Attachment A

Mt. Diablo Boulevard & Blackhawk Road
Intersection Control Evaluation (ICE) and Queuing Analysis along Diablo Road-Blackhawk Road

Date: March 5, 2019

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Subject: Mt. Diablo Boulevard & Blackhawk Road Intersection Control Evaluation (ICE) and Queueing Analysis along Diablo Road-Blackhawk Road

Introduction

This brief technical memorandum summarizes the Intersection Control Evaluation (ICE), Arterial Level of Service (LOS), and Queueing Analysis conducted by Advanced Mobility Group (AMG) based on the comments received on the Revised Draft Environmental Impact Report (RDEIR) for the Davidon Homes Magee Ranch Project. The analysis conducted includes the following:

1. ICE Analysis for the intersection of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard
2. Arterial LOS and Queueing Analysis for Diablo Road-Blackhawk Road between McCauley Road and Magee Ranch Road

1. Intersection Control Evaluation (ICE)

Intersection Control Evaluation (ICE) is a data-driven, decision-making process and framework used to provide a balanced and holistic approach towards screening alternatives and selecting optimal geometric and traffic control solutions for an intersection.

Some of the benefits of conducting an intersection control evaluation are:

1. Implementation of sustainable and cost-effective solutions
2. Promotion of innovative access strategies that are proven but under-utilized such as but not limited to diverging-diamond interchange, roundabout and pedestrian hybrid beacon
3. Transparency of transportation decisions
4. Use of objective performance metrics for consistent comparisons

ICE is generally utilized when substantial changes to traffic control and geometry must be made, for example, for safety improvement, congestion mitigation, corridor improvement/widening, multimodal facility enhancement, change of access to a parcel of land or land development.

AMG conducted an ICE analysis for the intersection of Diablo Road-Blackhawk Road & Mt. Diablo Scenic Boulevard. The traffic control options evaluated as a part of ICE process were:

1. All-Way Stop Control (AWSC) (Existing)
2. Single-Lane Roundabout
3. Traffic Signal

Figures 1, 2 and **3** illustrate conceptual plans for the three traffic control options.

It should be noted that installation of a roundabout will require substantial right-of-way acquisition as compared to a traffic signal as illustrated in **Figures 2** and **3**.

The analysis was conducted for the following scenarios based on the *Traffic Impact Study for Magee Ranch in the Town of Danville Final Report* dated June 25, 2018.

1. Existing (2017) Conditions
2. Existing (2017) Plus Project Conditions
3. Cumulative (2040) Conditions
4. Cumulative (2040) Plus Project Conditions

AMG utilized the weekday a.m., school p.m. and p.m. peak hour Synchro models developed for the *Traffic Impact Study for Magee Ranch in the Town of Danville Final Report* for the evaluation of AWSC and signal control alternatives. SIDRA INTERSECTION 8, a software for roundabout analysis, was used to evaluate the roundabout alternative. Similar to the traffic impact study, Highway Capacity Manual (HCM) 2010 was utilized for level of service (LOS) and delay estimation.

Figure 1: Existing Conditions

AMG ADVANCED MOBILITY GROUP

NOT FOR CONSTRUCTION

BENCH MARK	REFERENCE
DRAFT	

NO.	REVISED	BY	APP.

DESIGNED C. HIGBER
DRAWN C. HIGBER
CHECKED J. BHATTACHARYA
DATE 11-28-18
SCALE 1"=20'

TOWN OF DANVILLE
CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT

MT. DIABLO SCENIC
INTERSECTION CONCEPTS

EXISTING CONDITIONS

APPROVED BY
CITY ENGINEER
DATE

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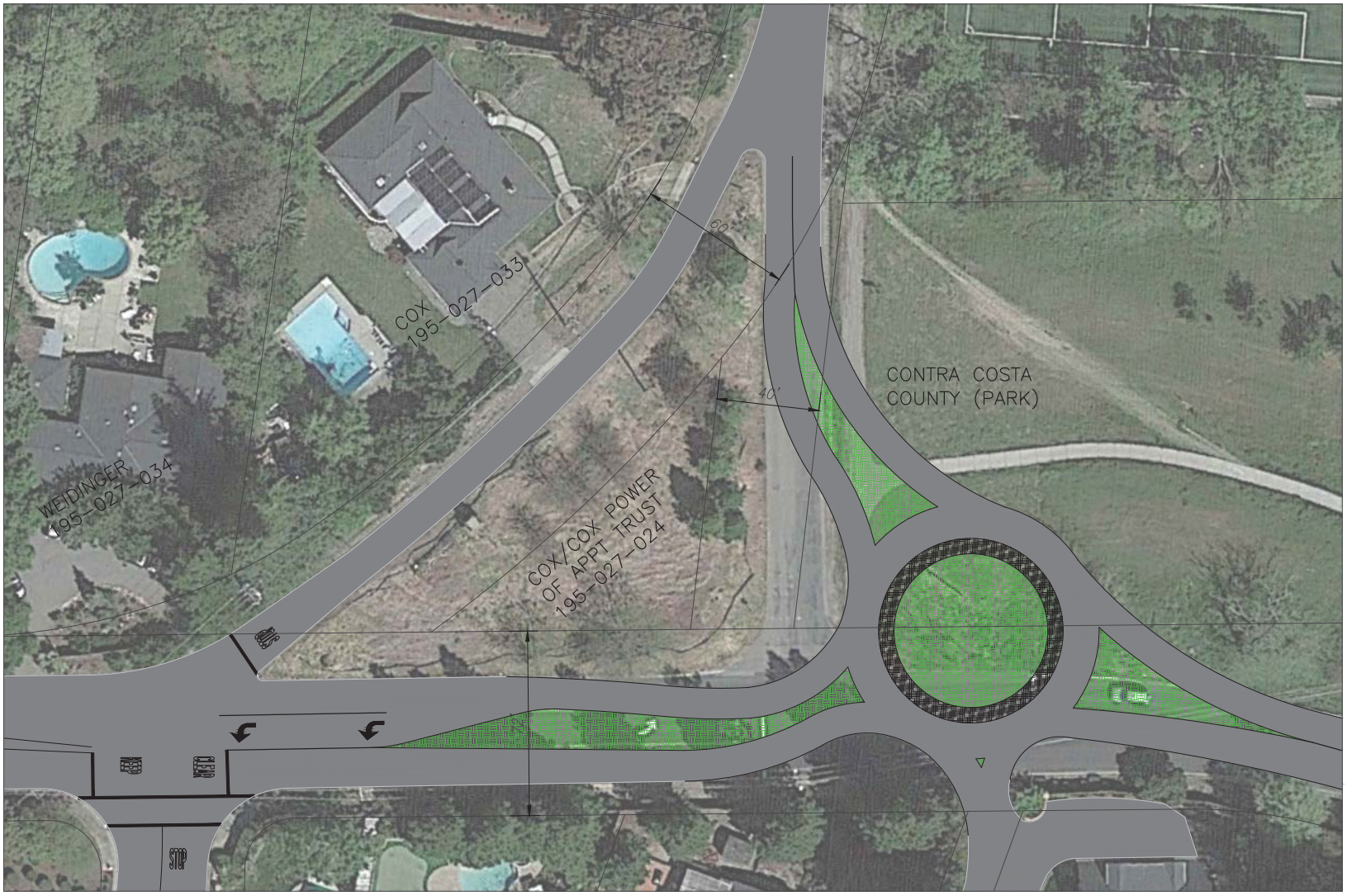
Figure 2: Single-Lane Roundabout Alternative



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0 20' 40'

AMG ADVANCED MOBILITY GROUP

NOT FOR CONSTRUCTION

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DATE 11-28-18 SCALE 1"=20'

TOWN OF DANVILLE
CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT

MT. DIABLO SCENIC
INTERSECTION CONCEPTS

ROUNDABOUT

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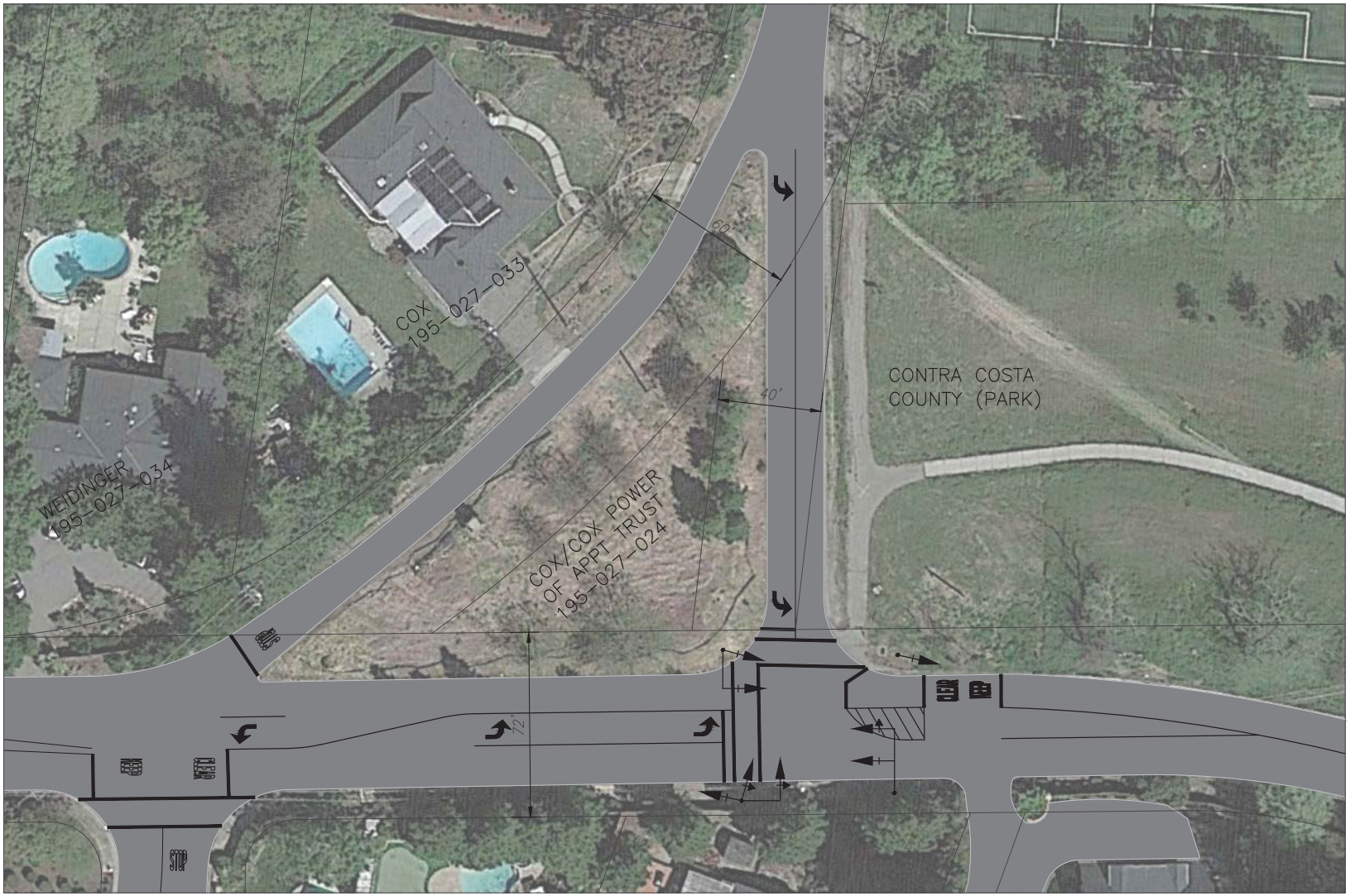
Figure 3: Traffic Signal Alternative



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SCALE 1"=20'

AMG ADVANCED MOBILITY GROUP

TOWN OF DANVILLE
CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT

MT. DIABLO SCENIC
INTERSECTION CONCEPTS

TRAFFIC SIGNAL

NOT FOR CONSTRUCTION

APPROVED BY
CITY ENGINEER
DATE

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HCM 2010 Level of Service (LOS) and Delay Methodology

This study uses the LOS criteria established in the Highway Capacity Manual (HCM), 2010 Edition published and updated by the Transportation Research Board for signalized and unsignalized intersections.

Signalized intersection level of service (LOS) is defined in terms of weighted average control delay for the entire intersection. Unsignalized intersection LOS criteria can be reduced into three intersection types: all-way stop control (AWSC), two-way stop control (TWSC), and roundabout control.

All-way stop control intersection LOS is expressed in terms of the weighted average control delay for the entire intersection. Roundabout control LOS is expressed using both average control delay for the intersection as well as LOS for the worst performing lane. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as critical major-street left-turns. **Table 1** provides the relationship between LOS rating and delay for signalized and unsignalized intersections.

Table 1: Level of Service Thresholds Based on Intersection Delay

Level of Service	*Signalized Intersection Delay (sec)*	*Unsignalized Intersection Delay (sec)*
A	0 ≤ D ≤ 10	0 ≤ D ≤ 10
B	10 < D ≤ 20	10 < D ≤ 15
C	20 < D ≤ 35	15 < D ≤ 25
D	35 < D ≤ 55	25 < D ≤ 35
E	55 < D ≤ 80	35 < D ≤ 50
F	80 < D	50 < D

Source: Highway Capacity Manual (HCM), 2010 Edition

Analysis

AMG evaluated the three alternatives including existing AWSC to determine the most viable and feasible traffic control type for the study area. The evaluation included the following performance measures.

1. LOS & Delay
2. 95th Percentile Queue Lengths (feet)

It should be noted that the AWSC and signal control alternatives were evaluated with existing lane geometry and the roundabout alternative was evaluated with a shared through and left-turn lane for the eastbound approach to avoid additional right-of-way acquisition.

LOS & Delay Analysis

LOS and delay analysis were performed for the three alternatives for the weekday a.m., school p.m. and p.m. peak periods for the four study scenarios. Results of the analysis are summarized in **Table 2**. **Appendix A** contains the HCM 2010 Synchro and SIDRA reports.

Table 2: LOS & Delay Comparison

#	Intersection	Scenario	Peak Period	Existing - AWSC		Single Lane Roundabout		Traffic Signal	
				Delay (secs)	LOS	Delay (secs)	LOS	Delay (secs)	LOS
1	Mt. Diablo Scenic Boulevard/ Diablo Road-Blackhawk Road	Existing Conditions	AM	**41.6**	**E**	14.0	B	5.6	A
			School PM	**66.0**	**F**	14.1	B	5.2	A
			PM	22.5	C	9.3	A	1.4	A
		Existing Plus Project Conditions	AM	**54.5**	**F**	15.5	C	5.7	A
			School PM	**81.1**	**F**	15.5	C	5.2	A
			PM	25.7	D	9.8	A	1.4	A
		Cumulative Conditions	AM	**109.8**	**F**	**36.0**	**E**	13.7	B
			School PM	**82.1**	**F**	17.5	C	5.8	A
			PM	**43.5**	**E**	11.4	B	7.4	A
		Cumulative Plus Project Conditions	AM	**128.0**	**F**	**44.2**	**E**	15.3	B
			School PM	**98.5**	**F**	19.8	C	5.7	A
			PM	**51.6**	**F**	12.1	B	13.5	B

Note:
Bold reflects unacceptable LOS and delay.
Delay reported is the weighted average control delay for the entire intersection.

Based on the LOS and delay analysis conducted, traffic signal alternative at the intersection of Mt. Diablo Scenic Boulevard/Blackhawk Road provides most optimal LOS and delay during all peak periods under all study scenarios.

95th Percentile Queue Length Analysis

95th percentile queue length analysis was performed for the three alternatives for the weekday a.m., school p.m. and p.m. peak periods for the four study scenarios. Results of the analysis are summarized in **Table 3**. **Appendix A** contains the HCM 2010 Synchro and SIDRA reports.

Table 3: 95th Percentile Queue Lengths in Feet (ft.)

#	Intersection	Scenario	Peak Period	Existing - AWSC				Single Lane Roundabout			Traffic Signal			
				EBL	EBT	WB	SB	EB	WB	SB	EBL	EBT	WB	SB
1	Mt. Diablo Scenic Boulevard/Diablo Road-Blackhawk Road	Existing Conditions	AM	102	111	176	50	117	253	17	115	88	113	60
			School PM	68	140	133	52	196	78	12	66	126	102	71
			PM	50	121	138	60	80	82	6	58	122	118	46
		Existing Plus Project Conditions	AM	98	122	226	52	127	333	17	126	94	128	58
			School PM	75	154	135	50	227	84	12	72	125	103	70
			PM	58	120	149	55	90	87	6	61	120	122	46
		Cumulative Conditions	AM	133	122	1,521	66	503	1,009	41	254	548	182	114
			School PM	73	153	125	54	557	81	15	83	145	103	76
			PM	64	120	168	67	131	96	27	67	123	137	98
		Cumulative Plus Project Conditions	AM	126	128	1,774	62	585	1,268	43	257	639	208	123
			School PM	81	161	151	57	759	88	15	96	163	132	74
			PM	70	128	174	71	174	102	28	89	195	241	88

Notes:
EB, WB, NB, SB – Eastbound, Westbound, Northbound, Southbound respectively;
L, T, R – Left-turn, Through, Right-turn respectively;
TL, TR, LTR – Shared Through and Left-turn, Shared Through and Right-turn, Shared Left, Through and Right-turn respectively.

Based on the 95th percentile queue length analyses conducted, traffic signal alternative results in significantly lower queue lengths for the westbound movement along Diablo Road-Blackhawk Road as compared to the existing AWSC and single-lane roundabout alternative during the a.m. peak period under cumulative conditions and cumulative plus project conditions scenario.

2. Arterial LOS & Queueing Analysis along Diablo Road-Blackhawk Road

The arterial LOS and queuing analysis were conducted for three intersections along Diablo Road-Blackhawk Road, between McCauley Road and Magee Ranch Road. the intersections are listed below:

1. Diablo Road/McCauley Road-Green Valley Road
2. Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard
3. Blackhawk Road/Magee Ranch Road-Hidden Oak Drive

Performance of an arterial segment can be quantified by conducting arterial LOS analysis as provided in HCM 2010. The analysis includes evaluation of performance measures such as average delay, travel time and speed through the segment. Arterial LOS analysis is a measure by which proposed improvements within an arterial segment can be quantified and compared to existing conditions to check for feasibility as well as impacts to the segment.

The analysis assumes signalization of the intersections of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oak Drive under Cumulative Plus Project Conditions. Analysis was conducted for the following two scenarios:

1. Cumulative Plus Project Conditions - No Build: This scenario maintains existing lane geometry and traffic control at all three intersections
2. Cumulative Plus Project Conditions - Signalization: This scenario assumes signalization of the intersections of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oak Drive

Similar to the ICE evaluation, AMG utilized the weekday a.m., school p.m. and p.m. Synchro/SimTraffic models developed for the *Traffic Impact Study for Magee Ranch in the Town of Danville Final Report* for the evaluation. Highway Capacity Manual (HCM) 2010 was utilized for arterial level of service (LOS) and 95th percentile queue length estimation. The results of the analysis are the average of ten SimTraffic model runs.

Arterial LOS Analysis

Arterial LOS and delay analysis were performed for the two scenarios, as mentioned above, for the weekday a.m., school p.m. and p.m. peak periods. Results of the analysis are summarized in **Table 4**. **Appendix B** contains the SimTraffic reports.

Table 4: Arterial LOS Comparison

Segment	*Direction*	*Peak Period*	*Scenario*	*Average Delay (sec)*	*Average Travel Time (sec)*	*Average Arterial Speed (mph)*
Diablo Road-Blackhawk Road from McCauley Road to Magee Ranch Road	EB	AM	No-Build	36.8	284.2	29
			Signalization	53.8	300.6	28
			% Difference	**46%**	**6%**	**-3%**
		School PM	No-Build	45.4	292.8	28
			Signalization	45.2	292.1	28
			% Difference	**0%**	**0%**	**0%**
		PM	No-Build	37.6	285.1	29
			Signalization	35.7	282.6	29
			% Difference	**-5%**	**-1%**	**0%**
	WB	AM	No-Build	263.6	458.4	18
			Signalization	82.7	279.2	29
			% Difference	**-69%**	**-39%**	**61%**
		School PM	No-Build	77.3	271.8	30
			Signalization	63.3	257.7	31
			% Difference	**-18%**	**-5%**	**3%**
		PM	No-Build	75.1	268.7	30
			Signalization	64.8	258	31
			% Difference	**-14%**	**-4%**	**3%**

Based on the results of the arterial LOS analysis, signalization of the intersections of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oak Drive is not expected to cause significant impact to traffic operations along the corridor. Additionally, signalization of the intersections is expected to significantly improve progression of the westbound traffic along Diablo Road during the a.m. peak period which is the peak direction of travel.

