



December 12, 2022

Mr. Mario Ghilotti  
Villa Vanto  
4485 D Street Extension  
Petaluma, CA 94952

## Transportation Impact Study for the Villa Vanto Farm Project

Dear Mr. Ghilotti;

W-Trans has completed an evaluation of potential transportation impacts associated with the proposed Villa Vanto Farm project to be located at 4485 D Street Extension in the County of Sonoma. The purpose of this letter is to present our findings relative to any potential transportation impacts associated with the project as well as the effect on operation during events.

### Setting

The study area consisted of the section of D Street fronting the project site and the project access point. The segment of D Street near the project site is a two-lane rural road with no posted speed limit so a *prima facie* speed limit of 55 mph would apply.

### Project Description

The proposed Use Permit would allow a small-scale agricultural processing operation and up to 28 special events annually to promote the farm's products on a 56.76-acre parcel within a new 5,020 square foot agricultural building. The promotional events would take place inside the structure and around it in two outdoor areas, with attendance levels of 40 to 200 attendees for the various types of events. The small-scale processing of lavender and other crops into oils and other products and the marketing and promotion of the farm commodities would complement the existing use of the site for production of beef cattle.

- File Number: UPE21-0064
- Address: 4485 D Street Extension
- APN: 020-130-037
- Project Name: Villa Vanto Farm
- Applicant Name: Mario Ghilotti
- Property Owner Name: Mario and Katherine Ghilotti

### Trip Generation

The anticipated trip generation for a proposed project is typically estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 11th Edition, 2021. However, as neither agriculture nor special events are covered by any standard rates, the trip generation was estimated using information from the County of Sonoma's Winery Trip Generation Form. During normal daily operation the two employees that would be on-site for the agricultural use would generate fewer than ten trips during a single hour. While it is understood that under the short term these "employees" would live on-site, for analysis purposes it was assumed that the employees would come from off-site, generating one trip each (or two trips total) during both the morning and evening peak hours.

For a maximum-sized 200-person event, an occupancy of 2.5 persons per vehicle was assumed along with ten employees. Based on application of these assumptions, the proposed event would be expected to generate up to 180 trips per day (160 for attendees and 20 for staff), including 80 during a single hour.

## Alternative Modes

The proposed project includes no modifications along the frontage on D Street, so would not affect any existing facilities nor would it preclude construction of any future facilities, though none are currently planned.

### Pedestrian Facilities

There are no pedestrian facilities along D Street in the vicinity of the project driveway.

**Finding** – Given the rural setting together with the type of use proposed, pedestrian trips to and from the site are not expected. Therefore, the lack of pedestrian facilities is acceptable.

### Bicycle Facilities

Currently, Class II bicycle lanes exist on both sides of the entirety of D Street, including along the project frontage.

**Finding** – Bicycle facilities serving the project site are adequate.

### Transit Facilities

There are no transit facilities on the segment of D Street adjacent to the project site. The closest transit facility is the D Street/El Rose Drive bus stop located 2.4 miles north of the project site.

**Finding** – Due to the rural setting of the project site, no demand for transit is anticipated so the lack of transit facilities considered acceptable.

**Significance Finding** – The project would not conflict with any of the County's policies or plans regarding transportation facilities, so would have a less-than-significant impact on facilities for alternative modes.

## Vehicle Miles Traveled (VMT)

Senate Bill (SB) 743 established the change in vehicle miles traveled as the metric to be applied for determining transportation impacts associated with development projects. As of the date of this analysis, Sonoma County has not yet adopted thresholds of significance related to VMT. As a result, project related VMT impacts were assessed based on guidance published by the California Governor's Office of Planning and Research (OPR) in the publication *Transportation Impacts (SB 743) CEQA Guidelines Update and Technical Advisory, 2018*. The OPR guidelines identify several criteria that may be used by jurisdictions to identify certain types of projects that are unlikely to have a significant VMT impact and can be "screened" from further analysis.

Certain types of projects, including small projects which OPR identifies as generating fewer than 110 new vehicle trips per day, are unlikely to have a VMT impact and can therefore be "screened" from further VMT analysis. As discussed above, the maximum of 28 200-person events, would be expected to generate an average of 180 trips per event, or 5,040 trips annually. On a typical day, the project would only generate an average of six trips assuming an average of three daily trips per employee. Over the course of the year this project would therefore generate an average of approximately 20 trips per day (6 for the two employees and 14 for events). Therefore, this project can be presumed to have a less-than-significant impact on VMT.

