Trip Generation Worksheet - Prior to increase in employees and production

WINERY TRIP GENERATION WORKSHEET

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

A Tradition of Stewardship
A Commitment to Service

Clear Form

PROJECT DESCRIPTION

Winery Name: _____ **Date Prepared:**

Existing Entitled Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	6	6
	Weekend	6	1
Number of Part Time Employees*	Weekday	2	2
	Weekend	2	1
Maximum Daily Visitation	Weekday	22	10
	Weekend	10	10
Annual Gallons of Production		10,000	10,000
Annual Tons of Grape Haul		62.5	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	22	22
	Weekend	10	10

Proposed Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	6	6
	Weekend	6	1
Number of Part Time Employees*	Weekday	2	2
	Weekend	2	1
Maximum Daily Visitation	Weekday	10	10
	Weekend	10	10
Annual Gallons of Production		10,000	10,000
Annual Tons of Grape Haul		62.5	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	10	10
	Weekend	10	10

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

Trip Generation Worksheet - Prior to increase in employees and production

TRIP GENERATION

Existing Winery					Harvest	Non-Harvest
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	6	6	3.05 one way trips/employee	FT Employee Daily Trips	18.3	18.3
PT Employees	2	2	1.9 one way trips/employee	PT Employee Daily Trips	3.8	3.8
Max Visitors	22	10	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	16.9	7.7
Max Event	22	22	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	16.9	16.9
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekday Daily Trips	57	47
				Total Weekday Peak Hour Trips*	14	10
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	6	1	3.05 one way trips/employee	FT Employee Daily Trips	18.3	3.1
PT Employees	2	1	1.9 one way trips/employee	PT Employee Daily Trips	3.8	1.9
Max Visitors	10	10	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.1	7.1
Max Event	10	10	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.1	7.1
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekend Daily Trips	38	20
				Total Weekend Peak Hour Trips*	12	6
Maximum Annual Traffic						
				Total Annual Trips**	15,293	

Proposed Winery					Harvest	Non-Harvest
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	6	6	3.05 one way trips/employee	FT Employee Daily Trips	18.3	18.3
PT Employees	2	2	1.9 one way trips/employee	PT Employee Daily Trips	3.8	3.8
Max Visitors	10	10	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.7	7.7
Max Event	10	10	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.7	7.7
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekday Daily Trips	39	38
				Total Weekday Peak Hour Trips*	11	11
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	6	1	3.05 one way trips/employee	FT Employee Daily Trips	18.3	3.1
PT Employees	2	1	1.9 one way trips/employee	PT Employee Daily Trips	3.8	1.9
Max Visitors	10	10	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.1	7.1
Max Event	10	10	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.1	7.1
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekend Daily Trips	38	20
				Total Weekend Peak Hour Trips*	12	6
Maximum Annual Traffic						
				Total Annual Trips**	12,449	

Net New Trips		Harvest	Non-Harvest
Maximum Weekday Traffic (Friday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekday Daily Trips**	-18	-9
	Net New Weekday Peak Hour Trips*	-3	1
Maximum Weekend Traffic (Saturday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekend Daily Trips**	0	0
	Net New Weekend Peak Hour Trips*	0	0
Maximum Annual Traffic			
A Traffic Impact Study is NOT Required	**Net New Annual Trips****	-2,844	

#Trips associated with Grape Haul represent harvest season only.

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

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

ADDENDUM TO TRIP GENERATION WORKSHEET

Trip Generation Rate for a Detached Single-Family Residence[1]: 11.24 ADT; 0.94 during PM Peak Hour[2]

Effect of a Single-Family Residence on Net New Trips:

Maximum Weekday Traffic (Friday):

Net New Daily Trips:

Harvest: 1 (11 less 10*)

Non-Harvest: 8 (11 less 3*)

Net New Weekday Peak Hour Trips:

Harvest 0 (1 less 1)

Non-Harvest 3 (1 plus 2)

Maximum Weekend Traffic (Saturday)

Net New Daily Trips:

Harvest: 19 (11 plus 8*)

Non-Harvest: 11 (11 plus 0*)

MAXIMUM ANNUAL TRAFFIC

Net New Annual Trips: 3,471 (4,103 less 632*)

- Calculations made by adding 11.24 trips per day for the residence to the output of the trip generation worksheet section titled "Net New Trips".