There is an increase in delay and travel time in the eastbound direction during the a.m. peak period. This can be attributed to traffic control conversion from two-way stop control to signalization at the intersection of Blackhawk Road/Magee Ranch Road-Hidden Oak Drive, which restricts the existing uncontrolled eastbound and westbound movements along Diablo Road-Blackhawk Road.

Intersection LOS & Delay Analysis

LOS and delay analysis was performed for the three study intersections for the weekday a.m., school p.m. and p.m. peak periods for the Cumulative Plus Project Conditions – No Build and Cumulative Plus Project Conditions – Signalization scenarios under this task. The signalization scenario coordinates the three intersections with a fixed cycle length. Results of the analysis are summarized in **Table 5**. **Appendix B** contains the Synchro reports.

Table 5: Intersection LOS and Delay Analysis

#	Intersection	A.M. Peak Period				School P.M. Peak Period				P.M. Peak Period			
		No Build		Signalization		No Build		Signalization		No Build		Signalization	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1	Diablo Rd/Green Valley Rd	**67.5**	**E**	**67.5**	**E**	46.2	D	46.2	D	35.1	D	35.1	D
2	Diablo Rd/Mt. Diablo Scenic Blvd	**128.0**	**F**	16.7	B	**98.5**	**F**	6.2	A	**51.6**	**F**	9.0	A
3*	Blackhawk Rd/Magee Ranch Rd-Hidden Oaks Dr	**38.7**	**E**	17.8	B	28.7	D	13.0	B	18.5	C	12.9	B

Notes:

Bold reflects unacceptable LOS.

*Highway Capacity Manual (HCM), 2000 Edition used for Signalization scenario due to limitations of reporting LOS and Delay for clustered intersections in HCM 2010. Worst intersection delay is reported.

Based on the results of the Synchro LOS and delay analysis, there is an improvement in the LOS and delay at the intersections of Diablo Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oaks Drive during all peak periods under the signalization scenario.

There is no change in LOS and delay for the intersection of Diablo Road/McCauley Road-Green Valley Road under the no-build and signalization scenarios. This is attributed to the arrival type selected while conducting the LOS and delay analysis per the HCM 2010 methodology for signalized intersections. Based on the Exhibit 19-14 Arrival Type Selection Guidelines, Chapter 19/Signalized Intersections, the arrival type for through movements at the intersection of Diablo Road/McCauley Road-Green Valley Road, is arrival type 3 which refers to signals that are isolated or are widely spaced coordinated signals with typical signal spacing greater than 3,200 ft. Since the intersection is approximately 1.6 miles (8, 448 ft.) from the adjacent Diablo Road/Mt. Diablo Scenic Boulevard intersection under the no-build and signalization scenarios, the arrival type remains the same for both scenarios resulting in no change in LOS and delay.

95th Percentile Queue Length Analysis

95th percentile queue length analysis was performed for the intersections of Diablo Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oaks Drive for the weekday a.m., school p.m. and p.m. peak periods for the Cumulative Plus Project Conditions – No Build and Cumulative Plus Project Conditions – Signalization scenarios under this task. The signalization scenario coordinates the two intersections with a fixed cycle length. Results of the analysis are summarized in **Tables 6** and **7**. **Appendix B** contains the SimTraffic reports.

Table 6: 95th Percentile Queue Lengths in Feet (ft.) for Diablo Road/McCauley Road-Green Valley Road

#	Intersection	Peak Period	Scenario	Intersection Lane Movements									
				EBL	EBT	WBL	WBT	WBT	WBR	NBL	NBTR	SBTL	SBR
1	Diablo Rd/McCauley Rd-Green Valley Rd	AM	No Build	499	280	131	220	248	223	170	146	327	442
			Signalization	475	296	134	227	269	233	160	136	306	290
			Difference	**-24**	**16**	**3**	**7**	**21**	**10**	**-10**	**-10**	**-21**	**-152**
		School PM	No Build	542	376	78	220	230	197	102	97	342	476
			Signalization	579	389	82	206	212	185	112	88	347	531
			Difference	**37**	**13**	**4**	**-14**	**-18**	**-12**	**10**	**-9**	**5**	**55**
		PM	No Build	459	209	74	169	231	215	95	51	251	156
			Signalization	489	197	66	181	236	217	90	48	261	141
			Difference	**30**	**-12**	**-8**	**12**	**5**	**2**	**-5**	**-3**	**10**	**-15**

Notes:

EB, WB, NB, SB – Eastbound, Westbound, Northbound, Southbound respectively;

L, T, R – Left-turn, Through, Right-turn respectively;

TL, TR, LR – Shared Through and Left-turn, Shared Through and Right-turn, Shared Left-turn and Right-turn respectively.

Table 7: 95th Percentile Queue Lengths in Feet (ft.) for Diablo Road/Mt. Diablo Scenic Boulevard

#	Intersection	Peak Period	Scenario	Intersection Lane Movements			
				EBL	EBT	WBTR	SBL
2	Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard	AM	No Build	126	128	1,774	62
			Signalization	256	652	276	133
			Difference	**130**	**524**	**-1,498**	**71**
		School PM	No Build	81	161	151	57
			Signalization	78	150	85	96
			Difference	**-3**	**-11**	**-66**	**39**
		PM	No Build	70	128	174	71
			Signalization	63	141	108	142
			Difference	**-7**	**13**	**-66**	**71**

Notes:

EB, WB, NB, SB – Eastbound, Westbound, Northbound, Southbound respectively;

L, T, R – Left-turn, Through, Right-turn respectively;

TL, TR, LR – Shared Through and Left-turn, Shared Through and Right-turn, Shared Left-turn and Right-turn respectively.

The results of the queueing analysis conducted show the following results for the study intersections

Diablo Road/McCauley Road-Green Valley Road

- The 95th percentile queue lengths remain consistent for all movements under the no-build and signalization scenarios for all peak periods.

Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard

- A.M. Peak – Reduction in queue length by approximately 1500 ft. for the westbound shared through and right-turn movement and increase by approximately 130 ft. and 530 ft. for the eastbound left-turn and through movements respectively.

The 95th percentile queue lengths remain consistent for all movements under the no-build and signalization scenarios for the school p.m. and p.m. peak periods.

Conclusions

The analysis conducted during this study resulted in the following observations and recommendations:

Intersection Control Evaluation for Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard

The LOS, delay and the 95th percentile queue length analyses results show a significant improvement in traffic operations at the intersection of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard with the installation of a traffic signal.

With the installation of a traffic signal, the LOS and delay at this intersection operates with acceptable levels of service for all peak periods under all study scenarios.

Additionally, traffic signal control will not require right-of-way acquisition for installation whereas the roundabout alternative would require substantial right-of-way acquisition.

Arterial LOS, Intersection LOS & Queueing Analysis along Diablo Road-Blackhawk Road

The arterial LOS analysis for cumulative plus project conditions under no-build and signalization scenarios show an improvement in the westbound direction which is the peak direction of travel during the a.m. peak period with the signalization of the intersections of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oak Drive.

An increase in delay and travel time is observed in the eastbound direction which can be attributed to conversion from two-way stop control to traffic signal at the intersection of Blackhawk Road/Magee Ranch Road-Hidden Oak Drive, since traffic signal control will restrict the existing uncontrolled eastbound and westbound movements along Diablo Road-Blackhawk Road. The arterial LOS remains consistent between the scenarios for the school p.m. and p.m. peak periods.

Results of the intersection LOS and delay analysis show an improvement in the LOS and delay at the intersections of Diablo Road/Mt. Diablo Scenic Boulevard and Blackhawk Road/Magee Ranch Road-Hidden Oaks Drive under all study peak periods and scenarios. There is no change in LOS and delay for the intersection of Diablo Road/McCauley Road-Green Valley Road under the no-build and signalization scenarios.

At the intersection of Diablo Road/McCauley Road-Green Valley Road, the 95th percentile queue lengths remain consistent for all movements under the no-build and signalization scenarios for all peak periods.

At the intersection of Diablo Road-Blackhawk Road/Mt. Diablo Scenic Boulevard, a reduction in queue length is observed for the westbound movement and an increase in queue length is observed for the eastbound left-turn and through movements during the a.m. peak period. The 95th percentile queue lengths remain consistent for all movements under the no-build and signalization scenarios during school p.m. and p.m. peak periods.

Appendix A – Synchro & SIDRA Reports for ICE

Intersection	
Intersection Delay, s/veh	41.6
Intersection LOS	E

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	198	336	0	495	71	0	61	114
Future Vol, veh/h	0	198	336	0	495	71	0	61	114
Peak Hour Factor	0.92	0.86	0.86	0.92	0.93	0.93	0.92	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	230	391	0	532	76	0	117	219
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	20.8	77.9	14.3
HCM LOS	C	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	87%	0%	0%
Vol Right, %	0%	0%	13%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	336	566	61	114
LT Vol	198	0	0	61	0
Through Vol	0	336	495	0	0
RT Vol	0	0	71	0	114
Lane Flow Rate	230	391	609	117	219
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.448	0.706	1.056	0.26	0.413
Departure Headway (Hd)	7.193	6.681	6.245	8.213	6.978
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	504	543	584	440	520
Service Time	4.893	4.381	4.281	5.913	4.678
HCM Lane V/C Ratio	0.456	0.72	1.043	0.266	0.421
HCM Control Delay	15.6	23.8	77.9	13.8	14.5
HCM Lane LOS	C	C	F	B	B
HCM 95th-tile Q	2.3	5.6	17.2	1	2

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	132	135	223	59
Average Queue (ft)	62	72	107	27
95th Queue (ft)	102	111	176	50
Link Distance (ft)		188	1470	180
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	66
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	101	556	0	415	41	0	69	182
Future Vol, veh/h	0	101	556	0	415	41	0	69	182
Peak Hour Factor	0.92	0.86	0.86	0.92	0.90	0.90	0.92	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	117	647	0	461	46	0	95	249
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	104.6	42.2	15.4
HCM LOS	F	E	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	91%	0%	0%
Vol Right, %	0%	0%	9%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	556	456	69	182
LT Vol	101	0	0	69	0
Through Vol	0	556	415	0	0
RT Vol	0	0	41	0	182
Lane Flow Rate	117	647	507	95	249
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.231	1.18	0.89	0.211	0.47
Departure Headway (Hd)	7.082	6.571	6.67	8.415	7.176
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	510	556	547	429	506
Service Time	4.782	4.271	4.67	6.115	4.876
HCM Lane V/C Ratio	0.229	1.164	0.927	0.221	0.492
HCM Control Delay	11.9	121.4	42.2	13.4	16.1
HCM Lane LOS	B	F	E	B	C
HCM 95th-tile Q	0.9	22.9	10.2	0.8	2.5

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	93	159	162	64
Average Queue (ft)	40	96	83	29
95th Queue (ft)	68	140	133	52
Link Distance (ft)		163	1470	184
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	22.5
Intersection LOS	C

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	52	386	0	474	28	0	34	73
Future Vol, veh/h	0	52	386	0	474	28	0	34	73
Peak Hour Factor	0.92	0.82	0.82	0.92	0.94	0.94	0.92	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	471	0	504	30	0	43	92
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	20.3	27.6	10.7
HCM LOS	C	D	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	94%	0%	0%
Vol Right, %	0%	0%	6%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	386	502	34	73
LT Vol	52	0	0	34	0
Through Vol	0	386	474	0	0
RT Vol	0	0	28	0	73
Lane Flow Rate	63	471	534	43	92
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.107	0.728	0.81	0.092	0.166
Departure Headway (Hd)	6.078	5.571	5.46	7.676	6.449
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	590	650	662	467	556
Service Time	3.805	3.299	3.486	5.419	4.191
HCM Lane V/C Ratio	0.107	0.725	0.807	0.092	0.165
HCM Control Delay	9.5	21.8	27.6	11.2	10.5
HCM Lane LOS	A	C	D	B	B
HCM 95th-tile Q	0.4	6.2	8.3	0.3	0.6

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	54	142	164	77
Average Queue (ft)	26	81	90	36
95th Queue (ft)	50	121	138	60
Link Distance (ft)		149	1470	165
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

DELAY (CONTROL)

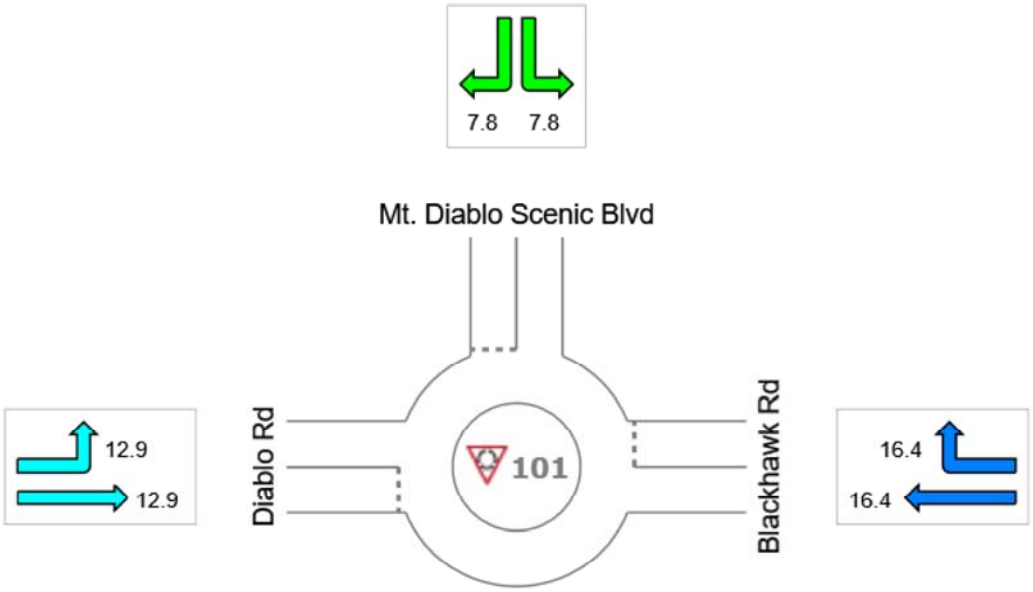
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	16.4	7.8	12.9	14.0
LOS	C	A	B	B



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

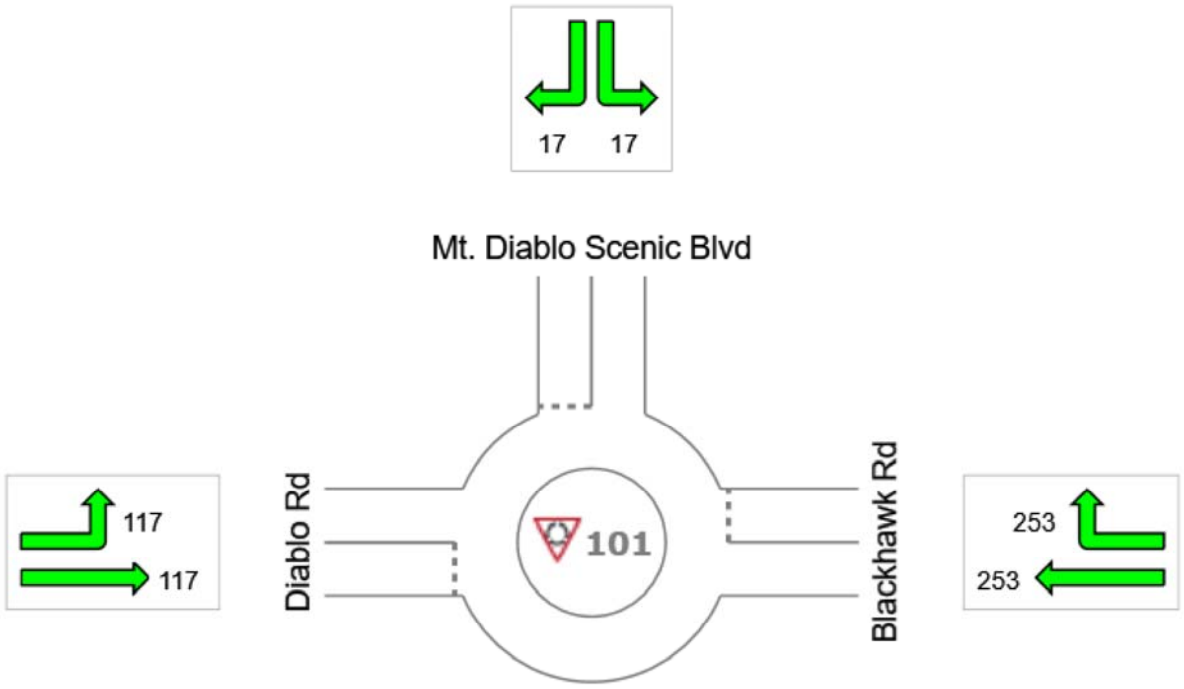
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	253	17	117	253



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

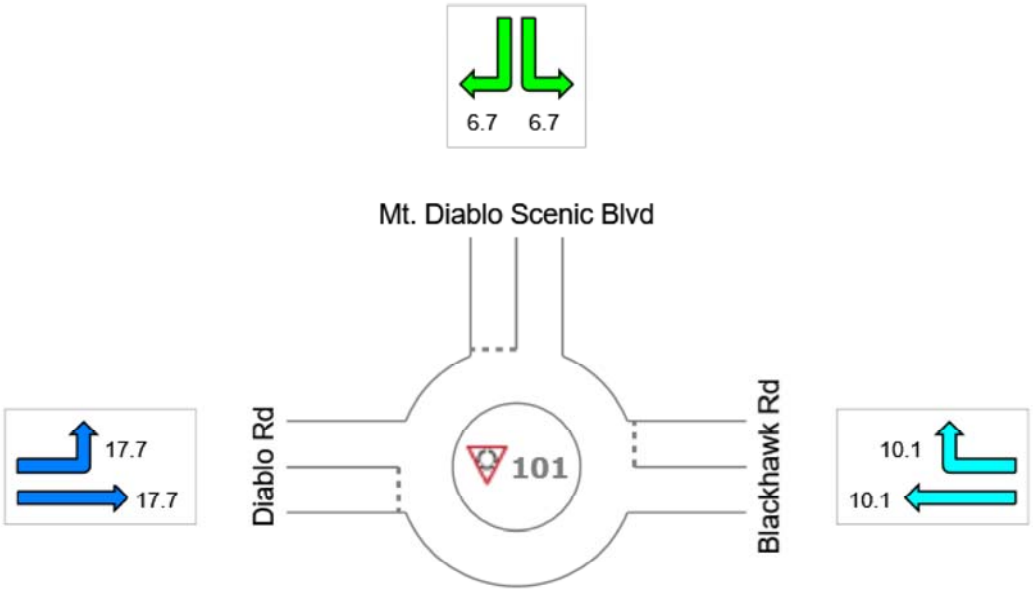
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	10.1	6.7	17.7	14.1
LOS	B	A	C	B



Colour code based on Level of Service

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

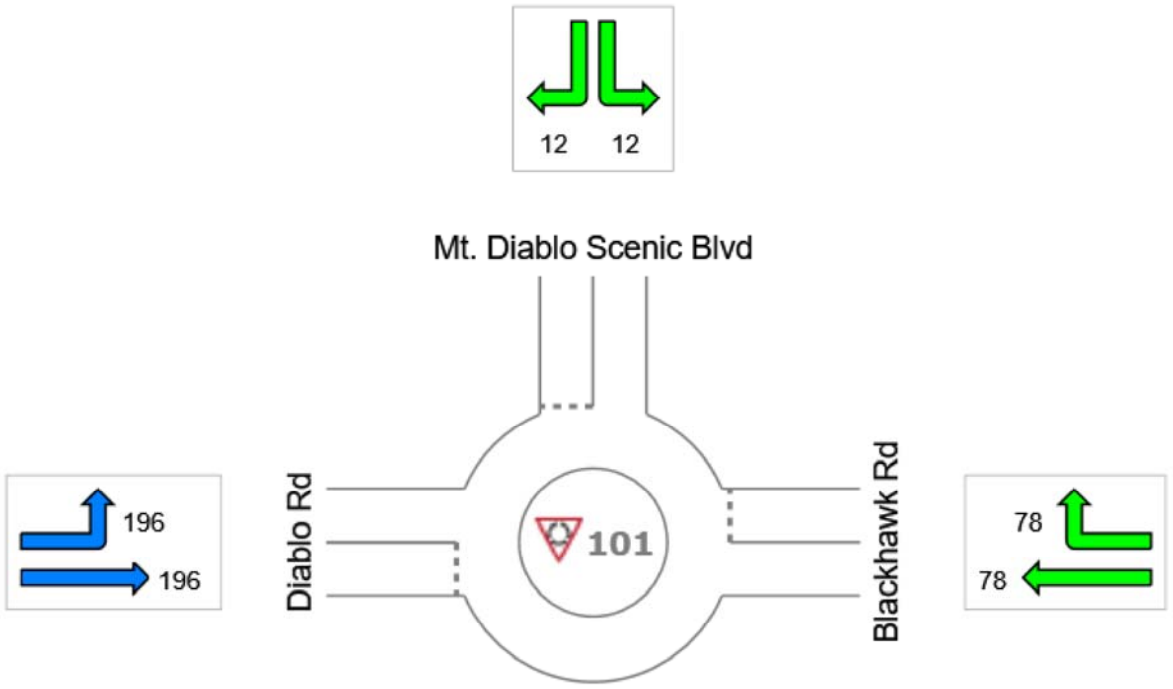
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	78	12	196	196



