

George W. Nickelson, P.E.

Traffic Engineering – Transportation Planning

September 16, 2009

Mr. Farhaad Virani, Attorney at Law
Farella Braun & Martel LLP
Russ Building
235 Montgomery Street, 17th Floor
San Francisco, CA 94104

Subject: *Employee Assumptions Used in the Traffic Analysis for a New Visitor Center Project at the Grgich Hills Winery on State Route 29 in Napa County*

Dear Mr. Virani:

This letter summarizes our assumptions regarding employees relative to the Traffic Analysis conducted for the proposed Grgich Hills Winery visitor center. To clarify our assumptions, I have addressed our original source of existing traffic volume data, our treatment of the permitted winery operations to establish baseline conditions, and our calculations of trips associated with the proposed visitor center.

Existing traffic conditions for the analysis used actual counts of existing winery traffic during the weekday PM peak hour (the highest hourly volume during the 4:00-6:00 PM period) and the Saturday afternoon peak hour (the highest hourly volume during the 1:00-3:00 PM period). On the days that these counts were conducted, the winery visitor count was below permitted levels, but the winery's employment was consistent with current employee counts, exceeding the originally projected 20 full-time and 12 part-time employees. Thus, with regard to winery employment, the existing conditions analysis is very conservative. There were no impacts associated with this scenario – a reduced traffic level with the originally projected 20 full-time and 12 part-time employees would have even lesser impacts.

To establish baseline volumes reflecting the permitted levels of winery visitors, the winery visitor counts on the traffic count days were compared with permitted visitor levels. A resulting factor of 1.8 was applied to the existing traffic counts in/out of the winery to simulate a baseline with maximum permitted visitors. In applying this factor, it is recognized that any employee trips included in the existing counts were similarly increased. Thus, the baseline volumes used in the analysis reflect the maximum permitted visitors and extremely conservative assumptions of employment levels well above the current levels. Again, there were no significant impacts associated with this baseline scenario – a reduced traffic level with the originally projected 20 full-time and 12 part-time employees would have even lesser impacts.

The proposed visitor center would involve 3 added full-time and up to 2 added peak employees and 75 additional visitors. The traffic impact analysis clearly notes that a "worst case" assumption would be that all of the new visitor trips would occur in the single hour before an event (events would be scheduled such that outbound visitor trips would occur outside of the peak hours). The

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Mr. Farhaad Virani

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analysis assumes that the added employees would have already arrived before the peak hour of visitor arrival. As outlined in the traffic impact analysis, the addition of the new arriving visitor trips would not significantly impact the driveway operation. All driveway movements would remain Level of Service (LOS) "D" or better.

In summary, all of the traffic impact analysis scenarios have been based on employment levels that are consistent with the current employee counts and exceed the originally projected 20 full-time and 12 part-time employees. No significant traffic impacts were identified in the analysis scenarios and no significant impacts would occur with an employment level at the originally projected 20 full-time and 12 part-time employees.

I trust that this letter responds to comments by County staff. Please let me know if there are any questions or if further input is required.

Sincerely,

A handwritten signature in cursive script, reading "George Nickelson". The signature is written in dark ink and is positioned above the printed name.

George W. Nickelson, P.E.

George W. Nickelson, P.E.

Traffic Engineering • Transportation Planning

June 5, 2009

Mr. Andrew W. Ingersoll, Attorney at Law
Farella Braun & Martel LLP
Russ Building
235 Montgomery Street, 17th Floor
San Francisco, CA 94104

Subject: *Traffic Analysis for a New Visitor Center Project at the Grgich Hills Winery on State Route 29 in Napa County (Approximate Postmile 25.11)*

Dear Mr. Ingersoll:

The attached report summarizes our traffic study for a proposed visitor center project at the Grgich Hills Winery on State Route 29 (SR 29) in Napa County (see Figure 1 for site location map). This study reflects the site plan and has included discussions of the project characteristics, field reviews of the site access and calculations of project traffic.

As outlined in the report, the project's trips would add minimally (about 0.9%) to traffic flows on SR 29, and sight distance would be ample at the existing winery driveway. The site driveway on SR 29 would have satisfactory operations during the peak hours. The existing two-way-left-turn-lane in SR 29 would provide storage for inbound left-turns and a refuge area for outbound left turns. The typical peak hour volumes would be below the thresholds at which an inbound right-turn lane would be needed.