[1] Source: ITE Trip Generation (11th Edition)

[2] Weekday 4-6PM Peak Hour Vehicle Trip Generation Rates for Adjacent Street Traffic per ITE Manual (11th Edition)

Trip Generation Worksheet - With to increase in employees and production

WINERY TRIP GENERATION WORKSHEET

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1195 Third Street, Suite 210
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PROJECT DESCRIPTION

Winery Name: _____ **Date Prepared:**

Existing Entitled Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	6	6
	Weekend	6	1
Number of Part Time Employees*	Weekday	2	2
	Weekend	2	1
Maximum Daily Visitation	Weekday	22	10
	Weekend	10	10
Annual Gallons of Production		10,000	10,000
Annual Tons of Grape Haul		62.5	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	22	22
	Weekend	10	10

Proposed Winery		Harvest	Non-Harvest
Number of Full Time Employees*	Weekday	8	8
	Weekend	8	1
Number of Part Time Employees*	Weekday	3	2
	Weekend	3	1
Maximum Daily Visitation	Weekday	10	10
	Weekend	10	10
Annual Gallons of Production		25,000	25,000
Annual Tons of Grape Haul		156.2	N/A
Number of Visitors at the Largest Event that occurs two or more times per month, on average	Weekday	10	10
	Weekend	10	10

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

TRIP GENERATION

Existing Winery					Harvest	Non-Harvest
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	6	6	3.05 one way trips/employee	FT Employee Daily Trips	18.3	18.3
PT Employees	2	2	1.9 one way trips/employee	PT Employee Daily Trips	3.8	3.8
Max Visitors	22	10	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	16.9	7.7
Max Event	22	22	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	16.9	16.9
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekday Daily Trips	57	47
				Total Weekday Peak Hour Trips*	14	10
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	6	1	3.05 one way trips/employee	FT Employee Daily Trips	18.3	3.1
PT Employees	2	1	1.9 one way trips/employee	PT Employee Daily Trips	3.8	1.9
Max Visitors	10	10	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.1	7.1
Max Event	10	10	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.1	7.1
Gallons of Production	10,000		0.000018 truck trips	Production Daily Trips	0.2	0.2
Tons of Grape Haul#	62.5		0.013889 truck trips	Grape Haul Daily Trips	0.9	0.0
				Total Weekend Daily Trips	38	20
				Total Weekend Peak Hour Trips*	12	6
Maximum Annual Traffic						
				Total Annual Trips**	15,293	

Proposed Winery					Harvest	Non-Harvest
Maximum Daily Weekday Traffic (Friday)						
	Harvest	*Non-Harvest*				
FT Employees	8	8	3.05 one way trips/employee	FT Employee Daily Trips	24.4	24.4
PT Employees	3	2	1.9 one way trips/employee	PT Employee Daily Trips	5.7	3.8
Max Visitors	10	10	2.6 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.7	7.7
Max Event	10	10	2.6 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.7	7.7
Gallons of Production	25,000		0.000018 truck trips	Production Daily Trips	0.5	0.5
Tons of Grape Haul#	156.2		0.013889 truck trips	Grape Haul Daily Trips	2.2	0.0
				Total Weekday Daily Trips	49	46
				Total Weekday Peak Hour Trips*	14	13
Maximum Daily Weekend Traffic (Saturday)						
	Harvest	*Non-Harvest*				
FT Employees	8	1	3.05 one way trips/employee	FT Employee Daily Trips	24.4	3.1
PT Employees	3	1	1.9 one way trips/employee	PT Employee Daily Trips	5.7	1.9
Max Visitors	10	10	2.8 visitors/vehicle for 2 one way trips	Max Visitor Daily Trips	7.1	7.1
Max Event	10	10	2.8 visitors/vehicle for 2 one way trips	Max Event Daily Trips	7.1	7.1
Gallons of Production	25,000		0.000018 truck trips	Production Daily Trips	0.5	0.5
Tons of Grape Haul#	156.2		0.013889 truck trips	Grape Haul Daily Trips	2.2	0.0
				Total Weekend Daily Trips	48	20
				Total Weekend Peak Hour Trips*	16	6
Maximum Annual Traffic						
				Total Annual Trips**	14,661	

Net New Trips		Harvest	Non-Harvest
Maximum Weekday Traffic (Friday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekday Daily Trips**	-8	-2
	Net New Weekday Peak Hour Trips*	0	3
Maximum Weekend Traffic (Saturday)			
If total net new daily trips is greater than 40, a TIS is required	**Net New Weekend Daily Trips**	10	0
	Net New Weekend Peak Hour Trips*	4	0
Maximum Annual Traffic			
A Traffic Impact Study is NOT Required	**Net New Annual Trips****	-632	

#Trips associated with Grape Haul represent harvest season only.