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

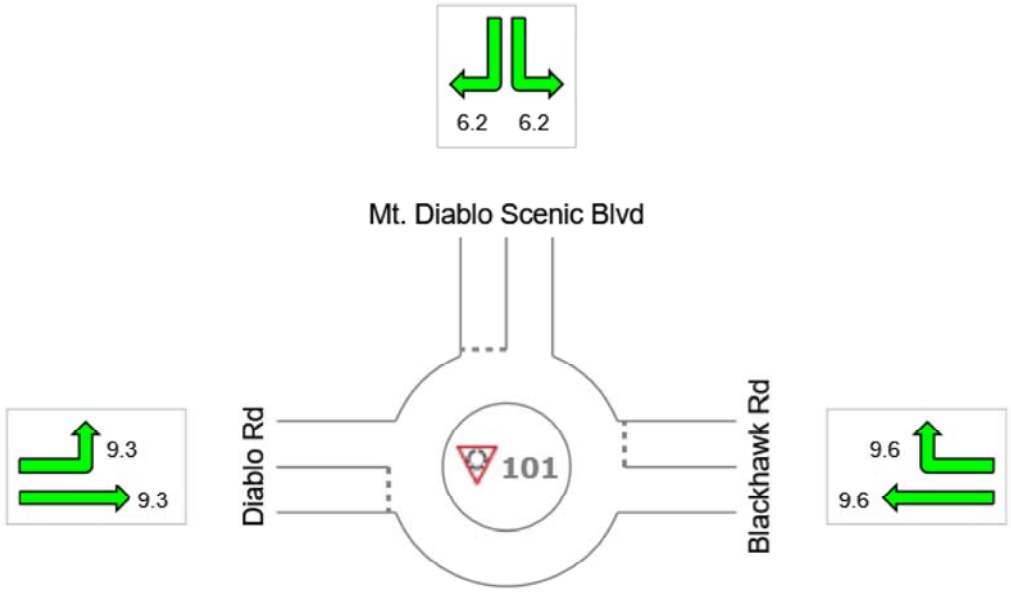
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing_PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	9.6	6.2	9.3	9.3
LOS	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

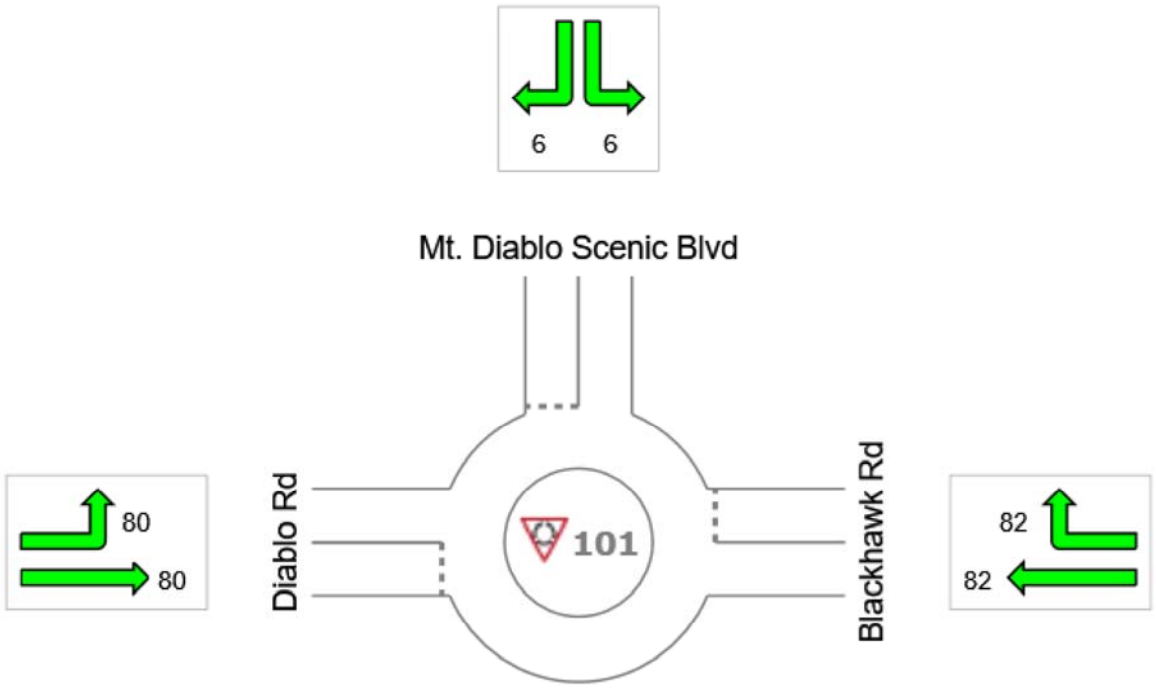
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing_PM]

New Site
Site Category: (None)
Roundabout

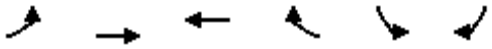
All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	82	6	80	82



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]



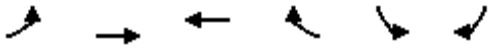
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	198	336	495	71	61	114
Future Volume (veh/h)	198	336	495	71	61	114
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	230	391	532	76	117	0
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.86	0.86	0.93	0.93	0.52	0.52
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	565	1132	970	139	181	0
Arrive On Green	0.61	0.61	0.61	0.61	0.10	0.00
Sat Flow, veh/h	809	1863	1595	228	1760	0
Grp Volume(v), veh/h	230	391	0	608	118	0
Grp Sat Flow(s),veh/h/ln	809	1863	0	1823	1775	0
Q Serve(g_s), s	7.3	3.2	0.0	6.1	2.0	0.0
Cycle Q Clear(g_c), s	13.4	3.2	0.0	6.1	2.0	0.0
Prop In Lane	1.00			0.12	0.99	0.00
Lane Grp Cap(c), veh/h	565	1132	0	1108	182	0
V/C Ratio(X)	0.41	0.35	0.00	0.55	0.65	0.00
Avail Cap(c_a), veh/h	892	1886	0	1845	1112	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.5	3.0	0.0	3.6	13.4	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.0	0.4	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.7	0.0	3.0	1.1	0.0
LnGrp Delay(d),s/veh	8.0	3.2	0.0	4.0	17.2	0.0
LnGrp LOS	A	A		A	B	
Approach Vol, veh/h		621	608		118	
Approach Delay, s/veh		5.0	4.0		17.2	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		23.4				23.4		7.7
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		15.4				8.1		4.0
Green Ext Time (p_c), s		3.5				4.0		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.6
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	146	121	149	70
Average Queue (ft)	63	31	46	31
95th Queue (ft)	115	88	113	60
Link Distance (ft)		366	1470	936
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)				
Queuing Penalty (veh)				



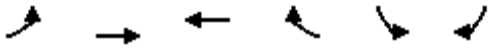
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	556	415	41	69	182
Future Volume (veh/h)	101	556	415	41	69	182
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	117	647	461	46	95	0
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.86	0.86	0.90	0.90	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	613	1020	911	91	177	0
Arrive On Green	0.55	0.55	0.55	0.55	0.10	0.00
Sat Flow, veh/h	888	1863	1663	166	1756	0
Grp Volume(v), veh/h	117	647	0	507	96	0
Grp Sat Flow(s),veh/h/ln	888	1863	0	1829	1775	0
Q Serve(g_s), s	2.4	6.2	0.0	4.4	1.3	0.0
Cycle Q Clear(g_c), s	6.9	6.2	0.0	4.4	1.3	0.0
Prop In Lane	1.00			0.09	0.99	0.00
Lane Grp Cap(c), veh/h	613	1020	0	1002	179	0
V/C Ratio(X)	0.19	0.63	0.00	0.51	0.54	0.00
Avail Cap(c_a), veh/h	1219	2291	0	2249	1351	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.8	4.0	0.0	3.6	10.9	0.0
Incr Delay (d2), s/veh	0.1	0.7	0.0	0.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.2	0.0	2.2	0.8	0.0
LnGrp Delay(d),s/veh	5.9	4.7	0.0	4.0	13.4	0.0
LnGrp LOS	A	A		A	B	
Approach Vol, veh/h		764	507		96	
Approach Delay, s/veh		4.9	4.0		13.4	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		18.5				18.5		7.1
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		8.9				6.4		3.3
Green Ext Time (p_c), s		5.2				3.2		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	86	147	133	90
Average Queue (ft)	31	51	42	34
95th Queue (ft)	66	126	102	71
Link Distance (ft)		363	1470	525
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	386	474	28	34	73
Future Volume (veh/h)	52	386	474	28	34	73
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	63	471	504	30	43	0
Adj No. of Lanes	1	1	1	0	1	0
Peak Hour Factor	0.82	0.82	0.94	0.94	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	1008	1167	1090	65	0	0
Arrive On Green	0.63	0.63	0.63	0.63	0.00	0.00
Sat Flow, veh/h	867	1863	1738	103	0	0
Grp Volume(v), veh/h	63	471	0	534	0	0
Grp Sat Flow(s),veh/h/ln	867	1863	0	1842	0	0
Q Serve(g_s), s	0.5	1.5	0.0	1.8	0.0	0.0
Cycle Q Clear(g_c), s	2.3	1.5	0.0	1.8	0.0	0.0
Prop In Lane	1.00			0.06	0.00	0.00
Lane Grp Cap(c), veh/h	1008	1167	0	1154	0	0
V/C Ratio(X)	0.06	0.40	0.00	0.46	0.00	0.00
Avail Cap(c_a), veh/h	2730	4867	0	4813	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.8	1.1	0.0	1.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	1.8	1.3	0.0	1.5	0.0	0.0
LnGrp LOS	A	A		A		
Approach Vol, veh/h		534	534		0	
Approach Delay, s/veh		1.4	1.5		0.0	
Approach LOS		A	A			

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		12.1				12.1		0.0
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		4.3				3.8		0.0
Green Ext Time (p_c), s		3.4				3.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	70	148	135	57
Average Queue (ft)	26	62	65	17
95th Queue (ft)	58	122	118	46
Link Distance (ft)		368	1470	561
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection	
Intersection Delay, s/veh	54.5
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	198	357	0	535	71	0	61	114
Future Vol, veh/h	0	198	357	0	535	71	0	61	114
Peak Hour Factor	0.92	0.86	0.86	0.92	0.93	0.93	0.92	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	230	415	0	575	76	0	117	219
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	23.1	106.2	14.5
HCM LOS	C	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	0%	0%
Vol Right, %	0%	0%	12%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	357	606	61	114
LT Vol	198	0	0	61	0
Through Vol	0	357	535	0	0
RT Vol	0	0	71	0	114
Lane Flow Rate	230	415	652	117	219
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.449	0.752	1.141	0.26	0.412
Departure Headway (Hd)	7.268	6.756	6.303	8.352	7.114
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	500	540	580	433	509
Service Time	4.968	4.456	4.313	6.052	4.814
HCM Lane V/C Ratio	0.46	0.769	1.124	0.27	0.43
HCM Control Delay	15.8	27.1	106.2	14	14.7
HCM Lane LOS	C	D	F	B	B
HCM 95th-tile Q	2.3	6.5	21.4	1	2

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	122	149	267	63
Average Queue (ft)	60	77	130	28
95th Queue (ft)	98	122	226	52
Link Distance (ft)		188	1470	180
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	81.1
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	101	587	0	435	41	0	69	182
Future Vol, veh/h	0	101	587	0	435	41	0	69	182
Peak Hour Factor	0.92	0.86	0.86	0.92	0.90	0.90	0.92	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	117	683	0	483	46	0	95	249
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	128.5	51.8	15.7
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	91%	0%	0%
Vol Right, %	0%	0%	9%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	587	476	69	182
LT Vol	101	0	0	69	0
Through Vol	0	587	435	0	0
RT Vol	0	0	41	0	182
Lane Flow Rate	117	683	529	95	249
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.232	1.25	0.942	0.213	0.477
Departure Headway (Hd)	7.103	6.592	6.748	8.547	7.306
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	505	553	539	423	496
Service Time	4.849	4.338	4.748	6.247	5.006
HCM Lane V/C Ratio	0.232	1.235	0.981	0.225	0.502
HCM Control Delay	12	148.6	51.8	13.5	16.5
HCM Lane LOS	B	F	F	B	C
HCM 95th-tile Q	0.9	26.5	11.9	0.8	2.5

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	110	164	163	58
Average Queue (ft)	40	107	84	30
95th Queue (ft)	75	154	135	50
Link Distance (ft)		163	1470	184
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	2		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection	
Intersection Delay, s/veh	25.7
Intersection LOS	D

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	52	414	0	490	28	0	34	73
Future Vol, veh/h	0	52	414	0	490	28	0	34	73
Peak Hour Factor	0.92	0.82	0.82	0.92	0.94	0.94	0.92	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	63	505	0	521	30	0	43	92
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	24	31.2	10.9
HCM LOS	C	D	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	95%	0%	0%
Vol Right, %	0%	0%	5%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	414	518	34	73
LT Vol	52	0	0	34	0
Through Vol	0	414	490	0	0
RT Vol	0	0	28	0	73
Lane Flow Rate	63	505	551	43	92
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.108	0.786	0.844	0.093	0.169
Departure Headway (Hd)	6.111	5.604	5.515	7.796	6.567
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	587	646	656	460	546
Service Time	3.839	3.333	3.544	5.543	4.314
HCM Lane V/C Ratio	0.107	0.782	0.84	0.093	0.168
HCM Control Delay	9.6	25.8	31.2	11.3	10.7
HCM Lane LOS	A	D	D	B	B
HCM 95th-tile Q	0.4	7.6	9.3	0.3	0.6

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	78	132	191	58
Average Queue (ft)	28	82	93	35
95th Queue (ft)	58	120	149	55
Link Distance (ft)		149	1470	165
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

DELAY (CONTROL)

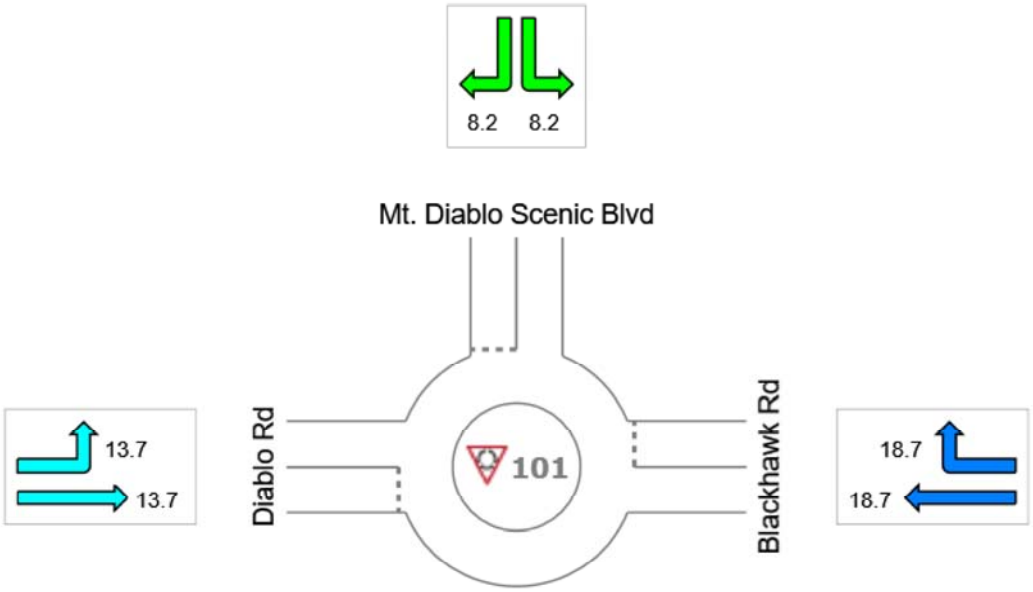
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing Plus Project_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	18.7	8.2	13.7	15.5
LOS	C	A	B	C



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

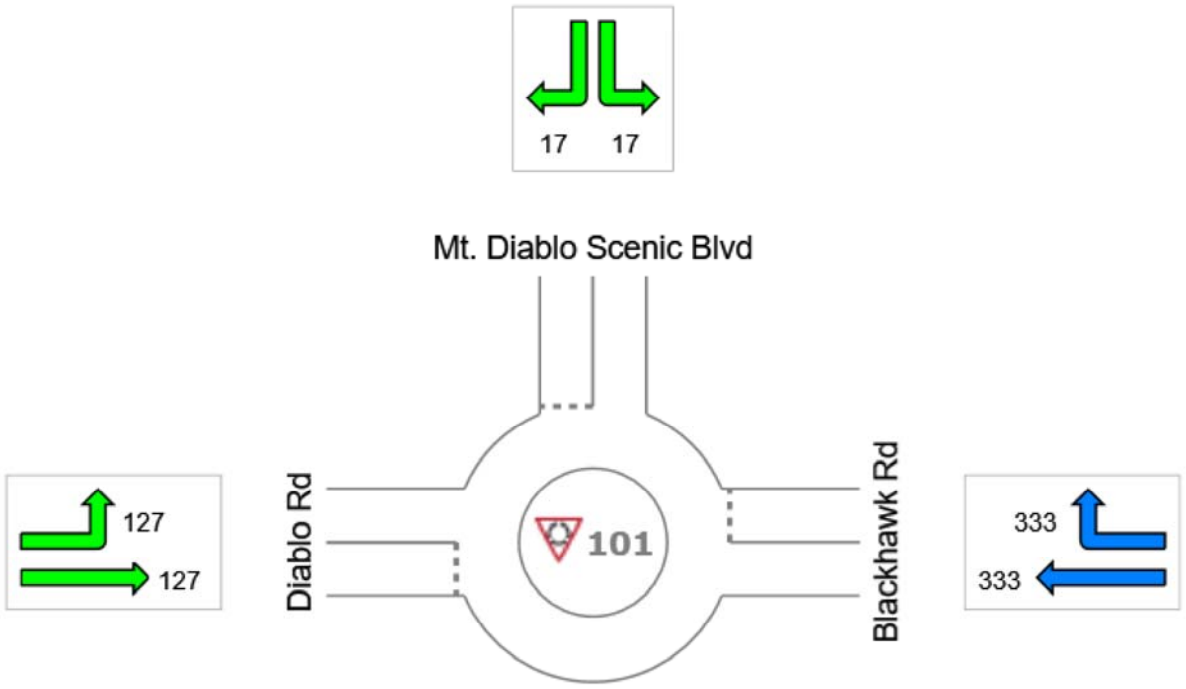
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing Plus Project_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	333	17	127	333



