

June 10, 2014

Ms. Cherie Melka Melka Wines P.O. Box 82 Oakville, CA 94562

Subject:

Focused Traffic Analysis for the Proposed Melka Winery Project - Located at 2900 Silverado Trail Napa County

Dear Ms. Melka:

This report provides a focused traffic analysis for the proposed Melka Winery project located at 2900 Silverado Trail north of Deer Park Road in Calistoga (see Figure 1 for Project Vicinity Map). This study reflects our discussions with your planning consultant (Mr. Jake Storms) regarding the project characteristics and other adjacent approved/pending projects in the study area. In addition, all necessary field reviews, traffic counts, and overall analyses of the project's effect on traffic were conducted based on initial comments received from Napa County Planning, Building, and Environmental Services. Some of the key issues evaluated in this study include the following:

- Existing and future weekday PM and weekend mid-day peak hour operations at the Melka Winery Project Driveway/Silverado Trail intersection;
- Near-term (Year 2015) traffic conditions reflecting other approved/pending winery projects in the study area;
- Project trip generation relative to the proposed use permit on of winery production, employment, and visitor data;
- Project site circulation and vehicle access at the Silverado Trail project driveway and truck circulation;
- Cumulative year 2030 (no project) conditions along Silverado Trail based on the Napa County General Plan Update EIR.

The following sections outline existing and future traffic conditions with and without the proposed Melka Winery project based on input from Napa County Planning staff. Where necessary, measures have been recommended to ensure acceptable traffic flow, circulation, and/or fair share contribution to regional cumulative traffic improvements along Silverado Trail. I trust that this report responds to your needs. Please review this information and call me with any questions or comments.

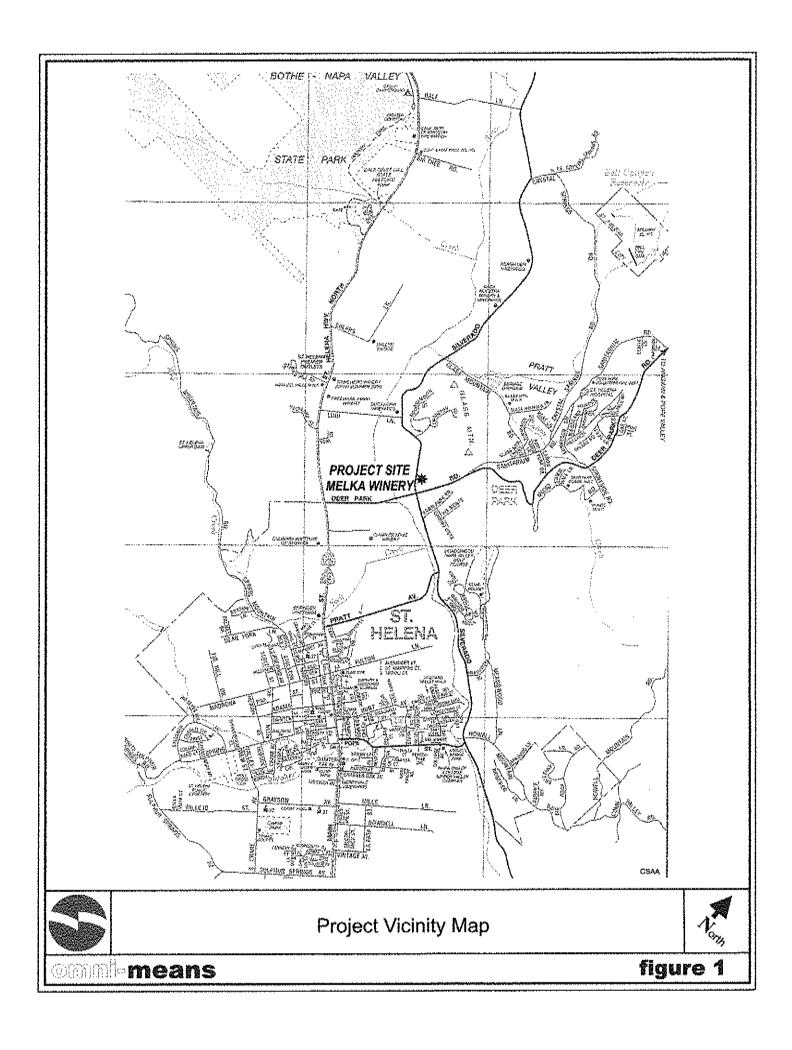
Sincerely,

George W. Nickelson, P.E. OMNI-MEANS, Ltd.

Berge Dukelow

Engineers & Planners

Attachments: Appendices R1792TIA004.docx/35-4569-01



1. EXISTING TRAFFIC CONDITIONS

Roadways

The proposed Melka Winery project would be located at 2900 Silverado Trial on the east side of roadway approximately 850 feet north of Deer Park Road. Located on the east side of the Napa Valley, Silverado Trial serves as one of the two north-south facilities extending through the valley. State Route 29 extends north-south along the west side of the valley and can be accessed via Deer Park Road. A brief description of the each roadway follows:

Silverado Trail extends in a northwest-southeast direction between Calistoga and St. Helena in the project study area. Classified as a two-lane rural arterial roadway, Silverado Trail provides access northwest to Calistoga and State Route 128 as well as southeast to Napa. In the immediate project site area, Silverado Trail functions as a two-lane rural highway and has two 12-foot travel lanes with 4-5 foot shoulders (striped each side) north of Deer Park Road. The speed limit on Silverado Trail is 55 mph. Napa County defines Silverado Trail as a two-lane, rural arterial roadway.

Deer Park Road extends east-west between State Route 29 and Silverado Trail approximately 850 south of the project site. The roadway continues east of Silverado Trail to provide access to Deer Park. A two-lane rural collector street with 7-8 foot shoulders, Deer Park Road is located north of St. Helena and comprises one of the Valley's main "cross-streets" that connects SR-29 and Silverado Trail (these include Pope Street to the south and Larkmead Lane to the north). Deer Park Road provides access primarily to agricultural (vineyards) areas in the project site vicinity.

Existing Intersection Volumes

In order to identify existing peak hour operating conditions, existing traffic counts were obtained from a very recent transportation study conducted for a proposed winery immediately west of the proposed project site off of Silverado Trail. Vehicle counts were conducted during a weekday PM commute period and a Saturday peak afternoon period at the following intersections:

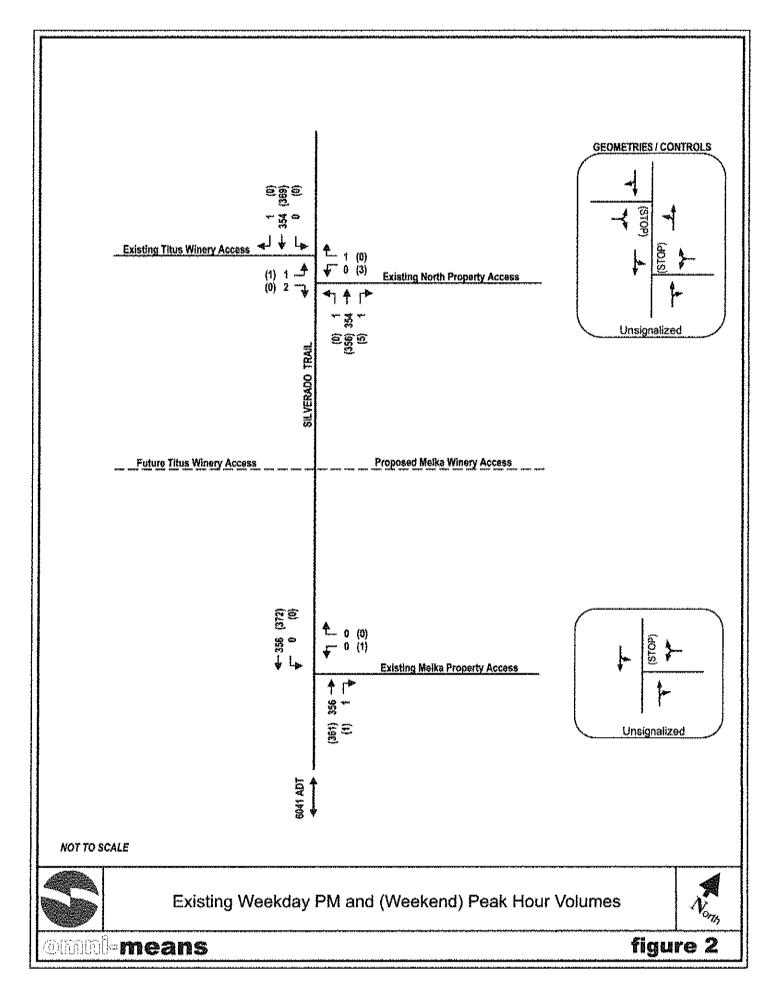
1. Silverado Trail/Project Driveway Vicinity Stop-control (minor driveway)

Peak period vehicle counts were conducted on a Friday late afternoon (3:00-6:00 p.m.) and Saturday afternoon (1:00-6:00 p.m.). The resultant "peak hour" of traffic flow on Silverado Trail occurs during 4:30-5:30 p.m. (Friday) and 2:45-3:45 p.m. (Saturday). Peak period counts were conducted during the harvest/crush season (late September) and reflect peak traffic conditions. With respect to the proposed project site driveway; there are currently no winery operations generating traffic at the property (only a single-family residence). Therefore, daily and peak hour driveway traffic for existing uses on the site was generated using Institute of Transportation Engineers (ITE) research on single-family homes resulting in one (1) peak hour trip and 10 daily trips.

Existing weekday PM peak hour and weekend mid-day peak hour intersection volumes have been shown in Figure 2.

¹ Crane Transportation Group (CTG), Traffic Impact Report—Proposed Titus Winery in Napa Valley, October 3, 2013.





Roadway Volumes

Based on new daily traffic counts conducted along Silverado Trail just north of Deer Park Road, Silverado Trail has a current average daily traffic volume of 6,401 vehicles.² Daily traffic volumes on Silverado Trail were collected on weekdays (Thursday-Friday) and on a weekend (Saturday). As with peak hour data collection, overall volumes are slightly higher on a Friday than on a Saturday (6,401ADT and 5,742 ADT). Based on Napa County's designation of Silverado Trail as a two-lane rural arterial, an ADT of 6,401 would be considered operating at LOS C.³

Existing Intersection Operation

Intersection operation is one of the primary factors in evaluating the carrying capacity of a roadway network. Traffic conditions are measured by Level of Service (LOS), which applies a letter ranking to successive levels of intersection performance. LOS 'A' represents optimum conditions with free-flow travel and no congestion. LOS 'F' represents severe congestion with long delays at the approaches. For intersections with minor street stop control, the LOS reflects the delays experienced by the minor street approach. (LOS definitions and calculation worksheets are provided in the Appendix).

The existing project driveway location at Silverado Trial is a minor-street, stop-controlled intersection. Located at the east end of the parcel, the driveway consists of single lane approach for the westbound right and left-turn movements onto Silverado Trail. This type of intersection is classified as three-way or (T-type) intersection. There is no southbound left-turn lane or northbound right-turn lane on Silverado Trail at the existing project driveway.

Based on the Highway Capacity Manual (HCM 2000) operations methodology for unsignalized intersections, existing weekday PM peak and weekend mid-day peak hour existing (no project) level-of-service has been shown in Table 1. As calculated during the weekday PM peak hour, the Silverado Trial /Melka Wines Project Driveway intersection is operating at LOS B (10.5 seconds) for the stop-sign controlled westbound driveway turning movements onto Silverado Trail. During the weekend (Saturday) mid-day peak hour, through-volumes on Silverado Trail are proportionately higher than weekday volumes. As a result, the Silverado Trail/Melka Wines Project driveway intersection is operating at LOS C (15.2 seconds) for the westbound movements onto Silverado Trail.

TABLE 1
EXISTING AND NEAR-TERM (NO PROJECT) CONDITIONS: INTERSECTION LEVELS-OF-SERVICE
WEEKDAY PM PEAK AND WEEKEND MID-DAY PEAK HOUR

	**************************************	I DAIL	ELIE TI ELETERITE	THE PERSON AND ADDRESS.	ALCOURT	
W. Carlon			Wkdy. PM	LOS/Delay	Wknd, Mid	-Day LOS/Delay
		Contr	ol Existing	Near-Term		
#	Intersection	Type	(No Project) (No Project)	(No Project) (No Project)
1	Silverado Trail/Melka Driveway (Res.)	Stop	B 10.5	C 10.5	C 15.2	C 16.0

Based on Highway Capacity Manual (HCM) 2000, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields an LOS and vehicle delay in seconds, Stated LOS refers to the minor street (stop-sign) controlled movement.

