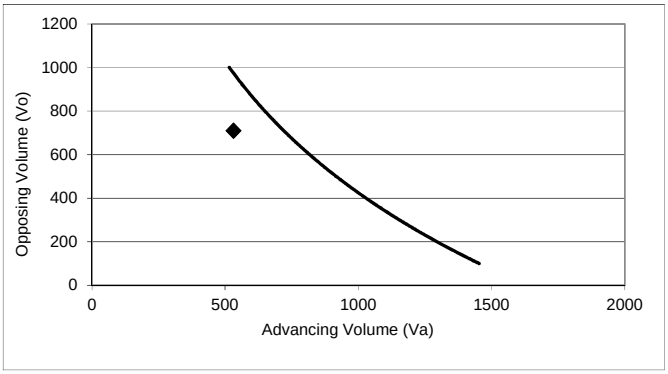
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	713
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.4 %
Advancing Volume Threshold	AV	720 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

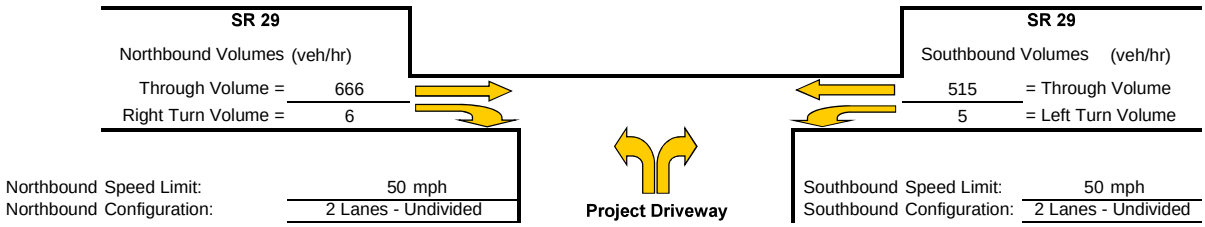
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: Wknd Existing

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	672
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

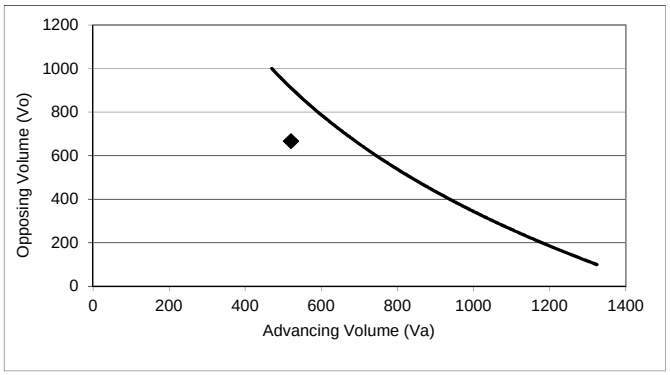
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	672
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	1.0 %
Advancing Volume Threshold	AV	690 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: PM Existing + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the East

SR 29 (Northbound)

Northbound Volumes (veh/hr)
Through Volume = 710
Right Turn Volume = 6

Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Project Driveway

SR 29 (Southbound)

Southbound Volumes (veh/hr)
529 = Through Volume
4 = Left Turn Volume

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	716
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

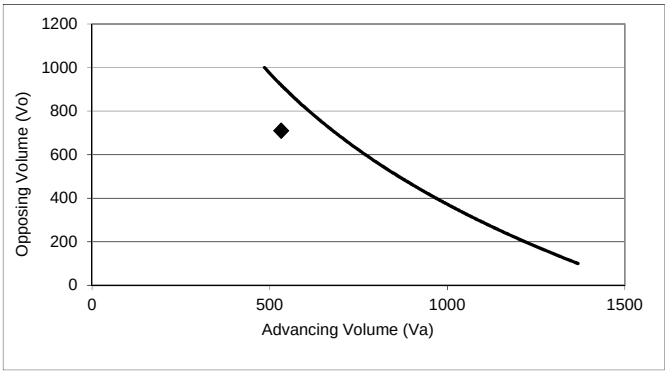
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	716
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.8 %
Advancing Volume Threshold	AV	678 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

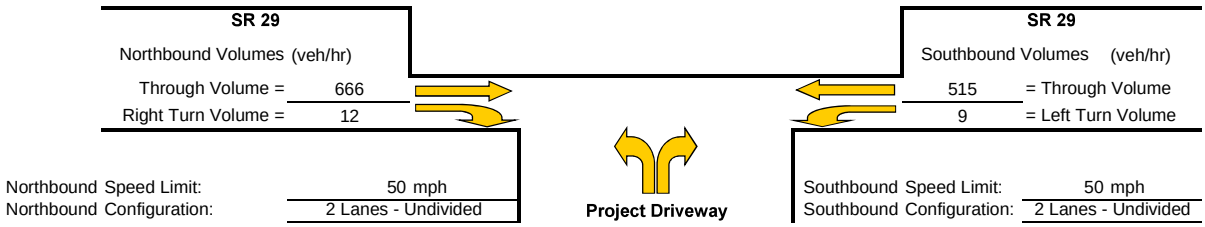
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: Wknd Existing + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	678
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