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

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

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Trip Generation Rate for a Detached Single-Family Residence[1]: 11.24 ADT; 0.94 during PM Peak Hour[2]

Effect of a Single-Family Residence on Net New Trips:

Maximum Weekday Traffic (Friday):

Net New Daily Trips:

Harvest: 1 (11 less 10*)

Non-Harvest: 8 (11 less 3*)

Net New Weekday Peak Hour Trips:

Harvest 0 (1 less 1)

Non-Harvest 3 (1 plus 2)

Maximum Weekend Traffic (Saturday)

Net New Daily Trips:

Harvest: 19 (11 plus 8*)

Non-Harvest: 11 (11 plus 0*)

MAXIMUM ANNUAL TRAFFIC

Net New Annual Trips: 3,471 (4,103 less 632*)

- Calculations made by adding 11.24 trips per day for the residence to the output of the trip generation worksheet section titled "Net New Trips".

[1] Source: ITE Trip Generation (11th Edition)

[2] Weekday 4-6PM Peak Hour Vehicle Trip Generation Rates for Adjacent Street Traffic per ITE Manual (11th Edition)

SIGHT DISTANCE REPORT

Prepared for

DIAMOND CREEK VINEYARDS
1500 DIAMOND MOUNTAIN ROAD
CALISTOGA, CA 94515

APN 020-440-004 & 020-400-012

Property Owner:

Diamond Mountain Vineyard Company, Inc.
Attn: Nicole Carter
1500 Diamond Mountain Road
Calistoga, CA 94515

RSA Project # 4120020.0
June 30, 2023

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III. METHODOLOGY 1
IV. FINDINGS 1
V. CONCLUSIONS 2

ATTACHMENTS

1) SIGHT DISTANCE EXHIBIT
2) CALTRANS REFERENCES

DRAFT

I. Executive Summary

This report evaluates the stopping sight distance at the existing driveway that serves Diamond Creek Vineyards located at 1500 Diamond Mountain Road, Calistoga (APN 020-440-004 & 020-400-012). These parcels currently have an asphalt concrete driveway connecting to Diamond Mountain Road.

Stopping sight distance of 100 feet is required per Caltrans Highway Design Manual Table 201.1 for a Design Speed of 15 miles per hour (mph) for both directions. On the basis that 15 mph advisory signs exist from the connection of Diamond Mountain Road and Highway 29 to the site driveway, the nearest advisory sign being approximately 2,580 feet from the site driveway, a design speed of 15 mph has been adopted. A stopping sight distance of 300 feet is currently available to the southwest of the driveway. A stopping sight distance of 150 feet was observed to the northeast of the driveway. The existing driveway provides adequate stopping sight distance in both directions.

II. Purpose

This report addresses the stopping sight distance for the 1500 Diamond Mountain Road, Calistoga. The entrance of the existing driveway is located between two horizontal curves in a wooded area. This report documents findings for the minimum distance provided for a vehicle to stop and the minimum distance provided for a vehicle in the existing driveway to see oncoming traffic.

III. Methodology

The stopping sight distance was determined using the Caltrans Highway Design Manual requirements. Stopping sight distance is the continuous length of road that is visible to a driver and is determined using Table 201.1. The sight distance is measured from the driver's eyes, which are assumed to be 3.5 ft above the pavement surface, to an object 0.5 ft on the road per 201.3.

Corner sight distance is the distance between the driver of a vehicle stopped at an unsignalized intersection and the driver of an approaching vehicle and is also determined using Table 201.1. A setback distance of 15 ft for the waiting vehicle was used as noted in 405.1.2(b). The corner sight distance is measured from a 3.5 ft height at the location of the waiting driver to a 4.5 ft object height in the center of the approaching lane per 405.1.2(a).

To measure the distance in sight, cones were placed at distances of 100, 150, 200, and 300 feet away from the existing driveway. Photos were taken from the location of the proposed driveway for the corner sight distance and the center of the approaching road for the stopping sight distance.

IV. Findings

From Caltrans Table 201.1, the speed limit of 15 miles per hour for both directions was used for Diamond Mountain Road this is due to advisory signs being present from the connection of Diamond Mountain Road and Highway 29. The speed limit of 15 mph corresponds to a stopping sight distance of 100 ft, and

required by the Caltrans Highway Design Manual. RSA+ has used photographs of the existing conditions to determine the sight distance for the existing conditions. Pictures showing the sight distances at the existing driveway can be found in Attachment 1. The following is a summary of the stopping sight distance relative to Caltrans standards.