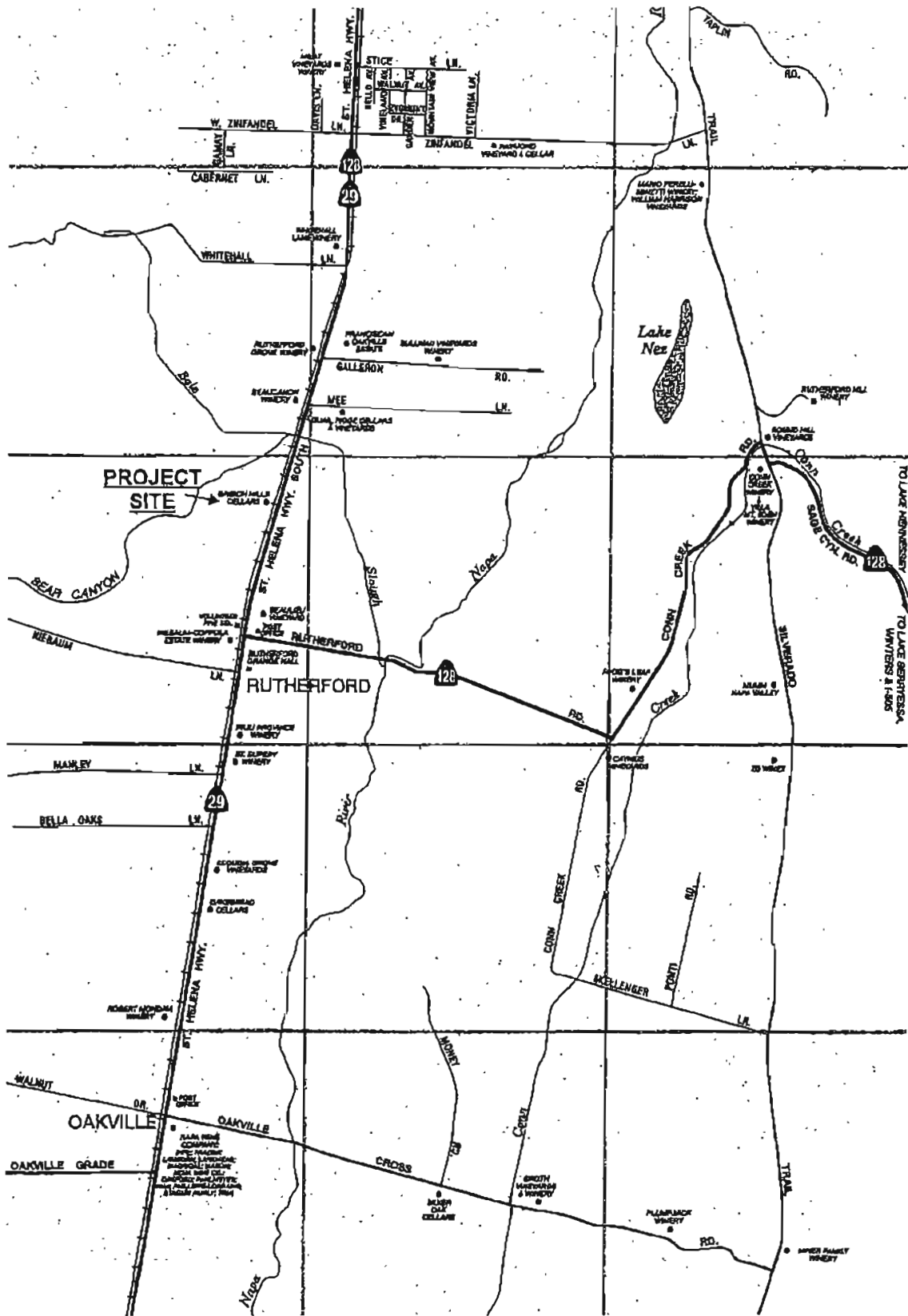
The project's access, internal circulation and parking supply would be consistent with Napa County standards.

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.



Project Site Location Map



George W. Nickelson, P.E.

figure 1

1. Existing and Baseline Traffic Conditions

a. Existing Traffic Operations

State Route 29 (SR 29) provides the primary north-south Napa County access and is a two-lane rural road in the area of the proposed winery. Based on Caltrans records, SR 29 has a current average daily traffic volume (north of SR 128 - Rutherford Road) of 21,500 vehicles. During the peak month, the roadway has an average daily volume of 23,700 vehicles and a peak hour volume of 1,900 vehicles (about 8% of the peak month daily volume).⁽¹⁾ It is noted that the peak hour volume cited by Caltrans represents a very high flow rate which would occur on a limited number of days, likely during the peak Summer season.

As a part of this study, traffic counts were conducted on SR 29 at the existing winery driveway during a Friday PM peak commute period (4-6 PM) and the Saturday afternoon peak period (1-3 PM).⁽²⁾ These counts indicate that the Friday PM peak hour and Saturday afternoon peak hour flows are about 1,600 vehicles and 1,400 vehicles. Based on these volumes and observed vehicle speeds, the typical SR 29 flows are in the Level of Service (LOS) "C-D" range and peak month/peak hour volumes would be categorized as in the LOS "D-E" range.⁽³⁾⁽⁴⁾

Adjacent to the project site, SR 29 has two travel lanes and paved shoulders. A two-way-left-turn-lane (TWLTL) begins south of the Grgich Hills Winery driveway and ends north of the driveway. At this point, the median area begins to taper back to a standard centerline about 400 feet to the north. The northbound left turn storage is about 215 feet and a northbound refuge lane for outbound left turns is about 60 feet in length.

The existing counted conditions have been analyzed in terms of the driveway's Level of Service (LOS). As outlined in Table 1, the existing weekday and Saturday operation is LOS "C" or better (LOS definitions and calculations are attached).

b. Baseline Traffic Operations

The winery currently has a maximum permitted visitor count of 220 vehicles or about 600 persons per day (assuming Napa County standards of 2.6 persons per vehicle on a weekday and 2.8 persons per vehicle on a weekend). The visitor volumes on the traffic count days were lower than the maximum visitors permitted at the winery.⁽⁵⁾ Thus, the in/out traffic volumes at the northerly visitor driveway were increased to reflect maximum potential visitor activity. The through volumes counted on SR 29 were also increased to reflect the peak seasonal volumes reported by Caltrans.