³ Napa County Baseline Data Report, Transportation and Circulation, Table 11-1, Napa County Roadway Segment Dully LOS Volume Thresholds, 2005.



² Baymetrics Traffic Resources, Average Daily Traffic (ADT) count, Silverado Trail (north of Deer Park Road), November 7-9, 2013

Based on the California Manual on Uniform Traffic Control Devices (CAMUTCD) peak hour signal warrant criteria, Silverado Trail/Melka Wines Project driveway intersection was evaluated for signalization. The peak hour warrants are one of several standards to help determine if installation of a traffic signal is appropriate. Qualifying for signalization using the peak hour warrants does not necessarily mean a signal should be installed. The study intersection does not qualify for signalization under the peak hour warrants as the peak hour volumes are too low (the warrant graphs are provided in the Appendix).

It is noted that the current project driveway serves only the existing Melka residence cottage and new home (under construction) located off of Silverado Trail (approximately 850 feet north of Deer Park Road). The actual project driveway serving Melka Winery uses would be constructed at a point between their existing residential driveway and adjacent residential driveway located approximately 385 feet to the north. The project applicant intends to close the existing driveway and use the new driveway to access both proposed winery and residential uses (residential areas of the parcel would be accessed via an internal branch of the driveway and electronic gate).

Current Site Traffic/Entitlements

To accurately assess the proposed project's trip generation and impacts, the site traffic was observed at the existing residential driveway serving the Melka residence off of Silverado Trail. However, during both the weekday and weekend peak periods, no vehicle trips were observed going to/from the residential driveway. Therefore, to establish existing conditions a preliminary calculation was done assuming a single-family residence generating one (1) peak hour trip and ten (10) daily trips based on Institute of Transportation Engineers (ITE) research (PM weekday and mid-day weekend). This intersection LOS calculation was done to establish an existing base for current residential site uses.

2. NEAR-TERM (NO PROJECT) CONDITIONS

Near-Term (Approved/Pending Projects)

Near-term (no project) conditions represent a reasonable period of time in which the proposed project could be approved and/or constructed. Based on discussions with County staff, a two-year period to the year 2015 has been established for near-term (no project) conditions representing all approved/pending projects within the study area. In addition, recent approved/pending projects within the City of Calistoga are included in the overall project list. To generate near-term (no project) conditions, both Napa County and City of Calistoga Planning staff were contacted for recently approved projects within the project site study area. These projects are located both northwest of the project site in Calistoga, in the immediate project study area, and south along Silverado Trail and are described as follows:

City of Calistoga:

Silver Rose Resort Winery & Spa 963 Silverado Trail Calistoga, CA 94515 Hotel: 85 rooms Health Club: 8.8 ksf Single-Family: 21 du's Restaurant: 150 seats Winery: 10,000 cases

⁶ Mr. Erik Lundquist, Senior Planner, City of Calistoga, Approved projects within the Calistoga City limits, Personal communication on March 25, 2013.



⁴ California Manual on Uniform Traffic Control Devices (CAMUTCD), Chapter 4C, Peak hour signal warrant (#3), 2012.
5 Ms. Suzzane Gardner-Gambill, Senior Planner, Planning, Building, and Environmental Services Department, Personal communication, Approved/pending project's in the Pickett Road and Calistoga area, March 14, 2013.

Indian Springs Expansion Project

1712 Lincoln Avenue Calistoga, CA 94515

Hotel: 95 rooms Restaurant: 90 seats

Aubert Winery 333 Silverado Trail Calistoga, CA 94515 Production: 10,000 cases Visitors: 50 visitors/day Employees: n.a.

Brian Arden Winery 331 Silverado Trail Calistoga, CA 94515 Production: 10,000 cases Visitors: 60 visitors/day

Employees: 4 full-time, 4 part-time

Lava Vine Winery 963 Silverado Trail Calistoga, CA 94515 Production: 12,600 cases Visitors: 90 visitors/day

Employees: 4 full-time, 4 part-time

Napa County:

Larkmead Cellars Vineyard 1100 Larkmead Lane

Production: No change Visitors: No change

Calistoga, CA 94515

Employees: 6 full-time, 4 part-time

Kelly Fleming Winery 2339 Pickett Road Calistoga, CA 94515

Production: 20,000 gallons Visitors: 24 visitors/day

Employees: 8 full-time, 4 part-time

Venge Winery 4708 Silverado Trail Calistoga, CA 94515 Production: 20,000 gallons Visitors: 140 visitors/week

Employees: 2 full-time, 2 part-time

Davis Estates Winery 4060 Silverado Trail Napa County, CA

Production: 30,000 gallons Visitors: 34 visitors/day Employees: 5 full-time

Titus Winery 2971 Silverado Trail Napa County, CA

Production: 24,000 gallons Visitors: 60 visitors/day

Employees: 10 full-time, 2 part-time

Araujo Wincry 2155 Picket Road Calistoga, CA 94515 Production: 20,000 gallons Visitors: 18 visitors/day

Employees: 12 full-time, 2 part-time

Near-Term (No Project) Trip Generation

Near-term (approved/pending) projects' weekday PM hour, weekend mid-day peak hour, and daily traffic volumes have been taken directly from previous transportation analyses performed for those projects and these include the following:

W-Trans, Traffic Impact Study for the Silver Rose Winery and Resort Project, City of Calistoga, February 14, 2012;



- W-Trans, Traffic Study for the Lava Vine Winery Project, City of Calistoga, January 18, 2012;
- W-Trans, Focused Traffic Impact Analysis for the Brian Arden Winery, City of Calistoga, November 29, 2011;
- W-Trans, Focused Traffic Analysis for the August Briggs (Aubert) Winery, City of Calistoga, December 4, 2002;
- Omni-Means Engineers & Planners, Updated Traffic Study for the Proposed Davis Estates Winery Project, Napa County, Draft Report, March 11, 2013 (included Larkmead Cellars Winery and Indian Springs Expansion projects).
- Omni-Means Engineers & Planners, Focused Traffic Analysis for the Proposed Araujo Estate Winery Project, 2155 Pickett Road, May 2, 2013;
- Crane Transportation Group, Traffic Impact Report, Proposed Titus Winery in Napa Valley, October 3, 2013.

For all remaining approved/pending projects, weekday PM peak, weekend peak hour, and daily traffic volumes have been calculated based on Use Permit modifications provided by Napa County Planning staff. These included the Venge Winery and Kelly Fleming Winery. Employee peaking factors and auto occupancy rates for visitors are based on recent winery research conducted by the Napa County Conservation, Development, and Planning Department.

Near-term (no project) daily and peak hour volumes for the weekday and weekend have been added to existing intersection volumes based on Silverado Trail travel flows and previous transportation analyses conducted in the area. Near-term (no project) volumes for weekday PM peak hour and weekend mid-day peak hour have been shown in Figure 3.

Near-Term (No Project) Circulation Improvements

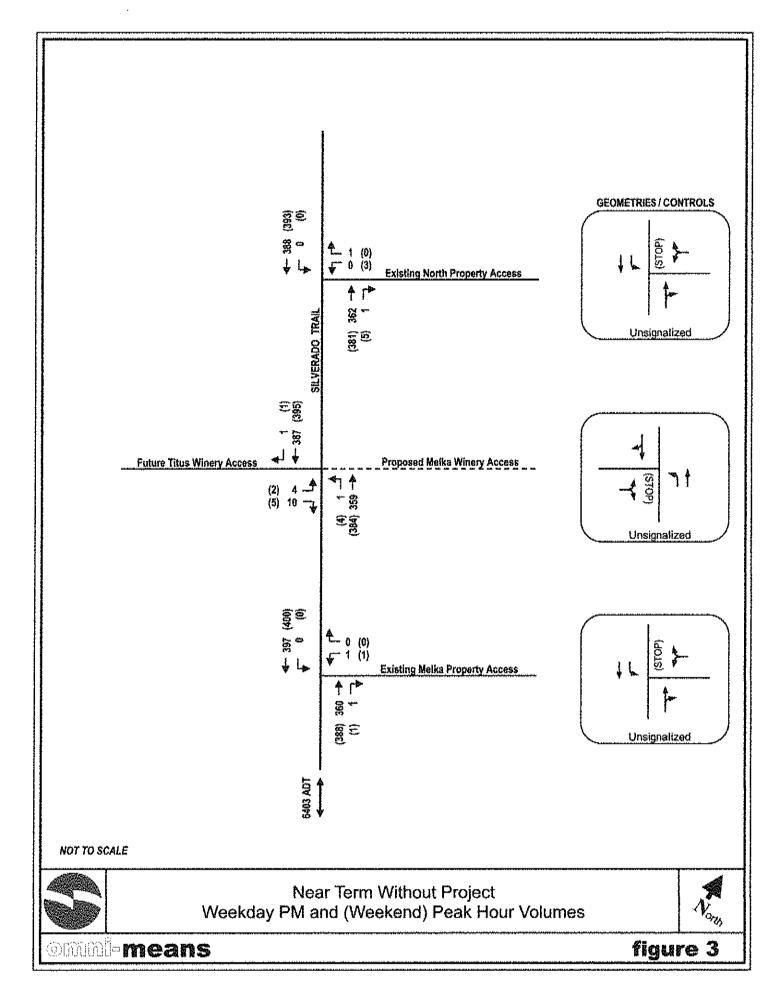
In the immediate project study area, the Titus Winery is planning to re-locate their existing driveway that is currently located just north of the Melka Winery parcel on the west side of Silverado Trail. As part of this re-location effort, Titus Winery would install a northbound left-turn lane on Silverado Trail. The new driveway would be re-located approximately 240 feet east from its existing location. This would place the new driveway directly opposite the Melka Winery parcel. Based on discussions with the project applicant's civil engineers, they are currently working with the Titus Winery consultants in an attempt to align both the proposed Melka Winery driveway with the re-located Titus Winery driveway to form a four-way intersection.⁷ This would improve vehicle and pedestrian safety on Silverado Trail by focusing vehicle turning movements at the two driveways and eliminating potential off-set/conflicting movements.

Near-Term (No Project) Intersection/Roadway Operation

With near-term (no project) volumes, study intersection LOS has been calculated and are shown in Table 1. The Silverado Trail/Melka Wines Project Driveway intersection would experience very slight on no increase in vehicle delays during the weekday PM peak hour and/or weekend mid-day peak hour. For the minor street (driveway) outbound turning movements, LOS would remain unchanged from LOS B (10.5 secs) conditions. During the Saturday mid-day peak, intersection LOS would remain at C with slight increases in vehicle delay from (15.2 secs.) to (16.0 secs). Based on CAMUTCD peak hour signal warrant criteria (Warrant #3), the Silverado Trail/Melka Wines Project driveway intersection would not qualify for signalization with near-term (no project) volumes. ADT on Silverado Trail would increase to 6,763 (LOS C).

Joel Dickerson, P.E., Project Manager, Delta Consulting & Engineering, Melka Winery Exhibit Alt. 3—20 FT w/ Split (11-19-13), Personal communication, November 19, 2012.





3. Napa County Significance Criteria

The County of Napa's significance criteria has been based on a review of the Napa County Transportation and Planning Agency and Napa County General Plan documentation on roadway and intersection operations. Specifically, the Circulation Element of the County's General Plan outlines the following significance criteria specific to intersection operation:

Intersections

- The County shall seek to maintain a Level of Service D or better at all intersections, except where
 the level of service already exceeds this standard (i.e. Level of Service E or F) and where
 increased intersection capacity is not feasible without substantial additional right-of-way.
- No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met.