Table 1 – Sight Distance Summary

Driveway Direction	Stopping Sight Distance Requirement	Existing Available Sight Distance
Existing Driveway – Looking Northeast	100 ft	150 ft
Existing Driveway – Looking Southwest	100 ft	300 ft

From the existing driveway looking Northeast and Southwest, the stopping sight distance meets the Caltrans minimum requirement. Existing mail boxes adjacent to the road were observed which partially block the first 100 ft sight distance from the driveway looking Southwest, to obtain a clearer vision for the oncoming traffic looking southwest, relocation of mail boxes may be feasible.

We have also provided additional analysis as requested by County of Napa Engineering to show the sight distance provided when a vehicle is utilizing the proposed turnout location on the south side of the existing bridge. This can be found in Attachment 3.

V. Conclusions

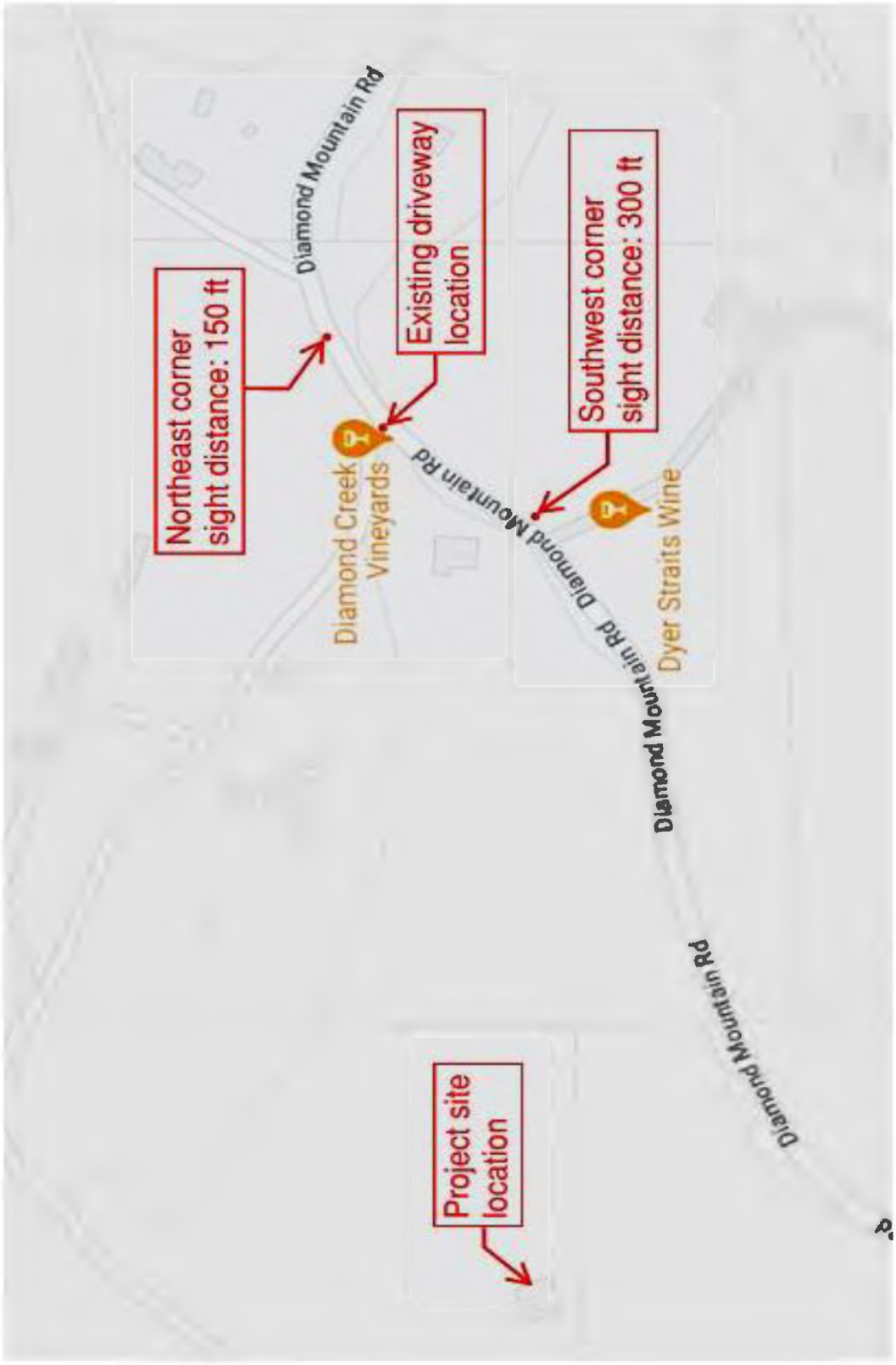
RSA+ has evaluated the access to the 1500 Diamond Mountain Road property using the Caltrans Highway Design Manual. The stopping sight distance meets the minimum requirement in both directions. Minor improvement such as relocation of mail boxes could be proposed to help obtain a clearer line of sight to see oncoming traffic looking southwest.