With the foregoing assumptions, the driveway delays were recalculated for both the Friday PM peak commute hour and the Saturday afternoon peak hour. As shown on Table 1, the baseline driveway conditions are an acceptable LOS "D" or better during both peak hours.

TABLE 1
PEAK HOUR OPERATIONS AT THE
GRGICH HILLS WINERY DRIVEWAY
LEVEL OF SERVICE (LOS) AND SECONDS OF DELAY

Intersection Scenario	Weekday PM Peak Hour		Saturday Afternoon Peak Hour	
	Outbound	Inbound Left Turn	Outbound	Inbound Left Turn
Existing	LOS C/ 20.2 seconds	LOS B/ 10.5 seconds	LOS C/ 18.0 seconds	LOS A/ 9.5 seconds
Existing + Project	LOS C/ 20.5 seconds	LOS B/ 10.7 seconds	LOS C/ 18.4 seconds	LOS A/ 9.7 seconds
Baseline	LOS D/ 27.6 seconds	LOS B/ 11.6 seconds	LOS D/ 25.8 seconds	LOS B/ 10.3 seconds
Baseline + Project	LOS D/ 28.0 seconds	LOS B/ 11.9 seconds	LOS D/ 26.7 seconds	LOS B/ 10.5 seconds
Cumulative	LOS F/ 80+ seconds	LOS C/ 22.7 seconds	LOS F/ 80+ seconds	LOS C/ 16.2 seconds
Cumulative + Project	LOS F/ 80+ seconds	LOS C/ 24.6 seconds	LOS F/ 80+ seconds	LOS C/ 17.0 seconds

c. Vehicle Speeds and Sight Distance on SR 29

The primary issues for access design are the vehicle visibility and operation relative to vehicles traveling on SR 29 and vehicles that would be turning out of the winery access. The required vehicle visibility or "corner sight distance" is a function of the travel speeds on SR 29. 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."⁽⁶⁾ Based on radar surveys, the "critical" vehicle speed (85% of all surveyed vehicles travel at or below the critical speed) along SR 29 at the winery were observed to be 47 miles per hour (mph) during the Friday peak period and 49-51 miles per hour during the Saturday peak period.⁽⁷⁾ Based on Caltrans design standards, these vehicle speeds require a stopping sight distance of about 430 feet, measured along the travel lanes on SR 29.⁽⁸⁾

The existing winery access intersection is located on a straight section of SR 29. Field observations indicate sight distance to the north and south is well in excess of the 430 feet needed for the measured vehicle speeds.

2. Traffic Effects of the Proposed Project

a. Project Description

The project site is adjacent to the existing Grgich Hills Winery. There is currently a residence and a barn on the 5 acre site.

The proposed project would involve conversion of the residence into a winery hospitality center for private promotional tastings. The existing barn would be retained (and expanded) for winery related storage needs.

The proposed hospitality center would host private tastings with attendance levels of 30 persons four times weekly and 75 persons three times weekly. In addition, there could be monthly private tasting events with up to 100 persons in attendance. Because the 75 person event would represent a typical peak activity, we have analyzed the traffic of that level of activity. We have also discussed the potential traffic and parking issues associated with a 100 person monthly event.

b. Traffic Operations with Typical Activities Associated with the Proposed Project

The proposed winery hospitality center traffic generation has been calculated in Table 2. On a typical day 62 daily trips would be generated. If it is conservatively assumed that all of the visitor trips occur during each of the hours before and after an event, 27 inbound trips and 27 outbound trips would be generated during each of those hours. This analysis has assumed 27 inbound trips during each of the analyzed peak hours. It has been assumed that there would be no outbound project trips during the peak hours.

With project trips distributed comparable to existing flows (about 60% to/from the south and 40% to/from the north), the project traffic would add about 0.9% to the baseline peak hour volumes on SR 29. This change would not be measurable within the typical daily fluctuations in traffic and traffic operations would be unchanged.

The existing and baseline peak hour LOS at the SR 29/project access intersection have been recalculated with the addition of project trips (LOS definitions and calculations are attached as appendices). The Grgich Hills Winery driveway operations would be unchanged during both the weekday PM peak hour and Saturday afternoon peak hour.

c. Traffic Generated by a Monthly Event

For a monthly event, the project would generate 83 daily trips. Although this is somewhat higher than the typical daily peak event traffic, the effects on SR 29 would be comparable. Further, this level of activity would only occur monthly and would therefore not be considered significant.

d. Site Access Design Issues

As noted in the project description, the existing Grgich Hills driveway is located at an existing TWLTL in SR 29. Based on Caltrans design standard of providing storage for two minutes of left turn volume, the 27 peak hour inbound left turns would result in one vehicle expected to queue at any given time.⁽⁹⁾ However, Caltrans recommends a minimum 50 foot left-turn storage lane, and the current TWLTL design (about 215 feet in length) would provide ample storage length. Even with a monthly 100 person event, the inbound left turn volume would be well within the TWLTL storage length.

As noted above, the available sight distance at the site driveway is ample for the measured vehicle speeds on SR 29. The existing + project volumes at the site driveway are below the minimum threshold at which an inbound right-turn lane would be required (turn lane graph attached).⁽¹⁰⁾ Although the maximum permitted visitor counts would exceed the right turn lane warrant, such conditions would rarely be experienced. The existing Grgich Hills Winery driveway has tapers to accommodate inbound and outbound right turn movements.