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

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

4. PROPOSED PROJECT IMPACTS

Project Description

Proposed winery operations would primarily include production with very small employee and visitor components. There would be limited marketing events consistent with existing Napa Valley activities. Based on discussions with the project applicant, winery production would begin in small batches. Phase I would include 25 barrels or approximately 10 tons of fruit (on-haul) using the existing on-site barn structure. The ultimate buildout phase would expand the production to 240 barrels (120 barrels per vintage; one aging and one new crushed). To accommodate the ultimate production goal, a second structure would be constructed that would house the barrels and allow 45-60 tons of fruit production. However, the applicant indicates that the winery would likely process 45 tons of fruit (annually) given existing and planned facilities. Proposed project components can be described as follows:

Production 10,000 gallons annual

Employees: Weekday: I full-time, I part-time

Weekend: I full-time, I part-time



Visitors:

Weekday: 5 visitors

Weekend: 7 visitors

Trucks:

Weekday: 1 truck per day

Weekend: 1 truck per day

Daily operations for the proposed Melka Winery project would involve an all on-site winery operation with a maximum annual production of 10,000 gallons (4,050 cases). All fruit would be processed on-site during the year with the majority occurring during the harvest/crush season. 37 weekly visitors (by appointment only) are expected Monday through Saturday (the winery would be closed to visitation on Sundays); an average of five (5) daily visitors on a typical weekday and seven (7) daily visitors on a Saturday. Visitor hours would be limited between 10:00 a.m.-4:00 p.m. Employment is expected to be a maximum of 1 full-time employee and I part-time employee during both the weekday and weekend periods. The proposed project's marketing plan can be described as follows:

Wincry Marketing Plan

- Tours and Tastings: Seven (7) per day maximum, with up to five (5) persons on a weekday and seven persons on a Saturday (37 persons maximum/week—no public tours, appointment only, closed Sunday);
- Larger Auction-Related Events: Maximum of two (2) events per year; 75 persons maximum (1st event) and 100 persons in attendance at largest event (associated with Napa Valley Auction).

Project Trip Generation/Distribution

The proposed project's weekday and weekend peak hour and daily traffic volumes have been calculated and are shown in Table 3. Employee peaking factors and auto occupancy rates for visitors are based on recent winery research conducted by the Napa County Conservation, Development, and Planning Department. Based on a 10,000 gallon winery with one full-time employee, one part-time employee, and 37 weekly visitors, the proposed project would be expected to generate 10 weekday daily trips with four (4) weekday PM peak hour trips (1 in, 3 out). During a typical weekend (Saturday), the project would be expected to generate 10 daily trips with five (5) mid-day (afternoon) peak hour trips (3 in, 2 out). Combined with the existing one-site single-family residence, the total trip generation for the project would equate to 20 weekday daily trips with five (5) weekday PM peak hour trips. During the weekend, the proposed project would generate 20 daily trips with six (6) mid-day Saturday peak hour trips.

During the six-week harvest crush season, the proposed project is expected to generate an average of 16 daily trips. Based on the largest marketing event attendance of 100 persons (once per year), there would total generation of 87 event trips.

To determine traffic conditions with the proposed project, the calculated project trips were added to existing volumes. Based on observed turning percentages and recent transportation studies in the area, the project trips were distributed 30% to/from the north and 70% to/from the south on Silverado Trail.

Daily, weekday PM peak hour, and weekend mid-day peak hour project trips (only) have been shown in Figure 4. Existing plus project and near-term plus project volumes have been shown in Figure 5 and 6.

⁹County of Napa, Conservation, Development, and Planning Department, "Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2012.



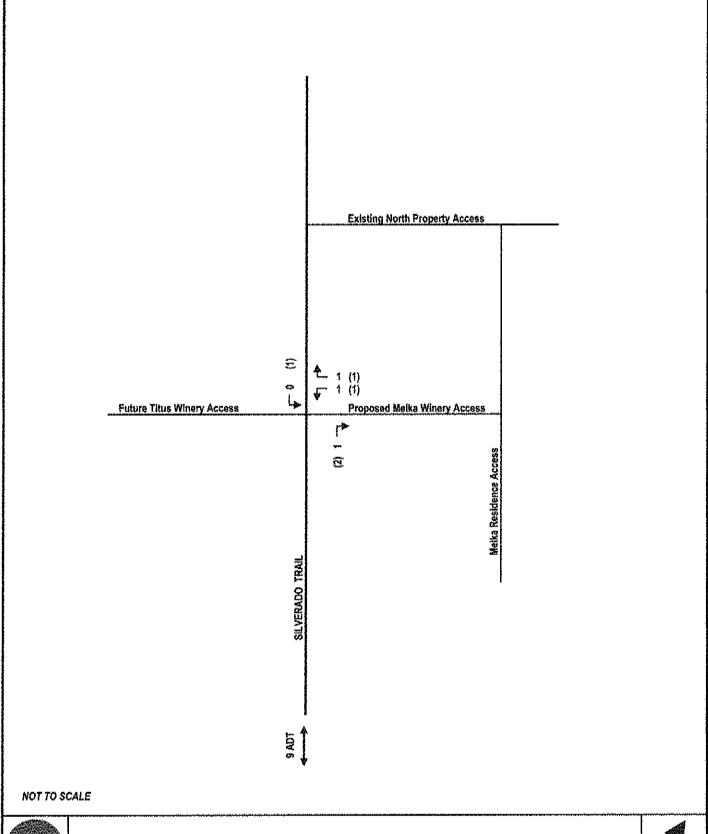
⁸ Project Statement; Aranjo Estate Winery Use Permit Major Modification, APN 020-340-030, 2155 Pickett Road, Calistoga, Ca, 2013.

TABLE 3 PEAK HOUR AND DAILY TRIP GENERATION: PROPOSED MELKA WINERY PROJECT

Weekday Daily Traffic:		
5 visitors/2.6 persons per vehicle x 2 one-way trips	<u>-</u>	4 daily trips
1 full time employees x 3.05 one-way trips		3 daily trips
1 part-time employees x 1.90 one-way trips	11714.	2 daily trips
10,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	PROGET.	I daily trips
Total Weekday Daily Trips		10 daily trips
		- .
Weekday PM Peak Hour Traffic:		
(4 daily visitor trips + 1 daily truck trips) x 0.38 peak	MD1	2 peak hour trips
l full time employees x 1 trip/employee	=	I peak hour trips
1 part-time employees/2	=	1 peak hour trips
Total Weekday PM Peak Hour Trips	PILIT	4 trips (1 in, 3 out)
337		
Weekend (Saturday) Daily Traffic:		
7 visitors/2.8 persons per vehicle x 2 one-way trips	=	5 daily trips
1 full time employees x 3.05 one-way trips	=	3 daily trips
1 part-time employees x 1.90 one-way trips		2 daily trips
Total Weekend (Saturday) Daily Trips	=	10 daily trips
Weekend (Saturday) Peak Hour Traffic:		
5 daily visitor trips x 0.57 peak	<u>₩-27</u>	2
1 full time employees x 1 trip/employee		3 peak hour trips
1 part-time employees/2	<u> </u>	l peak hour trips
Total Weekend (Saturday) Peak Hour Trips	-	l peak hour trips
The state of the s		5 trips (3 in, 2 out)
Weekend (Saturday) Daily Harvest/Crush Traffic:		
7 visitors/2.8 persons per vehicle x 2 one-way trips	<u></u>	5 daily trips
1 full time employees x 3.05 one-way trips	=	3 daily trips
3 part-time employees x 1.90 one-way trips	==	6 daily trips
10,000 gallons/1,000 x .009 daily trucks x 2 o-w trips	<u></u>	1 daily trips
20 annual ton grapes (on-haul)/144 daily trucks x 2 o-w trip	os =	1 daily trips
Total Weekend (Saturday) Daily Harvest/Crush Trips		16 daily trips
•		
<u> Largest Marketing Event – Additional Traffic</u>		
6 event staff x 2 one-way trips per person	DE .	12 event trips
100 visitors / 2.8 visitors per vehicle x 2 o-w trips	2734	71 event trips
2 trucks x 2 one-way trips	=	4 event trips
Total Largest Event Marketing Trips:	707	87 event trips
		7

Source: Production, employee, and visitor data provided by Ms. Cherie Melka (project applicant) and Mr. Jake Storms (Planning Consultant), project representative, May, 2014. Daily and peak hour calculations based on County of Napa, Conservation, Development, and Planning Department, "Use Permit Application Package," Napa County Winery Traffic Generation Characteristics, 2012.

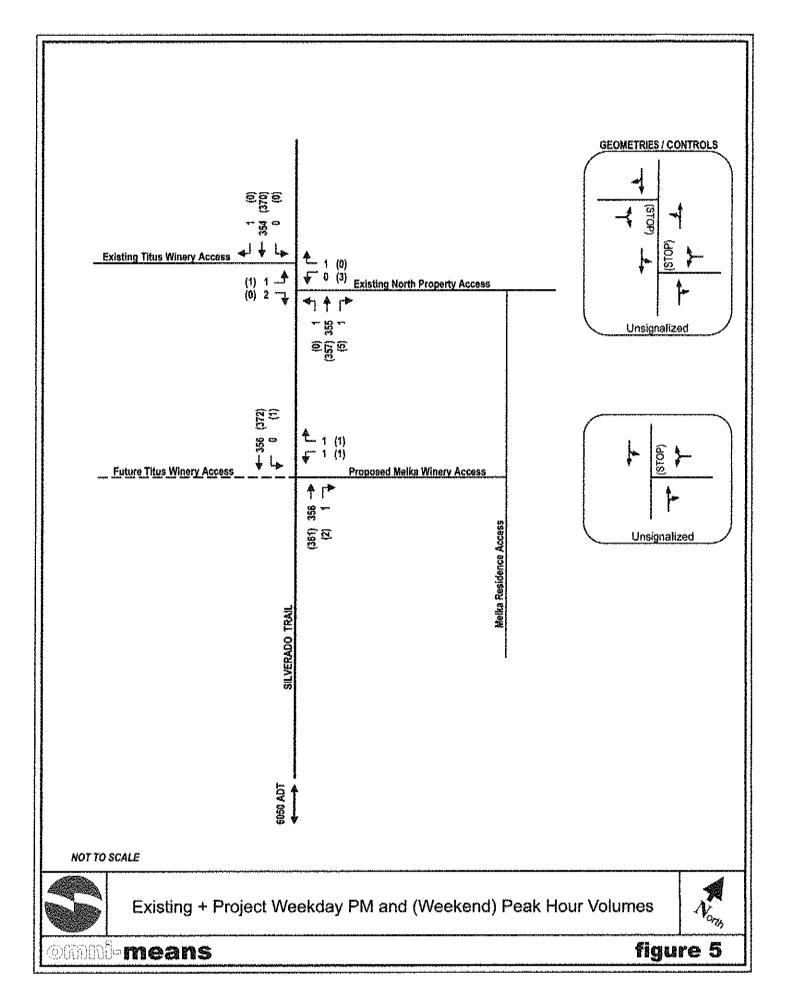


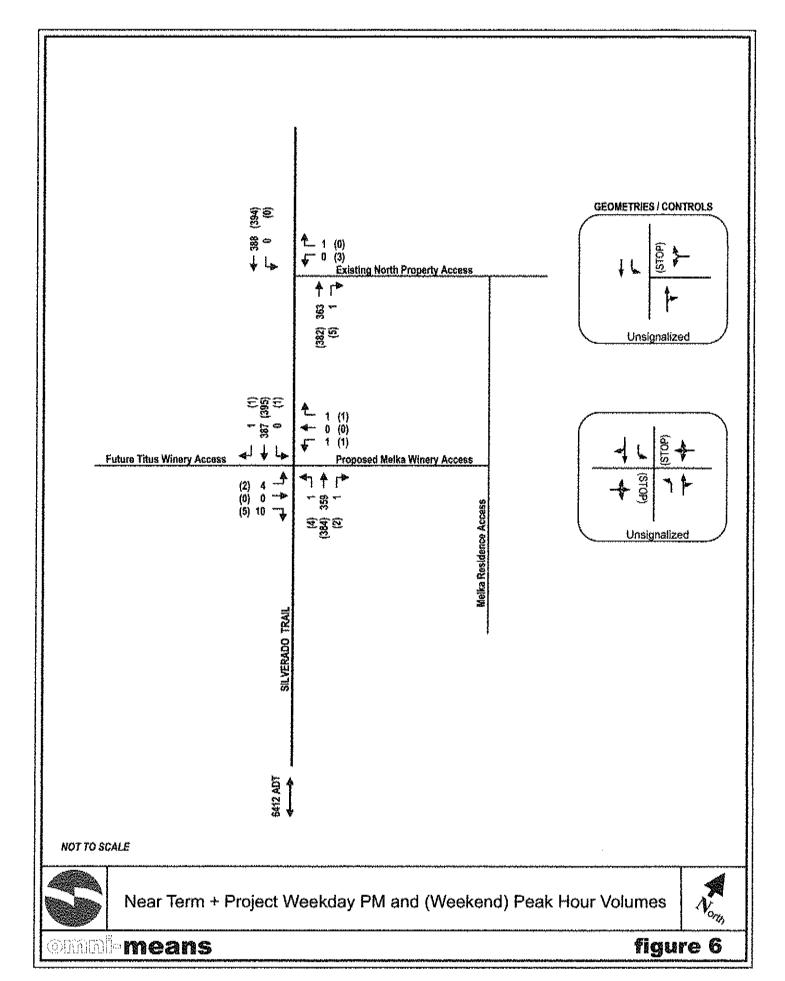


omni-means

Weekday PM and (Weekend) Peak Hour Project Trips







Project Effects on Roadway/Intersection Operation

A. Existing Plus Project Conditions

The project would be expected to add approximately 14 daily trips south of the site and six (6) daily trips north of the site on Silverado Trail. This would represent an addition of less than one percent (0.003) to the daily volumes on Silverado Trail. The combined existing plus project volume of 6,421 daily trips would remain well within the carrying capacity of a two-lane, rural arterial roadway with conditions equivalent to LOS 'C'.