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

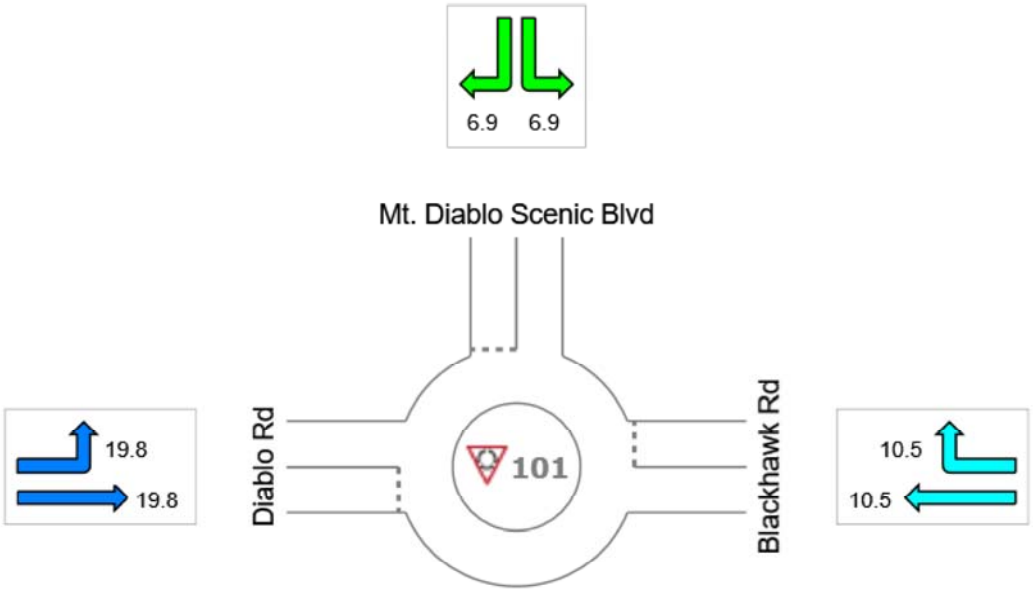
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing Plus Project_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	10.5	6.9	19.8	15.5
LOS	B	A	C	C



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

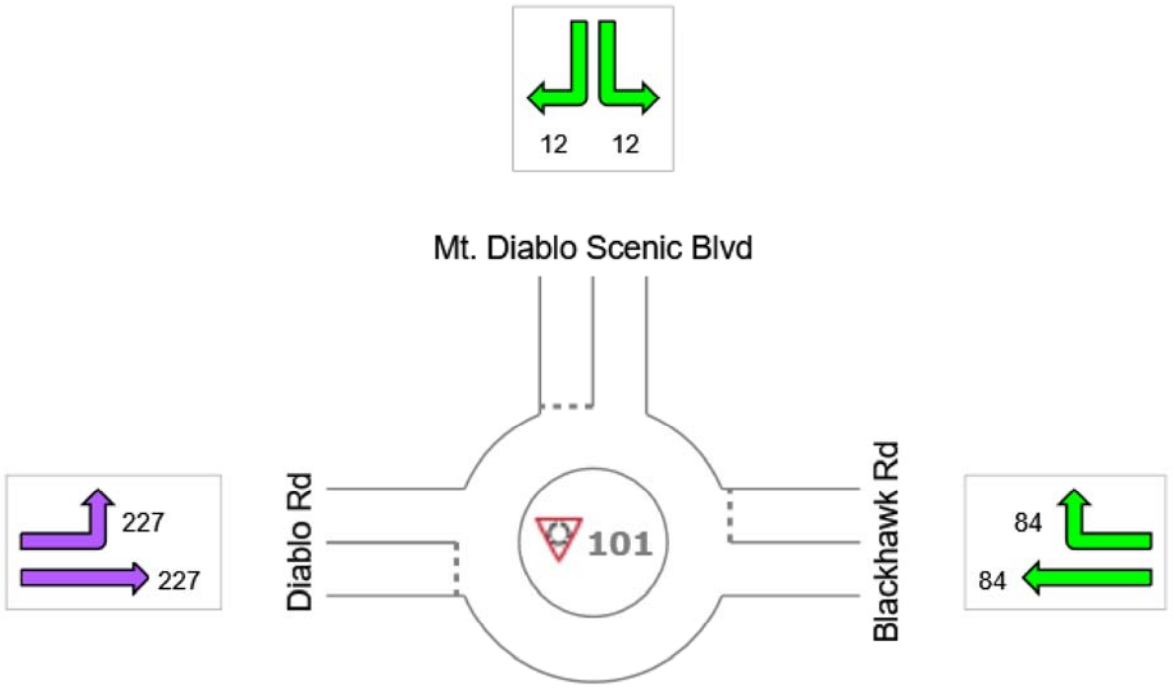
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing Plus Project_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	84	12	227	227



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

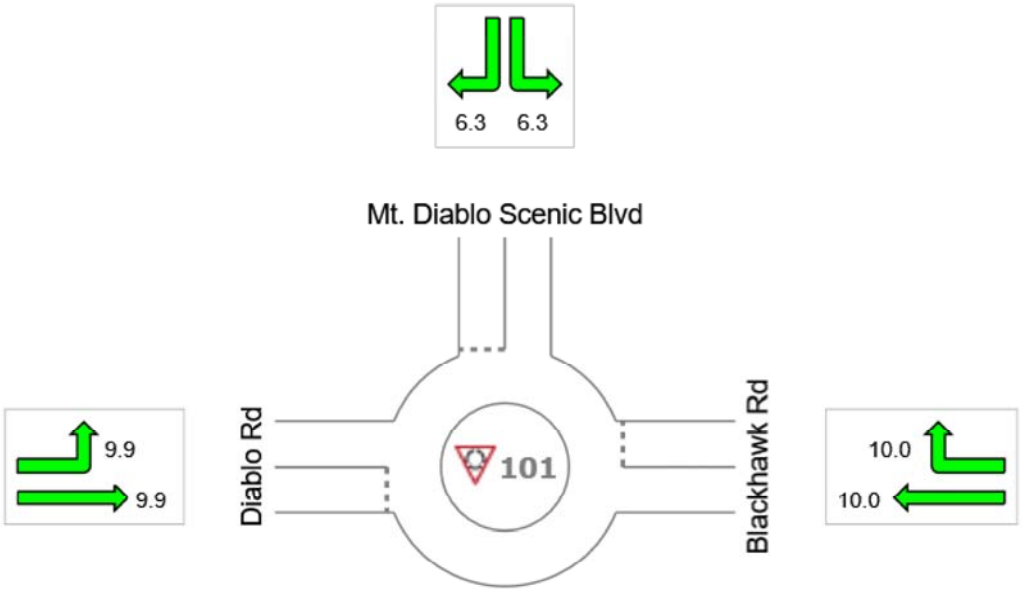
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Existing Plus Project_PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	10.0	6.3	9.9	9.8
LOS	A	A	A	A



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

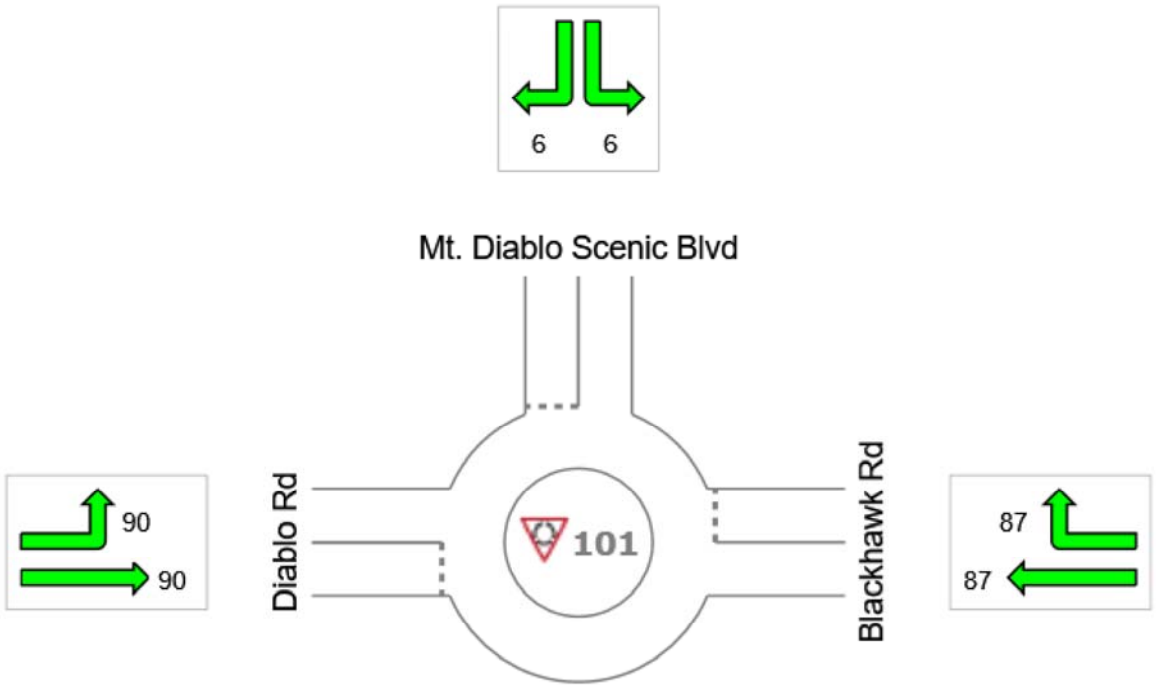
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Existing Plus Project_PM]

New Site
Site Category: (None)
Roundabout

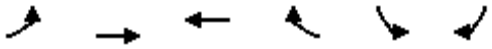
All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	87	6	90	90



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]



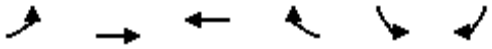
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	198	357	535	71	61	114
Future Volume (veh/h)	198	357	535	71	61	114
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	230	415	575	76	117	0
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.86	0.86	0.93	0.93	0.52	0.52
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	544	1164	1007	133	177	0
Arrive On Green	0.62	0.62	0.62	0.62	0.10	0.00
Sat Flow, veh/h	778	1863	1612	213	1760	0
Grp Volume(v), veh/h	230	415	0	651	118	0
Grp Sat Flow(s),veh/h/ln	778	1863	0	1825	1775	0
Q Serve(g_s), s	8.0	3.5	0.0	6.8	2.1	0.0
Cycle Q Clear(g_c), s	14.8	3.5	0.0	6.8	2.1	0.0
Prop In Lane	1.00			0.12	0.99	0.00
Lane Grp Cap(c), veh/h	544	1164	0	1140	178	0
V/C Ratio(X)	0.42	0.36	0.00	0.57	0.66	0.00
Avail Cap(c_a), veh/h	806	1792	0	1755	1057	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	7.9	3.0	0.0	3.6	14.2	0.0
Incr Delay (d2), s/veh	0.5	0.2	0.0	0.5	4.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	1.8	0.0	3.4	1.2	0.0
LnGrp Delay(d),s/veh	8.4	3.2	0.0	4.0	18.3	0.0
LnGrp LOS	A	A		A	B	
Approach Vol, veh/h		645	651		118	
Approach Delay, s/veh		5.0	4.0		18.3	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		25.0				25.0		7.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		16.8				8.8		4.1
Green Ext Time (p_c), s		3.6				4.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	158	118	158	66
Average Queue (ft)	72	33	54	31
95th Queue (ft)	126	94	128	58
Link Distance (ft)		366	1470	936
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0			
Queuing Penalty (veh)	0			



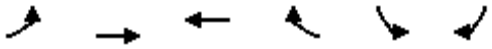
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	587	435	41	69	182
Future Volume (veh/h)	101	587	435	41	69	182
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	117	683	483	46	95	0
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.86	0.86	0.90	0.90	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	0	0
Cap, veh/h	603	1042	934	89	176	0
Arrive On Green	0.56	0.56	0.56	0.56	0.10	0.00
Sat Flow, veh/h	870	1863	1671	159	1756	0
Grp Volume(v), veh/h	117	683	0	529	96	0
Grp Sat Flow(s),veh/h/ln	870	1863	0	1830	1775	0
Q Serve(g_s), s	2.5	6.7	0.0	4.7	1.4	0.0
Cycle Q Clear(g_c), s	7.3	6.7	0.0	4.7	1.4	0.0
Prop In Lane	1.00			0.09	0.99	0.00
Lane Grp Cap(c), veh/h	603	1042	0	1023	178	0
V/C Ratio(X)	0.19	0.66	0.00	0.52	0.54	0.00
Avail Cap(c_a), veh/h	1155	2222	0	2183	1310	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.9	4.1	0.0	3.6	11.3	0.0
Incr Delay (d2), s/veh	0.2	0.7	0.0	0.4	2.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.4	0.0	2.5	0.8	0.0
LnGrp Delay(d),s/veh	6.0	4.8	0.0	4.0	13.9	0.0
LnGrp LOS	A	A		A	B	
Approach Vol, veh/h		800	529		96	
Approach Delay, s/veh		4.9	4.0		13.9	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		19.3				19.3		7.1
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		9.3				6.7		3.4
Green Ext Time (p_c), s		5.5				3.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.2
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	90	147	126	87
Average Queue (ft)	35	53	43	36
95th Queue (ft)	72	125	103	70
Link Distance (ft)		363	1470	525
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)				
Queuing Penalty (veh)				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	52	414	490	28	34	73
Future Volume (veh/h)	52	414	490	28	34	73
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1900
Adj Flow Rate, veh/h	63	505	521	30	43	0
Adj No. of Lanes	1	1	1	0	1	0
Peak Hour Factor	0.82	0.82	0.94	0.94	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	0
Cap, veh/h	991	1192	1115	64	0	0
Arrive On Green	0.64	0.64	0.64	0.64	0.00	0.00
Sat Flow, veh/h	853	1863	1742	100	0	0
Grp Volume(v), veh/h	63	505	0	551	0	0
Grp Sat Flow(s),veh/h/ln	853	1863	0	1843	0	0
Q Serve(g_s), s	0.5	1.7	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	2.4	1.7	0.0	1.9	0.0	0.0
Prop In Lane	1.00			0.05	0.00	0.00
Lane Grp Cap(c), veh/h	991	1192	0	1179	0	0
V/C Ratio(X)	0.06	0.42	0.00	0.47	0.00	0.00
Avail Cap(c_a), veh/h	2596	4696	0	4645	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.8	1.1	0.0	1.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.8	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	1.8	1.4	0.0	1.4	0.0	0.0
LnGrp LOS	A	A		A		
Approach Vol, veh/h		568	551		0	
Approach Delay, s/veh		1.4	1.4		0.0	
Approach LOS		A	A			

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		12.5				12.5		0.0
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		31.5				31.5		19.5
Max Q Clear Time (g_c+I1), s		4.4				3.9		0.0
Green Ext Time (p_c), s		3.7				3.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	1.4
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	74	133	145	57
Average Queue (ft)	28	64	70	18
95th Queue (ft)	61	120	122	46
Link Distance (ft)		368	1470	561
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection	
Intersection Delay, s/veh	109.8
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	280	336	0	495	243	0	122	120
Future Vol, veh/h	0	280	336	0	495	243	0	122	120
Peak Hour Factor	0.92	0.86	0.86	0.92	0.93	0.93	0.92	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	326	391	0	532	261	0	235	231
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	28.4	236.9	18.5
HCM LOS	D	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	67%	0%	0%
Vol Right, %	0%	0%	33%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	336	738	122	120
LT Vol	280	0	0	122	0
Through Vol	0	336	495	0	0
RT Vol	0	0	243	0	120
Lane Flow Rate	326	391	794	235	231
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.677	0.758	1.462	0.529	0.444
Departure Headway (Hd)	8.086	7.568	6.633	8.785	7.539
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	449	481	555	413	480
Service Time	5.786	5.268	4.661	6.485	5.239
HCM Lane V/C Ratio	0.726	0.813	1.431	0.569	0.481
HCM Control Delay	26.1	30.3	236.9	20.9	16.1
HCM Lane LOS	D	D	F	C	C
HCM 95th-tile Q	4.9	6.5	38.8	3	2.2

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	152	149	1171	76
Average Queue (ft)	83	75	729	40
95th Queue (ft)	133	122	1521	66
Link Distance (ft)		188	1466	180
Upstream Blk Time (%)	0	0	1	
Queuing Penalty (veh)	0	0	6	
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection	
Intersection Delay, s/veh	82.1
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	119	593	0	415	47	0	81	182
Future Vol, veh/h	0	119	593	0	415	47	0	81	182
Peak Hour Factor	0.92	0.86	0.86	0.92	0.90	0.90	0.92	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	138	690	0	461	52	0	111	249
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	132.3	47.6	15.8
HCM LOS	F	E	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	90%	0%	0%
Vol Right, %	0%	0%	10%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	593	462	81	182
LT Vol	119	0	0	81	0
Through Vol	0	593	415	0	0
RT Vol	0	0	47	0	182
Lane Flow Rate	138	690	513	111	249
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.274	1.269	0.919	0.249	0.477
Departure Headway (Hd)	7.135	6.624	6.79	8.543	7.302
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	504	552	539	423	496
Service Time	4.882	4.371	4.79	6.243	5.002
HCM Lane V/C Ratio	0.274	1.25	0.952	0.262	0.502
HCM Control Delay	12.6	156.3	47.6	14.1	16.5
HCM Lane LOS	B	F	E	B	C
HCM 95th-tile Q	1.1	27.5	11.1	1	2.5

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	100	161	152	61
Average Queue (ft)	43	104	82	32
95th Queue (ft)	73	153	125	54
Link Distance (ft)		163	1466	184
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		2		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	43.5
Intersection LOS	E

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	67	386	0	474	66	0	147	143
Future Vol, veh/h	0	67	386	0	474	66	0	147	143
Peak Hour Factor	0.92	0.82	0.82	0.92	0.94	0.94	0.92	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	471	0	504	70	0	186	181
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	36.3	68.7	15
HCM LOS	E	F	B

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	0%	0%
Vol Right, %	0%	0%	12%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	386	540	147	143
LT Vol	67	0	0	147	0
Through Vol	0	386	474	0	0
RT Vol	0	0	66	0	143
Lane Flow Rate	82	471	574	186	181
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.164	0.877	1.02	0.419	0.346
Departure Headway (Hd)	7.317	6.804	6.389	8.214	6.978
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	494	537	563	441	520
Service Time	5.017	4.504	4.478	5.914	4.678
HCM Lane V/C Ratio	0.166	0.877	1.02	0.422	0.348
HCM Control Delay	11.4	40.6	68.7	16.7	13.3
HCM Lane LOS	B	E	F	C	B
HCM 95th-tile Q	0.6	9.7	15.3	2	1.5

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	86	139	217	84
Average Queue (ft)	33	80	101	41
95th Queue (ft)	64	120	168	67
Link Distance (ft)		149	1466	165
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

DELAY (CONTROL)

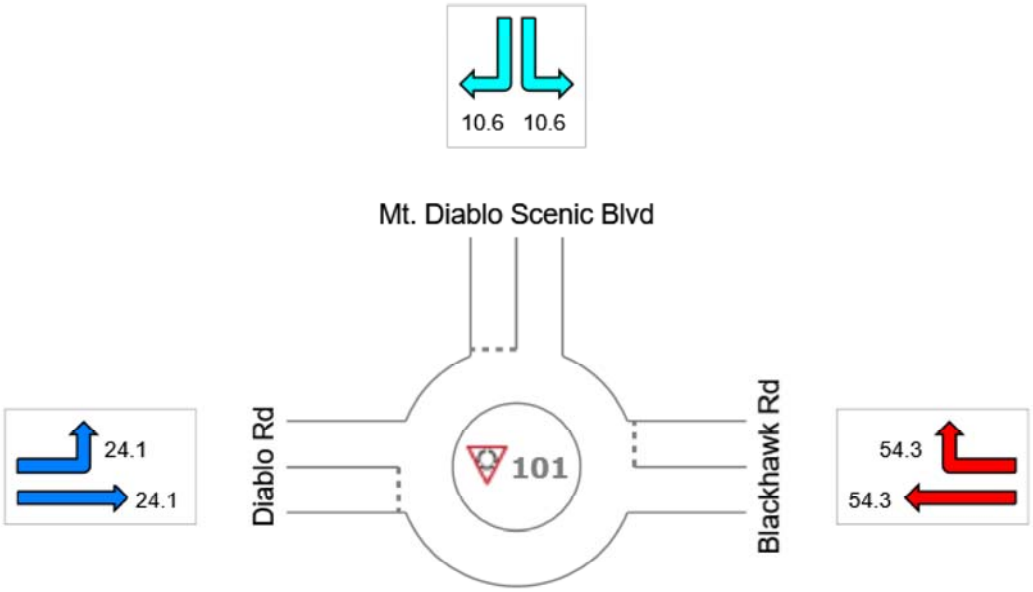
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	54.3	10.6	24.1	36.0
LOS	F	B	C	E