The proposed project would include an internal connection to the existing Winery parking area (see below) and would therefore share the existing Winery driveway access to SR 29. The existing Winery driveway access meets the Napa County standards (18 feet of pavement for two-way traffic flow).⁽¹¹⁾

e. Internal Circulation and Parking

The project would include internal roadways with a minimum width of 18 feet, consistent with Napa County standards.⁽¹¹⁾ An internal roadway connection would link the proposed new visitor center with the existing Winery parking lot. As per Napa County standards, this connection would accommodate two-way traffic flows.

With new parking provided as a part of the project and a loss of parking due to the new internal circulation connection, there would be a net gain of 22 striped parking spaces. These spaces, together with 37 existing winery spaces, would accommodate the needs of the typical 75 person tastings expected with the project (75 persons/2.4-2.6 persons per vehicle). Other paved areas could accommodate parking needs for employees and the potential monthly 100 person tasting.

3. Cumulative Traffic Conditions

a. Cumulative Projections

Cumulative buildout (year 2030) projections for SR 29 were obtained from technical studies prepared as a part of the Napa County General Plan Update.⁽¹²⁾ These projections indicate significant increases in through traffic on SR 29. With these increases, the existing Grgich Hills outbound driveway traffic would experience extreme delays characteristic of LOS "F".

b. Project Effects

The proposed visitor center project would add minimally to the cumulative buildout volumes. The outbound driveway traffic would continue to operate at LOS "F".

4. Summary and Recommendations

As outlined in the report, the project's trips would add minimally (about 0.9%) to traffic flows on SR 29. A change of this magnitude would not be measurable within typical daily fluctuations in traffic flows.

Sight distance on SR 29 would be ample at the proposed project driveway. The projected peak hour volumes at the project driveway would be adequately served by the existing TWLTL. The traffic in/out of the existing Grgich Hills Winery driveway would operate satisfactorily (LOS "D" or better) during both peak hours. Typical peak hour volumes would be below the thresholds at which a right-turn lane would be needed. During the traffic counts, it was noted that some motorists enter/exit the winery site after realizing that the normal visitor hours are over. These diverted trips are not significant but do add to the driveway volumes.

The cumulative buildout (year 2030) projections on SR 29 indicate significant traffic growth. The outbound driveway traffic would operate at LOS "F", with or without the proposed visitor center project. (It is likely that most driveways and side streets along SR 29 would operate at LOS "F", given the very high projected through volumes.)

The following recommendations address site access and circulation:

- The project's internal roadways would need to meet County standards for width; and
- A sign should be posted at the site driveway alerting motorists when the Winery's normal visitor facilities are closed.

References:

- (1) Caltrans website, traffic volumes for SR 29 based on 2007 data.
- (2) George W. Nickelson, P.E., traffic counts, radar surveys and field measurements conducted on Friday June 23, 2009 and Saturday June 24, 2009.
- (3) Transportation Research Board (TRB), *Highway Capacity Manual – Special Report 209 – Third Edition, 1994.*
- (4) TRB, *Highway Capacity Manual*, 2000.
- (5) Ms. Pam Harder, Grgich Hills Winery, March 25, 2009.
- (6) Caltrans, *Highway Design Manual*, 1990.
- (7) George W. Nickelson, P.E., *ibid...*
- (8) Caltrans, *ibid...*
- (9) Caltrans, *Guidelines for Reconstruction of Intersections*, August 1985.
- (10) Transportation Research Board, *Report 279 – Intersection Channelization Design Guide*, 1985.
- (11) Napa County, *Adopted Road & Street Standards*, August 2, 1999.
- (12) Dowling Associates, *The Napa County General Plan Update EIR – Technical Memorandum for Traffic and Circulation Supporting the Findings and Recommendations*, February 9, 2007.

**TABLE 2
TRIP GENERATION OF THE
PROPOSED GRGICH HILLS WINERY
HOSPITALITY CENTER**

Traffic During a Typical Day (three times weekly):

• 4 employees x 2 one-way trips per employee	=	8 daily trips
• 75 visitors/2.8 persons per car x 2 one-way trips	=	<u>54 daily trips</u>
		62 daily trips

Traffic During a Monthly Event:

• 6 employees x 2 one-way trips per employee	=	12 daily trips
• 100 visitors/2.8 persons per car x 2 one-way trips	=	<u>71 daily trips</u>
		83 daily trips

APPENDICES

- LOS Definitions
- LOS Calculations
- Right Turn Lane Graph

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	SIGNALIZED INTERSECTIONS	UNSIGNALIZED INTERSECTIONS*
"A"	Uncongested operations, all queues clear in a single-signal cycle. (Average stopped delay less than 10 seconds per vehicle; V/C less than or = 0.60).	Little or no delay. (Average delay of ≤ 10 seconds)
"B"	Uncongested operations, all queues clear in a single cycle. (Average delay of 10-20 seconds; V/C=0.61-0.70).	Short traffic delays. (Average delay of >10 and ≤ 15 secs.)
"C"	Light congestion, occasional backups on critical approaches. (Average delay of 20-35 seconds; V/C=0.71-0.80).	Average traffic delay. (Average delay of >15 and ≤ 25 secs.)
"D"	Significant congestion of critical approaches but intersection functional. Cars required to wait through more than one cycle during short peaks. No long queues formed. (Average delay of 35-55 seconds; V/C=0.81-0.90).	Long traffic delays for some approaches. (Average delay of >25 and ≤ 35 secs.)
"E"	Severe congestion with some long standing queues on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements. Traffic queue may block nearby intersection(s) upstream of critical approach(es). (Average delay of 55-80 seconds; V/C=0.91-1.00).	Very long traffic delays for some approaches. (Average delay of >35 and ≤ 50 secs.)
"F"	Total breakdown, stop-and-go operation. (Average delay in excess of 80 seconds; V/C of 1.01 or greater).	Extreme traffic delays for some approaches (intersection may be blocked by external causes--delays >50 seconds).