During the peak winery activity periods, the project would generate five (5) weekday PM peak hour and six (6) Saturday mid-day peak hour trips. It is noted that the proposed project tasting hours would not extend past 4:00 p.m. Therefore, it is likely that weekday PM peak hour project traffic is slightly over-stated given County peaking factors and all winery-related traffic would be outbound from the facility. Weekday PM peak hour and weekend mid-day peak hour intersection levels of service were evaluated with proposed project traffic and are shown in Table 4.

With existing plus project traffic volumes, the intersection would continue to operate at acceptable levels (LOS B or better) during both the weekday PM peak hour and weekend mid-day peak hour periods. At shown in Table 4, intersection LOS would remain unchanged from existing conditions with very slight increases in overall vehicle detays. The intersection of Silverado Trail/Melka Winery Project driveway would not meet the minimum volume required for signalization under CAMUTCD peak hour warrant criteria.

The existing and existing plus project volumes were compared with the Napa County guidelines for installing a left turn lane on Silverado Trail at the Melka Winery driveway. (The warrant graphs for weekday and Saturday conditions are provided in the Appendix). With 20 daily weekday/weekend trips at the proposed project driveway and 6,421 daily trips on Silverado Trail, a left-turn lane would not be warranted on Silverado Trail.

The projected right turn volumes at the site driveways are well below minimum thresholds at which right turn lane would be required (right turn lane warrant graphs are included in the Appendix). 11

B. Near-Term Plus Project Conditions

With near-term plus project conditions, daily traffic volumes on Silverado Trail would increase to 6,783 ADT. Again, this would be within the carrying capacity of a two-lane, rural arterial roadway (LOS C).

The re-aligned project driveway intersection at Silverado Trail (opposite Titus Winery driveway) would operate at acceptable levels (LOS B or better) during both the weekday PM peak hour and weekend midday peak hour under near-term with project conditions. Driveway volumes at the both the proposed project and/or Titus Driveway would exceed not exceed the minimum volumes thresholds (Warrant #3) for signalization.). With 20 daily weekday/weekend trips at the proposed project driveway and 6,783 daily trips on Silverado Trail, a left-turn lane would not be warranted on Silverado Trail based on County guidelines.

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



¹⁰ Napa County, Adopted Road and Street Standards, Left-Turn Lanc Warrant Graph, revised November 21, 2006.

TABLE 4 EXISTING PLUS PROJECT AND NEAR-TERM PLUS PROJECT CONDITIONS: INTERSECTION LEVELS-OF-SERVICE

WEEKDAY PM PEAK AND WEEKEND MID-DAY PEAK HOUR

0.000			Wkdy, PM	LOS/Delay	Wknd. M	id-Day LOS/Delay
		Contre	L Existing +	Near-Term	Existing +	Near-Term
#	Intersection	type	Project	+ Project	Project	+ Project
ì	Silverado Trail/Melka Wine Driveway	Stop	B 13.5	B 11.8	B 13.7	B 12.0

Based on Highway Capacity Manual (HCM) 2000, Operations methodology for stop-sign controlled (unsignalized) intersections using Synchro-Simtraffic software. Intersection calculation yields on LOS and vehicle delay in seconds. Stated LOS refers to the minor street (stop-sign) controlled movement. Near-term plus project conditions assume newly aligned four-way intersection of Silverado Trail/Titus Winery Driveway/Melka Winery Driveway.

The projected right turn volumes at the site driveways would remain well below minimum thresholds at which right turn lanes would be required (right turn lane warrant graphs are included in the Appendix).

5. SITE ACCESS/DESIGN PARAMETERS

Sight Distance

Vehicle sight distance at the existing Silverado Trail/Melka Winery Project driveway intersection (at its current location) was evaluated. The required vehicle visibility or "corner sight distance" is a function of travel speeds Silverado Trail. Caltrans design standards indicate that for appropriate corner sight distance, "a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the cross road and the driver of an approaching vehicle in the right lane of the main highway". Caltrans design guidelines also indicate that the minimum corner sight distance "shall be equal to the stopping sight distance".

Silverado Trail has a posted speed limit of 50-55 mph. New radar speed surveys of Silverado Trail were conducted for the roadway in the project area. ¹² The "critical" vehicle speed (the speed at which 85% of all surveyed vehicles travel at or below) along Silverado Trail was measured at 49 mph. Caltrans' design standards indicate that these vehicle speeds require a stopping sight distance of 415-430 feet, measured along the travel lanes on Silverado Trail. ¹³ Based on field measurements, sight distance from the current Melka Wines existing residential driveway to the north on Silverado Trail is in excess of this distance. However, vehicle sight distance to the south is limited to 270 feet due to an existing rock wall and roadway curvature. For this reason, the existing Melka Winery driveway would be moved to a point north to align with the relocated Titus Winery driveway (see below--Project Access and Circulation). The new Melka Winery Project driveway location would be moved approximately 270-300 feet north from its existing location. This new proposed project driveway location would provide adequate vehicle sight distance in both directions on Silverado Trial. Therefore, the sight distance recommendations would be met for the speed limit and measured vehicle speeds.

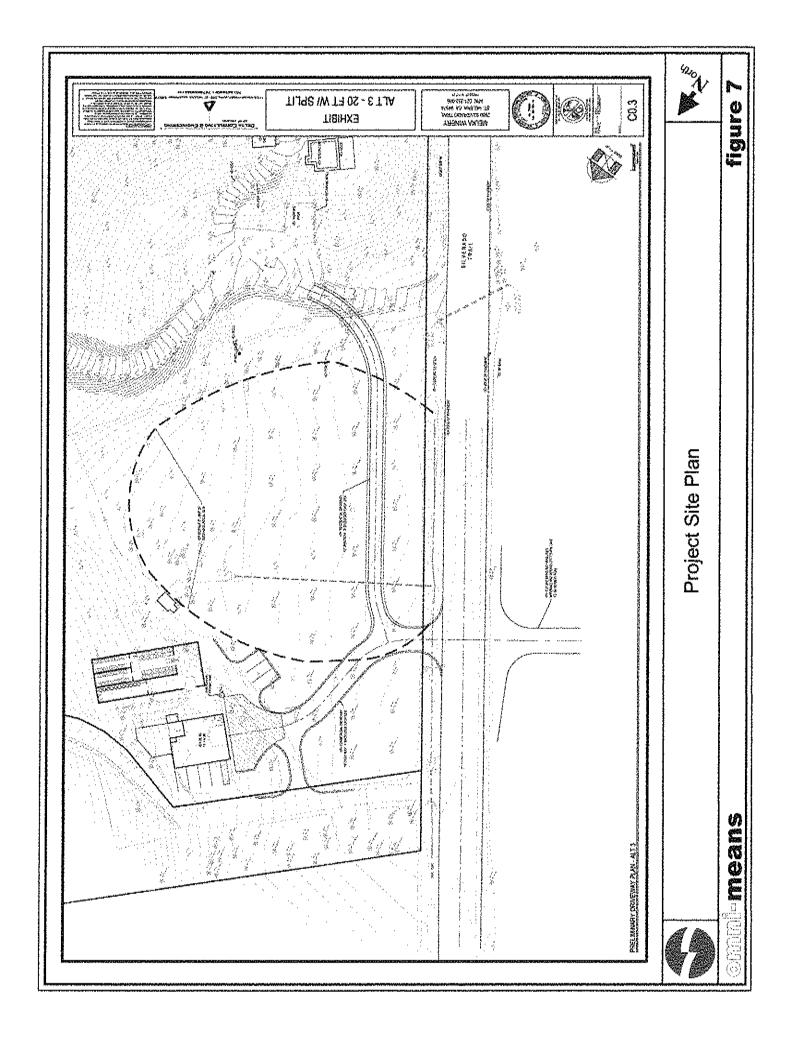
Project Access and Circulation

The existing Melka Winery Project driveway currently serving residential uses on the parcel would be relocated to the north approximately 270-300 feet to serve both proposed winery and residential uses. As shown in Figure 7 (Project Site Plan), the Melka Winery driveway would be located opposite the new Titus Winery driveway off Silverado Trail. The proposed project driveway would serve both winery and residential uses on the parcel. However, driveway access to residential uses would be gated with an

¹³ Caltrans, Highway Design Manual, Table 405.1A, Corner (Stopping) Sight Distance, 6th Edition, 2009.



¹² Omni Means Engineers & Planners, Radar vehicle speed surveys, 2900 Silverado Trail, November 16, 2013.



electronic pass keypad and no winery-related traffic would use this segment. The internal driveway width serving winery uses would meet the County's minimum requirement of 18-foot travel width extending northeast to the winery barn and tasting room. The vehicle circulation area in front of the main buildings would allow access for emergency vehicles (fire trucks) and parking (three spaces). The proposed winery driveway would then connect to the existing driveway to the north via an access easement. The driveway easement would serve two purposes; 1) provide access to additional parking areas (four spaces) on the north side of the existing winery building, and, 2) allow trucks to circulate through the site. Trucks would enter the site via the new project driveway and exit the site via the existing driveway to the north. It is noted that only trucks would use the existing driveway to the north to exit out onto Silverado Trail. No winery related vehicle traffic would be allowed to use this existing driveway for inbound/outbound egress and directional signage should be installed to enforce traffic flow.

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

Marketing Events

The winery proposes to host the following marketing large events: two annual events; one event with 75 guests; one event with 100 guests related to the Napa Valley Wine Auction.

Based on standard auto occupancy rates, the annual 100-person event would be expected to generate approximately 87 trips (44 in, 43 out) including visitors and staff. These events are typically of sufficient duration in length that the inbound and outbound trips occur in separate hours, thus the number of trips on the street network at one time are half of the total volume. These events are usually held outside of typical peak traffic periods (during the middle of the day or later than 6:00 p.m.) and therefore generally do not impact peak hour operations and no other visitation or events would occur during the annual events.

6. CUMULATIVE CONDITIONS

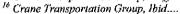
Cumulative Year 2030 Projections

Model Forecast

Cumulative (Year 2030) volume projections on Silverado Trail were derived from the Napa County Transportation & Planning Agency's traffic volume forecasts in the Napa County General Plan Update EIR and recent transportation analysis conducted in the project study area ¹⁵. The forecast increase in weekday PM peak hour volumes from Year 2000 to Year 2030 on Silverado Trail in the project vicinity is approximately 125% north of Deer Park Road and 100% south of Deer Park Road. Using the most recent traffic analysis performed for the adjacent Titus Winery project, this would equate to an approximate 46% increase in straight line volumes on Silverado Trail between 2013 and 2030. ¹⁶

In order to identify weekend cumulative conditions, the General Plan Update provides a ratio of weekday to weekend peak hour volumes on key streets within the valley. For Silverado Trail, the segment listed has an average ratio of 0.88, indicating weekend peak hour volumes are expected to be about 90% of

¹⁵ Crane Transportation Group, Traffic Impact Report—Proposed Titus Winery in Napa Valley, October 3, 2013.





¹⁴ Napa County, Countywide Bicycle Plan (2012), Planning Area-North Valley, May 2012.

weekday volumes. This corresponds with the volumes counted for this study which found the weekend peak hour volumes to be approximately 90% of the weekday peak hour volumes. Therefore the future weekday vs. weekend peak hour volumes would be expected to remain in the same ratio as the existing volumes.