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

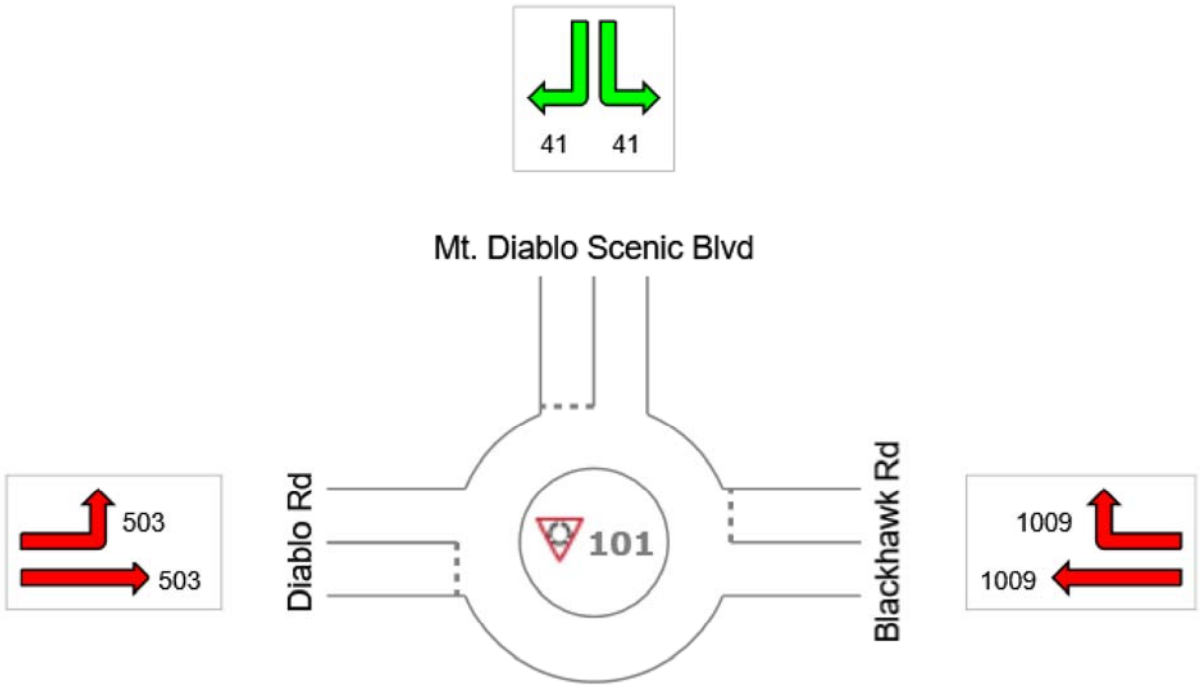
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	1009	41	503	1009



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

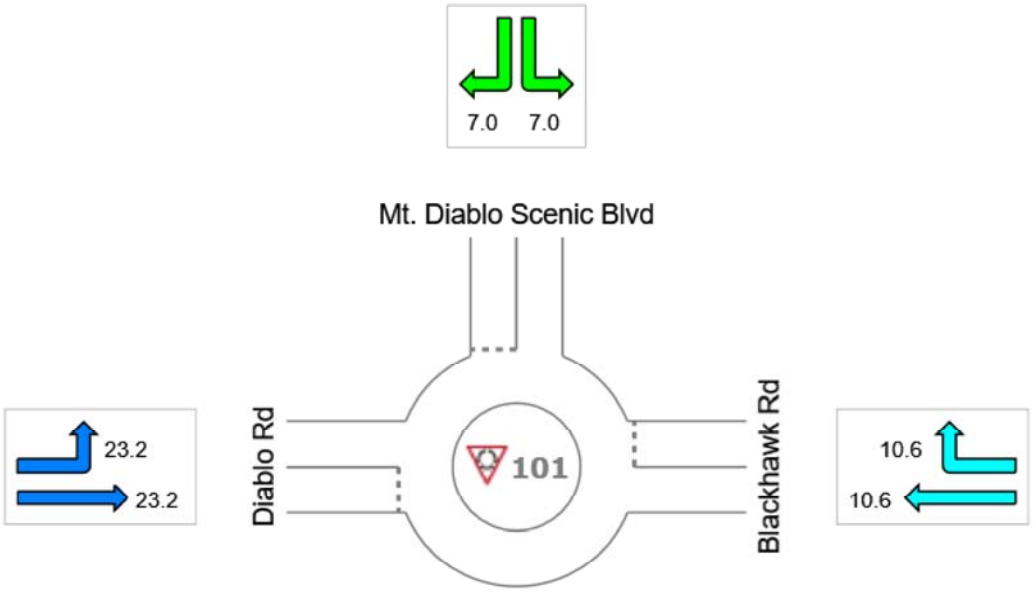
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	10.6	7.0	23.2	17.5
LOS	B	A	C	C



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

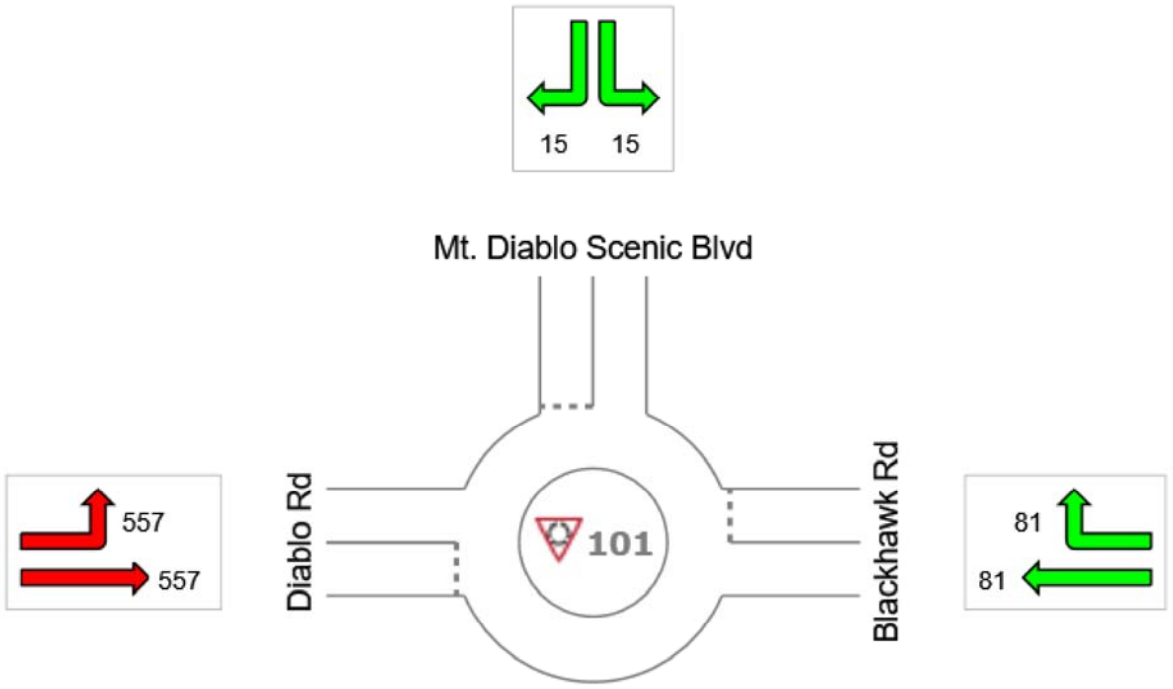
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	81	15	557	557



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

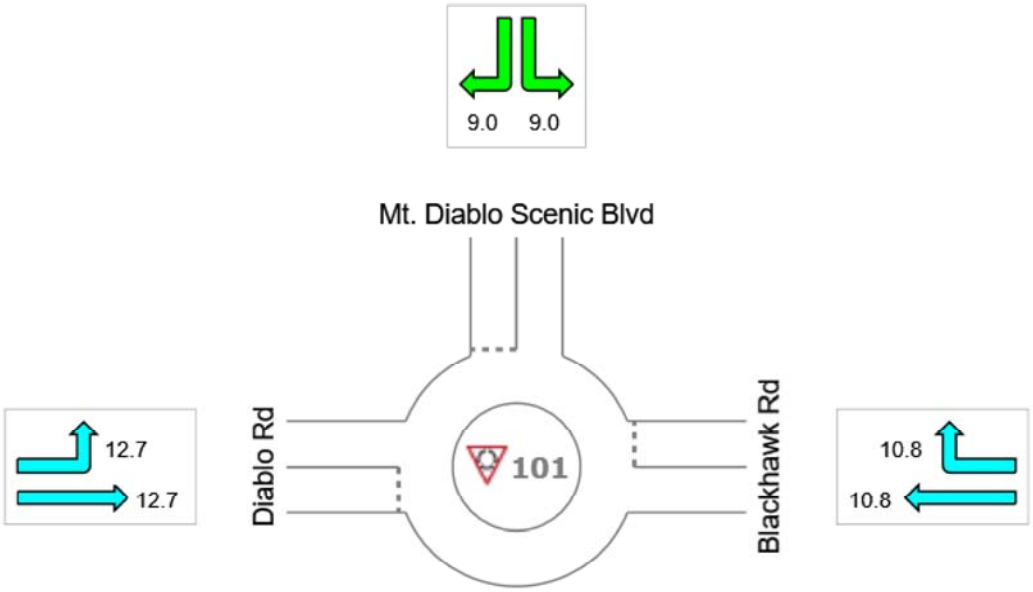
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative_PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	10.8	9.0	12.7	11.4
LOS	B	A	B	B



Colour code based on Level of Service

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

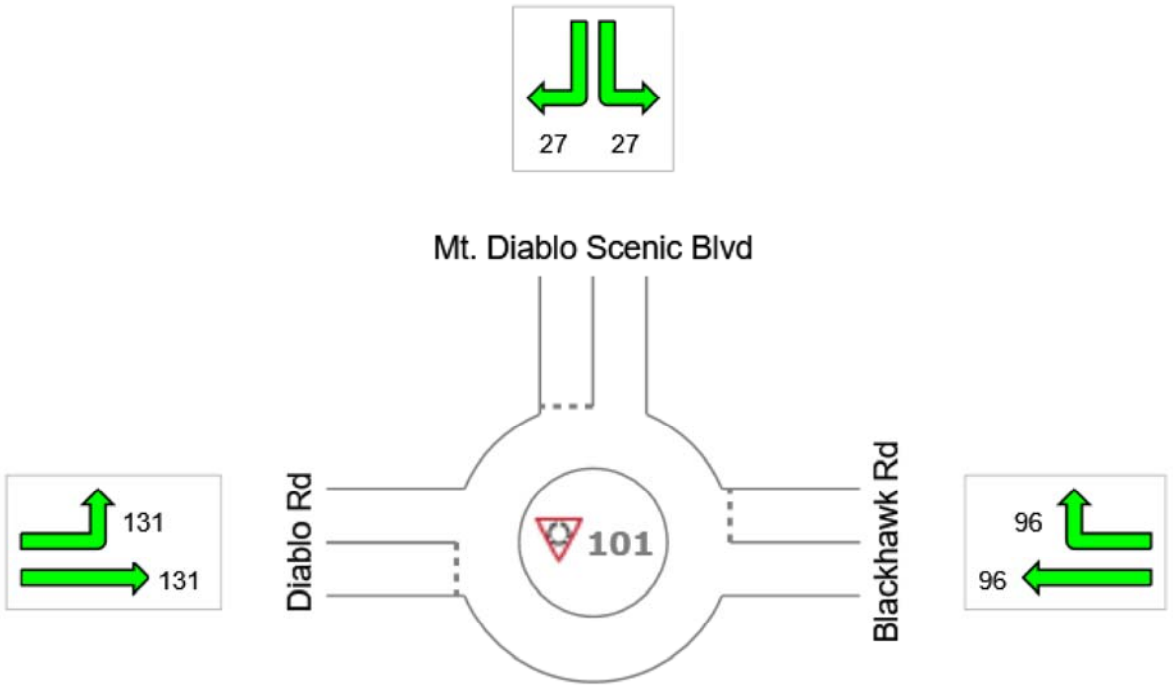
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative_PM]

New Site
Site Category: (None)
Roundabout

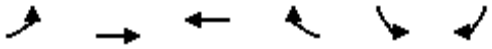
All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	96	27	131	131



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]



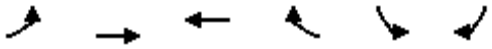
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	280	336	495	243	122	120
Future Volume (veh/h)	280	336	495	243	122	120
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	326	391	532	261	235	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.93	0.93	0.52	0.52
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	433	1349	855	420	282	251
Arrive On Green	0.72	0.72	0.72	0.72	0.16	0.00
Sat Flow, veh/h	681	1863	1181	579	1774	1583
Grp Volume(v), veh/h	326	391	0	793	235	0
Grp Sat Flow(s),veh/h/ln	681	1863	0	1760	1774	1583
Q Serve(g_s), s	35.4	5.6	0.0	17.4	9.9	0.0
Cycle Q Clear(g_c), s	52.8	5.6	0.0	17.4	9.9	0.0
Prop In Lane	1.00			0.33	1.00	1.00
Lane Grp Cap(c), veh/h	433	1349	0	1275	282	251
V/C Ratio(X)	0.75	0.29	0.00	0.62	0.83	0.00
Avail Cap(c_a), veh/h	441	1370	0	1295	450	402
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	18.6	3.7	0.0	5.3	31.3	0.0
Incr Delay (d2), s/veh	7.0	0.1	0.0	0.9	7.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	2.9	0.0	8.5	5.4	0.0
LnGrp Delay(d),s/veh	25.6	3.8	0.0	6.2	38.7	0.0
LnGrp LOS	C	A		A	D	
Approach Vol, veh/h		717	793		235	
Approach Delay, s/veh		13.7	6.2		38.7	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		60.1				60.1		16.7
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		56.5				56.5		19.5
Max Q Clear Time (g_c+I1), s		54.8				19.4		11.9
Green Ext Time (p_c), s		0.9				6.7		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	13.7
HCM 2010 LOS	B

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	B4	WB	SB
Directions Served	L	T	T	TR	L
Maximum Queue (ft)	224	409	211	218	134
Average Queue (ft)	158	139	22	102	65
95th Queue (ft)	254	400	148	182	114
Link Distance (ft)		366	865	1465	449
Upstream Blk Time (%)		8			
Queuing Penalty (veh)		46			
Storage Bay Dist (ft)	200				
Storage Blk Time (%)	19	1			
Queuing Penalty (veh)	64	1			



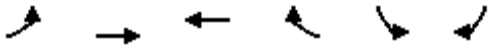
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	119	593	415	47	81	182
Future Volume (veh/h)	119	593	415	47	81	182
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	690	461	52	111	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.90	0.90	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	704	1370	1207	136	147	131
Arrive On Green	0.74	0.74	0.74	0.74	0.08	0.00
Sat Flow, veh/h	884	1863	1640	185	1774	1583
Grp Volume(v), veh/h	138	690	0	513	111	0
Grp Sat Flow(s),veh/h/ln	884	1863	0	1825	1774	1583
Q Serve(g_s), s	3.4	7.7	0.0	5.1	3.0	0.0
Cycle Q Clear(g_c), s	8.5	7.7	0.0	5.1	3.0	0.0
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	704	1370	0	1343	147	131
V/C Ratio(X)	0.20	0.50	0.00	0.38	0.75	0.00
Avail Cap(c_a), veh/h	704	1370	0	1343	697	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	4.0	2.8	0.0	2.4	22.3	0.0
Incr Delay (d2), s/veh	0.6	1.3	0.0	0.8	7.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.3	0.0	2.7	1.8	0.0
LnGrp Delay(d),s/veh	4.6	4.1	0.0	3.2	29.8	0.0
LnGrp LOS	A	A		A	C	
Approach Vol, veh/h		828	513		111	
Approach Delay, s/veh		4.2	3.2		29.8	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		41.0				41.0		8.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		36.5				36.5		19.5
Max Q Clear Time (g_c+I1), s		10.5				7.1		5.0
Green Ext Time (p_c), s		6.0				3.3		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	5.8
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	122	183	134	95
Average Queue (ft)	39	66	44	41
95th Queue (ft)	83	145	103	76
Link Distance (ft)		364	1466	635
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	386	474	66	147	143
Future Volume (veh/h)	67	386	474	66	147	143
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	82	471	504	70	186	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.82	0.82	0.94	0.94	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	572	1195	1024	142	249	222
Arrive On Green	0.64	0.64	0.64	0.64	0.14	0.00
Sat Flow, veh/h	835	1863	1596	222	1774	1583
Grp Volume(v), veh/h	82	471	0	574	186	0
Grp Sat Flow(s),veh/h/ln	835	1863	0	1818	1774	1583
Q Serve(g_s), s	2.4	5.0	0.0	6.8	4.2	0.0
Cycle Q Clear(g_c), s	9.2	5.0	0.0	6.8	4.2	0.0
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	572	1195	0	1167	249	222
V/C Ratio(X)	0.14	0.39	0.00	0.49	0.75	0.00
Avail Cap(c_a), veh/h	572	1195	0	1167	838	748
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.3	3.5	0.0	3.9	17.0	0.0
Incr Delay (d2), s/veh	0.5	1.0	0.0	1.5	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.8	0.0	3.8	2.3	0.0
LnGrp Delay(d),s/veh	6.8	4.5	0.0	5.4	21.5	0.0
LnGrp LOS	A	A		A	C	
Approach Vol, veh/h		553	574		186	
Approach Delay, s/veh		4.9	5.4		21.5	
Approach LOS		A	A		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		31.0				31.0		10.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		26.5				26.5		19.5
Max Q Clear Time (g_c+I1), s		11.2				8.8		6.2
Green Ext Time (p_c), s		3.0				3.4		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	7.4
HCM 2010 LOS	A

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	83	146	164	114
Average Queue (ft)	34	56	70	56
95th Queue (ft)	67	123	137	98
Link Distance (ft)		367	1466	659
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	128
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	280	357	0	535	243	0	122	120
Future Vol, veh/h	0	280	357	0	535	243	0	122	120
Peak Hour Factor	0.92	0.86	0.86	0.92	0.93	0.93	0.92	0.52	0.52
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	326	415	0	575	261	0	235	231
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	31.3	274.4	18.8
HCM LOS	D	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	69%	0%	0%
Vol Right, %	0%	0%	31%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	280	357	778	122	120
LT Vol	280	0	0	122	0
Through Vol	0	357	535	0	0
RT Vol	0	0	243	0	120
Lane Flow Rate	326	415	837	235	231
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.677	0.806	1.549	0.531	0.446
Departure Headway (Hd)	8.176	7.658	6.668	8.889	7.639
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	446	477	552	408	475
Service Time	5.876	5.358	4.695	6.589	5.339
HCM Lane V/C Ratio	0.731	0.87	1.516	0.576	0.486
HCM Control Delay	26.4	35.1	274.4	21.2	16.3
HCM Lane LOS	D	E	F	C	C
HCM 95th-tile Q	4.9	7.5	44	3	2.3

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	146	150	1447	71
Average Queue (ft)	79	81	1065	39
95th Queue (ft)	126	128	1774	62
Link Distance (ft)		188	1466	180
Upstream Blk Time (%)		0	2	
Queuing Penalty (veh)		0	12	
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection	
Intersection Delay, s/veh	98.5
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	119	624	0	435	47	0	81	182
Future Vol, veh/h	0	119	624	0	435	47	0	81	182
Peak Hour Factor	0.92	0.86	0.86	0.92	0.90	0.90	0.92	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	138	726	0	483	52	0	111	249
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	159.2	56.2	16
HCM LOS	F	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	90%	0%	0%
Vol Right, %	0%	0%	10%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	119	624	482	81	182
LT Vol	119	0	0	81	0
Through Vol	0	624	435	0	0
RT Vol	0	0	47	0	182
Lane Flow Rate	138	726	536	111	249
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.276	1.344	0.961	0.25	0.48
Departure Headway (Hd)	7.182	6.67	6.859	8.662	7.419
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	500	544	536	417	489
Service Time	4.929	4.417	4.859	6.362	5.119
HCM Lane V/C Ratio	0.276	1.335	1	0.266	0.509
HCM Control Delay	12.7	187.1	56.2	14.2	16.8
HCM Lane LOS	B	F	F	B	C
HCM 95th-tile Q	1.1	31.6	12.5	1	2.6

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	117	163	188	66
Average Queue (ft)	45	112	91	33
95th Queue (ft)	81	161	151	57
Link Distance (ft)		163	1466	184
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	3		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Intersection	
Intersection Delay, s/veh	51.6
Intersection LOS	F

Movement	EBU	EBL	EBT	WBU	WBT	WBR	SBU	SBL	SBR
Lane Configurations									
Traffic Vol, veh/h	0	67	414	0	490	66	0	147	143
Future Vol, veh/h	0	67	414	0	490	66	0	147	143
Peak Hour Factor	0.92	0.82	0.82	0.92	0.94	0.94	0.92	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	82	505	0	521	70	0	186	181
Number of Lanes	0	1	1	0	1	0	0	1	1