* Level of Service refers to delays encountered by certain stop sign controlled approaches. Other approaches may operate with little delay.

Source: Transportation Research Board, Highway Capacity Manual, 2000.

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst GWN
 Agency or Company GWN
 Analysis Period/Year Ex. Fri PM 09
 Comment Existing Friday PM Peak Hour

Site Information

Jurisdiction/Date Napa 3/27/2009
 Major Street Hwy. 29
 Minor Street Grgich - Rthfrd Grdns

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	938	7	5	638	0	5	0	17	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1042	8	6	709	0	6	0	19	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2 _____ ft Movement 5 _____ ft												
Length of study period (h) 0.25												

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	25	261	0.096	0	20.2	C	20.2
	2								
	3								
WB	1	LTR	1	433	0.002	0	13.3	B	13.3
	2								
	3								
SB	①		1	885	0.001	0	9.1	A	
NB	④		6	659	0.008	0	10.5	B	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information			Site Information		
Analyst	GWN		Jurisdiction/Date	Napa	3/27/2009
Agency or Company	GWN		Major Street	Hwy. 29	
Analysis Period/Year	Ex Sat Aft. 09	Year	Minor Street	Grgich - Rthfrd Grdns	
Comment	Existing Saturday Afternoon Peak Hour				

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	697	25	16	677	2	18	0	28	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	774	28	18	752	2	20	0	31	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2	ft			Movement 5			ft					
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	51	329	0.155	1	18.0	C	18.0 C
	2								
	3								
WB	1	LTR	4	306	0.013	0	16.9	C	16.9 C
	2								
	3								
SB	①		1	851	0.001	0	9.2	A	
NB	④		18	817	0.022	0	9.5	A	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Site Information

Analyst GWN Jurisdiction/Data Napa 3/27/2009
 Agency or Company GWN Major Street Hwy. 29
 Analysis Period/Year Base. Fri PM Minor Street Grgich - Rthrfd Grdns
 Comment Baseline Friday PM Peak Hour

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	1107	13	9	753	0	9	0	31	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1230	14	10	837	0	10	0	34	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2 _____ ft Movement 5 _____ ft												
Length of study period (h) 0.25												

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	44	203	0.217	1	27.6	D	27.6 D
	2								
	3								
WB	1	LTR	1	365	0.003	0	14.9	B	14.9 B
	2								
	3								
SB	①		1	793	0.001	0	9.5	A	
NB	④		10	556	0.018	0	11.6	B	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information				Site Information	
Analyst	GWN			Jurisdiction/Date	Napa 3/27/2009
Agency or Company	GWN			Major Street	Hwy. 29
Analysis Period/Year	Base, Sat Aft.	Year		Minor Street	Grgich - Rlhrfrd Grdns
Comment	Baseline Saturday Afternoon Peak Hour				

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	822	45	29	799	2	32	0	50	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	913	50	32	888	2	36	0	56	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2 _____ ft Movement 5 _____ ft												
Length of study period (h) 0.25												

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	92	264	0.349	2	25.8	D	25.8
	2								
	3								D
WB	1	LTR	4	226	0.018	0	21.2	C	21.2
	2								
	3								C
SB	①		1	757	0.001	0	9.8	A	
NB	④		32	711	0.045	0	10.3	B	

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Analysis Summary

General Information

Analyst GWN
 Agency or Company GWN
 Analysis Period/Year E+Prj Fri PM
 Comment Existing+Project Friday PM Peak Hour

Site Information

Jurisdiction/Date Napa 3/30/2009
 Major Street Hwy. 29
 Minor Street Grgich - Rthfrd Grdns

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	938	18	21	638	0	5	0	17	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1042	20	23	709	0	6	0	19	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2												
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	25	257	0.097	0	20.5	C	20.5
	2								C
	3								
WB	1	LTR	1	433	0.002	0	13.3	B	13.3
	2								B
	3								
SB	①		1	885	0.001	0	9.1	A	
NB	④		23	652	0.036	0	10.7	B	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst GWN
 Agency or Company GWN
 Analysis Period/Year Ex+Prj Sat Aft.
 Comment Existing+Project Saturday Afternoon Peak Hour

Site Information

Jurisdiction/Date Napa 3/30/2009
 Major Street Hwy. 29
 Minor Street Grgich - Rthfrd Grdns

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	697	36	32	677	2	18	0	28	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	774	40	36	752	2	20	0	31	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2				Movement 5								
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	51	320	0.159	1	18.4	C	18.4
	2								
	3								
WB	1	LTR	4	293	0.014	0	17.5	C	17.5
	2								
	3								
SB	①		1	851	0.001	0	9.2	A	
NB	④		36	808	0.044	0	9.7	A	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst GWN Jurisdiction/Date Napa 3/30/2009
 Agency or Company GWN Major Street Hwy. 29
 Analysis Period/Year Base+Prj FriPM Minor Street Grglch - Rthfrd Grdns
 Comment Baseline+Project Friday PM Peak Hour