Cumulative Operating Conditions

Although cumulative volumes are highly conservative, the forecast volumes would yield acceptable LOS 'C-D' conditions (8,600-13,800 ADT) on Silverado Trail. Applying the same weekday PM peak hour increase to daily traffic volumes (as a conservative measure), existing ADT on Silverado Trail would increase from 6,401 trips to 9,345 daily trips.

With regard to weekday PM peak hour and weekend mid-day peak hour intersection operation under cumulative year 2030 (no project) conditions, the existing Silverado Trail/Melka Winery Project driveway intersection would operate at acceptable conditions (LOS C or better) using County volume projections. With proposed project traffic, the newly aligned Silverado Trail/Titus Winery Driveway/Melka Winery Project driveway intersection operation would operate at LOS B during both weekday PM peak hour and weekend mid-day peak hours.

Additional improvements to the street network are anticipated and have been included in the General Plan's Improved 2030 Network model. As noted, the County has also adopted several measures identified in the General Plan to reduce vehicle trips through public transit and Transportation Demand Management (TDM) strategies: "The project should support programs to reduce single occupant vehicle use and encourage alternative travel modes."

In keeping with the policy, the winery project will provide bicycle racks for visitors who may arrive
by bike. The project should also promote the use of public transportation and carpooling of
employees (by adjusting work schedules, etc.) to facilitate the use of other transportation modes.

7. SUMMARY AND CONCLUSIONS

Daily and Peak Hour Operations

The proposed Melka Winery project would generate 20 daily trips during the weekday and weekend periods (respectively). Proposed project traffic would represent an increase of less than 1% (0.003) over the existing Silverado Trail volume of 6,041 daily trips. All project study intersections would operate at LOS C or better under existing plus project conditions during both weekday and weekend peak hour conditions.

With near-term (approved/pending) development traffic volumes, the near-term and near-term plus project conditions would continue to operate acceptably. Near-term daily volumes on Silverado Trail are expected to be approximately 6,763 ADT without the project and 6,783 with the project trips, representative of LOS C conditions. The study intersection would continue to operate at satisfactory levels-of-service under near-term plus project conditions at LOS C or better during the weekday and weekend peak hour conditions.

Vehicle Sight Distance and Left-Turn Warrant

Silverado Trail has a posted speed limit of 50-55 mph. New radar speed surveys of Silverado Trail were conducted for the roadway in the project area. 17 The "critical" vehicle speed (the speed at which 85% of all

¹⁷ Omni Means Engineers & Planners, Radar vehicle speed surveys, 2900 Silverado Trail, November 16, 2013.



surveyed vehicles travel at or below) along Silverado Trail was measured at 49 mph. Caltrans' design standards indicate that these vehicle speeds require a stopping sight distance of 415-430 feet, measured along the travel lanes on Silverado Trail. Based on field measurements, sight distance from the current Melka Wines existing residential driveway to the north on Silverado Trail is in excess of this distance. However, vehicle sight distance to the south is limited to 270 feet due to an existing rock wall and roadway curvature. For this reason, the existing Melka Winery driveway would be moved to a point north to align with re-located Titus Winery driveway. The new Melka Winery Project driveway location would be moved approximately 270-300 feet north from its existing location. This new proposed project driveway location would provide adequate vehicle sight distance in both directions on Silverado Trial. Therefore, the sight distance recommendations would be met for the speed limit and measured vehicle speeds.

Existing and near-term volumes with proposed project traffic were compared with the Napa County guidelines for installing a left turn lane on Silverado Trail at the Melka Winery driveway. (The warrant graphs for weekday and Saturday conditions are provided in the Appendix). With 20 weekday/weekend trips at the proposed project driveway and 6,783 daily trips on Silverado Trail, a left turn lane is not warranted. This would apply to both existing plus project and near-term plus project conditions. As previously noted, the project applicant would be aligning their new driveway with the proposed Titus Winery's new driveway on the west side of Silverado Trail to create a four-way intersection. This would improve vehicle and pedestrian safety on Silverado Trail by focusing vehicle turning movements at the two driveways and eliminating potential off-set/conflicting movements.

Vehicle Circulation/Access

The existing Melka Winery Project driveway currently serving residential uses on the parcel would be relocated to the north approximately 270-300 feet to serve both proposed winery and residential uses. As shown in Figure 7 (Project Site Plan), the Melka Winery driveway would be located opposite the new Titus Winery driveway off Silverado Trail. The proposed project driveway would serve both winery and residential uses on the parcel. However, driveway access to residential uses would be gated with an electronic pass keypad and no winery-related traffic would use this segment. The internal driveway width serving winery uses would meet the County's minimum requirement of 18-foot travel width extending northeast to the winery barn and tasting room. The vehicle circulation area in front of the main buildings would allow access for emergency vehicles (fire trucks) and parking (three spaces). The proposed winery driveway would then connect to the existing driveway to the north via an access easement. The driveway easement would serve two purposes; 1) provide access to additional parking areas (four spaces) on the north side of the existing winery building, and, 2) allow trucks to circulate through the site. Trucks would enter the site via the new project driveway and exit the site via the existing driveway to the north. It is noted that only trucks would use the existing driveway to the north to exit out onto Silverado Trail. No winery related vehicle would be allowed to use this existing driveway for inbound/outbound egress and directional signage should be installed to enforce traffic flow.

Cumulative Year 2030 Conditions

Cumulative (Year 2030) volume projections on Silverado Trail were derived from the Napa County Transportation & Planning Agency's traffic volume forecasts in the Napa County General Plan Update EIR and recent transportation analysis conducted in the project study area²⁰. The Silverado Trail/Melka Winery Project driveway would operate at acceptable levels at LOS B (no project) and LOS B (with project) during the weekday PM and weekend mid-day peak hours. The improvement in intersection operation is due

²⁰ Crane Transportation Group, Traffic Impact Report—Proposed Titus Winery in Napa Valley, October 3, 2013.



¹⁸ Caltrans, Highway Design Manual, Table 405.14, Corner (Stopping) Sight Distance, 6th Edition, 2009.

¹⁹ Napa County, Adopted Road and Street Standards, revised November 21, 2006.

to a planned two-way-left-turn-lane that would be installed on Silverado Trail to serve the relocated Titus Winery, proposed Melka Winery, and adjacent residential driveway.



APPENDIX

Level of Service Definitions

Level of Service Calculations

Signal Warrant Sheets

Average Daily Traffic (ADT) Counts (Silverado Trail n/o Deer Park Road)

Radar Speed Surveys (Silverado Trail/Melka Winery Driveway)

Left-Turn Lane Warrant Graph (Napa County)

Right-Turn Lane Warrant Graph (Caltrans)

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<u>.</u>	Approaching Unstable Flow	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles of stopping dechnes. Individual cycle failures are noticeable.	Maneuverability is severely finited during short periods due to temporary back-ups.	>35 and < 55.0 secs.	>25 and ≤ 35.0	>25 and ≤ 35.0
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ш.	Forced Flow	Generally considered to be unacceptable to most drivers. Often occurs with over saturation. May also occur at high volume-to-capacity ratios. There are many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors.	fammed conditions. Back-ups from other locations restrict or prevent movement. Volumes may vary widely, depending principally on the downstream back-un conditions	> 80.0 secs.	> 50.0	> 50.0
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C1, stage 1 conf vol	Salah Maria Salah		. 22-20, 10-07	er fast ettiga		10/11/9/11/944	Andrew State (1974).	na ingana di s	ere i ere	erick in de	VO TALLONGA TOL Village and the second
2, stage 2 conf vol		oranet:	y Delta	an in Art				400000000			Kriat.
Cu, unblocked vol	777	388			388						
, single (s)	6.4	6.2			4.1		S-PH-NA				
, 2 stage (s)	3.5	് കൊ	Curumetti, kisi,	ار الاسرام (ماراده) ا	2.2	nasawa nas	e with the section	ent territores	sasila en sas	ring riyangan	santan ba
(s)) queue free %	99	3.3 100		des delegral fo	100	Alaphylania (10)		Partitude (Cont.)	40.0000	ar Hiji ah jibik.	Of her of the SAT
/ capacity (veh/h)	365	661			1170			Samonale		Not had been	Eviling Byer
		NB 1	SB 1	eselearinetente	1815-1874)F6A-0750)				10000000000000000000000000000000000000		
rection, Lane# olume Total	WB 1 3	388	388		28 XX 28						
olume Left	2	. 300		si kaspansi b	nigira (animi	414 00 350	eginti, farmiya i	0.000	waykutan ba	(A. 1 & 2)	8 - 108 Juli 41 - 410 .
olume Right	ar A	an Šar		e Ara era Era	Servery.	vya gad	vigality	2000/080	42323	Yan Xiri	
iH	429		1170								
olume to Capacity	0.01		0.00		Yan ili						
ueue Length 95th (ft)	1	0	0	: 1	ninger o	ta aversari	entre de la company	n onto italia	n maaan	na na sasana i	organie kar
ontrol Delay (s) me LOS	13.5	0.0	0.0	i wali rai Ni			yem eyya	estrocata			manaaa a
pproach Delay (s)	8 13.5	0.0	0.0			adagayan,	477 677	an arkgan		g. 4555543	640014 N. DV
pproach LOS		0.0		331 75297 7	erser (1994)	Stephina Leed	and the state of	Albert Charles	research of	A. W. Arreita	41,411,674,477,47
	mar Codotto All Defension conte	langussanderakanistis	tokanomienia suovi	OPENNY CONTRACTORS		ASSELONZEN JUSTE HANG	og krážickoválkoválk	4807A2277579766	7637777000EE4		
ersection Summary											
rerage Delay tersection Capacity Util	tantion i	(150 pt (150)	0.1 9.5%	100	l 11 ava	of Serv	ilce		1911 A 1801	a Level	North Allen
iersection Capacity Our nalysis Period (min)	IEGILIOI 3	10 (1855)	15	ga sang ay i	U LOVO	م يقادم الحداد	doe	A MANAGE	1.00	1 A. I. I. N. 14741.	in vinit is, is
mayoro i onda (min)	1.00000			er a servición	1. 15. 5. 4.	and the second	and a market of the second		and the second	and the second	and the second

lovement WEL WER NET NER SEL SET
ane Configurations 🌳 🚯 🍕 ign Control Stop Free
rade 0% 0% 0%
olume (veh/h)
eak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92 outly flow rate (vph) 2 1 392 2 1 404
edestrians
ane Width (ft) /alking Speed (ft/s)
ercent Blockage
ight turn flare (veh)
edian type edian storage veh)
pstream signal (ft)
X, platoon unblocked C, conflicting volume 1 800 1 393
C1, stage 1 conf voi
32, stage 2 confivol Du, unblocked vol 800 393 395
zu, unblocked voi
. 2 stage (s)
(s) 3.5 3.3 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2 2.2
Vi capacity (veh/h) 354 655
rection, Lane# WB1 NB1 SB1
olume Total 3 395 405 olume Left 2 0 1
olume Right
SH 418 1700 1164 Signe to Capacity 0.01 0.23 0.00
olume to Capacity 0.01 0.23 0.00 ueue Length 95th (ft) 1 0 0
ontrol Delay (s) 13.7 0.0 0.0
ane LOS B A pproach Delay (s) 13.7 0.0 0.0 10.0 10.0 10.0 10.0 10.0 10.0
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verage Delay 0.1
tersection Capacity Utilization 30.4% ICU Level of Service halysis Period (min) 15
Recommendation of the commentation of the expension of the commendation of the commend

