



Transportation Memorandum Left Turn Lane Analysis

Transportation Memorandum

March 15, 2022

To: Emily Hedge, Planner III
Ahsan Kazmi, P.E.
Napa County Planning, Building, and Environmental Services (PBES) Department

From: Chris Boswell, Sherwood Design Engineers
Project Number and Name: 21-135 Ladera Winery

RE: Ladera Vineyards – Left Turn Lane Warrant Analysis Use Permit Minor Modification #P21-00294

Emily and Ashan,

1.0 EXECUTIVE SUMMARY

As requested by the Napa County PBES Department in regard to the Ladera Vineyards Minor Use Permit Modification, a Left Turn Lane Warrant Analysis is to be performed. The following criteria was utilized in our analysis for the Left Hand Turn Lane per Napa County and Caltrans requirements. It is our understanding that a Left Hand Turn Lane is needed if one of the following criteria is achieved.

2.0 ANALYSIS

(a) Application of the following Left-Turn Lane Warrant Graph based on road average daily traffic (ADT) and the projected ADT of the proposed use. The chart is a representation of probable conflict between turning traffic and advancing traffic. Private Road or Driveway ADT is the total average daily traffic utilizing the facility. A left-turn lane will not be considered for uses generating an ADT of 10 or less.

Based on the Winery Trip Generation Worksheet, the site is expected to see the following Average Daily Trips (ADT).

Weekday Daily Trips: 39 (Harvest), 37 (Non-Harvest)
Weekend Daily Trips: 37 (Harvest), 35 (Non-Harvest)

See Appendix A for full Worksheet

2020 Caltrans traffic flow volumes report Silverado Trail having an Average Annual Daily Trip that ranged from 9,100 to 10,700 trips.

Based on the “Left Turn Lane Warrant Graph” any driveway along Silverado Trail with an Average Annual Daily trip over 20 trips would require a left turn lane.

A left turn lane will be required.

(b) If the corner sight distance in advancing direction, measured from the driveway, is less than required per Caltrans design standards (usually the posted speed limit multiplied by 11, read in feet) a left-turn lane shall be installed.

V_m = Design Speed of Major road = 55mph

T_g = Time gap (sec) for minor road vehicle to enter major road = 7.5 sec

Min Corner Sight Distance = $1.47 \cdot V_m \cdot T_g$ = 606 feet

The corner sight distance in advancing direction is to be 606 feet. The proposed driveway provides more than this minimum distance in both directions.

(c) If traffic conditions or turning movements pose a considerable threat to public safety, as determined by the Director of Public Works, a left-turn lane shall be installed.

Design: Design of the left-turn lane shall be prepared by a Licensed Civil Engineer and be based on the County Standard Detail LTL-1, available at the PBES Department. Installation of a left-turn lane on a County public road shall require an encroachment permit issued by the Department of Public Works and the property owner shall be required to enter into a one year maintenance agreement including appropriate bonding. Installation of a left-turn lane on a State highway requires an encroachment permit issued by Caltrans.

Adequate permits will be secured per Napa County PBES requirements.

3.0 CONCLUSION

Based on the section a) results, a left turn lane is required.

A layout of the Left-Hand Turn Lane is included with the revised Use Permit Drawings prepared by Sherwood Engineers. The Site Distance Exhibit is attached for our review.



A Tradition of Stewardship
A Commitment to Service

WINERY TRIP GENERATION WORKSHEET

Planning, Building & Environmental Services

1195 Third Street, Suite 210

Napa, CA 94559-3082

(707) 253-4417

PROJECT DESCRIPTION

Clear Form

Winery Name: Ladera Vineyards Date Prepared: 10/28/21

Existing Entitled Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	<u>2</u>	<u>2</u>
	Weekend	<u>2</u>	<u>2</u>
Number of Part Time Employees*	Weekday	<u>0</u>	<u>0</u>
	Weekend	<u>0</u>	<u>0</u>
Maximum Daily Visitation	Weekday	<u>30</u>	<u>30</u>
	Weekend	<u>30</u>	<u>30</u>
Annual Gallons of Production		<u>20,000</u>	<u>20,000</u>
Annual Tons of Grape Haul		<u>125.0</u>	<u>N/A</u>
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	<u></u>	<u></u>
	Weekend	<u></u>	<u></u>

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

*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).

Ladera Vineyards

TRIP GENERATION

Existing Winery					Harvest	Non-Harvest
<u>Maximum Daily Weekday Traffic (Friday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	2	2	3.05 one way trips/employee	FT Employee Daily Trips	6.1	6.1
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	30	30	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	23.1	23.1
Max Event			2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
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	32
					Total Weekday Peak Hour Trips*	12
<u>Maximum Daily Weekend Traffic (Saturday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	2	2	3.05 one way trips/employee	FT Employee Daily Trips	6.1	6.1
PT Employees	0	0	1.9 one way trips/employee	PT Employee Daily Trips	0.0	0.0
Max Visitors	30	30	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	21.4	21.4
Max Event			2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
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	30
					Total Weekend Peak Hour Trips*	16
<u>Maximum Annual Traffic</u>						
					Total Annual Trips**	10,896

Proposed Winery					Harvest	Non-Harvest
<u>Maximum Daily Weekday Traffic (Friday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	3	3	3.05 one way trips/employee	FT Employee Daily Trips	9.1	9.1
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			2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
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	39
					Total Weekday Peak Hour Trips*	14
<u>Maximum Daily Weekend Traffic (Saturday)</u>						
	<u>Harvest</u>	<u>Non-Harvest</u>				
FT Employees	3	3	3.05 one way trips/employee	FT Employee Daily Trips	9.1	9.1
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			2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	0.0	0.0
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	37
					Total Weekend Peak Hour Trips*	18
<u>Maximum Annual Traffic</u>						
					Total Annual Trips**	13,451