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	2	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	2	2
HCM Control Delay	44.4	81.3	15.2
HCM LOS	E	F	C

Lane	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	100%	88%	0%	0%
Vol Right, %	0%	0%	12%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	414	556	147	143
LT Vol	67	0	0	147	0
Through Vol	0	414	490	0	0
RT Vol	0	0	66	0	143
Lane Flow Rate	82	505	591	186	181
Geometry Grp	7	7	4	7	7
Degree of Util (X)	0.162	0.931	1.063	0.417	0.345
Departure Headway (Hd)	7.351	6.839	6.472	8.329	7.091
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	491	535	562	435	510
Service Time	5.051	4.539	4.526	6.029	4.791
HCM Lane V/C Ratio	0.167	0.944	1.052	0.428	0.355
HCM Control Delay	11.5	49.7	81.3	16.9	13.5
HCM Lane LOS	B	E	F	C	B
HCM 95th-tile Q	0.6	11.5	17.2	2	1.5

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	112	146	216	88
Average Queue (ft)	34	85	103	43
95th Queue (ft)	70	128	174	71
Link Distance (ft)		149	1466	165
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	1		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

DELAY (CONTROL)

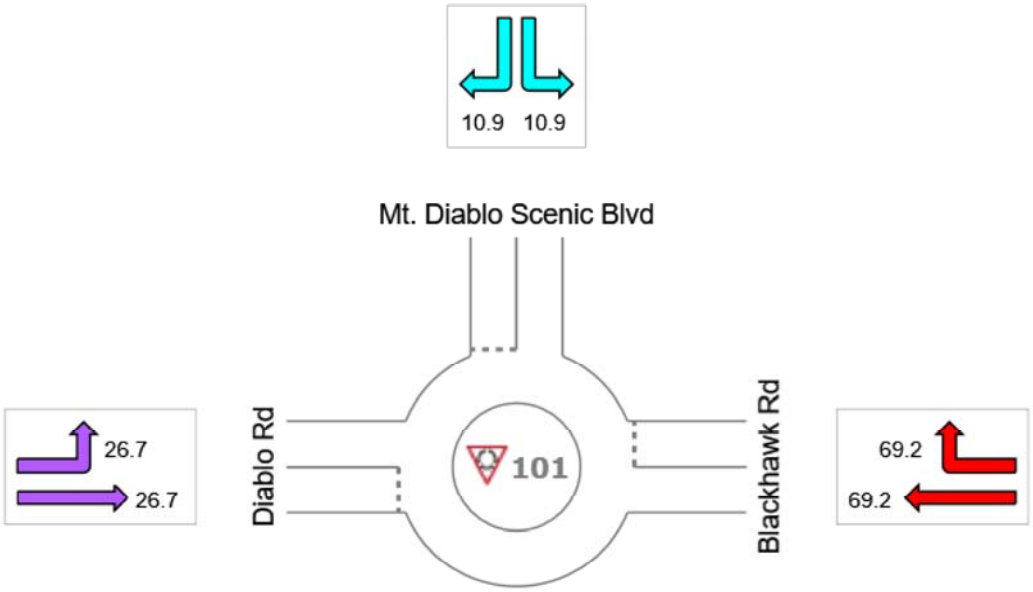
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative Plus Project_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	69.2	10.9	26.7	44.2
LOS	F	B	D	E



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

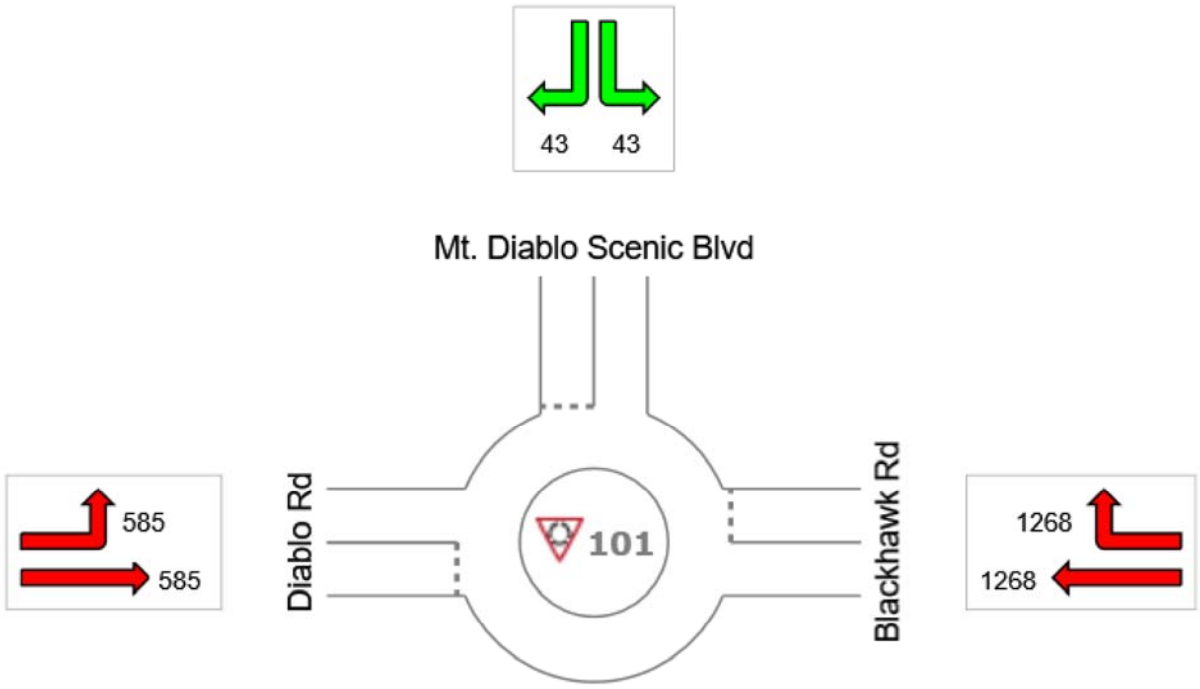
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative Plus Project_AM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	1268	43	585	1268



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

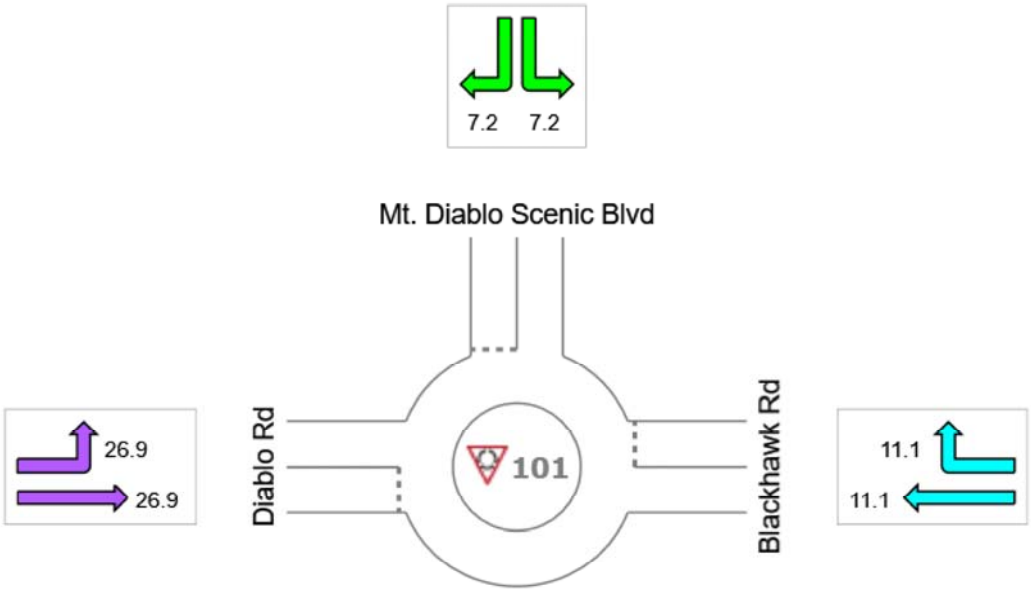
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative Plus Project_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	11.1	7.2	26.9	19.8
LOS	B	A	D	C



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

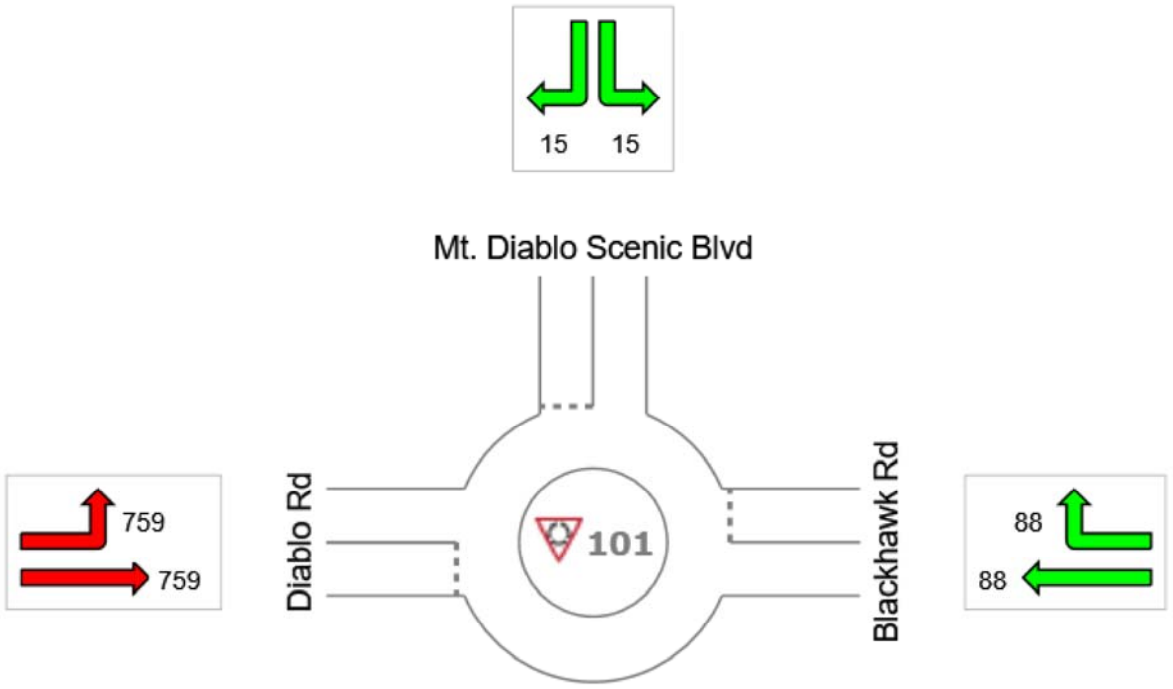
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative Plus Project_SCHL PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	88	15	759	759



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0]

DELAY (CONTROL)

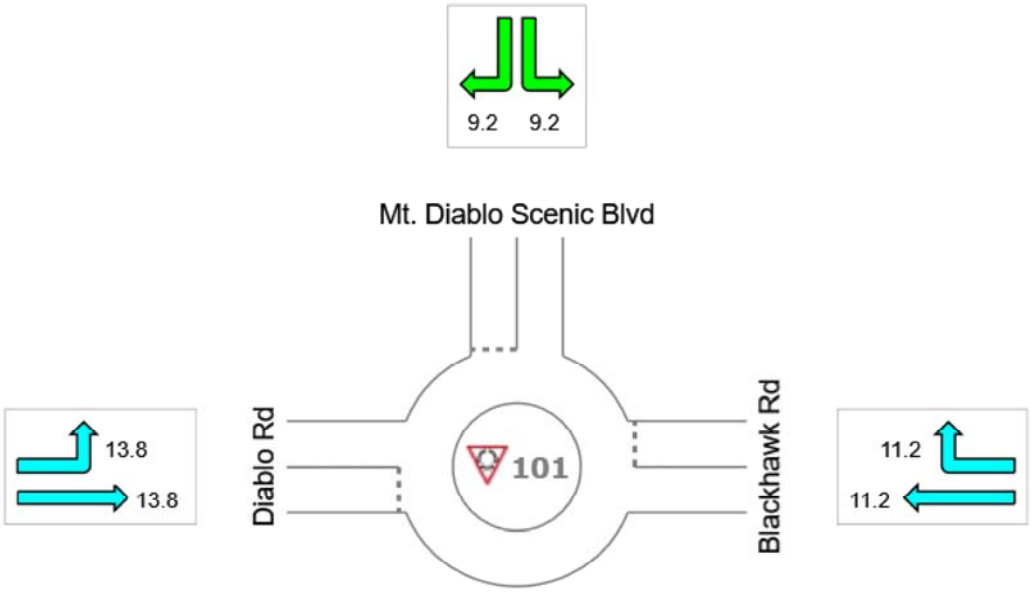
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [Cumulative Plus Project_PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Delay (Control)	11.2	9.2	13.8	12.1
LOS	B	A	B	B



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

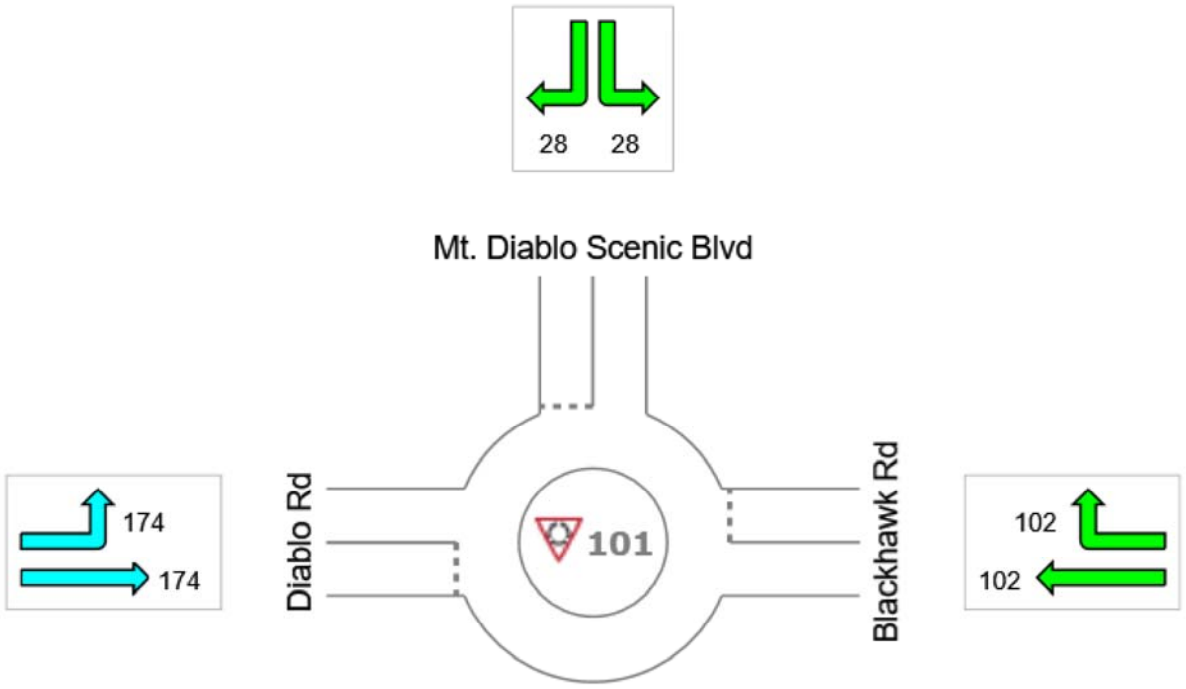
Largest 95% Back of Queue Distance for any lane used by vehicle movement (feet)

Site: 101 [Cumulative Plus Project_PM]

New Site
Site Category: (None)
Roundabout

All Movement Classes

	Approaches			Intersection
	East	North	West	
Vehicle Queue (%ile)	102	28	174	174



Colour code based on Queue Storage Ratio

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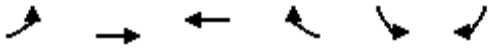


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	280	357	535	243	122	120
Future Volume (veh/h)	280	357	535	243	122	120
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	326	415	575	261	235	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.93	0.93	0.52	0.52
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	411	1370	893	405	279	249
Arrive On Green	0.74	0.74	0.74	0.74	0.16	0.00
Sat Flow, veh/h	654	1863	1214	551	1774	1583
Grp Volume(v), veh/h	326	415	0	836	235	0
Grp Sat Flow(s),veh/h/ln	654	1863	0	1765	1774	1583
Q Serve(g_s), s	41.6	6.3	0.0	19.9	10.8	0.0
Cycle Q Clear(g_c), s	61.5	6.3	0.0	19.9	10.8	0.0
Prop In Lane	1.00			0.31	1.00	1.00
Lane Grp Cap(c), veh/h	411	1370	0	1298	279	249
V/C Ratio(X)	0.79	0.30	0.00	0.64	0.84	0.00
Avail Cap(c_a), veh/h	411	1370	0	1298	414	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.1	3.8	0.0	5.6	34.2	0.0
Incr Delay (d2), s/veh	10.1	0.1	0.0	1.1	9.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	3.3	0.0	9.9	6.0	0.0
LnGrp Delay(d),s/veh	31.2	3.9	0.0	6.7	44.1	0.0
LnGrp LOS	C	A		A	D	
Approach Vol, veh/h		741	836		235	
Approach Delay, s/veh		15.9	6.7		44.1	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				66.0		17.6		66.0
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				61.5		19.5		61.5
Max Q Clear Time (g_c+I1), s				63.5		12.8		21.9
Green Ext Time (p_c), s				0.0		0.4		7.3

Intersection Summary	
HCM 2010 Ctrl Delay	15.3
HCM 2010 LOS	B

Intersection: 7: Diablo Rd/Blackhawk Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	B46	WB	SB
Directions Served	L	T	T	TR	L
Maximum Queue (ft)	225	438	344	252	145
Average Queue (ft)	166	153	36	116	68
95th Queue (ft)	257	419	220	208	123
Link Distance (ft)		366	864	1466	459
Upstream Blk Time (%)		9	0		
Queuing Penalty (veh)		55	0		
Storage Bay Dist (ft)	200				
Storage Blk Time (%)	21	0			
Queuing Penalty (veh)	75	0			

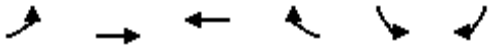
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	119	624	435	47	81	182
Future Volume (veh/h)	119	624	435	47	81	182
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	726	483	52	111	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.90	0.90	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	583	1120	994	107	253	225
Arrive On Green	0.60	0.60	0.60	0.60	0.14	0.00
Sat Flow, veh/h	866	1863	1653	178	1774	1583
Grp Volume(v), veh/h	138	726	0	535	111	0
Grp Sat Flow(s),veh/h/ln	866	1863	0	1831	1774	1583
Q Serve(g_s), s	3.8	8.9	0.0	5.8	2.0	0.0
Cycle Q Clear(g_c), s	9.5	8.9	0.0	5.8	2.0	0.0
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	583	1120	0	1101	253	225
V/C Ratio(X)	0.24	0.65	0.00	0.49	0.44	0.00
Avail Cap(c_a), veh/h	864	1723	0	1694	934	834
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	6.6	4.6	0.0	3.9	13.8	0.0
Incr Delay (d2), s/veh	0.2	0.6	0.0	0.3	1.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.6	0.0	2.9	1.1	0.0
LnGrp Delay(d),s/veh	6.8	5.2	0.0	4.3	15.0	0.0
LnGrp LOS	A	A		A	B	
Approach Vol, veh/h		864	535		111	
Approach Delay, s/veh		5.5	4.3		15.0	
Approach LOS		A	A		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				25.6		9.5		25.6
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				32.5		18.5		32.5
Max Q Clear Time (g_c+I1), s				11.5		4.0		7.8
Green Ext Time (p_c), s				9.6		0.2		10.4