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Movement	EBL	EBT	EBR	WEL	WET	WBR	NEL	NET	NBR	8BL	SBT	SB
Lane Configurations		- 4			4	or and editions	V ₁	_ 1+	all production	\	<u> </u>	er ere
Sign Control		Stop	Mary		Stop		5.5.5.5.5.5	Free			Free	
Grade	ta in the same	0%			0%	alikatin ngar	energia de la lace	0%	anan Sera	en e	0%	er er
Volume (veh/h)	4	0	10	2	0			359	(1900 1 TH (387	
Peak Hour Factor	0.92	0,92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.9
lourly flow rate (vph)	- (a.a. .⁴)	0	11	2	0	i de da	- 1 A	390	propagas.	de a Alpha	421	W.
Pedestrians	er er gerech		Same of the	. Herrina	National Services	sanga gan	Arrente de la compre	e garantar	Aug ethern	1,504 y 175	44 04 15.	10.00
ane Width (ft)	armad, ful	, militari	ni tiithi	Day dayah	droin in its	or devikte	100144-000	in Section	inis 3 galakts	, ali ak tigita d	Ambilias ja li	- (1-17)
Walking Speed (ft/s)	e a any greg	and pade of		and market	i sytemet	2023 PS 1933	9896 - 388	sis y lawy	Parangalas	5000 Sector	9,7,8 - 17	30.00
Percent Blockage Right turn flare (veh)	Safe Addition of	Distriction as	respectful.	is the first for	registral garage	septimental.	indy haidy to the	the programme	entered being		A A TAN	A 10 10 10 10 10 10 10 10 10 10 10 10 10
Aedian type	28.58200 4	WLTL	4450,000	28 m 1920 m 1 1	TWLTL	91249,003	de Salter	48,000,000	144996). ş		aggreen vid	4.055 T
viedian type Viedian storage veh)	talan mengerata	2	M. Karthadhar	4,447,437,4	2	3 1 10 A 2 C	Are la resist	. 1400 A. 4.	programme.	Acres with a	Tank Assess	71,2
Jostream signal (ft)	94455. W	gandê,	كالرفاع والأمليل	145 13040	**************************************	diganaj siggi	yan da way	10.00	\$110 GMA	9.604900	ar dalah dal	(today
oX, platoon unblocked	0.000	13 (254) 23	Constitution of the	111-1	41.57.00.000	atel de littere	elf area s	re a creation	and the sail	uli di era algebrike	140-00-0	
C, conflicting volume	817	817	421	827	817	391	422	ويوسي يراوي		391	49,30483	1413
C1, stage 1 conf vol	423	423	THE PARTY	393	393	(in the second		Angelog (1994)	to the feature of		1989 1 1 8 1	A 3 15
C2, stage 2 conf vol	393	393	velava n	434		*53 0000s				errigi s	3(3)(13)	
Cu, unblocked vol	817	817	421	827	817	391	422	. 1 . 1.00 %		391		1,500
C, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1	4300.495		4.1	46/1999	218
C, 2 stage (s)	6.1	5.5	5 14 4 AF THE	6.1	5.5							
F (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2	la Michael	Augusto.	2.2		1120
00 queue free %	99	100	98	100	100	100	100	.,		100		
:M capacity (veh/h)	498	488	632	489	488	658	1137	المن والمتقلميا	of the control of the	1167		
Direction Lane#	EB 1		1865-1	NB 2		SB 2			endere er ender			
Volume Total	15	7401		391		422	Maria Para		and the second second	a sa esta esta esta esta esta esta esta		
volume ≀otar √olume Left	⊕3 ⊅ 4	3 2	NA SYSTAM		(1) (전기(전) 기계	0	A ROPEL	ester in 100 c	n tarak	1.0%	rper (1947)	
Volume Len Volume Right	(11)	Selo f i	o e	acese 4			A 45 2.54	isa baybay	1000000	ng ganga	ang Nyago Las	9.75
:SH	587	534	1137	1700	1167	1700	Markette,		ere in earlier in	Maria Ma	record in	* 5,17
Volume to Capacity	0.03	0.01	0.00		0.00	0.25	halat pyth			a, minusi (ggg,ac
Queue Length 95th (ft)	2	0.01	0.00	0.20	0.00	0		2541 3 4551 N.Y.	14.1.4.1.34.43	artigo de la redición.	adde of the	1, 100
Control Delay (s)	11.3	11.8	8.2	0.0	8.1	0.0	garra Assar	. 55 PAC VI.	peningue.	#44.57	F8936945	Agray's
ane LOS		В	Α	a carrier	A	The Sections	riana anta arr		*****	2 4 4 4 4 1 1 1 1 2 4		
Approach Delay (s)	11.3	11.8	0.0	a Alvandr	0.0	ABRIER.			i saggreson	amagna.		
Approach LOS	8	В	or the property	2.20 7.1.67			Television of	A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	e verbiere vi		.,,	. (
	nan ang ang ang ang ang ang ang ang ang	ni projekty siedoko inikani	දුරුණු වැන්නේ දැකියන් වන	MCZK9-P44900680465413	(GERMANDEN ARBEITA	THE PROPERTY OF THE PROPERTY O	Z NEROD SANSHANIA 1889	(Service College		CONTRACTOR CONTRACTOR	3.03/2002/35/25 /20 0	
dersection Summary												30.00
\verage Delay		tig or a partie	0.3	and the second	A	المناجعة طائد الواد	والمستحدد	evi sana aktiv	garater a nsa	eres y la comp	and the second	en de la com
ntersection Capacity Uti	tization		30.4%		CU Lev	el of Ser	Aice :		A	erelation d		district.
Analysis Period (min)		er geranak	15	egagan inana 1.	1 14 1 1	iyo sebabi da	9.500, 10.	14834.4.21	syncyttals.	o soveri	y system is	9-6-175-1
	建黄 阿拉	Operate de la co			ng uput bi e Mul	2876.18.00	1 1,50	miller Marie	51,35985	Vigor Stock	Other St. A	1.17.171

	, *		~>	#"	*******	4	4	1	<i>/</i> *	7	ļ	4
Movement	EBL	:EBT	EBR	WEL	WET	WBR	NEL	NBT	MBR	86[_	SET	SBR
Lane Configurations		4			 ♠	er en jare	ኝ.	Ţ»	3-85, 1 - 2.	™ i	₽	n in vie
Sign Control	kii Albanh	Stop			Stop	nan His	1994	Free 0%	# (mm, m7.2)	76.00 - 15.00	Free 0%	anary.
Grade	Defenden er	0%	and the second		0% 0	Mar Marine	an and said	384	an magain	5.50 Mars	395	11 E 14
Volume (veh/h) Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	0.52	5.52	0.52	ိ်ီဂ်	0.00 <u>2</u>	4	417	2	90.0 1	429	1
Pedestrians	teg tibera ay eg		an a na a a		, '7 . 1 , ''' "	graden in de la	rana, alajir a v	a sagaran e	;			
Lane Width (ft)	Haji ya 1931	ar dia		14/4/03/03	93069							3000
Walking Speed (ft/s)						,						
Percent Blockage	á pivojay			840A 204		walle.						
Right turn flare (veh)										rantanta t		
Median type	T	WLTL			WLTL							
Median storage veh)		2		200 July 2002	2			reactions to	an and the second	100,000	Georgia	
Upstream signal (ft)		Mark		Star (1948)		es imas per	ipskajejan	a elektriki şi		14.75	yî salan D	Strain!
pX, platoon unblocked	ergen jaroka kanales		ne ni Militar kacama	n emakanan	ويقيعونين أأدر	or makeners	History I		ranga njar	ii. Aranii	ere as to the	are ses se
vC, conflicting volume	859	860	430	864 427	860 427	418	430	garan di ja	ar in die	420	terri Piliki is	pet e et lac
vC1, stage 1 conf vol	432 427	432 428	omerica.	427	433	989. (6186)	19769999	0.14219-942	1084304	yan gab	egration al	45,000
vC2, stage 2 conf vol vCu, unblocked vol	859	860	430		860	418	430	(a) (f. 1/2/e)	i para di Ari	420	+0/1+1+11	galiny farit
tC, single (s)	∵.7∵1	6.5	6.2		6.5	6.2	4.1	a 3 4565 PA	Aught Arg	4.1		2000
tC, 2 stage (s)	6.1	5.5		6.1	5.5			water and plant of	1 - 1,11 - 14 - 14 - 1	Vest 400		*** *** **
tF (s)	3.5	4.0	3.3		4.0	3.3	2.2	werden	<u> </u>	2.2	anyane	
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	481	473	625	476	473	635	1129			1140		34 A.
Direction Lane#	EB 1	WB 1	NB t	NB 2	887	SB 2						
Volume Total	8	3	4	420	5	430		근존하다		FRANK.		
Volume Left	2	2	4	0	1	0		Mark to the State of	7 198 - 1.S	ngarang at 1957	97 St. 5757	. 3 . 5 7 7 7 7
Volume Right	5	1	1400	4700	0	4700	APPLACE.				NEWNERS	10,000
cSH	576	519	1129	1700 0.25	1140	1700 0.25	James gargesta	governa de vi	0.035 0.0046	MI 14.40 1 E.	03484799	
Volume to Capacity	0.01 1	0.01	0.00	0,25	0.00	0.25	depolitical	ephonometrical	Mary Salatin	in en tipeM	programme and the	347,379
Queue Length 95th (ft) Control Delay (s)	11.3	12.0	8.2	_	8.2	0.0	yr o bae	ngà li Hy	. germegya	ya Nesti	ayyang y	9:034W
Lane LOS	:∵•.⊶ B	B	A.2	ariyi Qib ir	A	ala a a s er e pe rca	F. C. 15. 15. 15.	pulta as us	ekilik yan kigil ke	100.	ad New Arthur A	A. P. A. M. S.
Approach Delay (s)	11.3	12.0	0.1	at payers i	0.0	scensor		usabah		BORGO	ya panya	
Approach LOS	В	В		and the same		,					* *.	, .
• •	emenenneksbadi	interpretations	Melante 2000 p. 77 (55 M. 77	and the constitution		esionesinylaisutiinte	63200 PEO (1000)	\$2570FQ\$ \$40750205			17.50 27.52 SAN	
Intersection Summary						1000						
Average Delay	ا خيدانيدون	v., 2949.	0.2 30.9%		O (3 vo.2	el of Ser	vire	NEW MEN	8044 × 70	eng year		387 - X.3
Intersection Capacity Uti Analysis Period (min)	mza(IOI)	g (Meng)	30.9% 15	. <u>. 19</u> 4 14 12 8	المهيمانية أخالتهم	ei oi adi	vice :::	VIII AND IN	ne jedy et Eth i da	s permita	(1) (a) (1)	e general Miljo
mnaiysis renou (mm)	eng parina	و بن مراد مر	13.33	arveres de	garanga.	e Hujiyi Waz	4673490	W. 1981.6		wa ya bara	pegalary	M. 86/63
grangs on the kind of the a Mexico specified in	e mending (1	and the second	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	e - 1 e e e		.,			-, -, -	,	

	5		^	1	ļ			
Movement	WBL	WER 1	JET NER	SBL	581			
Lane Configurations	. Cron :	suspicioni e	†) ree	ranga, kumaga	यी Free	ng agama ganagaan	nga nga tina taka	estala villa Aliza di Aliza
Sign Control Grade	Stop 0%		0%	Designations	0%	NAMAS A DA SAMAS A	POST AND CAMPA	Appropriate and a second of the
Volume (veh/h)	: Žõ		390 1.	0	635			高级性的 计双分钟
Peak Hour Factor	0.92		0.92	0.92	0.92			ann a cann tae cadheach
Hourly flow rate (vph) Pedestrians	110 E O		424	0	690	MANAGAR.		
recestrians Lane Width (ft)	4,757 00 p30	engalan yeng	umakia daka		ANGENIA DE	ronga orang	ga guganga ya	5400300003868
Walking Speed (ft/s)	All distributions	era kata a li bahari	a mak ara shaarahaa		**************************************	art a tall, the tall		
Percent Blockage	randr 194							
Right turn flare (veh)	maana Lini	and the second second	ene des englishes si	y magny pagnily	New 2000 NOT 10 12	115 May 1 1 1 1 1 1 1 1	a systemate of the	Zerung ugung bista teyak (196)
Median type Median storage veh)	None		z stratiliste eft i ei	tkirtheli (filmawe)	Permer Alty and in	Make Mingaper (May 12) M	19 - Mari 19 19 19 19 2	The State of the State of the States
Upstream signal (ft)		900) BAR						
pX, platoon unblocked		in and a second	e tental versende		to per orași National	. Nesselve and a min	STATUS SERVICES A	LN CONTRACTOR STREET MAN
vC, conflicting volume	1115	424		425				
vC1, stage 1 conf vol vC2, stage 2 conf vol	eranga.	engar engar	agajas jiga 200		ang ang Kabupatèn Bangai Mga Pangai Kabupatèn Bangai	<u> </u>	warwaya, P	aring oxignise
vCu, unblocked vol	1115	424	History of State and	425		er er er er er ger.		
tC, single (s)	6.4	6.2		471		608.61.086		
tC, 2 stage (s) tF (s)	3.5	3.3	.540,53440,540	2.2		2019 - Simble S	15,003 (km) (A. Jano)	naka e wa Fesikisa
p0 queue free %	100	100	ugusidak sidda bilik d	100	ioni ngangaras.	TO A SERVICE OF STATE	To all and serve	Auto Africa, Milande Leag Bandi
cM capacity (veh/h)	230	630		1134				
Direction Lane#	WB 1	NB 1 S	B 1					
Volume Total		425	690	V: 5. 46				
Volume Left	0	0	0	رمد مروان ومدرجة	Now Court and Authority	in the state of the state of	er i sekt gegender.	erum europpin kanalia ke bahay
Volume Right cSH	630	1700 1	134	MURRICULARY	Agrantic property	Mark Mereka 1	Mac Market	
Volume to Capacity	0.00).00	4978.984	nets Standig Sadda			
Queue Length 95th (ft)	0	0	0					
Control Delay (s)	10.7	0.0	0.0					
Lane LOS Approach Delay (s)	B 10.7	0.0	0.0			ggas eggeng og s	andro o om d	1939 - Maria Barrian, 1931 - Angles Angl
Approach LOS	В	V.O	O.O. Sept. Company	Milita, sa eleterro se	theath but will be	Aller Marchaelm	(n. 194 ₎ an kiris akan j	an'i nationality and an 1990 to
ntersection Summery	 	30 20 35 25 35 37 37 37 37 37 37 37 37 37 37 37 37 37		90000000000000000000000000000000000000				
Average Delay		Z-430	0.0					STATE OF THE PARTY
Intersection Capacity Ut	llization		.4% i	CU Leve	of Service		A	
Analysis Period (min)	ver gregorijenske ok		15	r man in and	esta a serritoria escit	e e gogodowa bio 1798	reging reger and r	i esti kulta i jurk u kiku tikra i terse
		production and	ninantijaanin yle			sa Milit Direct		an ilman al ma