**Significance Finding** – The project would have an average daily trip generation of 20 trips, so as a small project would be assumed to have a less-than-significant VMT impact.

## Safety Analysis

### Sight Distance

Sight distance along D Street at the project driveway was evaluated based on sight distance criteria for rural county road driveway intersections and thresholds published by the American Association of State Highway and Transportation Officials (AASHTO). Field measurements indicate that sight distances from the driveway are approximately 520 feet to the east and over 700 feet to the south. As noted above, a 55-mph speed limit would apply. Based on the speed limit of 55 mph, the minimum stopping sight distance needed is 495 feet, indicating that the driveway has adequate sight distance.

**Finding** – The sight lines on D Street at the project driveway are adequate.

### Collision History

The collision history for the segment of D street within one-half mile of the project driveway was reviewed 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, 2017, through December 31, 2021. For this five-year period, there were four reported collisions along the one-mile-long study segment. Three out of four collisions reported for this segment involved hit objects and were due to improper turning. None of the collisions involved pedestrians or bicyclists.

The collision rate for the segment is 0.42 collisions per million vehicle miles (c/mvm), which is below the statewide average of 0.85 c/mvm. The injury rate was zero percent, which is well below the statewide average of 40.2 percent. A copy of the collision rate spreadsheet is enclosed.

### Turn Lane Warrants

The need for left-turn channelization in the form of a left-turn pocket on D Street was evaluated based on Existing Friday peak hour volumes (which are higher than Saturday volumes), maximum-sized event project generated volumes, and safety criteria. The site is located north of San Antonio Road, which provides access from US 101. It was therefore assumed that half the trips would arrive from the south and half from the north. Under Existing plus Project conditions, a left-turn lane is not warranted on D Street at the project driveway during the Friday or Saturday peak hour. A copy of the warrant spreadsheet is enclosed.

**Significance Finding** – The project would have a less-than-significant impact on safety and would not introduce any hazards due to its design or operation.

### Emergency Response

The project's driveway is approximately nine feet wide at its most narrow point, which does not meet the minimum driveway width of 12 feet as indicated in the Sonoma County Municipal Code Section 13-37. Because the project buildings would be more than 150 feet from the roadway, an on-site turnaround must be provided per Municipal Code Section 13-29.

**Finding** – The project driveway should be widened to have a minimum width of 12 feet to accommodate emergency response vehicles and an on-site turn-around provided.

**Recommendation** – It is recommended that the driveway be widened to meet the minimum-required width of 12 feet and that a turn-around be provided.

**Significance Finding** – The project would have a potentially significant impact in terms of emergency response due to the inadequate width of the driveway and lack of a turn-around. Provision of a sufficient driveway width and turnaround would reduce the impact to less-than-significant with mitigation.

## Promotional Event Sensitivity Analysis

Operation of D Street within one mile of the project site was evaluated under existing Friday and Saturday p.m. peak volumes and with trips from the largest event added. The one-mile segment operates at LOS C under existing Friday p.m. peak volumes and would continue to do so with project generated trips from the largest event added. Under existing Saturday p.m. peak volumes, the one-mile segment operates at LOS A and with project generated trips from the largest event added, the segment would operate acceptably at LOS B. Copies of the LOS analysis worksheets are enclosed.

## Conclusions and Recommendations

- The proposed farm project would on average generate a minimal number of trips, with less than ten per hour during normal daily operation, and two during the AM and PM peak hours. A maximum-sized 200-person event would be expected to generate an average of 180 trips.
- Pedestrian, bicycle, and transit facilities are adequate due to the rural location of the project site.
- With an average daily trip generation of 20 trips, the project would be expected to have a less-than-significant transportation impact on VMT.
- The collision and injury rates for the segment of D Street within one-half mile of the project driveway are below the statewide average.
- Sight lines from the project driveway are adequate in both directions.
- A left-turn lane is not warranted at the project driveway on D Street.
- Access and circulation for emergency response vehicles are not adequate. The driveway will need to be widened to at least 12 feet and a turn-around provided.
- D Street operates acceptably under existing weekday and weekend peak hour volumes and with the addition of project-generated volumes from a maximum-sized event.