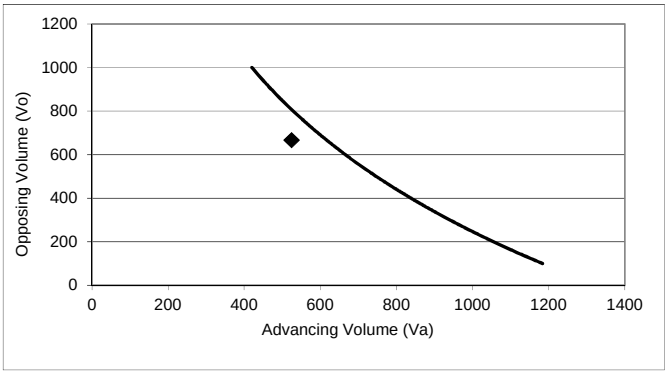
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	678
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	1.7 %
Advancing Volume Threshold	AV	617 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

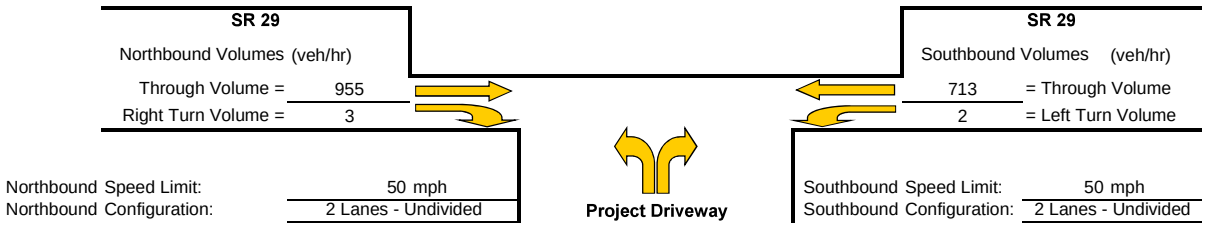
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: PM Future

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	958
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

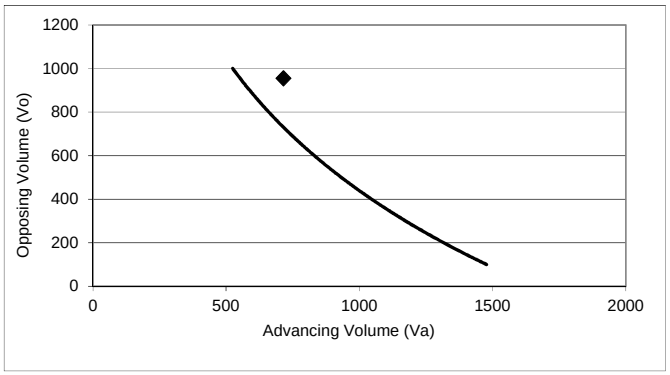
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	958
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.3 %
Advancing Volume Threshold	AV	552 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

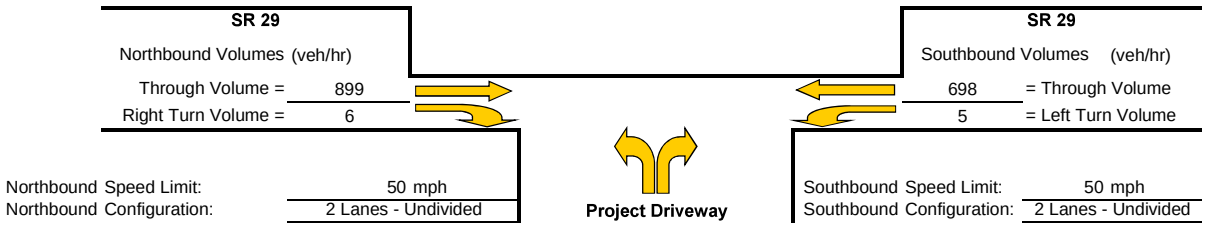
Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: Wknd Future

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	905
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