Intersection Summary	
HCM 2010 Ctrl Delay	5.7
HCM 2010 LOS	A

Intersection: 7: Diablo Rd/Blackhawk Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	134	218	176	89
Average Queue (ft)	48	87	69	37
95th Queue (ft)	96	163	132	74
Link Distance (ft)		366	1466	459
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	414	490	66	147	143
Future Volume (veh/h)	67	414	490	66	147	143
Number	7	4	8	18	1	16
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	82	505	521	70	186	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.82	0.82	0.94	0.94	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	278	800	690	93	681	608
Arrive On Green	0.43	0.43	0.43	0.43	0.38	0.00
Sat Flow, veh/h	822	1863	1608	216	1774	1583
Grp Volume(v), veh/h	82	505	0	591	186	0
Grp Sat Flow(s),veh/h/ln	822	1863	0	1825	1774	1583
Q Serve(g_s), s	4.5	10.2	0.0	13.2	3.5	0.0
Cycle Q Clear(g_c), s	17.7	10.2	0.0	13.2	3.5	0.0
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	278	800	0	783	681	608
V/C Ratio(X)	0.30	0.63	0.00	0.75	0.27	0.00
Avail Cap(c_a), veh/h	309	870	0	852	681	608
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.1	10.8	0.0	11.6	10.2	0.0
Incr Delay (d2), s/veh	0.6	1.3	0.0	3.6	1.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.5	0.0	7.3	1.9	0.0
LnGrp Delay(d),s/veh	19.7	12.1	0.0	15.2	11.2	0.0
LnGrp LOS	B	B		B	B	
Approach Vol, veh/h		587	591		186	
Approach Delay, s/veh		13.1	15.2		11.2	
Approach LOS		B	B		B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs				4		6		8
Phs Duration (G+Y+Rc), s				25.2		23.0		25.2
Change Period (Y+Rc), s				4.5		4.5		4.5
Max Green Setting (Gmax), s				22.5		18.5		22.5
Max Q Clear Time (g_c+I1), s				19.7		5.5		15.2
Green Ext Time (p_c), s				1.0		0.4		2.2

Intersection Summary	
HCM 2010 Ctrl Delay	13.8
HCM 2010 LOS	B

Intersection: 7: Diablo Rd/Blackhawk Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	111	225	292	100
Average Queue (ft)	46	111	143	49
95th Queue (ft)	89	195	241	88
Link Distance (ft)		366	1466	459
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Appendix B - Synchro Reports for Arterial LOS and Queuing Analysis

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	2.1	7.5	0.1	24
	19	2.9	47.3	0.4	33
	20	7.7	83.5	0.8	32
	4	2.4	20.4	0.2	31
	9	1.3	4.7	0.0	25
Mt. Diablo Scenic Bl	7	10.4	15.2	0.0	11
Appaloosa St	11	4.8	30.7	0.3	34
	38	0.9	22.5	0.2	29
Diablo Rd	55	3.4	38.0	0.3	25
Magee Ranch Rd	8	1.1	14.4	0.1	20
Total		36.8	284.2	2.3	29

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	18.7	34.7	0.2	19
Mt. Diablo Scenic Bl	7	177.7	202.6	0.3	5
	9	3.6	8.4	0.0	20
	4	0.3	3.8	0.0	31
	20	0.5	18.6	0.2	34
	19	5.9	82.1	0.8	33
	45	6.2	50.5	0.4	31
Green Valley Rd	3	50.7	57.8	0.1	3
Total		263.6	458.4	2.2	18

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	561	329	111	248	263	202	64	203	184	308	608
Average Queue (ft)	320	169	71	149	156	149	3	91	75	205	139
95th Queue (ft)	499	280	131	220	248	223	30	170	146	327	442
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)	0			2	3	2					0
Queuing Penalty (veh)	0			5	10	0					0
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			5	41	3	2		0		8	0
Queuing Penalty (veh)			10	29	12	4		0		31	0

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	146	150	1447	71
Average Queue (ft)	79	81	1065	39
95th Queue (ft)	126	128	1774	62
Link Distance (ft)		188	1466	180
Upstream Blk Time (%)		0	2	
Queuing Penalty (veh)		0	12	
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	2.5	7.9	0.1	23
	19	3.7	48.1	0.4	32
	20	9.1	85.1	0.8	32
	4	3.1	21.2	0.2	30
	9	2.4	6.2	0.0	22
Mt. Diablo Scenic Bl	7	12.0	16.2	0.0	9
Appaloosa St	11	4.9	30.9	0.3	34
	38	1.1	22.7	0.2	28
Diablo Rd	55	4.9	39.5	0.3	24
Magee Ranch Rd	8	1.6	14.9	0.1	20
Total		45.4	292.8	2.3	28

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	1.1	17.2	0.2	38
Mt. Diablo Scenic Bl	7	14.5	40.4	0.3	26
	9	3.5	7.8	0.0	19
	4	0.5	4.4	0.0	30
	20	0.6	18.7	0.2	34
	19	6.4	82.7	0.8	33
	45	6.3	50.7	0.4	31
Green Valley Rd	3	44.5	50.0	0.1	4
Total		77.3	271.8	2.2	30

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	562	451	111	241	256	202	77	118	127	314	633
Average Queue (ft)	338	224	24	149	147	104	4	53	45	249	161
95th Queue (ft)	542	376	78	220	230	197	43	102	97	342	476
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)				2	2	0					
Queuing Penalty (veh)				5	5	0					
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			0	39	2	0				8	0
Queuing Penalty (veh)			0	6	4	1				34	0

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	117	163	188	66
Average Queue (ft)	45	112	91	33
95th Queue (ft)	81	161	151	57
Link Distance (ft)		163	1466	184
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	3		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	1.7	7.1	0.1	25
	19	3.0	47.5	0.4	33
	20	7.5	83.7	0.8	32
	4	2.2	20.3	0.2	31
	9	1.5	5.6	0.0	26
Mt. Diablo Scenic Bl	7	10.1	14.1	0.0	10
Appaloosa St	11	4.9	30.7	0.3	34
	38	1.0	22.7	0.2	29
Diablo Rd	55	4.3	38.8	0.3	25
Magee Ranch Rd	8	1.4	14.7	0.1	20
Total		37.6	285.1	2.3	29

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	1.1	17.3	0.2	37
Mt. Diablo Scenic Bl	7	16.1	41.3	0.3	25
	9	3.4	7.4	0.0	19
	4	0.5	4.8	0.0	31
	20	0.5	18.6	0.2	34
	19	6.3	82.7	0.8	33
	45	6.0	50.3	0.4	31
Green Valley Rd	3	41.2	46.4	0.1	4
Total		75.1	268.7	2.2	30

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	528	235	111	196	275	202	82	117	61	282	222
Average Queue (ft)	292	113	21	111	128	146	4	44	21	154	70
95th Queue (ft)	459	209	74	169	231	215	37	95	51	251	156
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)				0	2	2					
Queuing Penalty (veh)				0	5	0					
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			0	23	2	2				0	
Queuing Penalty (veh)			0	3	6	3				2	

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

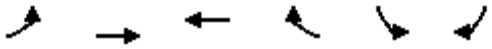
Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	112	146	216	88
Average Queue (ft)	34	85	103	43
95th Queue (ft)	70	128	174	71
Link Distance (ft)		149	1466	165
Upstream Blk Time (%)	0	0		
Queuing Penalty (veh)	0	1		
Storage Bay Dist (ft)	200			
Storage Blk Time (%)	0	0		
Queuing Penalty (veh)	0	0		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	583	387	78	70	408	381	121	73	42	201	70	387
Future Volume (veh/h)	583	387	78	70	408	381	121	73	42	201	70	387
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.92	1.00		1.00	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	777	516	104	88	510	476	212	128	74	242	84	466
Adj No. of Lanes	1	1	0	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.75	0.75	0.75	0.80	0.80	0.80	0.57	0.57	0.57	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	767	775	156	110	510	473	240	150	87	222	77	929
Arrive On Green	0.43	0.51	0.51	0.06	0.14	0.14	0.14	0.14	0.14	0.17	0.17	0.17
Sat Flow, veh/h	1774	1505	303	1774	3539	1451	1774	1107	640	1333	463	1464
Grp Volume(v), veh/h	777	0	620	88	510	476	212	0	202	326	0	466
Grp Sat Flow(s),veh/h/ln	1774	0	1809	1774	1770	1451	1774	0	1747	1796	0	1464
Q Serve(g_s), s	57.0	0.0	33.4	6.5	19.0	19.0	15.5	0.0	14.9	22.0	0.0	22.0
Cycle Q Clear(g_c), s	57.0	0.0	33.4	6.5	19.0	19.0	15.5	0.0	14.9	22.0	0.0	22.0
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.37	0.74		1.00
Lane Grp Cap(c), veh/h	767	0	931	110	510	473	240	0	237	300	0	929
V/C Ratio(X)	1.01	0.00	0.67	0.80	1.00	1.01	0.88	0.00	0.85	1.09	0.00	0.50
Avail Cap(c_a), veh/h	767	0	931	175	510	473	283	0	278	300	0	929
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	37.4	0.0	23.6	61.1	56.4	37.9	56.0	0.0	55.7	54.9	0.0	15.5
Incr Delay (d2), s/veh	35.8	0.0	1.9	5.4	39.9	42.8	21.5	0.0	17.4	77.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	35.3	0.0	17.2	3.3	12.0	22.7	9.0	0.0	8.3	17.3	0.0	10.0
LnGrp Delay(d),s/veh	73.3	0.0	25.6	66.5	96.3	80.7	77.5	0.0	73.1	132.4	0.0	16.1
LnGrp LOS	F		C	E	F	F	E		E	F		B
Approach Vol, veh/h		1397			1074			414			792	
Approach Delay, s/veh		52.1			86.9			75.3			64.0	
Approach LOS		D			F			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.2	71.8		26.0	61.0	23.0		21.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	13.0	63.0		22.0	57.0	19.0		21.0
Max Q Clear Time (g_c+I1), s	8.5	35.4		24.0	59.0	21.0		17.5
Green Ext Time (p_c), s	0.0	5.4		0.0	0.0	0.0		0.3

Intersection Summary	
HCM 2010 Ctrl Delay	67.5
HCM 2010 LOS	E

Notes



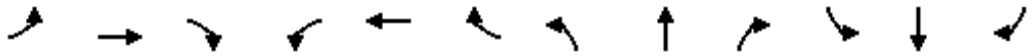
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	280	357	535	243	122	120
Future Volume (veh/h)	280	357	535	243	122	120
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	326	415	575	261	235	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.93	0.93	0.52	0.52
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	413	1374	896	407	278	248
Arrive On Green	0.74	0.74	0.74	0.74	0.16	0.00
Sat Flow, veh/h	654	1863	1214	551	1774	1583
Grp Volume(v), veh/h	326	415	0	836	235	0
Grp Sat Flow(s),veh/h/ln	654	1863	0	1765	1774	1583
Q Serve(g_s), s	42.0	6.4	0.0	20.1	10.9	0.0
Cycle Q Clear(g_c), s	62.1	6.4	0.0	20.1	10.9	0.0
Prop In Lane	1.00			0.31	1.00	1.00
Lane Grp Cap(c), veh/h	413	1374	0	1302	278	248
V/C Ratio(X)	0.79	0.30	0.00	0.64	0.85	0.00
Avail Cap(c_a), veh/h	413	1374	0	1302	428	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.0	3.8	0.0	5.6	34.9	0.0
Incr Delay (d2), s/veh	14.2	0.6	0.0	2.4	9.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.1	3.4	0.0	10.4	6.1	0.0
LnGrp Delay(d),s/veh	35.2	4.3	0.0	8.0	44.1	0.0
LnGrp LOS	D	A		A	D	
Approach Vol, veh/h		741	836		235	
Approach Delay, s/veh		17.9	8.0		44.1	
Approach LOS		B	A		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		67.2				67.2		17.8
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		55.5				55.5		20.5
Max Q Clear Time (g_c+I1), s		64.1				22.1		12.9
Green Ext Time (p_c), s		0.0				7.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	16.7
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	359	31	0	0	0	0	119	41	28	27	0
Future Volume (vph)	27	359	31	0	0	0	0	119	41	28	27	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7						4.7	4.7	4.0	4.7	
Lane Util. Factor		1.00						0.95	1.00	1.00	1.00	
Frpb, ped/bikes		1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00						1.00	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1838						3539	1529	1770	1863	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1838						3539	1529	1770	1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.91	0.91	0.91	0.79	0.79	0.79
Adj. Flow (vph)	30	399	34	0	0	0	0	131	45	35	34	0
RTOR Reduction (vph)	0	3	0	0	0	0	0	0	39	0	0	0
Lane Group Flow (vph)	0	460	0	0	0	0	0	131	6	35	34	0
Confl. Peds. (#/hr)	1								4	4		
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		53.5						11.5	11.5	6.6	9.7	
Effective Green, g (s)		53.5						11.5	11.5	6.6	9.7	
Actuated g/C Ratio		0.63						0.14	0.14	0.08	0.11	
Clearance Time (s)		4.7						4.7	4.7	4.0	4.7	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1156						478	206	137	212	
v/s Ratio Prot		c0.25						c0.04		c0.02	c0.02	
v/s Ratio Perm									0.00			
v/c Ratio		0.40						0.27	0.03	0.26	0.16	
Uniform Delay, d1		7.8						33.0	31.9	36.9	34.0	
Progression Factor		1.12						1.00	1.00	0.94	0.93	
Incremental Delay, d2		1.0						0.3	0.1	0.9	0.3	
Delay (s)		9.7						33.3	32.0	35.7	32.0	
Level of Service		A						C	C	D	C	
Approach Delay (s)		9.7			0.0			33.0			33.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	26	591	22	106	40	0	0	29	57
Future Volume (vph)	0	0	0	26	591	22	106	40	0	0	29	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.7		4.0	4.7			4.7	
Lane Util. Factor					1.00		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					1.00		1.00	1.00			0.91	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					1849		1770	1863			1697	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					1849		1770	1863			1697	
Peak-hour factor, PHF	0.92	0.92	0.92	0.84	0.84	0.84	0.91	0.91	0.91	0.79	0.79	0.79
Adj. Flow (vph)	0	0	0	31	704	26	116	44	0	0	37	72
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	64	0
Lane Group Flow (vph)	0	0	0	0	760	0	116	44	0	0	45	0
Confl. Peds. (#/hr)						1						
Turn Type				Split	NA		Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)					53.5		8.4	11.5			9.7	
Effective Green, g (s)					53.5		8.4	11.5			9.7	
Actuated g/C Ratio					0.63		0.10	0.14			0.11	
Clearance Time (s)					4.7		4.0	4.7			4.7	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					1163		174	252			193	
v/s Ratio Prot					c0.41		c0.07	0.02			c0.03	
v/s Ratio Perm												
v/c Ratio					0.65		0.67	0.17			0.23	
Uniform Delay, d1					9.9		36.9	32.5			34.3	
Progression Factor					1.00		0.25	0.23			1.00	
Incremental Delay, d2					2.9		9.1	0.3			0.6	
Delay (s)					12.8		18.5	7.8			34.9	
Level of Service					B		B	A			C	
Approach Delay (s)		0.0			12.8			15.5			34.9	
Approach LOS		A			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	2.2	7.6	0.1	24
	19	3.1	47.3	0.4	33
	20	7.8	83.6	0.8	32
	4	6.5	24.5	0.2	26
Mt. Diablo Scenic Bl	7	9.3	17.5	0.1	16
Appaloosa St	11	2.8	28.6	0.3	36
	38	1.2	22.8	0.2	28
Diablo Rd	55	5.0	39.5	0.3	24
Magee Ranch Rd	8	15.9	29.1	0.1	10
Total		53.8	300.6	2.3	28

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	1.7	17.8	0.2	36
Mt. Diablo Scenic Bl	7	12.8	38.9	0.3	27
	4	2.2	10.3	0.1	27
	20	0.9	18.9	0.2	33
	19	6.7	82.9	0.8	33
	45	6.7	50.8	0.4	31
Green Valley Rd	3	51.8	59.6	0.1	3
Total		82.7	279.2	2.2	29

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	515	336	111	245	265	202	119	180	166	304	427
Average Queue (ft)	310	177	75	158	173	159	9	90	70	196	95
95th Queue (ft)	475	296	134	227	269	233	65	160	136	306	290
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)				2	4	3					
Queuing Penalty (veh)				6	13	0					
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			5	43	4	3				3	
Queuing Penalty (veh)			10	30	15	7				13	

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

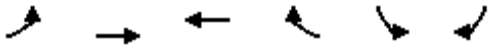
Movement	EB	EB	B4	WB	SB
Directions Served	L	T	T	TR	L
Maximum Queue (ft)	224	423	290	318	156
Average Queue (ft)	155	146	38	140	77
95th Queue (ft)	256	417	235	276	133
Link Distance (ft)		364	868	1465	543
Upstream Blk Time (%)		8			
Queuing Penalty (veh)		48			
Storage Bay Dist (ft)	200				
Storage Blk Time (%)	18	0			
Queuing Penalty (veh)	65	1			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	472	454	91	16	461	280	72	40	31	410	37	422
Future Volume (veh/h)	472	454	91	16	461	280	72	40	31	410	37	422
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	482	463	93	17	496	301	138	77	60	500	45	515
Adj No. of Lanes	1	1	0	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.98	0.98	0.98	0.93	0.93	0.93	0.52	0.52	0.52	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	508	662	133	20	582	736	177	97	76	504	45	926
Arrive On Green	0.29	0.44	0.44	0.01	0.16	0.16	0.10	0.10	0.10	0.31	0.31	0.31
Sat Flow, veh/h	1774	1506	303	1774	3539	1506	1774	970	755	1634	147	1534
Grp Volume(v), veh/h	482	0	556	17	496	301	138	0	137	545	0	515
Grp Sat Flow(s),veh/h/ln	1774	0	1809	1774	1770	1506	1774	0	1725	1781	0	1534
Q Serve(g_s), s	30.2	0.0	28.2	1.1	15.5	15.0	8.6	0.0	8.8	34.6	0.0	23.3
Cycle Q Clear(g_c), s	30.2	0.0	28.2	1.1	15.5	15.0	8.6	0.0	8.8	34.6	0.0	23.3
Prop In Lane	1.00		0.17	1.00		1.00	1.00		0.44	0.92		1.00
Lane Grp Cap(c), veh/h	508	0	795	20	582	736	177	0	173	549	0	926
V/C Ratio(X)	0.95	0.00	0.70	0.85	0.85	0.41	0.78	0.00	0.79	0.99	0.00	0.56
Avail Cap(c_a), veh/h	520	0	795	62	614	749	328	0	319	549	0	926
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	39.7	0.0	25.7	56.0	46.1	19.7	49.9	0.0	50.0	39.2	0.0	14.0
Incr Delay (d2), s/veh	27.0	0.0	2.9	28.6	11.0	0.4	2.8	0.0	3.1	36.5	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.5	0.0	14.7	0.7	8.5	9.5	4.4	0.0	4.4	22.5	0.0	10.0
LnGrp Delay(d),s/veh	66.7	0.0	28.6	84.7	57.1	20.2	52.6	0.0	53.1	75.7	0.0	15.0
LnGrp LOS	E		C	F	E	C	D		D	E		B
Approach Vol, veh/h		1038			814			275			1060	
Approach Delay, s/veh		46.3			44.0			52.8			46.2	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.3	53.9		39.0	36.5	22.7		15.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	4.0	49.0		35.0	33.3	19.7		21.0
Max Q Clear Time (g_c+I1), s	3.1	30.2		36.6	32.2	17.5		10.8
Green Ext Time (p_c), s	0.0	4.1		0.0	0.3	1.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	46.2
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	119	624	435	47	81	182
Future Volume (veh/h)	119	624	435	47	81	182
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	138	726	483	52	111	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.86	0.86	0.90	0.90	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	715	1487	1320	142	145	130
Arrive On Green	0.80	0.80	0.80	0.80	0.08	0.00
Sat Flow, veh/h	866	1863	1653	178	1774	1583
Grp Volume(v), veh/h	138	726	0	535	111	0
Grp Sat Flow(s),veh/h/ln	866	1863	0	1831	1774	1583
Q Serve(g_s), s	4.1	9.7	0.0	6.2	4.6	0.0
Cycle Q Clear(g_c), s	10.3	9.7	0.0	6.2	4.6	0.0
Prop In Lane	1.00			0.10	1.00	1.00
Lane Grp Cap(c), veh/h	715	1487	0	1462	145	130
V/C Ratio(X)	0.19	0.49	0.00	0.37	0.76	0.00
Avail Cap(c_a), veh/h	715	1487	0	1462	485	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	3.6	2.5	0.0	2.2	33.7	0.0
Incr Delay (d2), s/veh	0.6	1.1	0.0	0.7	8.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	5.3	0.0	3.4	2.6	0.0
LnGrp Delay(d),s/veh	4.2	3.7	0.0	2.9	41.8	0.0
LnGrp LOS	A	A		A	D	
Approach Vol, veh/h		864	535		111	
Approach Delay, s/veh		3.7	2.9		41.8	
Approach LOS		A	A		D	