Site Information

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	1107	24	25	753	0	9	0	31	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1230	27	28	837	0	10	0	34	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2 _____ ft Movement 5 _____ ft												
Length of study period (h) 0.25												

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	44	200	0.220	1	28.0	D	28.0
	2								
	3								
WB	1	LTR	1	365	0.003	0	14.9	B	14.9
	2								
	3								
SB	①		1	793	0.001	0	9.5	A	
NB	④		28	550	0.051	0	11.9	B	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Site Information

Analyst GWN Jurisdiction/Date Napa 3/30/2009
 Agency or Company GWN Major Street Hwy. 29
 Analysis Period/Year Base+Prj. Sat. Minor Street Grglch - Rthfrd Grdns
 Comment Baseline+Project Saturday Afternoon Peak Hour

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	822	56	45	799	2	32	0	50	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	913	62	50	888	2	36	0	56	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2				ft			Movement 5			ft		
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	92	256	0.359	2	26.7	D	26.7 D
	2								
	3								
WB	1	LTR	4	213	0.019	0	22.2	C	22.2 C
	2								
	3								
SB	①	1	757	703	0.001	0	9.8	A	
NB	④	50	703	703	0.071	0	10.5	B	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst GWN
 Agency or Company GWN
 Analysis Period/Year Cumulative Fri. 2030
 Comment Cumulative Friday PM Peak Hour

Site Information

Jurisdiction/Date Napa 5/5/2009
 Major Street Hwy. 29
 Minor Street Grgich - Rthfrd Grdns

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	2070	13	9	1408	0	9	0	31	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	2300	14	10	1564	0	10	0	34	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2												
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	44	47	0.935	4	247.0	F	247.0
	2								
	3								F
WB	1	LTR	1	137	0.007	0	31.6	D	31.6
	2								
	3								D
SB	①		1	419	0.003	0	13.6	B	
NB	④		10	214	0.047	0	22.7	C	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Analyst GWN
 Agency or Company GWN
 Analysis Period/Year Cumulative Sat. 2030
 Comment Cumulative Saturday Afternoon Peak Hour

Site Information

Jurisdiction/Data Napa 5/5/2009
 Major Street Hwy. 29
 Minor Street Grgich - Rthrfnd Grdns

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	1537	45	29	1494	2	32	0	50	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1708	50	32	1660	2	38	0	56	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2												
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	92	87	1.056	6	199.4	F	199.4
	2								F
	3								F
WB	1	LTR	4	31	0.128	0	136.0	F	136.0
	2								F
	3								F
SB	①		1	384	0.003	0	14.4	B	
NB	④		32	353	0.091	0	16.2	C	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information

Site Information

Analyst GWN Jurisdiction/Date Napa 5/5/2009
 Agency or Company GWN Major Street Hwy. 29
 Analysis Period/Year Cumulative+Pri.Fri. 2030 Minor Street Grgich - Rthrfd Grdns
 Comment Cumulative + Project Friday PM Peak Hour

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	2070	24	25	1408	0	9	0	31	0	0	1
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	2300	27	28	1564	0	10	0	34	0	0	1
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2												
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	44	46	0.949	4	253.8	F	253.8
	2								
	3								F
WB	1	LTR	1	137	0.007	0	31.6	D	31.6
	2								
	3								D
SB	①		1	419	0.003	0	13.6	B	
NB	④		28	211	0.131	0	24.6	C	

CHAPTER 17 - TWSC - UNSIGNALIZED INTERSECTIONS WORKSHEET

Analysis Summary

General Information		Site Information	
Analyst	GWN	Jurisdiction/Date	Napa 5/5/2009
Agency or Company	GWN	Major Street	Hwy. 29
Analysis Period/Year	Cmltve+Prj Sal. 2030	Minor Street	Grgich - Rthfrd Grdns
Comment	Cumulative + Project Saturday Afternoon Peak Hour		

Input Data

Lane Configuration	SB			NB			EB			WB		
Lane 1 (curb)	TR			TR			LTR			LTR		
Lane 2	L			L								
Lane 3												
Lane 4												
Lane 5												
	SB			NB			EB			WB		
Movement	1 (LT)	2 (TH)	3 (RT)	4 (LT)	5 (TH)	6 (RT)	7 (LT)	8 (TH)	9 (RT)	10 (LT)	11 (TH)	12 (RT)
Volume (veh/h)	1	1537	56	45	1494	2	32	0	50	2	0	2
PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent of heavy vehicles, HV	3	3	3	3	3	3	3	3	3	3	3	3
Flow rate	1	1708	62	50	1660	2	36	0	56	2	0	2
Flare storage (# of vehs)												
Median storage (# of vehs)							2			2		
Signal upstream of Movement 2				ft			Movement 5			ft		
Length of study period (h)	0.25											

Output Data

	Lane	Movement	Flow Rate (veh/h)	Capacity (veh/h)	v/c	Queue Length (veh)	Control Delay (s)	LOS	Approach Delay and LOS
EB	1	LTR	92	84	1.097	6	216.8	F	216.8
	2								F
	3								F
WB	1	LTR	4	2	2.585	1	4388.7	F	4388.7
	2								F
	3								F
SB	①		1	384	0.003	0	14.4	B	
NB	④		50	349	0.143	0	17.0	C	