We have also demonstrated that sight lines are not impacted by the use of the proposed turnout at the south side of the bridge due to the existing additional pavement provided at the current connection to Diamond Mountain Road.

ATTACHMENT 1

SIGHT DISTANCE EXHIBIT

DRAFT


Northeast corner sight distance: 150 ft
Diamond Mountain Rd
Existing driveway location
Diamond Creek Vineyards
Diamond Mountain Rd
Southwest corner sight distance: 300 ft
Dyer Straits Wine
Diamond Mountain Rd
Project site location

Existing Speed Limit on Diamond Mountain Road

Existing advisory sign from the connection of Diamond Mountain Road and Highway 29. Photo was taken 2,580 ft back from the site so a speed limit of 15 mph was adopted for the stopping sight distance.

Northeast Corner Sight Distance

Photo taken 15 ft back from edge of roadway in existing driveway looking Northeast

Southwest Corner Sight Distance

Photo taken 15 ft back from edge of roadway in existing driveway looking Southwest

ATTACHMENT 2

CALTRANS REFERENCES

DRAFT

Table 201.1

Sight Distance Standards

Design Speed[1] (mph)	Stopping[2] (ft)	Passing (ft)
10	50	---
15	100	---
20	125	800
25	150	950
30	200	1,100
35	250	1,300
40	300	1,500
45	360	1,650
50	430	1,800
55	500	1,950
60	580	2,100
65	660	2,300
70	750	2,500
75	840	2,600
80	930	2,700

Notes:

[1]See Topic 101 for selection of design speed.

[2]For sustained downgrades, refer to underlined standard in Index 201.3

The sight distance available for passing at any place is the longest distance at which a driver whose eyes are 3 ½ feet above the pavement surface can see the top of an object 4 ¼ feet high on the road. See Table 201.1 for the calculated values that are associated with various design speeds.

In general, 2-lane highways should be designed to provide for passing where possible, especially those routes with high volumes of trucks or recreational vehicles. Passing should be done on tangent horizontal alignments with constant grades or a slight sag vertical curve. Not only are drivers reluctant to pass on a long crest vertical curve, but it is impracticable to design crest vertical curves to provide for passing sight distance because of high cost where crest cuts are involved. Passing sight distance for crest vertical curves is 7 to 17 times longer than the stopping sight distance.

Ordinarily, passing sight distance is provided at locations where combinations of alignment and profile do not require the use of crest vertical curves.

101.2 Highway Design Speed Standards

Table 101.2 shows appropriate ranges of design speeds that shall be used for the various types of facilities, place types, and conditions listed. For additional guidance, see Index 101.1(2).

Table 101.2

Vehicular Design Speed

Facility Type	Design Speed (mph)
LIMITED ACCESS HIGHWAYS	
Freeways and expressways in mountainous terrain	50-80
Freeways in urban areas	55-80
Freeways and expressways in rural areas	70-80
Expressways in urban areas	50-70
CONVENTIONAL HIGHWAYS (2)	
Rural	
Flat terrain	55-70
Rolling terrain	50-60
Mountainous terrain	40-50
Main Streets – Cities, Towns, and Community Centers	30-40
Urban	
Arterials – Throughways	40-60
Arterials - Main Streets and Regional/Community Centers	30-40
Downtowns and City Centers	30
LOCAL FACILITIES (Within State right of way)	
Facilities crossing a freeway or expressway, connecting to a conventional highway or traversing a State facility	AASHTO (1)
Facilities connecting to a freeway or expressway	$35^{B}/45^{U}$
	B=Boldface Standard U=Underlined Standard

(1) If outside of State right of way and no specific local standards apply, the minimum design speed shall be 30 miles per hour.
(2) For conventional highways eligible or designated as State scenic highways, see Index 109.2.

ATTACHMENT 3

TURNOUT EXHIBIT

DRAFT

Northeast Corner Sight Distance – With Car in Turnout

Photo taken at edge of roadway into existing driveway looking Northeast showing the location of the car within the proposed turnout

Northeast Corner Sight Distance – With Car in Turnout

Photo taken 15 ft back from edge of roadway in existing driveway looking Southwest

Southwest Corner Sight Distance

Photo taken 15 ft back from edge of roadway in existing driveway looking Southwest

(Remains unaffected by Car in Proposed turnout.)