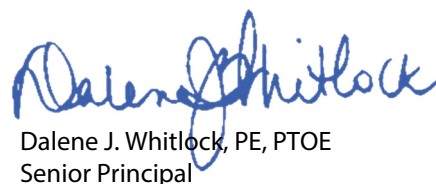
We hope this information is helpful to County staff in evaluating your project. Please contact us if you have any questions. Thank you for giving us the opportunity to provide these services.

Sincerely,



Valerie Haines, EIT  
Assistant Engineer

DJW/djw/SOX772.L1



Dalene J. Whitlock, PE, PTOE  
Senior Principal

Enclosures: Collision Rate Calculations, Turn Lane Warrant, LOS Calculations

## Roadway Segment Collision Rate Worksheet

**SOX772 - Villa Vanto Farm Project**

**Location:** Petaluma

**Date of Count:** Friday, September 09, 2022

**Average Daily Traffic (ADT):** 5,200

**Number of Collisions:** 4

**Number of Injuries:** 0

**Number of Fatalities:** 0

**Start Date:** January 1, 2017

**End Date:** December 31, 2021

**Number of Years:** 5

**Highway Type:** Conventional 2 lanes or less

**Area:** Rural

**Design Speed:** ≤55

**Terrain:** Flat

**Segment Length:** 1.0 miles

**Direction:** East/West

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

$$\text{Collision Rate} = \frac{4}{5,200} \times \frac{1,000,000}{365 \times 1 \times 5}$$

	Collision Rate	Fatality Rate	Injury Rate
<b>Study Segment</b>	<b>0.42 c/mvm</b>	<b>0.0%</b>	<b>0.0%</b>
<b>Statewide Average*</b>	<b>0.84 c/mvm</b>	<b>2.5%</b>	<b>40.2%</b>

**Notes**

ADT = average daily traffic volume

c/mvm = collisions per million vehicle miles

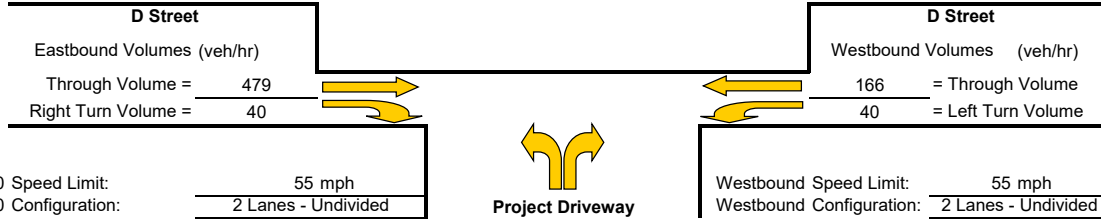
\* 2019 Collision Data on California State Highways, Caltrans

# Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: 4486 D Street Extension Project Driveway & D Street  
Study Scenario: Existing plus Project - Saturday Peak

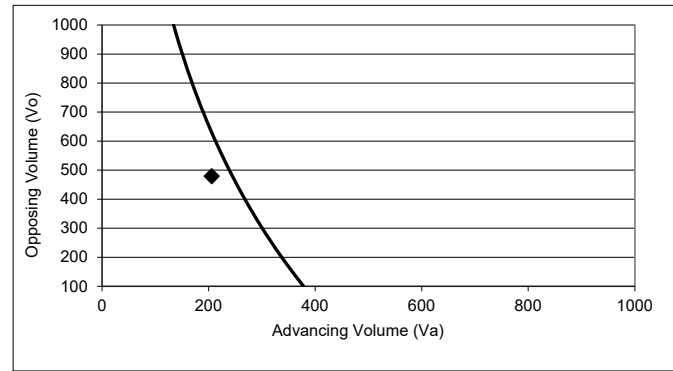
Direction of Analysis Street: East/West

Cross Street Intersects: From the South



## Westbound Left Turn Lane Warrants

Percentage Left Turns %Lt 19.4 %  
Advancing Volume Threshold AV 245 veh/hr  
If  $AV < Va$  then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 55 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.