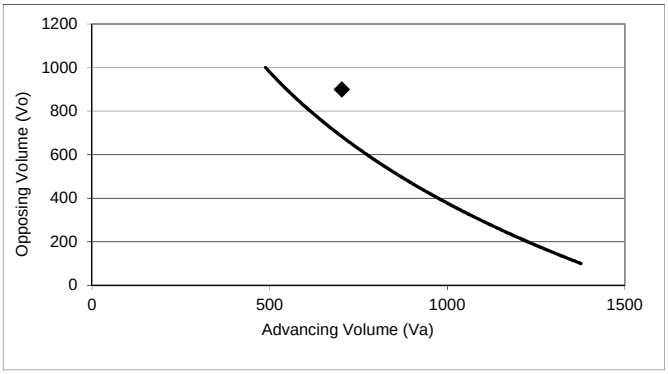
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	905
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.7 %
Advancing Volume Threshold	AV	549 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

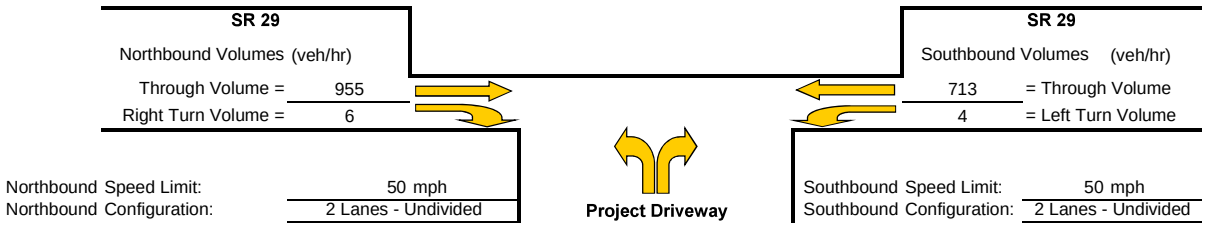
Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: PM Future + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	961
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

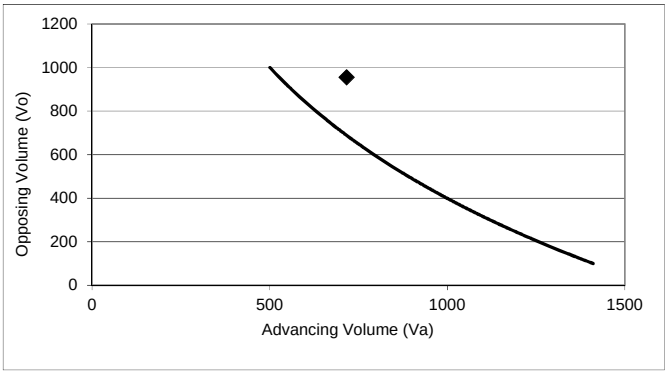
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	961
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	0.6 %
Advancing Volume Threshold	AV	527 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

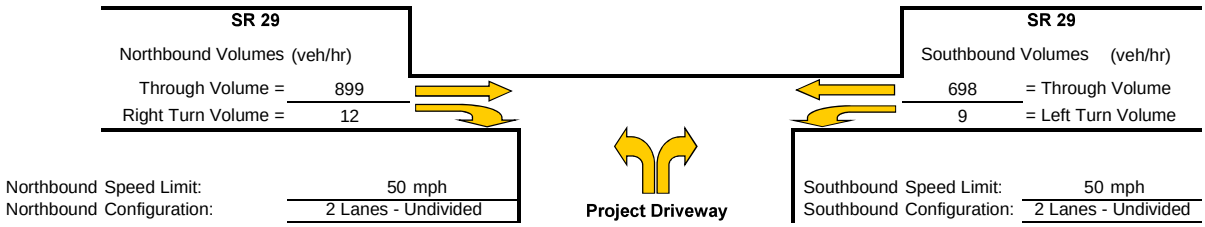
Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: SR 29/Project Driveway
Study Scenario: Wknd Future + Project

Direction of Analysis Street: North/South
Cross Street Intersects: From the East



Northbound Speed Limit: 50 mph
Northbound Configuration: 2 Lanes - Undivided

Southbound Speed Limit: 50 mph
Southbound Configuration: 2 Lanes - Undivided

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	911
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

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

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

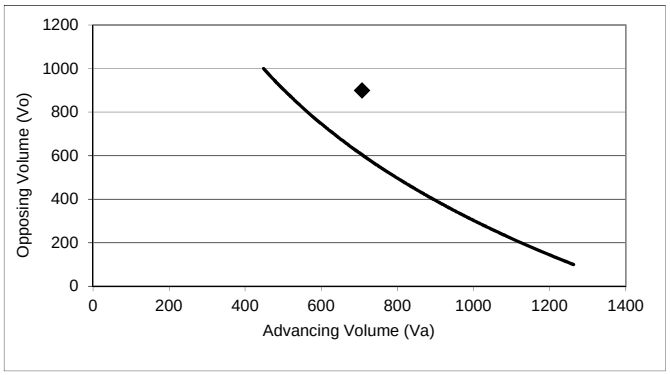
Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	911
If AV<Va then warrant is met		-