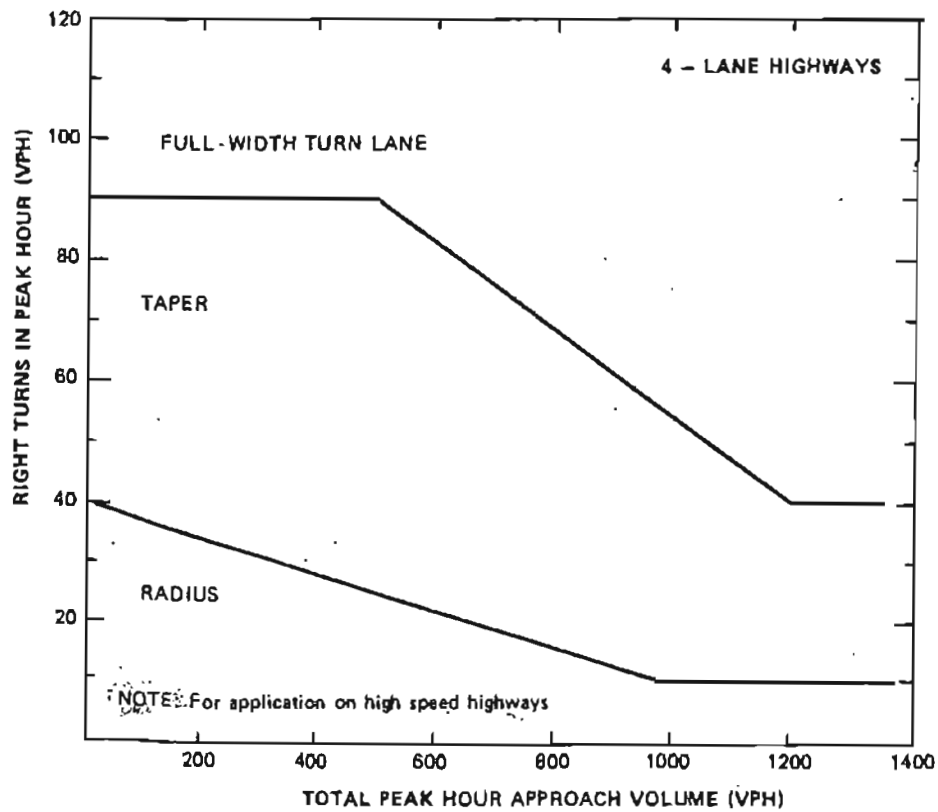
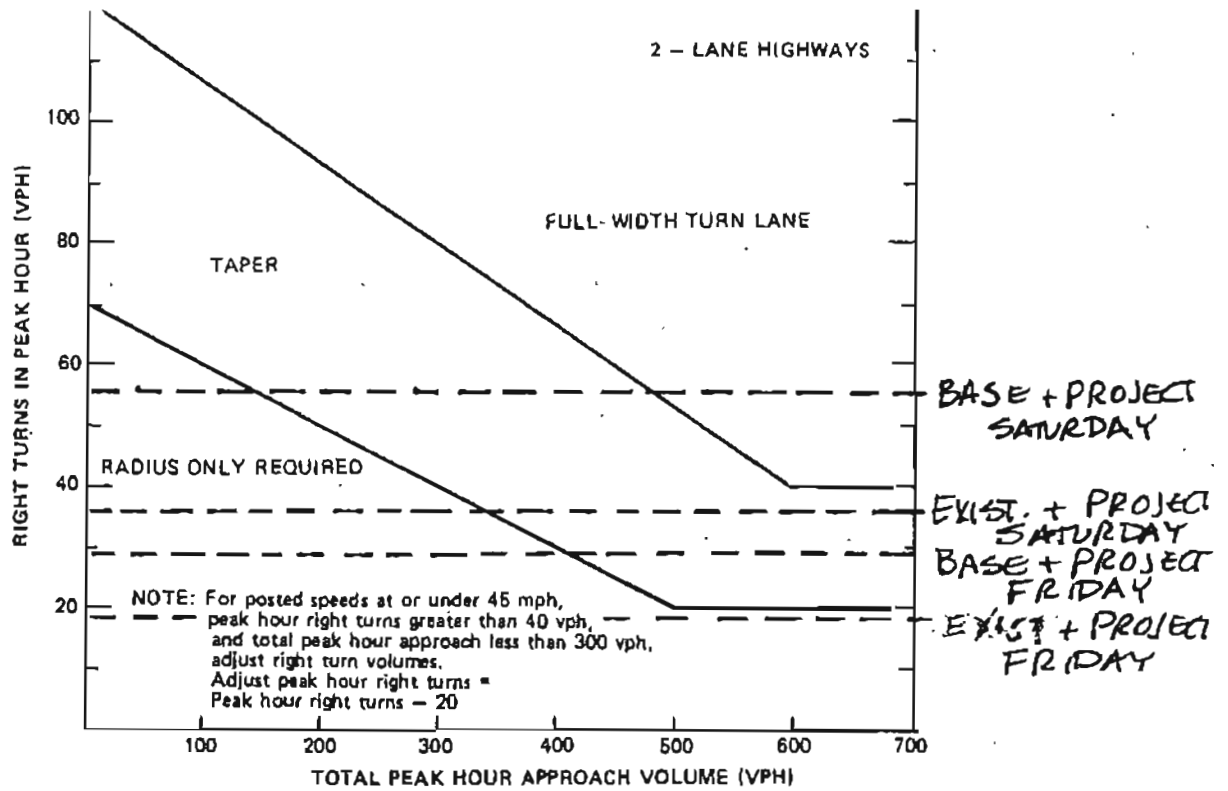


Figure 4-23. Traffic volume guidelines for design of right-turn lanes. (Source: Ref. 4-11)

George W. Nickelson, P.E.