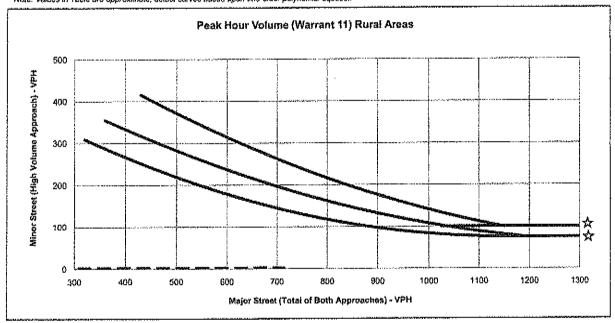
Movement WBL WBR NBT NBR SBL SBT
Lane Configurations Yf Is Is Sign Control Stop Free Free Grade 0% 0% 0% Volume (veh/h) 0 1 529 1 0 540 Peak Hour Factor 0.92 0.92 0.92 0.92 0.92 0.92
Hourly flow rate (vph) 575 1 0 587 Pedestrians Lane Width (ft)
Walking Speed (ft/s) Percent Blockage Right turn flare (veh)
Median type Median storage veh) Upstream signal (ft)
pX, platoon unblocked vC, conflicting volume 1162 576 vC1, stage 1 conf vol
vC2, stage 2 conf vol vCu, unblocked vol 1162 576 576 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s)
tF (s) 3.5 3.3 2.2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
Direction, Lane # WB 1 NB 1 SB 1 Volume Total 1 576 587 Volume Left 0 0 0 Volume Right 1 1 0 cSH 517 1700 997 Volume to Capacity 0.00 0.34 0.00
Queue Length 95th (ft) 0 0 0 0 Control Delay (s) 12.0 0.0 0.0 Lane LOS B Approach Delay (s) 12.0 0.0 0.0 Approach LOS B
Average Delay 0.0 Intersection Capacity Utilization 38.4% ICU Level of Service A Analysis Period (min) 15

	À			1	₩	4	4	Î	1	\		4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	<u> NBL</u>	NBT	NBR	SEL	SBT	8B)
Lane Configurations		4		r see ee s	4	d ou	*		r esperative	Ŋ	.	
Sign Control		Stop		will the	Stop			Free		i emigrifica	Free 0%	Their.
Grade	e single sa	0%		ا دومون والراجة الله	0%	gernanger Gernander		0% 390	2003/14/20	of the a gency	635	September
Volume (veh/h)	0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.9
Peak Hour Factor	0.92	0.92	11	0.92	0.92	0.52	· · · · · · · · · · · · · · · · · · ·	424	0.02	1.4	690	0.0
Hourly flow rate (vph) Pedestrians	Villariya ti		ordofa.	elijih ve 🤏	nga garang.	es di + de +dd¶i		T	500 p. 153 p. 1	· \		
Lene Width (ft)	aprijetu:	ar gyddiae	98.836	San San A	nah alah	essiblità			an ay		35.45.5	31183
Walking Speed (ft/s)	arting ar	A CYMPICAL	Sea e di seta	Programme a	1977, 1979, 1979	11.00	20000 110	A 1813 1. 1.				
Percent Blockage	90.25049	rvasių, sūs,	water:	400 BW	OF CON	girunga,		MARKET				
Right turn flare (veh)	. 245.41.11		44.75/57.444									
Median type	5.14 EST	WLTL			TWLTL		grandensker end Kriggradi en krig				yan di	unji, is
Median storage veh)		2	,		2							
Upstream signal (ft)	4.54						A. Gayes					100
pX, platoon unblocked						15.5		and the second	aramatan .		100 000	
vC, conflicting volume	1120		691		1120	424	691			425	inger:	
vC1, stage 1 conf vol	693	693		427	427	agent agents	. Alesta sa	11500 1150 125	and a reserved	Samuel Samuel	وردر خارجا وخار	ega area.
vC2, stage 2 conf vol	427	427		703	693		and.	9400 Hill	Haramer.	405		744.1
vCu, unblocked vol	1120	1120	691	1130	1120	424	691 4.1		an en desemble	425 4.1	5 x 2 x 2 x 2 x 2	Salvet
tC, single (s)	7.1	6.5	6,2	7.1	6.5 5,5	6.2	origi al atic	Cert Made	*11.40 TV 11.14	· . * , ·	1,481,1061,11	1,53%
tC, 2 stage (s)	6.1 3.5	5.5 4.0	3.3	6.1 3.5	4.0	3.3	2.2	(v.g) 40vg)	er evaluar	2.2	3.583.0	Mexica
tF (s) p0 queue free %	3.5 99	100	98	99	100	100	100	47444 45 535	ath girely of the	100	- 11-51 THE	- 11, 15.5
cM capacity (veh/h)	378	388	445	367	388	630	904		ath pages	1134	egal polic	
						.,	cuentiment comment	kan nambada katalan mila k	erekkenter medekenteren	ne en secure de la company	оновидення станова В применя в	ionalesternistre
Direction, Lane#	EB 1	WB.1	148 1	MB 5	2 58 1	SB 2						
Volume Total	15	3	(a. 29 4 ,	425		691	"Nijakiya"			1.000		
Volume Left	4	2	1	0	1	0	Maria Nova Na	e e en lette	200	100 / No.	sec astres	
Volume Right	41	1	್ಷಂ		0	1700					A TANKER	faltet.
cSH	424	426	904	1700	1134	1700	naugaya inga	y gradagija ko	gavingschol	pr. 2-1512-1-1	an service	500 an
Volume to Capacity	0.04	0.01	0.00	0.25	00.00	0.41	esti ugaar.		ing Alighan property	. The March	No. 14 Police	officer
Queue Length 95th (ft)	3 13.8	1 13.5	0 9.0	0 0.0	0 8.2	0.0	allower for a co	nang kelal	NAME (1995)	18,419,919	17:50 x 13	grafi
Control Delay (s) Lane LOS	13.0 B	∴is.s∵ B	9.0 A		о. <i>е</i> А	0.0	1.000	i en filosopi	A Tendina	100 000	e Marie en en el	ujilga byr
Approach Delay (s)	13.8	13.5	0.0	138.00	0.0	98 da 35		1.59034.13			anggy ye	1.557
Approach LOS	13.6 B	B	i da Qio), , (99 .	Mariet, Marie	i memili da	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		2001 25 253	and the first	. ;
ntersector Summary	100											3 5 5
Average Delay			0.2				e granisa.	ng mengana	On the Company of			1 - 14 -
ntersection Capacity Uti	lization		43.5%		CU Lev	el of Se	rvice		Α		ina i	
Analysis Period (min)			15				Markey and all the	de raine	gagagar ayar k	as Arres	at in the second	ere til
					er er er		5000 Pt.		1.774.44.9	No. 1997		14.10

27-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1			*	∀ ^	-	4	4	Î	<i>p</i>	*	1	4
Movement	EBL	EBT	EBR	WBL	WET	WER	NBL	NBT	NBR	SBL	SET	SBR
Lane Configurations		41.	ege geresse	11 - 2 - 1	4	,	ሻ	Î+	N. N. C. Victoria	75		, all the second
Sign Control	New Year	Stop	ay part		Stop		arVrader)	Free 0%		Million John	Free 0%	No. 18 Mayo
Grade	r in de	0%			0% 0	1 - 35/3 4	5 - 2000 5 4 5	529	s transcri a nti	11.00 (1.00	540	
Volume (veh/h)		0.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Peak Hour Factor	0.92	0.92	0.92	0.82	0.92	0.9Z	0.52	575	0.52	0.52	587	1
Hourly flow rate (vph) Pedestrians	: ::::: ::::::::::::::::::::::::::::::	. N. 1. 1. Q . 1		, e te transporter de la company		North Control	NIN TIPE		and the second	1.5		
Lane Width (ft)	San San San	rado Korb	e with the		National Association	4.9350	A119540.0	5574.55	1400000	ande:3	机热电池	0.46.3
Walking Speed (ft/s)	atrika terat	, ang lian in	1,511,141,5	4, 41, 53, 54, 63	and the state of the state of	part Arriva	. 7.57.7					;
Percent Blockage	Set Sylvery	4835433	ik Wayana	greenwa.	an yin	eth ngas	6.5660		Hafte Au		\$64E55	
Right turn flare (veh)	a in Charles			201 - Francisco				****				
Median type	H () H ()	WLTL	grenege,	4.30, 436,	WLTL			[TRAJE]			javeyy.	
Median storage veh)	and district	2			2	· · · · ·						
Upstream signal (ft)	nangy.		des de								Modelli.	A A P
pX, platoon unblocked	4											
vC, conflicting volume	1174	1176	588		1175	576	588			577		
vC1, stage 1 conf vol	590	590		585	585				n tatta a		A respective	
vC2, stage 2 conf vol	585	586		595	590				MIRITAL.		rystelent))	
vCu, unblocked vol	1174	1176	588	1179	1175	576	588			577		
tC, single (s)	7.1	6.5	6.2		6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5	ezer esa anez	6.1	5.5	se e tractació	The section	and sales are a	e e universal ne	terania and	on assistant	1112
(F (s)	3.5	4.0	3.3		4.0	3.3	2.2	Albayan,	gradia (san	2,2 100	District A	e serie de
p0 queue free %	99	100	99	99	100	100	100 987	er ji Bayaya	n make os	996	oran ar	99 55 N
cM capacity (veh/h)	375	384	509	371	383	517		ENTANGERS/HICESONTENS	e prometo del tribone de la companio del companio del companio de la companio del companio del la companio del companio de la companio de la companio de la companio del companio de la companio del c	, ere constant	erastorescontrator	TUDATO STANISHES
Direction, Lane#	EB 1	WB1	-NB 1	NB 2	SB //	<u> 88 2</u>						
Volume Total	· 8	. 3	4	577	militer (II)	588	ught die tod	Wayne Page		45,000	11/14/2015	2.4 12 1.34
Volume Left	2	2	4	0 2	1 0		net electric	6.34 kg 5 + 55	APP 11, 343	CNOWN	Programa	h 1000
Volume Right	*****************************	410	0 987	1700	996	1700	Amunicista in la	(1s) silvesii	i i karangan di angga	70.47.890	Target Paris	en en anne
cSH Volume to Capacity	462 0.02	0.01	0.00	0.34	0.00		and the Life		4.4553.55	(1995)	mg placy.	13,000
Queue Length 95th (ft)	0.02	10.01	0,00	0	0.00	0.00	THE STATE OF THE STATE OF	All Server	7. 74 v. many	The Contract	A CAMPAGE SALES	
Control Delay (s)	12.9	13.9	8.7	*	8.6	_	1.7.1004(1)	5,000,000	armite.	455-500	jedjaga i	
Lane LOS	.,12.3 B	8	Α		A) (14 111 7.)	51 - 21 - 40	1.00				
Approach Delay (s)	12.9	13.9	0.1	3674554	0.0	San	NIJAN E	giadal	Y. 14 . 15 . 15			Barry.
Approach LOS	В	8	•				, .					
••			egos coletoloca ns	0198689999999999999999999999999999999999	SESPENDENCATERS N	Service Service Control			WEEKENSEM OFFENERS			
ntersection Summary		6.0	71.4300 D						200			994 SA
Average Delay	(i.c., v. A2'	erias iras eser	0.2	1.5 500 4 0	ou rai	in in the second	A35A445	Akitonos tillis	٨	againg net	A graph	946,659
Intersection Capacity Ut	mzation		38.5%°	Vigini (198	UL Lev	el of Se	VICE	n managar	uran p ro se	geografish och	myrtint.	g askirt
Analysis Period (min)	. 7, 8 (2. 5, 7		15	MANA MET		ON AND	"gest" (Light)	er ja er vita	William Company	Private Sa	graphic	
an bula da 1960 an 1969	11 1	1000			1.6 1.779		The second		6 1	1 57 1		