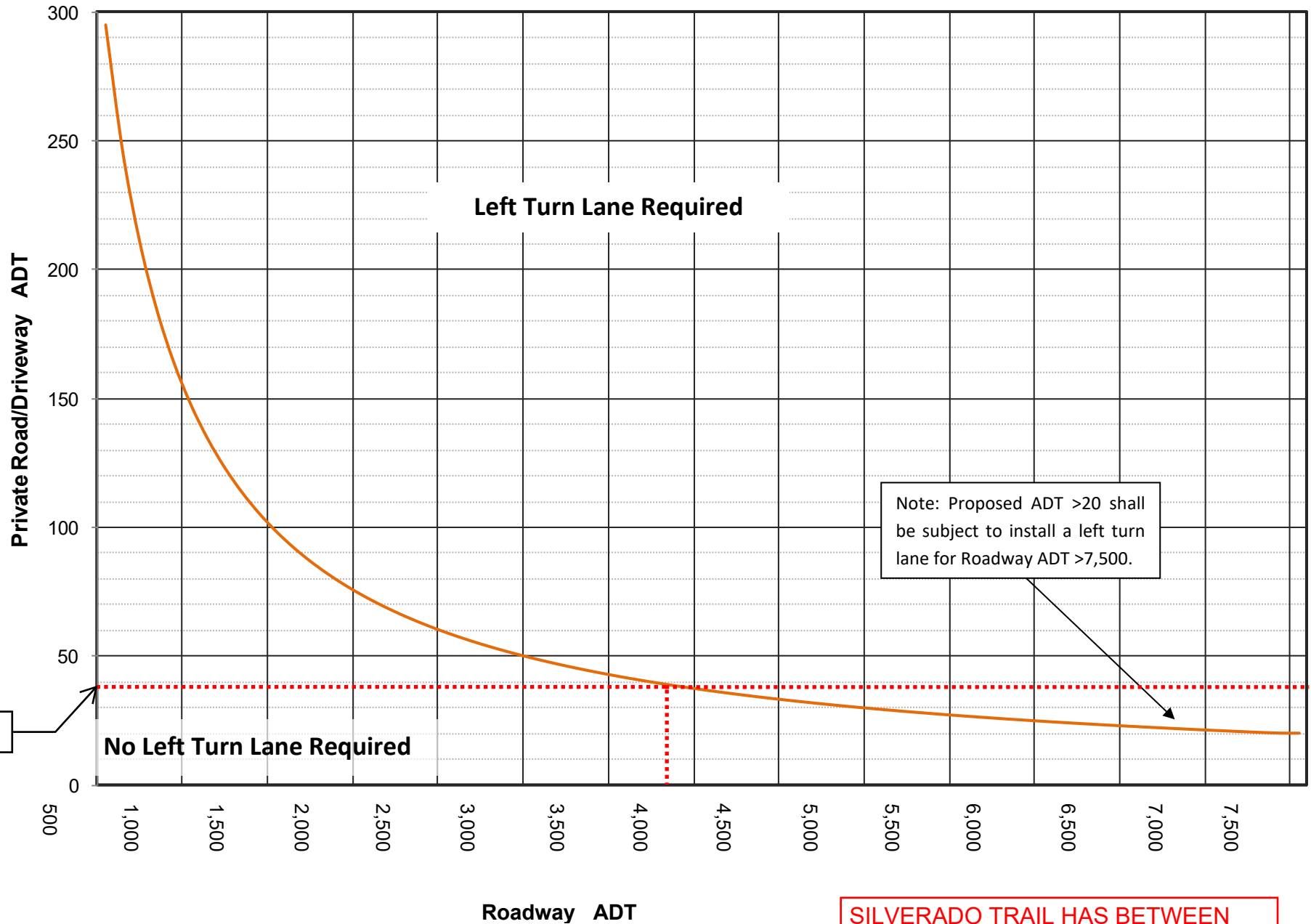
Net New Trips		Harvest	Non-Harvest
<u>Maximum Weekday Traffic (Friday)</u>			
If total net new daily trips is greater than 40, a TIS is required			
		Net New Weekday Daily Trips	7
		Net New Weekday Peak Hour Trips*	2
<u>Maximum Weekend Traffic (Saturday)</u>			
If total net new daily trips is greater than 40, a TIS is required			
		Net New Weekend Daily Trips	7
		Net New Weekend Peak Hour Trips*	2
<u>Maximum Annual Traffic</u>			
A Traffic Impact Study is NOT Required		Net New Annual Trips**	2,555

#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.

LEFT TURN LANE WARRANT GRAPH



SILVERADO TRAIL HAS BETWEEN
9,100 TO 10,700 ADT

LEFT TURN LANE WILL BE NEEDED





USE PERMIT MINOR MODIFICATION

LADERA VINEYARDS

3942 SILVERADO TRAIL
CALISTOGA, CA 94515

LEFT TURN LANE ASYMETRICAL WIDENING

SCALE:

0 1"

Note: If this graphic scale does not equal 1", this sheet has been modified from its original size.

NO	DATE	REVISION

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the prior written consent of Sherwood Design Engineers

PROJECT NO. 21-135

DATE	SEPT, 2021
DRAWN	VHT
DESIGNED	VHT/CN
CHECKED	JG/DN



USE PERMIT MINOR MODIFICATION

LADERA VINEYARDS
3942 SILVERADO TRAIL
CALISTOGA, CA 94515

LEFT TURN LANE SYMMETRICAL WIDENING

SCALE:  1"

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