Traffic Engineering – Transportation Planning

August 18, 2009

Ms. Sandra Finegan
Associate Transportation Planner
Community Planning Office
Mail Station 10D, California DOT District 4
P.O. Box 23660
Oakland, CA 94623-0660

Subject: *Responses to Caltrans Comments on the Traffic Analysis for a New Visitor Center Project at the Grgich Hills Winery on State Route 29 in Napa County (Approximate Postmile 25.11)*

Dear Ms. Finegan:

I have reviewed Caltrans August 11, 2009 letter providing comments on our report entitled *Traffic Analysis for a New Visitor Center Project at the Grgich Hills Winery on State Route 29 in Napa County (Approximate Postmile 25.11)*. Our responses to Caltrans' comments are as follows:

1. The weekday and Saturday peak period traffic counts were conducted at the existing Grgich Hills Winery driveway. This driveway would also be used by the proposed Visitor Center facility.
2. The sight distances referenced in the Traffic Analysis were based on our initial field measurements. The precise sight distances will be confirmed by the project's Civil Engineer and would be reviewed by Caltrans.
3. The cumulative traffic projections show no increase in Winery traffic (compared with the current baseline condition) because the Winery activities (production, visitors etc.) are limited by the Use Permit. Therefore, no increase in trips in/out of the Winery is expected between the current baseline and the year 2030 condition.

It is also recognized (as per your letter) that any Winery related work that encroaches into the SR 29 right-of-way would require an encroachment permit. All necessary applications and submittals will be made to Caltrans.

I trust that this letter responds to your comments. I have also attached a copy of the Traffic Analysis with appendices. Please review this information and call me with any questions or comments.

Sincerely,



George W. Nickelson, P.E.

Copies: Chris Cahill, Napa County
Farhaad Virani, FBM
Richard Ross, Summit

DEPARTMENT OF TRANSPORTATION

111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 622-5491
FAX (510) 286-5559
TTY 711



*Flex your power!
Be energy efficient!*

August 11, 2009

NAP029851
NAP-029-29.19

Mr. Chris Cahill
Napa County Conservation, Development
and Planning Department
1195 Third Street, Suite 210
Napa, CA 94559

Dear Mr. Cahill:

GRGICH HILLS WINERY MODIFICATION PROJECT – TRAFFIC IMPACT STUDY

Thank you for continuing to include the California Department of Transportation (Department) in the environmental review process for the Grgich Hills Winery modification project. The following comments are based on the Traffic Impact Study (TIS); additional comments may be forthcoming pending final review of the project.

Highway Operations

1. Section 1.a, page 3: Where were the counts conducted?
2. Section 2.d, 2nd paragraph, page 6: The Department's Traffic Branch should be consulted regarding the feasibility of the sight distance at the site driveway.
3. LOS calculations show no increase in winery traffic between Baseline Plus Project and Cumulative Plus Project. Please explain

Encroachment Permit

Please be advised that work that encroaches onto the state ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans, clearly indicating state ROW, must be submitted to: Office of Permits, California DOT, District 4, P.O. Box 23660, Oakland, CA 94623-0660. Traffic-related mitigation measures will be incorporated into the construction plans during the encroachment permit process. See the following website link for more information: <http://www.dot.ca.gov/hq/traffops/developserv/permits/>.

Please forward one hard copy and one CD of the environmental document, along with the updated TIS responses requested above, including Technical Appendices, complete plan set, and staff report to the following address as soon as they are available: Sandra Finegan, Associate Transportation Planner, Community Planning Office, Mail Station 10D, California DOT, District 4, P.O. Box 23660, Oakland, CA 94623-0660.

Please feel free to call or email Sandra Finegan of my staff at (510) 622-1644 or sandra_finegan@dot.ca.gov with any questions regarding this letter.

Sincerely,

LISA CARBONI
District Branch Chief
Local Development – Intergovernmental Review

RECEIVED

AUG 12 2009

NAPA CO. CONSERVATION
DEVELOPMENT & PLANNING DEPT.

Cahill, Christopher

From: Sandra Finegan [sandra_finegan@dot.ca.gov]
Sent: Thursday, September 03, 2009 5:27 PM
To: Cahill, Christopher
Subject: Grgich Hills Winery clarification

Hi Chris,

I wanted to clarify a mistake in our August 11, 2009 letter: 2nd paragraph, #1, should be "When were the traffic counts conducted" not "where". Sorry for the mistake!

Sandy Finegan
Associate Transportation Planner
Local Development - Intergovernmental Review
Office of Transit and Community Planning
Caltrans - District 4
111 Grand Avenue, MS 10-D
Oakland, CA 94623
(510) 622-1644
(510) 286-5559 FAX

PLEASE NOTE: *This office is closed on the first, second, and third Fridays of each month as part of the Governor's Mandatory Furlough Order.*

RECEIVED
SEP 08 2009
NAPA CO. CONSERVATION
DEVELOPMENT & PLANNING DEPT.

09/08/2009