# HCS Two-Lane Highway Report

## Project Information

Analyst	W-Trans	Date	9/29/2022
Agency		Analysis Year	2022
Jurisdiction		Time Analyzed	Friday PM Peak
Project Description	SOX772 - Villa Vanto Farm Project TIS	Units	U.S. Customary

## Segment 1

## Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

## Demand and Capacity

Directional Demand Flow Rate, veh/h	560	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.86	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.33

## Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.62517	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29763	PF Power Coefficient (p)	0.76044
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	5.6
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

## Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	56.7

## Vehicle Results

Average Speed, mi/h	56.7	Percent Followers, %	56.6
Segment Travel Time, minutes	1.06	Follower Density (FD), followers/mi/ln	5.6
Vehicle LOS	C		

## Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	560	Bicycle Effective Width, ft	23
Bicycle LOS Score	2.69	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	120	0.12	5.6	C

# HCS Two-Lane Highway Report

## Project Information

Analyst	W-Trans	Date	9/29/2022
Agency		Analysis Year	2022
Jurisdiction		Time Analyzed	Saturday PM Peak
Project Description	SOX772 - Villa Vanto Farm Project TIS	Units	U.S. Customary

## Segment 1

## Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

## Demand and Capacity

Directional Demand Flow Rate, veh/h	240	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.89	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.14

## Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.62517	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29763	PF Power Coefficient (p)	0.76044
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	1.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

## Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	58.0

## Vehicle Results

Average Speed, mi/h	58.0	Percent Followers, %	35.5
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	1.5
Vehicle LOS	A		

## Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	240	Bicycle Effective Width, ft	23
Bicycle LOS Score	2.26	Bicycle Effective Speed Factor	4.62
Bicycle LOS	B		

## Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	54	0.03	1.5	A



# HCS Two-Lane Highway Report

## Project Information

Analyst	W-Trans	Date	9/29/2022
Agency		Analysis Year	2022
Jurisdiction		Time Analyzed	Friday PM Peak with Project
Project Description	SOX772 - Villa Vanto Farm Project TIS	Units	U.S. Customary

## Segment 1

## Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

## Demand and Capacity

Directional Demand Flow Rate, veh/h	654	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.86	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.38

## Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.62517	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29763	PF Power Coefficient (p)	0.76044
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	7.1
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

## Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	56.4

## Vehicle Results

Average Speed, mi/h	56.4	Percent Followers, %	60.9
Segment Travel Time, minutes	1.06	Follower Density (FD), followers/mi/ln	7.1
Vehicle LOS	C		

## Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	654	Bicycle Effective Width, ft	23
Bicycle LOS Score	2.77	Bicycle Effective Speed Factor	4.62
Bicycle LOS	C		

## Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	140	0.15	7.1	C

# HCS Two-Lane Highway Report

## Project Information

Analyst	W-Trans	Date	9/29/2022
Agency		Analysis Year	2022
Jurisdiction		Time Analyzed	Saturday PM Peak
Project Description	SOX772 - Villa Vanto Farm Project TIS	Units	U.S. Customary

## Segment 1

## Vehicle Inputs

Segment Type	Passing Constrained	Length, ft	5280
Measured FFS	Measured	Free-Flow Speed, mi/h	60.0

## Demand and Capacity

Directional Demand Flow Rate, veh/h	330	Opposing Demand Flow Rate, veh/h	-
Peak Hour Factor	0.89	Total Trucks, %	0.00
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.19

## Intermediate Results

Segment Vertical Class	1	Free-Flow Speed, mi/h	60.0
Speed Slope Coefficient (m)	4.62517	Speed Power Coefficient (p)	0.41674
PF Slope Coefficient (m)	-1.29763	PF Power Coefficient (p)	0.76044
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	2.5
%Improvement to Percent Followers	0.0	%Improvement to Speed	0.0

## Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	57.5

## Vehicle Results

Average Speed, mi/h	57.5	Percent Followers, %	42.8
Segment Travel Time, minutes	1.04	Follower Density (FD), followers/mi/ln	2.5
Vehicle LOS	B		

## Bicycle Results

Percent Occupied Parking	0	Pavement Condition Rating	4
Flow Rate Outside Lane, veh/h	330	Bicycle Effective Width, ft	23
Bicycle LOS Score	2.42	Bicycle Effective Speed Factor	4.62
Bicycle LOS	B		

## Facility Results

T	VMT veh-mi/p	VHD veh-h/p	Follower Density, followers/ mi/ln	LOS
1	74	0.05	2.5	B