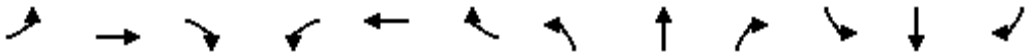
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		64.4				64.4		10.6
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		45.5				45.5		20.5
Max Q Clear Time (g_c+I1), s		12.3				8.2		6.6
Green Ext Time (p_c), s		6.8				3.6		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	551	71	0	0	0	0	40	45	46	36	0
Future Volume (vph)	48	551	71	0	0	0	0	40	45	46	36	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7						4.7	4.7	4.0	4.7	
Lane Util. Factor		1.00						0.95	1.00	1.00	1.00	
Frpb, ped/bikes		1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00						1.00	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1827						3539	1535	1770	1863	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1827						3539	1535	1770	1863	
Peak-hour factor, PHF	0.84	0.84	0.84	0.92	0.92	0.92	0.77	0.77	0.77	0.72	0.72	0.72
Adj. Flow (vph)	57	656	85	0	0	0	0	52	58	64	50	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	53	0	0	0
Lane Group Flow (vph)	0	793	0	0	0	0	0	52	5	64	50	0
Confl. Peds. (#/hr)			1						2	2		
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		49.0						7.1	7.1	5.5	7.6	
Effective Green, g (s)		49.0						7.1	7.1	5.5	7.6	
Actuated g/C Ratio		0.65						0.09	0.09	0.07	0.10	
Clearance Time (s)		4.7						4.7	4.7	4.0	4.7	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1193						335	145	129	188	
v/s Ratio Prot		c0.43						c0.01		c0.04	c0.03	
v/s Ratio Perm									0.00			
v/c Ratio		0.67						0.16	0.04	0.50	0.27	
Uniform Delay, d1		8.0						31.2	30.8	33.4	31.1	
Progression Factor		0.75						1.00	1.00	0.72	0.72	
Incremental Delay, d2		2.7						0.2	0.1	2.8	0.7	
Delay (s)		8.7						31.4	31.0	27.0	23.1	
Level of Service		A						C	C	C	C	
Approach Delay (s)		8.7			0.0			31.2			25.3	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	34	409	35	40	48	0	0	48	24
Future Volume (vph)	0	0	0	34	409	35	40	48	0	0	48	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.7		4.0	4.7			4.7	
Lane Util. Factor					1.00		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			1.00	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.96	
Flt Protected					1.00		0.95	1.00			1.00	
Satd. Flow (prot)					1835		1770	1863			1780	
Flt Permitted					1.00		0.95	1.00			1.00	
Satd. Flow (perm)					1835		1770	1863			1780	
Peak-hour factor, PHF	0.92	0.92	0.92	0.82	0.82	0.82	0.77	0.77	0.77	0.72	0.72	0.72
Adj. Flow (vph)	0	0	0	41	499	43	52	62	0	0	67	33
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	25	0
Lane Group Flow (vph)	0	0	0	0	580	0	52	62	0	0	75	0
Confl. Peds. (#/hr)				1								
Confl. Bikes (#/hr)						4						
Turn Type				Split	NA		Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)					49.0		5.0	7.1			7.6	
Effective Green, g (s)					49.0		5.0	7.1			7.6	
Actuated g/C Ratio					0.65		0.07	0.09			0.10	
Clearance Time (s)					4.7		4.0	4.7			4.7	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					1198		118	176			180	
v/s Ratio Prot					c0.32		0.03	c0.03			c0.04	
v/s Ratio Perm												
v/c Ratio					0.48		0.44	0.35			0.42	
Uniform Delay, d1					6.6		33.7	31.8			31.6	
Progression Factor					1.00		0.54	0.54			1.00	
Incremental Delay, d2					1.4		2.5	1.2			1.6	
Delay (s)					8.0		20.6	18.4			33.2	
Level of Service					A		C	B			C	
Approach Delay (s)		0.0			8.0			19.4			33.2	
Approach LOS		A			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	86.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	2.5	8.0	0.1	23
	19	3.8	48.2	0.4	32
	20	9.2	85.1	0.8	32
	4	2.6	20.6	0.2	31
Mt. Diablo Scenic Bl	7	3.2	10.8	0.1	26
Appaloosa St	11	3.7	29.7	0.3	35
	38	1.7	23.3	0.2	28
Diablo Rd	55	6.6	41.1	0.3	23
Magee Ranch Rd	8	12.1	25.3	0.1	12
Total		45.2	292.1	2.3	28

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	1.2	17.3	0.2	37
Mt. Diablo Scenic Bl	7	4.6	30.6	0.3	34
	4	1.2	9.4	0.1	30
	20	1.0	19.1	0.2	33
	19	6.9	83.1	0.8	32
	45	6.3	50.6	0.4	31
Green Valley Rd	3	42.1	47.5	0.1	4
Total		63.3	257.7	2.2	31

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	600	486	111	232	252	198	30	143	110	314	703
Average Queue (ft)	339	222	23	144	141	101	1	53	42	248	185
95th Queue (ft)	579	389	82	206	212	185	17	112	88	347	531
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)	0	0		1	1	0					
Queuing Penalty (veh)	0	0		3	2	0					
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			0	37	1	0				10	0
Queuing Penalty (veh)			0	6	2	0				40	0

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

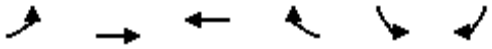
Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	98	180	126	111
Average Queue (ft)	40	62	31	54
95th Queue (ft)	78	150	85	96
Link Distance (ft)		367	1465	547
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	638	357	68	14	339	377	58	24	8	234	19	450
Future Volume (veh/h)	638	357	68	14	339	377	58	24	8	234	19	450
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1900	1900	1863	1863
Adj Flow Rate, veh/h	709	397	76	15	368	410	68	28	9	285	23	549
Adj No. of Lanes	1	1	0	1	2	1	1	1	0	0	1	1
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.85	0.85	0.85	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	747	895	171	18	629	575	97	74	24	324	26	976
Arrive On Green	0.42	0.59	0.59	0.01	0.18	0.18	0.05	0.05	0.05	0.20	0.20	0.20
Sat Flow, veh/h	1774	1520	291	1774	3539	1485	1774	1352	434	1647	133	1574
Grp Volume(v), veh/h	709	0	473	15	368	410	68	0	37	308	0	549
Grp Sat Flow(s),veh/h/ln	1774	0	1811	1774	1770	1485	1774	0	1786	1780	0	1574
Q Serve(g_s), s	41.2	0.0	15.5	0.9	10.2	19.0	4.0	0.0	2.1	18.0	0.0	21.0
Cycle Q Clear(g_c), s	41.2	0.0	15.5	0.9	10.2	19.0	4.0	0.0	2.1	18.0	0.0	21.0
Prop In Lane	1.00		0.16	1.00		1.00	1.00		0.24	0.93		1.00
Lane Grp Cap(c), veh/h	747	0	1067	18	629	575	97	0	98	350	0	976
V/C Ratio(X)	0.95	0.00	0.44	0.84	0.58	0.71	0.70	0.00	0.38	0.88	0.00	0.56
Avail Cap(c_a), veh/h	797	0	1067	83	629	575	349	0	351	350	0	976
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.8	0.0	12.2	52.8	40.3	26.9	49.6	0.0	48.7	41.7	0.0	12.0
Incr Delay (d2), s/veh	20.2	0.0	0.4	29.7	1.5	4.3	3.3	0.0	0.9	22.3	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	24.3	0.0	7.9	0.6	5.1	12.6	2.1	0.0	1.1	11.0	0.0	9.7
LnGrp Delay(d),s/veh	50.0	0.0	12.6	82.5	41.9	31.2	53.0	0.0	49.6	64.0	0.0	12.9
LnGrp LOS	D		B	F	D	C	D		D	E		B
Approach Vol, veh/h		1182			793			105			857	
Approach Delay, s/veh		35.1			37.1			51.8			31.3	
Approach LOS		D			D			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	66.9		25.0	49.0	23.0		9.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	5.0	62.0		21.0	48.0	19.0		21.0
Max Q Clear Time (g_c+I1), s	2.9	17.5		23.0	43.2	21.0		6.0
Green Ext Time (p_c), s	0.0	4.1		0.0	1.8	0.0		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	35.1
HCM 2010 LOS	D

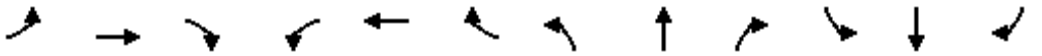
Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	414	490	66	147	143
Future Volume (veh/h)	67	414	490	66	147	143
Number	5	2	6	16	3	18
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1900	1863	1863
Adj Flow Rate, veh/h	82	505	521	70	186	0
Adj No. of Lanes	1	1	1	0	1	1
Peak Hour Factor	0.82	0.82	0.94	0.94	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	613	1396	1205	162	232	207
Arrive On Green	0.75	0.75	0.75	0.75	0.13	0.00
Sat Flow, veh/h	822	1863	1608	216	1774	1583
Grp Volume(v), veh/h	82	505	0	591	186	0
Grp Sat Flow(s),veh/h/ln	822	1863	0	1825	1774	1583
Q Serve(g_s), s	3.1	7.0	0.0	9.0	7.6	0.0
Cycle Q Clear(g_c), s	12.1	7.0	0.0	9.0	7.6	0.0
Prop In Lane	1.00			0.12	1.00	1.00
Lane Grp Cap(c), veh/h	613	1396	0	1367	232	207
V/C Ratio(X)	0.13	0.36	0.00	0.43	0.80	0.00
Avail Cap(c_a), veh/h	613	1396	0	1367	485	433
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	5.7	3.2	0.0	3.5	31.7	0.0
Incr Delay (d2), s/veh	0.5	0.7	0.0	1.0	6.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.8	0.0	4.8	4.1	0.0
LnGrp Delay(d),s/veh	6.2	4.0	0.0	4.5	38.0	0.0
LnGrp LOS	A	A		A	D	
Approach Vol, veh/h		587	591		186	
Approach Delay, s/veh		4.3	4.5		38.0	
Approach LOS		A	A		D	

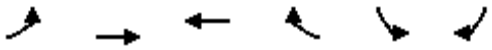
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		60.7				60.7		14.3
Change Period (Y+Rc), s		4.5				4.5		4.5
Max Green Setting (Gmax), s		45.5				45.5		20.5
Max Q Clear Time (g_c+I1), s		14.1				11.0		9.6
Green Ext Time (p_c), s		4.0				4.1		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.0
HCM 2010 LOS	A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	638	357	68	14	339	377	58	24	8	234	19	450
Future Volume (vph)	638	357	68	14	339	377	58	24	8	234	19	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	0.95	1.00	1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.96	1.00	1.00			1.00	0.99
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.96			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.96	1.00
Satd. Flow (prot)	1770	1818		1770	3539	1525	1770	1795			1780	1574
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00			0.96	1.00
Satd. Flow (perm)	1770	1818		1770	3539	1525	1770	1795			1780	1574
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.85	0.85	0.85	0.82	0.82	0.82
Adj. Flow (vph)	709	397	76	15	368	410	68	28	9	285	23	549
RTOR Reduction (vph)	0	5	0	0	0	225	0	8	0	0	0	136
Lane Group Flow (vph)	709	468	0	15	368	185	68	29	0	0	308	413
Confl. Peds. (#/hr)						22						4
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	pm+ov
Protected Phases	5	2		1	6	4	8	8		4	4	5
Permitted Phases						6						4
Actuated Green, G (s)	48.4	65.5		1.8	18.9	40.1	8.6	8.6			21.2	69.6
Effective Green, g (s)	48.4	65.5		1.8	18.9	40.1	8.6	8.6			21.2	69.6
Actuated g/C Ratio	0.43	0.58		0.02	0.17	0.35	0.08	0.08			0.19	0.62
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	4.0	3.5		2.0	3.5	4.0	1.5	1.5			4.0	4.0
Lane Grp Cap (vph)	757	1052		28	591	594	134	136			333	968
v/s Ratio Prot	c0.40	0.26		0.01	c0.10	0.06	c0.04	0.02			c0.17	0.18
v/s Ratio Perm						0.06						0.08
v/c Ratio	0.94	0.45		0.54	0.62	0.31	0.51	0.21			0.92	0.43
Uniform Delay, d1	30.9	13.5		55.2	43.8	26.5	50.2	49.1			45.2	11.3
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	19.0	0.4		9.5	2.1	0.4	1.1	0.3			30.9	0.4
Delay (s)	49.9	13.9		64.7	45.9	26.9	51.3	49.3			76.1	11.8
Level of Service	D	B		E	D	C	D	D			E	B
Approach Delay (s)		35.5			36.4			50.6			34.9	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	113.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	67	414	490	66	147	143
Future Volume (vph)	67	414	490	66	147	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	1863	1833		1770	1583
Flt Permitted	0.39	1.00	1.00		0.95	1.00
Satd. Flow (perm)	724	1863	1833		1770	1583
Peak-hour factor, PHF	0.82	0.82	0.94	0.94	0.79	0.79
Adj. Flow (vph)	82	505	521	70	186	181
RTOR Reduction (vph)	0	0	5	0	0	149
Lane Group Flow (vph)	82	505	586	0	186	32
Turn Type	Perm	NA	NA		Prot	Perm
Protected Phases		2	6		8	
Permitted Phases	2					8
Actuated Green, G (s)	52.9	52.9	52.9		13.1	13.1
Effective Green, g (s)	52.9	52.9	52.9		13.1	13.1
Actuated g/C Ratio	0.71	0.71	0.71		0.17	0.17
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	510	1314	1292		309	276
v/s Ratio Prot		0.27	c0.32		c0.11	
v/s Ratio Perm	0.11					0.02
v/c Ratio	0.16	0.38	0.45		0.60	0.11
Uniform Delay, d1	3.7	4.5	4.8		28.5	26.1
Progression Factor	1.00	1.00	0.54		1.00	1.00
Incremental Delay, d2	0.7	0.9	1.1		3.3	0.2
Delay (s)	4.3	5.3	3.7		31.8	26.3
Level of Service	A	A	A		C	C
Approach Delay (s)		5.2	3.7		29.1	
Approach LOS		A	A		C	

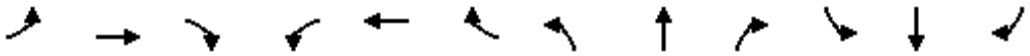
Intersection Summary			
HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	438	56	0	0	0	0	31	34	24	60	0
Future Volume (vph)	40	438	56	0	0	0	0	31	34	24	60	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7						4.7	4.7	4.0	4.7	
Lane Util. Factor		1.00						0.95	1.00	1.00	1.00	
Frpb, ped/bikes		1.00						1.00	0.97	1.00	1.00	
Flpb, ped/bikes		1.00						1.00	1.00	1.00	1.00	
Frt		0.99						1.00	0.85	1.00	1.00	
Flt Protected		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1827						3539	1533	1770	1863	
Flt Permitted		1.00						1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1827						3539	1533	1770	1863	
Peak-hour factor, PHF	0.82	0.82	0.82	0.92	0.92	0.92	0.66	0.66	0.66	0.92	0.92	0.92
Adj. Flow (vph)	49	534	68	0	0	0	0	47	52	26	65	0
RTOR Reduction (vph)	0	4	0	0	0	0	0	0	45	0	0	0
Lane Group Flow (vph)	0	647	0	0	0	0	0	47	7	26	65	0
Confl. Peds. (#/hr)			2						3	3		
Confl. Bikes (#/hr)			4									
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Actuated Green, G (s)		48.5						9.4	9.4	3.7	8.0	
Effective Green, g (s)		48.5						9.4	9.4	3.7	8.0	
Actuated g/C Ratio		0.65						0.13	0.13	0.05	0.11	
Clearance Time (s)		4.7						4.7	4.7	4.0	4.7	
Vehicle Extension (s)		3.0						3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		1181						443	192	87	198	
v/s Ratio Prot		c0.35						c0.01		0.01	c0.03	
v/s Ratio Perm									0.00			
v/c Ratio		0.55						0.11	0.03	0.30	0.33	
Uniform Delay, d1		7.3						29.1	28.8	34.4	31.0	
Progression Factor		0.75						1.00	1.00	1.11	1.10	
Incremental Delay, d2		1.8						0.1	0.1	1.8	0.9	
Delay (s)		7.2						29.2	28.9	40.1	35.1	
Level of Service		A						C	C	D	D	
Approach Delay (s)		7.2			0.0			29.0			36.5	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	58	461	44	30	41	0	0	26	22
Future Volume (vph)	0	0	0	58	461	44	30	41	0	0	26	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.7		4.0	4.7			4.7	
Lane Util. Factor					1.00		1.00	1.00			1.00	
Frpb, ped/bikes					1.00		1.00	1.00			0.99	
Flpb, ped/bikes					1.00		1.00	1.00			1.00	
Frt					0.99		1.00	1.00			0.94	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					1830		1770	1863			1723	
Flt Permitted					0.99		0.95	1.00			1.00	
Satd. Flow (perm)					1830		1770	1863			1723	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.66	0.66	0.66	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	63	501	48	45	62	0	0	28	24
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	21	0
Lane Group Flow (vph)	0	0	0	0	609	0	45	62	0	0	31	0
Confl. Peds. (#/hr)							2					2
Confl. Bikes (#/hr)						14						
Turn Type				Split	NA		Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases												
Actuated Green, G (s)					48.5		5.1	9.4			8.0	
Effective Green, g (s)					48.5		5.1	9.4			8.0	
Actuated g/C Ratio					0.65		0.07	0.13			0.11	
Clearance Time (s)					4.7		4.0	4.7			4.7	
Vehicle Extension (s)					3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)					1183		120	233			183	
v/s Ratio Prot					c0.33		c0.03	c0.03			c0.02	
v/s Ratio Perm												
v/c Ratio					0.51		0.38	0.27			0.17	
Uniform Delay, d1					7.0		33.4	29.7			30.5	
Progression Factor					1.00		0.62	0.63			1.00	
Incremental Delay, d2					1.6		1.9	0.6			0.4	
Delay (s)					8.6		22.6	19.2			30.9	
Level of Service					A		C	B			C	
Approach Delay (s)		0.0			8.6			20.7			30.9	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	13.4
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Arterial Level of Service: EB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	45	1.6	7.0	0.1	26
	19	3.1	47.5	0.4	33
	20	7.7	83.8	0.8	32
	4	2.1	20.2	0.2	31
Mt. Diablo Scenic Bl	7	3.5	11.0	0.1	26
Appaloosa St	11	3.5	29.4	0.3	35
	38	1.5	23.1	0.2	28
Diablo Rd	55	5.0	39.5	0.3	24
Magee Ranch Rd	8	7.7	21.0	0.1	14
Total		35.7	282.6	2.3	29

Arterial Level of Service: WB Diablo Rd

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	38	-	-	0.3	-
Appaloosa St	11	1.3	17.4	0.2	37
Mt. Diablo Scenic Bl	7	5.6	30.8	0.3	34
	4	1.3	9.5	0.1	30
	20	1.1	19.2	0.2	33
	19	7.2	83.3	0.8	32
	45	6.4	50.8	0.4	31
Green Valley Rd	3	42.0	47.1	0.1	4
Total		64.8	258.0	2.2	31

Intersection: 3: McCauley Rd/Green Valley Rd & Diablo Rd

Movement	EB	EB	WB	WB	WB	WB	B45	NB	NB	SB	SB
Directions Served	L	TR	L	T	T	R	T	L	TR	LT	R
Maximum Queue (ft)	526	224	99	213	272	201	130	106	64	284	182
Average Queue (ft)	317	109	18	116	130	147	6	45	19	157	71
95th Queue (ft)	489	197	66	181	236	217	61	90	48	261	141
Link Distance (ft)	874	874		202	202		2230		1118		1155
Upstream Blk Time (%)				0	2	2					
Queuing Penalty (veh)				1	7	0					
Storage Bay Dist (ft)			87			315		330		290	
Storage Blk Time (%)			0	25	2	2				1	
Queuing Penalty (veh)			0	3	8	3				2	

Intersection: 7: Diablo Rd & Mt. Diablo Scenic Blvd

Movement	EB	EB	WB	SB
Directions Served	L	T	TR	L
Maximum Queue (ft)	74	184	145	163
Average Queue (ft)	29	59	47	84
95th Queue (ft)	63	141	108	142
Link Distance (ft)		367	1465	574
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200			
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		