Both 1 Lane	Approaches	2 or more Lane and O	ne Lane Approaches	Both 2 or more Lane Approaches		
Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	
Both Approaches	Volume Approach	Both Approaches	Volume Approach	Both Approaches	Volume Approach	
370	280					
400	270	460	297	430	410	
500	215	500	290	500	380	
600	185	600	230	600	310	
700	140	700	198	700	265	
800	115	800	170	800	210	
900	99	900	125	900	180	
1000	85	1000	105	1000	140	
1100	75	1100	90	1100	110	
1200	75	1200	75	1150	100	
1300	75	1300	75	1300	100	

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



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NOTE: 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection:

Silverado Trail / Meika Project Driveway / Titus Project Driveway PM Weekay Existing _+ Project

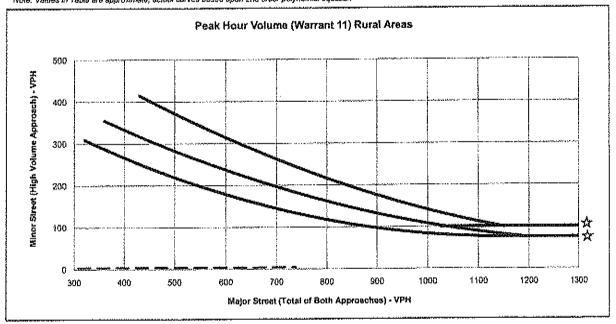
Scena*ri*o:

Minor St. Volume: Major St. Volume: Werrant Met?:

714 NO

Soth 1 Lane	Approaches	2 or more Lane and C	ne Lane Approaches	Both 2 or more Lane Approaches		
Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	
Both Approaches	Volume Approach	Both Approaches	Volume Approach	Both Approaches	Volume Approach	
	Manufacture Control Co					
370	280					
400	270	450	297	430	410	
500	215	500	290	500	380	
600	185	600	230	600	310	
700	140	700	198	700	265	
800	115	800	170	800	210	
900	99	900	125	900	180	
1000	85	1000	105	1000	140	
1100	75	1100	90	1100	110	
1200	75	1200	76	1150	100	
1300	75	1300	75	1300	100	

Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 76 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

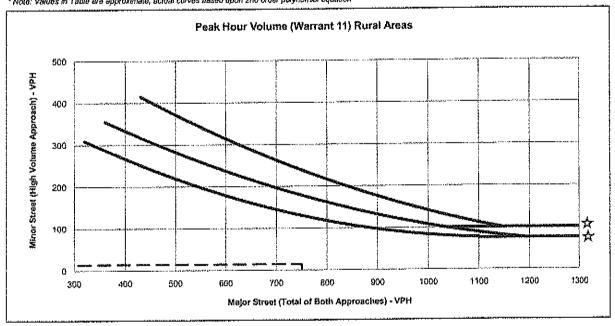
Silverado Trail / Melka Project Ortveway / Titus Project Ortveway Mid-Day Weekend Existing * Project Intersection:

Scenario:

Minor St. Volume: 738 Major St. Volume: NO Warrant Met?:

Both 1 Lane	Approaches	2 or more Lana and O	ne Lane Approaches	Both 2 or more L	ane Approaches
Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	Major Street Total of	Minor Street High
Both Approaches	Volume Approach	Both Approaches	Volume Approach	Both Approaches	Volume Approach
370	280				
400	270	460	297	430	410
500	215	500	290	500	380
600	185	600	230	600	310
700	140	700	198	700	265
800	115	800	170	800	210
900	99	900	125	900	180
1000	85	1000	105	1000	140
1100	75	1100	90	1100	110
1200	75	1200	76	1150	100
1300	75	1300	75	1300	100

*Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



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100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

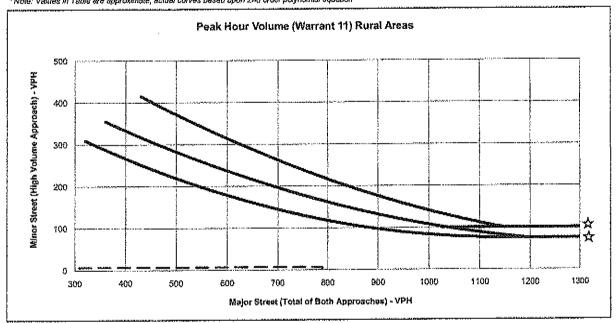
Silverado Trall / Melka Project Driveway / Titus Project Driveway PM Weekay Near-Torm+ Project intersection:

Scenario:

Minor St. Volume: Major St. Volume: 750 Warrant Met?: ΝÖ

Both 1 Lane	Both 1 Lane Approaches		ne Lane Approaches	(3oth 2 or more Lane Approaches Major Street Total of Minor Street High		
Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	Major Street Total of	Minor Street High	
Both Approaches	Volume Approach	Both Approaches	Volume Approach	Both Approaches	Volume Approach	
370	280					
400	270	460	297	430	410	
500	215	500	290	500	380	
600	185	600	230	600	310	
700	140	700	198	700	265	
800	115	800	170	800	210	
900	99	900	125	90¢	180	
1000	85	1000	105	1000	140	
1100	75	1100	90	1100	110	
1200	75	1200	75	1150	100	
1300	75	1300	75	1300	100	

* Note: Values in Table are approximate, actual curves based upon 2nd order polynomial equation



→ NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

Intersection: Silverado Trait / Melka Project Driveway / Titus Project Driveway

Scenario: MD Weekend Near-Term + Project

Scenario: MD Minor St. Voluma: 7 Major St. Voluma: 789 Warrant Met?: NO B A Y M E T R I C S ADT COUNTS IN NAPA VALLEY

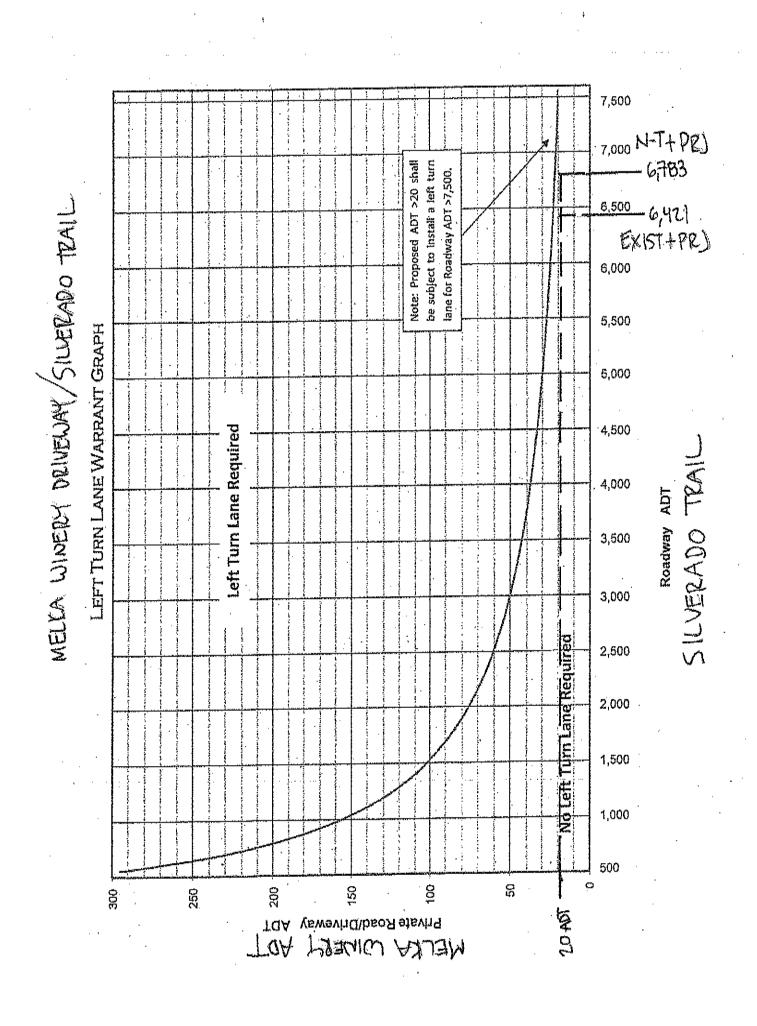
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RADAR SPEED SURVEY

CITAL SUBSTITUTE AND LITES

Silverado Trail approaching Malka Access

DATE: 1	1/15/13	TIME	START: 12:00pm TIME END: 1:	00ps WEATHER: Cler	r ROAD TYPE	2 lanes
DIRECTI	ON: Both	SPEED	LINIT: 50 mph	OBSERVER: o-s	CALIBRATIO	IN TEST: Yes
SPEED	FREQUENCY	ACUM %	-0	PERCENTAGE BREAKDOWN	50	-708090100
36	i	1.0		34	Ju	70 80 30 100
37	2		005			
33	2	5,0	144445			
39	4	9.0	1020252222			
40	5	14.0	· 公安开南京村主张市主州京州区			
41	2	16.0	{****************			
42	5	21.0	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\			
43	8	29.0	[**#*5**** <u></u> ****5*****2****5	<u> </u>		
44	13	42.0	R#K#5944#148##53###24#495			
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50	7	39.0	[****5****1***55****2***55	±±≈±3*±¢*5*±±¢4± * ±±55	并外关Tinna Artina Arti	***************
51	2	31.0	************************************	5.表达达2000年长光素2000年代表达2000年代	***52****5***66***25***	**7****55****55*****
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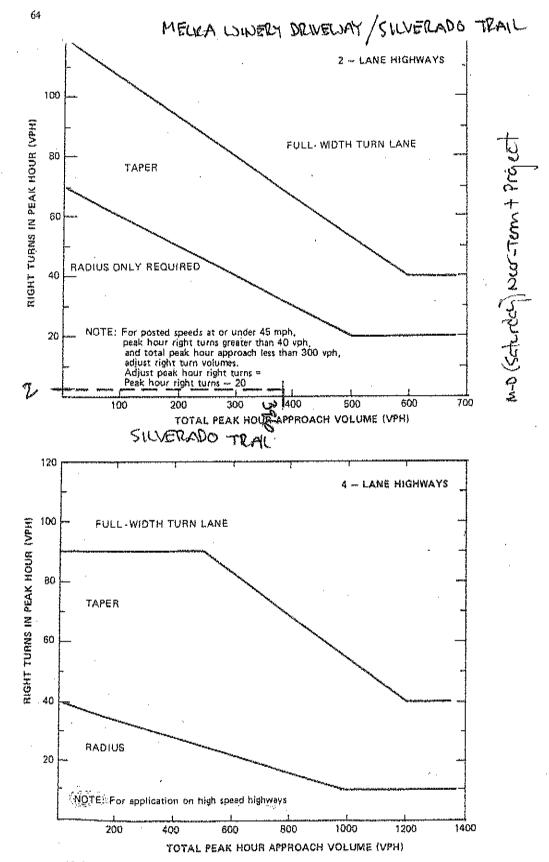


Figure 4-23. Traffic volume guidelines for design of right-turn lanes. (Source: Ref. 4-11)