Right Turn Taper Warranted: **NO**

Southbound Left Turn Lane Warrants

Percentage Left Turns	%lt	1.3 %
Advancing Volume Threshold	AV	503 veh/hr

If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 50 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Left Turn Channelization Dimensions

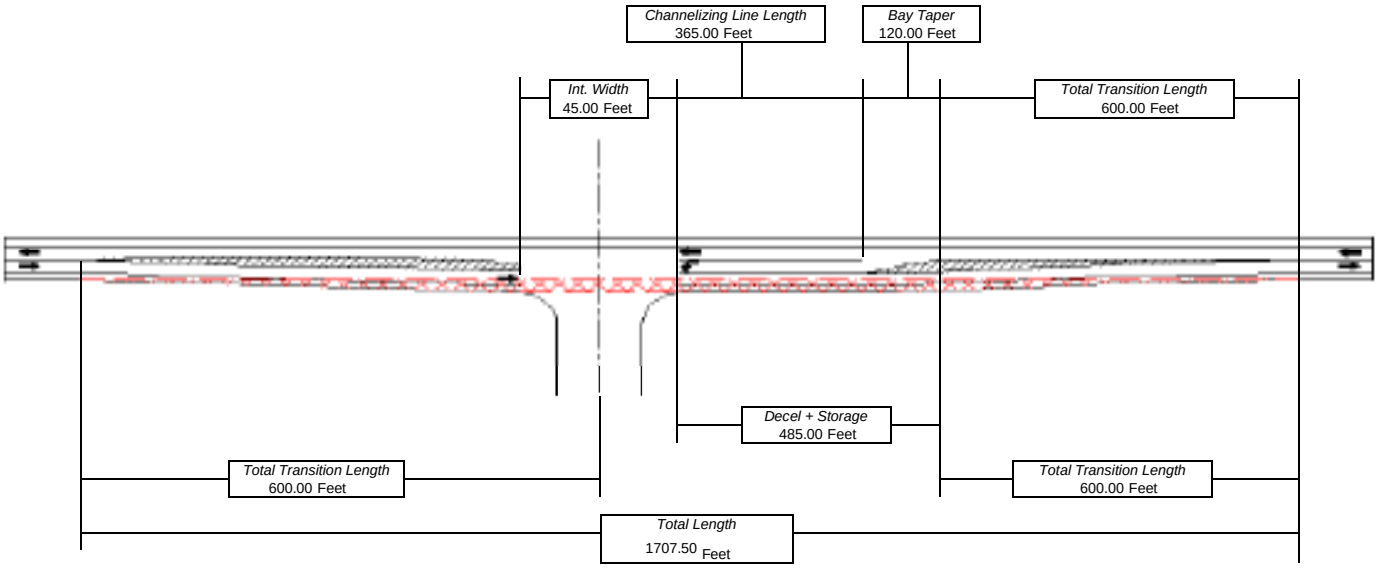
3 Leg Intersection - Widening on One Side for Rural, Semi-Rural and High Speed/Volume Urban Areas

Project Name: **Inn at the Abbey**

Location: **SR 29/Project Driveway**

Design Speed:	50 mph
Turn Pocket Width:	12.0 feet
Design Queue:	2 veh
Decelerate From:	50 mph
Intersection Width: *(Stopline to Stopline)*	45 feet
Bay Taper Length =	120 feet

Stacking Length =	50 feet
Deceleration =	435 feet
Transition =	600 feet
Total Length of Widening =	1708 feet
Area Of Widening=	11850 sf



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Appendix I

Shared Parking Summary

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SHARED PARKING SUMMARY

Inn at the Abbey
Hotel, Restaurant, and Retail Shared Parking Demand

July
Weekday Estimated Peak-Hour Parking Demand

Monthly Adj.	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
																				12 PM	8 AM	12 PM	9 PM
TOTAL DEMAND	68	76	93	78	75	73	113	113	87	75	76	87	97	95	102	103	98	91	85	113	93	113	103
																				113	93	113	103

Footnote(s):

July
Weekend Estimated Peak-Hour Parking Demand

	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM	Overall Pk	AM Peak Hr	PM Peak Hr	Eve Peak Hr
																				9 PM	8 AM	12 PM	9 PM
TOTAL DEMAND	76	83	96	80	74	74	113	113	88	77	80	90	103	105	113	115	109	103	96	115	96	113	115
																				115	96	113	115

Footnote(s):

ATTACHMENT 5

REDACTED